

# **FCC REPORT**

## **(LTE)**

**Applicant:** Neutron Holdings, Inc.

**Address of Applicant:** 85 2nd St, San Francisco, CA 94105 USA

**Equipment Under Test (EUT)**

Product Name: Central controller

Model No.: Lime-V3-US

Trade mark: Lime

**FCC ID:** 2APB2-LIME30US

**Applicable standards:** FCC CFR Title 47 Part 2  
FCC CFR Title 47 Part 22 Subpart H  
FCC CFR Title 47 Part 24 Subpart E  
FCC CFR Title 47 Part 27 Subpart L  
FCC CFR Title 47 Part 27 Subpart H  
FCC CFR Title 47 Part 27 Subpart F

**Date of sample receipt:** 21 Feb., 2021

**Date of Test:** 22 Feb., to 30 Mar., 2021

**Date of report issued:** 26 Apr., 2021

**Test Result:** PASS\*

\*In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## 2. Version

| Version No. | Date          | Description          |
|-------------|---------------|----------------------|
| 00          | 31 Mar., 2021 | Original             |
| 01          | 26 Apr., 2021 | Update pages 127~128 |
|             |               |                      |
|             |               |                      |
|             |               |                      |

**Tested by:** YT Yang **Date:** 26 Apr., 2021  
**Test Engineer**

**Reviewed by:** Winner Zhang **Date:** 26 Apr., 2021  
**Project Engineer**

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## 4. Test Summary

| Test Items                                                                                                                                                                                                                                                                                                  | Section in CFR 47                                                                                                    | Result                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| RF Exposure (SAR)                                                                                                                                                                                                                                                                                           | Part 1.1307<br>Part 2.1093                                                                                           | Passed<br>(Please refer to SAR Report) |
| RF Output Power                                                                                                                                                                                                                                                                                             | Part 2.1046<br>Part 22.913 (a)(5)<br>Part 24.232 (c)<br>Part 27.50 (c)(10)<br>Part 27.50 (d)(4)<br>Part 27.50 (h)(2) | Pass                                   |
| Peak-to-Average Ratio                                                                                                                                                                                                                                                                                       | Part 24.232 (d)<br>Part 27.50(d)(5)                                                                                  | Pass                                   |
| Modulation Characteristics                                                                                                                                                                                                                                                                                  | Part 2.1047                                                                                                          | Pass                                   |
| 99% & -26 dB Occupied Bandwidth                                                                                                                                                                                                                                                                             | Part 2.1049<br>Part 22.917(b)<br>Part 24.238(b)<br>Part 27.53(g)<br>Part 27.53(h)<br>Part 27.53(m)                   | Pass                                   |
| Out of band emission at antenna terminals                                                                                                                                                                                                                                                                   | Part 2.1053<br>Part 22.917(a)<br>Part 24.238 (a)<br>Part 27.53 (g)<br>Part 27.53 (h)<br>Part 27.53(m)                | Pass                                   |
| Field strength of spurious radiation                                                                                                                                                                                                                                                                        | Part 22.917(a)<br>Part 24.238 (a)<br>Part 27.53 (g)<br>Part 27.53 (h)<br>Part 27.53(m)                               | Pass                                   |
| Frequency stability vs. temperature                                                                                                                                                                                                                                                                         | Part 22.355<br>Part 24.235<br>Part 27.54<br>Part 2.1055(a)(1)(b)                                                     | Pass                                   |
| Frequency stability vs. voltage                                                                                                                                                                                                                                                                             | Part 22.355<br>Part 24.235<br>Part 27.54<br>Part 2.1055(d)(2)                                                        | Pass                                   |
| <b>Remark:</b><br>1. Pass: The EUT complies with the essential requirements in the standard.<br>2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB(Fundamental Frequency below 1GHz)/1.0dB(Fundamental Frequency above 1GHz) (provided by the customer). |                                                                                                                      |                                        |
| <b>Test Method:</b>                                                                                                                                                                                                                                                                                         | ANSI/TIA-603-E-2016<br>ANSI C63.26-2015                                                                              |                                        |

## 5. General Information

### 5.1 Client Information

|                        |                                                                                                                       |
|------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Applicant:             | Neutron Holdings, Inc.                                                                                                |
| Address:               | 85 2nd St, San Francisco, CA 94105 USA                                                                                |
| Manufacturer/ Factory: | Quectel Wireless Solutions Co., Ltd.                                                                                  |
| Address:               | Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China |

### 5.2 General Description of E.U.T.

|                                               |                                                                                                  |                                           |                                           |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|
| Product Name:                                 | Central controller                                                                               |                                           |                                           |
| Model No.:                                    | Lime-V3-US                                                                                       |                                           |                                           |
| Operation Frequency range:                    | LTE Band 2:                                                                                      | TX: 1850MHz-1910MHz                       | RX: 1930MHz-1990MHz                       |
|                                               | LTE Band 4:                                                                                      | TX: 1710MHz-1755MHz                       | RX: 2110MHz-2155MHz                       |
|                                               | LTE Band 5:                                                                                      | TX: 824MHz-849MHz                         | RX: 869MHz-894MHz                         |
|                                               | LTE Band 12:                                                                                     | TX: 699MHz-716MHz                         | RX: 729MHz-746MHz                         |
|                                               | LTE Band 13:                                                                                     | TX: 777MHz-787MHz                         | RX: 746MHz-756MHz                         |
| Modulation type:                              | <input checked="" type="checkbox"/> QPSK                                                         | <input checked="" type="checkbox"/> 16QAM | <input checked="" type="checkbox"/> 64QAM |
| Antenna type:                                 | Internal Antenna                                                                                 |                                           |                                           |
| Antenna gain:                                 | LTE Band 2:                                                                                      | 3.82 dBi(declare by Applicant)            |                                           |
|                                               | LTE Band 4:                                                                                      | 4.64 dBi(declare by Applicant)            |                                           |
|                                               | LTE Band 5:                                                                                      | 1.72 dBi(declare by Applicant)            |                                           |
|                                               | LTE Band 12:                                                                                     | -2.12 dBi(declare by Applicant)           |                                           |
|                                               | LTE Band 13:                                                                                     | 0.47 dBi(declare by Applicant)            |                                           |
| Power supply:                                 | Rechargeable Li-ion Battery DC3.7V, 1250mAh                                                      |                                           |                                           |
| AC adapter:                                   | DC 36V                                                                                           |                                           |                                           |
| Test Sample Condition:                        | The applicant provided engineering samples for staying in continuously transmitting for testing. |                                           |                                           |
| Remark: This product belongs to CAT1 category |                                                                                                  |                                           |                                           |

**Operation Frequency List:**

| LTE Band 2 (1.4MHz) |                 | LTE Band 2 (3MHz)  |                 |
|---------------------|-----------------|--------------------|-----------------|
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 18607               | 1850.70         | 18615              | 1851.50         |
| 18608               | 1850.80         | 18616              | 1851.60         |
| ....                | ....            | ....               | ....            |
| 18899               | 1879.90         | 18899              | 1879.90         |
| 18900               | 1880.00         | 18900              | 1880.00         |
| 18901               | 1880.10         | 18901              | 1880.10         |
| ...                 | ...             | ...                | ...             |
| 19193               | 1909.20         | 19185              | 1908.40         |
| 19194               | 1909.30         | 19186              | 1908.50         |
| LTE Band 2 (5MHz)   |                 | LTE Band 2 (10MHz) |                 |
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 18625               | 1852.50         | 18650              | 1855.00         |
| 18626               | 1852.60         | 18651              | 1855.10         |
| ....                | ....            | ....               | ....            |
| 18899               | 1879.90         | 18899              | 1879.90         |
| 18900               | 1880.00         | 18900              | 1880.00         |
| 18901               | 1880.10         | 18901              | 1880.10         |
| ...                 | ...             | ...                | ...             |
| 19175               | 1907.40         | 19150              | 1904.90         |
| 19176               | 1907.50         | 19151              | 1905.00         |
| LTE Band 2 (15MHz)  |                 | LTE Band 2 (20MHz) |                 |
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 18675               | 1857.50         | 18700              | 1860.00         |
| 18676               | 1857.60         | 18701              | 1860.10         |
| ....                | ....            | ....               | ....            |
| 18899               | 1879.90         | 18899              | 1879.90         |
| 18900               | 1880.00         | 18900              | 1880.00         |
| 18901               | 1880.10         | 18901              | 1880.10         |
| ...                 | ...             | ...                | ...             |
| 19125               | 1902.40         | 19100              | 1899.90         |
| 19126               | 1902.50         | 19101              | 1900.00         |

| LTE Band 4 (1.4MHz) |                 | LTE Band 4 (3MHz)  |                 |
|---------------------|-----------------|--------------------|-----------------|
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 19957               | 1710.70         | 19965              | 1711.50         |
| 19958               | 1710.80         | 19966              | 1711.60         |
| ....                | ....            | ....               | ....            |
| 20174               | 1732.40         | 20174              | 1732.40         |
| 20175               | 1732.50         | 20175              | 1732.50         |
| 20176               | 1732.60         | 20176              | 1732.60         |
| ...                 | ...             | ...                | ...             |
| 20392               | 1754.20         | 20384              | 1753.40         |
| 20393               | 1754.30         | 20385              | 1753.50         |
| LTE Band 4 (5MHz)   |                 | LTE Band 4 (10MHz) |                 |
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 19975               | 1712.50         | 20000              | 1715.00         |
| 19976               | 1712.60         | 20001              | 1715.10         |
| ....                | ....            | ....               | ....            |
| 20174               | 1732.40         | 20174              | 1732.40         |
| 20175               | 1732.50         | 20175              | 1732.50         |
| 20176               | 1732.60         | 20176              | 1732.60         |
| ...                 | ...             | ...                | ...             |
| 20374               | 1752.40         | 20349              | 1749.90         |
| 20375               | 1752.50         | 20350              | 1750.00         |
| LTE Band 4 (15MHz)  |                 | LTE Band 4 (20MHz) |                 |
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 20025               | 1717.50         | 20050              | 1720.00         |
| 20026               | 1717.60         | 20051              | 1720.10         |
| ....                | ....            | ....               | ....            |
| 20174               | 1732.40         | 20174              | 1732.40         |
| 20175               | 1732.50         | 20175              | 1732.50         |
| 20176               | 1732.60         | 20176              | 1732.60         |
| ...                 | ...             | ...                | ...             |
| 20324               | 1747.40         | 20299              | 1744.90         |
| 20325               | 1747.50         | 20300              | 1745.00         |

| LTE Band 5 (1.4MHz) |                 | LTE Band 5 (3MHz)  |                 |
|---------------------|-----------------|--------------------|-----------------|
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 20407               | 824.70          | 20415              | 825.50          |
| 20408               | 824.80          | 20416              | 825.60          |
| ....                | ....            | ....               | ....            |
| 20524               | 836.40          | 20524              | 836.40          |
| 20525               | 836.50          | 20525              | 836.50          |
| 20526               | 836.60          | 20526              | 836.60          |
| ...                 | ...             | ...                | ...             |
| 20642               | 848.20          | 20634              | 847.40          |
| 20643               | 848.30          | 20635              | 847.50          |
| LTE Band 5 (5MHz)   |                 | LTE Band 5 (10MHz) |                 |
| Channel             | Frequency (MHz) | Channel            | Frequency (MHz) |
| 20425               | 826.50          | 20450              | 829.00          |
| 20426               | 826.60          | 20451              | 829.10          |
| ....                | ....            | ....               | ....            |
| 20524               | 836.40          | 20524              | 836.40          |
| 20525               | 836.50          | 20525              | 836.50          |
| 20526               | 836.60          | 20526              | 836.60          |
| ...                 | ...             | ...                | ...             |
| 20624               | 846.40          | 20599              | 839.90          |
| 20625               | 846.50          | 20600              | 844.00          |

| LTE Band 12 (1.4MHz) |                 | LTE Band 12 (3MHz)  |                 |
|----------------------|-----------------|---------------------|-----------------|
| Channel              | Frequency (MHz) | Channel             | Frequency (MHz) |
| 23017                | 699.70          | 23025               | 700.50          |
| 23756                | 699.80          | 23026               | 700.60          |
| ....                 | ....            | ....                | ....            |
| 23094                | 707.40          | 23094               | 707.40          |
| 23095                | 707.50          | 23095               | 707.50          |
| 23096                | 707.60          | 23096               | 707.60          |
| ...                  | ...             | ...                 | ...             |
| 23172                | 715.20          | 23164               | 714.40          |
| 23173                | 715.30          | 23165               | 714.50          |
| LTE Band 12 (5MHz)   |                 | LTE Band 12 (10MHz) |                 |
| Channel              | Frequency (MHz) | Channel             | Frequency (MHz) |
| 23035                | 701.50          | 23060               | 704.00          |
| 23036                | 701.60          | 23061               | 704.10          |
| ....                 | ....            | ....                | ....            |
| 23094                | 707.40          | 23094               | 707.40          |
| 23095                | 707.50          | 23095               | 707.50          |
| 23096                | 707.60          | 23096               | 707.60          |
| ...                  | ...             | ...                 | ...             |
| 23154                | 713.40          | 23129               | 710.90          |
| 23155                | 713.50          | 23130               | 711.00          |



| LTE Band 13 (5MHz) |                 | LTE Band 13 (10MHz) |                 |
|--------------------|-----------------|---------------------|-----------------|
| Channel            | Frequency (MHz) | Channel             | Frequency (MHz) |
| 23205              | 779.50          | /                   | /               |
| 23206              | 779.60          | /                   | /               |
| ....               | ....            | /                   | /               |
| 23229              | 781.90          | /                   | /               |
| 23230              | 782.00          | 23230               | 782.00          |
| 23231              | 782.10          | /                   | /               |
| ...                | ...             | /                   | /               |
| 23255              | 784.50          | /                   | /               |
| 23256              | 784.60          | /                   | /               |

Regards to the operating frequency range, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels as below:

| LTE Band 2 (1.4MHz) |       |                 | LTE Band 2 (3MHz)  |       |                 |
|---------------------|-------|-----------------|--------------------|-------|-----------------|
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 18607 | 1850.70         | Lowest channel     | 18615 | 1851.50         |
| Middle channel      | 18900 | 1880.00         | Middle channel     | 18900 | 1880.00         |
| Highest channel     | 19193 | 1909.30         | Highest channel    | 19185 | 1908.50         |
| LTE Band 2 (5MHz)   |       |                 | LTE Band 2 (10MHz) |       |                 |
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 18625 | 1852.50         | Lowest channel     | 18650 | 1855.00         |
| Middle channel      | 18900 | 1880.00         | Middle channel     | 18900 | 1880.00         |
| Highest channel     | 19175 | 1907.50         | Highest channel    | 19150 | 1905.00         |
| LTE Band 2 (15MHz)  |       |                 | LTE Band 2 (20MHz) |       |                 |
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 18675 | 1857.50         | Lowest channel     | 18700 | 1860.00         |
| Middle channel      | 18900 | 1880.00         | Middle channel     | 18900 | 1880.00         |
| Highest channel     | 19125 | 1902.50         | Highest channel    | 19100 | 1900.00         |

| LTE Band 4 (1.4MHz) |       |                 | LTE Band 4 (3MHz)  |       |                 |
|---------------------|-------|-----------------|--------------------|-------|-----------------|
| Channel:            |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 19957 | 1710.70         | Lowest channel     | 19965 | 1711.50         |
| Middle channel      | 20175 | 1732.50         | Middle channel     | 20175 | 1732.50         |
| Highest channel     | 20393 | 1754.30         | Highest channel    | 20385 | 1753.50         |
| LTE Band 4 (5MHz)   |       |                 | LTE Band 4 (10MHz) |       |                 |
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 19975 | 1712.50         | Lowest channel     | 20000 | 1715.00         |
| Middle channel      | 20175 | 1732.50         | Middle channel     | 20175 | 1732.50         |
| Highest channel     | 20375 | 1752.50         | Highest channel    | 20350 | 1750.00         |
| LTE Band 4 (15MHz)  |       |                 | LTE Band 4 (20MHz) |       |                 |
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 20025 | 1717.50         | Lowest channel     | 20050 | 1720.00         |
| Middle channel      | 20175 | 1732.50         | Middle channel     | 20175 | 1732.50         |
| Highest channel     | 20325 | 1747.50         | Highest channel    | 20300 | 1745.00         |

| LTE Band 5 (1.4MHz) |       |                 | LTE Band 5 (3MHz)  |       |                 |
|---------------------|-------|-----------------|--------------------|-------|-----------------|
| Channel:            |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 20407 | 824.70          | Lowest channel     | 20415 | 825.50          |
| Middle channel      | 20525 | 836.50          | Middle channel     | 20525 | 836.50          |
| Highest channel     | 20643 | 848.30          | Highest channel    | 20635 | 847.50          |
| LTE Band 5 (5MHz)   |       |                 | LTE Band 5 (10MHz) |       |                 |
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 20425 | 826.50          | Lowest channel     | 20450 | 829.00          |
| Middle channel      | 20525 | 836.50          | Middle channel     | 20525 | 836.50          |
| Highest channel     | 20625 | 846.50          | Highest channel    | 20600 | 844.00          |

| LTE Band 12(1.4MHz) |       |                 | LTE Band 12(3MHz)  |       |                 |
|---------------------|-------|-----------------|--------------------|-------|-----------------|
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 23017 | 699.70          | Lowest channel     | 23025 | 700.50          |
| Middle channel      | 23095 | 707.50          | Middle channel     | 23095 | 707.50          |
| Highest channel     | 23173 | 715.30          | Highest channel    | 23165 | 714.50          |
| LTE Band 12(5MHz)   |       |                 | LTE Band 12(10MHz) |       |                 |
| Channel             |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel      | 23035 | 701.50          | Lowest channel     | 23060 | 704.00          |
| Middle channel      | 23095 | 707.50          | Middle channel     | 23095 | 707.50          |
| Highest channel     | 23155 | 713.50          | Highest channel    | 23130 | 711.00          |

| LTE Band 13(5MHz) |       |                 | LTE Band 13(10MHz) |       |                 |
|-------------------|-------|-----------------|--------------------|-------|-----------------|
| Channel           |       | Frequency (MHz) | Channel            |       | Frequency (MHz) |
| Lowest channel    | 23205 | 779.5           | Lowest channel     | /     | /               |
| Middle channel    | 23230 | 782.0           | Middle channel     | 23230 | 782.00          |
| Highest channel   | 23255 | 784.5           | Highest channel    | /     | /               |

### 5.3 Test environment and mode, and test samples plans

| Operating Environment:                                                                                                                                                                                                                                                                                                                                                           |                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Temperature:                                                                                                                                                                                                                                                                                                                                                                     | Normal: 15°C ~ 35°C, Extreme: -30°C ~ +50°C                      |
| Humidity:                                                                                                                                                                                                                                                                                                                                                                        | 20 % ~ 75 % RH                                                   |
| Atmospheric Pressure:                                                                                                                                                                                                                                                                                                                                                            | 1008 mbar                                                        |
| Voltage:                                                                                                                                                                                                                                                                                                                                                                         | Nominal: 3.7Vdc, Extreme: Low 3.5Vdc, High 4.2Vdc                |
| Test mode:                                                                                                                                                                                                                                                                                                                                                                       |                                                                  |
| LTE QPSK mode                                                                                                                                                                                                                                                                                                                                                                    | Keep the EUT communication with simulated station in QPSK mode   |
| LTE 16-QAM mode                                                                                                                                                                                                                                                                                                                                                                  | Keep the EUT communication with simulated station in 16-QAM mode |
| Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report. |                                                                  |
| Test Samples Plans:                                                                                                                                                                                                                                                                                                                                                              |                                                                  |
| Samples Number                                                                                                                                                                                                                                                                                                                                                                   | Used for Test Items                                              |
| 1#                                                                                                                                                                                                                                                                                                                                                                               | Conducted measurements test method                               |
| 2#                                                                                                                                                                                                                                                                                                                                                                               | Radiated measurements test method                                |
| 3#                                                                                                                                                                                                                                                                                                                                                                               | EUT constructional details                                       |
| Remark: JianYan Testing Group Shenzhen Co., Ltd. is only responsible for the test project data of the above samples, and will keep the above samples for a month.                                                                                                                                                                                                                |                                                                  |

### 5.4 Description of Support Units

| Test Equipment    | Manufacturer | Model No. | Serial No. |
|-------------------|--------------|-----------|------------|
| Simulated Station | Anritsu      | MT8820C   | 6201026545 |

### 5.5 Measurement Uncertainty

| Parameters                          | Expanded Uncertainty |
|-------------------------------------|----------------------|
| Radiated Emission (9kHz ~ 30MHz)    | ±3.12 dB (k=2)       |
| Radiated Emission (30MHz ~ 1000MHz) | ±4.32 dB (k=2)       |
| Radiated Emission (1GHz ~ 18GHz)    | ±5.16 dB (k=2)       |
| Radiated Emission (18GHz ~ 40GHz)   | ±3.20 dB (k=2)       |

### 5.6 Related Submittal(s) / Grant (s)

|                                                              |
|--------------------------------------------------------------|
| This is an original grant, no related submittals and grants. |
|--------------------------------------------------------------|

### 5.7 Additions to, deviations, or exclusions from the method

|    |
|----|
| No |
|----|

### 5.8 Laboratory Facility

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> <li>● <b>FCC - Designation No.: CN1211</b><br/>JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 727551.</li> <li>● <b>ISED – CAB identifier.: CN0021</b><br/>The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.</li> <li>● <b>A2LA - Registration No.: 4346.01</b><br/>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <a href="https://portal.a2la.org/scopepdf/4346-01.pdf">https://portal.a2la.org/scopepdf/4346-01.pdf</a></li> </ul> |
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## 5.9 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

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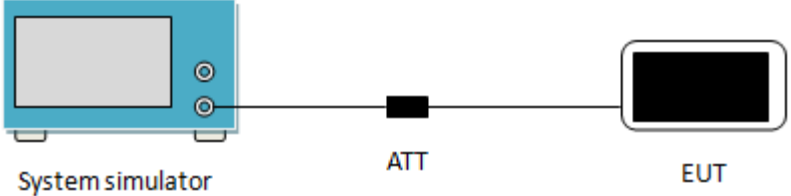
Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

## 5.10 Test Instruments list

| Test Equipment               | Manufacturer    | Model No.     | Serial No.         | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
|------------------------------|-----------------|---------------|--------------------|----------------------|--------------------------|
| 3m SAC                       | ETS             | 9m*6m*6m      | 966                | 01-19-2021           | 01-18-2024               |
| BiConiLog Antenna            | SCHWARZBECK     | VULB9163      | 497                | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Biconical Antenna            | SCHWARZBECK     | VUBA9117      | 359                | 06-18-2020           | 06-17-2021               |
| Horn Antenna                 | SCHWARZBECK     | BBHA9120D     | 916                | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Horn Antenna                 | SCHWARZBECK     | BBHA9120D     | 1805               | 06-18-2020           | 06-17-2021               |
| Horn Antenna                 | SCHWARZBECK     | BBHA 9170     | BBHA9170582        | 11-18-2020           | 11-17-2021               |
| EMI Test Software            | AUDIX           | E3            | Version: 6.110919b |                      |                          |
| Pre-amplifier                | HP              | 8447D         | 2944A09358         | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Pre-amplifier                | CD              | PAP-1G18      | 11804              | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Spectrum analyzer            | Rohde & Schwarz | FSP30         | 101454             | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Spectrum analyzer            | Rohde & Schwarz | FSP40         | 100363             | 11-18-2020           | 11-17-2021               |
| EMI Test Receiver            | Rohde & Schwarz | ESRP7         | 101070             | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Spectrum Analyzer            | Agilent         | N9020A        | MY50510123         | 11-18-2020           | 11-17-2021               |
| Signal Generator             | Rohde & Schwarz | SMX           | 835454/016         | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Signal Generator             | R&S             | SMR20         | 1008100050         | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| RF Switch Unit               | MWRFTTEST       | MW200         | N/A                | N/A                  | N/A                      |
| Test Software                | MWRFTTEST       | MTS8200       | Version: 2.0.0.0   |                      |                          |
| Cable                        | ZDECL           | Z108-NJ-NJ-81 | 1608458            | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Cable                        | MICRO-COAX      | MFR64639      | K10742-5           | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| Cable                        | SUHNER          | SUCOFLEX100   | 58193/4PE          | 03-03-2020           | 03-02-2021               |
|                              |                 |               |                    | 03-03-2021           | 03-02-2022               |
| DC Power Supply              | XinNuoEr        | WYK-10020K    | 1409050110020      | 09-25-2020           | 09-24-2021               |
| Temperature Humidity Chamber | HengPu          | HPGDS-500     | 20140828008        | 11-01-2020           | 10-31-2021               |
| Simulated Station            | Rohde & Schwarz | CMW500        | 140493             | 07-22-2020           | 07-21-2021               |

## 6. Test results

### 6.1 Conducted Output Power, ERP and EIRP

|                   |                                                                                                                                                                                                                                                                                                                                                |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 22.913(a)(5), Part 24.232(c), part 27.50(c)(10), Part 27.50(d)(4), Part 27.50 (h)(2)                                                                                                                                                                                                                                                      |
| Limit:            | LTE Band 2: 2W, LTE Band 4: 1W, LTE Band 5: 7W, LTE Band 13: 3W, LTE Band 12: 3W, LTE Band 17: 3W                                                                                                                                                                                                                                              |
| Test Setup:       |  <p>The diagram illustrates the test setup. On the left is a blue box labeled 'System simulator'. A line connects it to a black box labeled 'ATT' (attenuator). Another line connects the 'ATT' box to a black box labeled 'EUT' (Equipment Under Test).</p> |
| Test Procedure:   | The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the CMW500. Transmitter output power was read off in dBm.                                                                                                                                                                             |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                              |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                               |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                         |

**Measurement Data:**

| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|--------------------------------------------------------------|-----------------|---------------------|---------|-----------|---------------------|-----------|-----------|--|
|                                                              |                 |                     |         |           | 18607               | 18900     | 19193     |  |
|                                                              |                 |                     |         |           | 1850.7MHz           | 1880.0MHz | 1909.3MHz |  |
| 2                                                            | 1.4             | QPSK                | 1       | 0         | 22.46               | 22.89     | 22.74     |  |
|                                                              |                 |                     | 1       | 2         | 22.33               | 22.64     | 22.63     |  |
|                                                              |                 |                     | 1       | 5         | 22.26               | 22.53     | 22.52     |  |
|                                                              |                 |                     | 3       | 0         | 22.34               | 22.51     | 22.41     |  |
|                                                              |                 |                     | 3       | 1         | 22.21               | 22.23     | 22.43     |  |
|                                                              |                 |                     | 3       | 2         | 22.24               | 22.40     | 22.41     |  |
|                                                              |                 |                     | 6       | 0         | 22.03               | 22.04     | 22.06     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.71     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.26               | 22.41     | 22.36     |  |
|                                                              |                 |                     | 1       | 2         | 22.14               | 22.16     | 22.35     |  |
|                                                              |                 |                     | 1       | 5         | 22.23               | 22.35     | 22.34     |  |
|                                                              |                 |                     | 3       | 0         | 22.15               | 22.19     | 22.26     |  |
|                                                              |                 |                     | 3       | 1         | 22.13               | 22.11     | 22.24     |  |
|                                                              |                 |                     | 3       | 2         | 22.10               | 22.03     | 22.14     |  |
|                                                              |                 |                     | 6       | 0         | 21.89               | 21.74     | 21.63     |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 3.82      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 26.23     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 33.00     |                     |           |           |  |
|                                                              |                 |                     |         |           |                     |           |           |  |
| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|                                                              |                 |                     |         |           | 18615               | 18900     | 19185     |  |
|                                                              |                 |                     |         |           | 1851.5MHz           | 1880.0MHz | 1908.5MHz |  |
| 2                                                            | 3               | QPSK                | 1       | 0         | 22.63               | 22.74     | 22.67     |  |
|                                                              |                 |                     | 1       | 7         | 22.47               | 22.45     | 22.64     |  |
|                                                              |                 |                     | 1       | 14        | 22.36               | 22.53     | 22.43     |  |
|                                                              |                 |                     | 8       | 0         | 22.32               | 22.51     | 22.16     |  |
|                                                              |                 |                     | 8       | 4         | 22.15               | 22.34     | 22.10     |  |
|                                                              |                 |                     | 8       | 7         | 22.16               | 22.16     | 22.16     |  |
|                                                              |                 |                     | 15      | 0         | 22.10               | 22.16     | 22.18     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.56     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.46               | 22.44     | 22.62     |  |
|                                                              |                 |                     | 1       | 7         | 22.31               | 22.23     | 22.43     |  |
|                                                              |                 |                     | 1       | 14        | 22.23               | 22.16     | 22.19     |  |
|                                                              |                 |                     | 8       | 0         | 22.32               | 22.10     | 22.34     |  |
|                                                              |                 |                     | 8       | 4         | 22.16               | 22.15     | 22.23     |  |
|                                                              |                 |                     | 8       | 7         | 22.10               | 22.13     | 22.21     |  |
|                                                              |                 |                     | 15      | 0         | 22.04               | 22.03     | 22.25     |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 3.82      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 26.56     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 33.00     |                     |           |           |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). |                 |                     |         |           |                     |           |           |  |

| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|--------------------------------------------------------------|-----------------|---------------------|---------|-----------|---------------------|-----------|-----------|--|
|                                                              |                 |                     |         |           | 18625               | 18900     | 19175     |  |
|                                                              |                 |                     |         |           | 1852.5MHz           | 1880.0MHz | 1907.5MHz |  |
| 2                                                            | 5               | QPSK                | 1       | 0         | 22.59               | 22.68     | 22.61     |  |
|                                                              |                 |                     | 1       | 12        | 22.41               | 22.56     | 22.23     |  |
|                                                              |                 |                     | 1       | 24        | 22.23               | 22.51     | 22.44     |  |
|                                                              |                 |                     | 12      | 0         | 22.16               | 22.26     | 22.21     |  |
|                                                              |                 |                     | 12      | 6         | 22.23               | 22.13     | 22.23     |  |
|                                                              |                 |                     | 12      | 11        | 22.25               | 22.02     | 22.20     |  |
|                                                              |                 |                     | 25      | 0         | 22.19               | 22.12     | 22.19     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.50     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.47               | 22.56     | 22.54     |  |
|                                                              |                 |                     | 1       | 12        | 22.36               | 22.52     | 22.32     |  |
|                                                              |                 |                     | 1       | 24        | 22.35               | 22.51     | 22.17     |  |
|                                                              |                 |                     | 12      | 0         | 22.31               | 22.33     | 22.20     |  |
|                                                              |                 |                     | 12      | 6         | 22.35               | 22.14     | 22.23     |  |
|                                                              |                 |                     | 12      | 11        | 22.26               | 22.21     | 22.14     |  |
|                                                              |                 |                     | 25      | 0         | 22.19               | 22.14     | 22.10     |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 3.82      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 26.50     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 33.00     |                     |           |           |  |
|                                                              |                 |                     |         |           |                     |           |           |  |
| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|                                                              |                 |                     |         |           | 18650               | 18900     | 19150     |  |
|                                                              |                 |                     |         |           | 1855.0MHz           | 1880.0MHz | 1905.0MHz |  |
| 2                                                            | 10              | QPSK                | 1       | 0         | 22.40               | 22.63     | 22.69     |  |
|                                                              |                 |                     | 1       | 24        | 22.31               | 22.51     | 22.41     |  |
|                                                              |                 |                     | 1       | 49        | 22.20               | 22.43     | 22.33     |  |
|                                                              |                 |                     | 25      | 0         | 22.16               | 22.29     | 22.25     |  |
|                                                              |                 |                     | 25      | 12        | 22.15               | 22.25     | 22.16     |  |
|                                                              |                 |                     | 25      | 24        | 22.19               | 22.21     | 22.13     |  |
|                                                              |                 |                     | 50      | 0         | 22.10               | 22.03     | 22.00     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.51     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.29               | 22.43     | 22.62     |  |
|                                                              |                 |                     | 1       | 24        | 22.16               | 22.21     | 22.32     |  |
|                                                              |                 |                     | 1       | 49        | 22.14               | 22.23     | 22.25     |  |
|                                                              |                 |                     | 12      | 0         | 22.10               | 22.19     | 22.46     |  |
|                                                              |                 |                     | 12      | 19        | 22.19               | 22.22     | 22.13     |  |
|                                                              |                 |                     | 12      | 38        | 22.02               | 22.13     | 22.05     |  |
|                                                              |                 |                     | 50      | 0         | /                   | /         | /         |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 3.82      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 26.44     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 33.00     |                     |           |           |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). |                 |                     |         |           |                     |           |           |  |



| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|--------------------------------------------------------------|-----------------|---------------------|---------|-----------|---------------------|-----------|-----------|--|
|                                                              |                 |                     |         |           | 18675               | 18900     | 19125     |  |
|                                                              |                 |                     |         |           | 1857.5MHz           | 1880.0MHz | 1902.5MHz |  |
| 2                                                            | 15              | QPSK                | 1       | 0         | 22.62               | 22.79     | 22.74     |  |
|                                                              |                 |                     | 1       | 37        | 22.32               | 22.41     | 22.69     |  |
|                                                              |                 |                     | 1       | 74        | 22.14               | 22.36     | 22.62     |  |
|                                                              |                 |                     | 36      | 0         | 22.16               | 22.65     | 22.53     |  |
|                                                              |                 |                     | 36      | 16        | 22.26               | 22.52     | 22.54     |  |
|                                                              |                 |                     | 36      | 35        | 22.35               | 22.16     | 22.51     |  |
|                                                              |                 |                     | 75      | 0         | 22.11               | 22.03     | 22.29     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.61     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.47               | 22.49     | 22.56     |  |
|                                                              |                 |                     | 1       | 37        | 22.36               | 22.74     | 22.54     |  |
|                                                              |                 |                     | 1       | 74        | 22.32               | 22.36     | 22.36     |  |
|                                                              |                 |                     | 16      | 0         | 22.16               | 22.25     | 22.41     |  |
|                                                              |                 |                     | 16      | 30        | 22.15               | 22.06     | 22.26     |  |
|                                                              |                 |                     | 16      | 59        | 22.03               | 22.13     | 22.16     |  |
|                                                              |                 |                     | 75      | 0         | /                   | /         | /         |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.56     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
|                                                              |                 |                     |         |           |                     |           |           |  |
| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|                                                              |                 |                     |         |           | 18700               | 18900     | 19100     |  |
|                                                              |                 |                     |         |           | 1860.0MHz           | 1880.0MHz | 1900.0MHz |  |
| 2                                                            | 20              | QPSK                | 1       | 0         | 22.63               | 22.47     | 22.69     |  |
|                                                              |                 |                     | 1       | 49        | 22.61               | 22.36     | 22.54     |  |
|                                                              |                 |                     | 1       | 99        | 22.35               | 22.35     | 22.51     |  |
|                                                              |                 |                     | 50      | 0         | 22.34               | 22.33     | 22.33     |  |
|                                                              |                 |                     | 50      | 24        | 22.26               | 22.25     | 22.32     |  |
|                                                              |                 |                     | 50      | 49        | 22.17               | 22.21     | 22.19     |  |
|                                                              |                 |                     | 100     | 0         | /                   | /         | /         |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.51     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.41               | 22.44     | 22.17     |  |
|                                                              |                 |                     | 1       | 49        | 22.43               | 22.38     | 22.16     |  |
|                                                              |                 |                     | 1       | 99        | 22.29               | 22.38     | 22.35     |  |
|                                                              |                 |                     | 18      | 0         | 22.52               | 22.36     | 22.32     |  |
|                                                              |                 |                     | 18      | 41        | 22.56               | 22.35     | 22.31     |  |
|                                                              |                 |                     | 18      | 82        | 22.51               | 22.12     | 22.10     |  |
|                                                              |                 |                     | 100     | 0         | /                   | /         | /         |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 3.82      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 26.38     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 33.00     |           |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). |                 |                     |         |           |                     |           |           |  |

| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|--------------------------------------------------------------|-----------------|---------------------|---------|-----------|---------------------|-----------|-----------|--|
|                                                              |                 |                     |         |           | 19957               | 20175     | 20393     |  |
|                                                              |                 |                     |         |           | 1710.7MHz           | 1732.5MHz | 1754.3MHz |  |
| 4                                                            | 1.4             | QPSK                | 1       | 0         | 22.49               | 22.56     | 22.32     |  |
|                                                              |                 |                     | 1       | 2         | 22.41               | 22.53     | 22.25     |  |
|                                                              |                 |                     | 1       | 5         | 22.32               | 22.15     | 22.16     |  |
|                                                              |                 |                     | 3       | 0         | 22.15               | 22.34     | 22.23     |  |
|                                                              |                 |                     | 3       | 1         | 22.36               | 22.12     | 22.35     |  |
|                                                              |                 |                     | 3       | 2         | 22.15               | 22.19     | 22.14     |  |
|                                                              |                 |                     | 6       | 0         | 22.06               | 22.09     | 22.06     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.20     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 30.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.34               | 22.21     | 22.03     |  |
|                                                              |                 |                     | 1       | 2         | 22.32               | 22.06     | 22.11     |  |
|                                                              |                 |                     | 1       | 5         | 22.45               | 22.14     | 22.13     |  |
|                                                              |                 |                     | 3       | 0         | 22.16               | 22.03     | 22.00     |  |
|                                                              |                 |                     | 3       | 1         | 22.03               | 22.02     | 22.02     |  |
|                                                              |                 |                     | 3       | 2         | 22.12               | 22.13     | 22.03     |  |
|                                                              |                 |                     | 6       | 0         | 21.89               | 21.73     | 21.87     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.09     |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 30.00     |                     |           |           |  |
|                                                              |                 |                     |         |           |                     |           |           |  |
| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|                                                              |                 |                     |         |           | 19965               | 20175     | 20385     |  |
|                                                              |                 |                     |         |           | 1711.5MHz           | 1732.5MHz | 1753.5MHz |  |
| 4                                                            | 3               | QPSK                | 1       | 0         | 22.56               | 22.46     | 22.43     |  |
|                                                              |                 |                     | 1       | 7         | 22.62               | 22.36     | 22.15     |  |
|                                                              |                 |                     | 1       | 14        | 22.34               | 22.41     | 22.36     |  |
|                                                              |                 |                     | 8       | 0         | 22.25               | 22.29     | 22.34     |  |
|                                                              |                 |                     | 8       | 4         | 22.13               | 22.43     | 22.25     |  |
|                                                              |                 |                     | 8       | 7         | 22.20               | 22.13     | 22.13     |  |
|                                                              |                 |                     | 15      | 0         | 22.16               | 22.26     | 22.20     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.26     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 30.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.54               | 22.43     | 22.41     |  |
|                                                              |                 |                     | 1       | 7         | 22.56               | 22.21     | 22.36     |  |
|                                                              |                 |                     | 1       | 14        | 22.34               | 22.23     | 22.32     |  |
|                                                              |                 |                     | 8       | 0         | 22.48               | 22.43     | 22.26     |  |
|                                                              |                 |                     | 8       | 4         | 22.43               | 22.36     | 22.21     |  |
|                                                              |                 |                     | 8       | 7         | 22.39               | 22.35     | 22.20     |  |
|                                                              |                 |                     | 15      | 0         | 22.34               | 22.29     | 22.19     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.20     |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 30.00     |                     |           |           |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). |                 |                     |         |           |                     |           |           |  |

| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|--------------------------------------------------------------|-----------------|---------------------|---------|-----------|---------------------|-----------|-----------|--|
|                                                              |                 |                     |         |           | 19975               | 20175     | 20375     |  |
|                                                              |                 |                     |         |           | 1712.5MHz           | 1732.5MHz | 1752.5MHz |  |
| 4                                                            | 5               | QPSK                | 1       | 0         | 22.65               | 22.63     | 22.49     |  |
|                                                              |                 |                     | 1       | 12        | 22.45               | 22.52     | 22.32     |  |
|                                                              |                 |                     | 1       | 24        | 22.36               | 22.53     | 22.25     |  |
|                                                              |                 |                     | 12      | 0         | 22.35               | 22.51     | 22.21     |  |
|                                                              |                 |                     | 12      | 6         | 22.32               | 22.23     | 22.19     |  |
|                                                              |                 |                     | 12      | 11        | 22.23               | 22.20     | 22.16     |  |
|                                                              |                 |                     | 25      | 0         | 22.20               | 22.19     | 22.20     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.29     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 30.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.11               | 22.13     | 22.13     |  |
|                                                              |                 |                     | 1       | 12        | 22.03               | 22.13     | 22.15     |  |
|                                                              |                 |                     | 1       | 24        | 22.16               | 22.11     | 22.11     |  |
|                                                              |                 |                     | 12      | 0         | 22.10               | 22.09     | 22.23     |  |
|                                                              |                 |                     | 12      | 6         | 22.15               | 22.05     | 22.20     |  |
|                                                              |                 |                     | 12      | 11        | 22.15               | 22.06     | 22.19     |  |
|                                                              |                 |                     | 25      | 0         | 22.17               | 22.00     | 22.10     |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 4.64      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 26.87     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 30.00     |                     |           |           |  |
|                                                              |                 |                     |         |           |                     |           |           |  |
| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|                                                              |                 |                     |         |           | 20000               | 20175     | 20350     |  |
|                                                              |                 |                     |         |           | 1715.0MHz           | 1732.5MHz | 1750.0MHz |  |
| 4                                                            | 10              | QPSK                | 1       | 0         | 22.56               | 22.87     | 22.86     |  |
|                                                              |                 |                     | 1       | 24        | 22.45               | 22.65     | 22.84     |  |
|                                                              |                 |                     | 1       | 49        | 22.53               | 22.30     | 22.81     |  |
|                                                              |                 |                     | 25      | 0         | 22.39               | 22.26     | 22.63     |  |
|                                                              |                 |                     | 25      | 12        | 22.35               | 22.24     | 22.23     |  |
|                                                              |                 |                     | 25      | 24        | 22.16               | 22.19     | 22.24     |  |
|                                                              |                 |                     | 50      | 0         | 22.20               | 22.18     | 22.19     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.51     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 30.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.47               | 22.43     | 22.54     |  |
|                                                              |                 |                     | 1       | 24        | 22.16               | 22.11     | 22.23     |  |
|                                                              |                 |                     | 1       | 49        | 22.18               | 22.06     | 22.13     |  |
|                                                              |                 |                     | 23      | 0         | 22.25               | 22.45     | 22.12     |  |
|                                                              |                 |                     | 23      | 19        | 22.23               | 22.19     | 22.20     |  |
|                                                              |                 |                     | 23      | 38        | 22.09               | 22.47     | 22.09     |  |
|                                                              |                 |                     | 50      | 0         | /                   | /         | /         |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 4.64      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 27.18     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 30.00     |                     |           |           |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). |                 |                     |         |           |                     |           |           |  |

| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|--------------------------------------------------------------|-----------------|---------------------|---------|-----------|---------------------|-----------|-----------|--|
|                                                              |                 |                     |         |           | 20025               | 20175     | 20325     |  |
|                                                              |                 |                     |         |           | 1717.5MHz           | 1732.5MHz | 1747.5MHz |  |
| 4                                                            | 15              | QPSK                | 1       | 0         | 22.65               | 22.36     | 22.56     |  |
|                                                              |                 |                     | 1       | 37        | 22.33               | 22.32     | 22.54     |  |
|                                                              |                 |                     | 1       | 74        | 22.31               | 22.26     | 22.53     |  |
|                                                              |                 |                     | 36      | 0         | 22.26               | 22.15     | 22.32     |  |
|                                                              |                 |                     | 36      | 16        | 22.20               | 22.24     | 22.26     |  |
|                                                              |                 |                     | 36      | 35        | 22.19               | 22.20     | 22.41     |  |
|                                                              |                 |                     | 75      | 0         | 22.15               | 22.13     | 22.23     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.29     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 30.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.64               | 22.03     | 22.33     |  |
|                                                              |                 |                     | 1       | 37        | 22.63               | 22.21     | 22.15     |  |
|                                                              |                 |                     | 1       | 74        | 22.32               | 22.03     | 22.26     |  |
|                                                              |                 |                     | 16      | 0         | 22.25               | 22.04     | 22.22     |  |
|                                                              |                 |                     | 16      | 30        | 22.19               | 22.05     | 22.20     |  |
|                                                              |                 |                     | 16      | 59        | 22.05               | 22.06     | 22.17     |  |
|                                                              |                 |                     | 75      | 0         | /                   | /         | /         |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 4.64      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 27.28     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 30.00     |                     |           |           |  |
|                                                              |                 |                     |         |           |                     |           |           |  |
| LTE Band                                                     | Bandwidth (MHz) | Modulation          | RB Size | RB Offset | Average Power (dBm) |           |           |  |
|                                                              |                 |                     |         |           | 20050               | 20175     | 20300     |  |
|                                                              |                 |                     |         |           | 1720.0MHz           | 1732.5MHz | 1745.0MHz |  |
| 4                                                            | 20              | QPSK                | 1       | 0         | 22.46               | 22.59     | 22.36     |  |
|                                                              |                 |                     | 1       | 49        | 22.32               | 22.44     | 22.13     |  |
|                                                              |                 |                     | 1       | 99        | 22.15               | 22.43     | 22.25     |  |
|                                                              |                 |                     | 50      | 0         | 22.10               | 22.26     | 22.24     |  |
|                                                              |                 |                     | 50      | 24        | 22.13               | 22.35     | 22.03     |  |
|                                                              |                 |                     | 50      | 49        | 22.20               | 22.32     | 22.20     |  |
|                                                              |                 |                     | 100     | 0         | 22.09               | 22.10     | 22.19     |  |
|                                                              |                 | Antenna Gain (dBi): |         |           |                     | 4.64      |           |  |
|                                                              |                 | Max. EIRP (dBm):    |         |           |                     | 27.23     |           |  |
|                                                              |                 | EIRP Limit (dBm):   |         |           |                     | 30.00     |           |  |
|                                                              |                 | 16QAM               | 1       | 0         | 22.23               | 22.21     | 22.22     |  |
|                                                              |                 |                     | 1       | 49        | 22.20               | 22.23     | 22.21     |  |
|                                                              |                 |                     | 1       | 99        | 22.16               | 22.21     | 22.06     |  |
|                                                              |                 |                     | 18      | 0         | 22.13               | 22.20     | 22.03     |  |
|                                                              |                 |                     | 18      | 41        | 22.14               | 22.09     | 22.10     |  |
|                                                              |                 |                     | 18      | 82        | 22.03               | 22.11     | 22.23     |  |
|                                                              |                 |                     | 100     | 0         | /                   | /         | /         |  |
| Antenna Gain (dBi):                                          |                 |                     |         | 4.64      |                     |           |           |  |
| Max. EIRP (dBm):                                             |                 |                     |         | 26.87     |                     |           |           |  |
| EIRP Limit (dBm):                                            |                 |                     |         | 30.00     |                     |           |           |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). |                 |                     |         |           |                     |           |           |  |

| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |           |  |
|------------------------------------------------------------------------------------------------------|-----------------|--------------------|---------|-----------|---------------------|----------|-----------|--|
|                                                                                                      |                 |                    |         |           | 20407               | 20525    | 20643     |  |
|                                                                                                      |                 |                    |         |           | 824.7MHz            | 836.5MHz | 848.3MHz  |  |
| 5                                                                                                    | 1.4             | QPSK               | 1       | 0         | 22.87               | 22.74    | 22.68     |  |
|                                                                                                      |                 |                    | 1       | 2         | 22.63               | 22.76    | 22.63     |  |
|                                                                                                      |                 |                    | 1       | 5         | 22.65               | 22.55    | 22.61     |  |
|                                                                                                      |                 |                    | 3       | 0         | 22.46               | 22.65    | 22.54     |  |
|                                                                                                      |                 |                    | 3       | 1         | 22.41               | 22.36    | 22.53     |  |
|                                                                                                      |                 |                    | 3       | 2         | 22.48               | 22.14    | 22.10     |  |
|                                                                                                      |                 |                    | 6       | 0         | 22.29               | 22.23    | 22.71     |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |           |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.44    |           |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 38.45    |           |  |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 22.61               | 22.41    | 22.23     |  |
|                                                                                                      |                 |                    | 1       | 2         | 22.42               | 22.26    | 22.19     |  |
|                                                                                                      |                 |                    | 1       | 5         | 22.16               | 22.39    | 22.43     |  |
|                                                                                                      |                 |                    | 3       | 0         | 22.49               | 22.15    | 22.34     |  |
|                                                                                                      |                 |                    | 3       | 1         | 22.26               | 22.16    | 22.26     |  |
|                                                                                                      |                 |                    | 3       | 2         | 22.19               | 22.03    | 22.25     |  |
|                                                                                                      |                 |                    | 6       | 0         | 22.09               | 22.01    | 22.13     |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |           |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.18    |           |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 38.45    |           |  |
|                                                                                                      |                 |                    |         |           |                     |          |           |  |
| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |           |  |
|                                                                                                      |                 |                    |         |           | 20415               | 20525    | 20635     |  |
|                                                                                                      |                 |                    |         |           | 825.5MHz            | 836.5MHz | 847.50MHz |  |
| 5                                                                                                    | 3               | QPSK               | 1       | 0         | 22.89               | 22.79    | 22.62     |  |
|                                                                                                      |                 |                    | 1       | 7         | 22.74               | 22.64    | 22.63     |  |
|                                                                                                      |                 |                    | 1       | 14        | 22.65               | 22.51    | 22.24     |  |
|                                                                                                      |                 |                    | 8       | 0         | 22.46               | 22.23    | 22.16     |  |
|                                                                                                      |                 |                    | 8       | 4         | 22.48               | 22.14    | 22.43     |  |
|                                                                                                      |                 |                    | 8       | 7         | 22.43               | 22.26    | 22.23     |  |
|                                                                                                      |                 |                    | 15      | 0         | 22.39               | 22.46    | 22.19     |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |           |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.46    |           |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 38.45    |           |  |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 22.54               | 22.41    | 22.62     |  |
|                                                                                                      |                 |                    | 1       | 7         | 22.26               | 22.06    | 22.43     |  |
|                                                                                                      |                 |                    | 1       | 14        | 22.16               | 22.13    | 22.14     |  |
|                                                                                                      |                 |                    | 8       | 0         | 22.23               | 22.20    | 22.39     |  |
|                                                                                                      |                 |                    | 8       | 4         | 22.32               | 22.12    | 22.46     |  |
|                                                                                                      |                 |                    | 8       | 7         | 22.10               | 22.16    | 22.35     |  |
|                                                                                                      |                 |                    | 15      | 0         | 22.08               | 22.10    | 22.27     |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |           |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.19    |           |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 38.45    |           |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).<br>ERP (dBm ) = EIRP (dBm) - 2.15 (dB). |                 |                    |         |           |                     |          |           |  |

| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |  |
|------------------------------------------------------------------------------------------------------|-----------------|--------------------|---------|-----------|---------------------|----------|----------|--|
|                                                                                                      |                 |                    |         |           | 20425               | 20525    | 20625    |  |
|                                                                                                      |                 |                    |         |           | 826.5MHz            | 836.5MHz | 846.5MHz |  |
| 5                                                                                                    | 5               | QPSK               | 1       | 0         | 22.45               | 22.63    | 22.69    |  |
|                                                                                                      |                 |                    | 1       | 12        | 22.36               | 22.65    | 22.45    |  |
|                                                                                                      |                 |                    | 1       | 24        | 22.35               | 22.43    | 22.13    |  |
|                                                                                                      |                 |                    | 12      | 0         | 22.21               | 22.25    | 22.20    |  |
|                                                                                                      |                 |                    | 12      | 6         | 22.26               | 22.15    | 22.03    |  |
|                                                                                                      |                 |                    | 12      | 11        | 22.25               | 22.23    | 22.11    |  |
|                                                                                                      |                 |                    | 25      | 0         | 22.29               | 22.09    | 22.03    |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.26    |          |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 38.45    |          |  |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 22.43               | 22.47    | 22.43    |  |
|                                                                                                      |                 |                    | 1       | 12        | 22.31               | 22.32    | 22.16    |  |
|                                                                                                      |                 |                    | 1       | 24        | 22.20               | 22.26    | 22.20    |  |
|                                                                                                      |                 |                    | 12      | 0         | 22.16               | 22.21    | 22.13    |  |
|                                                                                                      |                 |                    | 12      | 6         | 22.20               | 22.25    | 22.15    |  |
|                                                                                                      |                 |                    | 12      | 11        | 22.13               | 22.23    | 22.10    |  |
|                                                                                                      |                 |                    | 25      | 0         | 22.03               | 22.11    | 22.11    |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.04    |          |  |
| ERP Limit (dBm):                                                                                     |                 |                    |         | 38.45     |                     |          |          |  |
|                                                                                                      |                 |                    |         |           |                     |          |          |  |
| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |  |
|                                                                                                      |                 |                    |         |           | 20450               | 20525    | 20600    |  |
|                                                                                                      |                 |                    |         |           | 829.0MHz            | 836.5MHz | 844.0MHz |  |
| 5                                                                                                    | 10              | QPSK               | 1       | 0         | 22.68               | 22.69    | 22.69    |  |
|                                                                                                      |                 |                    | 1       | 24        | 22.44               | 22.52    | 22.58    |  |
|                                                                                                      |                 |                    | 1       | 49        | 22.43               | 22.32    | 22.44    |  |
|                                                                                                      |                 |                    | 25      | 0         | 22.35               | 22.21    | 22.26    |  |
|                                                                                                      |                 |                    | 25      | 12        | 22.36               | 22.26    | 22.31    |  |
|                                                                                                      |                 |                    | 25      | 24        | 22.31               | 22.21    | 22.25    |  |
|                                                                                                      |                 |                    | 50      | 0         | 22.29               | 22.00    | 22.23    |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.26    |          |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 38.45    |          |  |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 22.48               | 21.89    | 22.65    |  |
|                                                                                                      |                 |                    | 1       | 24        | 22.22               | 21.82    | 22.35    |  |
|                                                                                                      |                 |                    | 1       | 49        | 22.13               | 21.93    | 22.64    |  |
|                                                                                                      |                 |                    | 12      | 0         | 22.02               | 21.78    | 22.59    |  |
|                                                                                                      |                 |                    | 12      | 19        | 22.01               | 21.96    | 22.02    |  |
|                                                                                                      |                 |                    | 12      | 38        | 22.03               | 21.22    | 22.10    |  |
|                                                                                                      |                 |                    | 50      | 0         | /                   | /        | /        |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | 1.72     |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 22.22    |          |  |
| ERP Limit (dBm):                                                                                     |                 |                    |         | 38.45     |                     |          |          |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).<br>ERP (dBm ) = EIRP (dBm) - 2.15 (dB). |                 |                    |         |           |                     |          |          |  |

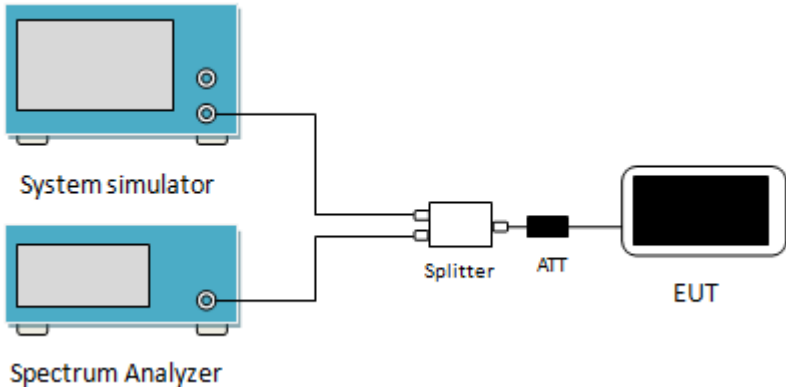
| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |
|------------------------------------------------------------------------------------------------------|-----------------|--------------------|---------|-----------|---------------------|----------|----------|
|                                                                                                      |                 |                    |         |           | 23017               | 23095    | 23173    |
|                                                                                                      |                 |                    |         |           | 699.7MHz            | 707.5MHz | 715.3MHz |
| 12                                                                                                   | 1.4             | QPSK               | 1       | 0         | 22.69               | 22.71    | 22.68    |
|                                                                                                      |                 |                    | 1       | 2         | 22.68               | 22.32    | 22.64    |
|                                                                                                      |                 |                    | 1       | 5         | 22.57               | 22.65    | 22.53    |
|                                                                                                      |                 |                    | 3       | 0         | 22.53               | 22.53    | 22.51    |
|                                                                                                      |                 |                    | 3       | 1         | 22.51               | 22.46    | 22.40    |
|                                                                                                      |                 |                    | 3       | 2         | 22.49               | 22.47    | 22.31    |
|                                                                                                      |                 |                    | 6       | 0         | 22.33               | 22.13    | 22.30    |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           | -2.12               |          |          |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           | 18.44               |          |          |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           | 34.77               |          |          |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 22.26               | 22.23    | 22.16    |
|                                                                                                      |                 |                    | 1       | 2         | 22.13               | 22.22    | 22.14    |
|                                                                                                      |                 |                    | 1       | 5         | 22.16               | 22.19    | 22.10    |
|                                                                                                      |                 |                    | 3       | 0         | 22.15               | 22.15    | 22.13    |
|                                                                                                      |                 |                    | 3       | 1         | 22.11               | 22.18    | 22.15    |
|                                                                                                      |                 |                    | 3       | 2         | 22.10               | 22.13    | 22.12    |
|                                                                                                      |                 |                    | 6       | 0         | 22.09               | 22.14    | 22.13    |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           | -2.12               |          |          |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           | 17.99               |          |          |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           | 34.77               |          |          |
|                                                                                                      |                 |                    |         |           |                     |          |          |
| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |
|                                                                                                      |                 |                    |         |           | 23025               | 23095    | 23165    |
|                                                                                                      |                 |                    |         |           | 700.5MHz            | 707.5MHz | 714.5MHz |
| 12                                                                                                   | 3               | QPSK               | 1       | 0         | 22.65               | 22.43    | 22.69    |
|                                                                                                      |                 |                    | 1       | 7         | 22.59               | 22.51    | 22.62    |
|                                                                                                      |                 |                    | 1       | 14        | 22.54               | 22.32    | 22.43    |
|                                                                                                      |                 |                    | 8       | 0         | 22.43               | 22.23    | 22.14    |
|                                                                                                      |                 |                    | 8       | 4         | 22.25               | 22.21    | 22.06    |
|                                                                                                      |                 |                    | 8       | 7         | 22.26               | 22.26    | 22.13    |
|                                                                                                      |                 |                    | 15      | 0         | 22.19               | 22.19    | 22.14    |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           | -2.12               |          |          |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           | 18.42               |          |          |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           | 34.77               |          |          |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 22.43               | 22.36    | 22.23    |
|                                                                                                      |                 |                    | 1       | 7         | 22.22               | 22.35    | 22.21    |
|                                                                                                      |                 |                    | 1       | 14        | 22.10               | 22.26    | 22.25    |
|                                                                                                      |                 |                    | 8       | 0         | 22.13               | 22.16    | 22.46    |
|                                                                                                      |                 |                    | 8       | 4         | 22.21               | 22.14    | 22.18    |
|                                                                                                      |                 |                    | 8       | 7         | 22.16               | 22.10    | 22.14    |
|                                                                                                      |                 |                    | 15      | 0         | 22.13               | 22.18    | 22.74    |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           | -2.12               |          |          |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           | 18.47               |          |          |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           | 34.77               |          |          |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).<br>ERP (dBm ) = EIRP (dBm) - 2.15 (dB). |                 |                    |         |           |                     |          |          |

| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |  |
|------------------------------------------------------------------------------------------------------|-----------------|--------------------|---------|-----------|---------------------|----------|----------|--|
|                                                                                                      |                 |                    |         |           | 23035               | 23095    | 23155    |  |
|                                                                                                      |                 |                    |         |           | 701.5MHz            | 707.5MHz | 713.5MHz |  |
| 12                                                                                                   | 5               | QPSK               | 1       | 0         | 22.60               | 22.65    | 22.64    |  |
|                                                                                                      |                 |                    | 1       | 12        | 22.58               | 22.63    | 22.63    |  |
|                                                                                                      |                 |                    | 1       | 24        | 22.46               | 22.67    | 22.61    |  |
|                                                                                                      |                 |                    | 12      | 0         | 22.38               | 22.43    | 22.24    |  |
|                                                                                                      |                 |                    | 12      | 6         | 22.15               | 22.25    | 22.21    |  |
|                                                                                                      |                 |                    | 12      | 11        | 22.46               | 22.32    | 22.23    |  |
|                                                                                                      |                 |                    | 25      | 0         | 22.29               | 22.21    | 22.28    |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | -2.12    |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 18.40    |          |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 34.77    |          |  |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 22.59               | 22.41    | 22.25    |  |
|                                                                                                      |                 |                    | 1       | 12        | 22.61               | 22.35    | 22.13    |  |
|                                                                                                      |                 |                    | 1       | 24        | 22.35               | 22.36    | 22.21    |  |
|                                                                                                      |                 |                    | 12      | 0         | 22.34               | 22.13    | 22.19    |  |
|                                                                                                      |                 |                    | 12      | 6         | 22.26               | 22.26    | 22.10    |  |
|                                                                                                      |                 |                    | 12      | 11        | 22.18               | 22.13    | 22.16    |  |
|                                                                                                      |                 |                    | 25      | 0         | 22.12               | 22.14    | 22.06    |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | -2.12    |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 18.34    |          |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 34.77    |          |  |
|                                                                                                      |                 |                    |         |           |                     |          |          |  |
| LTE Band                                                                                             | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |  |
|                                                                                                      |                 |                    |         |           | 23060               | 23095    | 23130    |  |
|                                                                                                      |                 |                    |         |           | 704.0MHz            | 707.5MHz | 711.0MHz |  |
| 12                                                                                                   | 10              | QPSK               | 1       | 0         | 22.54               | 22.69    | 22.70    |  |
|                                                                                                      |                 |                    | 1       | 24        | 22.51               | 22.62    | 22.36    |  |
|                                                                                                      |                 |                    | 1       | 49        | 22.36               | 22.15    | 22.16    |  |
|                                                                                                      |                 |                    | 25      | 0         | 22.25               | 22.43    | 22.58    |  |
|                                                                                                      |                 |                    | 25      | 12        | 22.16               | 22.26    | 22.54    |  |
|                                                                                                      |                 |                    | 25      | 24        | 22.05               | 22.35    | 22.36    |  |
|                                                                                                      |                 |                    | 50      | 0         | 22.19               | 22.15    | 22.65    |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | -2.12    |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 18.43    |          |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 34.77    |          |  |
|                                                                                                      |                 | 16QAM              | 1       | 0         | 21.89               | 21.74    | 21.45    |  |
|                                                                                                      |                 |                    | 1       | 24        | 21.44               | 21.36    | 21.49    |  |
|                                                                                                      |                 |                    | 1       | 49        | 21.82               | 21.53    | 21.43    |  |
|                                                                                                      |                 |                    | 12      | 0         | 21.56               | 21.56    | 21.36    |  |
|                                                                                                      |                 |                    | 12      | 19        | 21.63               | 21.69    | 21.35    |  |
|                                                                                                      |                 |                    | 12      | 38        | 21.23               | 21.54    | 21.19    |  |
|                                                                                                      |                 |                    | 50      | 0         | /                   | /        | /        |  |
|                                                                                                      |                 | Antenna Gain(dBi): |         |           |                     | -2.12    |          |  |
|                                                                                                      |                 | Max. ERP (dBm):    |         |           |                     | 17.62    |          |  |
|                                                                                                      |                 | ERP Limit (dBm):   |         |           |                     | 34.77    |          |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).<br>ERP (dBm ) = EIRP (dBm) - 2.15 (dB). |                 |                    |         |           |                     |          |          |  |



| LTE Band                                                     | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |  |
|--------------------------------------------------------------|-----------------|--------------------|---------|-----------|---------------------|----------|----------|--|
|                                                              |                 |                    |         |           | 23205               | 23230    | 23255    |  |
|                                                              |                 |                    |         |           | 779.5MHz            | 782.0MHz | 784.5MHz |  |
| 13                                                           | 5               | QPSK               | 1       | 0         | 23.01               | 22.98    | 22.41    |  |
|                                                              |                 |                    | 1       | 12        | 22.85               | 22.86    | 22.40    |  |
|                                                              |                 |                    | 1       | 24        | 22.47               | 22.53    | 22.35    |  |
|                                                              |                 |                    | 12      | 0         | 22.64               | 22.41    | 22.39    |  |
|                                                              |                 |                    | 12      | 6         | 22.59               | 22.33    | 22.41    |  |
|                                                              |                 |                    | 12      | 11        | 22.55               | 22.56    | 22.23    |  |
|                                                              |                 |                    | 25      | 0         | 21.48               | 22.47    | 22.25    |  |
|                                                              |                 | Antenna Gain(dBi): |         |           |                     | 0.47     |          |  |
|                                                              |                 | Max. ERP (dBm):    |         |           |                     | 21.33    |          |  |
|                                                              |                 | ERP Limit (dBm):   |         |           |                     | 34.77    |          |  |
|                                                              |                 | 16QAM              | 1       | 0         | 22.56               | 22.41    | 22.35    |  |
|                                                              |                 |                    | 1       | 12        | 22.61               | 22.34    | 22.29    |  |
|                                                              |                 |                    | 1       | 24        | 22.49               | 11.43    | 22.21    |  |
|                                                              |                 |                    | 12      | 0         | 21.56               | 21.42    | 21.33    |  |
|                                                              |                 |                    | 12      | 6         | 21.26               | 21.34    | 21.16    |  |
|                                                              |                 |                    | 12      | 11        | 21.09               | 21.16    | 21.33    |  |
|                                                              |                 |                    | 25      | 0         | 20.26               | 20.39    | 20.58    |  |
| Antenna Gain(dBi):                                           |                 |                    |         | 0.47      |                     |          |          |  |
| Max. ERP (dBm):                                              |                 |                    |         | 20.93     |                     |          |          |  |
| ERP Limit (dBm):                                             |                 |                    |         | 34.77     |                     |          |          |  |
|                                                              |                 |                    |         |           |                     |          |          |  |
| LTE Band                                                     | Bandwidth (MHz) | Modulation         | RB Size | RB Offset | Average Power (dBm) |          |          |  |
|                                                              |                 |                    |         |           | 23230               | 23230    | 23230    |  |
|                                                              |                 |                    |         |           | 782.0MHz            | 782.0MHz | 782.0MHz |  |
| 13                                                           | 10              | QPSK               | 1       | 0         | /                   | 22.52    | /        |  |
|                                                              |                 |                    | 1       | 24        | /                   | 22.44    | /        |  |
|                                                              |                 |                    | 1       | 49        | /                   | 22.65    | /        |  |
|                                                              |                 |                    | 25      | 0         | /                   | 22.34    | /        |  |
|                                                              |                 |                    | 25      | 12        | /                   | 22.41    | /        |  |
|                                                              |                 |                    | 25      | 24        | /                   | 22.26    | /        |  |
|                                                              |                 |                    | 50      | 0         | /                   | 21.74    | /        |  |
|                                                              |                 | Antenna Gain(dBi): |         |           |                     | 0.47     |          |  |
|                                                              |                 | Max. ERP (dBm):    |         |           |                     | 20.97    |          |  |
|                                                              |                 | ERP Limit (dBm):   |         |           |                     | 34.77    |          |  |
|                                                              |                 | 16QAM              | 1       | 0         | /                   | 21.89    | /        |  |
|                                                              |                 |                    | 1       | 24        | /                   | 21.56    | /        |  |
|                                                              |                 |                    | 1       | 49        | /                   | 21.64    | /        |  |
|                                                              |                 |                    | 12      | 0         | /                   | 21.22    | /        |  |
|                                                              |                 |                    | 12      | 19        | /                   | 21.39    | /        |  |
|                                                              |                 |                    | 12      | 38        | /                   | 21.40    | /        |  |
|                                                              |                 |                    | 50      | 0         | /                   | /        | /        |  |
| Antenna Gain(dBi):                                           |                 |                    |         | 0.47      |                     |          |          |  |
| Max. ERP (dBm):                                              |                 |                    |         | 20.21     |                     |          |          |  |
| ERP Limit (dBm):                                             |                 |                    |         | 34.77     |                     |          |          |  |
| Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). |                 |                    |         |           |                     |          |          |  |
| ERP (dBm ) = EIRP (dBm) - 2.15 (dB).                         |                 |                    |         |           |                     |          |          |  |

## 6.2 Peak-to-Average Ratio

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 24.232 (d), Part 27.50(d)(5)                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Limit:            | The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.                                                                                                                                                                                                                                                                                                                                                                             |
| Test Setup:       |  <p>The diagram shows a test setup for measuring the Peak-to-Average Ratio (PAR). It includes a System simulator, a Spectrum Analyzer, a Splitter, an ATT (Attenuator), and the EUT (Equipment Under Test). The System simulator and Spectrum Analyzer are connected to the Splitter. The Splitter is connected to the ATT, which is then connected to the EUT.</p> |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.</li> <li>2 Set the CCDF option in spectrum analyzer, <math>RBW \geq OBW</math>,</li> <li>3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.</li> <li>4 Repeat step 1~3 at other frequency and modulations.</li> </ol>                                        |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                                                                                                                                |

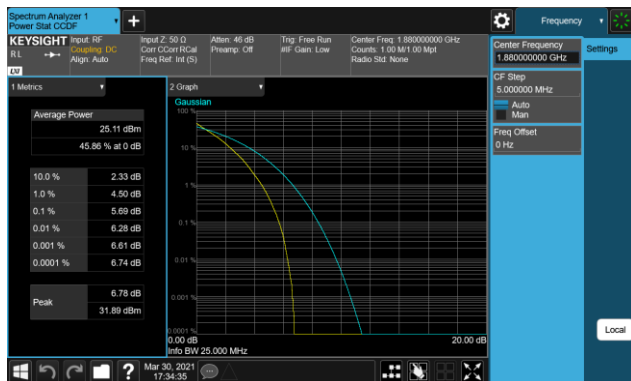
**Measurement Data (Worst case):**

| Bandwidth                    | Modulation | RB Size | RB Offset | PAPR |
|------------------------------|------------|---------|-----------|------|
| LTE Band 2 (Middle Channel)  |            |         |           |      |
| 20MHz                        | QPSK       | 100     | 0         | 5.69 |
|                              | 16QAM      | 100     | 0         | 6.24 |
| LTE Band 4 (Middle Channel)  |            |         |           |      |
| 20MHz                        | QPSK       | 100     | 0         | 5.66 |
|                              | 16QAM      | 100     | 0         | 5.64 |
| LTE Band 5 (Middle Channel)  |            |         |           |      |
| 10MHz                        | QPSK       | 50      | 0         | 5.42 |
|                              | 16QAM      | 50      | 0         | 5.60 |
| LTE Band 12 (Middle Channel) |            |         |           |      |
| 10MHz                        | QPSK       | 50      | 0         | 4.79 |
|                              | 16QAM      | 50      | 0         | 5.93 |
| LTE Band 13 (Middle Channel) |            |         |           |      |
| 10MHz                        | QPSK       | 50      | 0         | 5.73 |
|                              | 16QAM      | 50      | 0         | 4.39 |

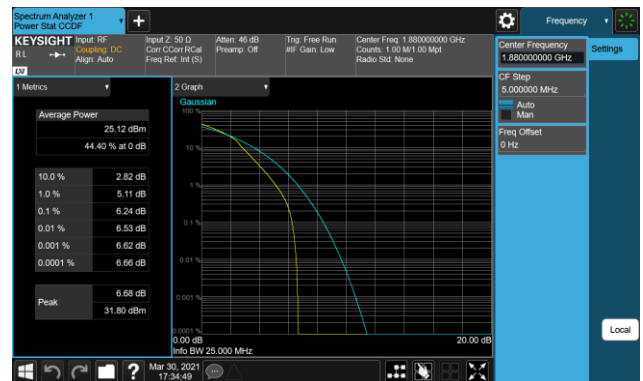
Test plots as below:

### LTE Band 2 Middle channel

Modulation: QPSK

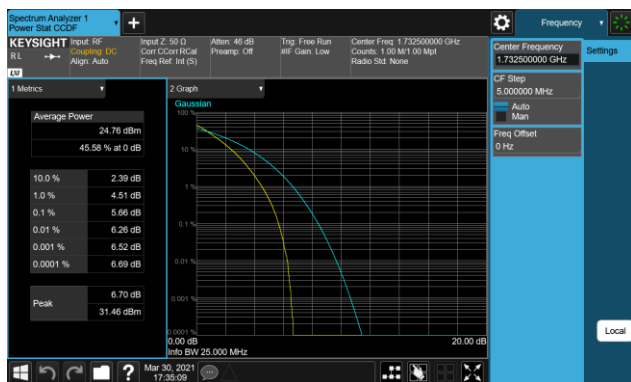


Modulation: 16QAM



### LTE Band 4 Middle channel

Modulation: QPSK

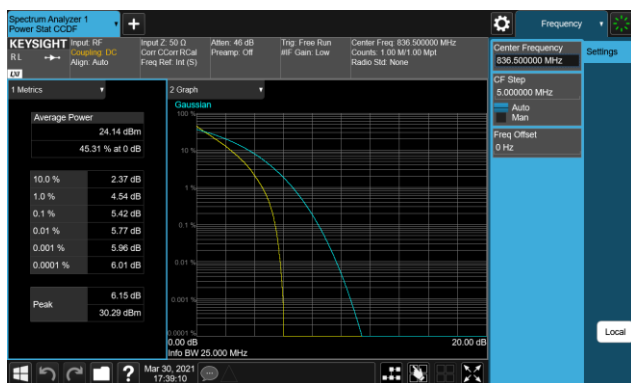


Modulation: 16QAM

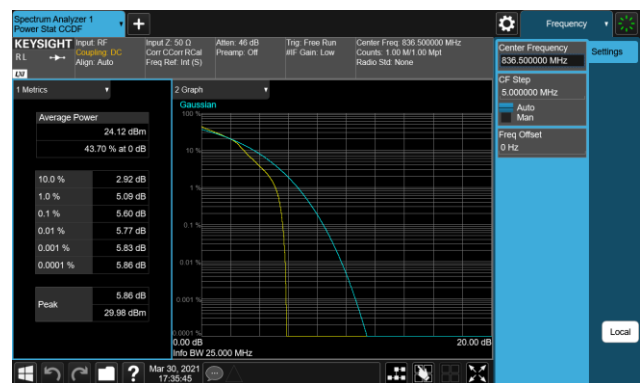


### LTE Band 5 Middle channel

Modulation: QPSK

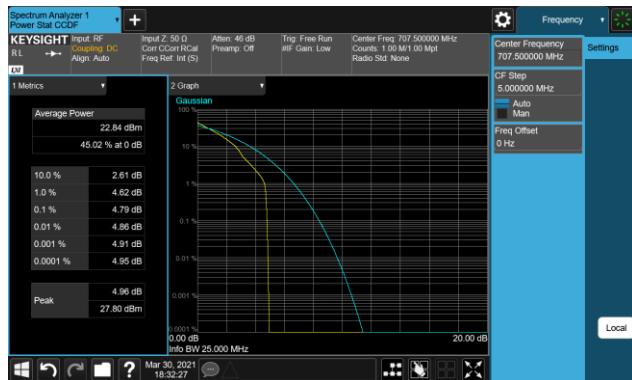


Modulation: 16QAM

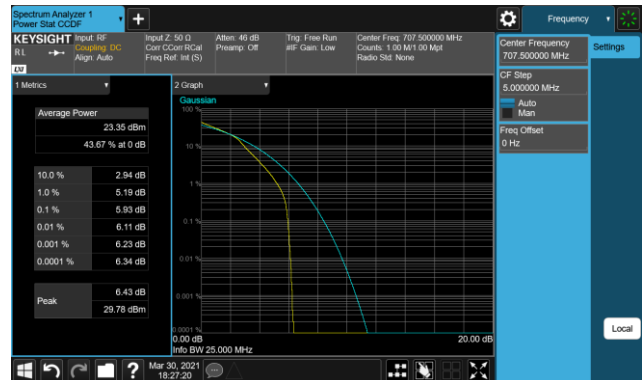


## LTE Band 12 Middle channel

Modulation: QPSK

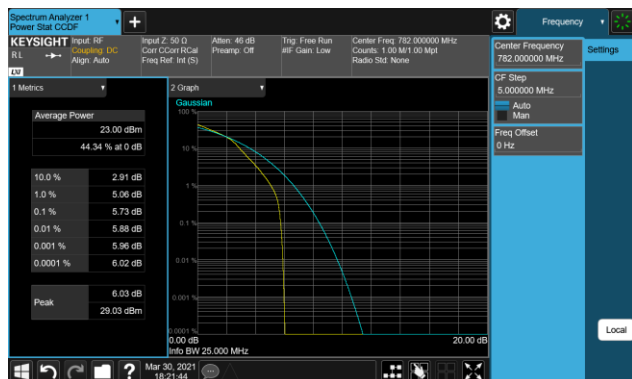


Modulation: 16QAM



## LTE Band 13 Middle channel

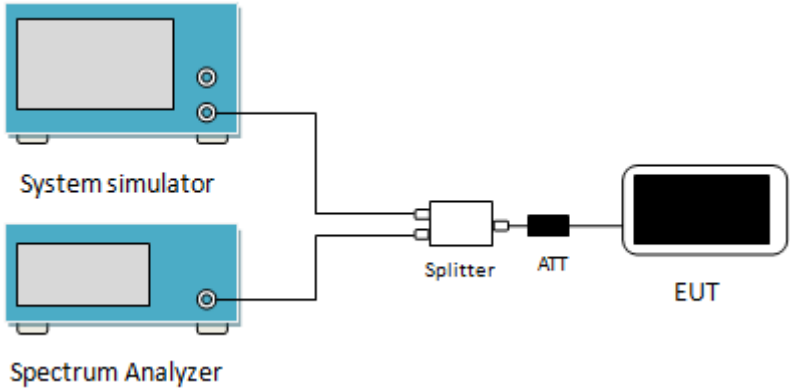
Modulation: QPSK



Modulation: 16QAM



### 6.3 Occupy Bandwidth

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 22.917(b), Part 24.238(b), Part 27.53(g), Part 27.53(h), Part 27.53(m)                                                                                                                                                                                                                                                                                                                                                   |
| Test Setup:       |  <p>The diagram illustrates the test setup for measuring occupied bandwidth. It shows a System simulator and a Spectrum Analyzer connected to a Splitter. The Splitter is connected to an ATT (Attenuator), which is then connected to the EUT (Equipment Under Test).</p>                                                                  |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer</li> <li>2. RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW.</li> <li>3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.</li> </ol> |
| Test Instruments: | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                             |
| Test mode:        | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                                              |
| Test results:     | Passed                                                                                                                                                                                                                                                                                                                                                                                                                        |

**Measurement Data:**

| LTE Band 2 |         |                 |            |               |                 |
|------------|---------|-----------------|------------|---------------|-----------------|
| Bandwidth  | Channel | Frequency (MHz) | Modulation | 99% OBW (kHz) | -26dBcEBW (kHz) |
| 1.4MHz     | 18607   | 1850.70         | 16QAM      | 1098          | 1284            |
|            |         |                 | QPSK       | 1098          | 1284            |
|            | 18900   | 1880.00         | 16QAM      | 1092          | 1296            |
|            |         |                 | QPSK       | 1098          | 1290            |
|            | 19193   | 1909.30         | 16QAM      | 1092          | 1266            |
|            |         |                 | QPSK       | 1098          | 1266            |
| 3MHz       | 18615   | 1851.50         | 16QAM      | 2748          | 3024            |
|            |         |                 | QPSK       | 2724          | 3060            |
|            | 18900   | 1880.00         | 16QAM      | 2748          | 3012            |
|            |         |                 | QPSK       | 2748          | 3012            |
|            | 19185   | 1908.50         | 16QAM      | 2736          | 3048            |
|            |         |                 | QPSK       | 2736          | 3012            |
| 5MHz       | 18625   | 1852.50         | 16QAM      | 4500          | 4980            |
|            |         |                 | QPSK       | 4500          | 4940            |
|            | 18900   | 1880.00         | 16QAM      | 4520          | 4960            |
|            |         |                 | QPSK       | 4520          | 4940            |
|            | 19175   | 1907.50         | 16QAM      | 4520          | 5000            |
|            |         |                 | QPSK       | 4520          | 4940            |
| 10MHz      | 18650   | 1855.00         | 16QAM      | 2200          | 2640            |
|            |         |                 | QPSK       | 9080          | 10200           |
|            | 18900   | 1880.00         | 16QAM      | 2200          | 2600            |
|            |         |                 | QPSK       | 9040          | 10080           |
|            | 19150   | 1905.00         | 16QAM      | 2200          | 2560            |
|            |         |                 | QPSK       | 9080          | 10120           |
| 15MHz      | 18675   | 1857.50         | 16QAM      | 2940          | 3360            |
|            |         |                 | QPSK       | 13500         | 14760           |
|            | 18900   | 1880.00         | 16QAM      | 2940          | 3300            |
|            |         |                 | QPSK       | 13560         | 14640           |
|            | 19125   | 1902.50         | 16QAM      | 2940          | 3300            |
|            |         |                 | QPSK       | 13500         | 14520           |
| 20MHz      | 18700   | 1860.00         | 16QAM      | 3280          | 3840            |
|            |         |                 | QPSK       | 17920         | 19280           |
|            | 18900   | 1880.00         | 16QAM      | 3280          | 3680            |
|            |         |                 | QPSK       | 17920         | 19440           |
|            | 19100   | 1900.00         | 16QAM      | 3280          | 3760            |
|            |         |                 | QPSK       | 17840         | 19120           |

| LTE Band 4 |         |                 |            |               |                 |
|------------|---------|-----------------|------------|---------------|-----------------|
| Bandwidth  | Channel | Frequency (MHz) | Modulation | 99% OBW (kHz) | -26dBcEBW (kHz) |
| 1.4MHz     | 19957   | 1710.7          | 16QAM      | 1098          | 1272            |
|            |         |                 | QPSK       | 1098          | 1266            |
|            | 20175   | 1732.5          | 16QAM      | 1104          | 1284            |
|            |         |                 | QPSK       | 1098          | 1290            |
|            | 20393   | 1754.3          | 16QAM      | 1092          | 1266            |
|            |         |                 | QPSK       | 1098          | 1248            |
| 3MHz       | 19965   | 1711.5          | 16QAM      | 2736          | 3048            |
|            |         |                 | QPSK       | 2748          | 3048            |
|            | 20175   | 1732.5          | 16QAM      | 2724          | 3012            |
|            |         |                 | QPSK       | 2736          | 3036            |
|            | 20385   | 1750.5          | 16QAM      | 2736          | 3048            |
|            |         |                 | QPSK       | 2724          | 3000            |
| 5MHz       | 19975   | 1712.5          | 16QAM      | 4520          | 4960            |
|            |         |                 | QPSK       | 4500          | 5000            |
|            | 20175   | 1732.5          | 16QAM      | 4500          | 5000            |
|            |         |                 | QPSK       | 4520          | 4980            |
|            | 20375   | 1752.5          | 16QAM      | 4520          | 4960            |
|            |         |                 | QPSK       | 4520          | 4920            |
| 10MHz      | 20000   | 1715.0          | 16QAM      | 2160          | 2560            |
|            |         |                 | QPSK       | 9040          | 10000           |
|            | 20175   | 1732.5          | 16QAM      | 2200          | 2600            |
|            |         |                 | QPSK       | 9080          | 10120           |
|            | 20350   | 1750.0          | 16QAM      | 2200          | 2520            |
|            |         |                 | QPSK       | 9040          | 10080           |
| 15MHz      | 20025   | 1717.5          | 16QAM      | 2880          | 3300            |
|            |         |                 | QPSK       | 13500         | 14820           |
|            | 20175   | 1732.5          | 16QAM      | 2880          | 3480            |
|            |         |                 | QPSK       | 13500         | 14700           |
|            | 20325   | 1747.5          | 16QAM      | 2940          | 3360            |
|            |         |                 | QPSK       | 13440         | 14580           |
| 20MHz      | 20050   | 1720.0          | 16QAM      | 3280          | 3760            |
|            |         |                 | QPSK       | 17920         | 19360           |
|            | 20175   | 1732.5          | 16QAM      | 3280          | 3840            |
|            |         |                 | QPSK       | 17920         | 19280           |
|            | 20300   | 1745.0          | 16QAM      | 3280          | 3600            |
|            |         |                 | QPSK       | 17920         | 19520           |



| TE Band 5 |         |                 |            |               |                 |
|-----------|---------|-----------------|------------|---------------|-----------------|
| Bandwidth | Channel | Frequency (MHz) | Modulation | 99% OBW (kHz) | -26dBcEBW (kHz) |
| 1.4MHz    | 20407   | 824.7           | 16QAM      | 1092          | 1242            |
|           |         |                 | QPSK       | 1092          | 1308            |
|           | 20525   | 836.5           | 16QAM      | 1092          | 1278            |
|           |         |                 | QPSK       | 1098          | 1308            |
|           | 20643   | 848.3           | 16QAM      | 1098          | 1254            |
|           |         |                 | QPSK       | 1098          | 1290            |
| 3MHz      | 20415   | 825.5           | 16QAM      | 2736          | 3000            |
|           |         |                 | QPSK       | 2736          | 3048            |
|           | 20525   | 836.50          | 16QAM      | 2748          | 3012            |
|           |         |                 | QPSK       | 2736          | 3048            |
|           | 20635   | 847.50          | 16QAM      | 2724          | 3024            |
|           |         |                 | QPSK       | 2724          | 3048            |
| 5MHz      | 20425   | 826.50          | 16QAM      | 4500          | 4880            |
|           |         |                 | QPSK       | 4520          | 4900            |
|           | 20525   | 836.50          | 16QAM      | 4520          | 4960            |
|           |         |                 | QPSK       | 4520          | 4960            |
|           | 20625   | 846.50          | 16QAM      | 4500          | 4900            |
|           |         |                 | QPSK       | 4520          | 5000            |
| 10MHz     | 20450   | 829.00          | 16QAM      | 2200          | 2560            |
|           |         |                 | QPSK       | 9120          | 10160           |
|           | 20525   | 836.50          | 16QAM      | 2200          | 2640            |
|           |         |                 | QPSK       | 9040          | 10120           |
|           | 20600   | 844.00          | 16QAM      | 2160          | 2640            |
|           |         |                 | QPSK       | 9080          | 10200           |

| LTE Band 12 |         |                 |            |               |                 |
|-------------|---------|-----------------|------------|---------------|-----------------|
| Bandwidth   | Channel | Frequency (MHz) | Modulation | 99% OBW (kHz) | -26dBcEBW (kHz) |
| 1.4MHz      | 23017   | 699.7           | 16QAM      | 1092          | 1302            |
|             |         |                 | QPSK       | 1104          | 1314            |
|             | 23095   | 707.5           | 16QAM      | 1098          | 1284            |
|             |         |                 | QPSK       | 1098          | 1290            |
|             | 23173   | 715.3           | 16QAM      | 1104          | 1248            |
|             |         |                 | QPSK       | 1098          | 1296            |
| 3MHz        | 23025   | 700.5           | 16QAM      | 2724          | 3012            |
|             |         |                 | QPSK       | 2724          | 3048            |
|             | 23095   | 707.5           | 16QAM      | 2736          | 3036            |
|             |         |                 | QPSK       | 2748          | 3024            |
|             | 23165   | 714.5           | 16QAM      | 2724          | 3048            |
|             |         |                 | QPSK       | 2736          | 3036            |
| 5MHz        | 23035   | 701.5           | 16QAM      | 4480          | 4940            |
|             |         |                 | QPSK       | 4520          | 4940            |
|             | 23095   | 707.5           | 16QAM      | 4500          | 4940            |
|             |         |                 | QPSK       | 4480          | 4920            |
|             | 23155   | 713.5           | 16QAM      | 4500          | 4940            |
|             |         |                 | QPSK       | 4520          | 5000            |
| 10MHz       | 23060   | 704.0           | 16QAM      | 2200          | 2560            |
|             |         |                 | QPSK       | 9080          | 10120           |
|             | 23095   | 707.5           | 16QAM      | 2200          | 2520            |
|             |         |                 | QPSK       | 9080          | 10240           |
|             | 23130   | 711.0           | 16QAM      | 2200          | 2560            |
|             |         |                 | QPSK       | 9040          | 10160           |

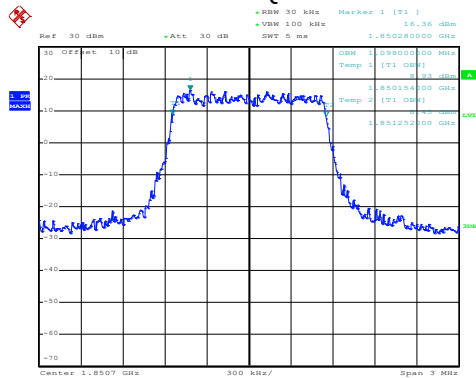
| LTE Band 13 |         |                 |            |               |                 |
|-------------|---------|-----------------|------------|---------------|-----------------|
| Bandwidth   | Channel | Frequency (MHz) | Modulation | 99% OBW (kHz) | -26dBcEBW (kHz) |
| 5MHz        | 23205   | 779.5           | 16QAM      | 4500          | 4900            |
|             |         |                 | QPSK       | 4500          | 4940            |
|             | 23230   | 782.0           | 16QAM      | 4520          | 4880            |
|             |         |                 | QPSK       | 4520          | 5020            |
|             | 23255   | 784.5           | 16QAM      | 4500          | 4960            |
|             |         |                 | QPSK       | 4500          | 5020            |
| 10MHz       | 23230   | 782.0           | 16QAM      | 2200          | 2640            |
|             |         |                 | QPSK       | 9040          | 10080           |

Test plot as follows:

LTE Band 2 part:

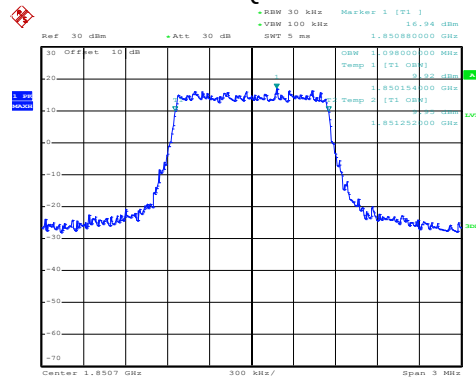
LTE Band 2: 99% Occupancy bandwidth  
BW: 1.4MHz

16QAM



Date: 27.MAR.2021 15:51:41

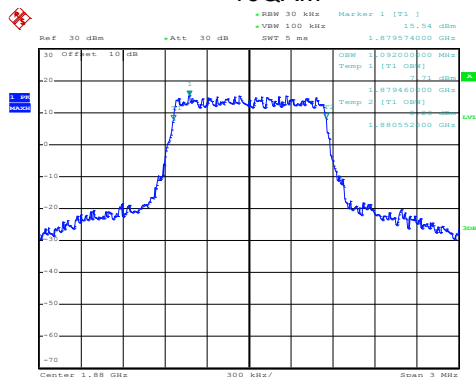
QPSK



Date: 27.MAR.2021 15:51:36

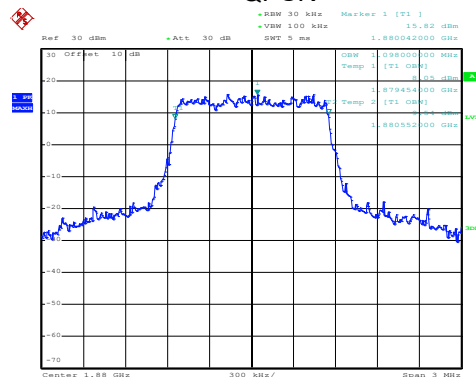
Lowest channel

16QAM



Date: 27.MAR.2021 15:52:15

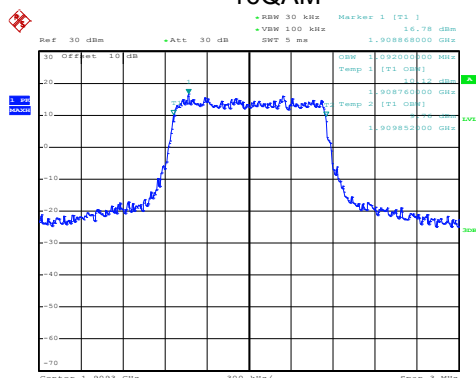
QPSK



Date: 27.MAR.2021 15:52:11

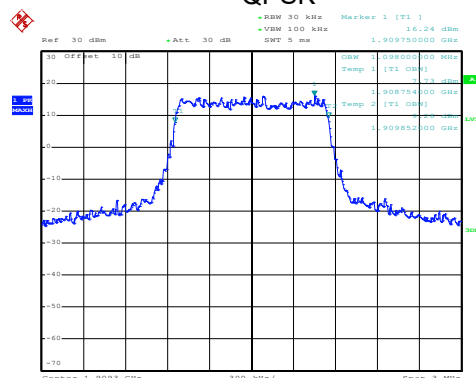
Middle channel

16QAM



Date: 27.MAR.2021 15:53:35

QPSK

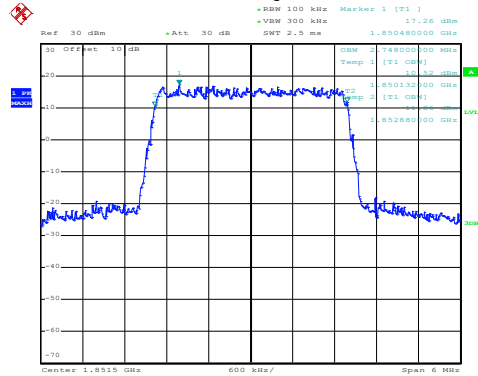


Date: 27.MAR.2021 15:53:30

Highest channel

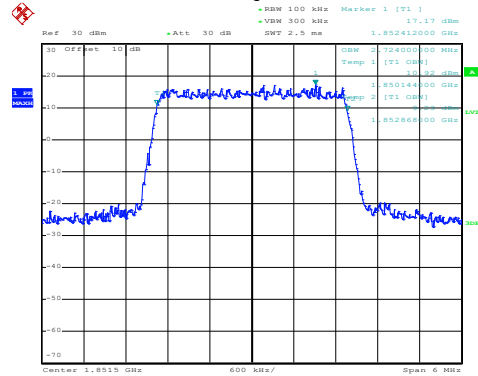
LTE Band 2: 99% Occupancy bandwidth  
BW: 3MHz

16QAM



Date: 27.MAR.2021 15:54:37

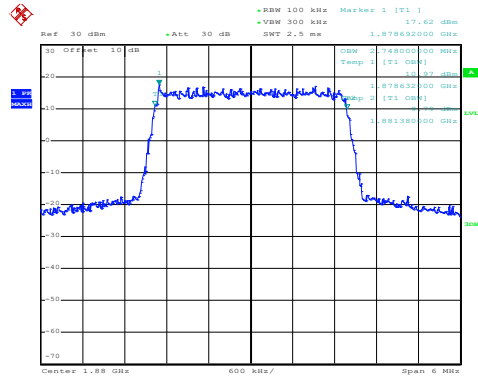
QPSK



Date: 27.MAR.2021 15:54:33

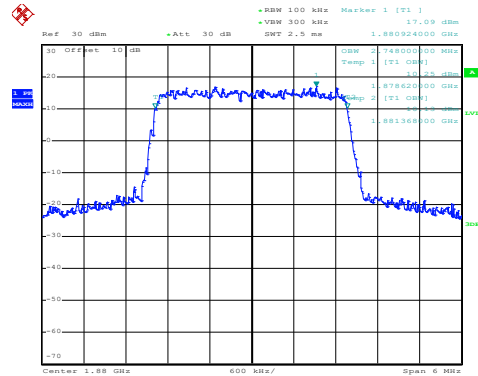
Lowest channel

16QAM



Date: 27.MAR.2021 15:55:02

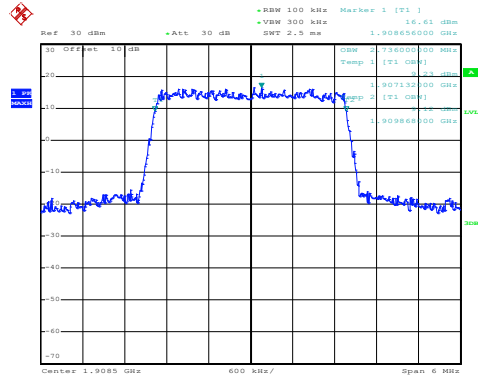
QPSK



Date: 27.MAR.2021 15:54:57

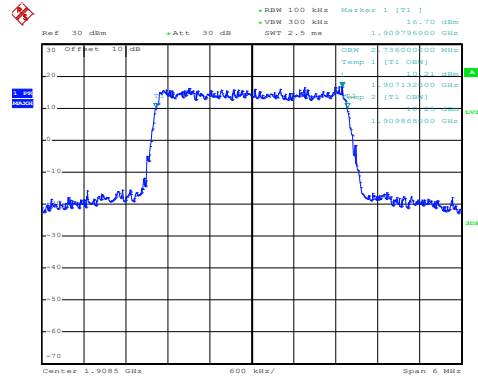
Middle channel

16QAM



Date: 27.MAR.2021 15:56:35

QPSK



Date: 27.MAR.2021 15:56:31

Highest channel

16QAM



## Date: 27.MAR.2021 15:57:24

## 16QAM



Date: 27.MAR.2021 15:58:54

## 16QAM

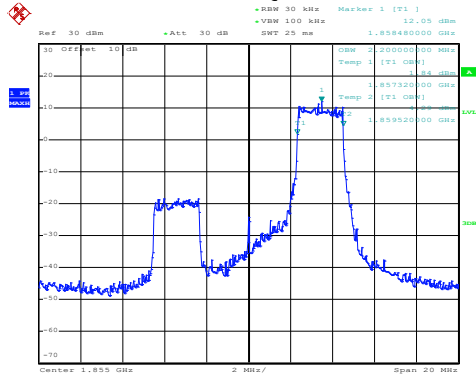


Date: 27.MAR.2021 15:59:34

## Page 37 of

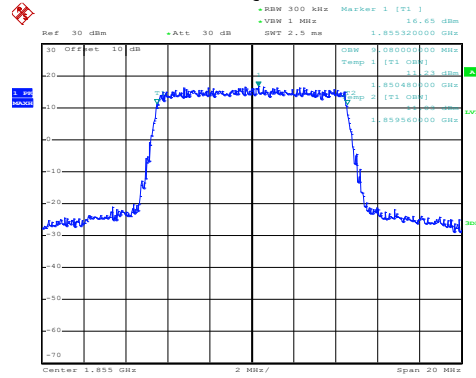
LTE Band 2: 99% Occupancy bandwidth  
BW: 10MHz

16QAM



Date: 28.MAR.2021 13:04:03

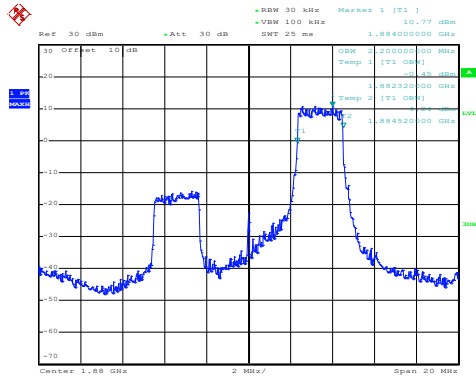
QPSK



Date: 27.MAR.2021 16:01:19

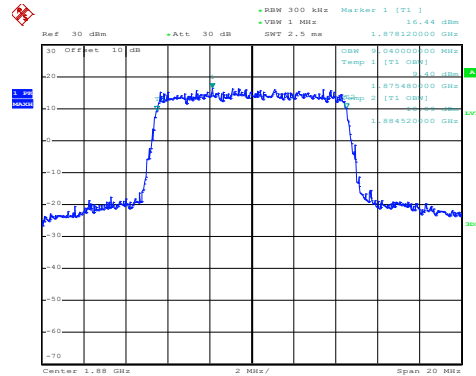
Lowest channel

16QAM



Date: 28.MAR.2021 13:04:29

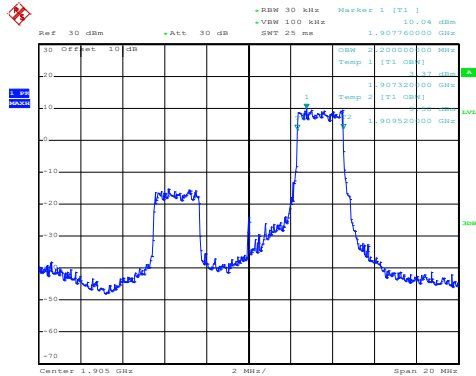
QPSK



Date: 27.MAR.2021 16:04:45

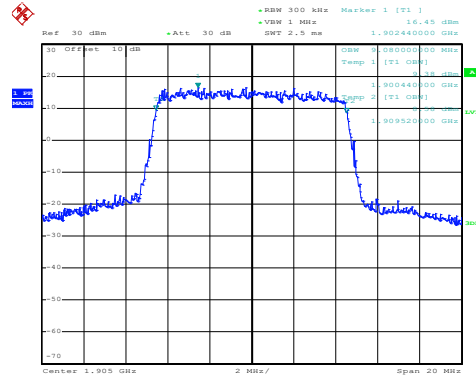
Middle channel

16QAM



Date: 28.MAR.2021 13:05:28

QPSK

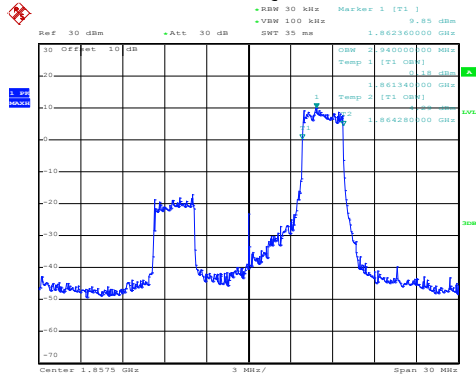


Date: 27.MAR.2021 16:05:20

Highest channel

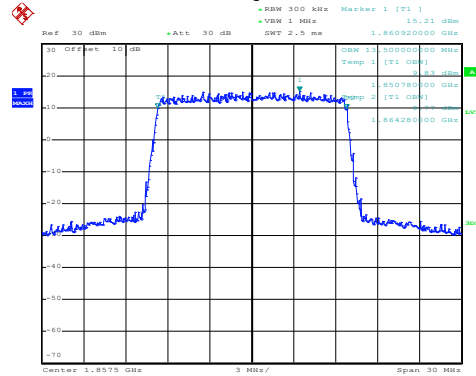
LTE Band 2: 99% Occupancy bandwidth  
BW: 15MHz

16QAM



Date: 28.MAR.2021 13:06:14

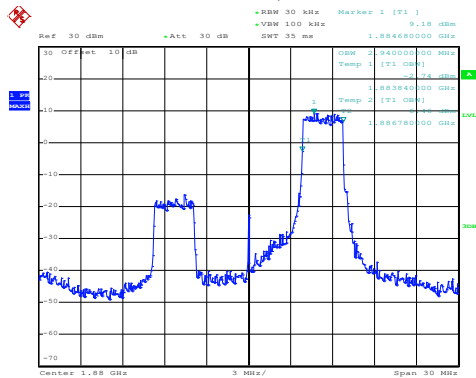
QPSK



Date: 27.MAR.2021 16:07:03

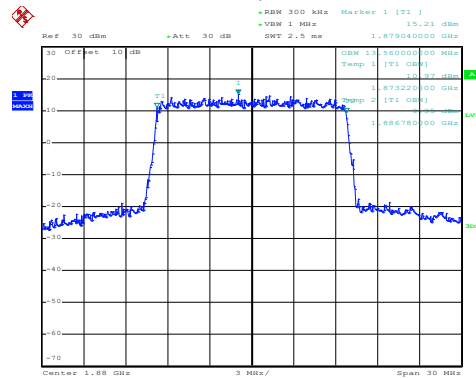
Lowest channel

16QAM



Date: 28.MAR.2021 13:07:16

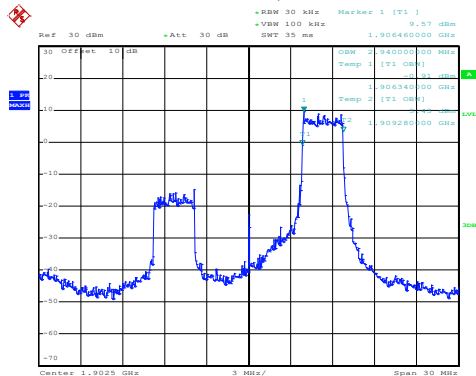
QPSK



Date: 27.MAR.2021 16:10:42

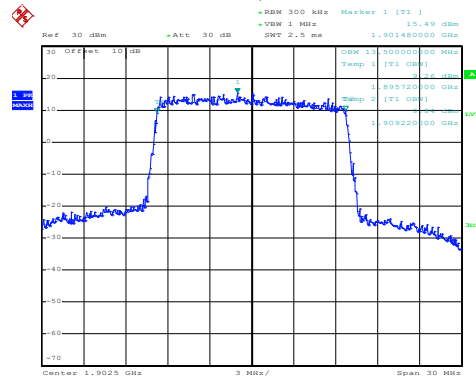
Middle channel

16QAM



Date: 28.MAR.2021 13:07:44

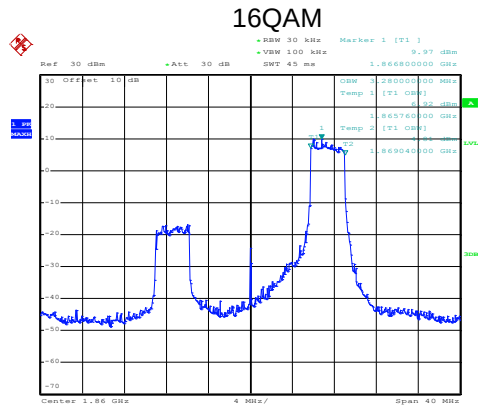
QPSK



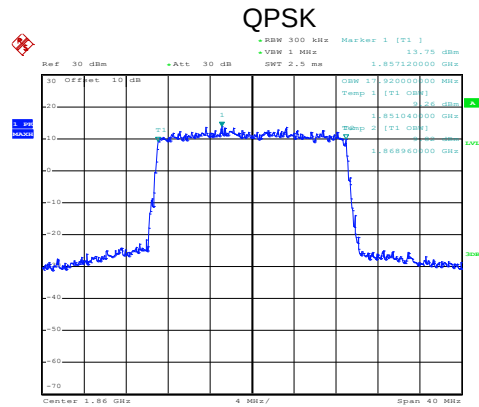
Date: 27.MAR.2021 16:12:18

Highest channel

LTE Band 2: 99% Occupy bandwidth  
BW: 20MHz

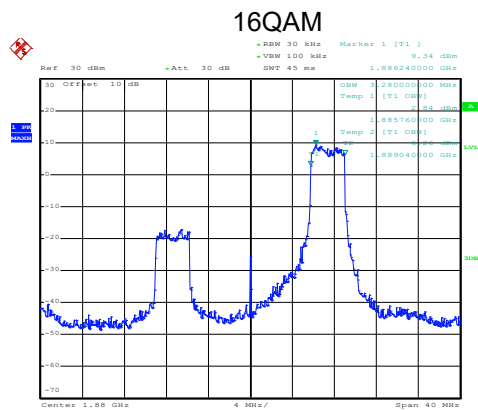


Date: 28.MAR.2021 13:09:36

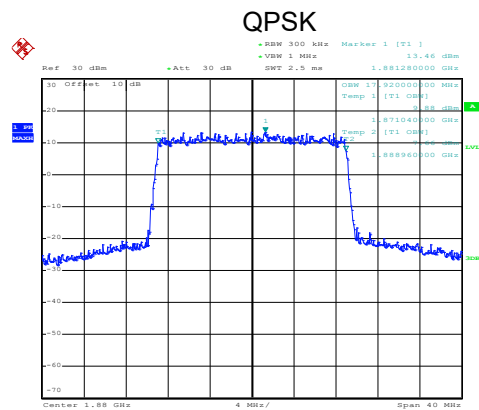


Date: 27.MAR.2021 16:14:37

Lowest channel

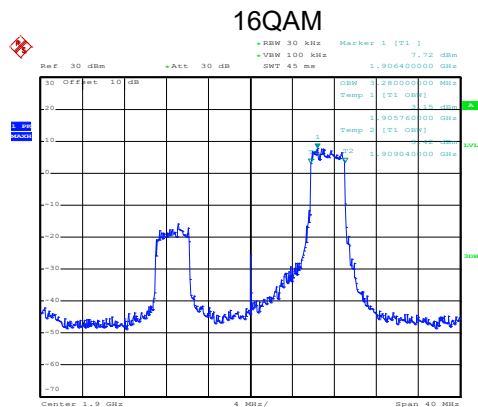


Date: 28.MAR.2021 13:12:09

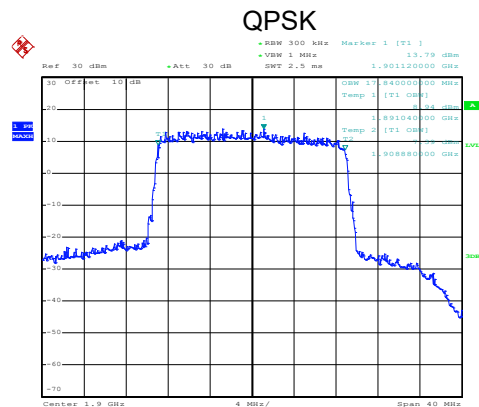


Date: 27.MAR.2021 16:16:52

Middle channel



Date: 28.MAR.2021 13:13:50



Date: 27.MAR.2021 16:18:21

## Highest channel



16QAM



Date: 27.MAR.2021 15:51:14

16QAM



Date: 27.MAR.2021 15:52:33

## 16QAM

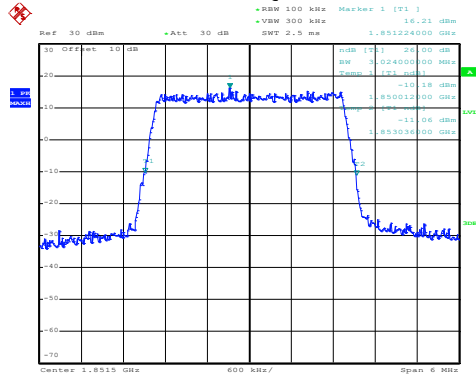


Date: 27.MAR.2021 15:53:08

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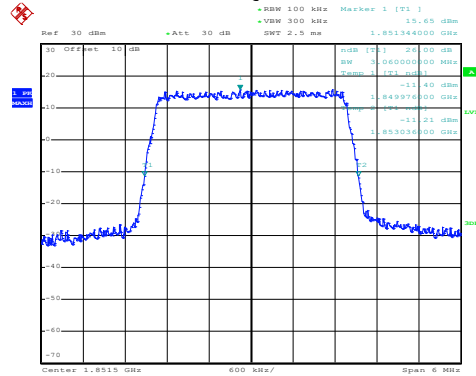
LTE Band 2: -26dBc bandwidth  
BW: 3MHz

16QAM



Date: 28.MAR.2021 14:18:45

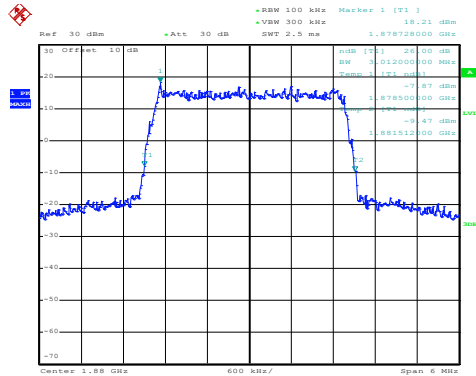
QPSK



Date: 28.MAR.2021 14:18:40

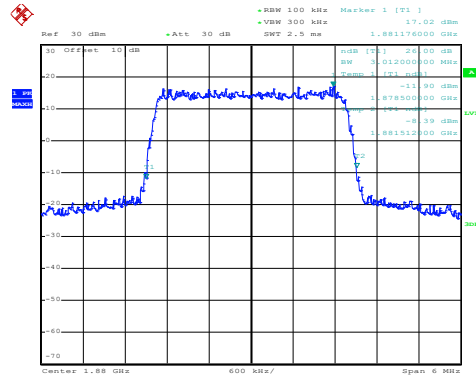
Lowest channel

16QAM



Date: 27.MAR.2021 15:55:24

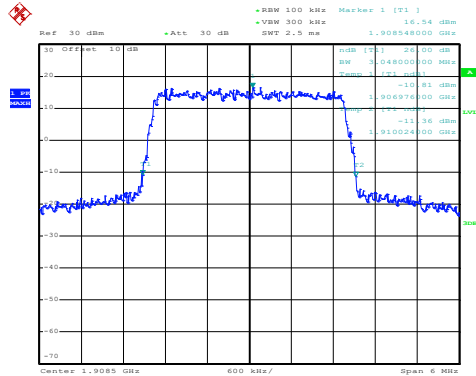
QPSK



Date: 27.MAR.2021 15:55:20

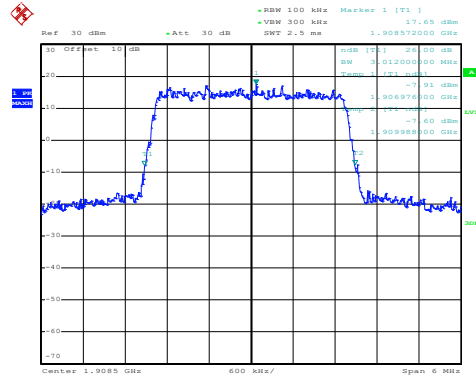
Middle channel

16QAM



Date: 27.MAR.2021 15:56:16

QPSK

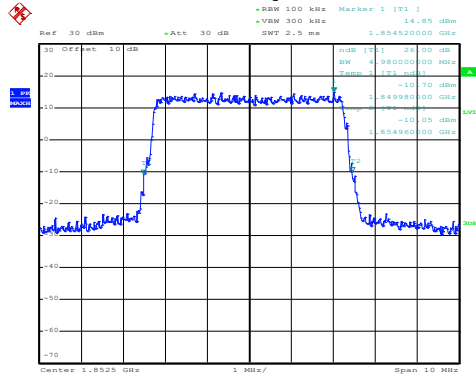


Date: 27.MAR.2021 15:56:12

Highest channel

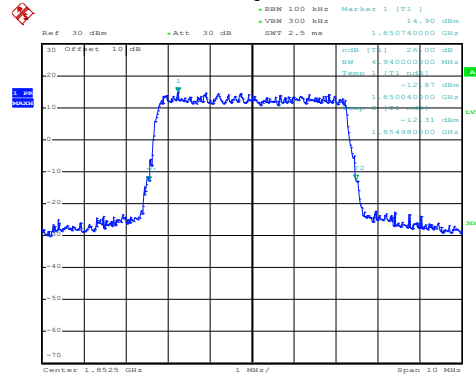
LTE Band 2: -26dBc bandwidth  
BW: 5MHz

16QAM



Date: 27.MAR.2021 15:57:54

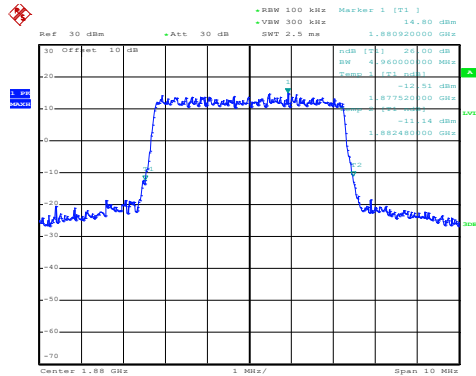
QPSK



Date: 27.MAR.2021 15:57:48

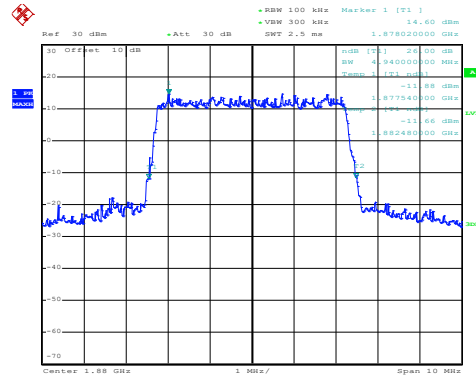
Lowest channel

16QAM



Date: 27.MAR.2021 15:58:34

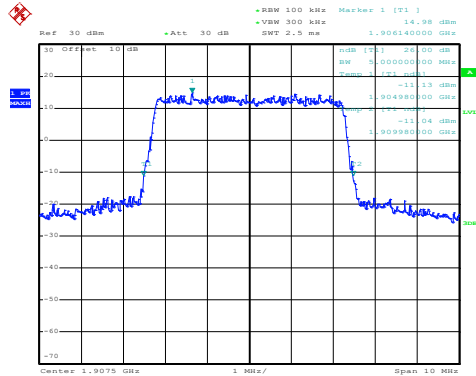
QPSK



Date: 27.MAR.2021 15:58:28

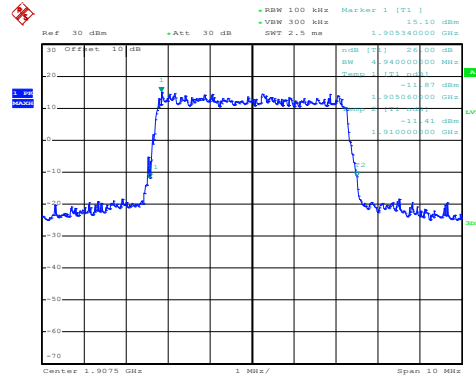
Middle channel

16QAM



Date: 27.MAR.2021 16:00:11

QPSK

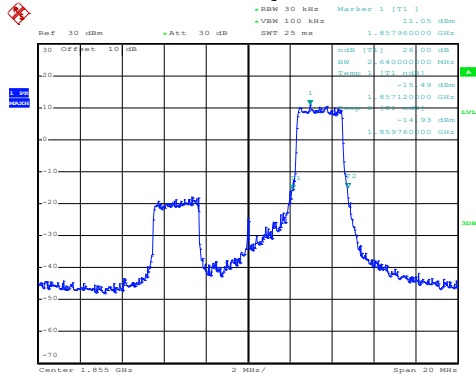


Date: 27.MAR.2021 16:00:03

Highest channel

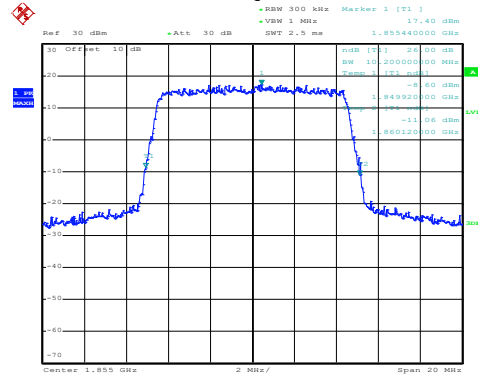
LTE Band 2: -26dBc bandwidth  
BW: 10MHz

16QAM



Date: 28.MAR.2021 13:03:36

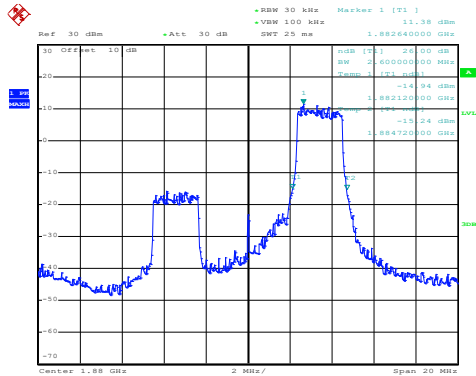
QPSK



Date: 27.MAR.2021 16:01:32

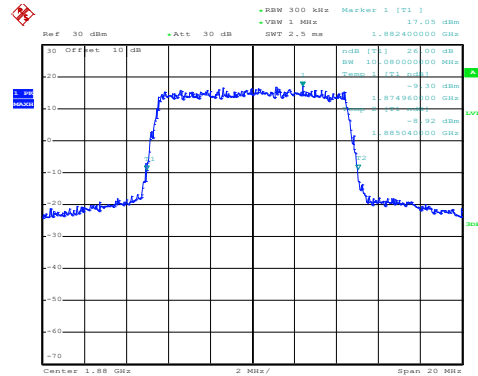
Lowest channel

16QAM



Date: 28.MAR.2021 13:04:41

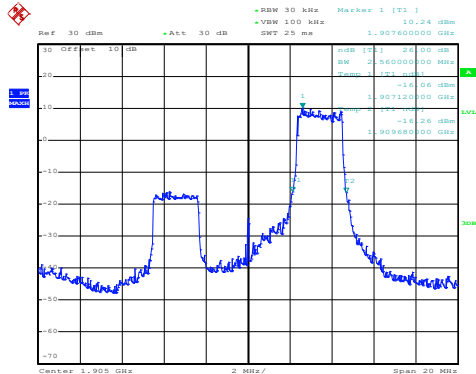
QPSK



Date: 27.MAR.2021 16:04:27

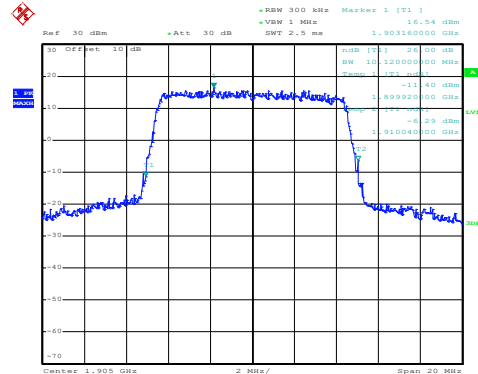
Middle channel

16QAM



Date: 28.MAR.2021 13:05:15

QPSK

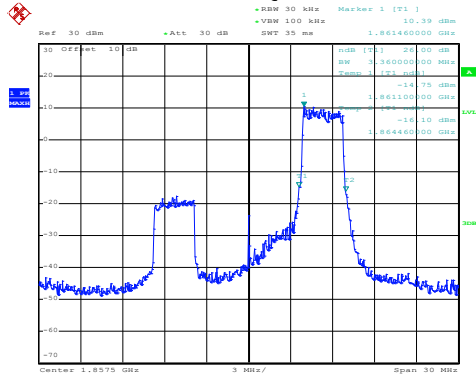


Date: 27.MAR.2021 16:05:40

Highest channel

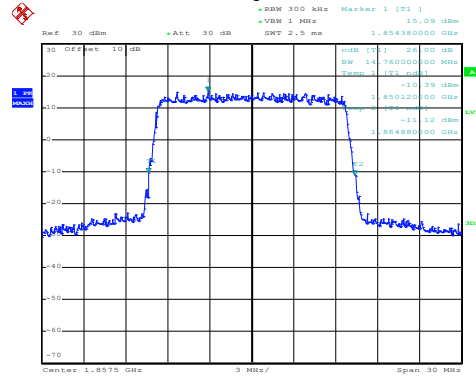
LTE Band 2: -26dBc bandwidth  
BW: 15MHz

16QAM



Date: 28.MAR.2021 13:06:37

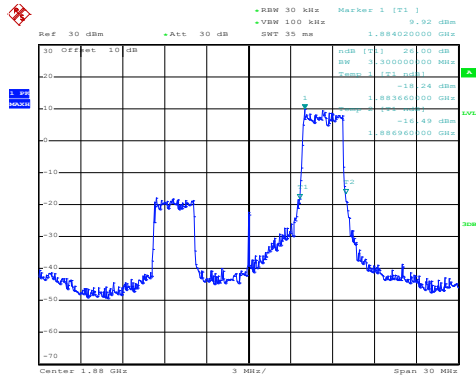
QPSK



Date: 27.MAR.2021 16:06:38

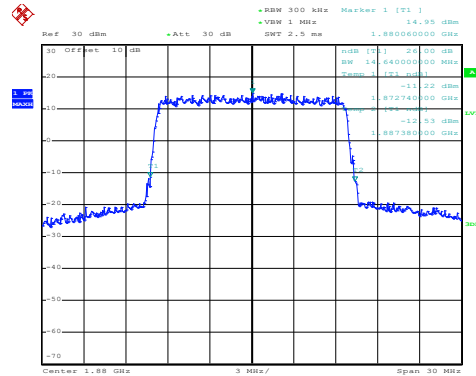
Lowest channel

16QAM



Date: 28.MAR.2021 13:06:59

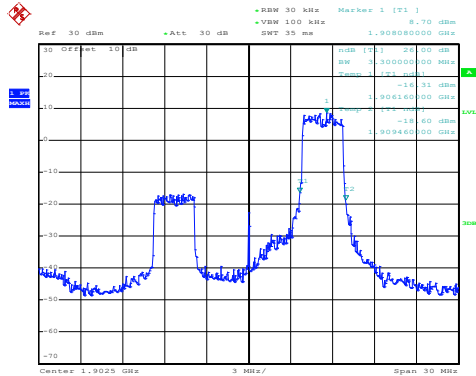
QPSK



Date: 27.MAR.2021 16:11:06

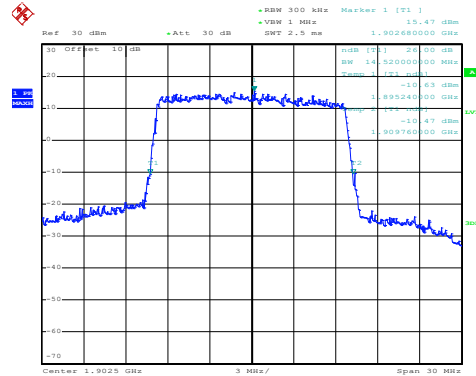
Middle channel

16QAM



Date: 28.MAR.2021 13:07:56

QPSK

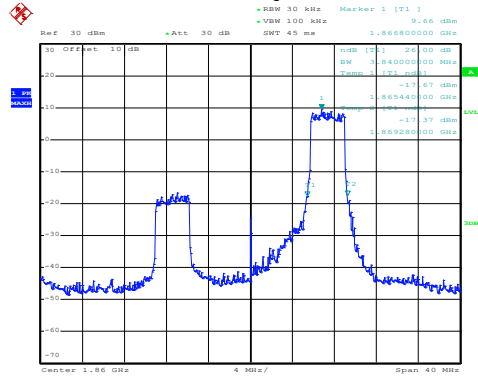


Date: 27.MAR.2021 16:11:53

Highest channel

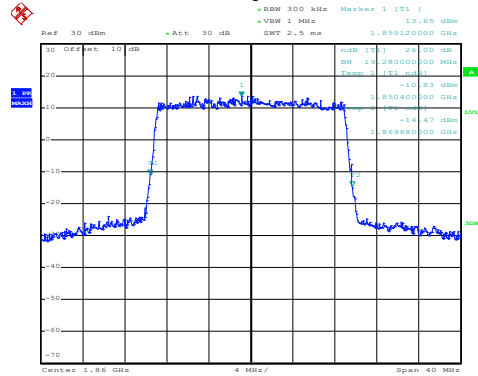
LTE Band 2: -26dBc bandwidth  
BW: 20MHz

16QAM



Date: 28.MAR.2021 13:09:51

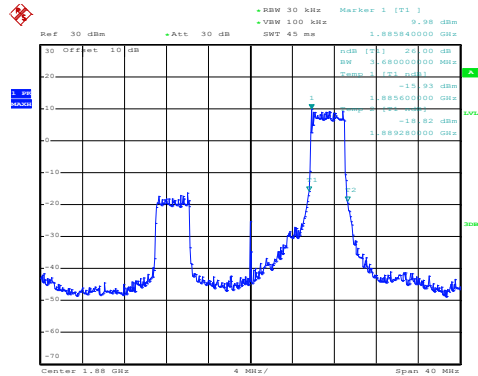
QPSK



Date: 27.MAR.2021 16:14:14

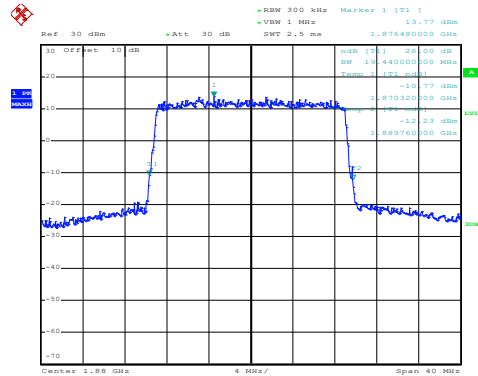
Lowest channel

16QAM



Date: 28.MAR.2021 13:11:44

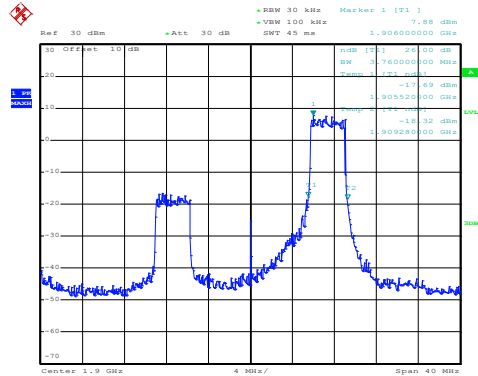
QPSK



Date: 27.MAR.2021 16:17:17

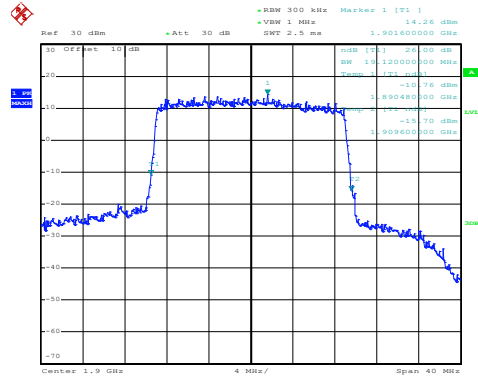
Middle channel

16QAM



Date: 28.MAR.2021 13:14:03

QPSK

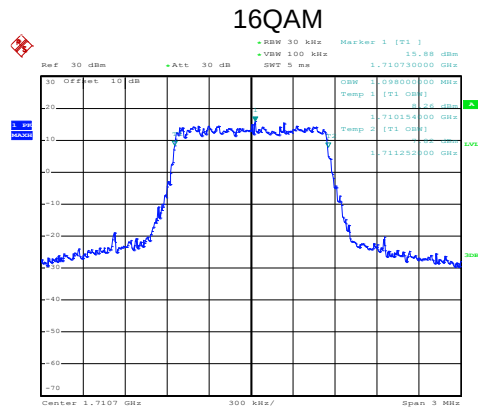


Date: 27.MAR.2021 16:17:58

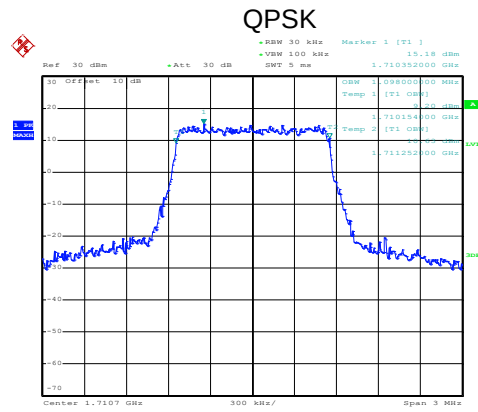
Highest channel

## LTE Band 4 part:

### LTE Band 4: 99% Occupancy bandwidth BW: 1.4MHz

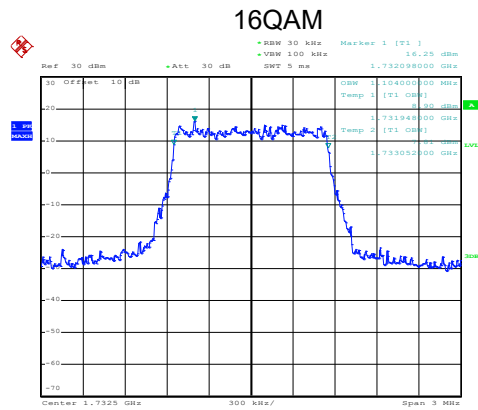


Date: 27.MAR.2021 16:21:11

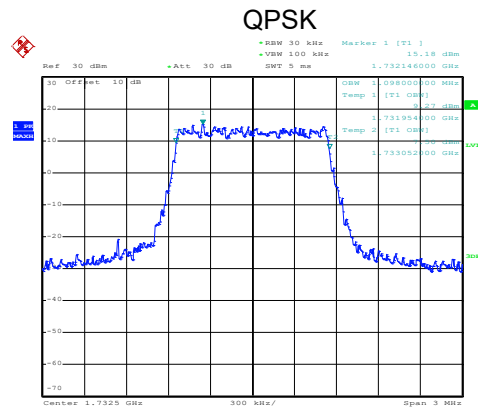


Date: 27.MAR.2021 16:21:05

### Lowest channel

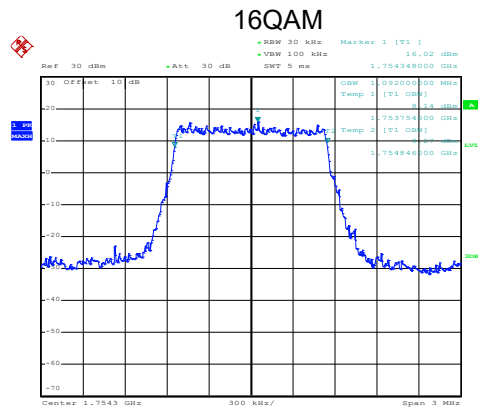


Date: 27.MAR.2021 16:21:47

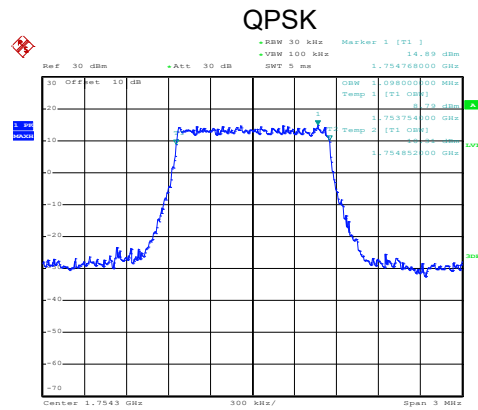


Date: 27.MAR.2021 16:21:43

### Middle channel



Date: 27.MAR.2021 16:23:30

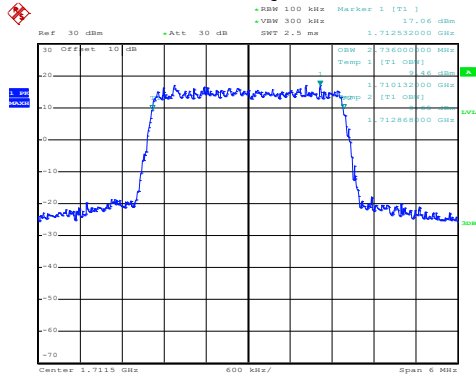


Date: 27.MAR.2021 16:23:24

### Highest channel

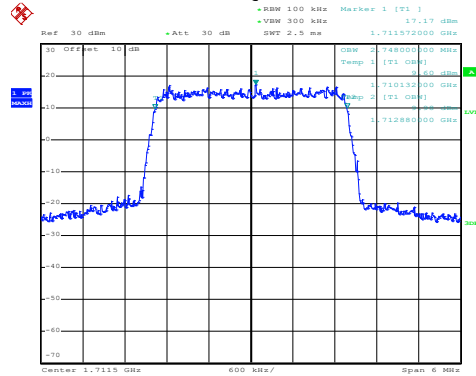
LTE Band 4: 99% Occupancy bandwidth  
BW: 3MHz

16QAM



Date: 27.MAR.2021 16:25:17

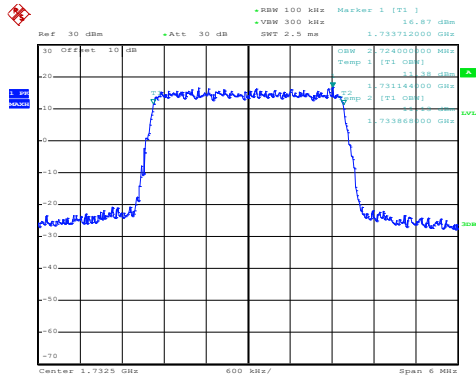
QPSK



Date: 27.MAR.2021 16:25:12

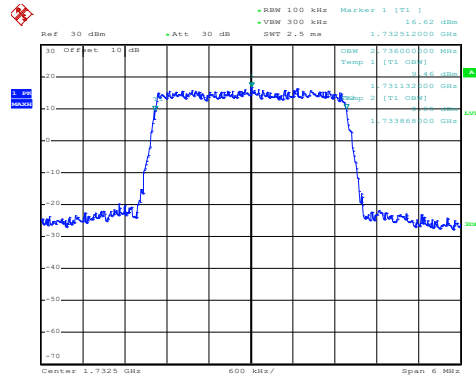
Lowest channel

16QAM



Date: 27.MAR.2021 16:25:48

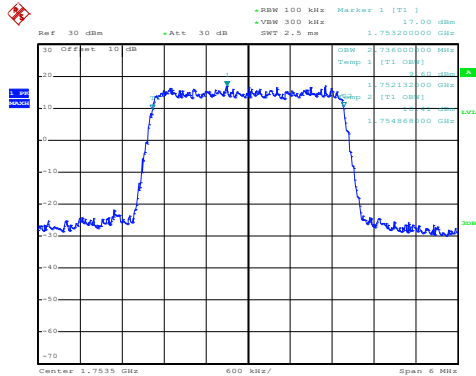
QPSK



Date: 27.MAR.2021 16:25:43

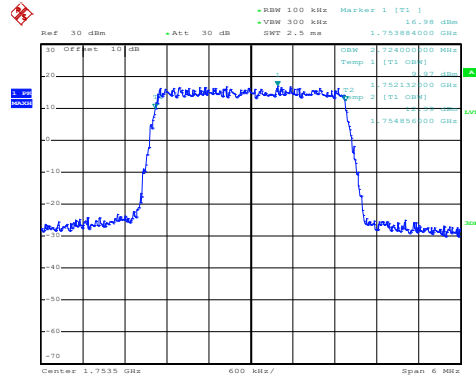
Middle channel

16QAM



Date: 27.MAR.2021 16:28:07

QPSK



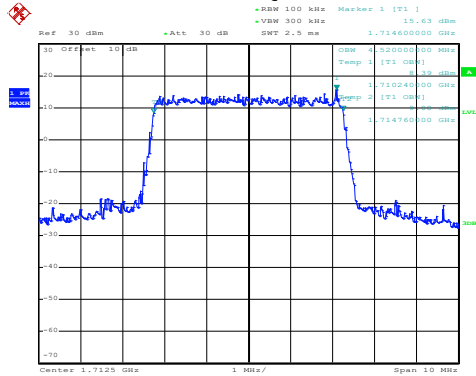
Date: 27.MAR.2021 16:28:01

Highest channel



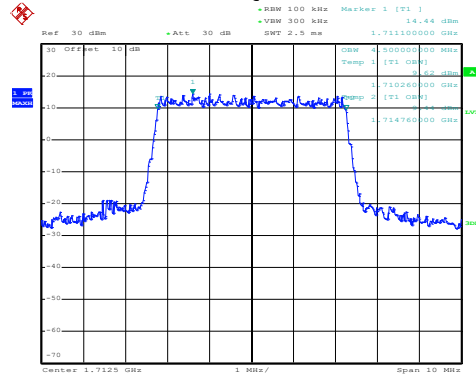
LTE Band 4: 99% Occupancy bandwidth  
BW: 5MHz

16QAM



Date: 27.MAR.2021 16:30:27

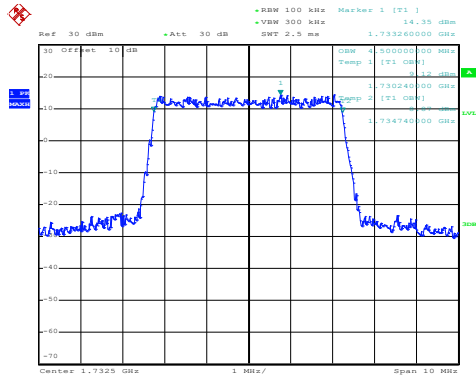
QPSK



Date: 27.MAR.2021 16:30:20

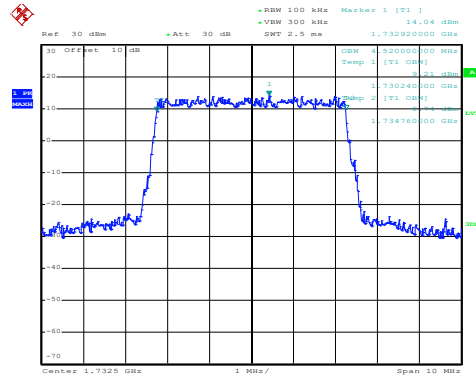
Lowest channel

16QAM



Date: 27.MAR.2021 16:31:05

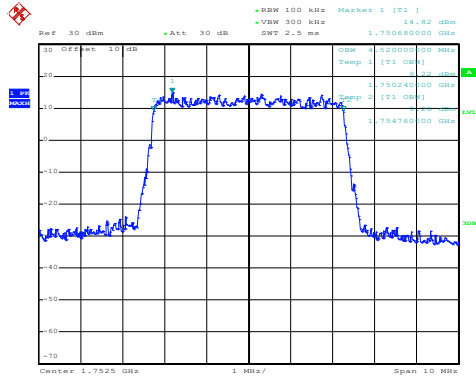
QPSK



Date: 27.MAR.2021 16:31:00

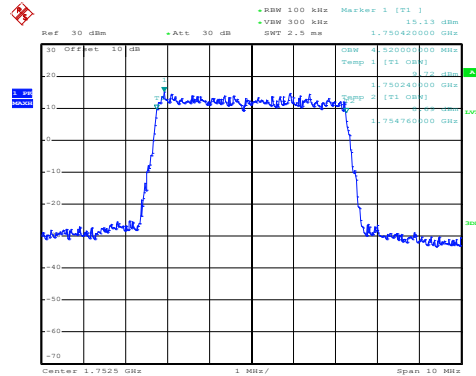
Middle channel

16QAM



Date: 27.MAR.2021 16:32:44

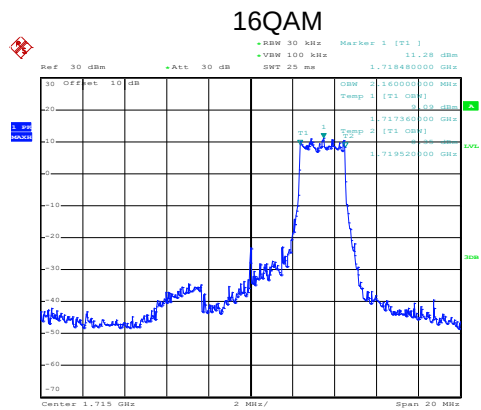
QPSK



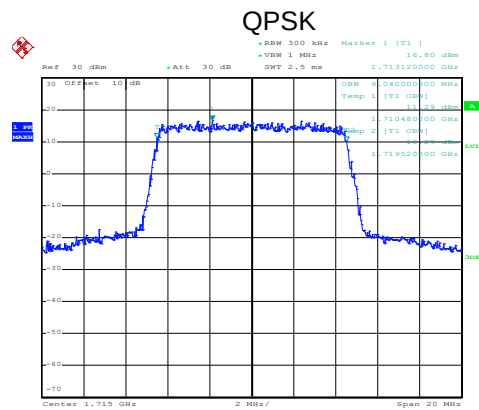
Date: 27.MAR.2021 16:32:39

Highest channel

LTE Band 4: 99% Occupy bandwidth  
BW: 10MHz

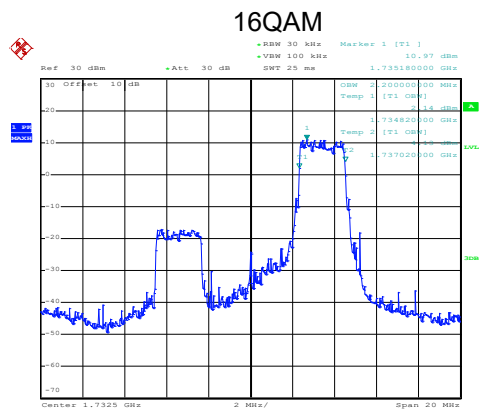


Date: 28.MAR.2021 13:15:53

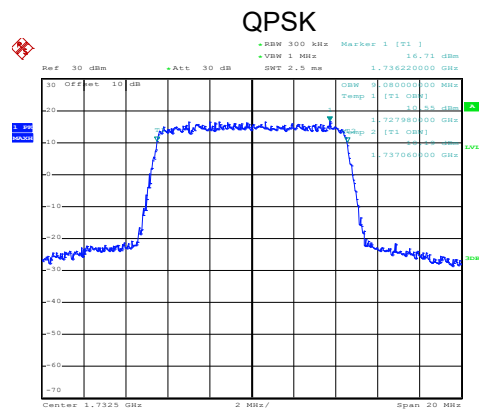


Date: 27.MAR.2021 16:34:29

Lowest channel

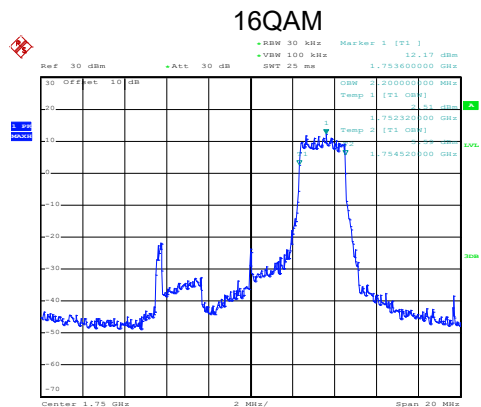


Date: 28.MAR.2021 13:16:10

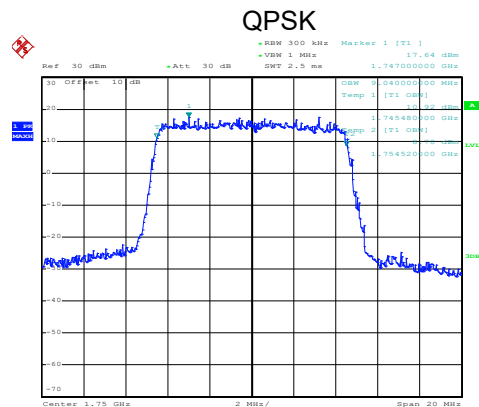


Date: 27.MAR.2021 16:37:02

Middle channel



Date: 28.MAR.2021 13:17:03

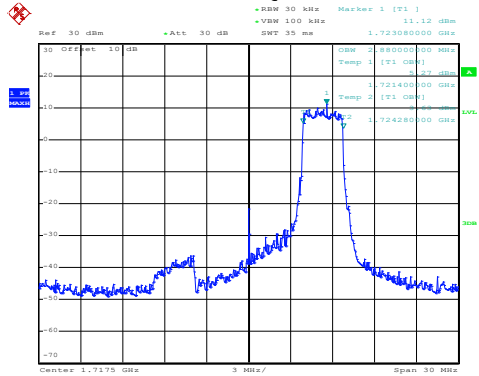


Date: 27.MAR.2021 16:42:02

## Highest channel

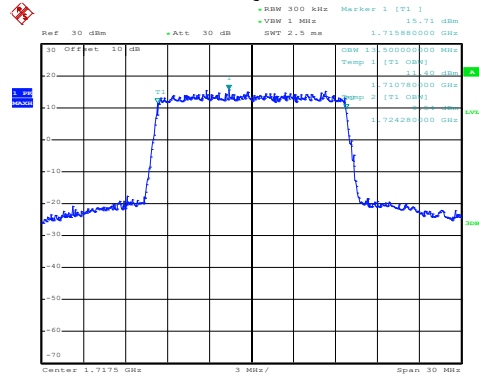
### LTE Band 4: 99% Occupancy bandwidth BW: 15MHz

#### 16QAM



Date: 28.MAR.2021 13:17:41

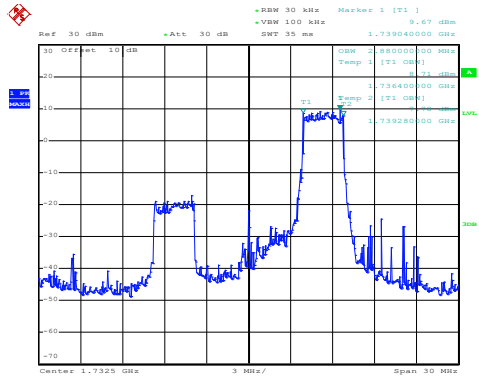
#### QPSK



Date: 27.MAR.2021 16:45:06

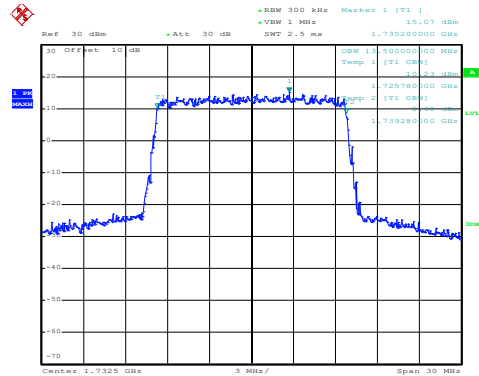
### Lowest channel

#### 16QAM



Date: 28.MAR.2021 13:18:31

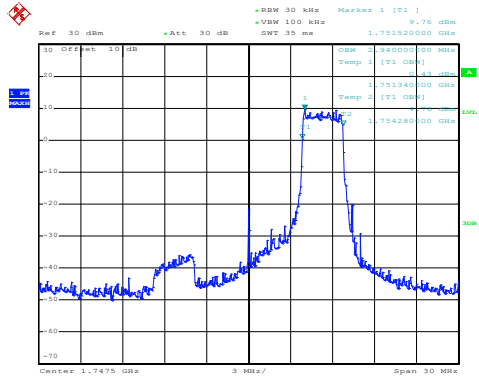
#### QPSK



Date: 27.MAR.2021 16:48:53

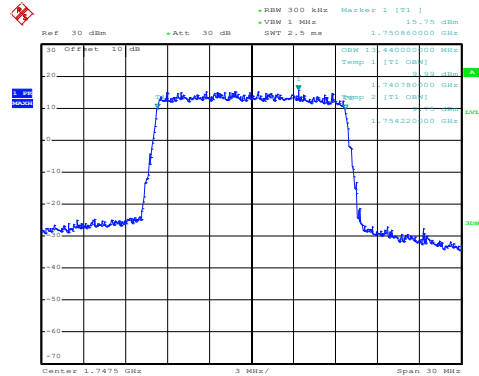
### Middle channel

#### 16QAM



Date: 28.MAR.2021 13:18:53

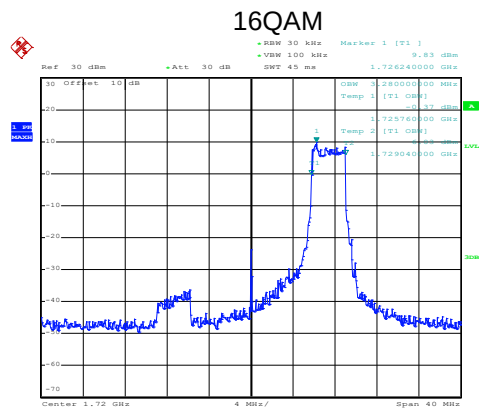
#### QPSK



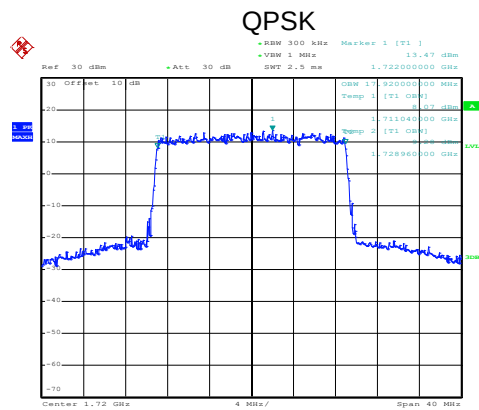
Date: 27.MAR.2021 16:51:06

### Highest channel

LTE Band 4: 99% Occupy bandwidth  
BW: 20MHz

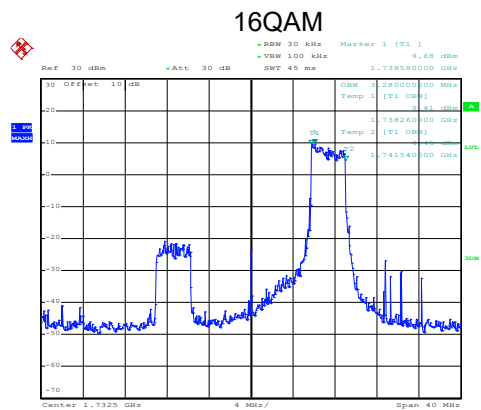


Date: 28.MAR.2021 13:20:03

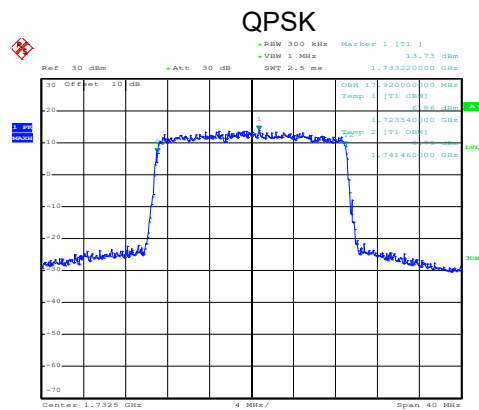


Date: 27.MAR.2021 16:55:22

Lowest channel

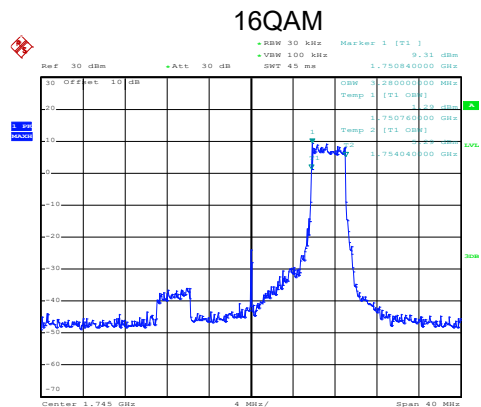


Date: 28.MAR.2021 13:20:20

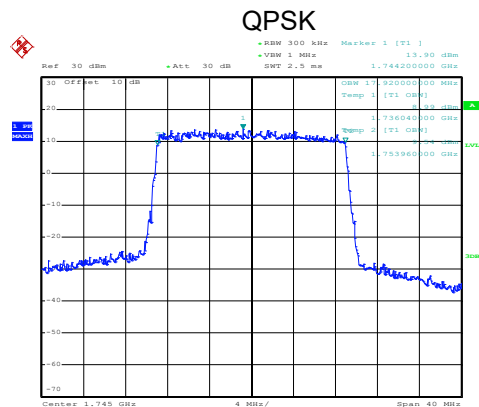


Date: 27.MAR.2021 16:58:19

Middle channel



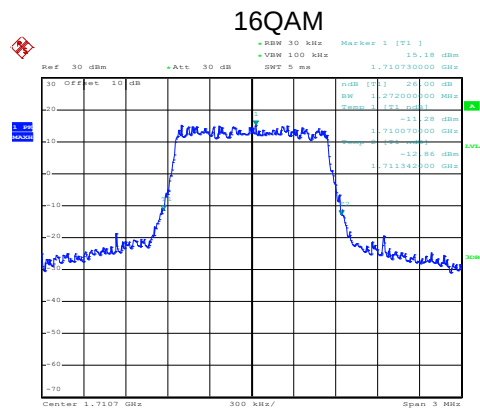
Date: 28.MAR.2021 13:21:25



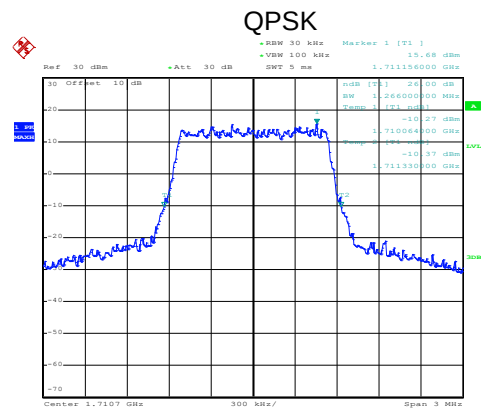
Date: 27.MAR.2021 17:01:07

## Highest channel

LTE Band 4: -26dBc bandwidth  
BW: 1.4MHz

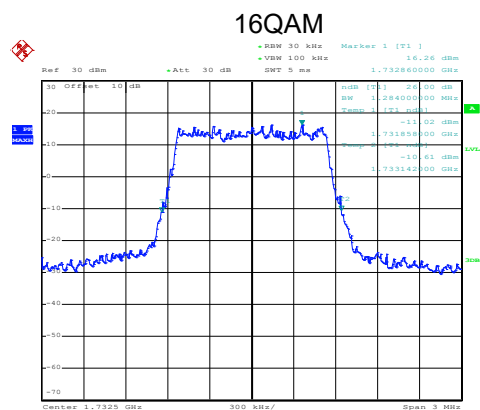


Date: 27.MAR.2021 16:20:44

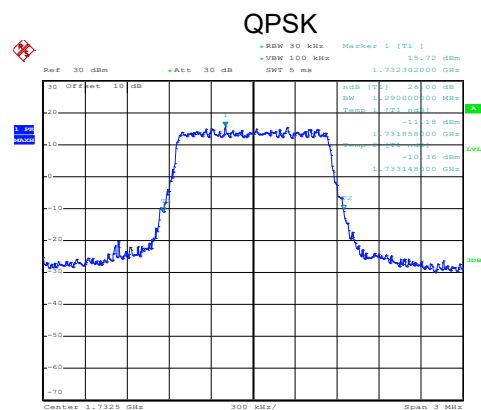


Date: 27.MAR.2021 16:20:38

Lowest channel

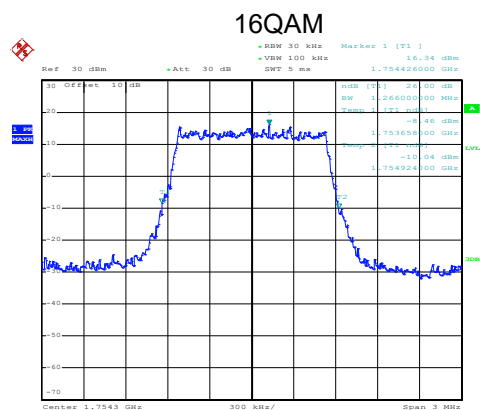


Date: 27.MAR.2021 16:22:14

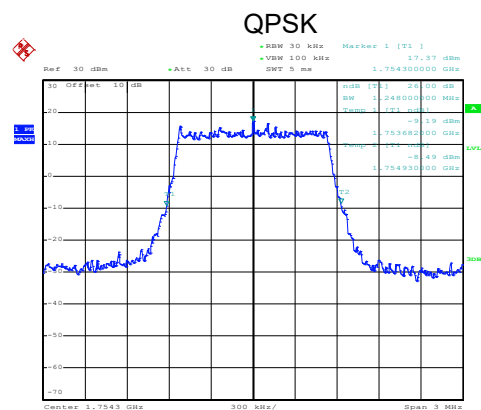


Date: 27.MAR.2021 16:22:08

Middle channel



Date: 27.MAR.2021 16:23:55

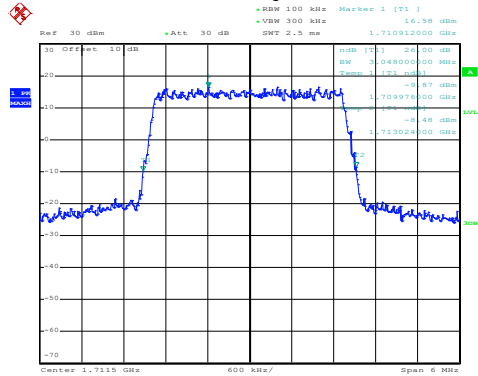


Date: 27.MAR.2021 16:23:50

## Highest channel

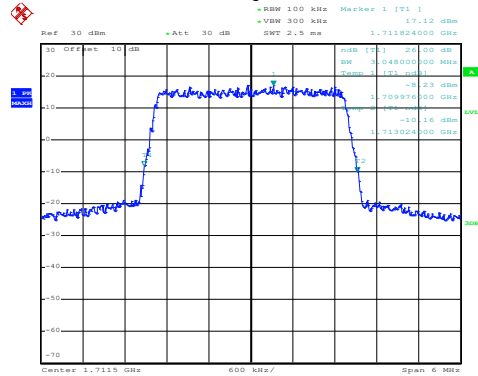
LTE Band 4: -26dBc bandwidth  
BW: 3MHz

16QAM



Date: 27.MAR.2021 16:24:53

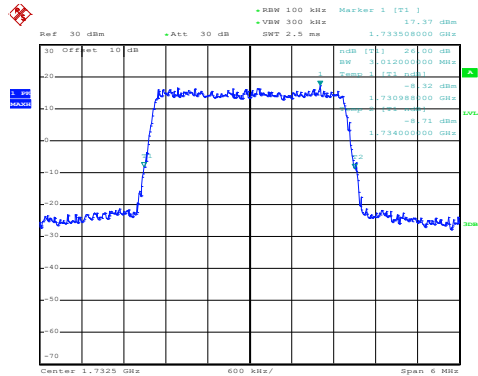
QPSK



Date: 27.MAR.2021 16:24:48

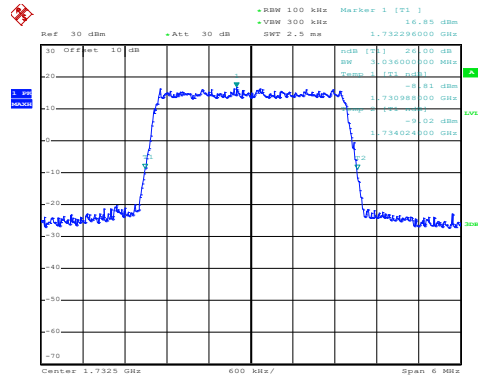
Lowest channel

16QAM



Date: 27.MAR.2021 16:26:14

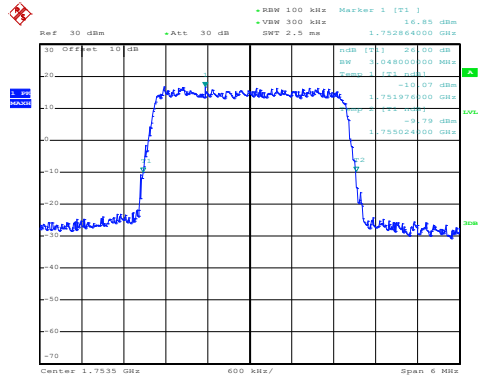
QPSK



Date: 27.MAR.2021 16:26:09

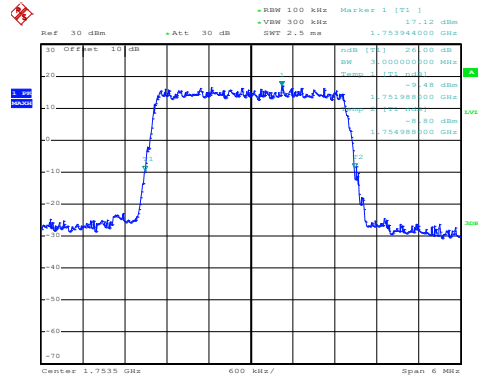
Middle channel

16QAM



Date: 27.MAR.2021 16:27:40

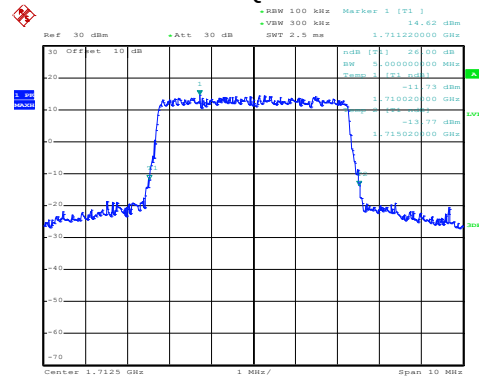
QPSK



Date: 27.MAR.2021 16:27:35

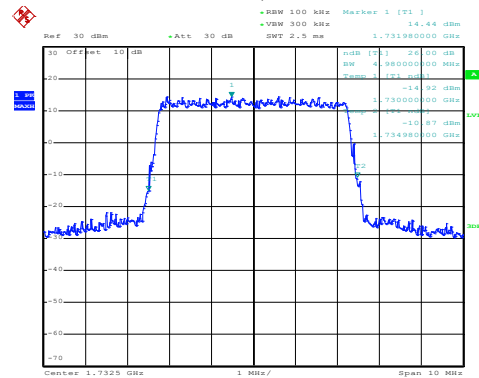
Highest channel

QPSK



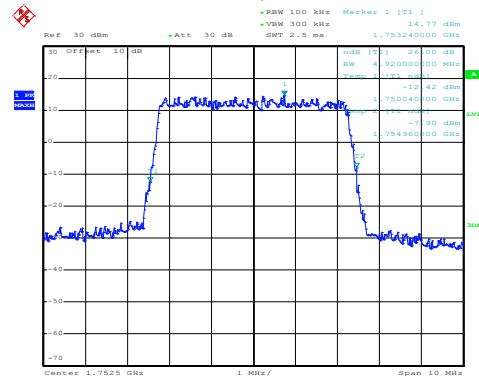
Date: 27.MAR.2021 16:29:55

QPSK



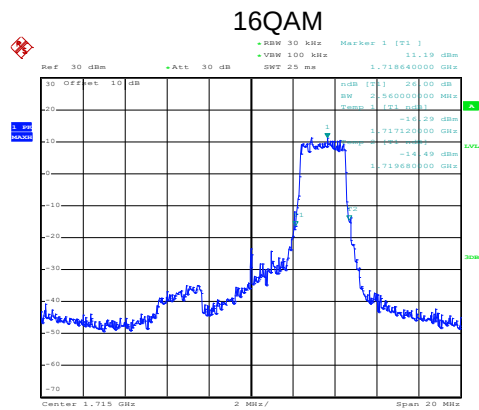
Date: 27.MAR.2021 16:31:26

QPSK

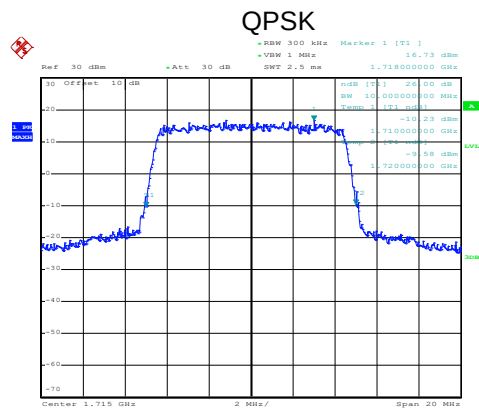


Date: 27.MAR.2021 16:33:02

LTE Band 4: -26dBc bandwidth  
BW: 10MHz

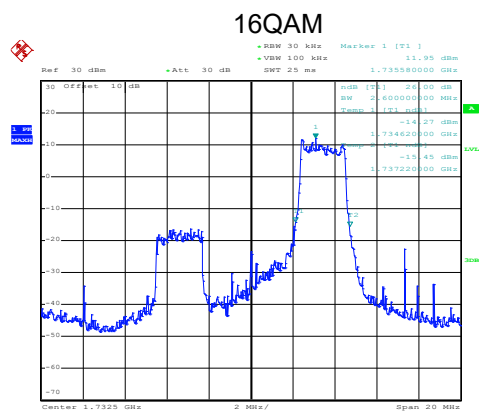


Date: 28.MAR.2021 13:15:40

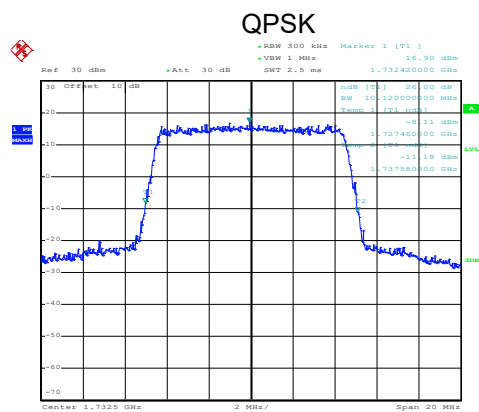


Date: 27.MAR.2021 16:34:01

Lowest channel

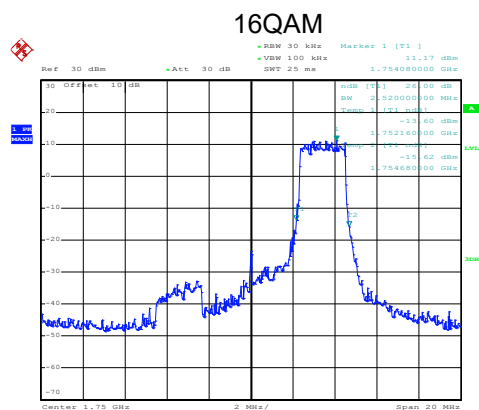


Date: 28.MAR.2021 13:16:22

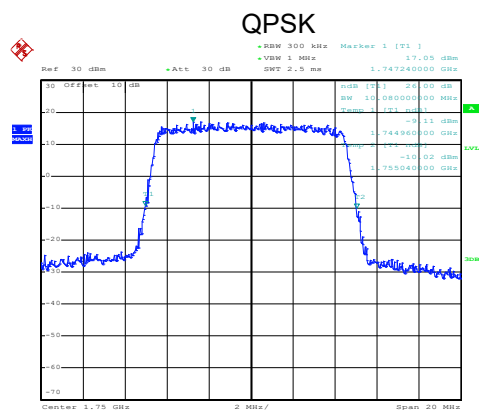


Date: 27.MAR.2021 16:37:27

Middle channel



Date: 28.MAR.2021 13:16:48



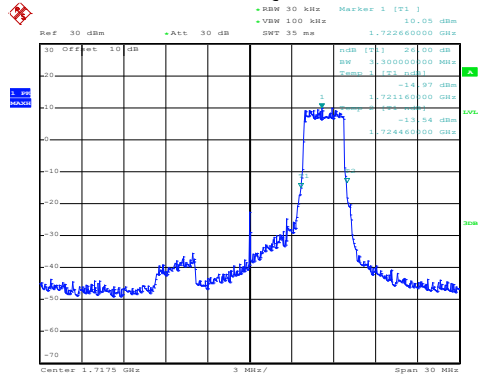
Date: 27.MAR.2021 16:41:37

## Highest channel



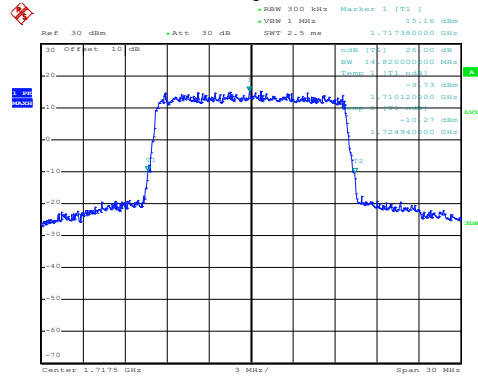
### LTE Band 4: -26dBc bandwidth BW: 15MHz

#### 16QAM



Date: 28.MAR.2021 13:17:54

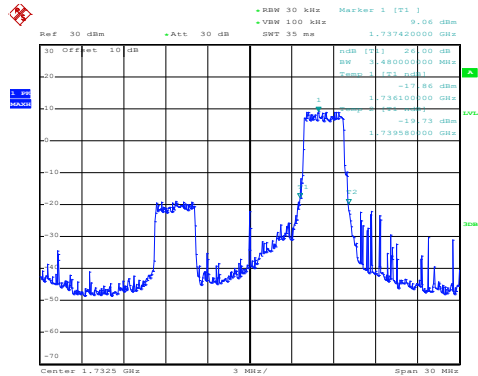
#### QPSK



Date: 27.MAR.2021 16:45:33

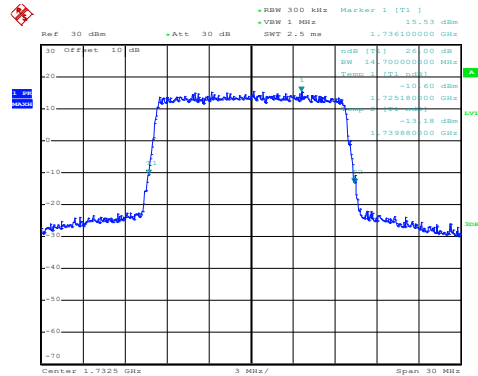
### Lowest channel

#### 16QAM



Date: 28.MAR.2021 13:18:19

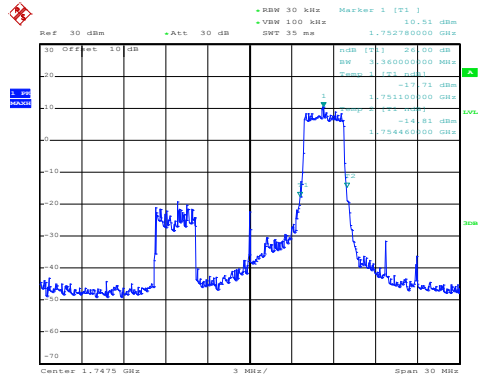
#### QPSK



Date: 27.MAR.2021 16:48:20

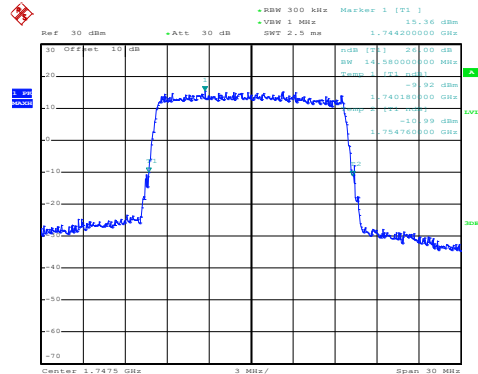
### Middle channel

#### 16QAM



Date: 28.MAR.2021 13:19:05

#### QPSK

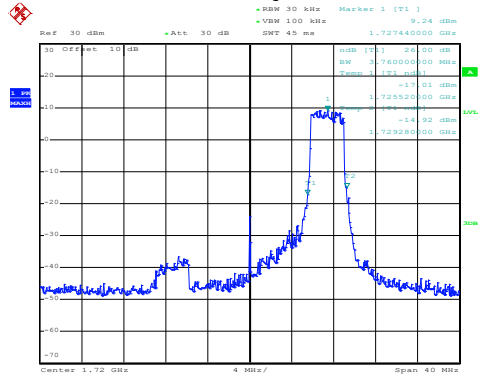


Date: 27.MAR.2021 16:51:40

### Highest channel

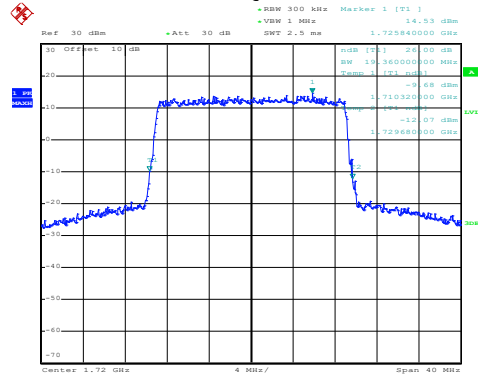
LTE Band 4: -26dBc bandwidth  
BW: 20MHz

16QAM



Date: 28.MAR.2021 13:19:50

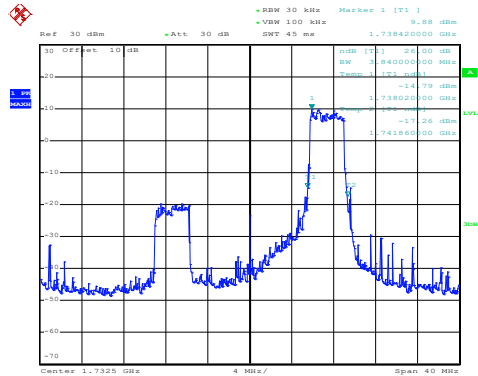
QPSK



Date: 27.MAR.2021 16:54:52

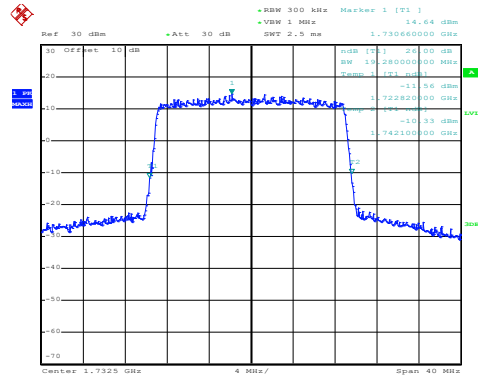
Lowest channel

16QAM



Date: 28.MAR.2021 13:20:45

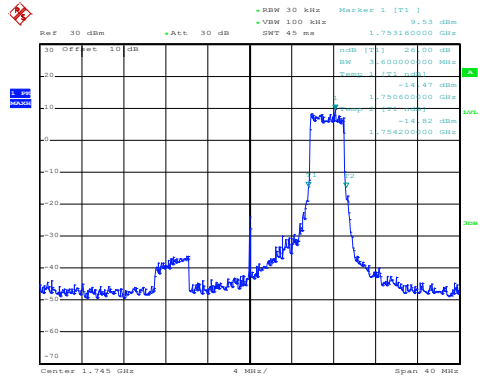
QPSK



Date: 27.MAR.2021 16:57:39

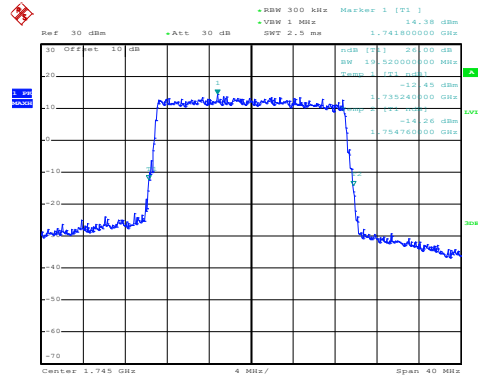
Middle channel

16QAM



Date: 28.MAR.2021 13:21:12

QPSK



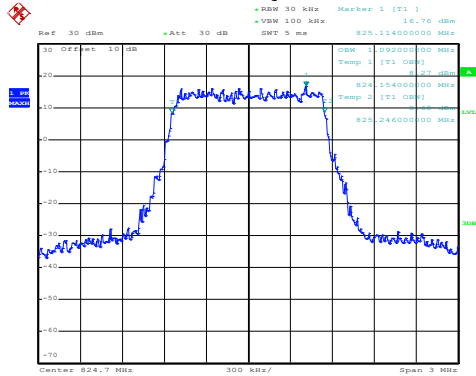
Date: 27.MAR.2021 17:00:36

Highest channel

## LTE Band 5 part:

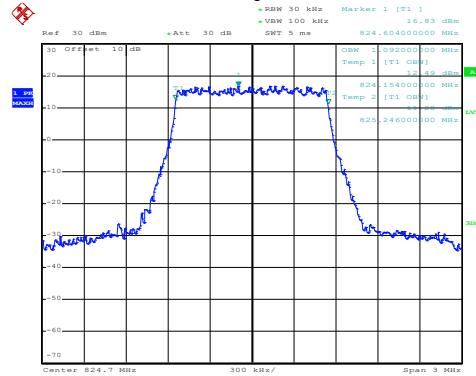
LTE Band 5: 99% Occupancy bandwidth  
BW: 1.4MHz

16QAM



Date: 27.MAR.2021 18:02:20

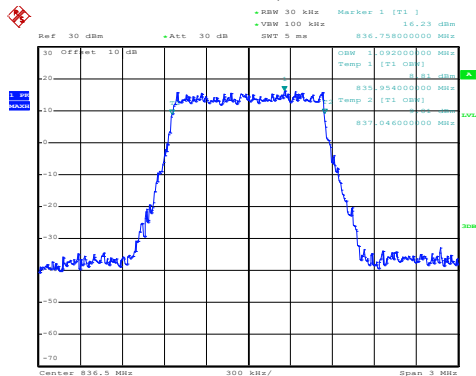
QPSK



Date: 27.MAR.2021 18:02:16

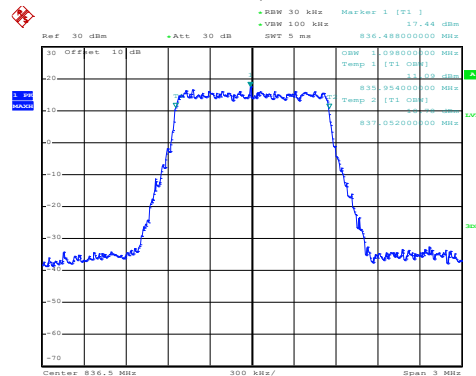
Lowest channel

16QAM



Date: 27.MAR.2021 18:02:53

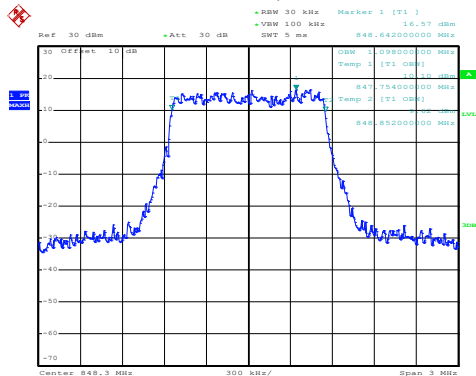
QPSK



Date: 27.MAR.2021 18:02:50

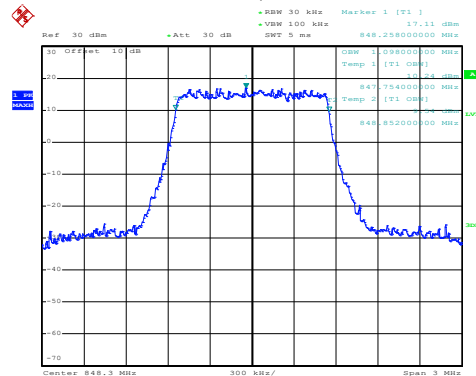
Middle channel

16QAM



Date: 27.MAR.2021 18:04:11

QPSK

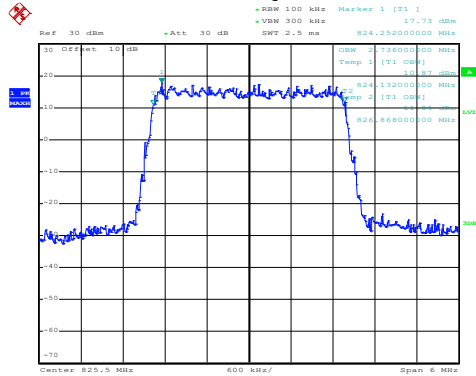


Date: 27.MAR.2021 18:04:07

Highest channel

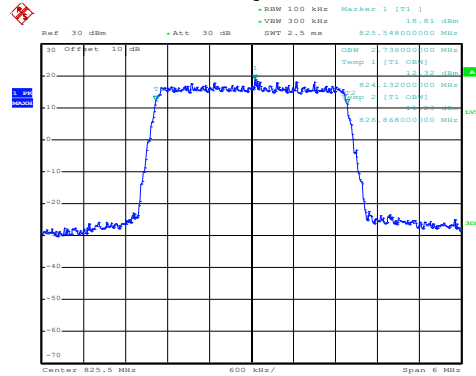
LTE Band 5: 99% Occupancy bandwidth  
BW: 3MHz

16QAM



Date: 27.MAR.2021 18:05:11

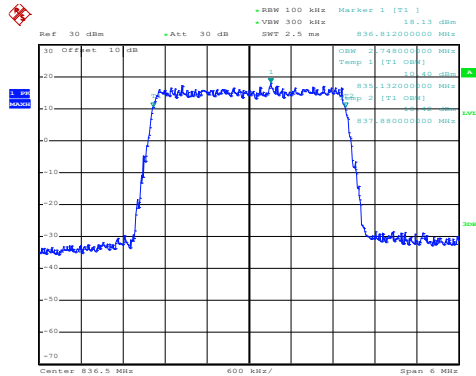
QPSK



Date: 27.MAR.2021 18:05:08

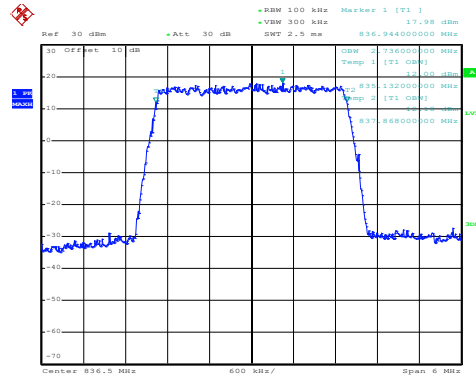
Lowest channel

16QAM



Date: 27.MAR.2021 18:06:08

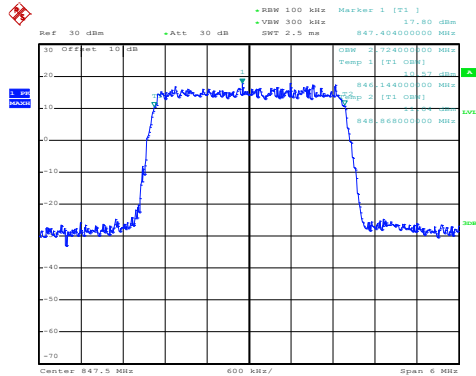
QPSK



Date: 27.MAR.2021 18:06:03

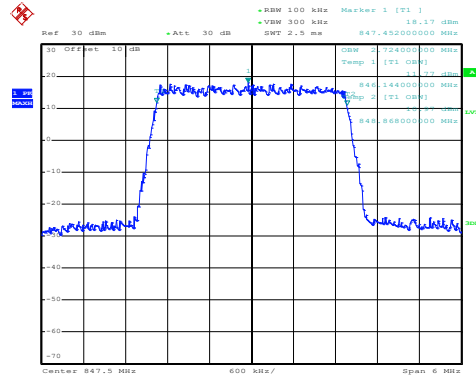
Middle channel

16QAM



Date: 27.MAR.2021 18:06:50

QPSK



Date: 27.MAR.2021 18:06:46

Highest channel