



FCC ID: QYLWP7603BC03  
Report No.: T190115W01-RP4

ISED: 10301A-WP7603BC03

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**FCC 47 CFR PART 27  
&  
INDUSTRY CANADA RSS-130 & RSS-139**

**For**

**Body Worn Camera**

**FCC Model No.: BC-03**

**ISED Model No.: ATT-WP7603**

**Trade Name: Getac**

*Issued to*

**Getac Technology Corp.  
5F, Building A, No.209, Sec.1, Nangang Rd., Nangang Dist., Taipei City  
11568, Taiwan.**

*Issued by*

**Compliance Certification Services Inc.  
No.11, Wugong 6th Rd., Wugu Dist.,  
New Taipei City 24891, Taiwan. (R.O.C.)  
Issued Date: June 12, 2019**

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
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### **Revision History**

| Rev. | Issue Date    | Revisions     | Effect Page | Revised By |
|------|---------------|---------------|-------------|------------|
| 00   | June 12, 2019 | Initial Issue | ALL         | May Lin    |

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## 1. TEST RESULT CERTIFICATION

**Applicant:** Getac Technology Corp.  
5F, Building A, No.209, Sec.1, Nangang Rd., Nangang Dist.,  
Taipei City 11568, Taiwan.

**Manufacturer:** Getac Technology Corp.  
4F., NO.1, R&D ROAD 2, SCIENCE PARK, HSINCHU,  
TAIWAN, R.O.C.

**Equipment Under Test:** Body Worn Camera

**Trade Name:** Getac

**FCC Model No.:** BC-03

**ISED Model No.:** ATT-WP7603

**Date of Test:** February 18 ~ March 13, 2019

| APPLICABLE STANDARDS                                                                        |                         |
|---------------------------------------------------------------------------------------------|-------------------------|
| Standard                                                                                    | TEST RESULT             |
| FCC Part 27, FCC Part 2<br>&<br>RSS-130 Issue 1 October 2013 &<br>RSS-139 Issue 3 July 2015 | No non-compliance noted |

| Statements of Conformity                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Determination of compliance is based on the results of the compliance measurement,<br>not taking into account measurement instrumentation uncertainty. |

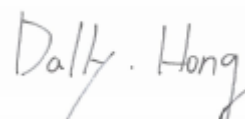
The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by

Tested by



Kevin Tsai  
Deputy Manager  
Compliance Certification Services Inc.



Dally Hong  
Engineer  
Compliance Certification Services Inc.

## 2. EUT DESCRIPTION

|                              |                                                           |                                     |
|------------------------------|-----------------------------------------------------------|-------------------------------------|
| <b>Product</b>               | Body Worn Camera                                          |                                     |
| <b>FCC Model No.</b>         | BC-03                                                     |                                     |
| <b>ISED Model No.</b>        | ATT-WP7603                                                |                                     |
| <b>Model Discrepancy</b>     | N/A                                                       |                                     |
| <b>Trade</b>                 | Getac                                                     |                                     |
| <b>Received Date</b>         | January 15, 2019                                          |                                     |
| <b>Power Supply</b>          | 1. Powered from battery: DC 5V<br>2. Powered from docking |                                     |
| <b>Modulation Technology</b> | LTE Band 12                                               | QPSK, 16QAM                         |
|                              | LTE Band 4                                                | QPSK, 16QAM                         |
| <b>Frequency Range</b>       | LTE Band 12<br>Channel Bandwidth: 1.4MHz                  | 699.7MHz ~ 715.3MHz                 |
|                              | LTE Band 12<br>Channel Bandwidth: 3MHz                    | 700.5MHz ~ 714.5MHz                 |
|                              | LTE Band 12<br>Channel Bandwidth: 5MHz                    | 701.5MHz ~ 713.5MHz                 |
|                              | LTE Band 12<br>Channel Bandwidth: 10MHz                   | 704.0MHz ~ 711.0MHz                 |
|                              | LTE Band 4<br>Channel Bandwidth: 1.4MHz                   | 1710.7MHz ~1754.2MHz                |
|                              | LTE Band 4<br>Channel Bandwidth: 3MHz                     | 1711.5MHz ~ 1753.4MHz               |
|                              | LTE Band 4<br>Channel Bandwidth: 5MHz                     | 1712.5MHz ~1752.5MHz                |
|                              | LTE Band 4<br>Channel Bandwidth: 10MHz                    | 1715.0MHz ~1750.0MHz                |
|                              | LTE Band 4<br>Channel Bandwidth: 15MHz                    | 1717.5MHz ~ 1747.5MHz               |
|                              | LTE Band 4<br>Channel Bandwidth: 20MHz                    | 1720MHz ~1745MHz                    |
|                              | LTE Band 12<br>Channel Bandwidth: 1.4MHz                  | QPSK: 25.50 dBm<br>16QAM: 25.61 dBm |
| <b>Maximum ERP Power</b>     | LTE Band 12<br>Channel Bandwidth: 3MHz                    | QPSK: 25.11 dBm<br>16QAM: 25.03 dBm |
|                              | LTE Band 12<br>Channel Bandwidth: 5MHz                    | QPSK: 25.26 dBm<br>16QAM: 25.35 dBm |

|                              |                                                                              |                                     |
|------------------------------|------------------------------------------------------------------------------|-------------------------------------|
|                              | LTE Band 12<br>Channel Bandwidth: 10MHz                                      | QPSK: 25.46 dBm<br>16QAM: 25.49 dBm |
| <b>Maximum EIRP Power</b>    | LTE Band 4<br>Channel Bandwidth: 1.4MHz                                      | QPSK: 27.98 dBm<br>16QAM: 27.68 dBm |
|                              | LTE Band 4<br>Channel Bandwidth: 3MHz                                        | QPSK: 27.91 dBm<br>16QAM: 27.78 dBm |
|                              | LTE Band 4<br>Channel Bandwidth: 5MHz                                        | QPSK: 28.04 dBm<br>16QAM: 27.76 dBm |
|                              | LTE Band 4<br>Channel Bandwidth: 10MHz                                       | QPSK: 28.27 dBm<br>16QAM: 27.87 dBm |
|                              | LTE Band 4<br>Channel Bandwidth: 15MHz                                       | QPSK: 28.03 dBm<br>16QAM: 27.74 dBm |
|                              | LTE Band 4<br>Channel Bandwidth: 20MHz                                       | QPSK: 26.72 dBm<br>16QAM: 26.46 dBm |
| <b>Antenna Specification</b> | Coupling Antenna<br>LTE Band 4: Gain: 0.86dBi<br>LTE Band 12: Gain: -2.76dBi |                                     |

**Note:** 1. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

### 3. TEST METHODOLOGY

#### 3.1 DESCRIPTION OF TEST TYPE

The EUT had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

#### LTE Band 12: 699 MHz ~ 716 MHz

Three channels had been tested for each channel bandwidth.

| Channel Bandwidth  | 1.4MHz  |                | 3MHz    |                |
|--------------------|---------|----------------|---------|----------------|
|                    | Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| Low channel (L)    | 23017   | 699.7          | 23025   | 700.5          |
| Middle channel (M) | 23095   | 707.5          | 23095   | 707.5          |
| High channel (H)   | 23173   | 715.3          | 23165   | 714.5          |
| Channel Bandwidth  | 5MHz    |                | 10MHz   |                |
|                    | Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| Low channel (L)    | 23035   | 701.5          | 23060   | 704.0          |
| Middle channel (M) | 23095   | 707.5          | 23095   | 707.5          |
| High channel (H)   | 23155   | 713.5          | 23130   | 711.0          |

#### LTE Band 4: 1710MHz ~ 1755MHz

Three channels had been tested for each channel bandwidth.

| Channel Bandwidth  | 1.4MHz  |                 | 3MHz    |                 | 5MHz    |                 |
|--------------------|---------|-----------------|---------|-----------------|---------|-----------------|
|                    | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| Low channel (L)    | 19957   | 1710.7          | 19965   | 1711.5          | 19975   | 1712.5          |
| Middle channel (M) | 20175   | 1732.5          | 20175   | 1732.5          | 20175   | 1732.5          |
| High channel (H)   | 20393   | 1754.3          | 20384   | 1753.4          | 20375   | 1752.5          |
| Channel Bandwidth  | 10MHz   |                 | 15MHz   |                 | 20MHz   |                 |
|                    | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| Low channel (L)    | 20000   | 1715.0          | 20025   | 1717.5          | 20050   | 1720            |
| Middle channel (M) | 20175   | 1732.5          | 20175   | 1732.5          | 20175   | 1732.5          |
| High channel (H)   | 20350   | 1750.0          | 20325   | 1747.5          | 20300   | 1745            |

For test mode:

The conducted power be measured in 1, 50% and 100% RB allocation, offset to upper edge, centered and lower edge of the channel bandwidth of each required channel.

|         | QPSK | Worst Mode                       | 16QAM | Worst Mode                       |
|---------|------|----------------------------------|-------|----------------------------------|
| Band 4  | 1.4M | 1 RB ALLOCATED AT THE LOWER EDGE | 1.4M  | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 3M   | 1 RB ALLOCATED AT THE LOWER EDGE | 3M    | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 5M   | 1 RB ALLOCATED AT THE LOWER EDGE | 5M    | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 10M  | 1 RB ALLOCATED AT THE LOWER EDGE | 10M   | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 15M  | 1 RB ALLOCATED AT THE LOWER EDGE | 15M   | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 20M  | 1 RB ALLOCATED AT THE LOWER EDGE | 20M   | 1 RB ALLOCATED AT THE LOWER EDGE |
| Band 12 | 1.4M | 1 RB ALLOCATED AT THE LOWER EDGE | 1.4M  | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 3M   | 1 RB ALLOCATED AT THE LOWER EDGE | 3M    | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 5M   | 1 RB ALLOCATED AT THE LOWER EDGE | 5M    | 1 RB ALLOCATED AT THE LOWER EDGE |
|         | 10M  | 1 RB ALLOCATED AT THE LOWER EDGE | 10M   | 1 RB ALLOCATED AT THE LOWER EDGE |

### 3.2 The worst mode of measurement

| Radiated Emission Measurement |                                                                                                                                                                                                                                                                                               |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Condition                | Band edge, Emission for Unwanted and Fundamental                                                                                                                                                                                                                                              |
| Power supply Mode             | Mode 1: EUT Power by Docking (Big).<br>Mode 2: EUT Power by Docking (Small).<br>Mode 3: EUT Power by Battery.                                                                                                                                                                                 |
| Worst Mode                    | <input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4                                                                                                                                                    |
| Position                      | <input type="checkbox"/> Placed in fixed position.<br><input checked="" type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane)<br><input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane)<br><input type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane) |

| Radiated Emission Measurement Below 1G |                                                                                                                                            |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Test Condition                         | Radiated Emission Below 1G                                                                                                                 |
| Power supply Mode                      | Mode 1: EUT Power by Docking (Big).<br>Mode 2: EUT Power by Docking (Small).<br>Mode 3: EUT Power by Battery.                              |
| Worst Mode                             | <input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 |

Remark:

1. The worst mode was record in this test report.
2. The EUT pre-scanned in three axis, X, Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case (X-Plane) were recorded in this report.

#### 4. Test Summery

| FCC Standard Sec.      | IC Standard Sec.   | Chapter | Test Item                    | Result |
|------------------------|--------------------|---------|------------------------------|--------|
| 2.1046                 | RSS GEN 6.12       | 8.1     | OUTPUT POWER MEASUREMENT     | Pass   |
| 27.50 (c)<br>27.50 (d) | RSS-130<br>RSS-139 | 8.2     | ERP & EIRP                   | Pass   |
| 27.54                  | RSS-130<br>RSS-139 | 8.3     | FREQUENCY STABILITY          | Pass   |
| 2.1049                 | RSS-GEN Sec. 6.6   | 8.4     | OCCUPIED BANDWIDTH           | Pass   |
| 27.50                  | RSS-130<br>RSS-139 | 8.5     | PEAK TO AVERAGE POWER RATIO  | Pass   |
| 27.53                  | RSS-130<br>RSS-139 | 8.6     | BAND EDGE                    | Pass   |
| 27.53                  | RSS-130<br>RSS-139 | 8.7     | CONDUCTED SPURIOUS EMISSIONS | Pass   |
| 27.53                  | RSS-130<br>RSS-139 | 8.8     | RADIATED EMISSION            | Pass   |

## 5. INSTRUMENT CALIBRATION

### 5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 5.2 MEASUREMENT EQUIPMENT USED

#### Equipment Used for Emissions Measurement

| Conducted Emissions Test Site       |                    |             |               |                  |                 |
|-------------------------------------|--------------------|-------------|---------------|------------------|-----------------|
| Name of Equipment                   | Manufacturer       | Model       | Serial Number | Calibration Date | Calibration Due |
| Coaxial Cable                       | Woken              | WC12        | CC001         | 06/29/2018       | 06/28/2019      |
| Coaxial Cable                       | Woken              | WC12        | CC002         | 06/29/2018       | 06/28/2019      |
| Coaxial Cable                       | Woken              | WC12        | CC003         | 06/29/2018       | 06/28/2019      |
| Power Divider                       | Solvang Technology | STI08-0015  | 008           | 07/27/2018       | 07/26/2019      |
| Wideband Radio Communication Tester | R&S                | CMW 500     | 116875        | 04/20/2018       | 04/19/2019      |
| Signal Analyzer                     | R&S                | FSV 40      | 101073        | 09/27/2018       | 09/26/2019      |
| Wireless Communication Test Set     | Agilent            | 8960/E5515C | MY48363204    | 07/23/2018       | 07/22/2019      |
| Software                            | N/A                |             |               |                  |                 |

| Wugu 966 Chamber A                  |                    |                 |               |                  |                 |
|-------------------------------------|--------------------|-----------------|---------------|------------------|-----------------|
| Name of Equipment                   | Manufacturer       | Model           | Serial Number | Calibration Date | Calibration Due |
| Bilog Antenna                       | Sunol Sciences     | JB1             | A052609       | 03/14/2018       | 03/13/2019      |
| Cable                               | HUBER SUHNER       | SUCOFLEX 104PEA | 23452         | 06/29/2018       | 06/28/2019      |
| Cable                               | HUBER SUHNER       | SUCOFLEX 104PEA | 33960         | 06/29/2018       | 06/28/2019      |
| Digital Radio Communication Tester  | R&S                | CMU200          | 116604        | 07/19/2018       | 07/18/2019      |
| Digital Thermo-Hygro Meter          | WISEWIND           | 1110            | D06           | 01/30/2019       | 01/29/2020      |
| Horn Antenna                        | SCHWARZBECK        | BBHA 9120D      | 779           | 03/14/2018       | 03/13/2019      |
| Pre-Amplifier                       | Anritsu            | MH648A          | M89145        | 06/29/2018       | 06/28/2019      |
| Pre-Amplifier                       | EMEC               | EM01G26G        | 060570        | 06/29/2018       | 06/28/2019      |
| Signal Analyzer                     | Agilent            | N9010A          | MY52220817    | 03/22/2018       | 03/21/2019      |
| Wideband Radio Communication Tester | R&S                | CMW 500         | 116875        | 04/20/2018       | 04/19/2019      |
| Antenna Tower                       | CCS                | CC-A-1F         | N/A           | N.C.R            | N.C.R           |
| Controller                          | CCS                | CC-C-1F         | N/A           | N.C.R            | N.C.R           |
| Turn Table                          | CCS                | CC-T-1F         | N/A           | N.C.R            | N.C.R           |
| Software                            | EZ-EMC (CCS-3A1RE) |                 |               |                  |                 |

**Remark:** Each piece of equipment is scheduled for calibration once a year.

### 5.3 MEASUREMENT UNCERTAINTY

| PARAMETER                             | UNCERTAINTY |
|---------------------------------------|-------------|
| 3M Semi Anechoic Chamber / 30M~200M   | +/-1.2575   |
| 3M Semi Anechoic Chamber / 200M~1000M | +/- 4.12    |
| 3M Semi Anechoic Chamber / 1G~8G      | +/- 4.68    |
| 3M Semi Anechoic Chamber / 8G~18G     | +/- 5.18    |
| 3M Semi Anechoic Chamber / 18G~26G    | +/- 5.47    |
| 3M Semi Anechoic Chamber / 26G~40G    | +/- 3.81    |

**Remark:** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 6. FACILITIES AND ACCREDITATIONS

### 6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 2013 and CISPR Publication 22.

### 6.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

## 7. SETUP OF EQUIPMENT UNDER TEST

### 7.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

### 7.2 SUPPORT EQUIPMENT

| No | Equipment | Brand | Model | Series No. | FCC ID | Data Cable | Power Cord |
|----|-----------|-------|-------|------------|--------|------------|------------|
|    | N/A       |       |       |            |        |            |            |

**Remark:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

## **8. TEST PROCEDURE AND RESULT**

### **8.1 OUTPUT POWER MEASUREMENT**

#### **TEST PROCEDURES**

##### **CONDUCTED POWER MEASUREMENT:**

1. The transmitter output power was connected to the call box.
2. Set EUT at maximum output power via call box.
3. Set Call box at lowest, middle and highest channels for each band and modulation.

**TEST RESULTS****LTE Band 12**

| Band | BW<br>(MHz) | Channel | Frequency<br>(MHz) | Mode  | UL RB<br>Allocation | UL RB<br>Start | MPR | Average<br>power(dBm) | Output Power<br>(W) |
|------|-------------|---------|--------------------|-------|---------------------|----------------|-----|-----------------------|---------------------|
| 12   | 10          | 23060   | 704.0              | QPSK  | 1                   | 0              | 0   | 22.3                  | 0.16788             |
|      |             |         |                    |       | 1                   | 24             | 0   | 22.2                  | 0.16482             |
|      |             |         |                    |       | 1                   | 49             | 0   | 22.1                  | 0.16144             |
|      |             |         |                    |       | 25                  | 0              | 1   | 22.0                  | 0.15922             |
|      |             |         |                    |       | 25                  | 12             | 1   | 21.7                  | 0.14859             |
|      |             |         |                    |       | 25                  | 24             | 1   | 21.5                  | 0.14158             |
|      |             |         |                    | 16QAM | 50                  | 0              | 1   | 21.6                  | 0.14454             |
|      |             |         |                    |       | 1                   | 0              | 1   | 22.0                  | 0.15668             |
|      |             |         |                    |       | 1                   | 24             | 1   | 21.9                  | 0.15596             |
|      |             |         |                    |       | 1                   | 49             | 1   | 21.9                  | 0.15417             |
|      |             |         |                    |       | 25                  | 0              | 2   | 20.6                  | 0.11535             |
|      |             |         |                    |       | 25                  | 12             | 2   | 20.5                  | 0.11324             |
|      |             |         |                    |       | 25                  | 24             | 2   | 20.5                  | 0.11143             |
|      |             |         |                    |       | 50                  | 0              | 2   | 20.6                  | 0.11350             |
|      |             | 23095   | 707.5              | QPSK  | 1                   | 0              | 0   | 22.2                  | 0.16520             |
|      |             |         |                    |       | 1                   | 24             | 0   | 22.1                  | 0.16032             |
|      |             |         |                    |       | 1                   | 49             | 0   | 22.2                  | 0.16406             |
|      |             |         |                    |       | 25                  | 0              | 1   | 21.2                  | 0.13274             |
|      |             |         |                    |       | 25                  | 12             | 1   | 21.2                  | 0.13152             |
|      |             |         |                    |       | 25                  | 24             | 1   | 21.2                  | 0.13062             |
|      |             |         |                    | 16QAM | 50                  | 0              | 1   | 21.2                  | 0.13092             |
|      |             |         |                    |       | 1                   | 0              | 1   | 21.2                  | 0.13243             |
|      |             |         |                    |       | 1                   | 24             | 1   | 21.2                  | 0.13305             |
|      |             |         |                    |       | 1                   | 49             | 1   | 21.2                  | 0.13152             |
|      |             |         |                    |       | 25                  | 0              | 2   | 20.3                  | 0.10765             |
|      |             |         |                    |       | 25                  | 12             | 2   | 20.3                  | 0.10691             |
|      |             |         |                    |       | 25                  | 24             | 2   | 20.2                  | 0.10447             |
|      |             |         |                    |       | 50                  | 0              | 2   | 20.2                  | 0.10351             |
|      |             | 23130   | 711.0              | QPSK  | 1                   | 0              | 0   | 22.1                  | 0.16181             |
|      |             |         |                    |       | 1                   | 24             | 0   | 22.1                  | 0.16293             |
|      |             |         |                    |       | 1                   | 49             | 0   | 22.0                  | 0.15996             |
|      |             |         |                    |       | 25                  | 0              | 1   | 21.3                  | 0.13552             |
|      |             |         |                    |       | 25                  | 12             | 1   | 21.3                  | 0.13397             |
|      |             |         |                    |       | 25                  | 24             | 1   | 21.2                  | 0.13243             |
|      |             |         |                    | 16QAM | 50                  | 0              | 1   | 21.2                  | 0.13152             |
|      |             |         |                    |       | 1                   | 0              | 1   | 21.5                  | 0.14256             |
|      |             |         |                    |       | 1                   | 24             | 1   | 21.5                  | 0.14060             |
|      |             |         |                    |       | 1                   | 49             | 1   | 21.4                  | 0.13932             |
|      |             |         |                    |       | 25                  | 0              | 2   | 20.6                  | 0.11482             |
|      |             |         |                    |       | 25                  | 12             | 2   | 20.5                  | 0.11272             |
|      |             |         |                    |       | 25                  | 24             | 2   | 20.5                  | 0.11194             |
|      |             |         |                    |       | 50                  | 0              | 2   | 20.5                  | 0.11298             |

| Band | BW<br>(MHz) | Channel | Frequency<br>(MHz) | Mode  | UL RB<br>Allocation | UL RB<br>Start | MPR | Average<br>power(dBm) | Output Power<br>(W) |
|------|-------------|---------|--------------------|-------|---------------------|----------------|-----|-----------------------|---------------------|
| 12   | 5           | 23035   | 701.5              | QPSK  | 1                   | 0              | 0   | 22.2                  | 0.16596             |
|      |             |         |                    |       | 1                   | 12             | 0   | 22.1                  | 0.16293             |
|      |             |         |                    |       | 1                   | 24             | 0   | 22.0                  | 0.15959             |
|      |             |         |                    |       | 12                  | 0              | 1   | 22.0                  | 0.15740             |
|      |             |         |                    |       | 12                  | 6              | 1   | 21.7                  | 0.14689             |
|      |             |         |                    |       | 12                  | 11             | 1   | 21.5                  | 0.13996             |
|      |             |         |                    |       | 25                  | 0              | 1   | 21.6                  | 0.14289             |
|      |             |         |                    | 16QAM | 1                   | 0              | 1   | 21.9                  | 0.15488             |
|      |             |         |                    |       | 1                   | 12             | 1   | 21.9                  | 0.15417             |
|      |             |         |                    |       | 1                   | 24             | 1   | 21.8                  | 0.15241             |
|      |             |         |                    |       | 12                  | 0              | 2   | 20.6                  | 0.11402             |
|      |             |         |                    |       | 12                  | 6              | 2   | 20.5                  | 0.11194             |
|      |             |         |                    |       | 12                  | 11             | 2   | 20.4                  | 0.11015             |
|      |             |         |                    |       | 25                  | 0              | 2   | 20.5                  | 0.11220             |
|      |             | 23095   | 707.5              | QPSK  | 1                   | 0              | 0   | 22.1                  | 0.16368             |
|      |             |         |                    |       | 1                   | 12             | 0   | 22.0                  | 0.15885             |
|      |             |         |                    |       | 1                   | 24             | 0   | 22.1                  | 0.16255             |
|      |             |         |                    |       | 12                  | 0              | 1   | 21.2                  | 0.13152             |
|      |             |         |                    |       | 12                  | 6              | 1   | 21.2                  | 0.13032             |
|      |             |         |                    |       | 12                  | 11             | 1   | 21.1                  | 0.12942             |
|      |             |         |                    |       | 25                  | 0              | 1   | 21.1                  | 0.12972             |
|      |             |         |                    | 16QAM | 1                   | 0              | 1   | 21.2                  | 0.13122             |
|      |             |         |                    |       | 1                   | 12             | 1   | 21.2                  | 0.13183             |
|      |             |         |                    |       | 1                   | 24             | 1   | 21.2                  | 0.13032             |
|      |             |         |                    |       | 12                  | 0              | 2   | 20.3                  | 0.10666             |
|      |             |         |                    |       | 12                  | 6              | 2   | 20.3                  | 0.10593             |
|      |             |         |                    |       | 12                  | 11             | 2   | 20.2                  | 0.10351             |
|      |             |         |                    |       | 25                  | 0              | 2   | 20.1                  | 0.10257             |
|      |             | 23155   | 713.5              | QPSK  | 1                   | 0              | 0   | 22.0                  | 0.15922             |
|      |             |         |                    |       | 1                   | 12             | 0   | 22.1                  | 0.16032             |
|      |             |         |                    |       | 1                   | 24             | 0   | 22.0                  | 0.15740             |
|      |             |         |                    |       | 12                  | 0              | 1   | 21.3                  | 0.13335             |
|      |             |         |                    |       | 12                  | 6              | 1   | 21.2                  | 0.13183             |
|      |             |         |                    |       | 12                  | 11             | 1   | 21.2                  | 0.13032             |
|      |             |         |                    |       | 25                  | 0              | 1   | 21.1                  | 0.12942             |
|      |             |         |                    | 16QAM | 1                   | 0              | 1   | 21.5                  | 0.14028             |
|      |             |         |                    |       | 1                   | 12             | 1   | 21.4                  | 0.13836             |
|      |             |         |                    |       | 1                   | 24             | 1   | 21.4                  | 0.13709             |
|      |             |         |                    |       | 12                  | 0              | 2   | 20.5                  | 0.11298             |
|      |             |         |                    |       | 12                  | 6              | 2   | 20.5                  | 0.11092             |
|      |             |         |                    |       | 12                  | 11             | 2   | 20.4                  | 0.11015             |
|      |             |         |                    |       | 25                  | 0              | 2   | 20.5                  | 0.11117             |

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 12   | 3        | 23025   | 700.5           | QPSK  | 1                | 0           | 0   | 22.2               | 0.16520          |
|      |          |         |                 |       | 1                | 7           | 0   | 22.1               | 0.16218          |
|      |          |         |                 |       | 1                | 14          | 0   | 22.0               | 0.15885          |
|      |          |         |                 |       | 8                | 0           | 1   | 22.0               | 0.15668          |
|      |          |         |                 |       | 8                | 4           | 1   | 21.7               | 0.14622          |
|      |          |         |                 |       | 8                | 7           | 1   | 21.4               | 0.13932          |
|      |          |         |                 |       | 15               | 0           | 1   | 21.5               | 0.14223          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15417          |
|      |          |         |                 |       | 1                | 7           | 1   | 21.9               | 0.15346          |
|      |          |         |                 |       | 1                | 14          | 1   | 21.8               | 0.15171          |
|      |          |         |                 |       | 8                | 0           | 2   | 20.6               | 0.11350          |
|      |          |         |                 |       | 8                | 4           | 2   | 20.5               | 0.11143          |
|      |          |         |                 |       | 8                | 7           | 2   | 20.4               | 0.10965          |
|      |          |         |                 |       | 15               | 0           | 2   | 20.5               | 0.11169          |
|      |          | 23095   | 707.5           | QPSK  | 1                | 0           | 0   | 22.1               | 0.16331          |
|      |          |         |                 |       | 1                | 7           | 0   | 22.0               | 0.15849          |
|      |          |         |                 |       | 1                | 14          | 0   | 22.1               | 0.16218          |
|      |          |         |                 |       | 8                | 0           | 1   | 21.2               | 0.13122          |
|      |          |         |                 |       | 8                | 4           | 1   | 21.1               | 0.13002          |
|      |          |         |                 |       | 8                | 7           | 1   | 21.1               | 0.12912          |
|      |          |         |                 |       | 15               | 0           | 1   | 21.1               | 0.12942          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.2               | 0.13092          |
|      |          |         |                 |       | 1                | 7           | 1   | 21.2               | 0.13152          |
|      |          |         |                 |       | 1                | 14          | 1   | 21.1               | 0.13002          |
|      |          |         |                 |       | 8                | 0           | 2   | 20.3               | 0.10641          |
|      |          |         |                 |       | 8                | 4           | 2   | 20.2               | 0.10568          |
|      |          |         |                 |       | 8                | 7           | 2   | 20.1               | 0.10328          |
|      |          |         |                 |       | 15               | 0           | 2   | 20.1               | 0.10233          |
|      |          | 23165   | 714.5           | QPSK  | 1                | 0           | 0   | 22.0               | 0.15849          |
|      |          |         |                 |       | 1                | 7           | 0   | 22.0               | 0.15959          |
|      |          |         |                 |       | 1                | 14          | 0   | 22.0               | 0.15668          |
|      |          |         |                 |       | 8                | 0           | 1   | 21.2               | 0.13274          |
|      |          |         |                 |       | 8                | 4           | 1   | 21.2               | 0.13122          |
|      |          |         |                 |       | 8                | 7           | 1   | 21.1               | 0.12972          |
|      |          |         |                 |       | 15               | 0           | 1   | 21.1               | 0.12882          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.5               | 0.13964          |
|      |          |         |                 |       | 1                | 7           | 1   | 21.4               | 0.13772          |
|      |          |         |                 |       | 1                | 14          | 1   | 21.4               | 0.13646          |
|      |          |         |                 |       | 8                | 0           | 2   | 20.5               | 0.11246          |
|      |          |         |                 |       | 8                | 4           | 2   | 20.4               | 0.11041          |
|      |          |         |                 |       | 8                | 7           | 2   | 20.4               | 0.10965          |
|      |          |         |                 |       | 15               | 0           | 2   | 20.4               | 0.11066          |

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 12   | 1.4      | 23017   | 699.7           | QPSK  | 1                | 0           | 0   | 22.2               | 0.16406          |
|      |          |         |                 |       | 1                | 2           | 0   | 22.1               | 0.16106          |
|      |          |         |                 |       | 1                | 5           | 0   | 22.0               | 0.15776          |
|      |          |         |                 |       | 3                | 0           | 1   | 21.9               | 0.15560          |
|      |          |         |                 |       | 3                | 1           | 1   | 21.6               | 0.14521          |
|      |          |         |                 |       | 3                | 2           | 1   | 21.4               | 0.13836          |
|      |          |         |                 |       | 6                | 0           | 1   | 21.5               | 0.14125          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15311          |
|      |          |         |                 |       | 1                | 2           | 1   | 21.8               | 0.15241          |
|      |          |         |                 |       | 1                | 5           | 1   | 21.8               | 0.15066          |
|      |          |         |                 |       | 3                | 0           | 2   | 20.5               | 0.11272          |
|      |          |         |                 |       | 3                | 1           | 2   | 20.4               | 0.11066          |
|      |          |         |                 |       | 3                | 2           | 2   | 20.4               | 0.10889          |
|      |          |         |                 |       | 6                | 0           | 2   | 20.5               | 0.11092          |
|      |          | 23095   | 707.5           | QPSK  | 1                | 0           | 0   | 22.1               | 0.16293          |
|      |          |         |                 |       | 1                | 2           | 0   | 22.0               | 0.15812          |
|      |          |         |                 |       | 1                | 5           | 0   | 22.1               | 0.16181          |
|      |          |         |                 |       | 3                | 0           | 1   | 21.2               | 0.13092          |
|      |          |         |                 |       | 3                | 1           | 1   | 21.1               | 0.12972          |
|      |          |         |                 |       | 3                | 2           | 1   | 21.1               | 0.12882          |
|      |          |         |                 |       | 6                | 0           | 1   | 21.1               | 0.12912          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.2               | 0.13062          |
|      |          |         |                 |       | 1                | 2           | 1   | 21.2               | 0.13122          |
|      |          |         |                 |       | 1                | 5           | 1   | 21.1               | 0.12972          |
|      |          |         |                 |       | 3                | 0           | 2   | 20.3               | 0.10617          |
|      |          |         |                 |       | 3                | 1           | 2   | 20.2               | 0.10544          |
|      |          |         |                 |       | 3                | 2           | 2   | 20.1               | 0.10304          |
|      |          |         |                 |       | 6                | 0           | 2   | 20.1               | 0.10209          |
|      |          | 23173   | 715.3           | QPSK  | 1                | 0           | 0   | 22.0               | 0.15776          |
|      |          |         |                 |       | 1                | 2           | 0   | 22.0               | 0.15885          |
|      |          |         |                 |       | 1                | 5           | 0   | 21.9               | 0.15596          |
|      |          |         |                 |       | 3                | 0           | 1   | 21.2               | 0.13213          |
|      |          |         |                 |       | 3                | 1           | 1   | 21.2               | 0.13062          |
|      |          |         |                 |       | 3                | 2           | 1   | 21.1               | 0.12912          |
|      |          |         |                 |       | 6                | 0           | 1   | 21.1               | 0.12823          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.4               | 0.13900          |
|      |          |         |                 |       | 1                | 2           | 1   | 21.4               | 0.13709          |
|      |          |         |                 |       | 1                | 5           | 1   | 21.3               | 0.13583          |
|      |          |         |                 |       | 3                | 0           | 2   | 20.5               | 0.11194          |
|      |          |         |                 |       | 3                | 1           | 2   | 20.4               | 0.10990          |
|      |          |         |                 |       | 3                | 2           | 2   | 20.4               | 0.10914          |
|      |          |         |                 |       | 6                | 0           | 2   | 20.4               | 0.11015          |

**LTE Band 4**

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 4    | 20       | 20050   | 1720.0          | QPSK  | 1                | 0           | 0   | 23.0               | 0.19953          |
|      |          |         |                 |       | 1                | 49          | 0   | 22.9               | 0.19679          |
|      |          |         |                 |       | 1                | 99          | 0   | 22.7               | 0.18621          |
|      |          |         |                 |       | 50               | 0           | 1   | 22.0               | 0.15996          |
|      |          |         |                 |       | 50               | 24          | 1   | 22.2               | 0.16634          |
|      |          |         |                 |       | 50               | 49          | 1   | 22.0               | 0.15885          |
|      |          |         |                 |       | 100              | 0           | 1   | 22.0               | 0.15922          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.2               | 0.16406          |
|      |          |         |                 |       | 1                | 49          | 1   | 22.1               | 0.16181          |
|      |          |         |                 |       | 1                | 99          | 1   | 22.0               | 0.15996          |
|      |          |         |                 |       | 50               | 0           | 2   | 21.1               | 0.12823          |
|      |          |         |                 |       | 50               | 24          | 2   | 21.2               | 0.13032          |
|      |          |         |                 |       | 50               | 49          | 2   | 21.0               | 0.12618          |
|      |          |         |                 |       | 100              | 0           | 2   | 21.0               | 0.12706          |
|      |          | 20175   | 1732.5          | QPSK  | 1                | 0           | 0   | 23.0               | 0.19770          |
|      |          |         |                 |       | 1                | 49          | 0   | 22.8               | 0.19231          |
|      |          |         |                 |       | 1                | 99          | 0   | 22.7               | 0.18793          |
|      |          |         |                 |       | 50               | 0           | 1   | 22.0               | 0.15885          |
|      |          |         |                 |       | 50               | 24          | 1   | 21.9               | 0.15631          |
|      |          |         |                 |       | 50               | 49          | 1   | 21.9               | 0.15417          |
|      |          |         |                 |       | 100              | 0           | 1   | 22.0               | 0.15704          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15776          |
|      |          |         |                 |       | 1                | 49          | 1   | 22.0               | 0.15668          |
|      |          |         |                 |       | 1                | 99          | 1   | 21.9               | 0.15560          |
|      |          |         |                 |       | 50               | 0           | 2   | 21.0               | 0.12531          |
|      |          |         |                 |       | 50               | 24          | 2   | 21.0               | 0.12445          |
|      |          |         |                 |       | 50               | 49          | 2   | 21.0               | 0.12560          |
|      |          |         |                 |       | 100              | 0           | 2   | 20.9               | 0.12274          |
|      |          | 20300   | 1745.0          | QPSK  | 1                | 0           | 0   | 22.7               | 0.18793          |
|      |          |         |                 |       | 1                | 49          | 0   | 22.8               | 0.19099          |
|      |          |         |                 |       | 1                | 99          | 0   | 22.8               | 0.18967          |
|      |          |         |                 |       | 50               | 0           | 1   | 22.0               | 0.15704          |
|      |          |         |                 |       | 50               | 24          | 1   | 21.9               | 0.15631          |
|      |          |         |                 |       | 50               | 49          | 1   | 21.9               | 0.15560          |
|      |          |         |                 |       | 100              | 0           | 1   | 22.1               | 0.16032          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.1               | 0.16069          |
|      |          |         |                 |       | 1                | 49          | 1   | 22.1               | 0.16293          |
|      |          |         |                 |       | 1                | 99          | 1   | 22.1               | 0.16181          |
|      |          |         |                 |       | 50               | 0           | 2   | 22.0               | 0.15776          |
|      |          |         |                 |       | 50               | 24          | 2   | 21.9               | 0.15382          |
|      |          |         |                 |       | 50               | 49          | 2   | 21.8               | 0.15101          |
|      |          |         |                 |       | 100              | 0           | 2   | 21.8               | 0.15205          |

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 4    | 15       | 20025   | 1717.5          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19588          |
|      |          |         |                 |       | 1                | 37          | 0   | 22.9               | 0.19320          |
|      |          |         |                 |       | 1                | 74          | 0   | 22.6               | 0.18281          |
|      |          |         |                 |       | 36               | 0           | 1   | 22.0               | 0.15704          |
|      |          |         |                 |       | 36               | 18          | 1   | 22.1               | 0.16331          |
|      |          |         |                 |       | 36               | 35          | 1   | 21.9               | 0.15596          |
|      |          |         |                 |       | 75               | 0           | 1   | 21.9               | 0.15631          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.1               | 0.16106          |
|      |          |         |                 |       | 1                | 37          | 1   | 22.0               | 0.15885          |
|      |          |         |                 |       | 1                | 74          | 1   | 22.0               | 0.15704          |
|      |          |         |                 |       | 36               | 0           | 2   | 21.0               | 0.12589          |
|      |          |         |                 |       | 36               | 18          | 2   | 21.1               | 0.12794          |
|      |          |         |                 |       | 36               | 35          | 2   | 20.9               | 0.12388          |
|      |          |         |                 |       | 75               | 0           | 2   | 21.0               | 0.12474          |
|      |          | 20175   | 1732.5          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19498          |
|      |          |         |                 |       | 1                | 37          | 0   | 22.8               | 0.18967          |
|      |          |         |                 |       | 1                | 74          | 0   | 22.7               | 0.18535          |
|      |          |         |                 |       | 36               | 0           | 1   | 22.0               | 0.15668          |
|      |          |         |                 |       | 36               | 18          | 1   | 21.9               | 0.15417          |
|      |          |         |                 |       | 36               | 35          | 1   | 21.8               | 0.15205          |
|      |          |         |                 |       | 75               | 0           | 1   | 21.9               | 0.15488          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15560          |
|      |          |         |                 |       | 1                | 37          | 1   | 21.9               | 0.15453          |
|      |          |         |                 |       | 1                | 74          | 1   | 21.9               | 0.15346          |
|      |          |         |                 |       | 36               | 0           | 2   | 20.9               | 0.12359          |
|      |          |         |                 |       | 36               | 18          | 2   | 20.9               | 0.12274          |
|      |          |         |                 |       | 36               | 35          | 2   | 20.9               | 0.12388          |
|      |          |         |                 |       | 75               | 0           | 2   | 20.8               | 0.12106          |
|      |          | 20325   | 1747.5          | QPSK  | 1                | 0           | 0   | 22.7               | 0.18578          |
|      |          |         |                 |       | 1                | 37          | 0   | 22.8               | 0.18880          |
|      |          |         |                 |       | 1                | 74          | 0   | 22.7               | 0.18750          |
|      |          |         |                 |       | 36               | 0           | 1   | 21.9               | 0.15524          |
|      |          |         |                 |       | 36               | 18          | 1   | 21.9               | 0.15453          |
|      |          |         |                 |       | 36               | 35          | 1   | 21.9               | 0.15382          |
|      |          |         |                 |       | 75               | 0           | 1   | 22.0               | 0.15849          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15885          |
|      |          |         |                 |       | 1                | 37          | 1   | 22.1               | 0.16106          |
|      |          |         |                 |       | 1                | 74          | 1   | 22.0               | 0.15996          |
|      |          |         |                 |       | 36               | 0           | 2   | 21.9               | 0.15596          |
|      |          |         |                 |       | 36               | 18          | 2   | 21.8               | 0.15205          |
|      |          |         |                 |       | 36               | 35          | 2   | 21.7               | 0.14928          |
|      |          |         |                 |       | 75               | 0           | 2   | 21.8               | 0.15031          |

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 4    | 10       | 20000   | 1715.0          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19454          |
|      |          |         |                 |       | 1                | 24          | 0   | 22.8               | 0.19187          |
|      |          |         |                 |       | 1                | 49          | 0   | 22.6               | 0.18155          |
|      |          |         |                 |       | 25               | 0           | 1   | 21.9               | 0.15596          |
|      |          |         |                 |       | 25               | 12          | 1   | 22.1               | 0.16218          |
|      |          |         |                 |       | 25               | 24          | 1   | 21.9               | 0.15488          |
|      |          |         |                 |       | 50               | 0           | 1   | 21.9               | 0.15524          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15996          |
|      |          |         |                 |       | 1                | 24          | 1   | 22.0               | 0.15776          |
|      |          |         |                 |       | 1                | 49          | 1   | 21.9               | 0.15596          |
|      |          |         |                 |       | 25               | 0           | 2   | 21.0               | 0.12503          |
|      |          |         |                 |       | 25               | 12          | 2   | 21.0               | 0.12706          |
|      |          |         |                 |       | 25               | 24          | 2   | 20.9               | 0.12303          |
|      |          |         |                 |       | 50               | 0           | 2   | 20.9               | 0.12388          |
|      |          | 20175   | 1732.5          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19409          |
|      |          |         |                 |       | 1                | 24          | 0   | 22.8               | 0.18880          |
|      |          |         |                 |       | 1                | 49          | 0   | 22.7               | 0.18450          |
|      |          |         |                 |       | 25               | 0           | 1   | 21.9               | 0.15596          |
|      |          |         |                 |       | 25               | 12          | 1   | 21.9               | 0.15346          |
|      |          |         |                 |       | 25               | 24          | 1   | 21.8               | 0.15136          |
|      |          |         |                 |       | 50               | 0           | 1   | 21.9               | 0.15417          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15488          |
|      |          |         |                 |       | 1                | 24          | 1   | 21.9               | 0.15382          |
|      |          |         |                 |       | 1                | 49          | 1   | 21.8               | 0.15276          |
|      |          |         |                 |       | 25               | 0           | 2   | 20.9               | 0.12303          |
|      |          |         |                 |       | 25               | 12          | 2   | 20.9               | 0.12218          |
|      |          |         |                 |       | 25               | 24          | 2   | 20.9               | 0.12331          |
|      |          |         |                 |       | 50               | 0           | 2   | 20.8               | 0.12050          |
|      |          | 20350   | 1750.0          | QPSK  | 1                | 0           | 0   | 22.7               | 0.18493          |
|      |          |         |                 |       | 1                | 24          | 0   | 22.7               | 0.18793          |
|      |          |         |                 |       | 1                | 49          | 0   | 22.7               | 0.18664          |
|      |          |         |                 |       | 25               | 0           | 1   | 21.9               | 0.15453          |
|      |          |         |                 |       | 25               | 12          | 1   | 21.9               | 0.15382          |
|      |          |         |                 |       | 25               | 24          | 1   | 21.9               | 0.15311          |
|      |          |         |                 |       | 50               | 0           | 1   | 22.0               | 0.15776          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15812          |
|      |          |         |                 |       | 1                | 24          | 1   | 22.1               | 0.16032          |
|      |          |         |                 |       | 1                | 49          | 1   | 22.0               | 0.15922          |
|      |          |         |                 |       | 25               | 0           | 2   | 21.9               | 0.15524          |
|      |          |         |                 |       | 25               | 12          | 2   | 21.8               | 0.15136          |
|      |          |         |                 |       | 25               | 24          | 2   | 21.7               | 0.14859          |
|      |          |         |                 |       | 50               | 0           | 2   | 21.8               | 0.14962          |

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 4    | 5        | 19975   | 1712.5          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19409          |
|      |          |         |                 |       | 1                | 12          | 0   | 22.8               | 0.19143          |
|      |          |         |                 |       | 1                | 24          | 0   | 22.6               | 0.18113          |
|      |          |         |                 |       | 12               | 0           | 1   | 21.9               | 0.15560          |
|      |          |         |                 |       | 12               | 6           | 1   | 22.1               | 0.16181          |
|      |          |         |                 |       | 12               | 11          | 1   | 21.9               | 0.15453          |
|      |          |         |                 |       | 25               | 0           | 1   | 21.9               | 0.15488          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15959          |
|      |          |         |                 |       | 1                | 12          | 1   | 22.0               | 0.15740          |
|      |          |         |                 |       | 1                | 24          | 1   | 21.9               | 0.15560          |
|      |          |         |                 |       | 12               | 0           | 2   | 21.0               | 0.12474          |
|      |          |         |                 |       | 12               | 6           | 2   | 21.0               | 0.12677          |
|      |          |         |                 |       | 12               | 11          | 2   | 20.9               | 0.12274          |
|      |          |         |                 |       | 25               | 0           | 2   | 20.9               | 0.12359          |
|      |          | 20175   | 1732.5          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19320          |
|      |          |         |                 |       | 1                | 12          | 0   | 22.7               | 0.18793          |
|      |          |         |                 |       | 1                | 24          | 0   | 22.6               | 0.18365          |
|      |          |         |                 |       | 12               | 0           | 1   | 21.9               | 0.15524          |
|      |          |         |                 |       | 12               | 6           | 1   | 21.8               | 0.15276          |
|      |          |         |                 |       | 12               | 11          | 1   | 21.8               | 0.15066          |
|      |          |         |                 |       | 25               | 0           | 1   | 21.9               | 0.15346          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15417          |
|      |          |         |                 |       | 1                | 12          | 1   | 21.9               | 0.15311          |
|      |          |         |                 |       | 1                | 24          | 1   | 21.8               | 0.15205          |
|      |          |         |                 |       | 12               | 0           | 2   | 20.9               | 0.12246          |
|      |          |         |                 |       | 12               | 6           | 2   | 20.9               | 0.12162          |
|      |          |         |                 |       | 12               | 11          | 2   | 20.9               | 0.12274          |
|      |          |         |                 |       | 25               | 0           | 2   | 20.8               | 0.11995          |
|      |          | 20375   | 1752.5          | QPSK  | 1                | 0           | 0   | 22.6               | 0.18365          |
|      |          |         |                 |       | 1                | 12          | 0   | 22.7               | 0.18664          |
|      |          |         |                 |       | 1                | 24          | 0   | 22.7               | 0.18535          |
|      |          |         |                 |       | 12               | 0           | 1   | 21.9               | 0.15346          |
|      |          |         |                 |       | 12               | 6           | 1   | 21.8               | 0.15276          |
|      |          |         |                 |       | 12               | 11          | 1   | 21.8               | 0.15205          |
|      |          |         |                 |       | 25               | 0           | 1   | 22.0               | 0.15668          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15704          |
|      |          |         |                 |       | 1                | 12          | 1   | 22.0               | 0.15922          |
|      |          |         |                 |       | 1                | 24          | 1   | 22.0               | 0.15812          |
|      |          |         |                 |       | 12               | 0           | 2   | 21.9               | 0.15417          |
|      |          |         |                 |       | 12               | 6           | 2   | 21.8               | 0.15031          |
|      |          |         |                 |       | 12               | 11          | 2   | 21.7               | 0.14757          |
|      |          |         |                 |       | 25               | 0           | 2   | 21.7               | 0.14859          |

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 4    | 3        | 19965   | 1711.5          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19320          |
|      |          |         |                 |       | 1                | 7           | 0   | 22.8               | 0.19055          |
|      |          |         |                 |       | 1                | 14          | 0   | 22.6               | 0.18030          |
|      |          |         |                 |       | 8                | 0           | 1   | 21.9               | 0.15488          |
|      |          |         |                 |       | 8                | 4           | 1   | 22.1               | 0.16106          |
|      |          |         |                 |       | 8                | 7           | 1   | 21.9               | 0.15382          |
|      |          |         |                 |       | 15               | 0           | 1   | 21.9               | 0.15417          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15885          |
|      |          |         |                 |       | 1                | 7           | 1   | 22.0               | 0.15668          |
|      |          |         |                 |       | 1                | 14          | 1   | 21.9               | 0.15488          |
|      |          |         |                 |       | 8                | 0           | 2   | 20.9               | 0.12417          |
|      |          |         |                 |       | 8                | 4           | 2   | 21.0               | 0.12618          |
|      |          |         |                 |       | 8                | 7           | 2   | 20.9               | 0.12218          |
|      |          |         |                 |       | 15               | 0           | 2   | 20.9               | 0.12303          |
|      |          | 20175   | 1732.5          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19275          |
|      |          |         |                 |       | 1                | 7           | 0   | 22.7               | 0.18750          |
|      |          |         |                 |       | 1                | 14          | 0   | 22.6               | 0.18323          |
|      |          |         |                 |       | 8                | 0           | 1   | 21.9               | 0.15488          |
|      |          |         |                 |       | 8                | 4           | 1   | 21.8               | 0.15241          |
|      |          |         |                 |       | 8                | 7           | 1   | 21.8               | 0.15031          |
|      |          |         |                 |       | 15               | 0           | 1   | 21.9               | 0.15311          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15382          |
|      |          |         |                 |       | 1                | 7           | 1   | 21.8               | 0.15276          |
|      |          |         |                 |       | 1                | 14          | 1   | 21.8               | 0.15171          |
|      |          |         |                 |       | 8                | 0           | 2   | 20.9               | 0.12218          |
|      |          |         |                 |       | 8                | 4           | 2   | 20.8               | 0.12134          |
|      |          |         |                 |       | 8                | 7           | 2   | 20.9               | 0.12246          |
|      |          |         |                 |       | 15               | 0           | 2   | 20.8               | 0.11967          |
|      |          | 20384   | 1753.4          | QPSK  | 1                | 0           | 0   | 22.6               | 0.18323          |
|      |          |         |                 |       | 1                | 7           | 0   | 22.7               | 0.18621          |
|      |          |         |                 |       | 1                | 14          | 0   | 22.7               | 0.18493          |
|      |          |         |                 |       | 8                | 0           | 1   | 21.9               | 0.15311          |
|      |          |         |                 |       | 8                | 4           | 1   | 21.8               | 0.15241          |
|      |          |         |                 |       | 8                | 7           | 1   | 21.8               | 0.15171          |
|      |          |         |                 |       | 15               | 0           | 1   | 21.9               | 0.15631          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15668          |
|      |          |         |                 |       | 1                | 7           | 1   | 22.0               | 0.15885          |
|      |          |         |                 |       | 1                | 14          | 1   | 22.0               | 0.15776          |
|      |          |         |                 |       | 8                | 0           | 2   | 21.9               | 0.15382          |
|      |          |         |                 |       | 8                | 4           | 2   | 21.8               | 0.14997          |
|      |          |         |                 |       | 8                | 7           | 2   | 21.7               | 0.14723          |
|      |          |         |                 |       | 15               | 0           | 2   | 21.7               | 0.14825          |

| Band | BW (MHz) | Channel | Frequency (MHz) | Mode  | UL RB Allocation | UL RB Start | MPR | Average power(dBm) | Output Power (W) |
|------|----------|---------|-----------------|-------|------------------|-------------|-----|--------------------|------------------|
| 4    | 1.4      | 19957   | 1710.7          | QPSK  | 1                | 0           | 0   | 22.9               | 0.19275          |
|      |          |         |                 |       | 1                | 2           | 0   | 22.8               | 0.19011          |
|      |          |         |                 |       | 1                | 5           | 0   | 22.6               | 0.17989          |
|      |          |         |                 |       | 3                | 0           | 1   | 21.9               | 0.15453          |
|      |          |         |                 |       | 3                | 1           | 1   | 22.1               | 0.16069          |
|      |          |         |                 |       | 3                | 2           | 1   | 21.9               | 0.15346          |
|      |          |         |                 |       | 6                | 0           | 1   | 21.9               | 0.15382          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 22.0               | 0.15849          |
|      |          |         |                 |       | 1                | 2           | 1   | 21.9               | 0.15631          |
|      |          |         |                 |       | 1                | 5           | 1   | 21.9               | 0.15453          |
|      |          |         |                 |       | 3                | 0           | 2   | 20.9               | 0.12388          |
|      |          |         |                 |       | 3                | 1           | 2   | 21.0               | 0.12589          |
|      |          |         |                 |       | 3                | 2           | 2   | 20.9               | 0.12190          |
|      |          |         |                 |       | 6                | 0           | 2   | 20.9               | 0.12274          |
|      |          | 20175   | 1732.5          | QPSK  | 1                | 0           | 0   | 22.8               | 0.19231          |
|      |          |         |                 |       | 1                | 2           | 0   | 22.7               | 0.18707          |
|      |          |         |                 |       | 1                | 5           | 0   | 22.6               | 0.18281          |
|      |          |         |                 |       | 3                | 0           | 1   | 21.9               | 0.15453          |
|      |          |         |                 |       | 3                | 1           | 1   | 21.8               | 0.15205          |
|      |          |         |                 |       | 3                | 2           | 1   | 21.8               | 0.14997          |
|      |          |         |                 |       | 6                | 0           | 1   | 21.8               | 0.15276          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15346          |
|      |          |         |                 |       | 1                | 2           | 1   | 21.8               | 0.15241          |
|      |          |         |                 |       | 1                | 5           | 1   | 21.8               | 0.15136          |
|      |          |         |                 |       | 3                | 0           | 2   | 20.9               | 0.12190          |
|      |          |         |                 |       | 3                | 1           | 2   | 20.8               | 0.12106          |
|      |          |         |                 |       | 3                | 2           | 2   | 20.9               | 0.12218          |
|      |          |         |                 |       | 6                | 0           | 2   | 20.8               | 0.11940          |
|      |          | 20392   | 1754.2          | QPSK  | 1                | 0           | 0   | 22.6               | 0.18281          |
|      |          |         |                 |       | 1                | 2           | 0   | 22.7               | 0.18578          |
|      |          |         |                 |       | 1                | 5           | 0   | 22.7               | 0.18450          |
|      |          |         |                 |       | 3                | 0           | 1   | 21.8               | 0.15276          |
|      |          |         |                 |       | 3                | 1           | 1   | 21.8               | 0.15205          |
|      |          |         |                 |       | 3                | 2           | 1   | 21.8               | 0.15136          |
|      |          |         |                 |       | 6                | 0           | 1   | 21.9               | 0.15596          |
|      |          |         |                 | 16QAM | 1                | 0           | 1   | 21.9               | 0.15631          |
|      |          |         |                 |       | 1                | 2           | 1   | 22.0               | 0.15849          |
|      |          |         |                 |       | 1                | 5           | 1   | 22.0               | 0.15740          |
|      |          |         |                 |       | 3                | 0           | 2   | 21.9               | 0.15346          |
|      |          |         |                 |       | 3                | 1           | 2   | 21.8               | 0.14962          |
|      |          |         |                 |       | 3                | 2           | 2   | 21.7               | 0.14689          |
|      |          |         |                 |       | 6                | 0           | 2   | 21.7               | 0.14791          |

## 8.2 ERP & EIRP MEASUREMENT

### LIMIT

#### **According to FCC §2.1046**

**FCC 27.50 (c) (10):** The portable stations (hand-held devices) in the 600MHz uplink band and the 698-746MHz band, and fixed and mobile stations in the 600MHz uplink band are limited to 3 Watts ERP.

**FCC 27.50 (d) (4):** Fixed, mobile, and portable (handheld) stations operating in the 1710-1755MHz band and mobile and portable stations operating in the 1695-1710MHz and 1755-1780MHz bands are limited to 1 watt EIRP.

#### **According to RSS-130, Band 12,**

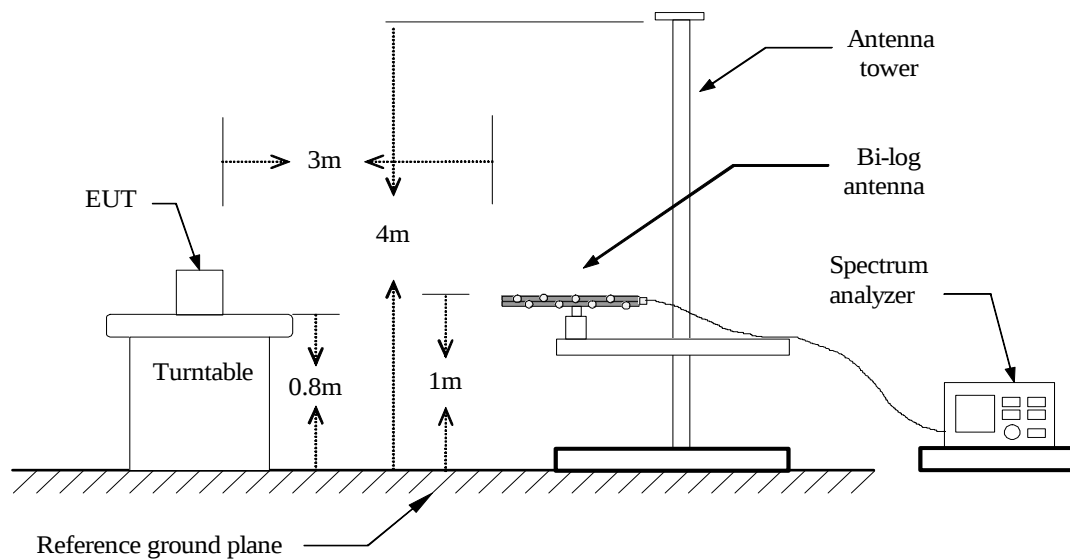
The e.r.p. shall not exceed 3 watts for mobile equipment, fixed subscriber equipment and portable equipment.

#### **According to RSS-139, Band 4,**

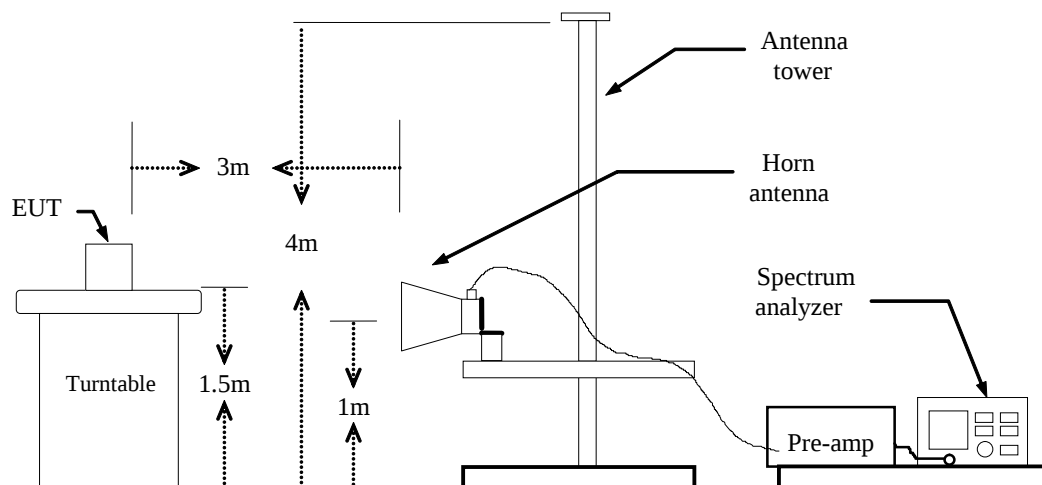
The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed 1 watt.

## Test Configuration

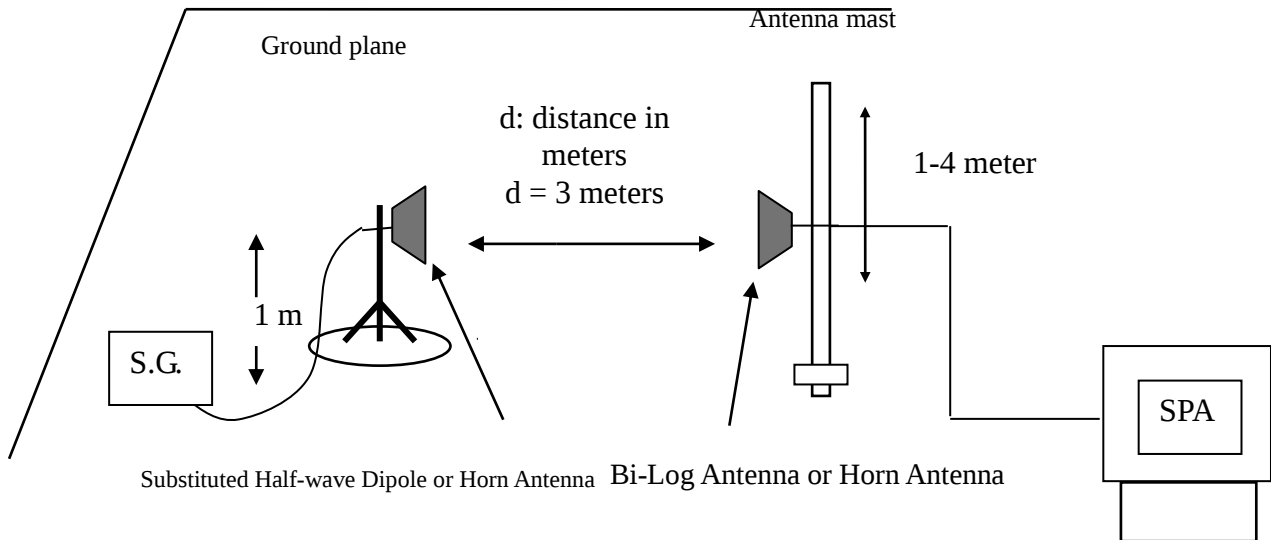
### **Below 1 GHz**



### **Above 1 GHz**



### For Substituted Method Test Set-UP



### TEST PROCEDURE

1. The EUT was placed on a non-conductive rotating platform (0.8m for below 1G and 1.5m for above 1G) in a semi-chamber. The radiated emission at the fundamental frequency was measured at 3m and SA with RMS detector per photograph 5, KDB 971168 D01.
2. During the measurement, the call box parameters were set to get the maximum output power of the EUT. The maximum emission was recorded from spectrum analyzer power level (LVL) from 360 degrees rotation of turntable and the test antenna raised and lowered over a range from 1m to 4m in both horizontally and vertically polarized orientations.
3. EIRP was measured method according to TIA/EIA-603-D:2010. The EUT was replaced by the substitution antenna at same location, and then record the maximum Analyzer reading through raised and lowered the test antenna.

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

### TEST RESULTS

*No non-compliance noted.*

## ERP POWER

### LTE Band 12

**BW: 1.4MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical  |         | Horizontal |         |
|------|----------|---------|--------|------------------|--------------|-----------|---------|------------|---------|
|      |          |         |        |                  |              | ERP (dBm) | ERP (W) | ERP (dBm)  | ERP (W) |
| 12   | 1.4      | Lowest  | QPSK   | 1                | 0            | 7.22      | 0.00527 | 24.11      | 0.25763 |
|      |          | Middle  |        | 1                | 0            | 8.70      | 0.00741 | 25.50      | 0.35481 |
|      |          | Highest |        | 1                | 0            | 8.65      | 0.00733 | 24.58      | 0.28708 |
|      |          | Lowest  | 16 QAM | 1                | 0            | 7.33      | 0.00541 | 24.47      | 0.27990 |
|      |          | Middle  |        | 1                | 0            | 8.94      | 0.00783 | 25.61      | 0.36392 |
|      |          | Highest |        | 1                | 0            | 8.76      | 0.00752 | 24.56      | 0.28576 |

**BW: 3MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical  |         | Horizontal |         |
|------|----------|---------|--------|------------------|--------------|-----------|---------|------------|---------|
|      |          |         |        |                  |              | ERP (dBm) | ERP (W) | ERP (dBm)  | ERP (W) |
| 12   | 3        | Lowest  | QPSK   | 1                | 0            | 7.23      | 0.00528 | 23.78      | 0.23878 |
|      |          | Middle  |        | 1                | 0            | 8.64      | 0.00731 | 24.88      | 0.30761 |
|      |          | Highest |        | 1                | 0            | 9.59      | 0.00910 | 25.11      | 0.32434 |
|      |          | Lowest  | 16 QAM | 1                | 0            | 7.12      | 0.00515 | 25.03      | 0.31842 |
|      |          | Middle  |        | 1                | 0            | 8.34      | 0.00682 | 24.64      | 0.29107 |
|      |          | Highest |        | 1                | 0            | 9.28      | 0.00847 | 24.71      | 0.29580 |

**BW: 5MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical  |         | Horizontal |         |
|------|----------|---------|--------|------------------|--------------|-----------|---------|------------|---------|
|      |          |         |        |                  |              | ERP (dBm) | ERP (W) | ERP (dBm)  | ERP (W) |
| 12   | 5        | Lowest  | QPSK   | 1                | 0            | 6.62      | 0.00459 | 25.07      | 0.32137 |
|      |          | Middle  |        | 1                | 0            | 8.14      | 0.00652 | 24.90      | 0.30903 |
|      |          | Highest |        | 1                | 0            | 9.88      | 0.00973 | 25.26      | 0.33574 |
|      |          | Lowest  | 16 QAM | 1                | 0            | 7.85      | 0.00610 | 25.24      | 0.33420 |
|      |          | Middle  |        | 1                | 0            | 7.95      | 0.00624 | 24.24      | 0.26546 |
|      |          | Highest |        | 1                | 0            | 9.43      | 0.00877 | 25.35      | 0.34277 |

**BW: 10MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical  |         | Horizontal |         |
|------|----------|---------|--------|------------------|--------------|-----------|---------|------------|---------|
|      |          |         |        |                  |              | ERP (dBm) | ERP (W) | ERP (dBm)  | ERP (W) |
| 12   | 10       | Lowest  | QPSK   | 1                | 0            | 6.22      | 0.00419 | 24.24      | 0.26546 |
|      |          | Middle  |        | 1                | 0            | 7.90      | 0.00617 | 25.46      | 0.35156 |
|      |          | Highest |        | 1                | 0            | 7.24      | 0.00530 | 24.88      | 0.30761 |
|      |          | Lowest  | 16 QAM | 1                | 0            | 6.37      | 0.00434 | 23.80      | 0.23988 |
|      |          | Middle  |        | 1                | 0            | 8.01      | 0.00632 | 25.49      | 0.35400 |
|      |          | Highest |        | 1                | 0            | 7.93      | 0.00621 | 24.23      | 0.26485 |

## LTE Band 4

**BW: 1.4MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical   |          | Horizontal |          |
|------|----------|---------|--------|------------------|--------------|------------|----------|------------|----------|
|      |          |         |        |                  |              | EIRP (dBm) | EIRP (W) | EIRP (dBm) | EIRP (W) |
| 4    | 1.4      | Lowest  | QPSK   | 1                | 0            | 10.70      | 0.01175  | 27.98      | 0.62806  |
|      |          | Middle  |        | 1                | 0            | 13.39      | 0.02183  | 27.48      | 0.55976  |
|      |          | Highest |        | 1                | 0            | 14.18      | 0.02618  | 26.93      | 0.49317  |
|      |          | Lowest  | 16 QAM | 1                | 0            | 10.83      | 0.01211  | 27.68      | 0.58614  |
|      |          | Middle  |        | 1                | 0            | 13.63      | 0.02307  | 27.23      | 0.52845  |
|      |          | Highest |        | 1                | 0            | 13.90      | 0.02455  | 26.55      | 0.45186  |

**BW: 3MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical   |          | Horizontal |          |
|------|----------|---------|--------|------------------|--------------|------------|----------|------------|----------|
|      |          |         |        |                  |              | EIRP (dBm) | EIRP (W) | EIRP (dBm) | EIRP (W) |
| 4    | 3        | Lowest  | QPSK   | 1                | 0            | 11.16      | 0.01306  | 27.91      | 0.61802  |
|      |          | Middle  |        | 1                | 0            | 13.83      | 0.02415  | 27.35      | 0.54325  |
|      |          | Highest |        | 1                | 0            | 14.16      | 0.02606  | 26.84      | 0.48306  |
|      |          | Lowest  | 16 QAM | 1                | 0            | 11.03      | 0.01268  | 27.78      | 0.59979  |
|      |          | Middle  |        | 1                | 0            | 13.30      | 0.02138  | 27.03      | 0.50466  |
|      |          | Highest |        | 1                | 0            | 13.71      | 0.02350  | 26.53      | 0.44978  |

**BW: 5MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical   |          | Horizontal |          |
|------|----------|---------|--------|------------------|--------------|------------|----------|------------|----------|
|      |          |         |        |                  |              | EIRP (dBm) | EIRP (W) | EIRP (dBm) | EIRP (W) |
| 4    | 5        | Lowest  | QPSK   | 1                | 0            | 10.67      | 0.01167  | 28.04      | 0.63680  |
|      |          | Middle  |        | 1                | 0            | 13.24      | 0.02109  | 27.37      | 0.54576  |
|      |          | Highest |        | 1                | 0            | 14.27      | 0.02673  | 26.52      | 0.44875  |
|      |          | Lowest  | 16 QAM | 1                | 0            | 10.96      | 0.01247  | 27.76      | 0.59704  |
|      |          | Middle  |        | 1                | 0            | 13.32      | 0.02148  | 26.96      | 0.49659  |
|      |          | Highest |        | 1                | 0            | 13.80      | 0.02399  | 26.18      | 0.41495  |

**BW: 10MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical   |          | Horizontal |          |
|------|----------|---------|--------|------------------|--------------|------------|----------|------------|----------|
|      |          |         |        |                  |              | EIRP (dBm) | EIRP (W) | EIRP (dBm) | EIRP (W) |
| 4    | 10       | Lowest  | QPSK   | 1                | 0            | 10.86      | 0.01219  | 28.27      | 0.67143  |
|      |          | Middle  |        | 1                | 0            | 12.99      | 0.01991  | 27.52      | 0.56494  |
|      |          | Highest |        | 1                | 0            | 14.57      | 0.02864  | 26.56      | 0.45290  |
|      |          | Lowest  | 16 QAM | 1                | 0            | 10.05      | 0.01012  | 27.87      | 0.61235  |
|      |          | Middle  |        | 1                | 0            | 12.54      | 0.01795  | 27.04      | 0.50582  |
|      |          | Highest |        | 1                | 0            | 14.43      | 0.02773  | 26.25      | 0.42170  |

**BW: 15MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical   |          | Horizontal |          |
|------|----------|---------|--------|------------------|--------------|------------|----------|------------|----------|
|      |          |         |        |                  |              | EIRP (dBm) | EIRP (W) | EIRP (dBm) | EIRP (W) |
| 4    | 15       | Lowest  | QPSK   | 1                | 0            | 11.07      | 0.01279  | 28.03      | 0.63533  |
|      |          | Middle  |        | 1                | 0            | 12.90      | 0.01950  | 27.57      | 0.57148  |
|      |          | Highest |        | 1                | 0            | 14.50      | 0.02818  | 27.32      | 0.53951  |
|      |          | Lowest  | 16 QAM | 1                | 0            | 11.49      | 0.01409  | 27.74      | 0.59429  |
|      |          | Middle  |        | 1                | 0            | 12.79      | 0.01901  | 25.57      | 0.36058  |
|      |          | Highest |        | 1                | 0            | 14.56      | 0.02858  | 26.96      | 0.49659  |

**BW: 20MHz / RB=1, RB Offset=0**

| Band | BW (MHz) | Channel | Mode   | UL RB Allocation | UL RB offset | Vertical   |          | Horizontal |          |
|------|----------|---------|--------|------------------|--------------|------------|----------|------------|----------|
|      |          |         |        |                  |              | EIRP (dBm) | EIRP (W) | EIRP (dBm) | EIRP (W) |
| 4    | 20       | Lowest  | QPSK   | 1                | 0            | 12.81      | 0.01910  | 26.72      | 0.46989  |
|      |          | Middle  |        | 1                | 0            | 13.68      | 0.02333  | 26.22      | 0.41879  |
|      |          | Highest |        | 1                | 0            | 14.89      | 0.03083  | 26.66      | 0.46345  |
|      |          | Lowest  | 16 QAM | 1                | 0            | 12.46      | 0.01762  | 26.46      | 0.44259  |
|      |          | Middle  |        | 1                | 0            | 12.15      | 0.01641  | 25.29      | 0.33806  |
|      |          | Highest |        | 1                | 0            | 14.69      | 0.02944  | 26.26      | 0.42267  |

### 8.3 FREQUENCY STABILITY MEASUREMENT

#### LIMIT

**According to the FCC part 27.54** shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

**According to RSS-139 and RSS-130,**

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

#### TEST PROCEDURE

Use Anritsu 8820 with frequency Error measurement capability.

Temp = -30 to +50°C

Voltage= 85% to 115% of the nominal value for AC powered equipment.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

## TEST RESULTS

### FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT:

#### LTE Band 12

| Reference Frequency: LTE Band 12 Max Bandwidth QPSK, 710 MHz |                  |                 |                 |             |
|--------------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = 1775Hz                                |                  |                 |                 |             |
| Power Supply                                                 | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                          | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 120                                                          | 50               | 0.05            | 0.000071        | +/- 2.5     |
| 120                                                          | 40               | 0.03            | 0.000042        |             |
| 120                                                          | 30               | 0.02            | 0.000028        |             |
| 120                                                          | 20               | 0.01            | 0.000014        |             |
| 120                                                          | 10               | 0.01            | 0.000014        |             |
| 120                                                          | 0                | 0.01            | 0.000014        |             |
| 120                                                          | -10              | 0.04            | 0.000057        |             |
| 120                                                          | -20              | 0.05            | 0.000071        |             |

| Reference Frequency: LTE Band 12 Max Bandwidth 16QAM, 710 MHz |                  |                 |                 |             |
|---------------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = 1775Hz                                 |                  |                 |                 |             |
| Power Supply                                                  | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                           | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 120                                                           | 50               | 0.03            | 0.000042        | +/- 2.5     |
| 120                                                           | 40               | 0.01            | 0.000014        |             |
| 120                                                           | 30               | 0.01            | 0.000014        |             |
| 120                                                           | 20               | 0.01            | 0.000014        |             |
| 120                                                           | 10               | 0.03            | 0.000042        |             |
| 120                                                           | 0                | 0.02            | 0.000028        |             |
| 120                                                           | -10              | 0.02            | 0.000028        |             |
| 20                                                            | -20              | 0.01            | 0.000014        |             |

**LTE Band 4**

| <b>Reference Frequency: LTE Band 4 Max Bandwidth QPSK, 1732.5MHz</b> |                  |                 |                 |             |
|----------------------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = 4331.25Hz                                     |                  |                 |                 |             |
| Power Supply                                                         | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                                  | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 120                                                                  | 50               | 0.00            | 0.000000        | +/- 2.5     |
| 120                                                                  | 40               | 0.01            | 0.000006        |             |
| 120                                                                  | 30               | 0.00            | 0.000000        |             |
| 120                                                                  | 20               | -0.01           | -0.000006       |             |
| 120                                                                  | 10               | 0.01            | 0.000006        |             |
| 120                                                                  | 0                | 0.00            | 0.000000        |             |
| 120                                                                  | -10              | 0.00            | 0.000000        |             |
| 120                                                                  | -20              | 0.03            | 0.000017        |             |

| <b>Reference Frequency: LTE Band 4 Max Bandwidth 16QAM, 1732.5MHz</b> |                  |                 |                 |             |
|-----------------------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = 4331.25Hz                                      |                  |                 |                 |             |
| Power Supply                                                          | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                                   | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 120                                                                   | 50               | -0.01           | -0.000006       | +/- 2.5     |
| 120                                                                   | 40               | 0.01            | 0.000006        |             |
| 120                                                                   | 30               | 0.00            | 0.000000        |             |
| 120                                                                   | 20               | 0.01            | 0.000006        |             |
| 120                                                                   | 10               | 0.02            | 0.000012        |             |
| 120                                                                   | 0                | 0.01            | 0.000006        |             |
| 120                                                                   | -10              | -0.01           | -0.000006       |             |
| 120                                                                   | -20              | -0.02           | -0.000012       |             |

**FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:  
LTE Band 12**

| Reference Frequency: LTE Band 12 Max Bandwidth QPSK, MHz |                  |                 |                 |             |
|----------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = Hz                                |                  |                 |                 |             |
| Power Supply                                             | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                      | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 102                                                      | 20               | 0.03            | 0.000042        | +/- 2.5     |
| 120                                                      | 20               | 0.00            | 0.000000        |             |
| 138                                                      | 20               | 0.02            | 0.000028        |             |

| Reference Frequency: LTE Band 12 Max Bandwidth 16QAM, MHz |                  |                 |                 |             |
|-----------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = Hz                                 |                  |                 |                 |             |
| Power Supply                                              | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                       | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 102                                                       | 20               | 0.02            | 0.000028        | +/- 2.5     |
| 120                                                       | 20               | 0.00            | 0.000000        |             |
| 138                                                       | 20               | 0.01            | 0.000014        |             |

**LTE Band 4**

| Reference Frequency: LTE Band 4 Max Bandwidth QPSK, MHz |                  |                 |                 |             |
|---------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = Hz                               |                  |                 |                 |             |
| Power Supply                                            | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                     | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 102                                                     | 20               | 0.00            | 0.000000        | +/- 2.5     |
| 120                                                     | 20               | -0.01           | -0.000006       |             |
| 138                                                     | 20               | 0.01            | 0.000006        |             |

| Reference Frequency: LTE Band 4 Max Bandwidth 16QAM, MHz |                  |                 |                 |             |
|----------------------------------------------------------|------------------|-----------------|-----------------|-------------|
| Limit: $\pm 2.5$ ppm = Hz                                |                  |                 |                 |             |
| Power Supply                                             | Environment      | Frequency Error | Frequency Error | Limit (ppm) |
| Vdc                                                      | Temperature (°C) | (Hz)            | (ppm)           | (ppm)       |
| 102                                                      | 20               | 0.00            | 0.000000        | +/- 2.5     |
| 120                                                      | 20               | 0.00            | 0.000000        |             |
| 138                                                      | 20               | 0.01            | 0.000006        |             |

## 8.4 OCCUPIED BANDWIDTH MEASUREMENT

### LIMITS

For Reporting purpose only.

.

### TEST PROCEDURES

KDB 971168 D01 v02r02 - Section 4.2

1. The occupied bandwidth was measured with the spectrum analyzer at the lowest, middle and highest channels in each band and different modulation. The 99% and -26dB bandwidth was measured and recorded.
2. RBW = 1-5% of the expected OBW
3. VBW  $\geq 3 \times$  RBW
4. Detector = Peak
5. Trace mode = max. hold

## **TEST RESULTS**

### **LTE Band 12**

#### **CHANNEL BANDWIDTH: 1.4MHz / QPSK**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 1.0984                      |

#### **CHANNEL BANDWIDTH: 3MHz / QPSK**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 2.6830                      |

#### **CHANNEL BANDWIDTH: 5MHz / QPSK**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 4.4717                      |

#### **CHANNEL BANDWIDTH: 10MHz / QPSK**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 8.9146                      |

**CHANNEL BANDWIDTH: 1.4MHz / 16QAM**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 1.1027                      |

**CHANNEL BANDWIDTH: 3MHz / 16QAM**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 2.6830                      |

**CHANNEL BANDWIDTH: 5MHz / 16QAM**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 4.4717                      |

**CHANNEL BANDWIDTH: 10MHz / 16QAM**

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 23095   | 707.5              | 8.9146                      |

## LTE Band 4

### CHANNEL BANDWIDTH: 1.4MHz / QPSK

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 20175   | 1732.5             | 1.0984                      |

### CHANNEL BANDWIDTH: 3MHz / QPSK

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 20175   | 1732.5             | 2.6830                      |

### CHANNEL BANDWIDTH: 5MHz / QPSK

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 20175   | 1732.5             | 4.4717                      |

### CHANNEL BANDWIDTH: 10MHz / QPSK

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 20175   | 1732.5             | 9.725                       |

### CHANNEL BANDWIDTH: 15MHz / QPSK

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 20175   | 1732.5             | 14.559                      |

### CHANNEL BANDWIDTH: 20MHz / QPSK

| Channel | FREQUENCY<br>(MHz) | Occupied bandwidth<br>(MHz) |
|---------|--------------------|-----------------------------|
| 20175   | 1732.5             | 19.827                      |

**CHANNEL BANDWIDTH: 1.4MHz / 16QAM**

| Channel | FREQUENCY (MHz) | Occupied bandwidth (MHz) |
|---------|-----------------|--------------------------|
| 20175   | 1732.5          | 1.0984                   |

**CHANNEL BANDWIDTH: 3MHz / 16QAM**

| Channel | FREQUENCY (MHz) | Occupied bandwidth (MHz) |
|---------|-----------------|--------------------------|
| 20175   | 1732.5          | 2.6917                   |

**CHANNEL BANDWIDTH: 5MHz / 16QAM**

| Channel | FREQUENCY (MHz) | Occupied bandwidth (MHz) |
|---------|-----------------|--------------------------|
| 20175   | 1732.5          | 4.4862                   |

**CHANNEL BANDWIDTH: 10MHz / 16QAM**

| Channel | FREQUENCY (MHz) | Occupied bandwidth (MHz) |
|---------|-----------------|--------------------------|
| 20175   | 1732.5          | 8.9435                   |

**CHANNEL BANDWIDTH: 15MHz / 16QAM**

| Channel | FREQUENCY (MHz) | Occupied bandwidth (MHz) |
|---------|-----------------|--------------------------|
| 20175   | 1732.5          | 13.4587                  |

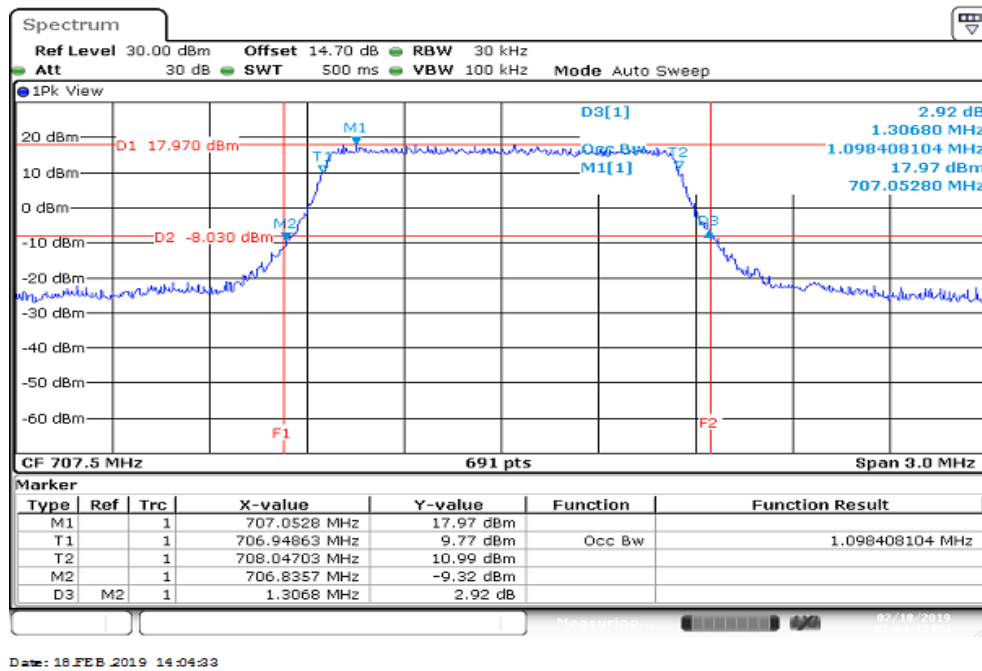
**CHANNEL BANDWIDTH: 20MHz / 16QAM**

| Channel | FREQUENCY (MHz) | Occupied bandwidth (MHz) |
|---------|-----------------|--------------------------|
| 20175   | 1732.5          | 18.0028                  |

## LTE Band 12

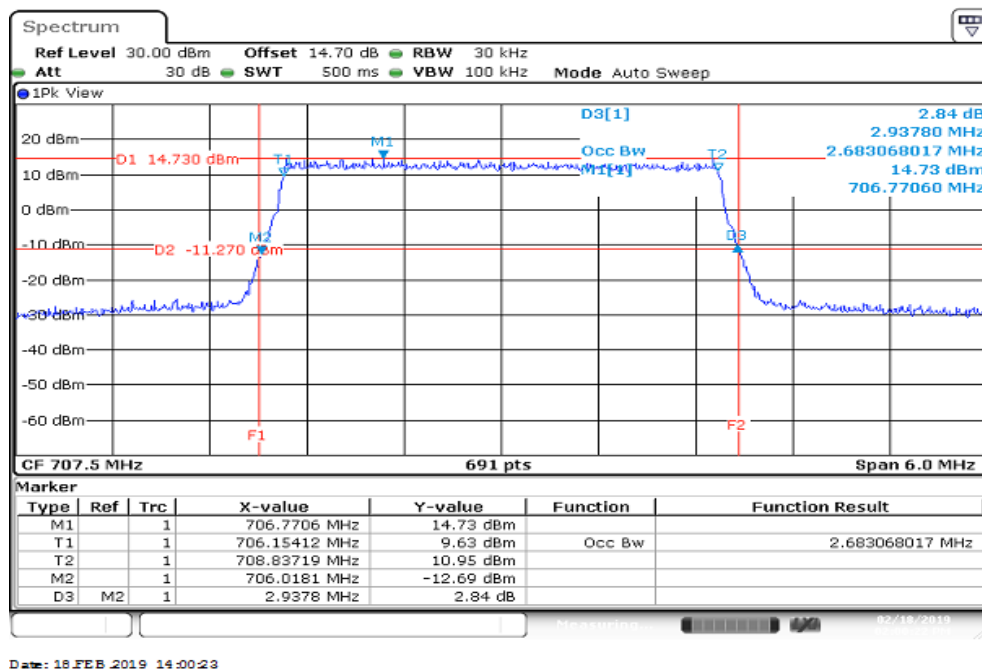
CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Mid



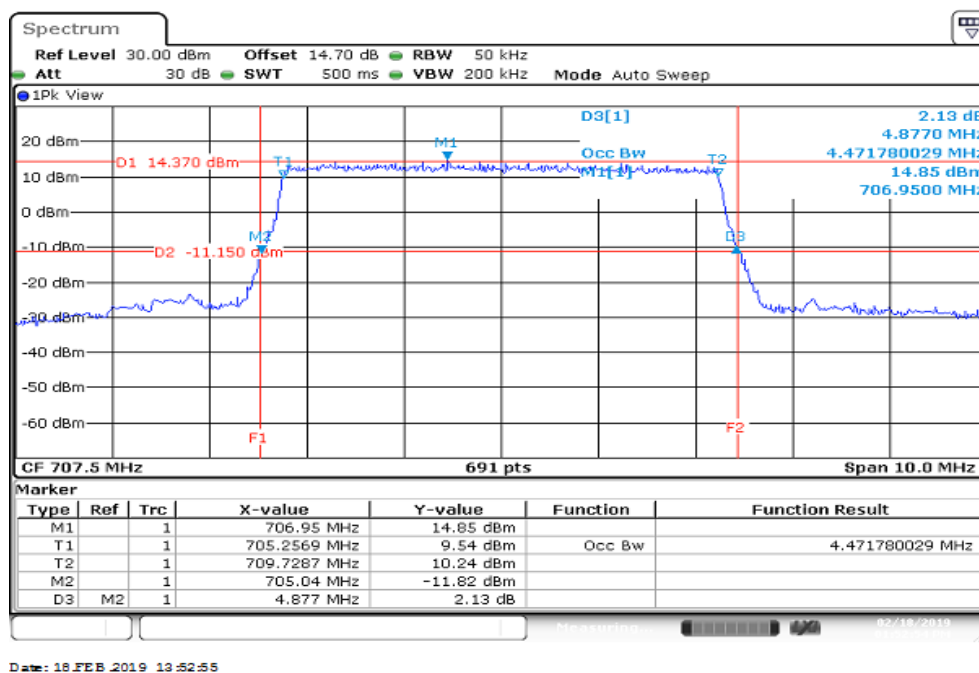
CHANNEL BANDWIDTH: 3MHz / QPSK

CH Mid



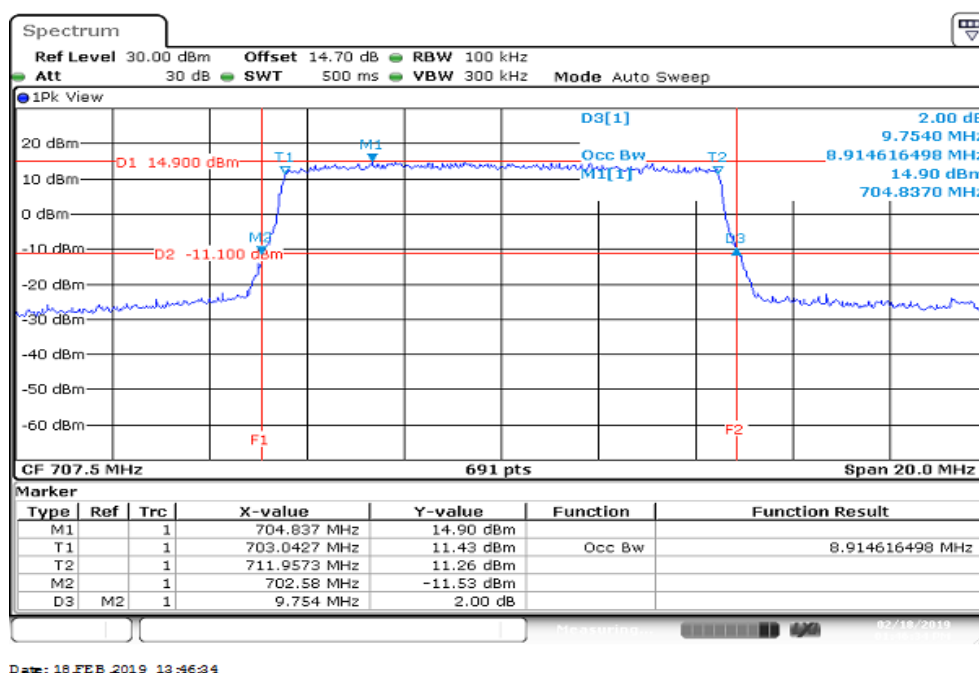
## CHANNEL BANDWIDTH: 5MHz / QPSK

### CH Mid



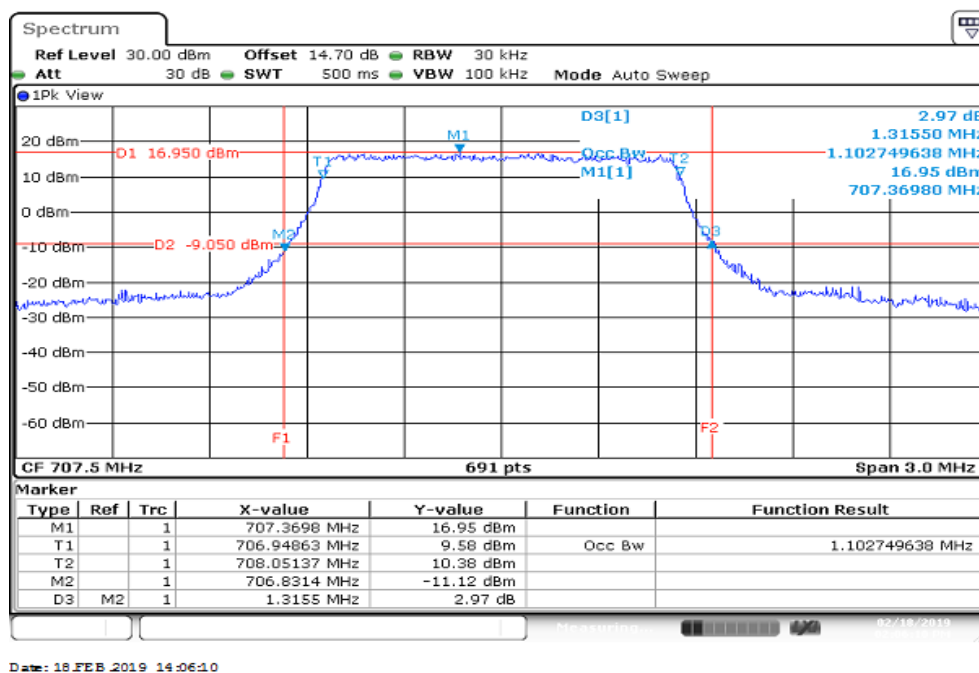
## CHANNEL BANDWIDTH: 10MHz / QPSK

### CH Mid



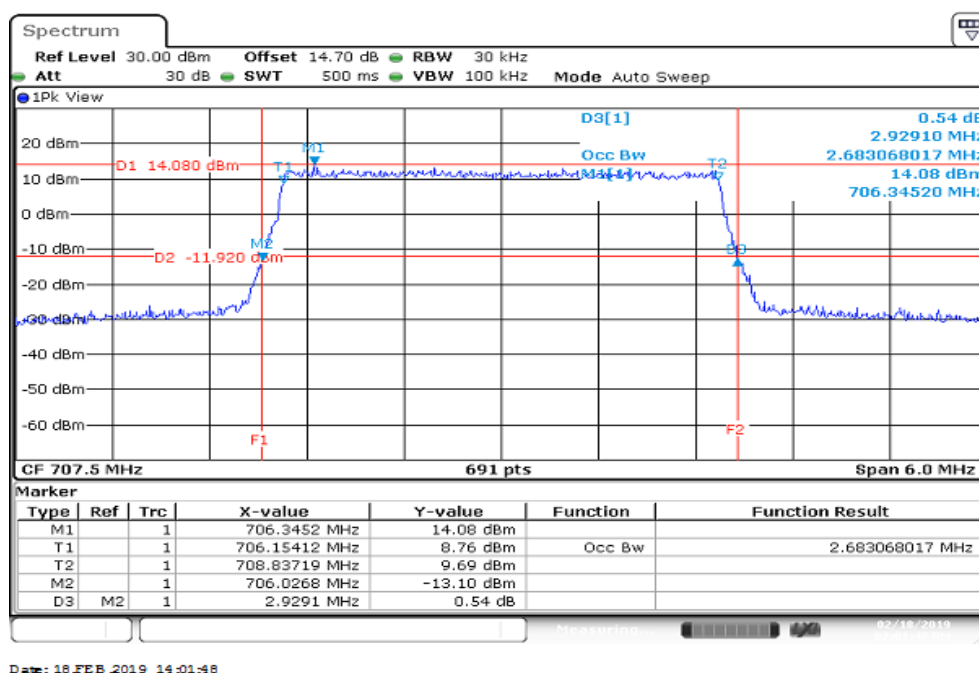
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Min



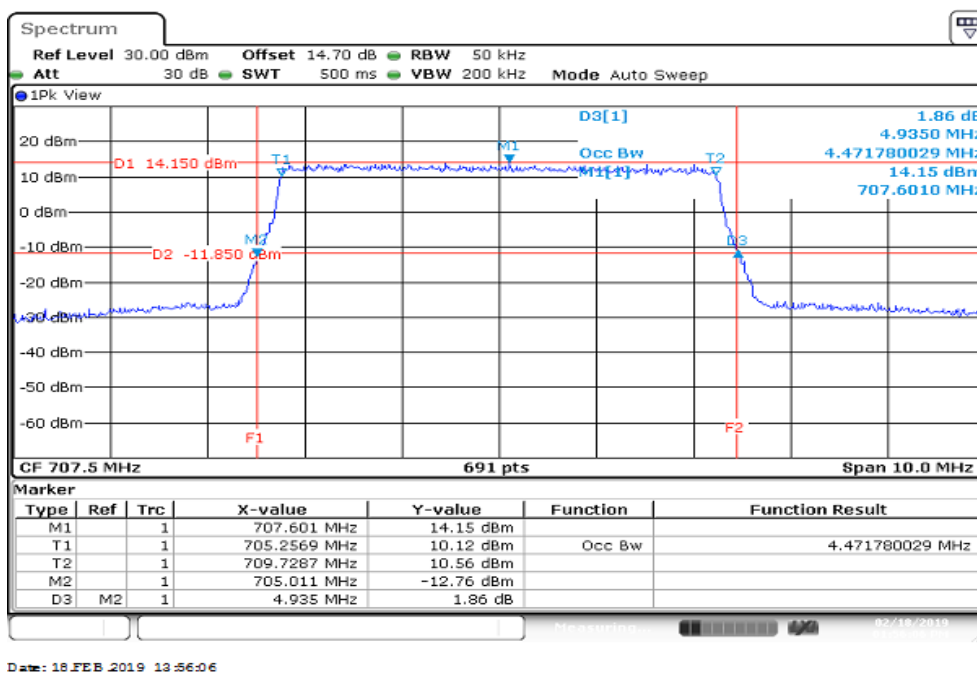
## CHANNEL BANDWIDTH: 3MHz / 16QAM

CH Min



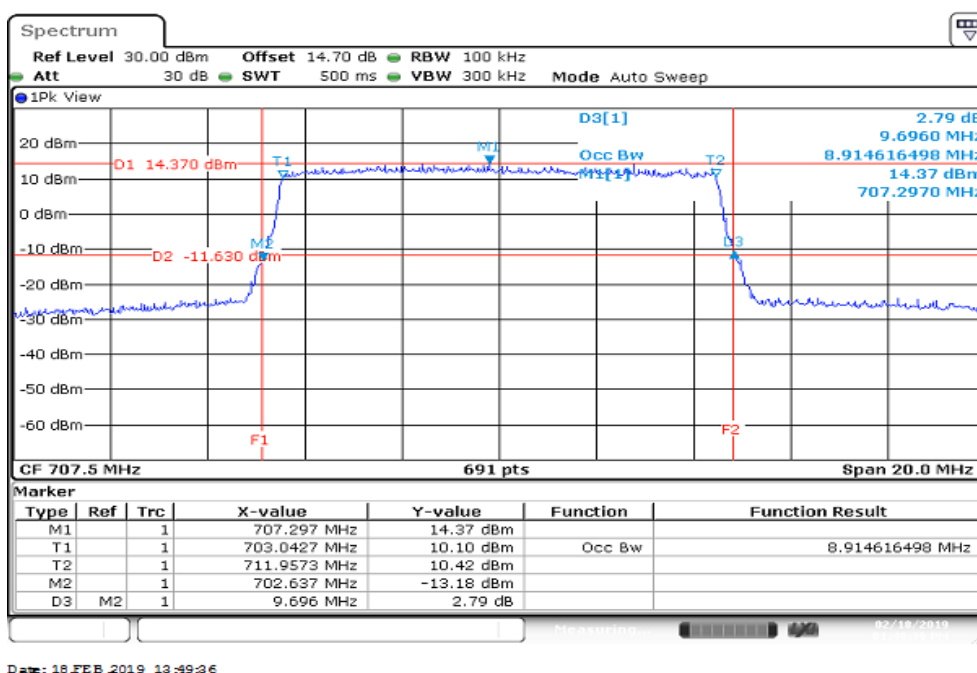
## CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Min



## CHANNEL BANDWIDTH: 10MHz / 16QAM

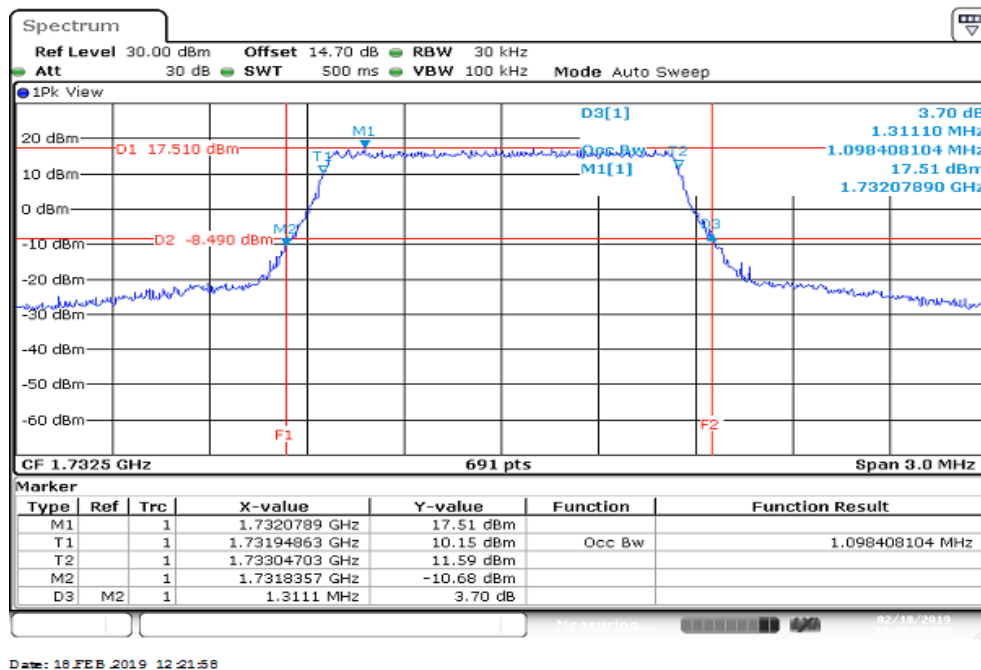
CH Min



## LTE Band 4

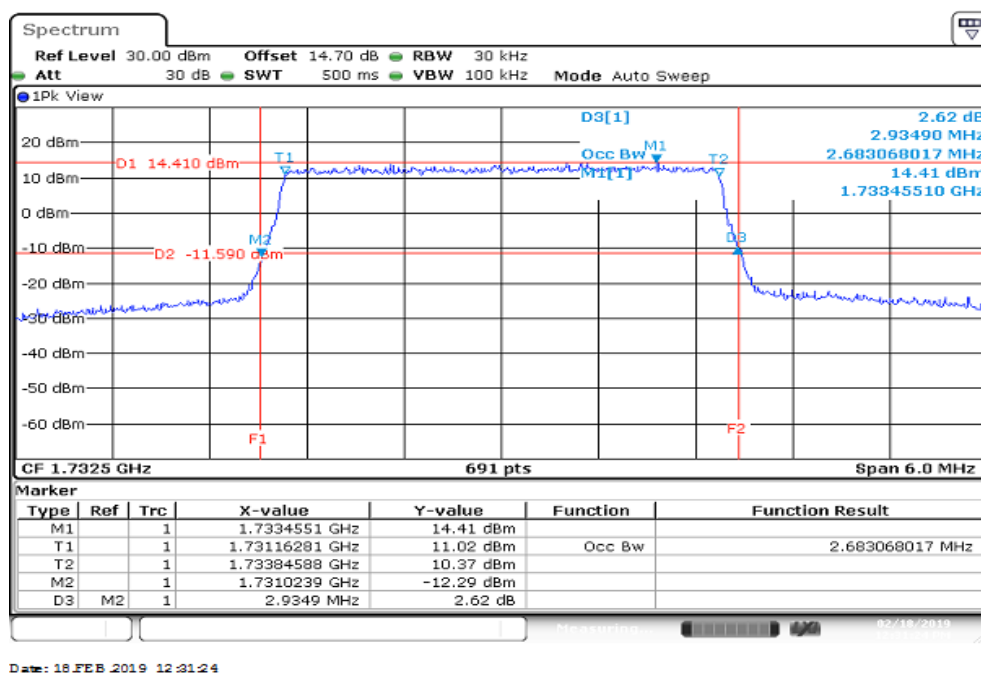
CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Min



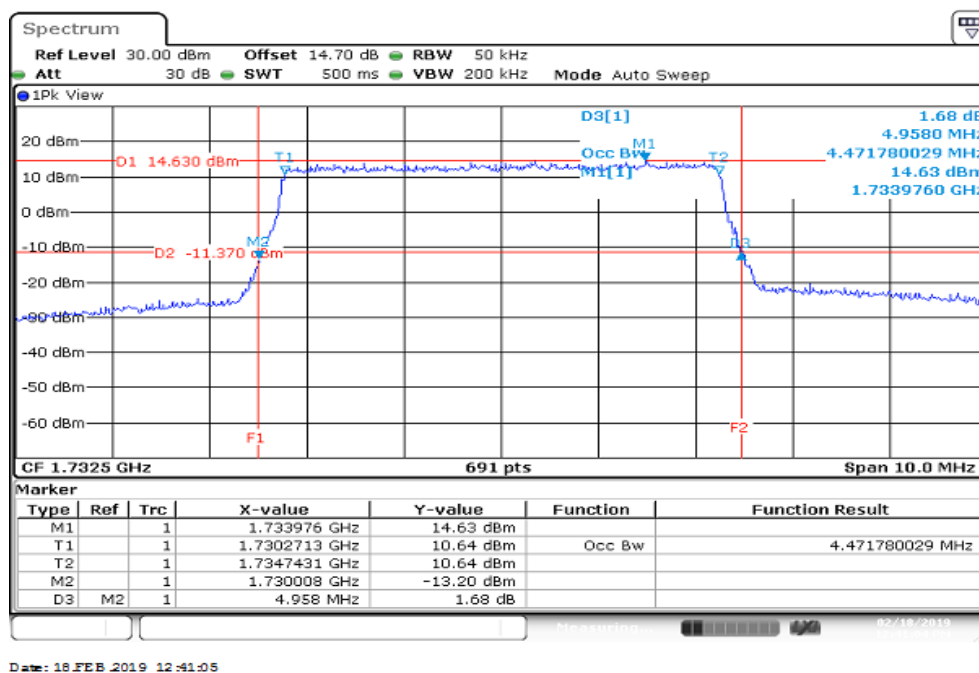
CHANNEL BANDWIDTH: 3MHz / QPSK

CH Min



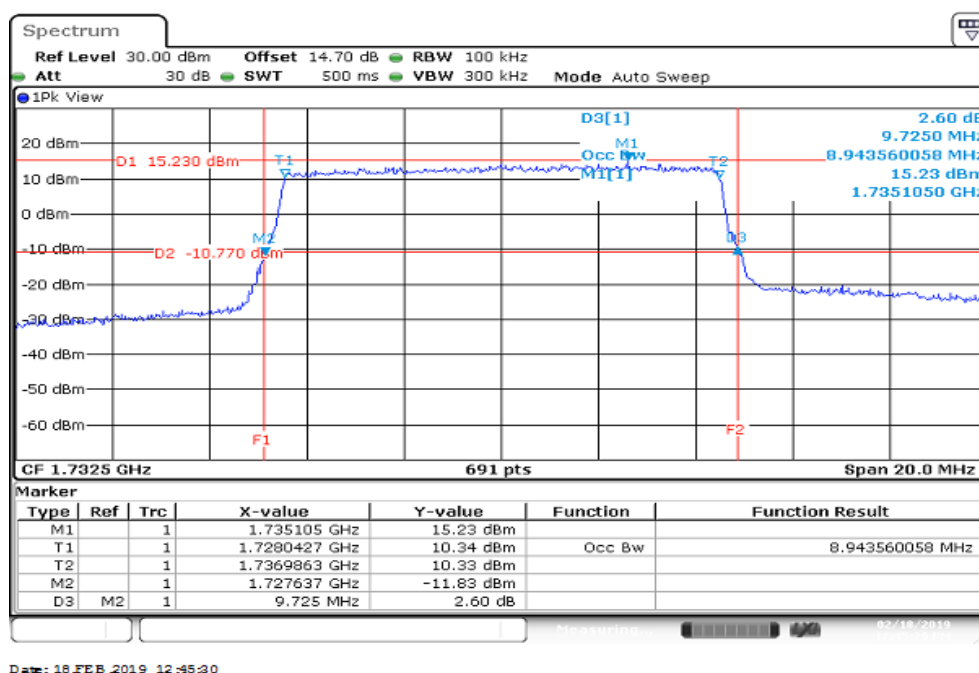
## CHANNEL BANDWIDTH: 5MHz / QPSK

CH Min



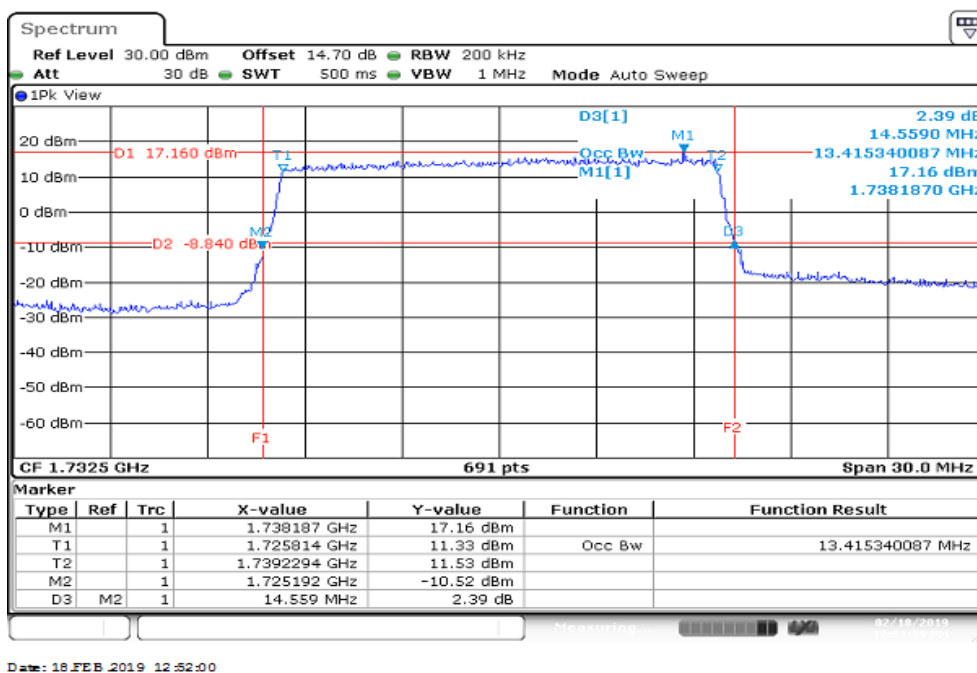
## CHANNEL BANDWIDTH: 10MHz / QPSK

CH Min



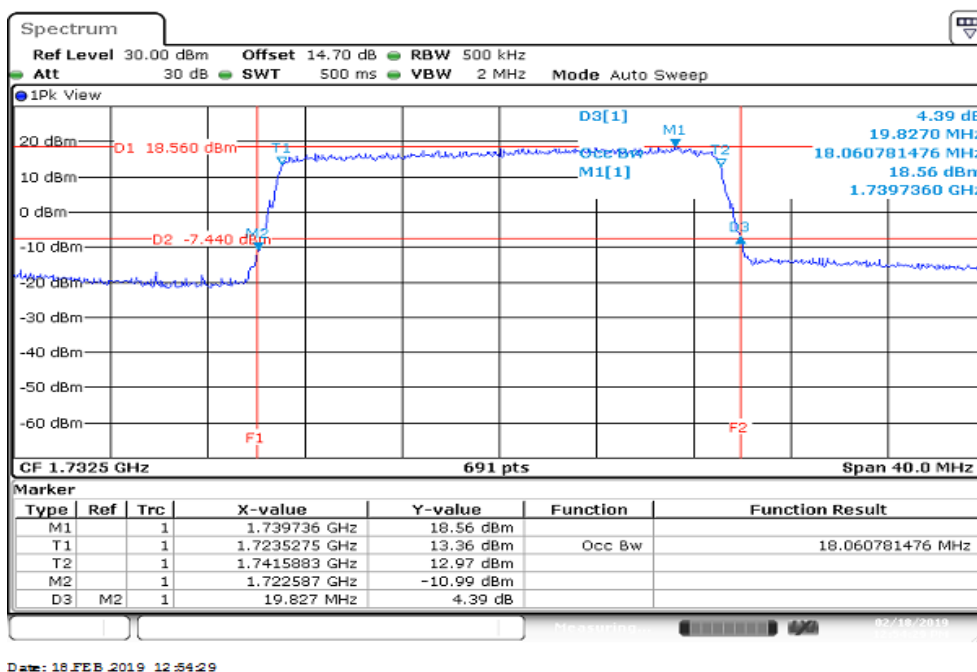
## CHANNEL BANDWIDTH: 15MHz / QPSK

CH Min



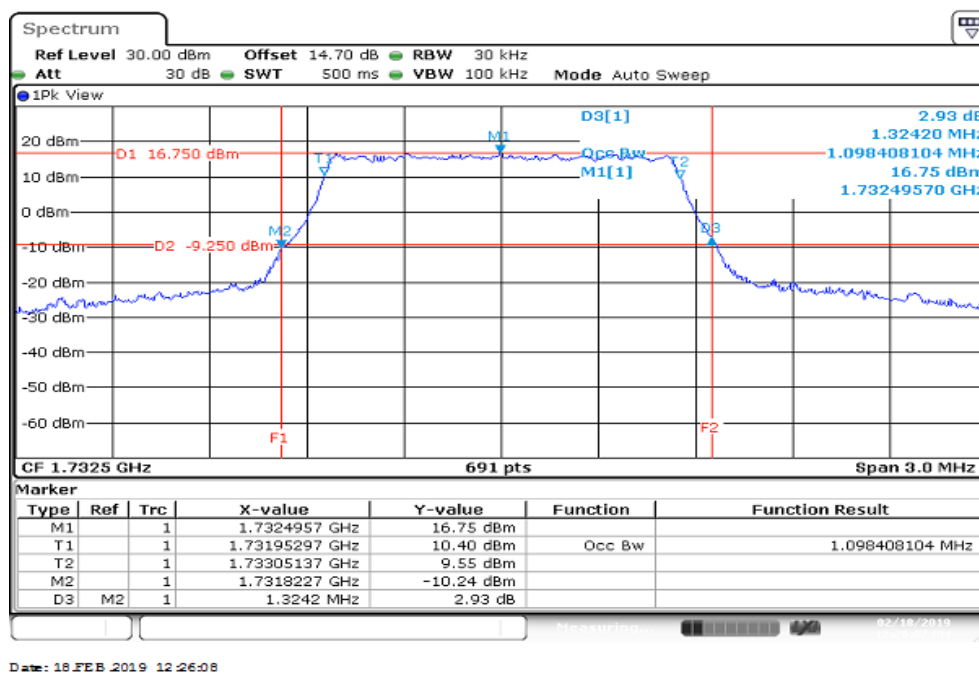
## CHANNEL BANDWIDTH: 20MHz / QPSK

CH Min



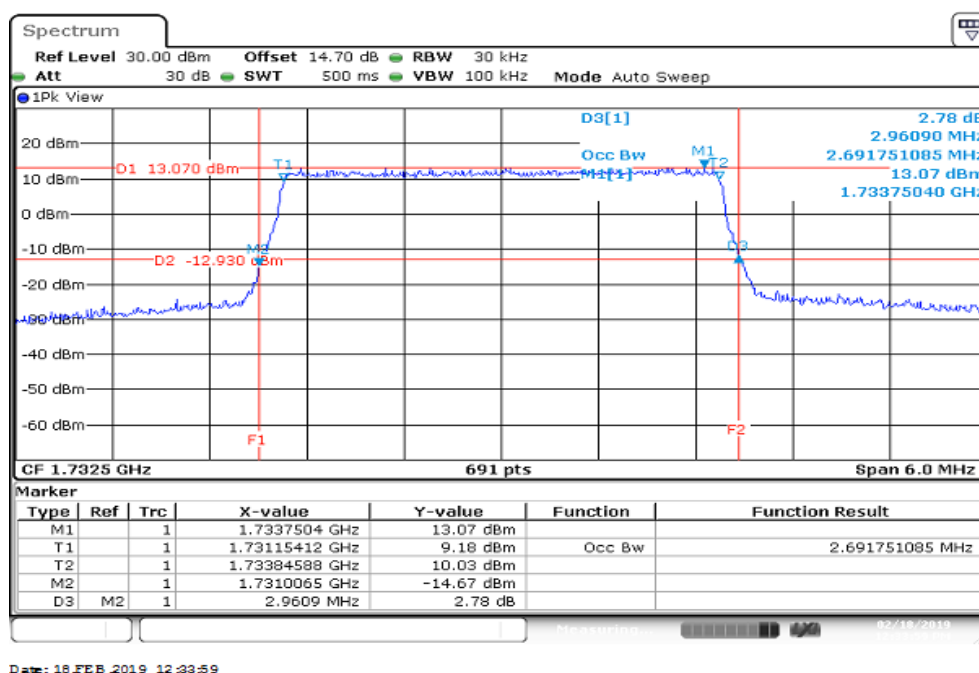
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Min



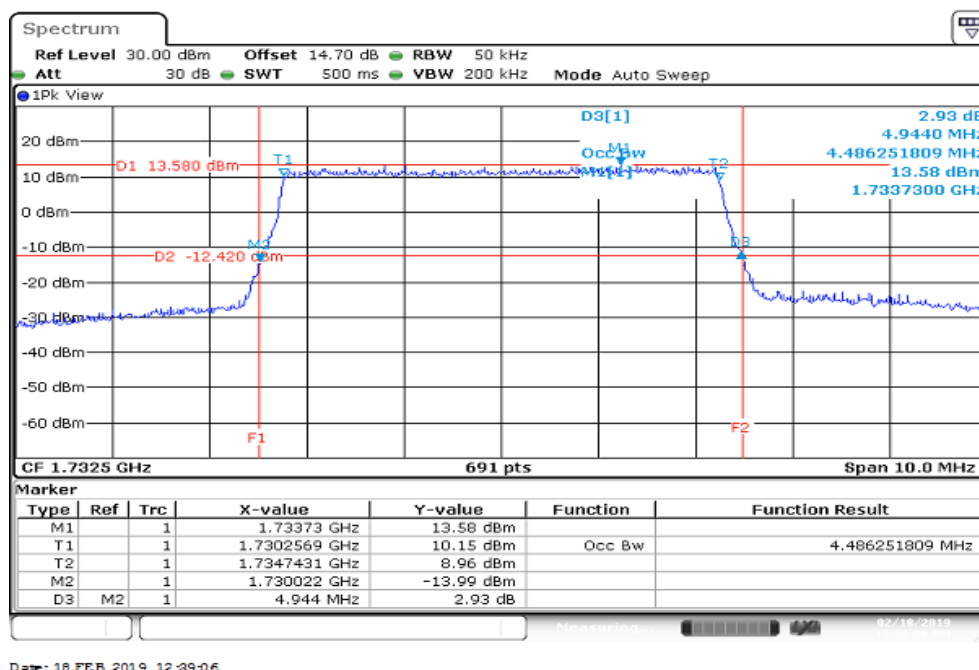
## CHANNEL BANDWIDTH: 3MHz / 16QAM

CH Min



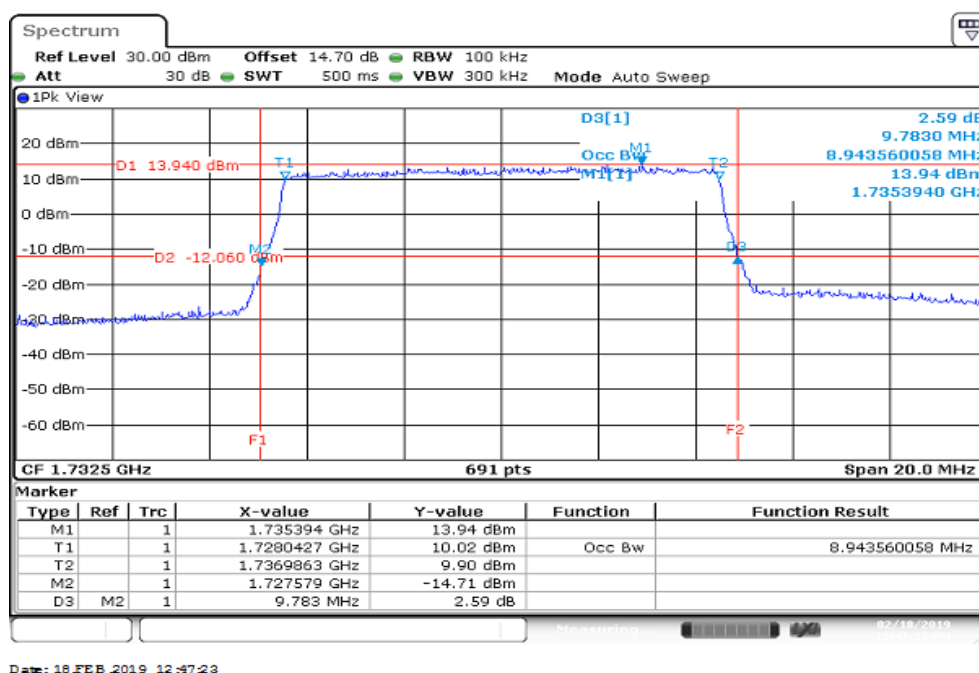
## CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Min



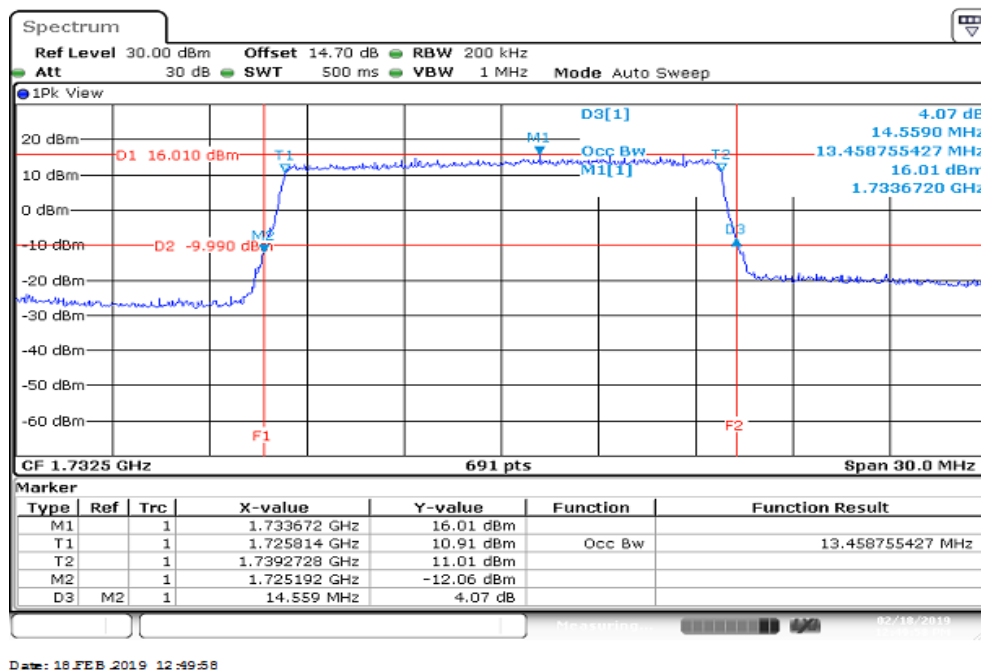
## CHANNEL BANDWIDTH: 10MHz / 16QAM

CH Min



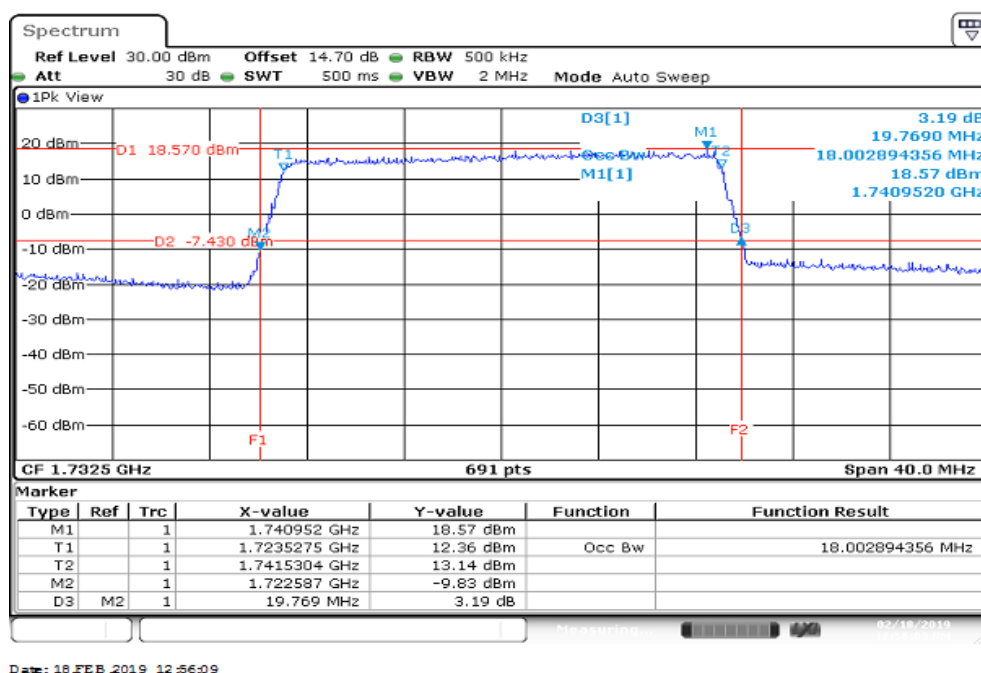
## CHANNEL BANDWIDTH: 15MHz / 16QAM

CH Min



## CHANNEL BANDWIDTH: 20MHz / 16QAM

CH Min



## **8.5 PEAK TO AVERAGE POWER RATIO**

### **LIMIT**

In measuring transmissions in this band using an average power technique, peak-to-average power ratio (PAPR) of the transmission may not exceed 13 dB.

### **TEST PROCEDURES**

1. According to KDB 971168D01, photograph 5.7.1
2. The EUT was connect to spectrum analyzer and call box.
3. Set the CCDF function in spectrum analyzer.
4. The highest RF output power were measured and recorded the maximum PAPR level associated with a probability of 0.1%.
5. Record the Peak to Average Power Ratio.

**TEST RESULTS****LTE Band 12****CHANNEL BANDWIDTH: 1.4Hz / QPSK / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 4.58                          |

**CHANNEL BANDWIDTH: 3Hz / QPSK / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 4.52                          |

**CHANNEL BANDWIDTH: 5Hz / QPSK / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 4.32                          |

**CHANNEL BANDWIDTH: 10Hz / QPSK / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 4.72                          |

**CHANNEL BANDWIDTH: 1.4Hz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.04                          |

**CHANNEL BANDWIDTH: 3Hz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 4.99                          |

**CHANNEL BANDWIDTH: 5Hz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 4.41                          |

**CHANNEL BANDWIDTH: 10Hz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 4.55                          |

**CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.57                          |

**CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.42                          |

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.10                          |

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.59                          |

**CHANNEL BANDWIDTH: 1.5MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.01                          |

**CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.94                          |

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 5.94                          |

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 23095   | 707.5              | 6.43                          |

## LTE Band 4

### CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 4.55                          |

### CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 4.64                          |

### CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 4.49                          |

### CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 5.28                          |

### CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 2.00                          |

### CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 1.65                          |

**CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 5.07                          |

**CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 5.01                          |

**CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 4.32                          |

**CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 4.70                          |

**CHANNEL BANDWIDTH: 15MHz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 6.20                          |

**CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 6.84                          |

**CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 5.30                          |

**CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 5.45                          |

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 5.19                          |

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 5.80                          |

**CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 1.80                          |

**CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 1.57                          |

**CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 5.97                          |

**CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.5             | 5.83                          |

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 5.74                          |

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB**

| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 6.43                          |

**CHANNEL BANDWIDTH: 15MHz / 16QAM / 100%RB**

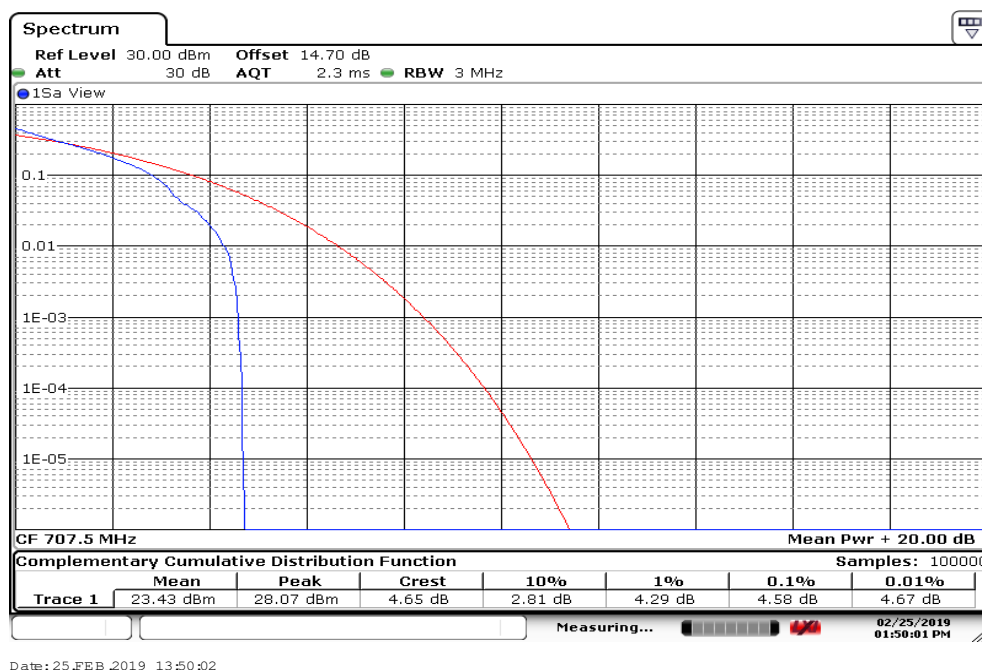
| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 7.25                          |

**CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB**

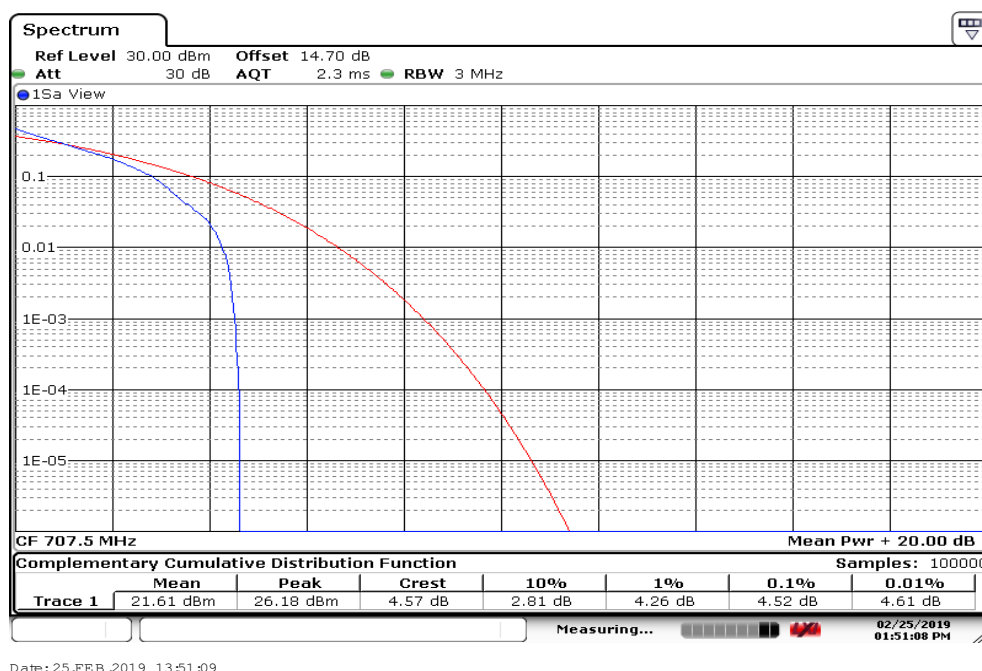
| Channel | FREQUENCY<br>(MHz) | PEAK TO AVERAGE RATIO<br>(dB) |
|---------|--------------------|-------------------------------|
| 20175   | 1732.50            | 7.48                          |

## LTE Band 12

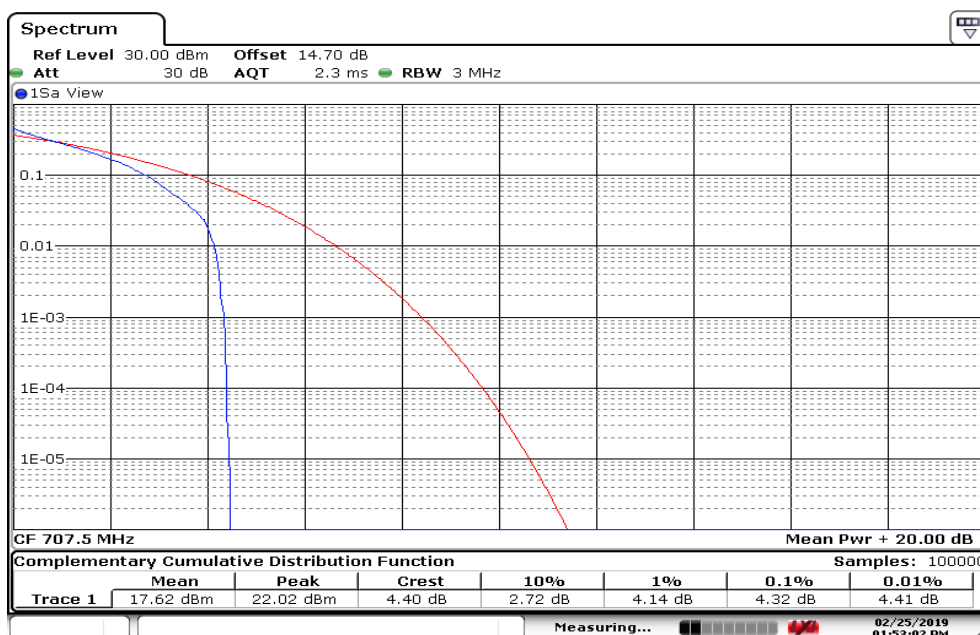
### CHANNEL BANDWIDTH: 1.4MHz / QPSK/ 1RB



### CHANNEL BANDWIDTH: 3MHz / QPSK/ 1RB

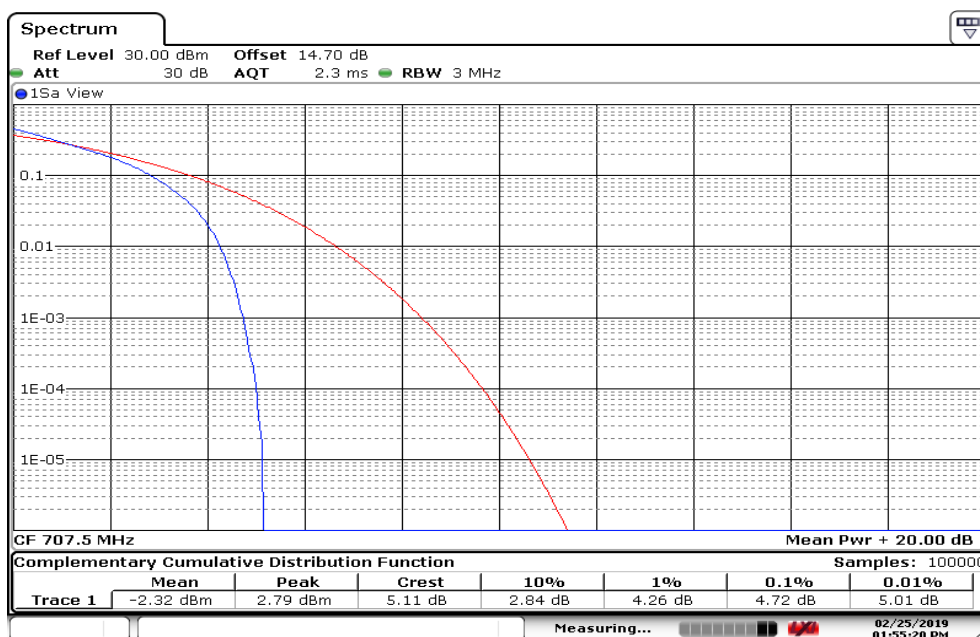


## CHANNEL BANDWIDTH: 5MHz / QPSK/ 1RB



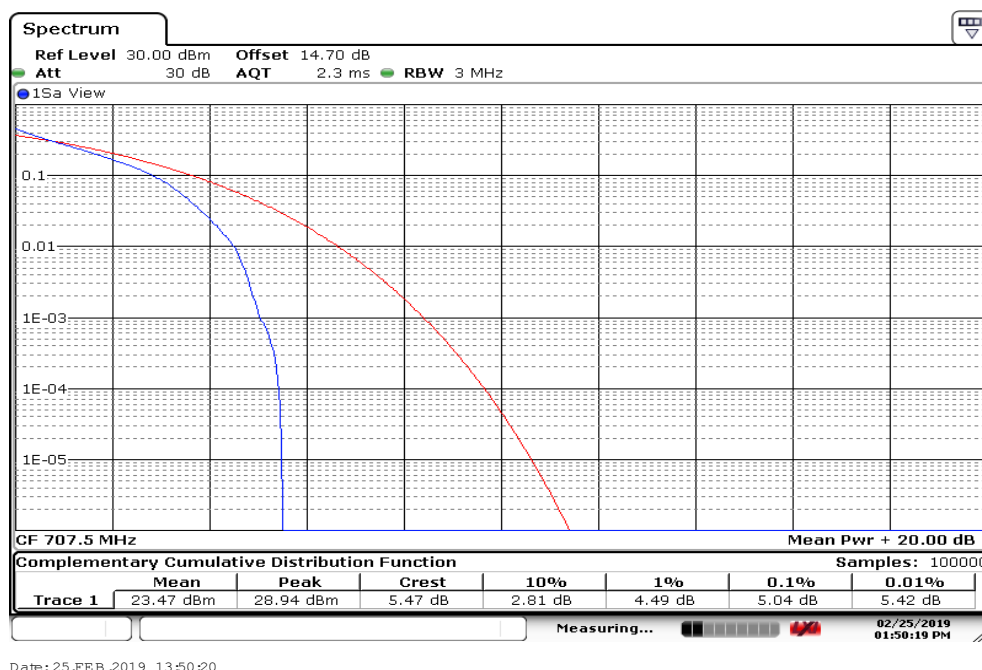
Date: 25.FEB.2019 13:53:03

## CHANNEL BANDWIDTH: 10MHz / QPSK/ 1RB

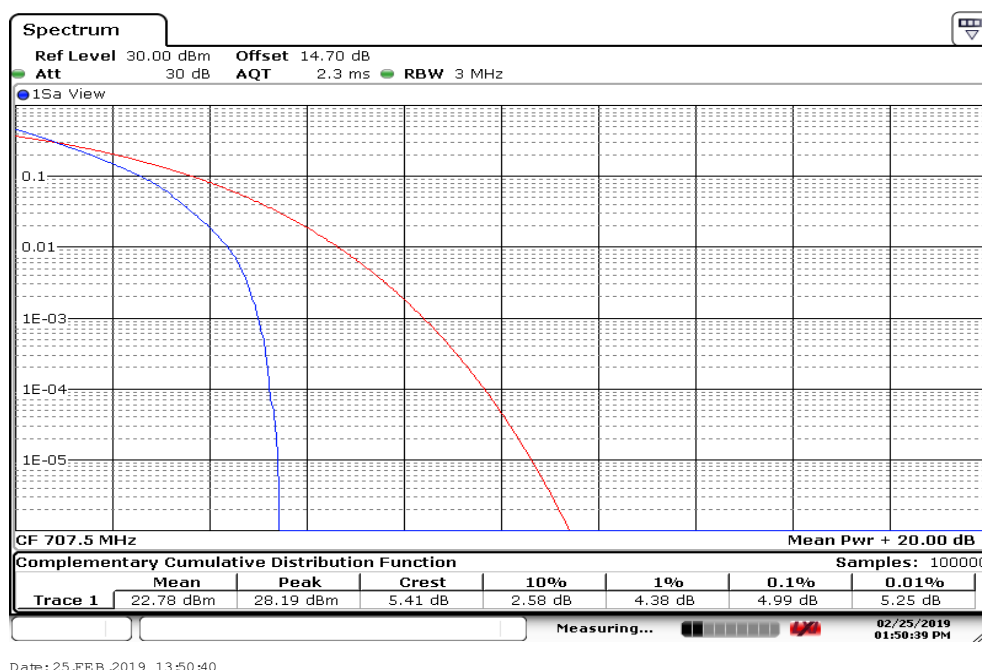


Date: 25.FEB.2019 13:55:21

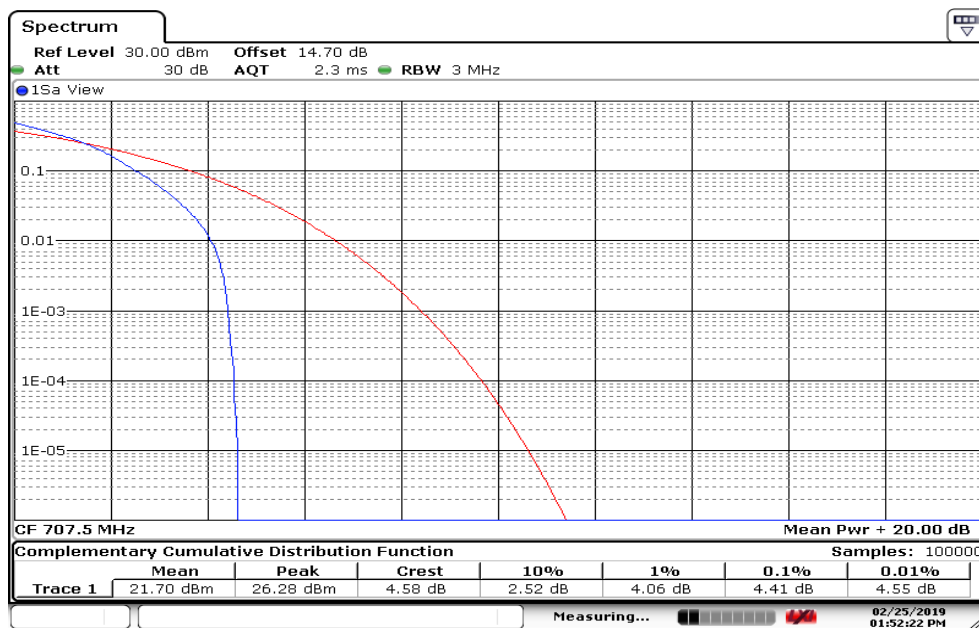
## CHANNEL BANDWIDTH: 1.4MHz / QPSK/ 100%RB



## CHANNEL BANDWIDTH: 3MHz / QPSK/ 100%RB

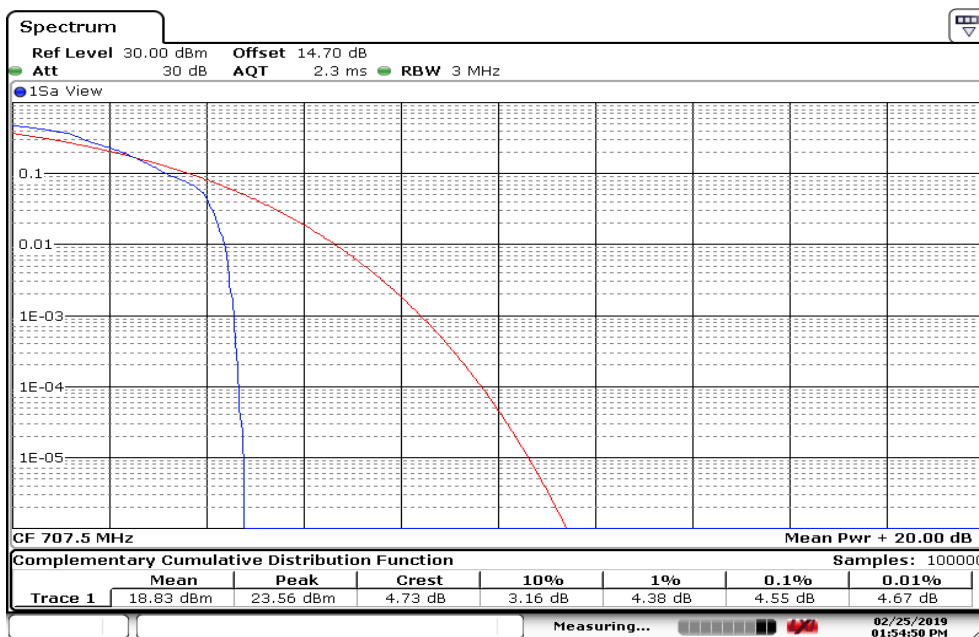


## CHANNEL BANDWIDTH: 5MHz / QPSK/ 100%RB



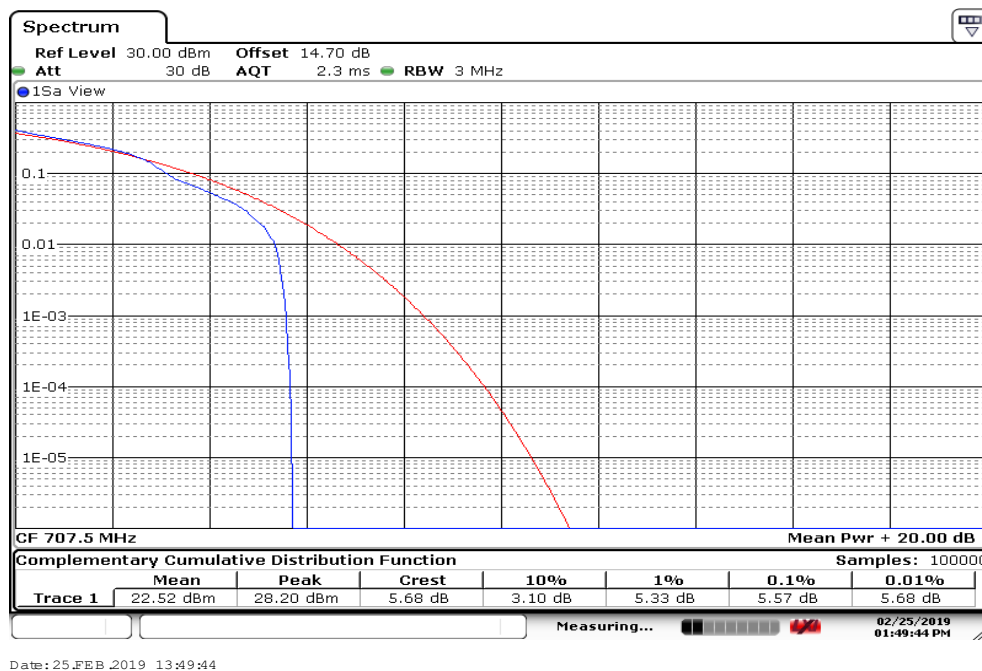
Date: 25.FEB.2019 13:52:23

## CHANNEL BANDWIDTH: 10MHz / QPSK/ 100%RB

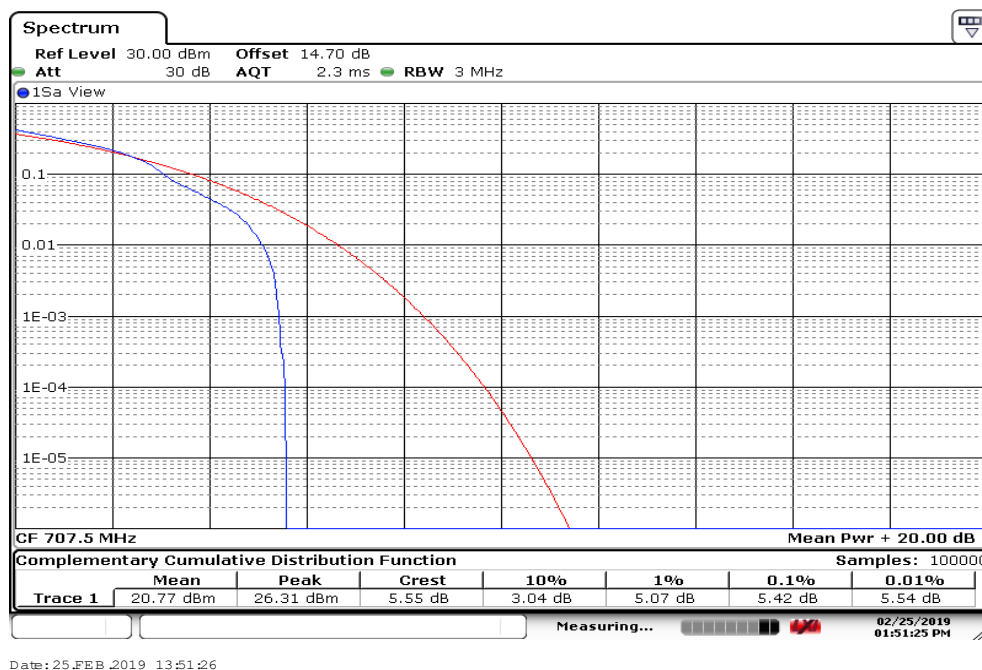


Date: 25.FEB.2019 13:54:51

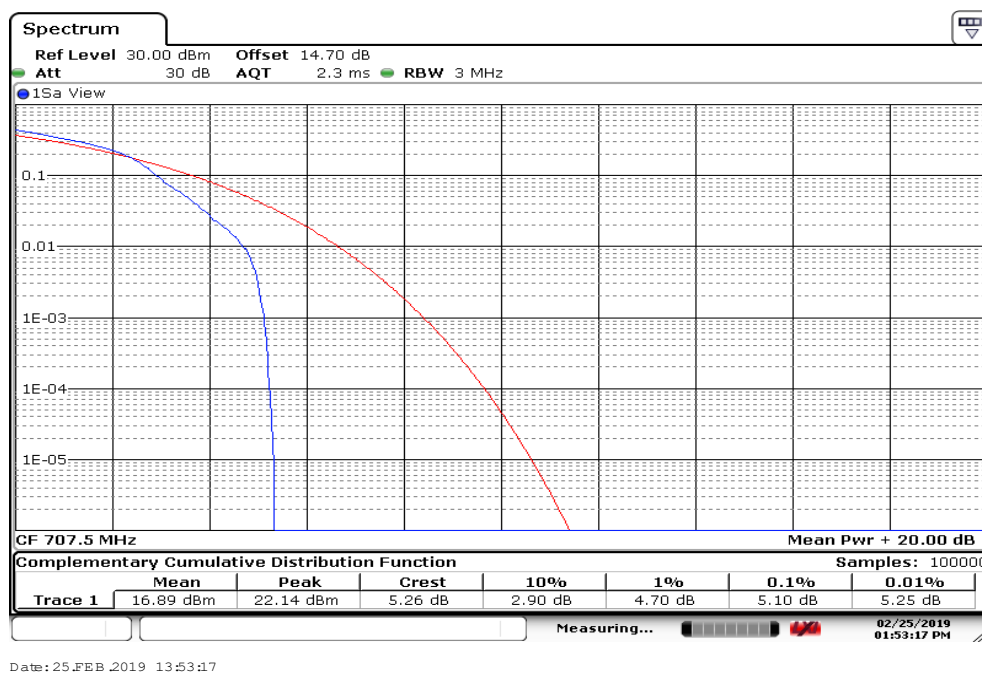
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB



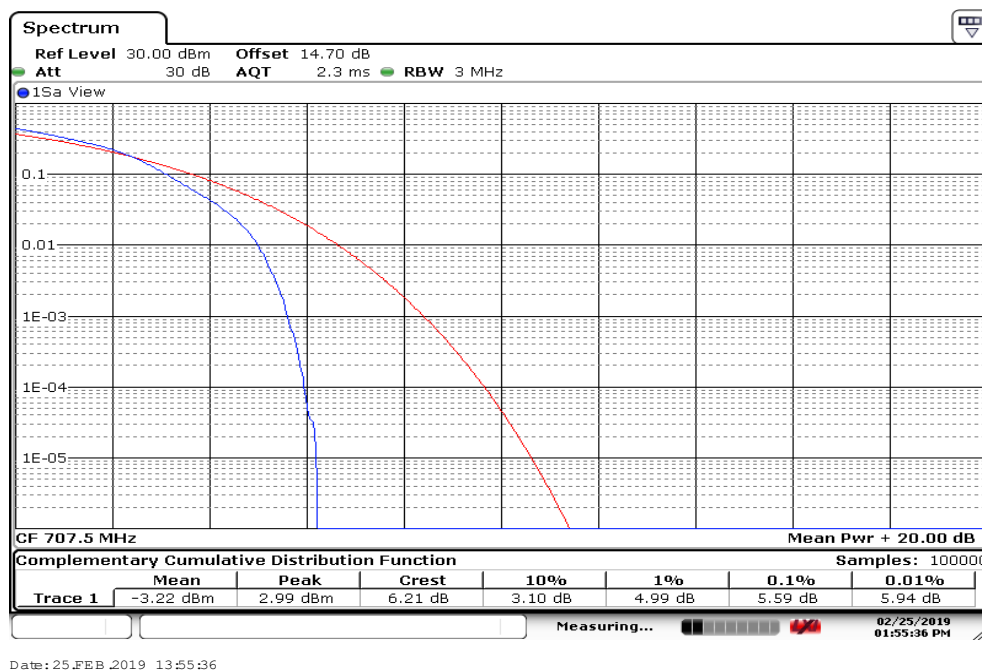
## CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB



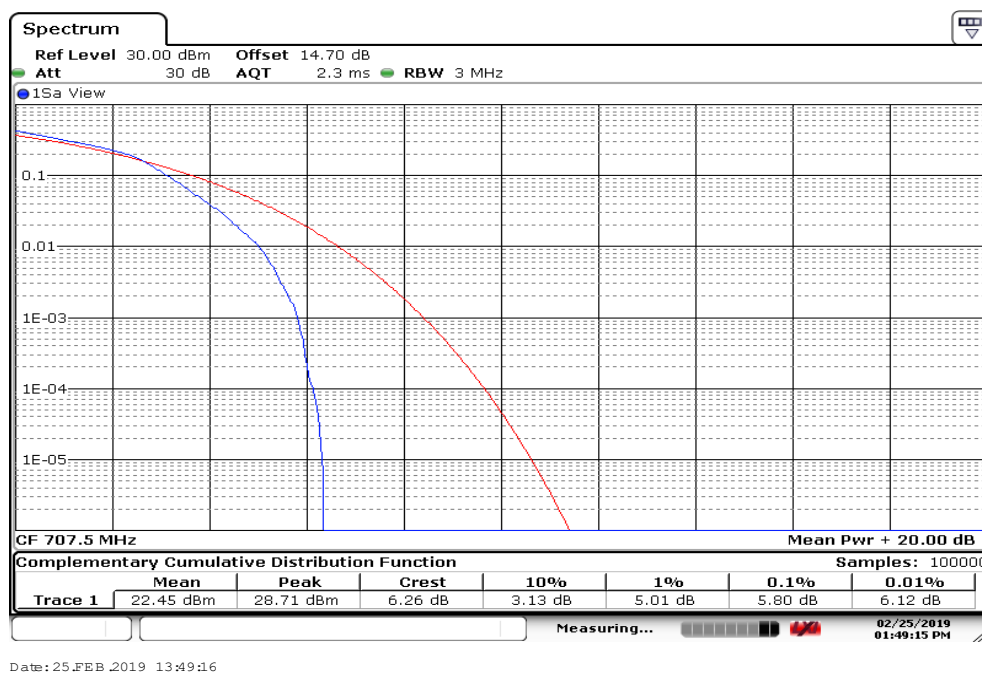
## CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB



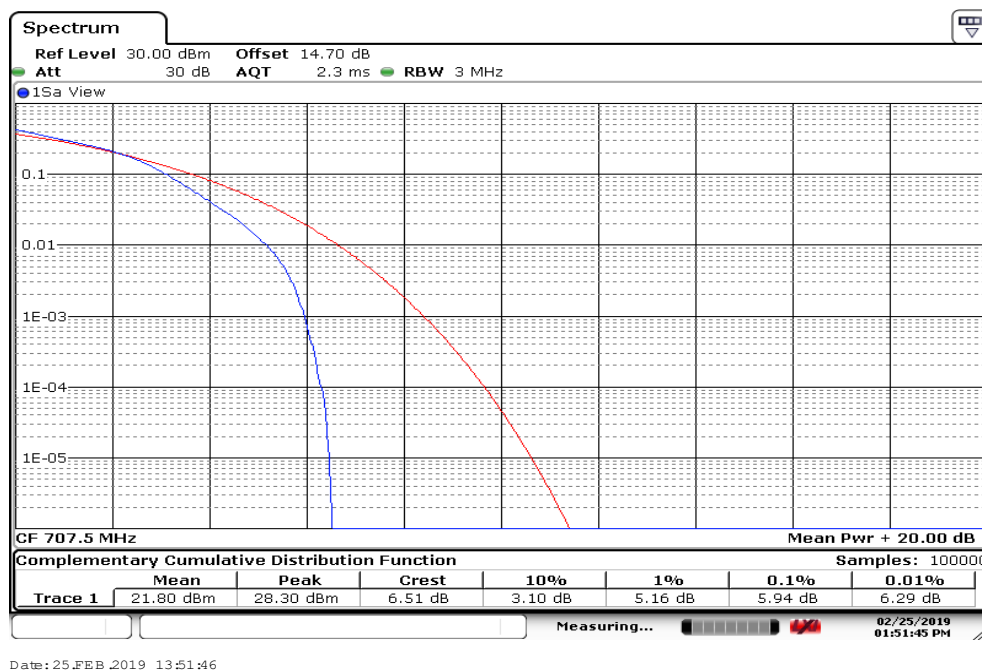
## CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB



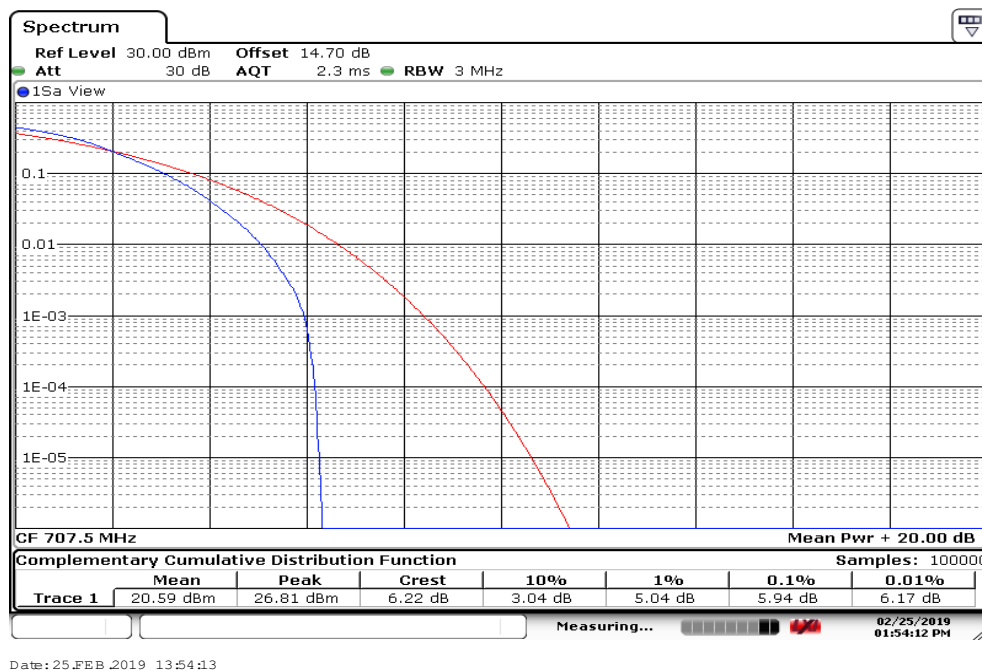
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB



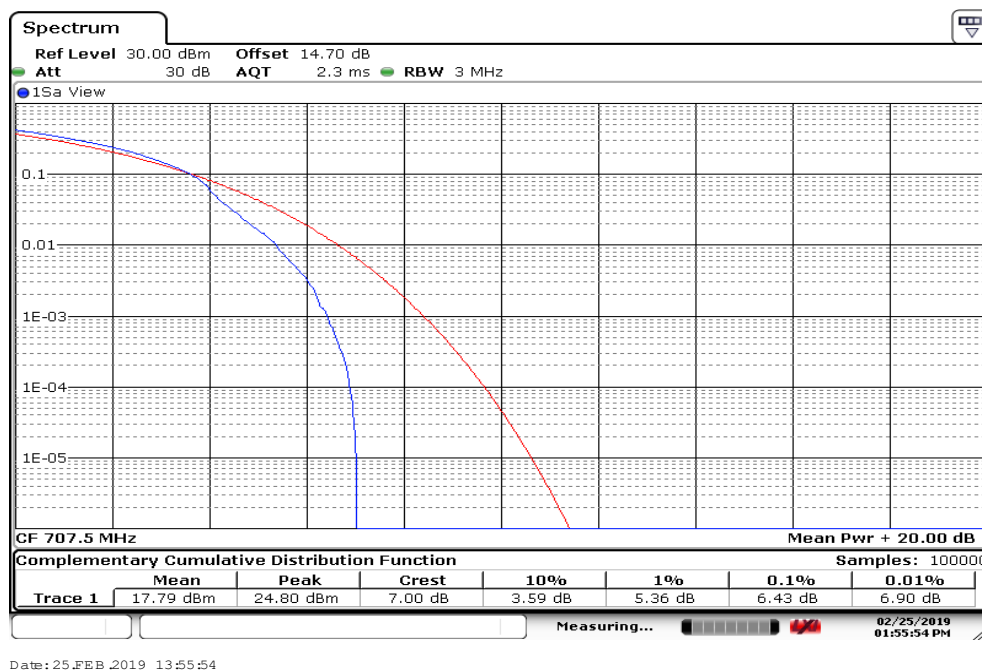
## CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB



## CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

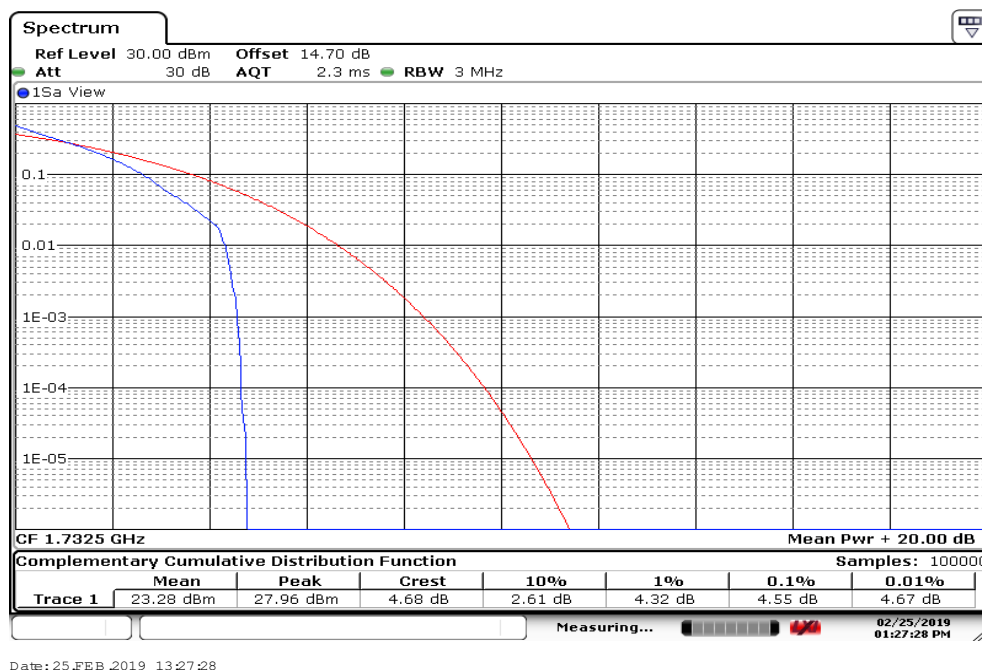


## CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

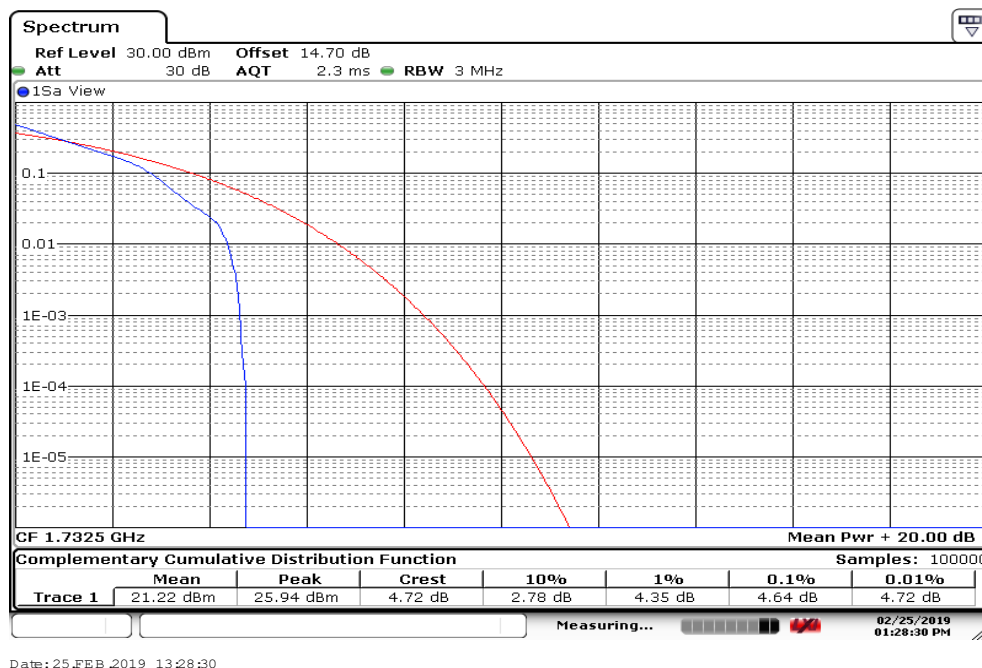


## LTE Band 4

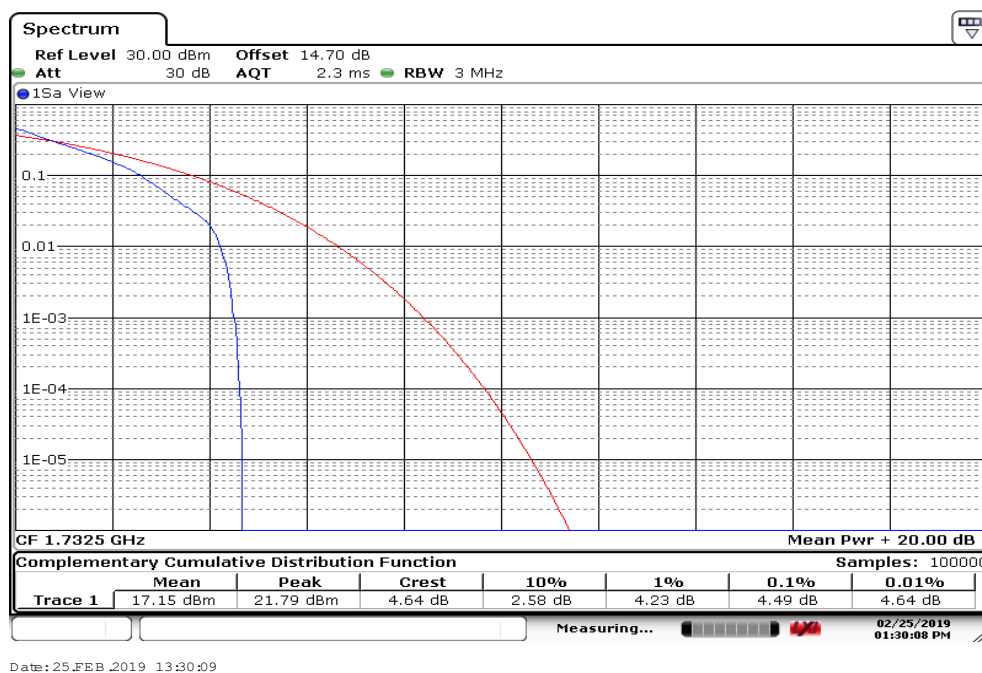
### CHANNEL BANDWIDTH: 1.4MHz / QPSK/1RB



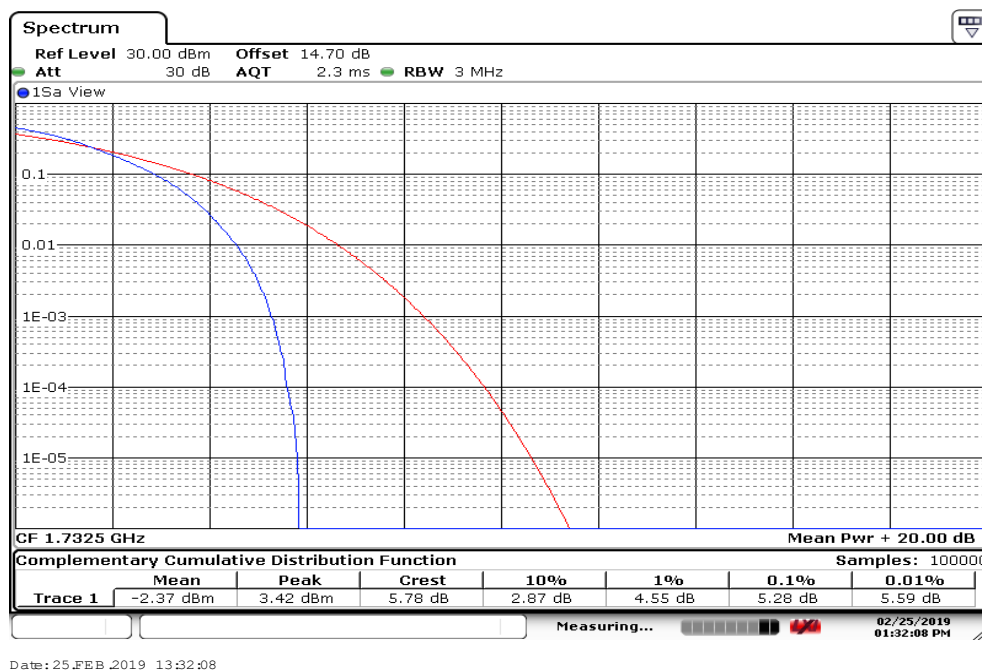
### CHANNEL BANDWIDTH: 3MHz / QPSK /1RB



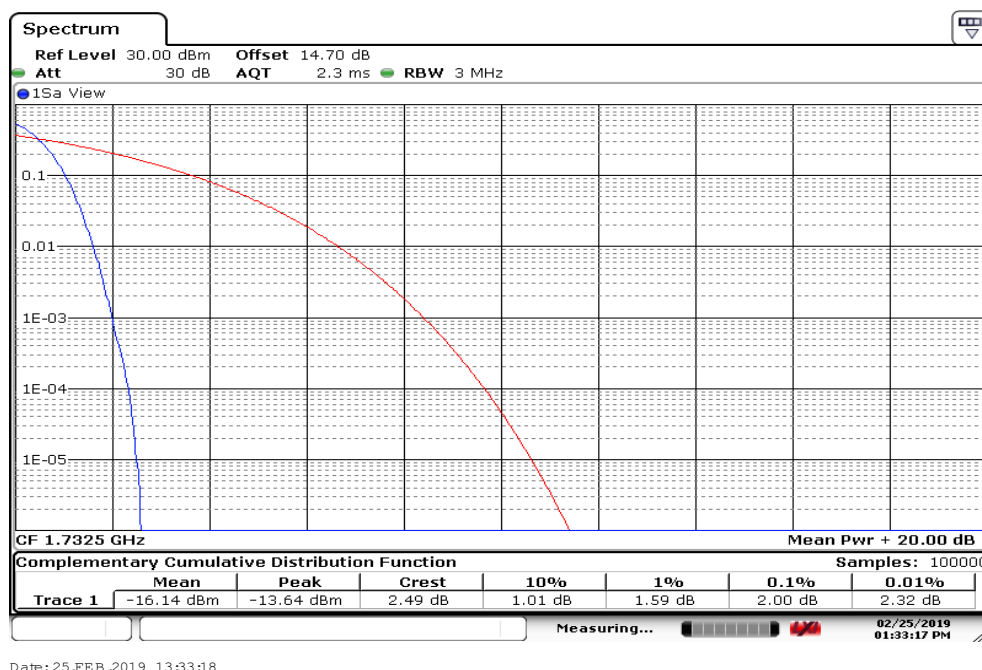
## CHANNEL BANDWIDTH: 5MHz / QPSK/1RB



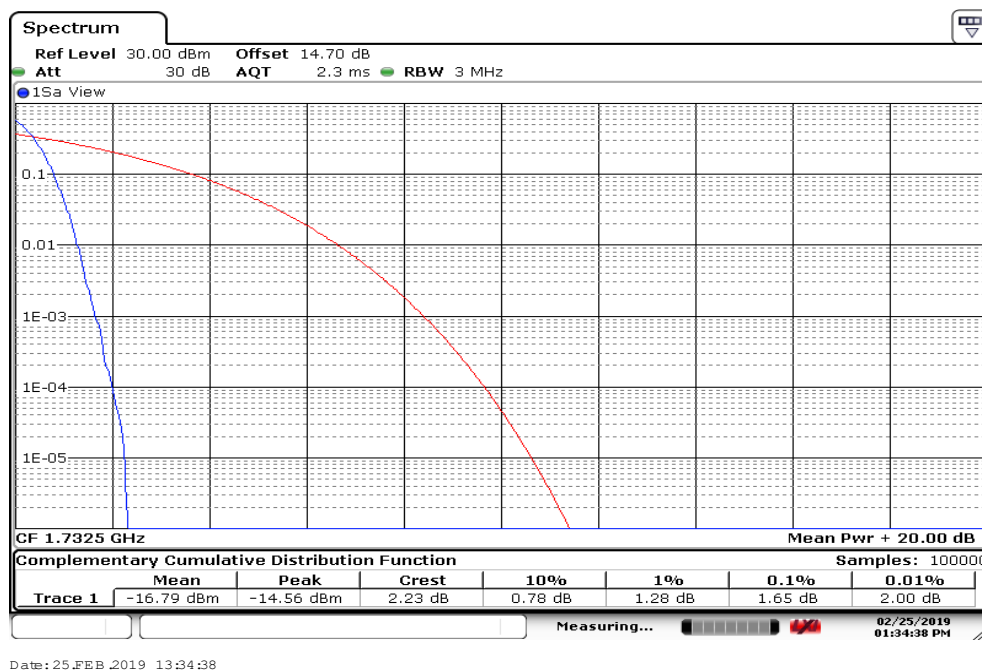
## CHANNEL BANDWIDTH: 10MHz / QPSK /1RB



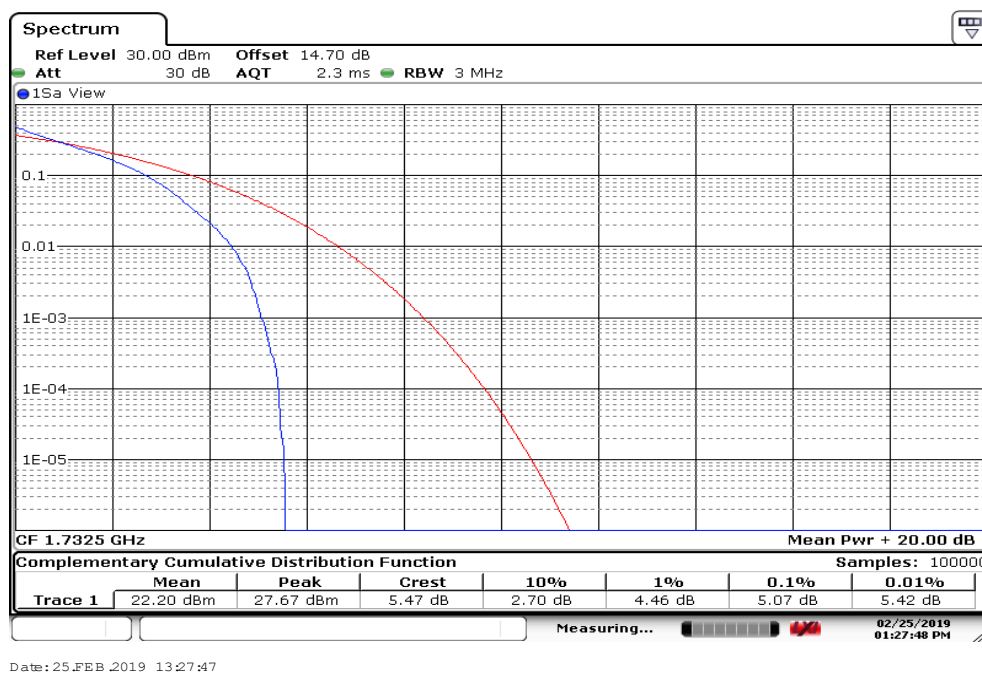
## CHANNEL BANDWIDTH: 15MHz / QPSK/1RB



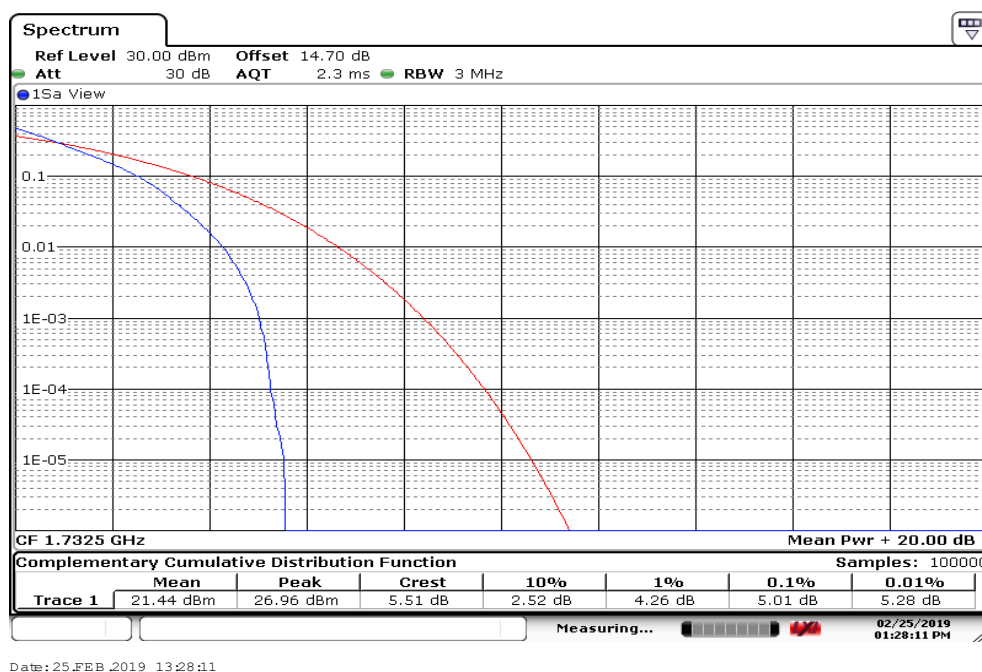
## CHANNEL BANDWIDTH: 20MHz / QPSK /1RB



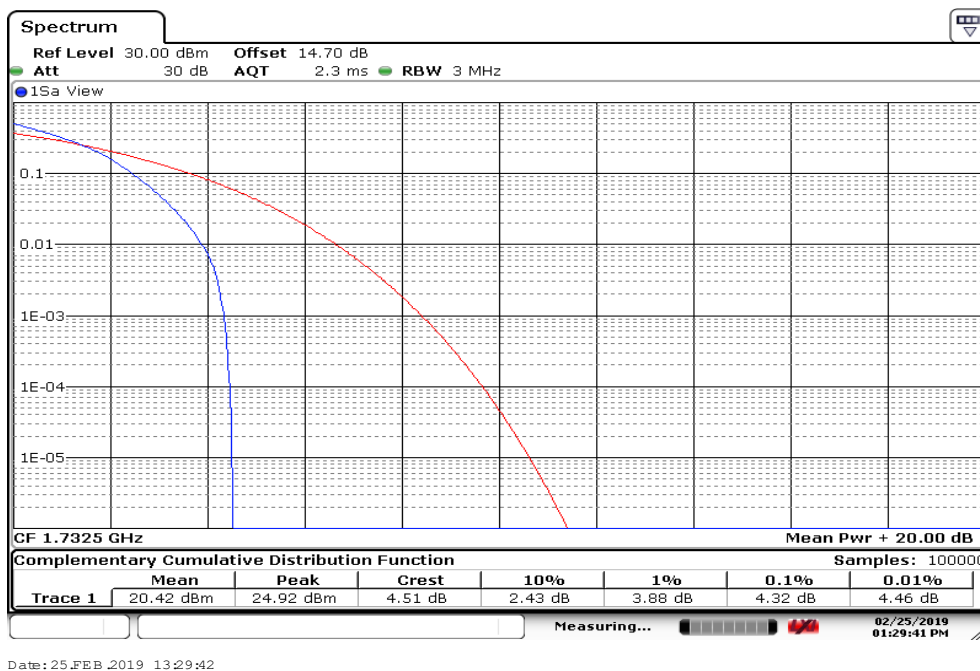
## CHANNEL BANDWIDTH: 1.4MHz / QPSK/100%RB



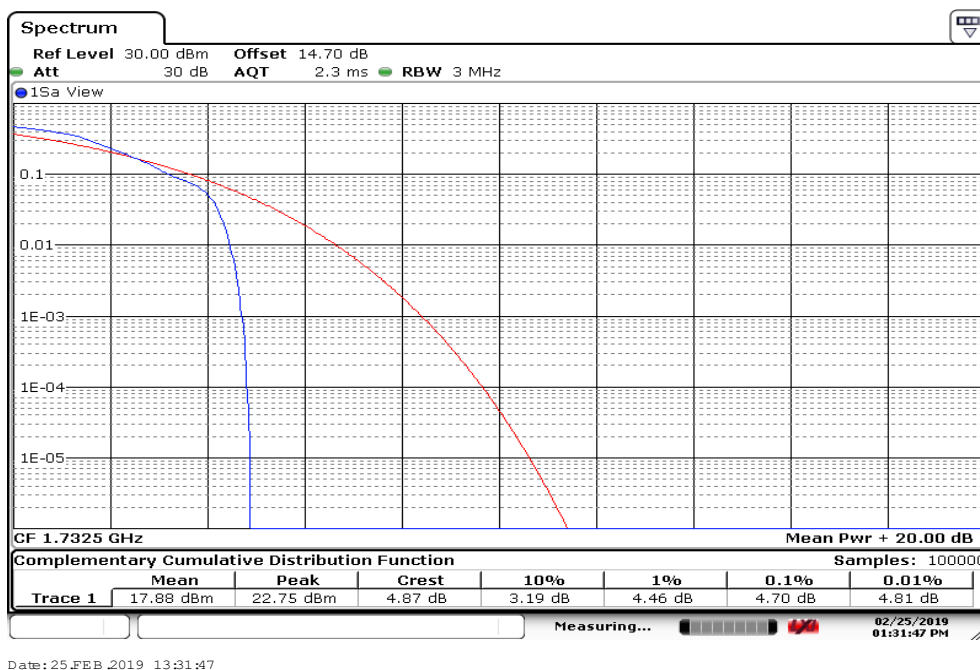
## CHANNEL BANDWIDTH: 3MHz / QPSK /100%RB



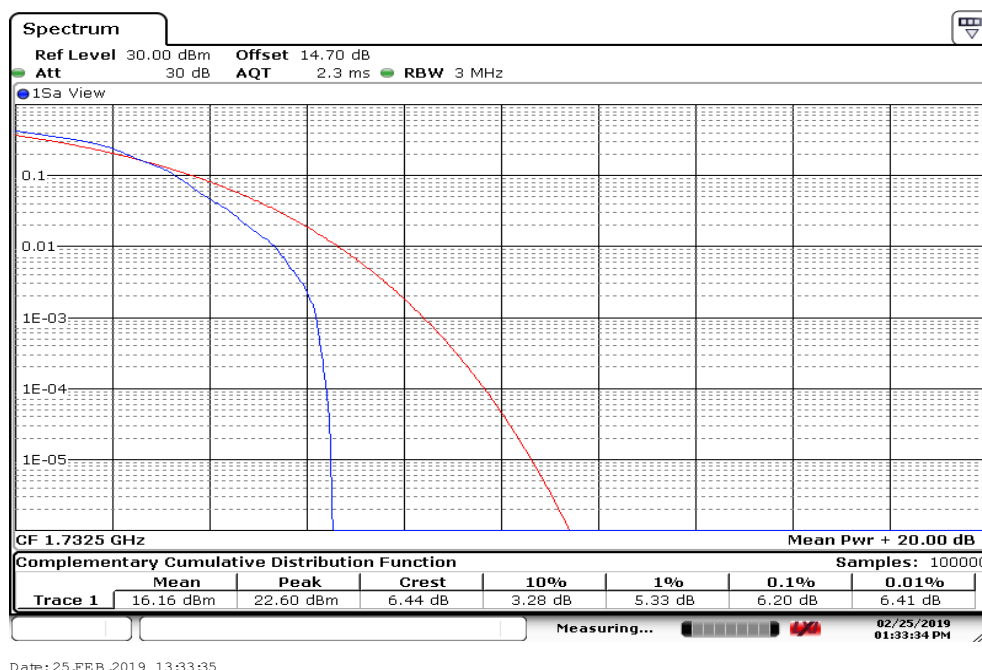
## CHANNEL BANDWIDTH: 5MHz / QPSK/100%RB



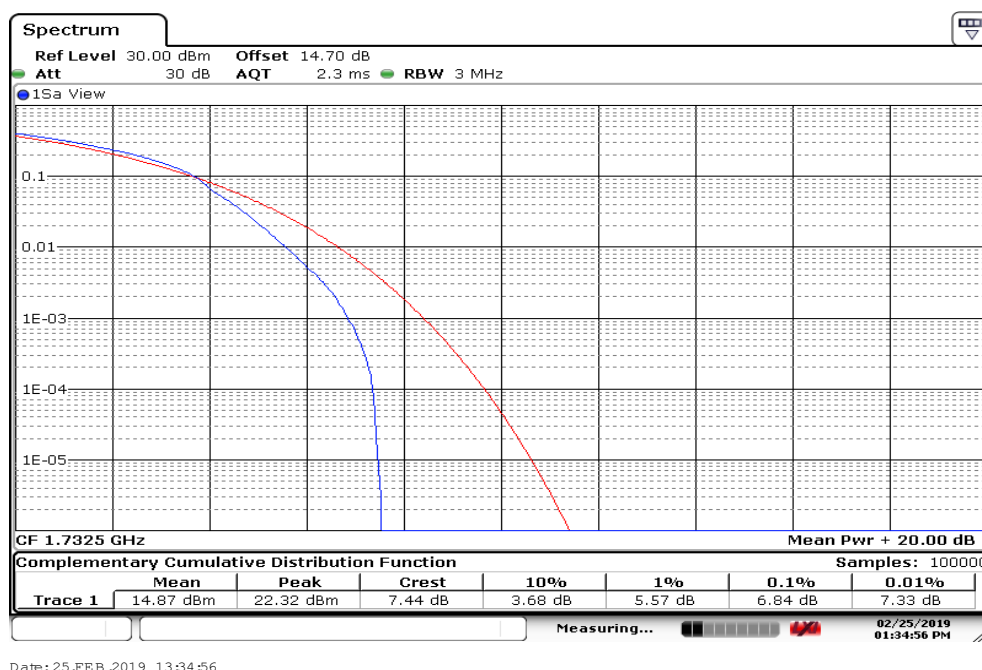
## CHANNEL BANDWIDTH: 10MHz / QPSK /100%RB



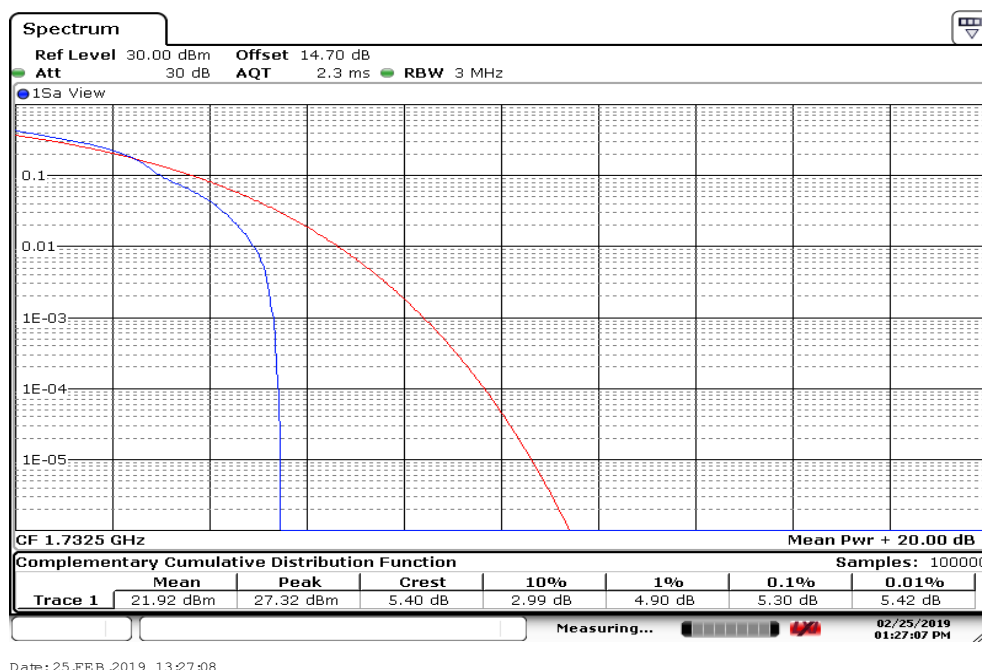
## CHANNEL BANDWIDTH: 15MHz / QPSK/100%RB



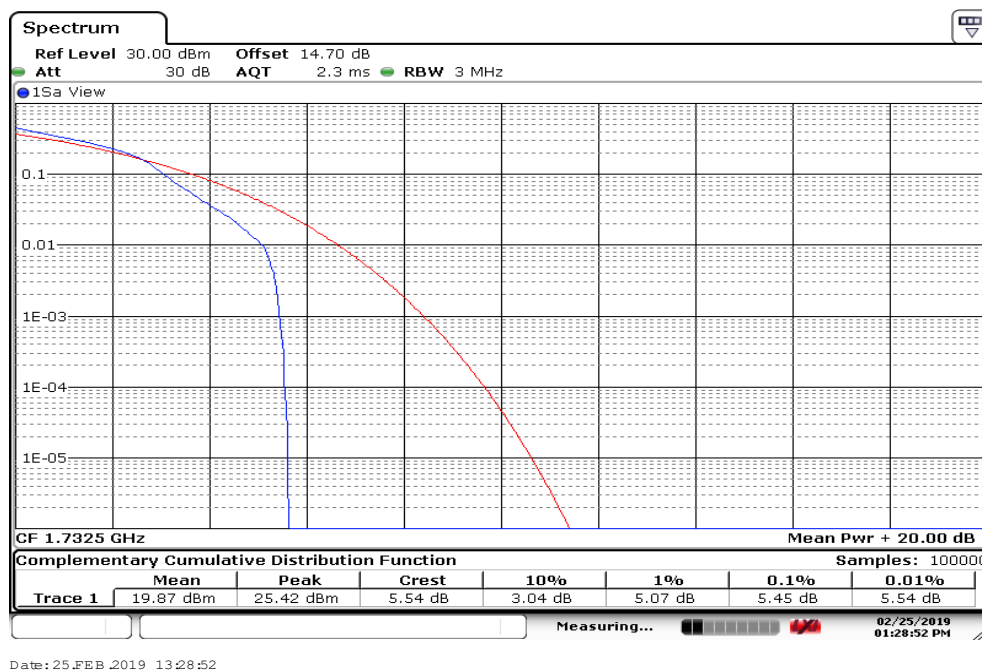
## CHANNEL BANDWIDTH: 20MHz / QPSK /100%RB



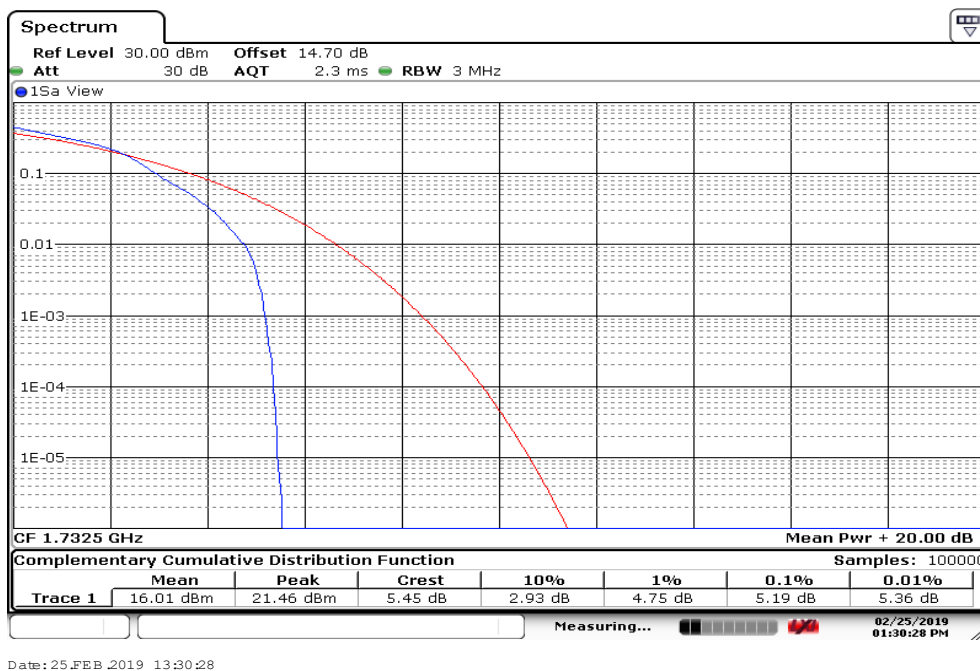
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM/1RB



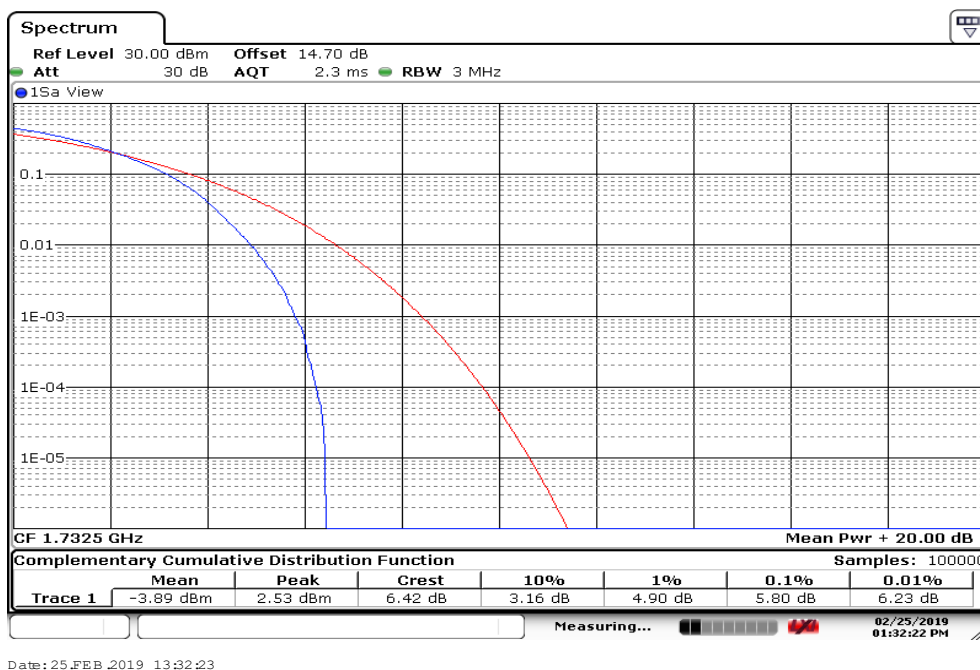
## CHANNEL BANDWIDTH: 3MHz / 16QAM /1RB



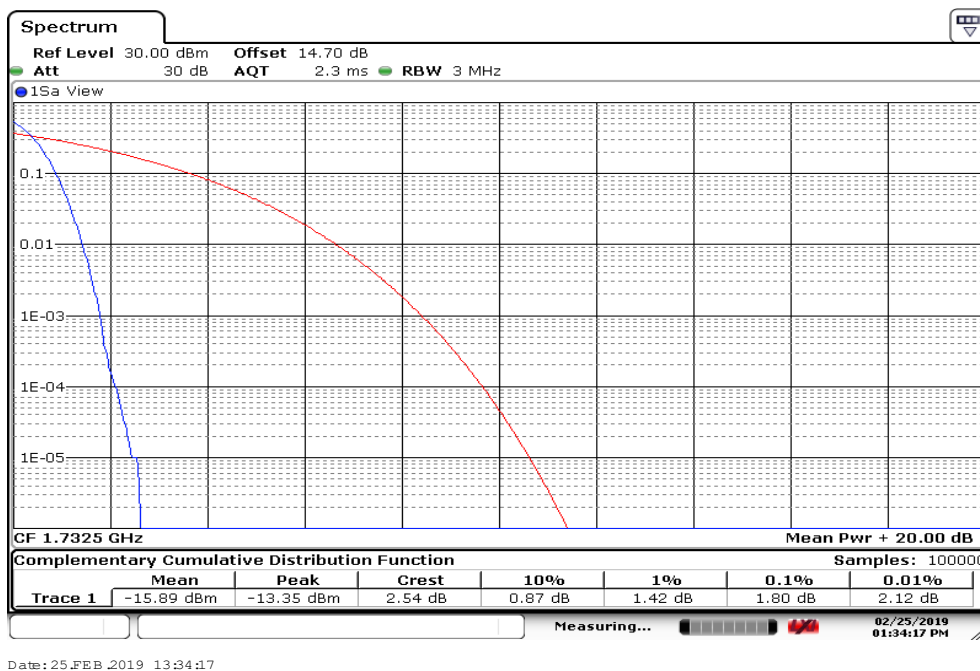
## CHANNEL BANDWIDTH: 5MHz / 16QAM /1RB



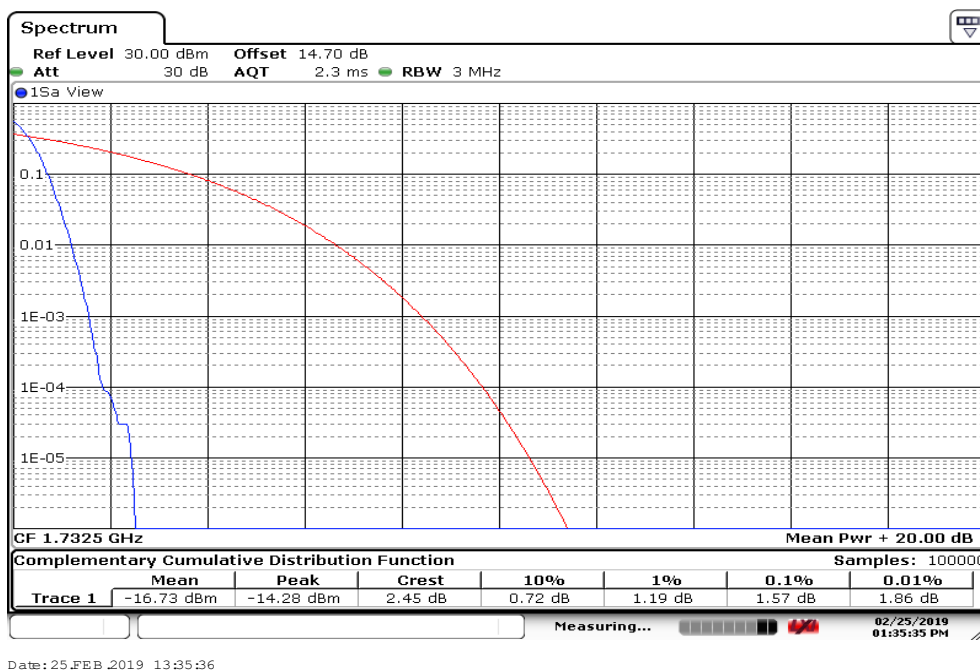
## CHANNEL BANDWIDTH: 10MHz / 16QAM /1RB



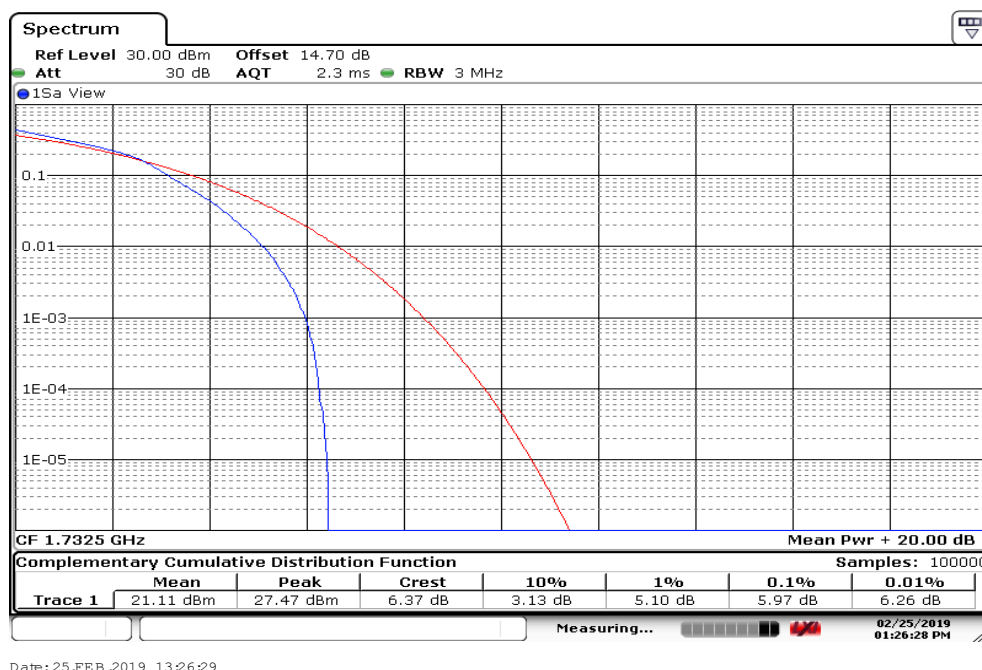
## CHANNEL BANDWIDTH: 15MHz / 16QAM /1RB



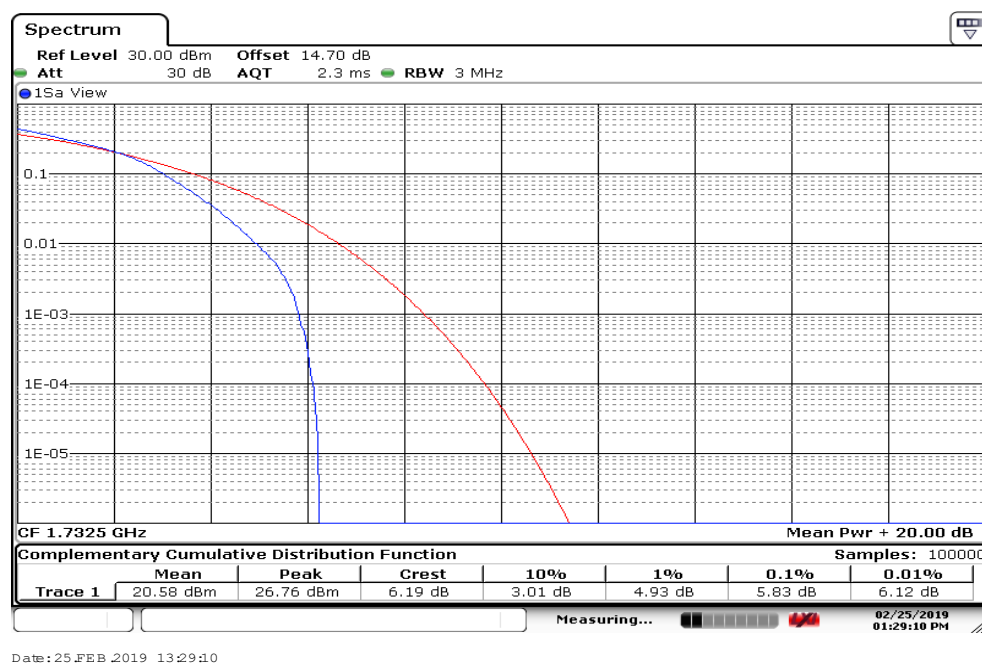
## CHANNEL BANDWIDTH: 20MHz / 16QAM /1RB



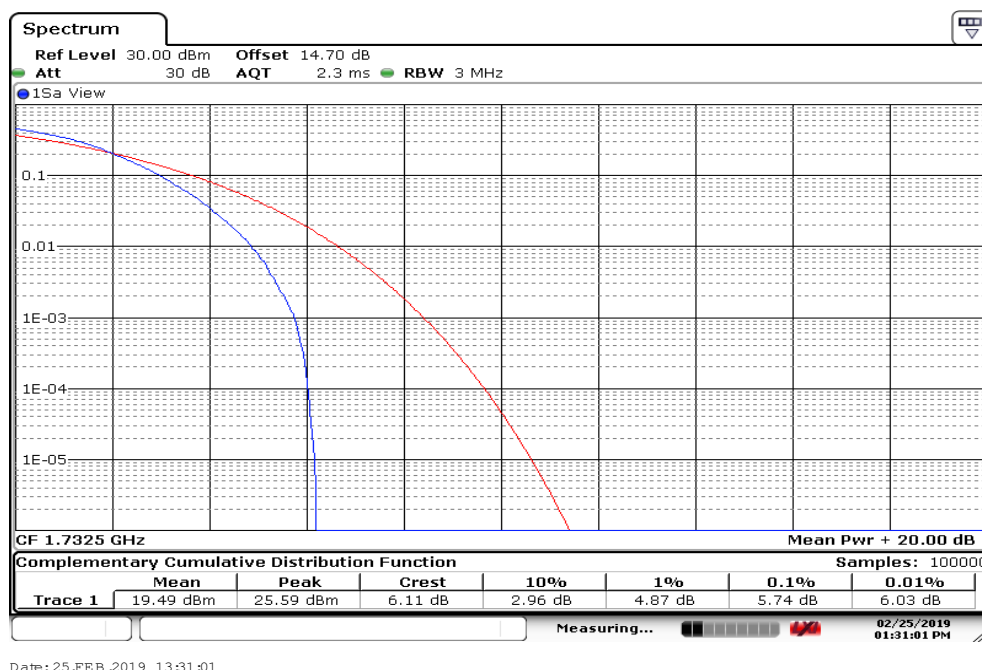
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM/100%RB



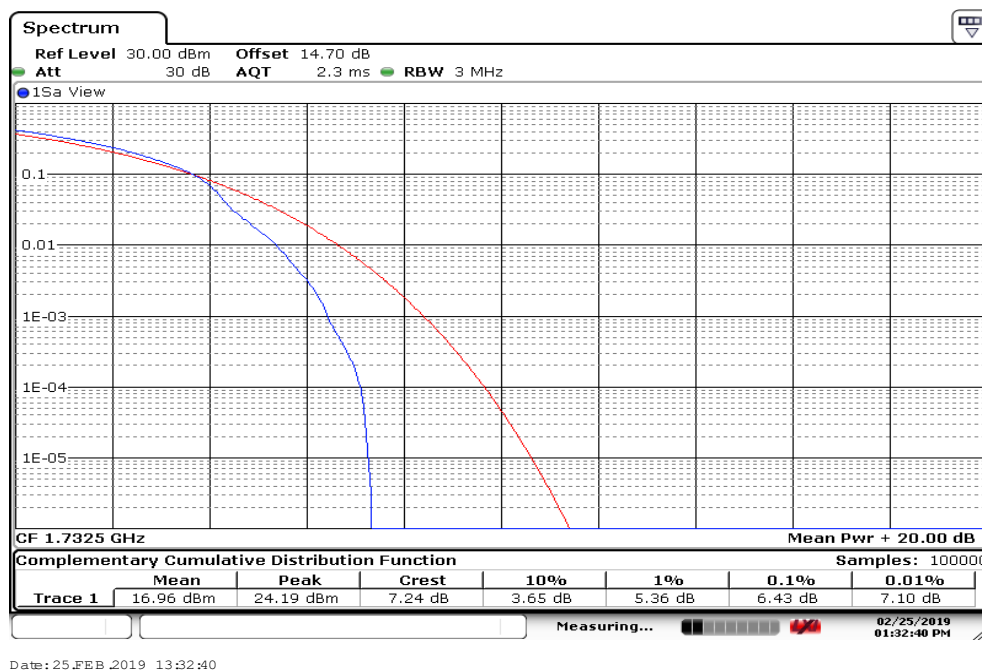
## CHANNEL BANDWIDTH: 3MHz / 16QAM /100%RB



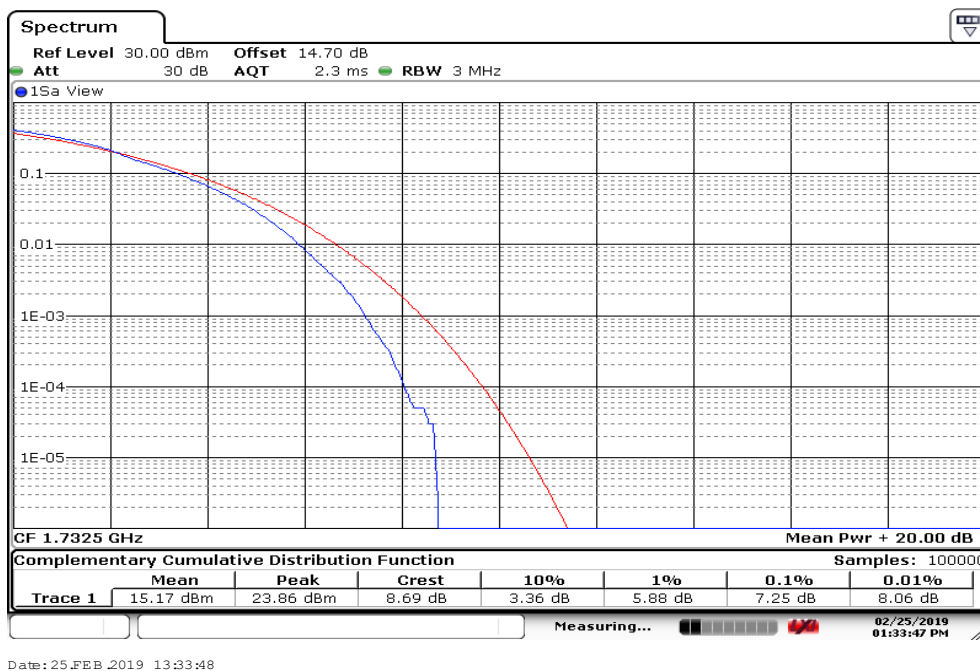
## CHANNEL BANDWIDTH: 5MHz / 16QAM /100%RB



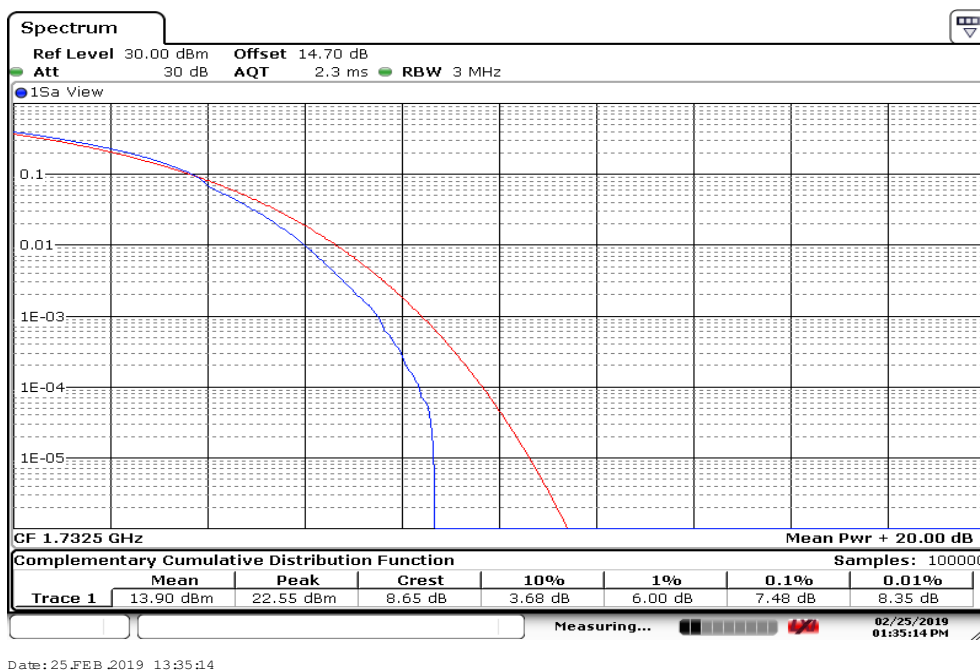
## CHANNEL BANDWIDTH: 10MHz / 16QAM /100%RB



## CHANNEL BANDWIDTH: 15MHz / 16QAM /100%RB



## CHANNEL BANDWIDTH: 20MHz / 16QAM /100%RB



## 8.6 BAND EDGE MEASUREMENT

### LIMIT

#### **FCC §27.53(g), Band 12**

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

#### **FCC §27.53(h), Band 4**

General protection levels. Except as otherwise specified below, for operations in the 1755MHz bands, the power of any emission outside a licensee's frequency block -1710 shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB

#### **According to RSS-130, Band 12,**

The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside the frequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least  $43 + 10 \log_{10} p$  (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

#### **According to RSS-139, Band 4,**

General protection levels. Except as otherwise specified below, for operations in the In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block,<sup>2</sup> which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB

After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB.

### TEST PROCEDURES

KDB 971168 D01 v02r02 - Section 6.0

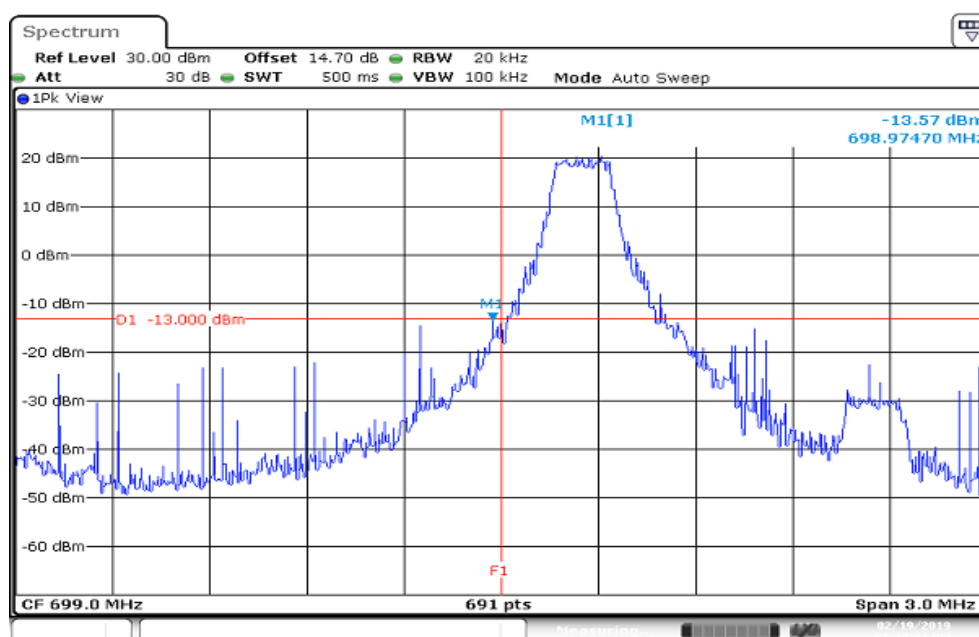
1. RBW  $\geq 1\%$  of the emission bandwidth
2. VBW  $\geq 3 \times$  RBW
3. Span was set large enough so as to capture all out of emissions near the band edge.

## TEST RESULTS:

### LTE Band 12

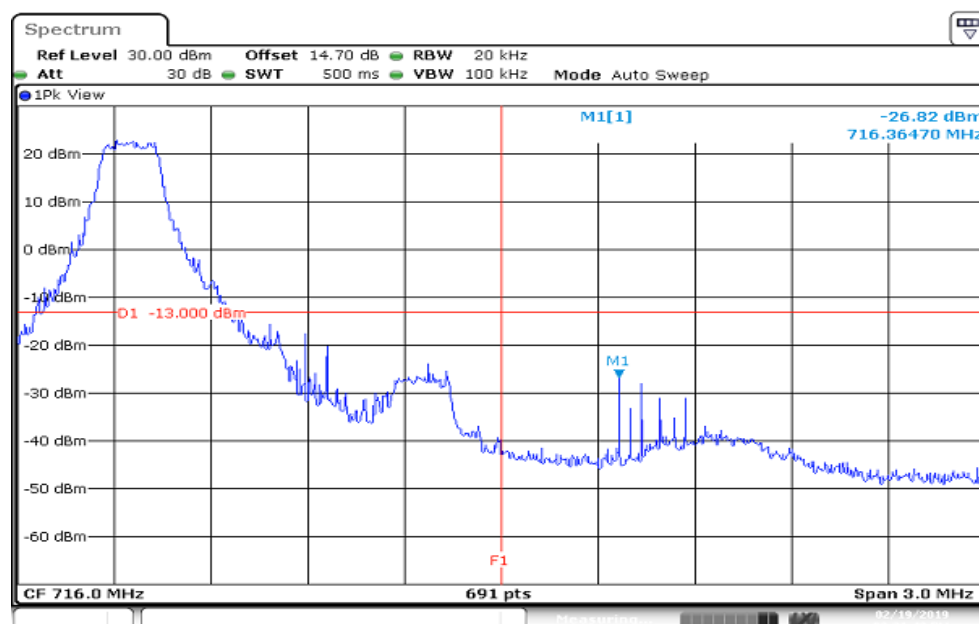
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1 RB ALLOCATED

### LOWER BAND EDGE



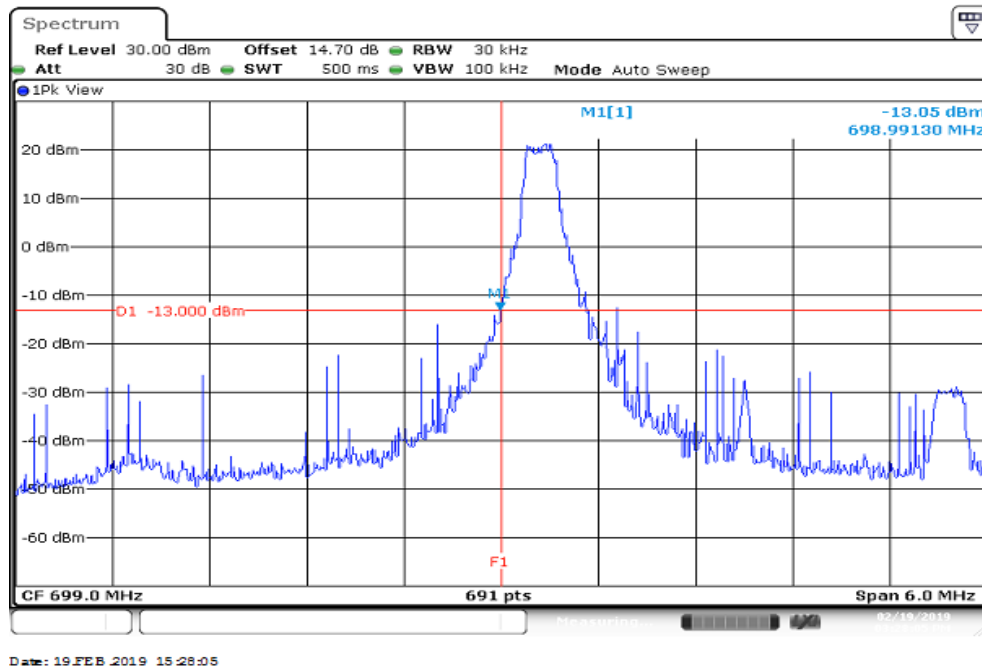
Date: 19 FEB 2019 15:17:21

### HIGHER BAND EDGE

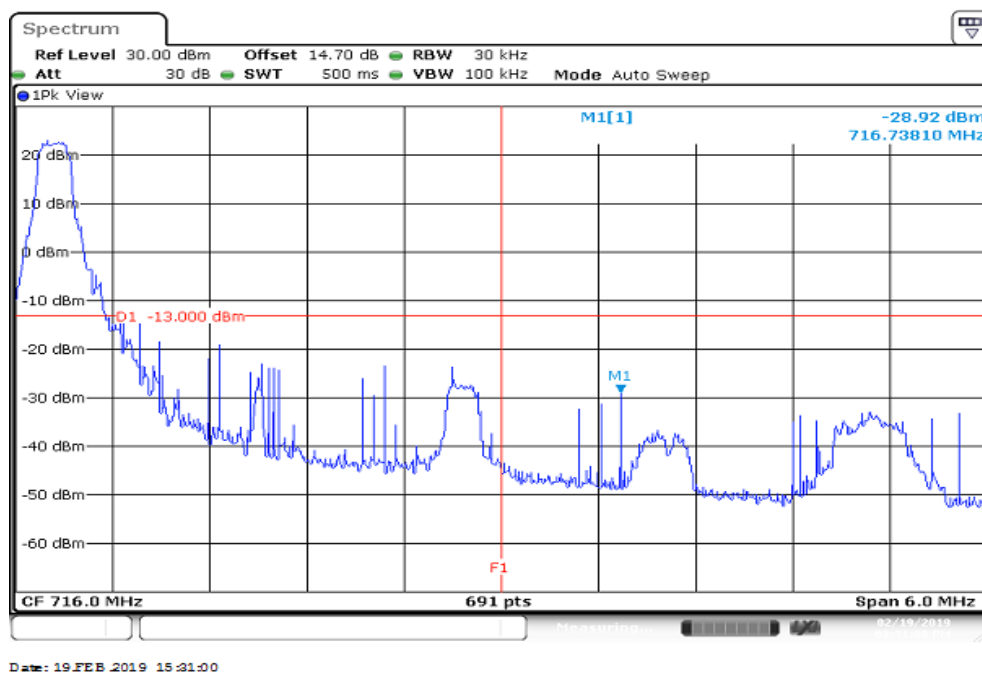


Date: 19 FEB 2019 15:21:43

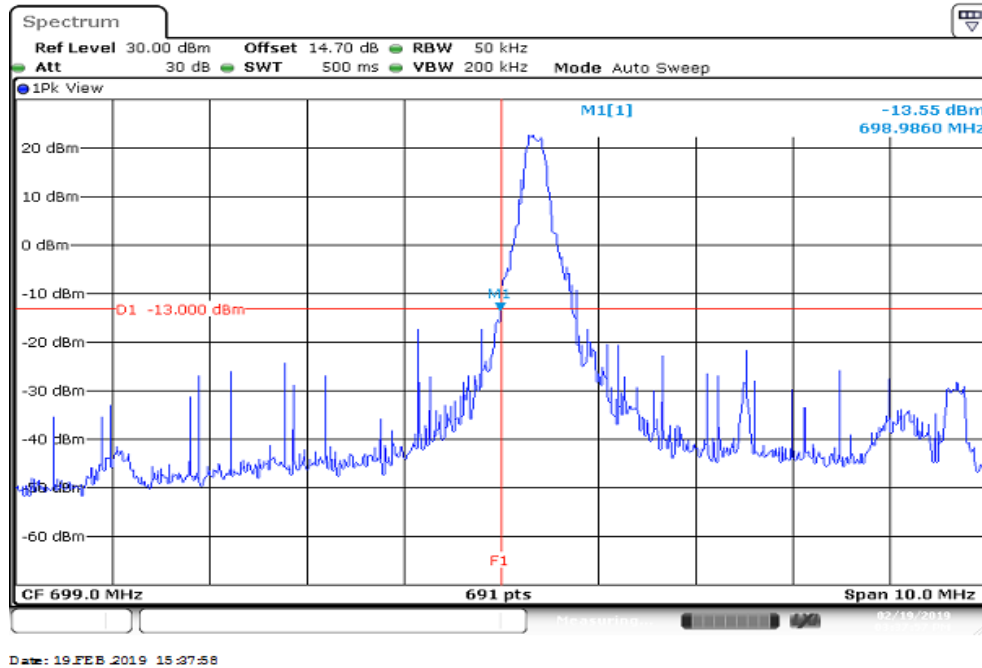
## CHANNEL BANDWIDTH: 3MHz / QPSK / 1 RB ALLOCATED LOWER BAND EDGE



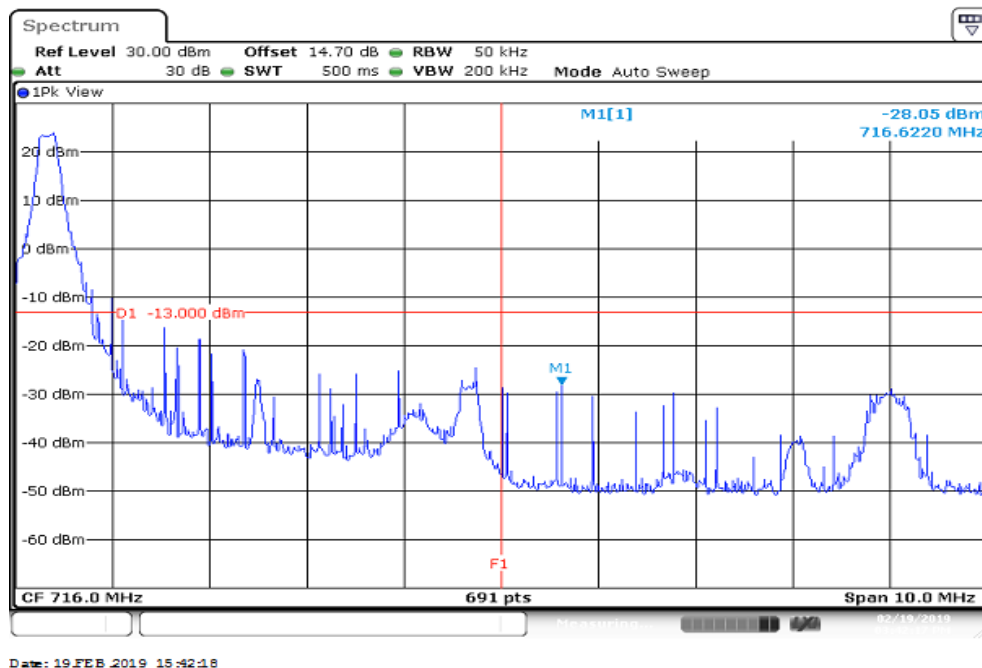
## HIGHER BAND EDGE



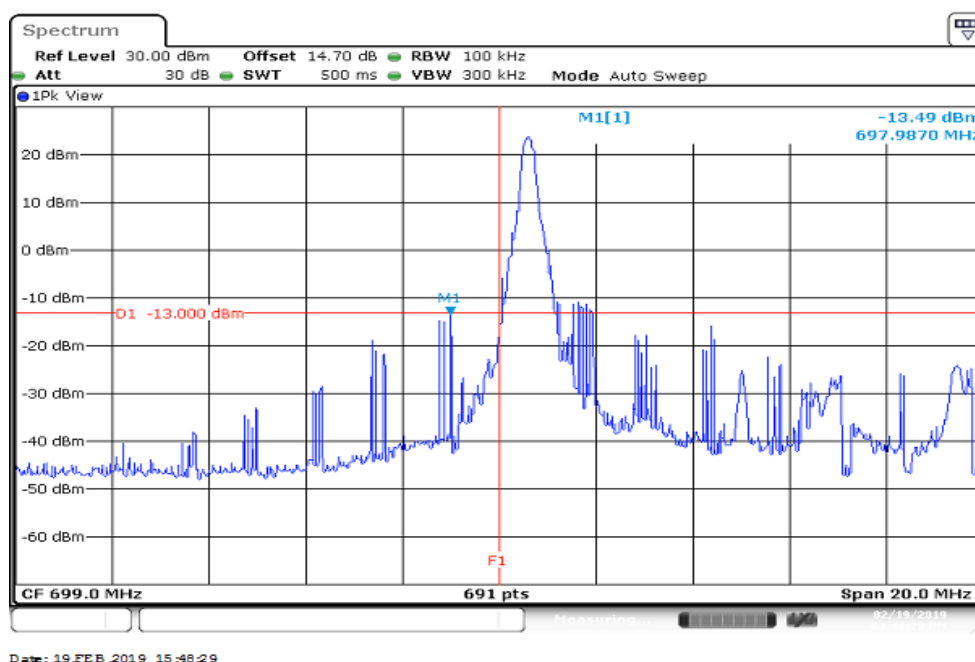
## CHANNEL BANDWIDTH: 5MHz / QPSK / 1 RB ALLOCATED LOWER BAND EDGE



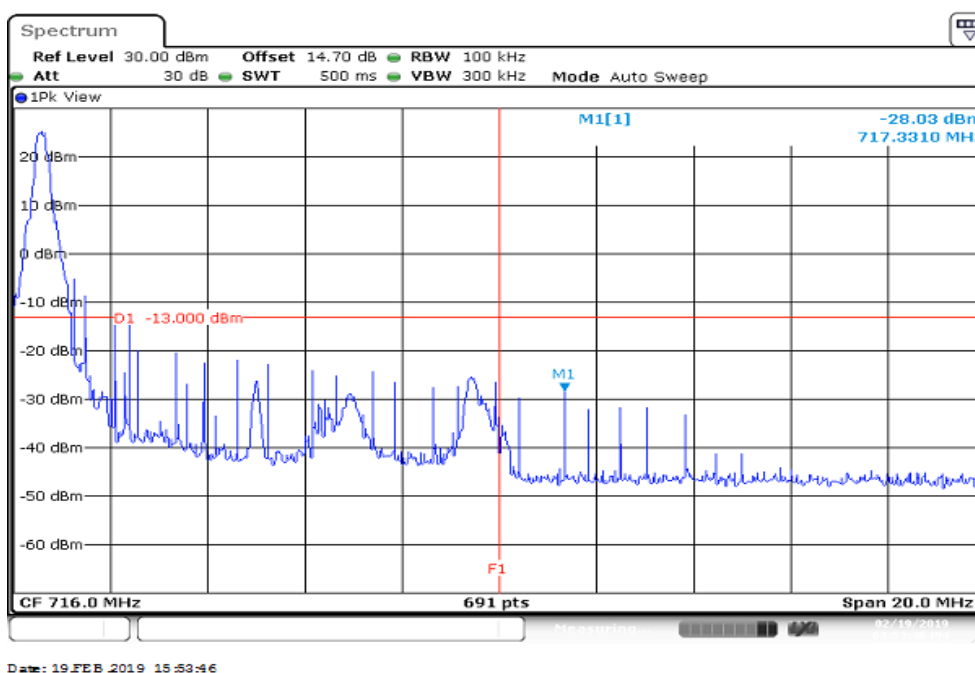
## HIGHER BAND EDGE



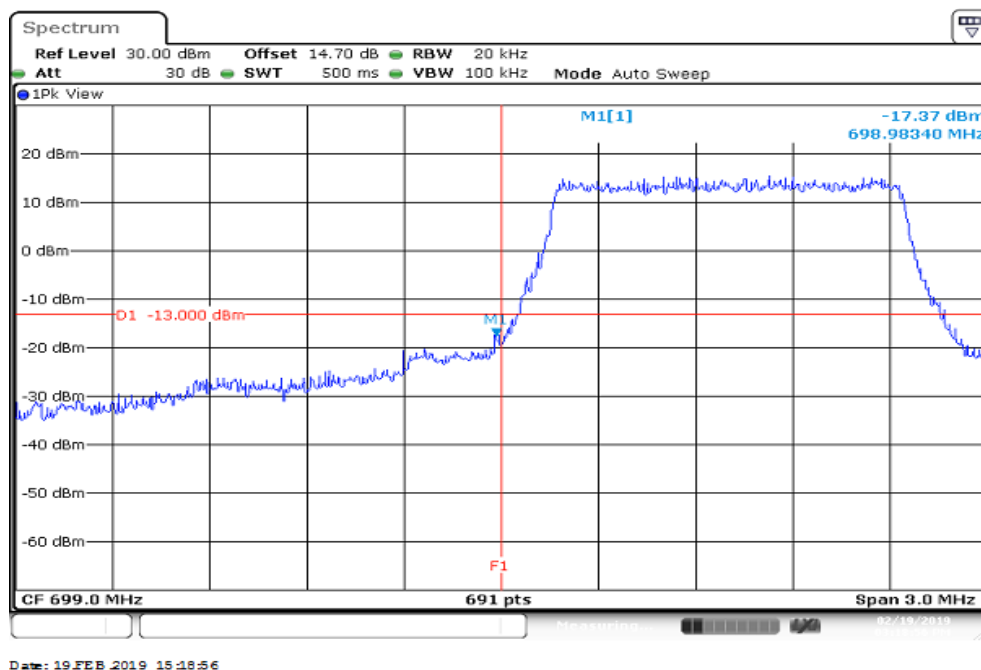
## CHANNEL BANDWIDTH: 10MHz / QPSK / 1 RB ALLOCATED LOWER BAND EDGE



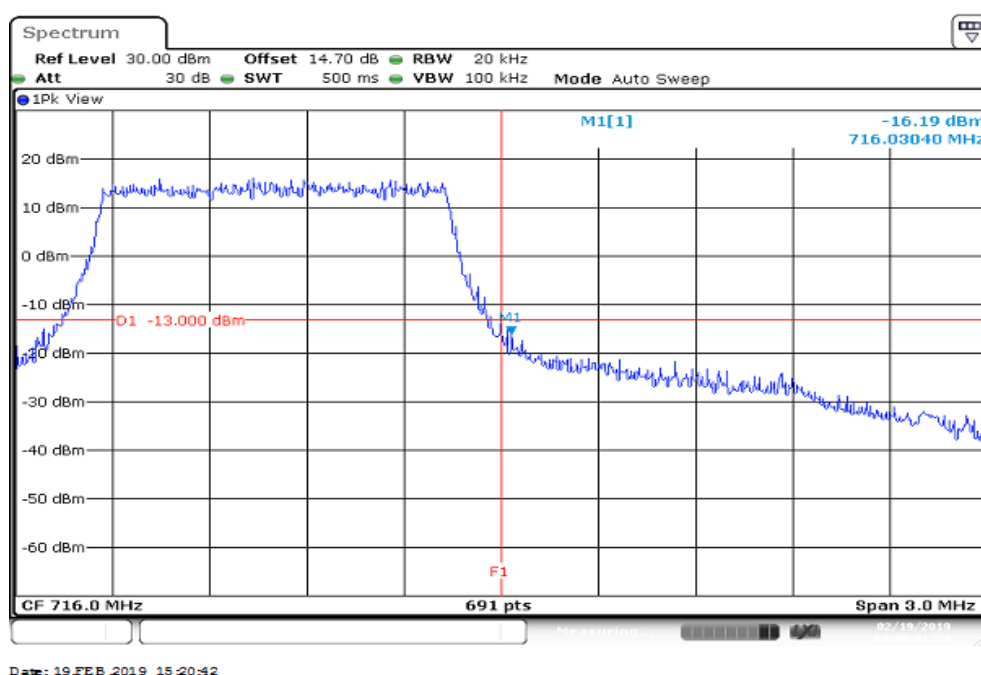
## HIGHER BAND EDGE



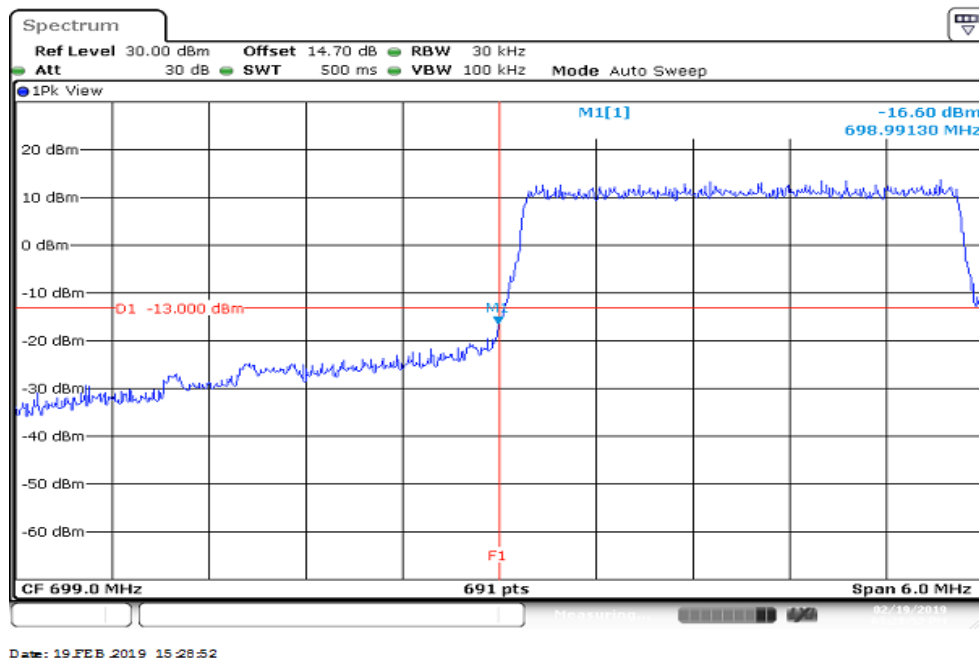
## CHANNEL BANDWIDTH: 1.4MHz / QPSK / FULL RB ALLOCATED LOWER BAND EDGE



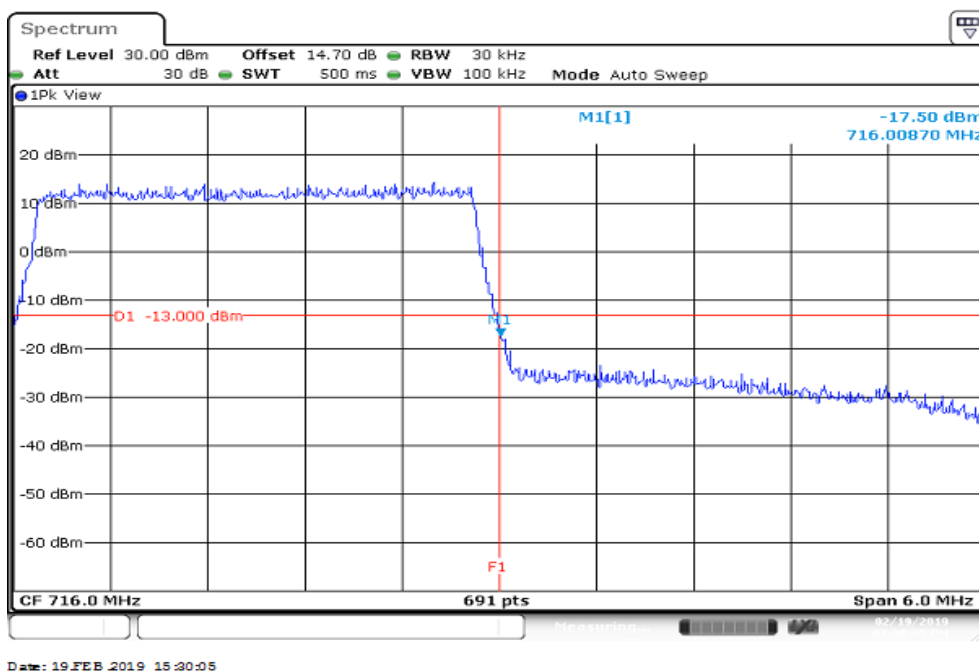
## HIGHER BAND EDGE



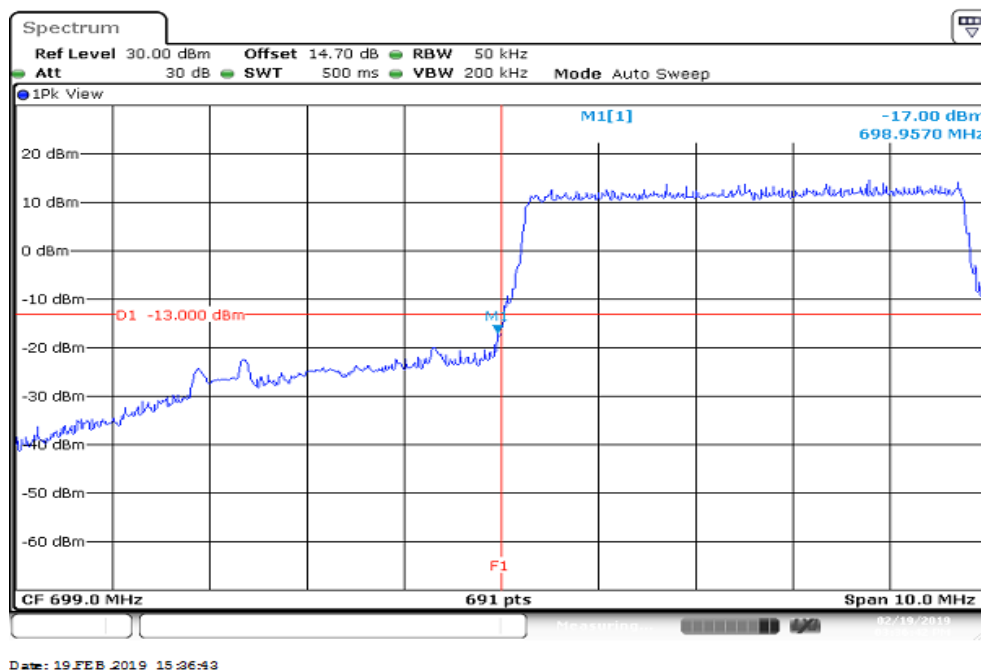
## CHANNEL BANDWIDTH: 3MHz / QPSK / FULL RB ALLOCATED LOWER BAND EDGE



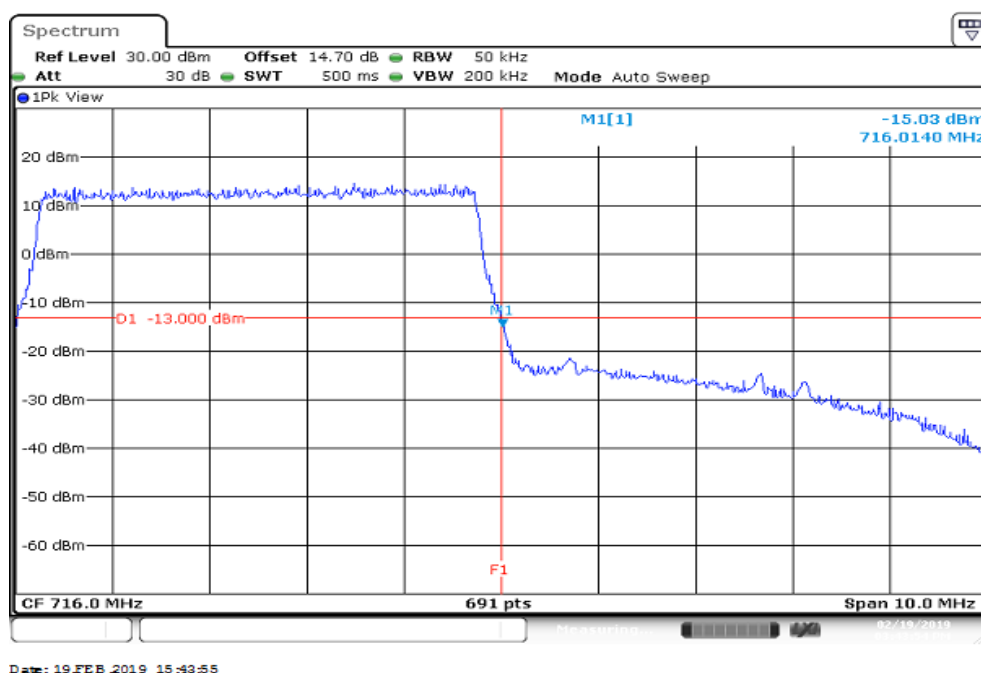
## HIGHER BAND EDGE



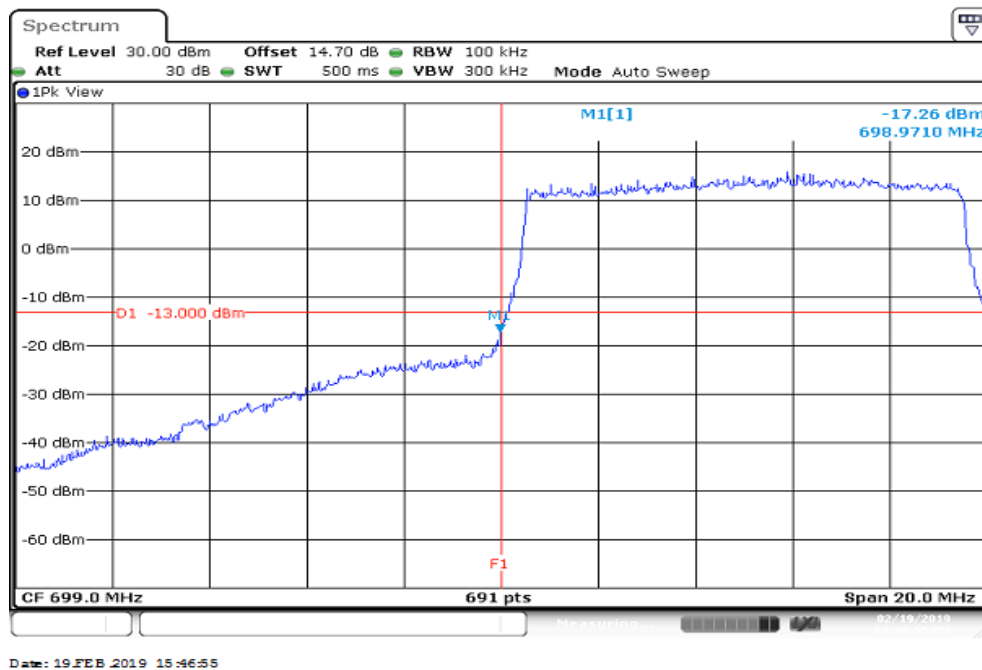
## CHANNEL BANDWIDTH: 5MHz / QPSK / FULL RB ALLOCATED LOWER BAND EDGE



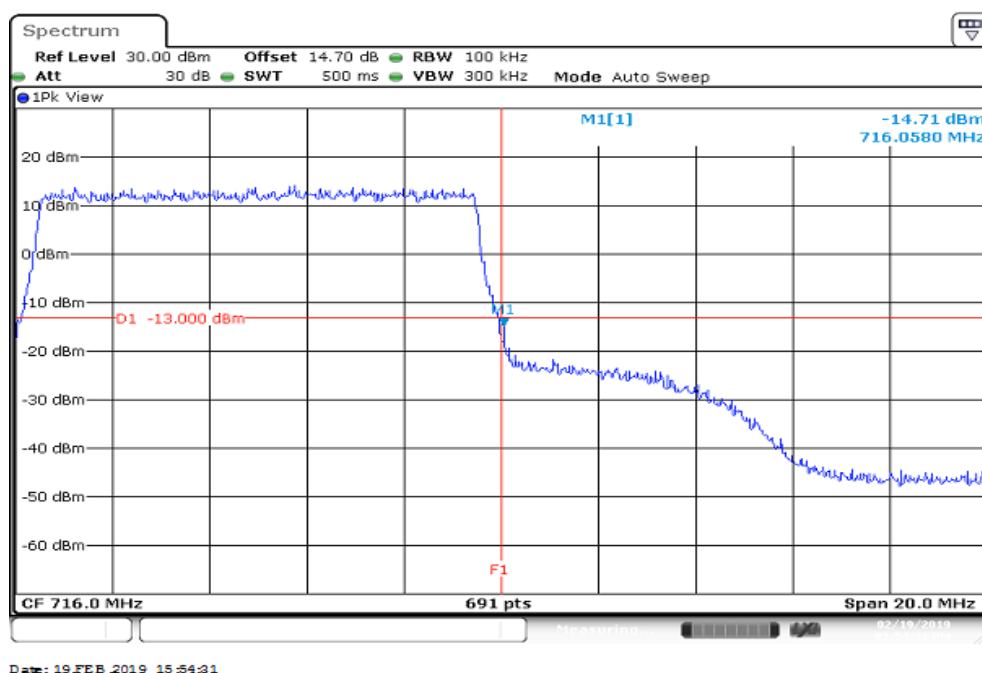
## HIGHER BAND EDGE



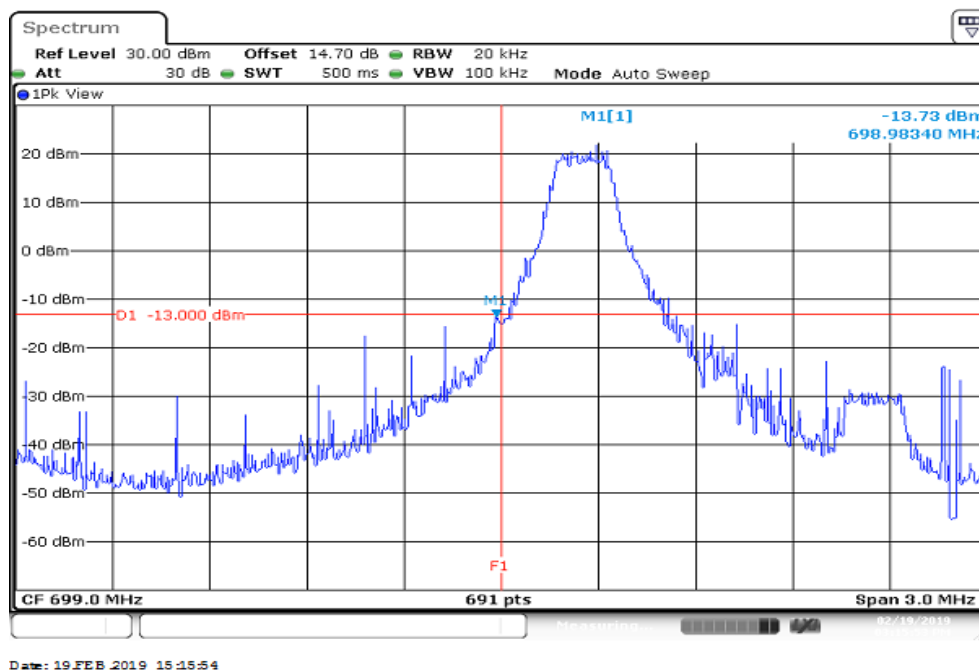
## CHANNEL BANDWIDTH: 10MHz / QPSK / FULL RB ALLOCATED LOWER BAND EDGE



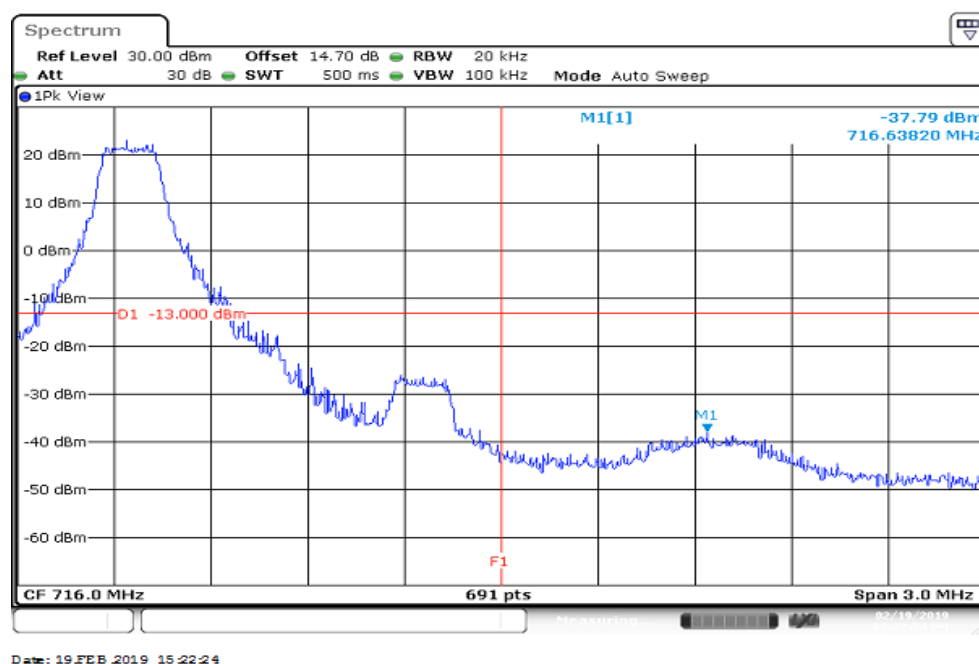
## HIGHER BAND EDGE



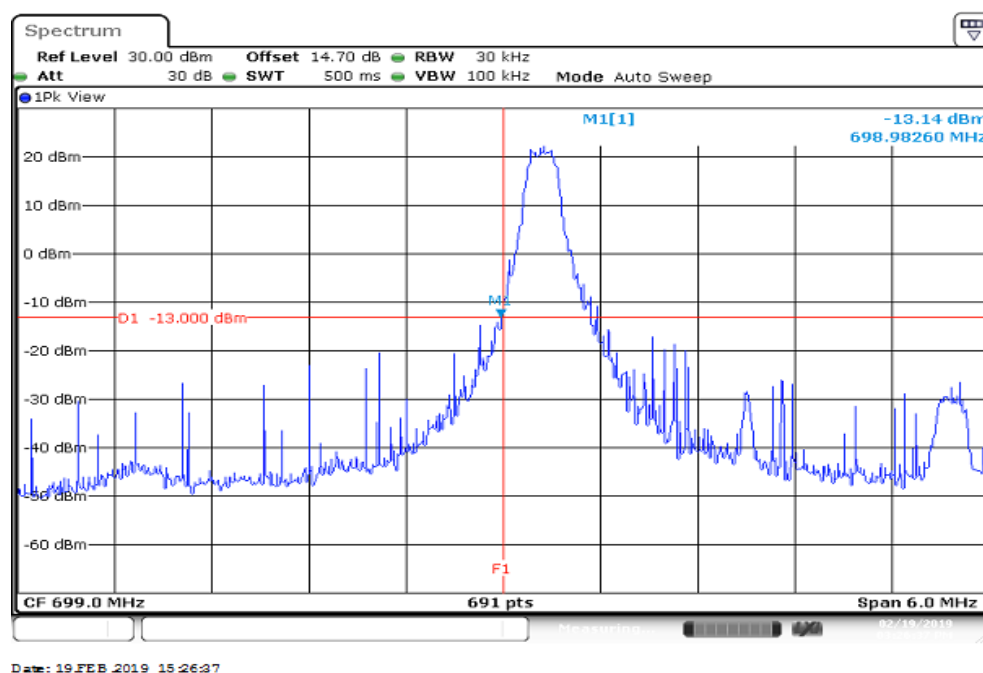
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



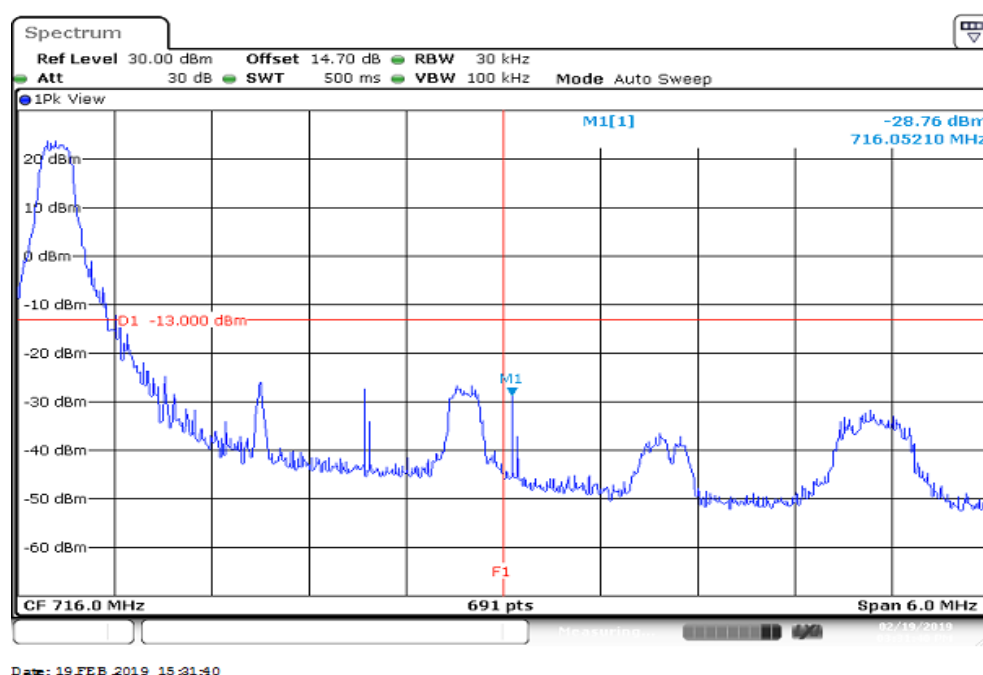
## HIGHER BAND EDGE



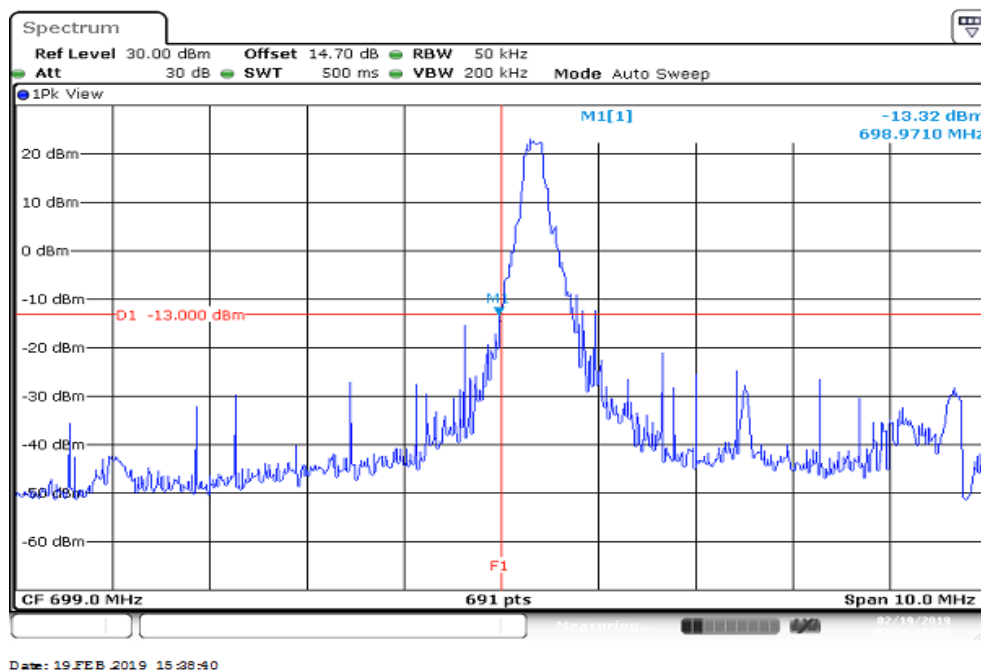
## CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



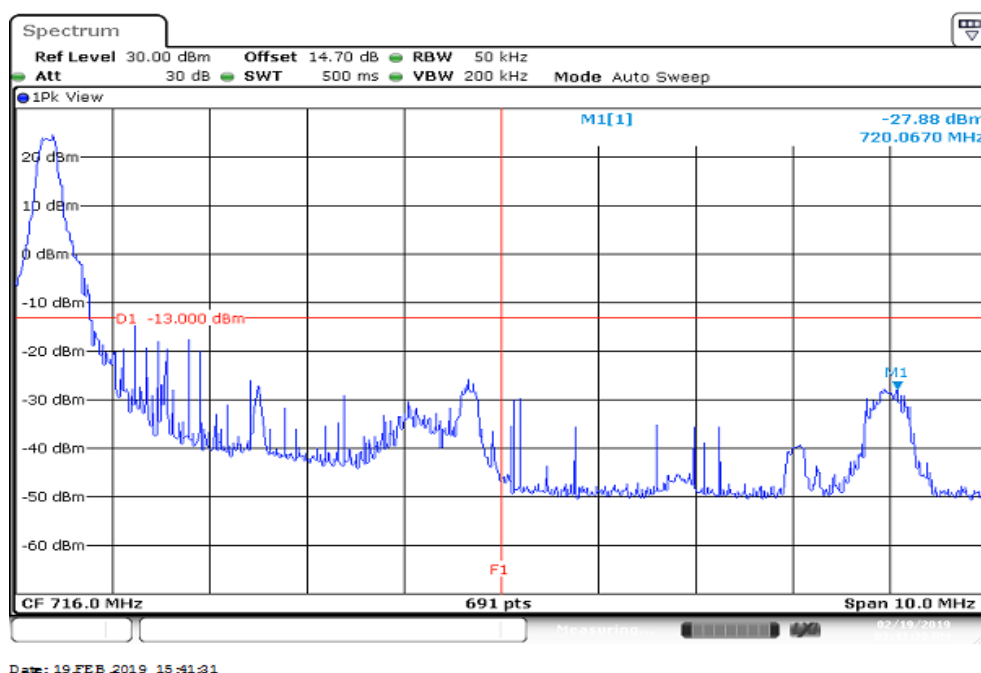
## HIGHER BAND EDGE



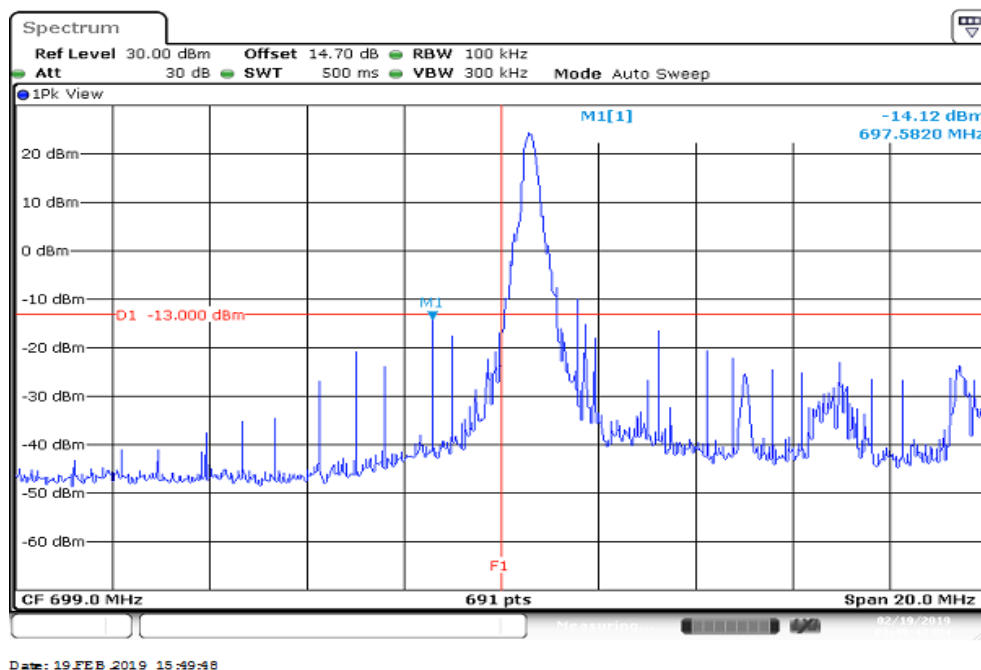
## CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



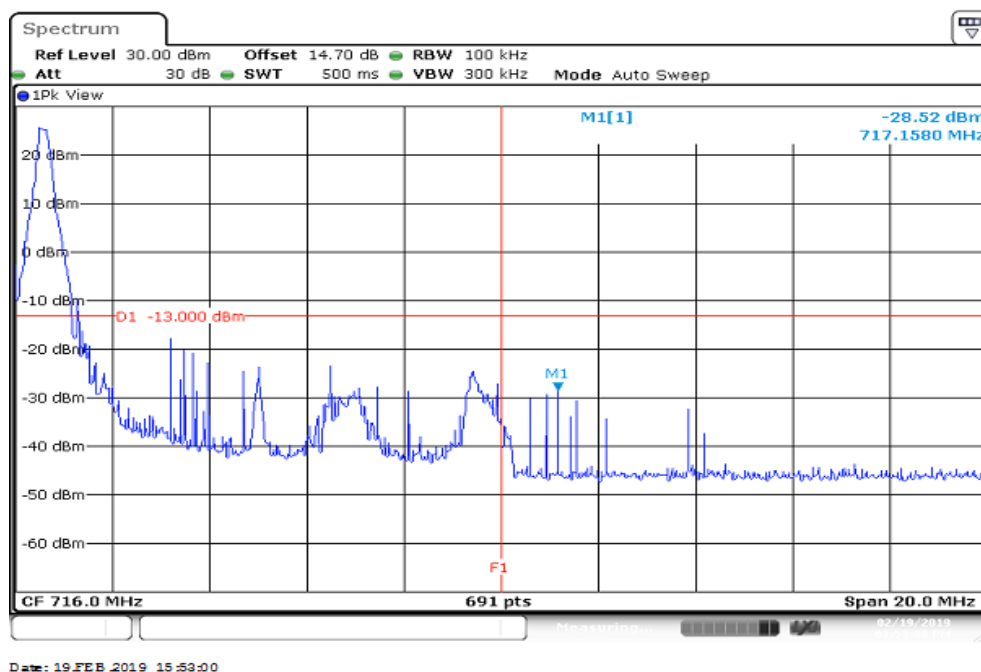
## HIGHER BAND EDGE



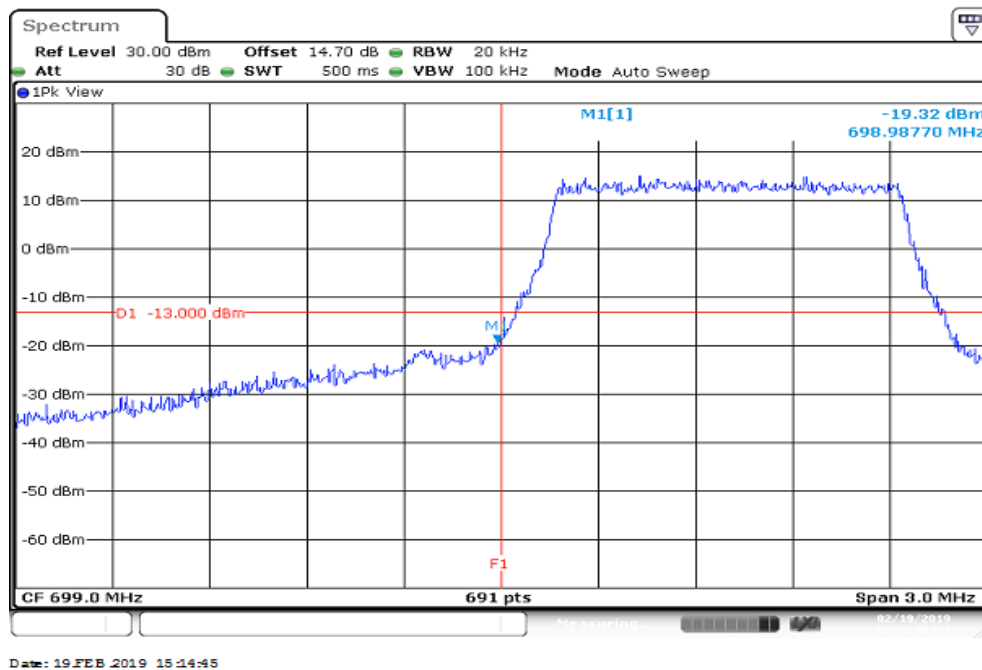
## CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



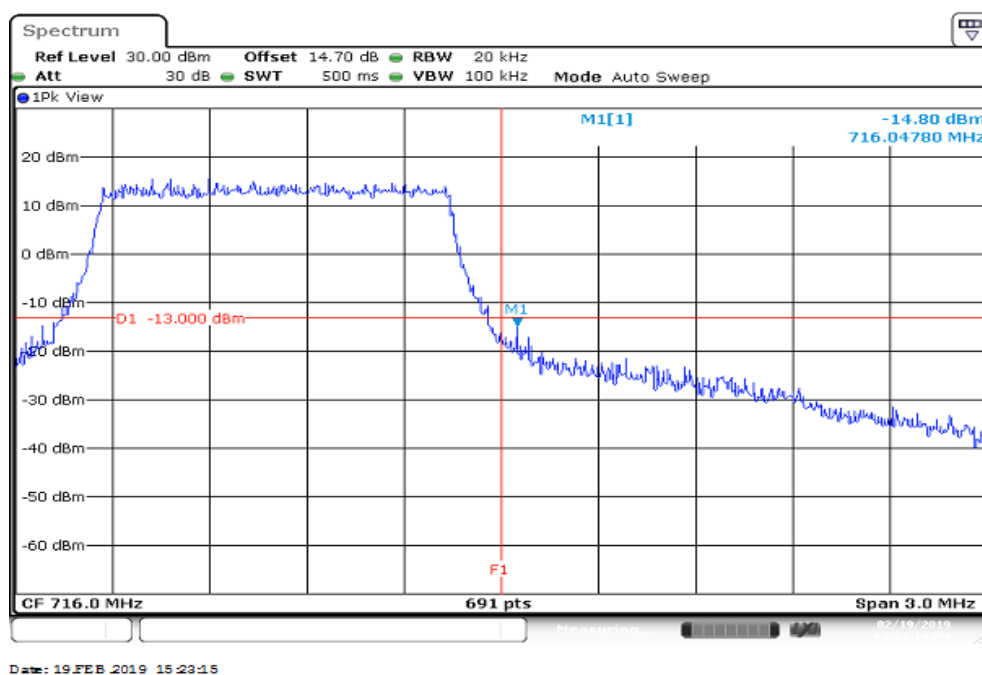
## HIGHER BAND EDGE



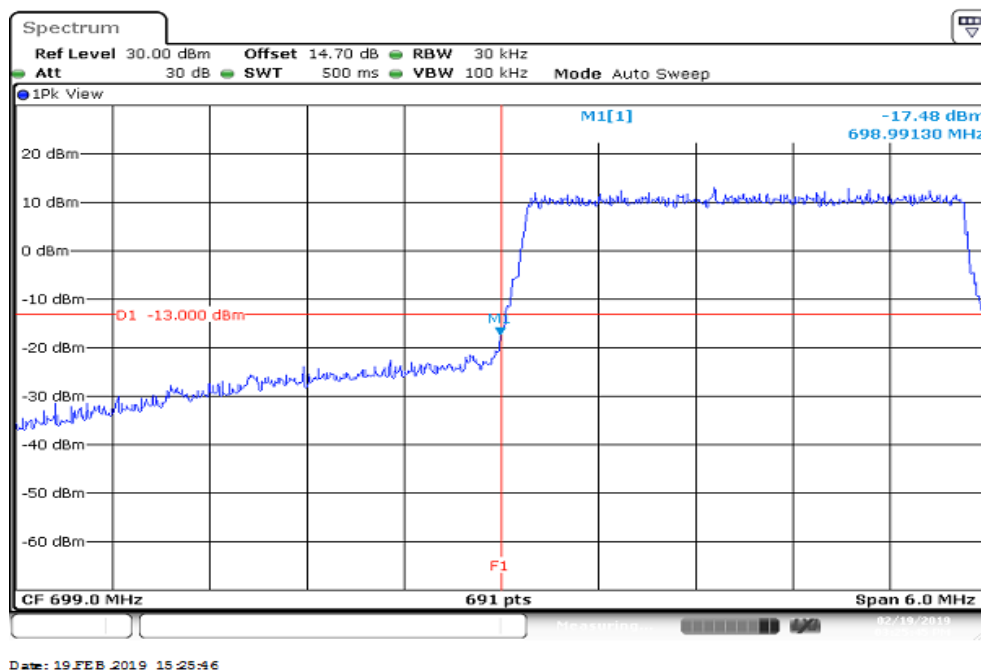
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM / FULLRB ALLOCATED LOWER BAND EDGE



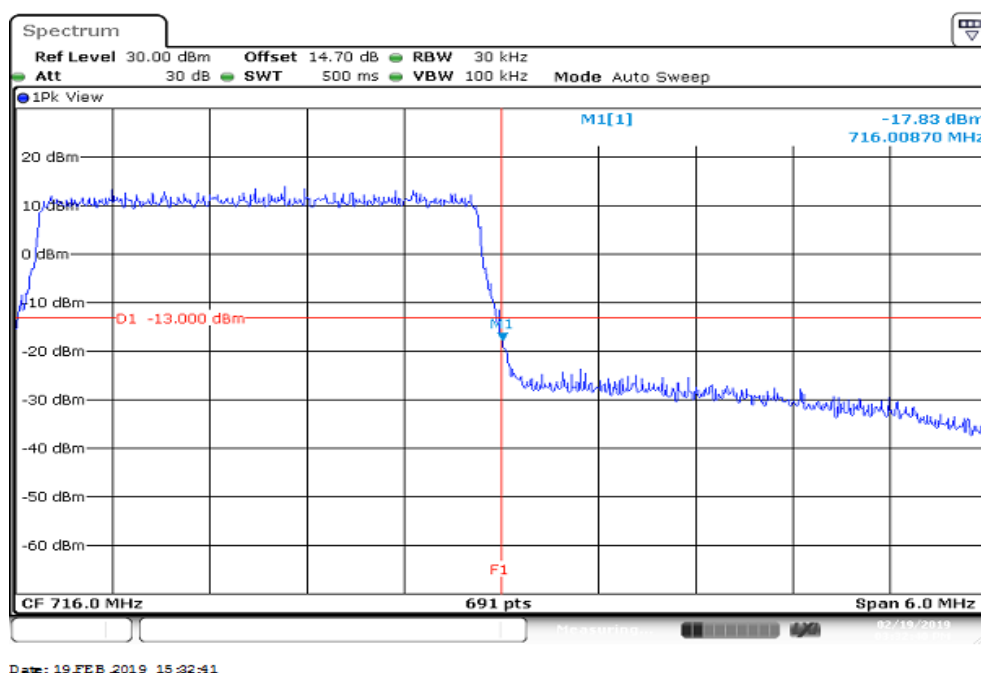
## HIGHER BAND EDGE



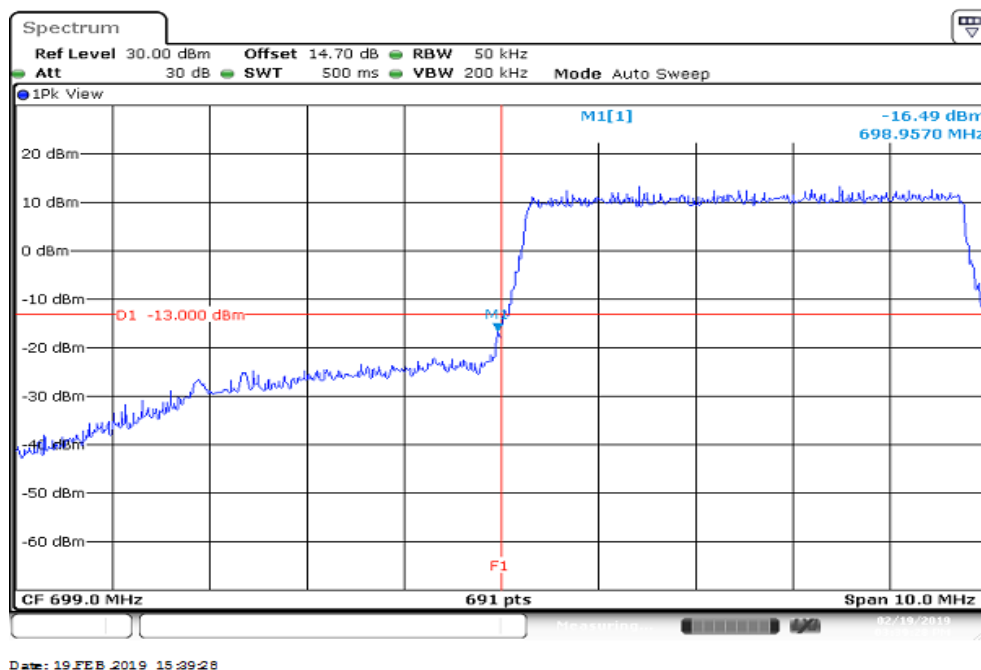
## CHANNEL BANDWIDTH: 3MHz / 16QAM / FULLRB ALLOCATED LOWER BAND EDGE



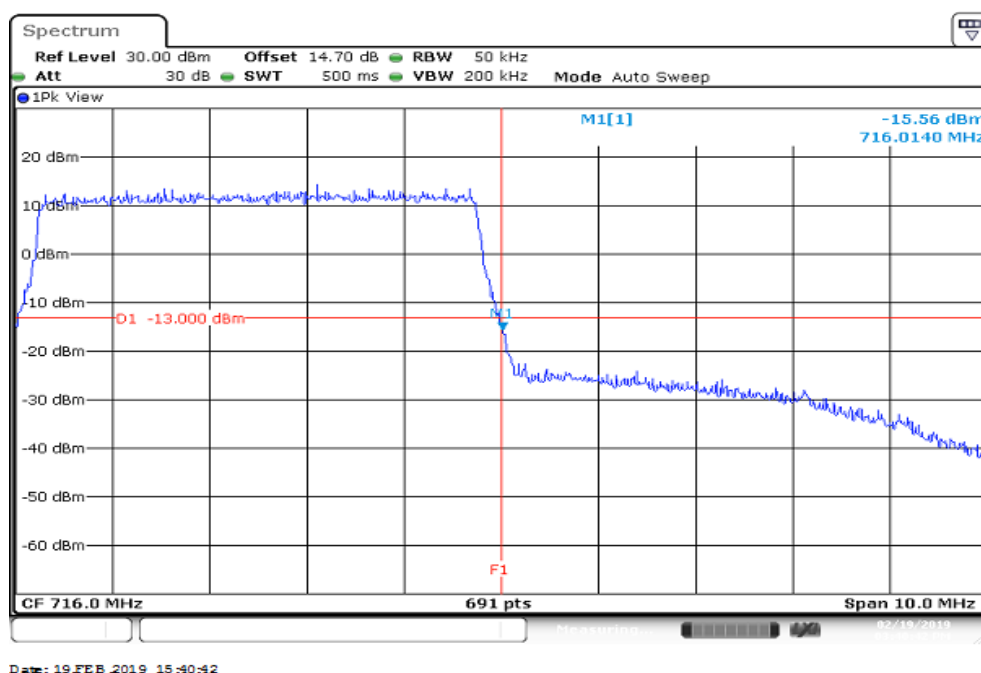
## HIGHER BAND EDGE



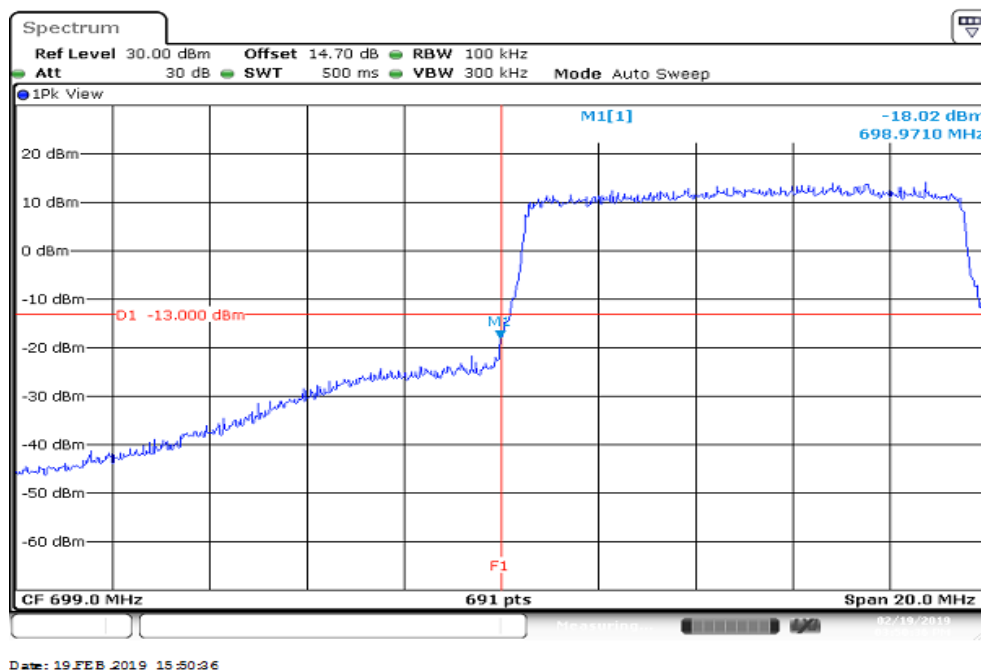
## CHANNEL BANDWIDTH: 5MHz / 16QAM / FULLRB ALLOCATED LOWER BAND EDGE



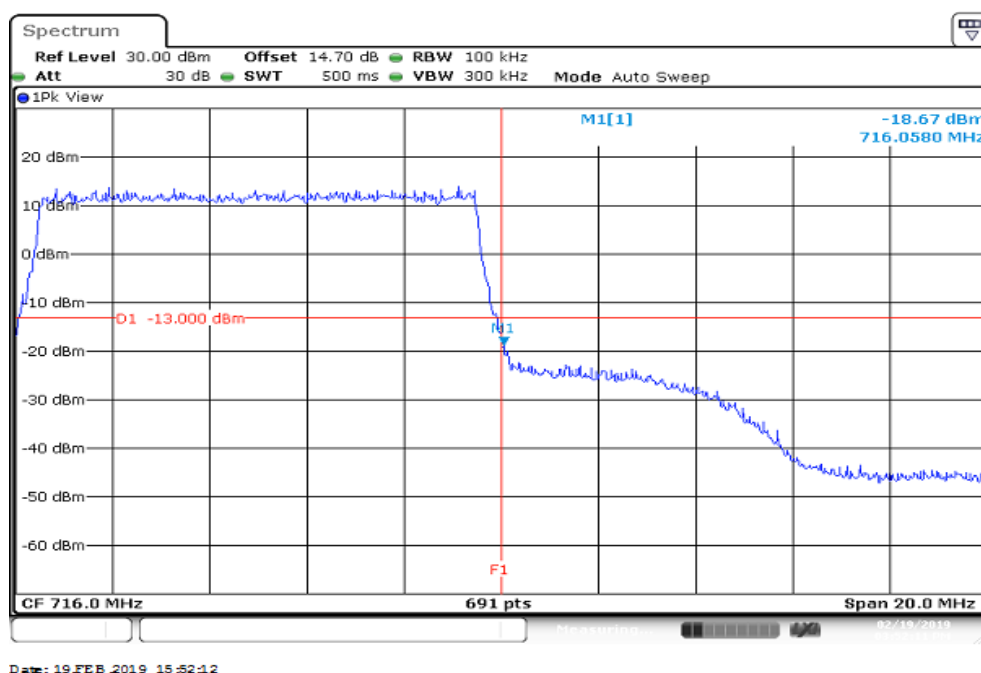
## HIGHER BAND EDGE



## CHANNEL BANDWIDTH: 10MHz / 16QAM / FULLRB ALLOCATED LOWER BAND EDGE



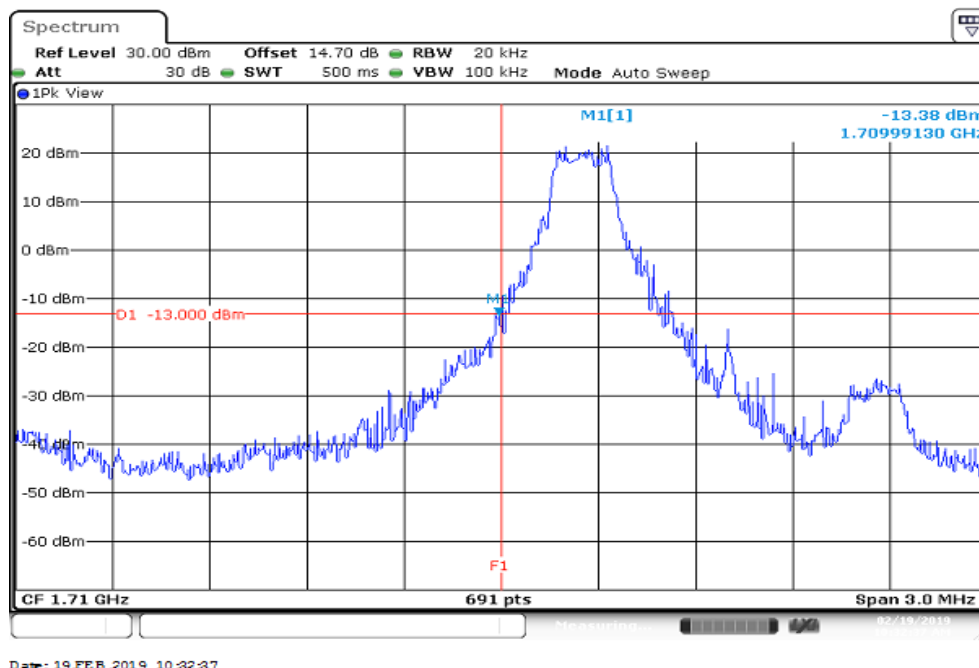
## HIGHER BAND EDGE



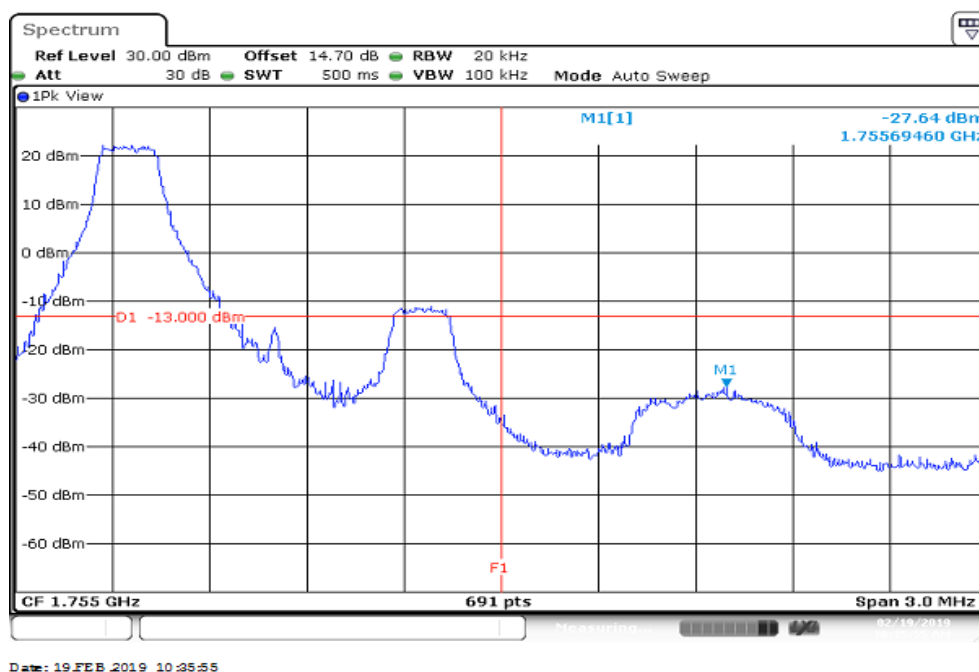
## LTE Band 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB ALLOCATION

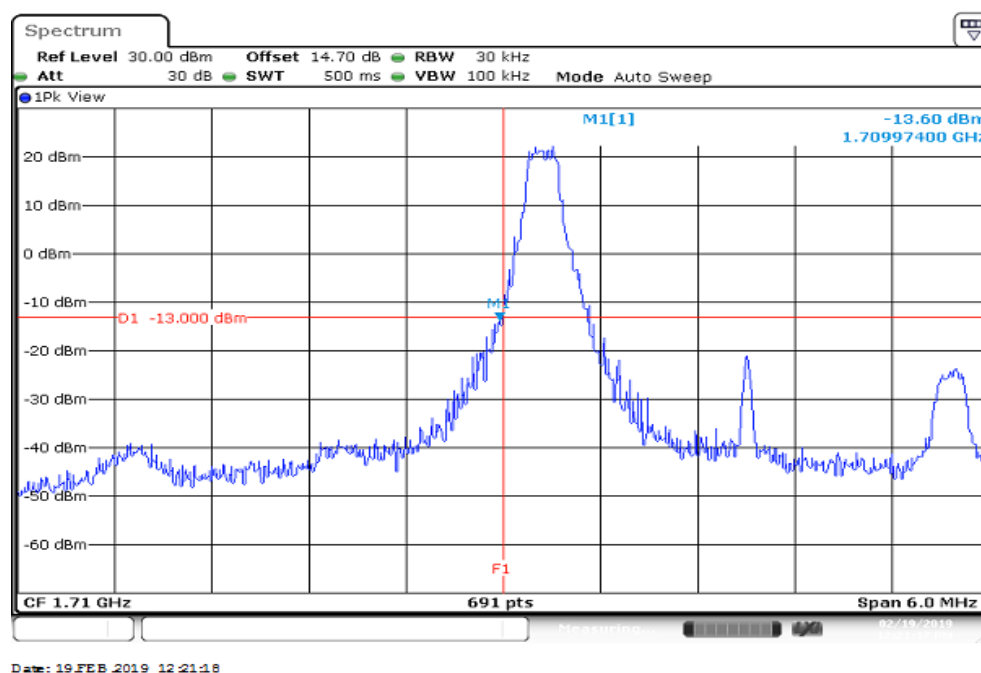
### LOWER BAND EDGE



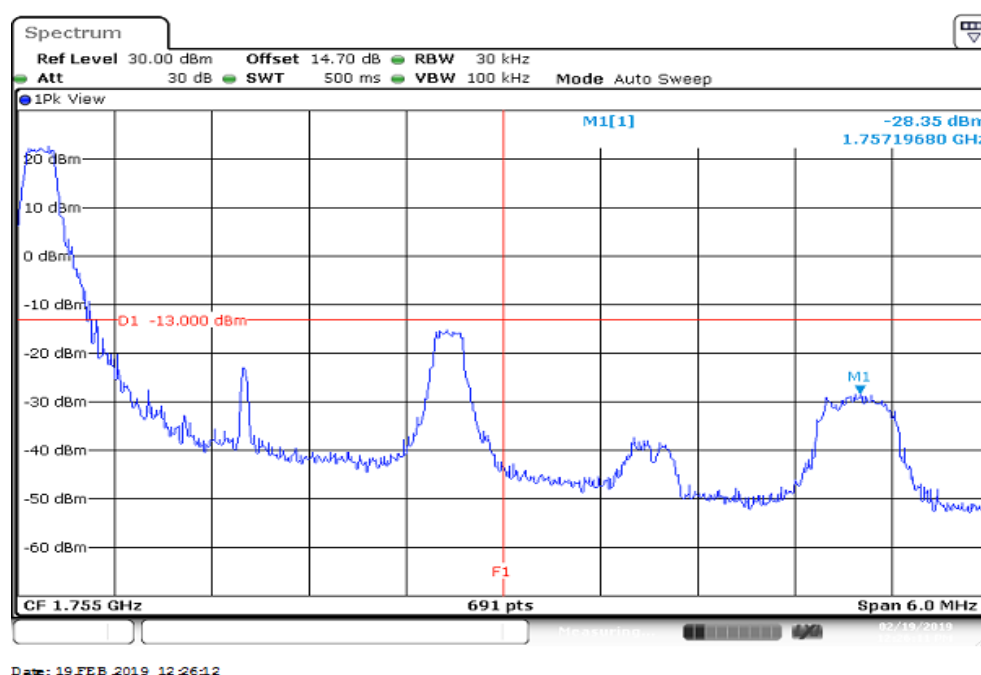
### HIGHER BAND EDGE



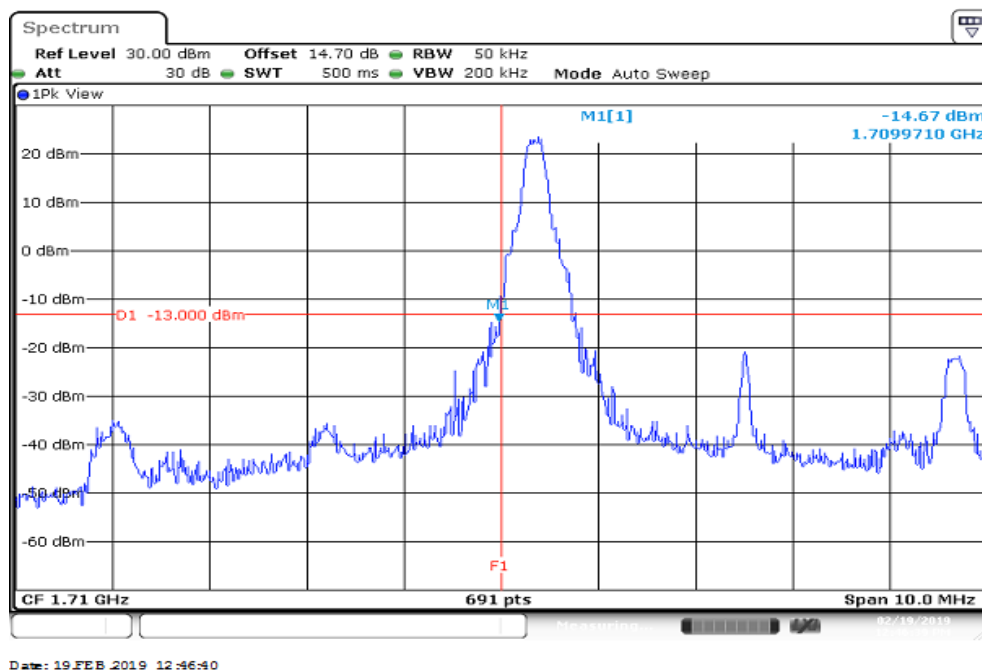
## CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB ALLOCATION LOWER BAND EDGE



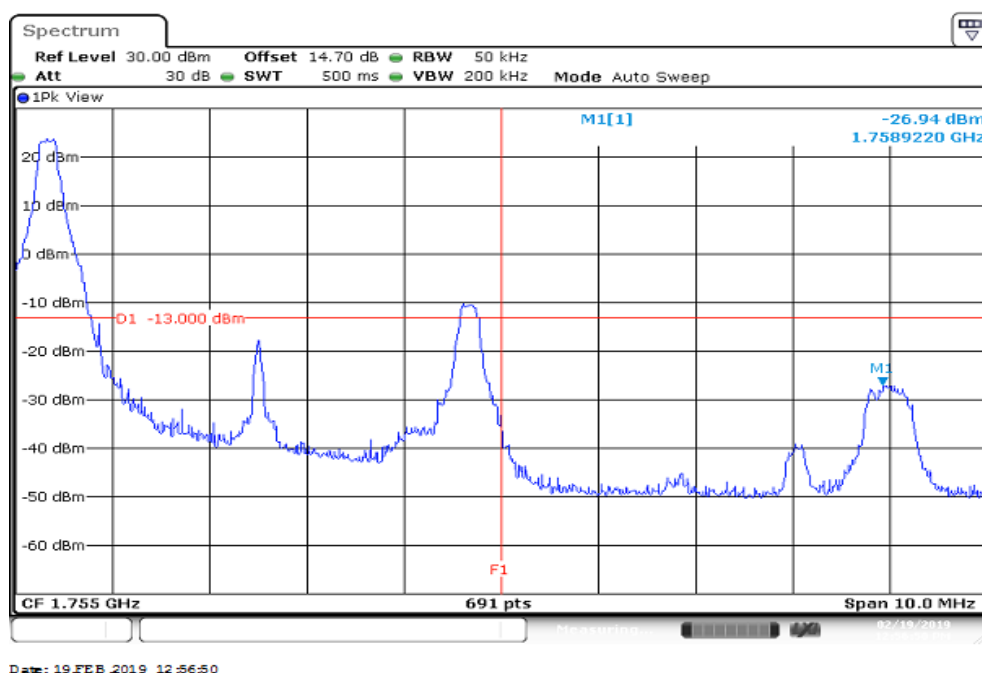
## HIGHER BAND EDGE



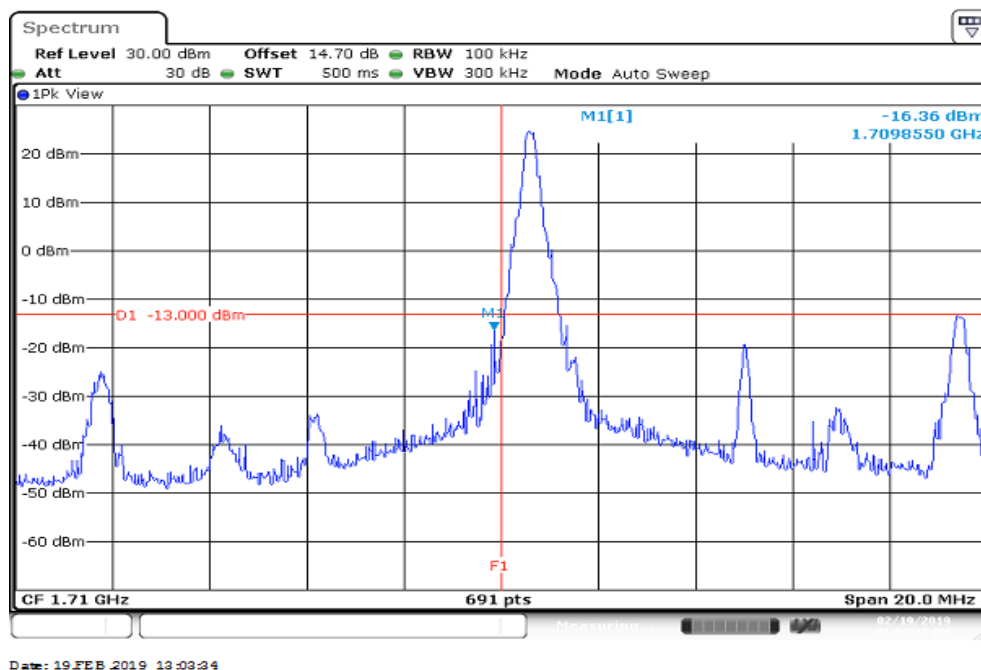
## CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATION LOWER BAND EDGE



## HIGHER BAND EDGE



## CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB ALLOCATION LOWER BAND EDGE



## HIGHER BAND EDGE

