# FCC RF Test Report

| | | |
|---|---|---|
| APPLICANT | : | Sonim Technologies, Inc. |
| EQUIPMENT | : | Smartphone |
| BRAND NAME | : | Sonim |
| MODEL NAME | : | X802 |
| FCC ID | : | WYPS3111 |
| STANDARD | : | 47 CFR Part 27 |
| CLASSIFICATION | : | PCS Licensed Transmitter Held to Ear (PCE) |
| TEST DATE(S) | : | Nov. 18, 2024 ~ Jan. 24, 2025 |

**We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.**

**This report contains data that were produced under subcontract by Sporton International Inc. (ShenZhen)**

**The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.**

Jason Jia

**Approved by: Jason Jia**

ACCREDITED
Cert #5145.02

***Sporton International Inc. (Kunshan)***
***No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China***

# TABLE OF CONTENTS

**REVISION HISTORY** ..... **3**
**SUMMARY OF TEST RESULT** ..... **4**
**1 GENERAL DESCRIPTION** ..... **5**
1.1 Applicant ..... 5
1.2 Manufacturer ..... 5
1.3 Product Feature of Equipment Under Test ..... 5
1.4 Product Specification of Equipment Under Test ..... 5
1.5 Modification of EUT ..... 5
1.6 Maximum EIRP Power and Emission Designator ..... 6
1.7 Testing Site ..... 6
1.8 Test Software ..... 7
1.9 Applied Standards ..... 7
**2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST** ..... **8**
2.1 Test Mode ..... 8
2.2 Connection Diagram of Test System ..... 9
2.3 Support Unit used in test configuration and system ..... 9
2.4 Measurement Results Explanation Example ..... 9
2.5 Frequency List of Low/Middle/High Channels ..... 10
**3 CONDUCTED TEST ITEMS** ..... **11**
3.1 Measuring Instruments ..... 11
3.2 Test Setup ..... 11
3.3 Test Result of Conducted Test ..... 11
3.4 Conducted Output Power Measurement ..... 12
3.5 Peak-to-Average Ratio ..... 13
3.6 EIRP ..... 14
3.7 Occupied Bandwidth ..... 15
3.8 Conducted Band Edge Measurement ..... 16
3.9 Conducted Spurious Emission Measurement ..... 17
3.10 Frequency Stability Measurement ..... 18
**4 RADIATED TEST ITEMS** ..... **19**
4.1 Measuring Instruments ..... 19
4.2 Test Setup ..... 19
4.3 Test Result of Radiated Test ..... 20
4.4 Radiated Spurious Emission Measurement ..... 21
**5 LIST OF MEASURING EQUIPMENT** ..... **22**
**6 MEASUREMENT UNCERTAINTY** ..... **23**
**APPENDIX A. TEST RESULTS OF CONDUCTED TEST**
**APPENDIX B. TEST RESULTS OF RADIATED TEST**
**APPENDIX C. TEST SETUP PHOTOGRAPHS**

# REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FG4O2403G | Rev. 01 | Initial issue of report | May 22, 2025 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# SUMMARY OF TEST RESULT

| Report Section | FCC Rule | Description | Limit | Result | Remark |
|---|---|---|---|---|---|
| 3.4 | §2.1046 | Conducted Output Power | — | Report Only | - |
| 3.5 | - | Peak-to-Average Ratio | — | Report Only | |
| 3.6 | §27.50 (a)(3) | EIRP | EIRP < 250mW/5MHz | PASS | - |
| 3.7 | §2.1049 | Occupied Bandwidth | — | Report Only | - |
| 3.8 | §2.1051<br>§27.53 (a)(4) | Conducted Band Edge Measurement | Refer standard | PASS | - |
| 3.9 | §2.1051<br>§27.53 (a)(4) | Conducted Spurious Emission | < $70+10\log_{10}$(P[Watts]) | PASS | - |
| 3.10 | §2.1055<br>§27.54 | Frequency Stability Temperature & Voltage | Within the band | PASS | - |
| 4.4 | §2.1053<br>§27.53 (a)(4) | Radiated Spurious Emission | < $70+10\log_{10}$(P[Watts]) | PASS | Under limit 17.16 dB at 9241.00 MHz |

**Conformity Assessment Condition:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

# 1 General Description

## 1.1 Applicant

**Sonim Technologies, Inc.**
4445 Eastgate Mall,Suite200,San Diego,CA92121,USA

## 1.2 Manufacturer

**Sonim Technologies, Inc.**
4445 Eastgate Mall,Suite200,San Diego,CA92121,USA

## 1.3 Product Feature of Equipment Under Test

| Product Feature | |
|---|---|
| **Equipment** | Smartphone |
| **Brand Name** | Sonim |
| **Model Name** | X802 |
| **FCC ID** | WYPS3111 |
| **HW Version** | V1.0 |
| **SW Version** | X80.0-01-14.0-42.18.00 |
| **EUT Stage** | Identical Prototype |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4 Product Specification of Equipment Under Test

| Product Feature | |
|---|---|
| **Tx Frequency** | LTE Band 30 : 2305 MHz ~ 2315 MHz |
| **Rx Frequency** | LTE Band 30 : 2350 MHz ~ 2360 MHz |
| **Bandwidth** | 5MHz / 10MHz |
| **Maximum Output Power to Antenna** | <Ant2>: LTE Band 30 : 22.78 dBm |
| **Antenna Gain** | <Ant2>: LTE Band 30 : -2.01 dBi |
| **Type of Modulation** | QPSK / 16QAM / 64QAM / 256QAM |

## 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6 Maximum EIRP Power and Emission Designator

| LTE Band 30 | | QPSK | | 16QAM/64QAM/256QAM | |
|---|---|---|---|---|---|
| BW (MHz) | Frequency Range (MHz) | Maximum EIRP(W) | Emission Designator (99%OBW) | Maximum EIRP(W) | Emission Designator (99%OBW) |
| **5** | 2307.5 ~ 2312.5 | 0.1167 | 4M51G7D | 0.0964 | 4M50W7D |
| **10** | 2310.0 | 0.1194 | 9M03G7D | 0.0986 | 9M03W7D |

## 1.7 Testing Site

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

| | | | |
|---|---|---|---|
| **Test Firm** | Sporton International Inc. (Kunshan) | | |
| **Test Site Location** | No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China<br>TEL : +86-512-57900158 | | |
| **Test Site No.** | **Sporton Site No.** | **FCC Designation No.** | **FCC Test Firm Registration No.** |
| | TH01-KS | CN1257 | 314309 |

Sporton International Inc. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

| | | | |
|---|---|---|---|
| **Test Firm** | Sporton International Inc. (ShenZhen) | | |
| **Test Site Location** | 101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China<br>TEL: +86-755-86066985 | | |
| **Test Site No.** | **Sporton Site No.** | **FCC Designation No.** | **FCC Test Firm Registration No.** |
| | 03CH01-SZ | CN1256 | 421272 |

Test data subcontracted: Radiated Spurious Emission test case in section 4.4 of this report

## 1.8 Test Software

| Item | Site | Manufacture | Name | Version |
|---|---|---|---|---|
| 1. | 03CH01-SZ | AUDIX | E3 | 6.2009-8-24 |

## 1.9 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 27(D)
- ANSI C63.26-2015
- FCC KDB 971168 Power Meas License Digital Systems D01 v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
-

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

# 2 Test Configuration of Equipment Under Test

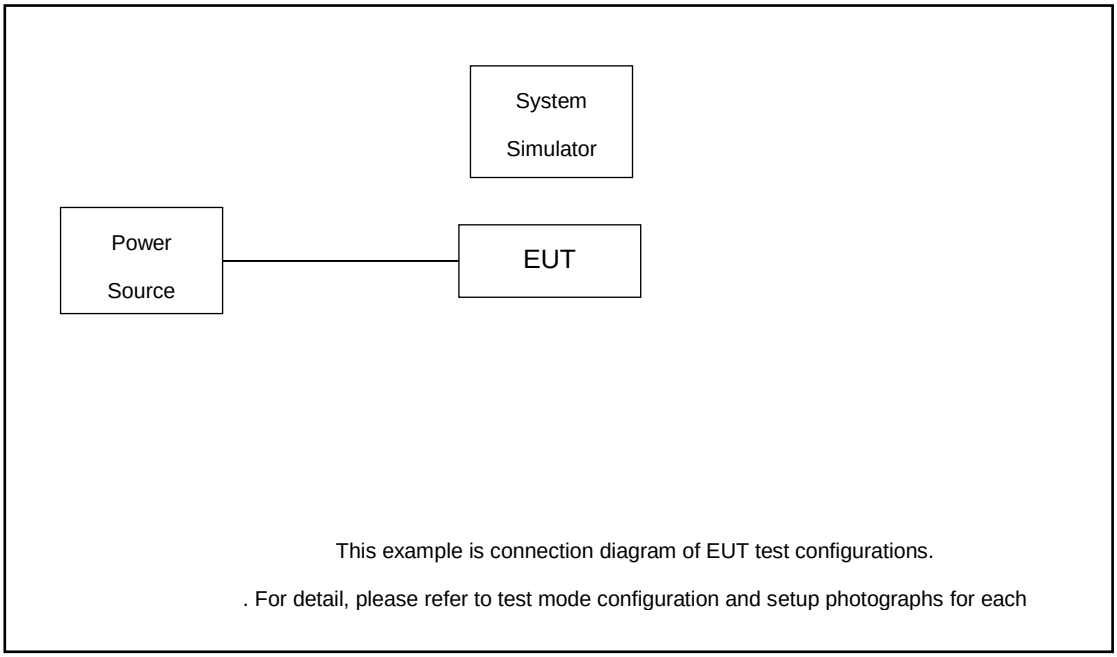
## 2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission. (Y Plane)

| Conducted Test Cases | Band | Bandwidth (MHz) | | | | | | Modulation | | | | RB # | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 64QAM | 256QAM | 1 | Half | Full | L | M | H |
| Max. Output Power | 30 | - | - | V | | - | - | V | V | V | V | V | V | V | V | V | V |
| | | - | - | | V | - | - | V | V | V | V | V | V | V | | V | |
| Peak-to-Average Ratio | 30 | - | - | | V | - | - | V | V | V | | V | | V | | V | |
| E.I.R.P | 30 | - | - | V | | - | - | V | V | V | V | V | | | V | V | V |
| | | - | - | | V | - | - | V | V | V | V | V | | | | V | |
| 26dB and 99% Bandwidth | 30 | - | - | V | | - | - | V | V | | | | | V | V | V | V |
| | | - | - | | V | - | - | V | V | | | | | V | | V | |
| Conducted Band Edge | 30 | - | - | V | | - | - | V | V | V | V | V | | V | V | | V |
| | | - | - | | V | - | - | V | V | V | V | V | | V | | V | |
| Conducted Spurious Emission | 30 | - | - | V | | - | - | V | | | | V | | | V | V | V |
| | | - | - | | V | - | - | V | | | | V | | | | V | |
| Frequency Stability | 30 | - | - | V | | - | - | V | | | | | | V | | V | |
| Radiated Spurious Emission | 30 | - | - | V | | - | - | V | | | | V | | | V | V | V |
| | | | | | V | | | V | | | | V | | | | V | |
| Note | 1. The mark “v “ means that this configuration is chosen for testing<br>2. The mark “-“ means that this bandwidth is not supported.<br>3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. | | | | | | | | | | | | | | | | |

## 2.2 Connection Diagram of Test System




## 2.3 Support Unit used in test configuration and system

| Item | Equipment | Trade Name | Model No. | FCC ID | Data Cable | Power Cord |
|---|---|---|---|---|---|---|
| 1. | Power Supply | GWINSTEK | PSS-2002 | N/A | N/A | Unshielded, 1.8 m |
| 2. | LTE Base Station | Anritsu | MT8820C | N/A | N/A | Unshielded, 1.8 m |

## 2.4 Measurement Results Explanation Example

**For all conducted test items:**

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss.

*Offset = RF cable loss.*

Following shows an offset computation example with cable loss 6.0 dB.

Example :

*Offset(dB) = RF cable loss(dB).*

= 6.0 (dB)

## 2.5 Frequency List of Low/Middle/High Channels

| LTE Band 30 Channel and Frequency List | | | | |
|---|---|---|---|---|
| **BW [MHz]** | **Channel/Frequency(MHz)** | **Lowest** | **Middle** | **Highest** |
| 10 | Channel | - | 27710 | - |
| | Frequency | - | 2310 | - |
| 5 | Channel | 27685 | 27710 | 27735 |
| | Frequency | 2307.5 | 2310 | 2312.5 |

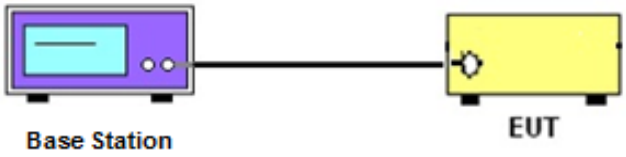
# 3 Conducted Test Items

## 3.1 Measuring Instruments

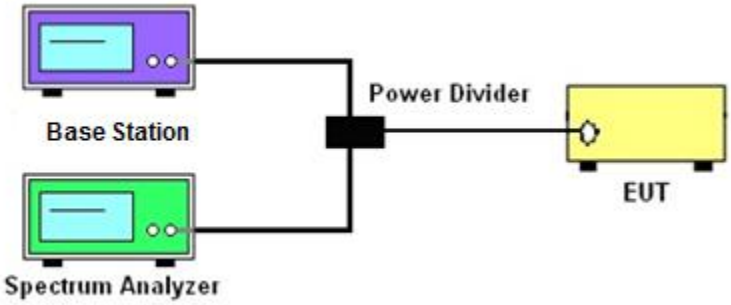
See list of measuring instruments of this test report.

## 3.2 Test Setup

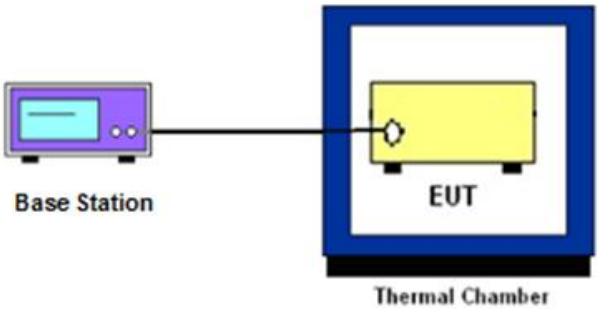
### 3.2.1 Conducted Output Power




### 3.2.2 Peak-to-Average Ratio, Occupied / 26dB Bandwidth ,Band-Edge and Conducted Spurious Emission




### 3.2.3 Frequency Stability




## 3.3 Test Result of Conducted Test

Please refer to Appendix A.

## 3.4 Conducted Output Power Measurement

### 3.4.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

### 3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

## 3.5 Peak-to-Average Ratio

### 3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

## 3.6 EIRP

### 3.6.1 Description of EIRP

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, *except that* for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

### 3.6.2 Test Procedures

1. According to KDB 412172 D01 Power Approach,
2. EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

   $P_T$ = transmitter output power in dBm

   $G_T$ = gain of the transmitting antenna in dBi

   $L_C$ = signal attenuation in the connecting cable between the transmitter and antenna in dB

## 3.7 Occupied Bandwidth

### 3.7.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

### 3.7.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.
   (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

## 3.8 Conducted Band Edge Measurement

### 3.8.1 Description of Conducted Band Edge Measurement

27.53 (a)(4)

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

### 3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used and the measured power was integrated over the full required measurement bandwidth of 1 MHz.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

   Example:

   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [43 + 10log(P)] (dB)

   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.

## 3.9 Conducted Spurious Emission Measurement

### 3.9.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 70 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 9 kHz up to a frequency including its 10th harmonic.

### 3.9.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 70 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [70 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [70 + 10log(P)] (dB)
    = -40dBm

# 3.10 Frequency Stability Measurement

## 3.10.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block.

## 3.10.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

## 3.10.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5.
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

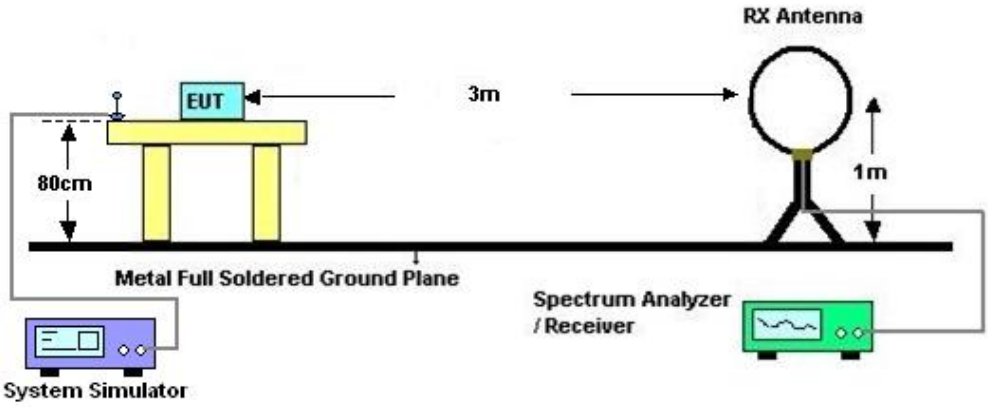
# 4 Radiated Test Items

## 4.1 Measuring Instruments

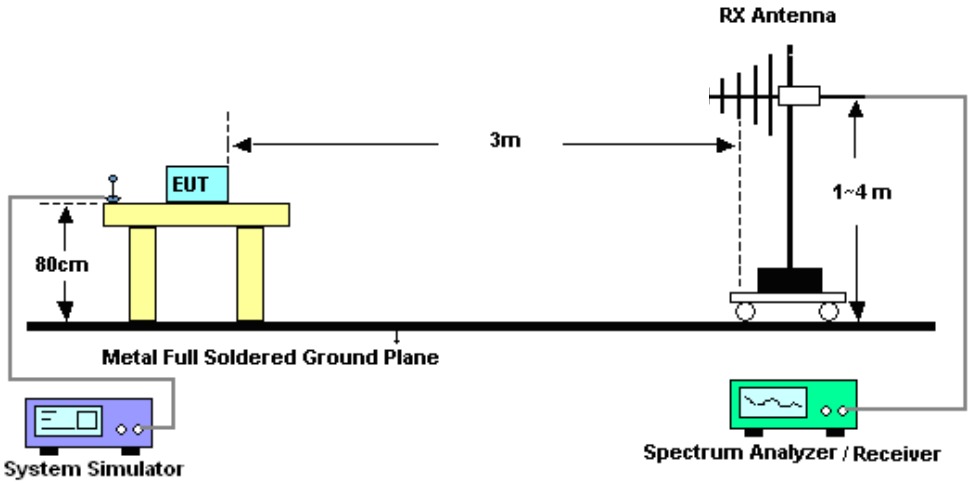
See list of measuring instruments of this test report.

## 4.2 Test Setup

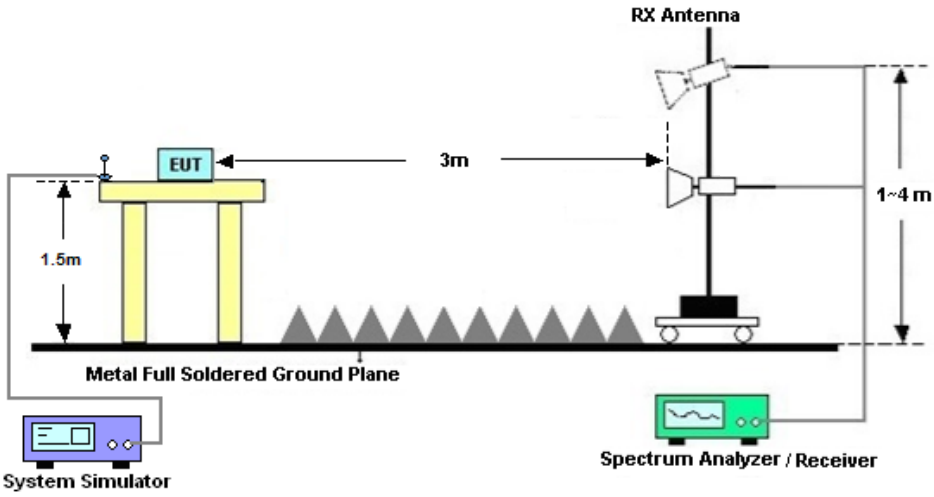
### 4.2.1 For radiated test below 30MHz




### 4.2.2 For radiated test from 30MHz to 1GHz



### 4.2.3 For radiated test above 1GHz




## 4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Please refer to Appendix B.

## 4.4 Radiated Spurious Emission Measurement

### 4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 70 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
   EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
   ERP (dBm) = EIRP - 2.15
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 70 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [70 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [70 + 10log(P)] (dB)
    = -40dBm.

# 5 List of Measuring Equipment

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|---|---|---|---|---|---|---|---|---|
| Spectrum Analyzer | R&S | FSV40 | 101040 | 10Hz~40GHz | Oct. 10, 2024 | Nov. 18, 2024 | Oct. 09, 2025 | Conducted (TH01-KS) |
| Power divider | STI | STI08-0055 | - | 0.5~40GHz | NCR | Nov. 18, 2024 | NCR | Conducted (TH01-KS) |
| Temperature & humidity chamber | Hongzhan | LP-150U | H2014011440 | -40~+150°C 20%~95%RH | Jul. 04, 2024 | Nov. 18, 2024 | Jul. 03, 2025 | Conducted (TH01-KS) |
| EXA Spectrum Analyzer | KEYSIGHT | N9010A | MY55150213 | 10Hz~44GHz | Jul. 03, 2024 | Jan. 24, 2025 | Jul. 02, 2025 | Radiation (03CH01-SZ) |
| Loop Antenna | R&S | HFH2-Z2E | 101141 | 9kHz~30MHz | Dec. 28, 2024 | Jan. 24, 2025 | Dec. 27, 2025 | Radiation (03CH01-SZ) |
| HF Amplifier | KEYSIGHT | 83017A | MY53270105 | 0.5GHz~26.5Ghz | Oct. 14, 2024 | Jan. 24, 2025 | Oct. 13, 2025 | Radiation (03CH01-SZ |
| Bilog Antenna | TeseQ | CBL6112D | 35407 | 30MHz-2GHz | Oct. 24, 2023 | Jan. 24, 2025 | Oct. 23, 2025 | Radiation (03CH01-SZ) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117 | 00119436 | 1GHz~18GHz | Jul. 04, 2024 | Jan. 24, 2025 | Jul. 03, 2025 | Radiation (03CH01-SZ) |
| SHF-EHF Horn | com-power | AH-840 | 101071 | 18Ghz-40GHz | Apr. 09, 2024 | Jan. 24, 2025 | Apr. 08, 2025 | Radiation (03CH01-SZ) |
| LF Amplifier | EM Electronics | EM330 | 060788 | 20MHz-3GHz | Dec. 25, 2024 | Jan. 24, 2025 | Dec. 24, 2025 | Radiation (03CH01-SZ) |
| HF Amplifier | MITEQ | AMF-7D-00 101800-30-1 0P-R | 1943528 | 1GHz~18GHz | Oct. 14, 2024 | Jan. 24, 2025 | Oct. 13, 2025 | Radiation (03CH01-SZ) |
| HF Amplifier | MITEQ | TTA1840-35 -HG | 1871923 | 18GHz~40GHz | Jul. 03, 2024 | Jan. 24, 2025 | Jul. 02, 2025 | Radiation (03CH01-SZ) |
| AC Power Source | Chroma | 61601 | 616010001985 | N/A | Oct. 14, 2024 | Jan. 24, 2025 | Oct. 13, 2025 | Radiation (03CH01-SZ) |
| Turn Table | EM | EM1000 | N/A | 0~360 degree | NCR | Jan. 24, 2025 | NCR | Radiation (03CH01-SZ) |
| Antenna Mast | EM | EM1000 | N/A | 1 m~4 m | NCR | Jan. 24, 2025 | NCR | Radiation (03CH01-SZ) |

NCR: No Calibration Required

# 6 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

**Uncertainty of Conducted Measurement**

| Test Item | Uncertainty |
|---|---|
| Conducted Spurious Emission & Bandedge | ±2.22 dB |
| Occupied Channel Bandwidth | ±0.1% |
| Conducted Power | ±0.50 dB |
| Peak to Average Ratio | ±0.90 dB |
| Frequency Stability | ±0.04ppm |

**Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)**

| | |
|---|---|
| Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)) | 2.48 dB |

**Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)**

| | |
|---|---|
| Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)) | 3.53 dB |

**Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)**

| | |
|---|---|
| Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)) | 4.02 dB |

**---------- THE END ----------**

# Appendix A. Test Results of Conducted Test

| Test Engineer : | Smile Wang | Temperature : | 22~23℃ |
|---|---|---|---|
| | | Relative Humidity : | 40~42% |

## Conducted Output Power(Average power) and EIRP

**LTE Band 30_Ant2:**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | EIRP(W) | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 27710 | | | | | |
| Frequency (MHz) | | | | 2310 | | | | M | |
| 10 | QPSK | 1 | 0 | | 22.78 | | | 0.1194 | |
| 10 | QPSK | 1 | 25 | | 22.69 | | | 0.1169 | |
| 10 | QPSK | 1 | 49 | | 22.68 | | | 0.1167 | |
| 10 | QPSK | 25 | 0 | | 21.80 | | | 0.0953 | |
| 10 | QPSK | 25 | 12 | | 21.70 | | | 0.0931 | |
| 10 | QPSK | 25 | 25 | | 21.69 | | | 0.0929 | |
| 10 | QPSK | 50 | 0 | | 21.74 | | | 0.0940 | |
| 10 | 16QAM | 1 | 0 | | 21.95 | | | 0.0986 | |
| 10 | 16QAM | 1 | 25 | | 21.85 | | | 0.0964 | |
| 10 | 16QAM | 1 | 49 | | 21.84 | | | 0.0962 | |
| 10 | 16QAM | 25 | 0 | | 20.80 | | | 0.0757 | |
| 10 | 16QAM | 25 | 12 | | 20.68 | | | 0.0736 | |
| 10 | 16QAM | 25 | 25 | | 20.67 | | | 0.0735 | |
| 10 | 16QAM | 50 | 0 | | 20.74 | | | 0.0746 | |
| 10 | 64QAM | 1 | 0 | | 20.82 | | | 0.0760 | |
| 10 | 64QAM | 1 | 25 | | 20.73 | | | 0.0745 | |
| 10 | 64QAM | 1 | 49 | | 20.73 | | | 0.0745 | |
| 10 | 64QAM | 25 | 0 | | 19.81 | | | 0.0603 | |
| 10 | 64QAM | 25 | 12 | | 19.70 | | | 0.0587 | |
| 10 | 64QAM | 25 | 25 | | 19.71 | | | 0.0589 | |
| 10 | 64QAM | 50 | 0 | | 19.68 | | | 0.0585 | |
| 10 | 256QAM | 1 | 0 | | 17.72 | | | 0.0372 | |
| 10 | 256QAM | 1 | 25 | | 17.63 | | | 0.0365 | |
| 10 | 256QAM | 1 | 49 | | 17.59 | | | 0.0361 | |
| 10 | 256QAM | 25 | 0 | | 17.76 | | | 0.0376 | |
| 10 | 256QAM | 25 | 12 | | 17.66 | | | 0.0367 | |
| 10 | 256QAM | 25 | 25 | | 17.65 | | | 0.0366 | |
| 10 | 256QAM | 50 | 0 | | 17.65 | | | 0.0366 | |
| Channel | | | | 27685 | 27710 | 27735 | EIRP(W) | | |
| Frequency (MHz) | | | | 2307.5 | 2310 | 2312.5 | L | M | H |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | QPSK | 1 | 0 | 22.68 | 22.66 | 22.68 | 0.1167 | 0.1161 | 0.1167 |
| 5 | QPSK | 1 | 12 | 22.59 | 22.56 | 22.61 | 0.1143 | 0.1135 | 0.1148 |
| 5 | QPSK | 1 | 24 | 22.55 | 22.55 | 22.59 | 0.1132 | 0.1132 | 0.1143 |
| 5 | QPSK | 12 | 0 | 21.68 | 21.68 | 21.71 | 0.0927 | 0.0927 | 0.0933 |
| 5 | QPSK | 12 | 7 | 21.62 | 21.59 | 21.60 | 0.0914 | 0.0908 | 0.0910 |
| 5 | QPSK | 12 | 13 | 21.57 | 21.61 | 21.62 | 0.0904 | 0.0912 | 0.0914 |
| 5 | QPSK | 25 | 0 | 21.65 | 21.62 | 21.64 | 0.0920 | 0.0914 | 0.0918 |
| 5 | 16QAM | 1 | 0 | 21.82 | 21.85 | 21.85 | 0.0957 | 0.0964 | 0.0964 |
| 5 | 16QAM | 1 | 12 | 21.73 | 21.73 | 21.73 | 0.0938 | 0.0938 | 0.0938 |
| 5 | 16QAM | 1 | 24 | 21.76 | 21.72 | 21.72 | 0.0944 | 0.0935 | 0.0935 |
| 5 | 16QAM | 12 | 0 | 20.68 | 20.69 | 20.68 | 0.0736 | 0.0738 | 0.0736 |
| 5 | 16QAM | 12 | 7 | 20.61 | 20.60 | 20.60 | 0.0724 | 0.0723 | 0.0723 |
| 5 | 16QAM | 12 | 13 | 20.56 | 20.60 | 20.55 | 0.0716 | 0.0723 | 0.0714 |
| 5 | 16QAM | 25 | 0 | 20.62 | 20.63 | 20.66 | 0.0726 | 0.0728 | 0.0733 |
| 5 | 64QAM | 1 | 0 | 20.70 | 20.70 | 20.72 | 0.0740 | 0.0740 | 0.0743 |
| 5 | 64QAM | 1 | 12 | 20.64 | 20.63 | 20.62 | 0.0729 | 0.0728 | 0.0726 |
| 5 | 64QAM | 1 | 24 | 20.65 | 20.65 | 20.64 | 0.0731 | 0.0731 | 0.0729 |
| 5 | 64QAM | 12 | 0 | 19.68 | 19.71 | 19.74 | 0.0585 | 0.0589 | 0.0593 |
| 5 | 64QAM | 12 | 7 | 19.58 | 19.61 | 19.59 | 0.0571 | 0.0575 | 0.0573 |
| 5 | 64QAM | 12 | 13 | 19.63 | 19.60 | 19.63 | 0.0578 | 0.0574 | 0.0578 |
| 5 | 64QAM | 25 | 0 | 19.58 | 19.59 | 19.57 | 0.0571 | 0.0573 | 0.0570 |
| 5 | 256QAM | 1 | 0 | 17.62 | 17.64 | 17.64 | 0.0364 | 0.0366 | 0.0366 |
| 5 | 256QAM | 1 | 12 | 17.55 | 17.51 | 17.55 | 0.0358 | 0.0355 | 0.0358 |
| 5 | 256QAM | 1 | 24 | 17.60 | 17.52 | 17.61 | 0.0362 | 0.0356 | 0.0363 |
| 5 | 256QAM | 12 | 0 | 17.64 | 17.66 | 17.67 | 0.0366 | 0.0367 | 0.0368 |
| 5 | 256QAM | 12 | 7 | 17.56 | 17.57 | 17.56 | 0.0359 | 0.0360 | 0.0359 |
| 5 | 256QAM | 12 | 13 | 17.53 | 17.55 | 17.53 | 0.0356 | 0.0358 | 0.0356 |
| 5 | 256QAM | 25 | 0 | 17.56 | 17.53 | 17.56 | 0.0359 | 0.0356 | 0.0359 |

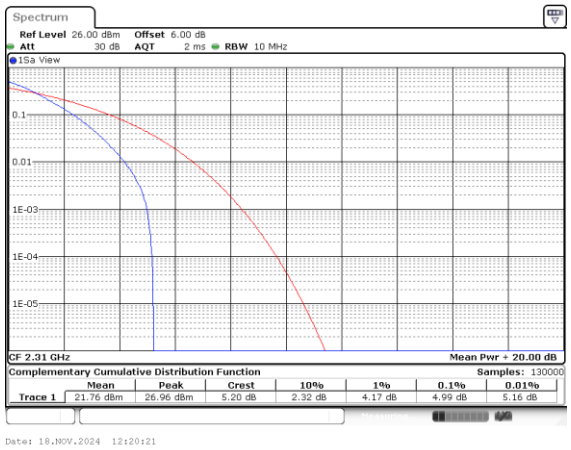
# LTE Band 30

## Peak-to-Average Ratio

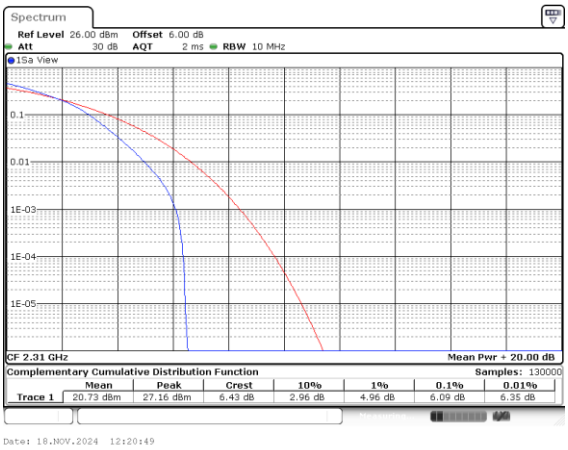
| Mode | LTE Band 30 / 10MHz | | | | |
|---|---|---|---|---|---|
| Mod. | QPSK | 16QAM | 64QAM | 256QAM | Limit: 13dB |
| RB Size | Full RB | Full RB | Full RB | Full RB | Result |
| Middle CH | 4.99 | 6.09 | 6.38 | 6.70 | PASS |

**LTE Band 30 / 10MHz**

**Middle Channel / Full RB / QPSK**

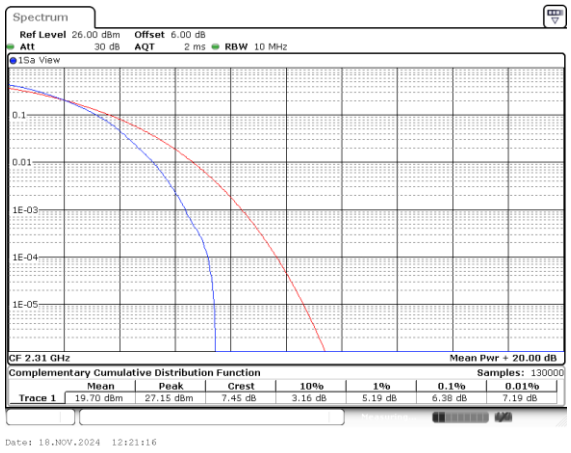



**Middle Channel / Full RB / 16QAM**

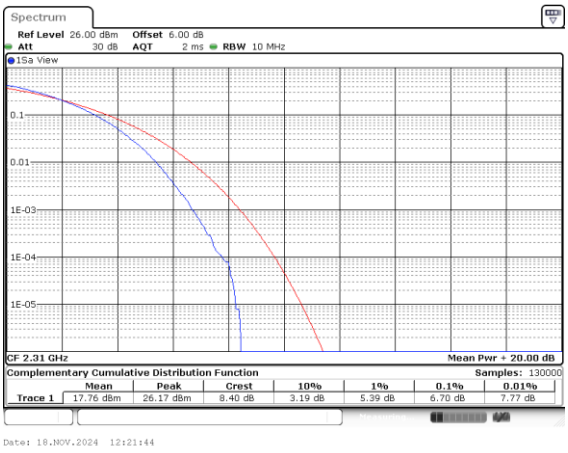



**LTE Band 30 / 10MHz / 16QAM**

**Middle Channel / Full RB / 64QAM**




**Middle Channel / Full RB / 256QAM**

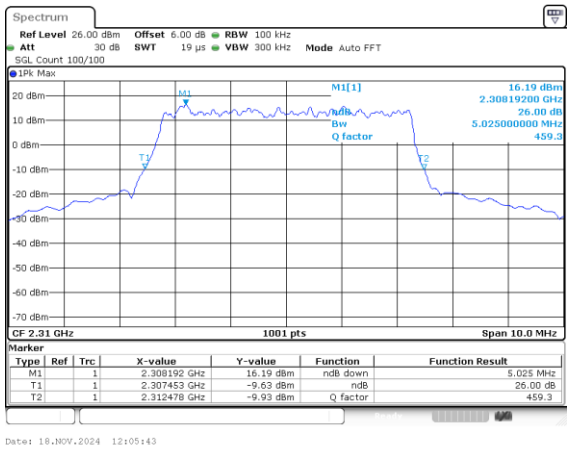


# 26dB Bandwidth

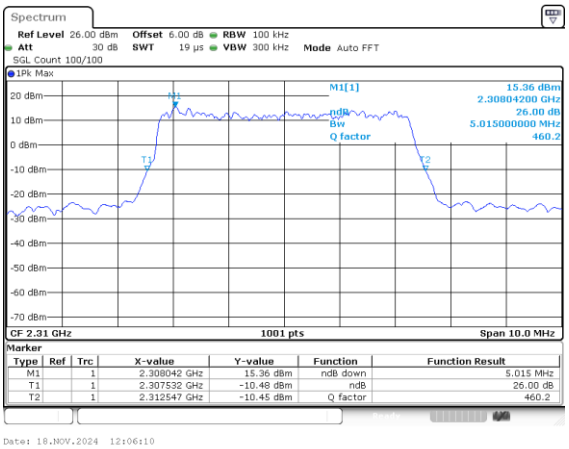
| Mode | LTE Band 30 : 26dB BW(MHz) | | | |
|---|---|---|---|---|
| BW | 5MHz | | 10MHz | |
| Mod. | QPSK | 16QAM | QPSK | 16QAM |
| Middle CH | 5.03 | 5.02 | 9.69 | 10.17 |

## LTE Band 30

### Middle Channel / 5MHz / QPSK

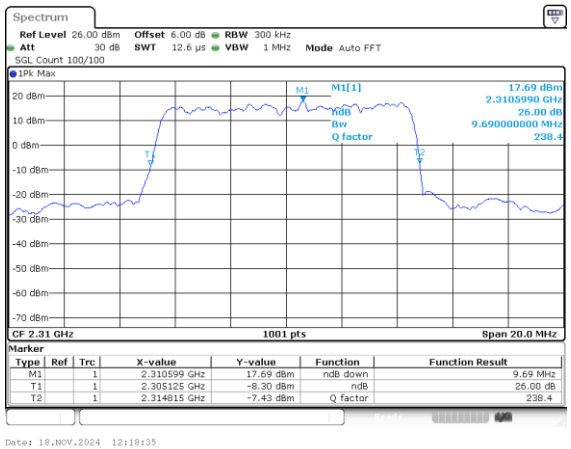



### Middle Channel / 5MHz / 16QAM

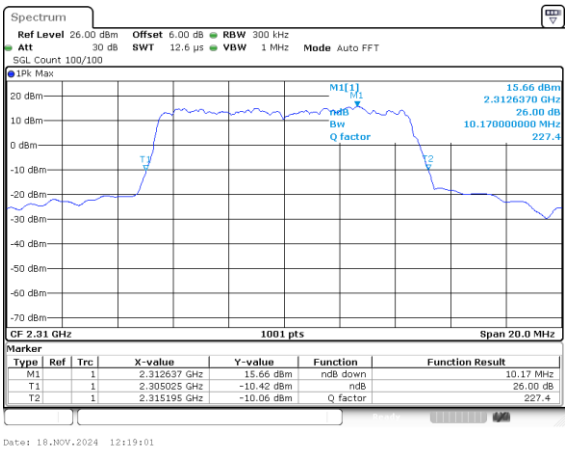



## LTE Band 30

### Middle Channel / 10MHz / QPSK




### Middle Channel / 10MHz / 16QAM

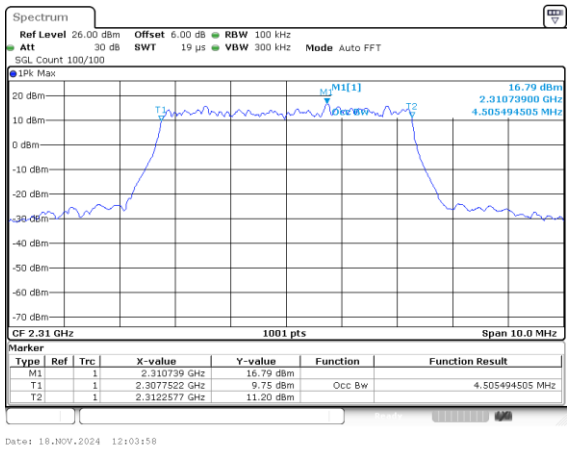


# Occupied Bandwidth

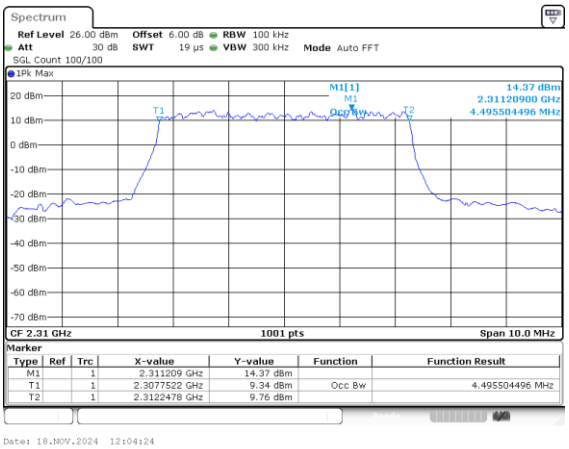
| Mode | LTE Band 30 : 99%OBW(MHz) | | | |
|---|---|---|---|---|
| BW | 5MHz | | 10MHz | |
| Mod. | QPSK | 16QAM | QPSK | 16QAM |
| Middle CH | 4.51 | 4.50 | 9.03 | 9.03 |

## LTE Band 30

### Middle Channel / 5MHz / QPSK

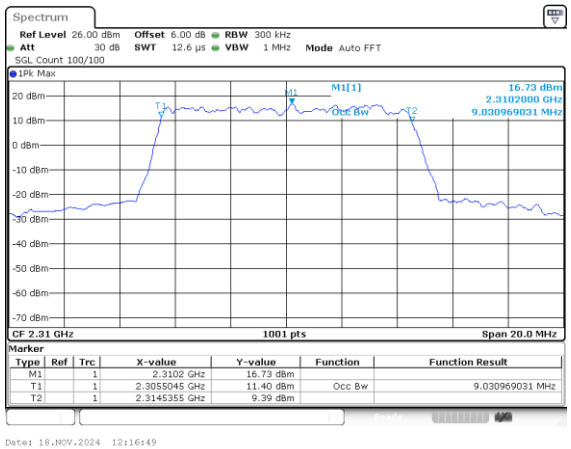



### Middle Channel / 5MHz / 16QAM

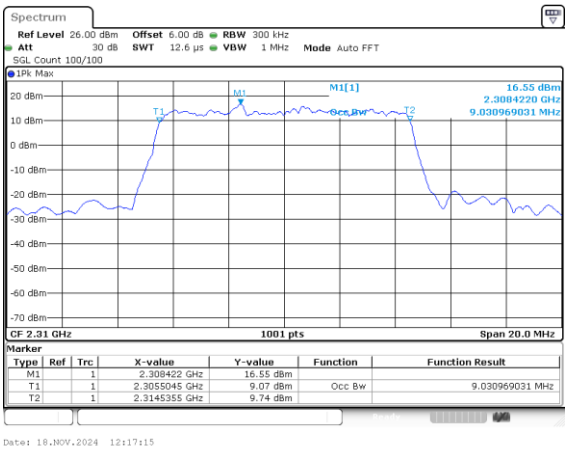



## LTE Band 30

### Middle Channel / 10MHz / QPSK



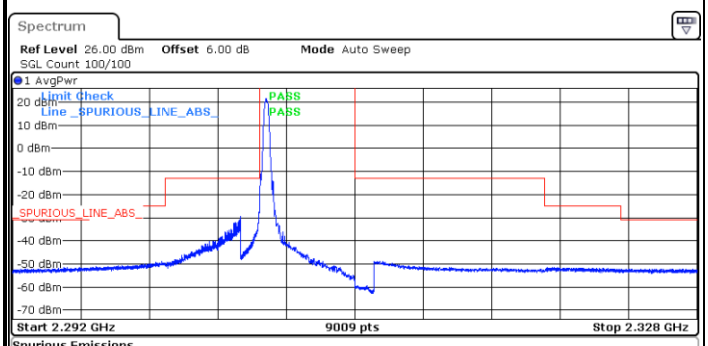

### Middle Channel / 10MHz / 16QAM



# Conducted Band Edge

## LTE Band 30 / 5MHz / QPSK

### Lowest Band Edge / 1 RB

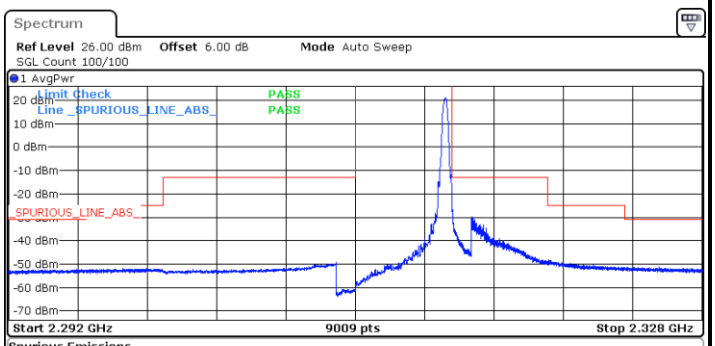



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29468 GHz | -51.49 dBm | -20.49 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29985 GHz | -48.94 dBm | -23.94 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30400 GHz | -29.44 dBm | -16.44 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30500 GHz | -23.57 dBm | -10.57 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30533 GHz | 21.37 dBm | -8.63 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31063 GHz | -59.52 dBm | -46.52 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31130 GHz | -48.82 dBm | -35.82 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32011 GHz | -51.61 dBm | -26.61 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32661 GHz | -52.11 dBm | -21.11 dB |

Date: 18.NOV.2024 11:13:39

### Highest Band Edge / 1 RBMAX

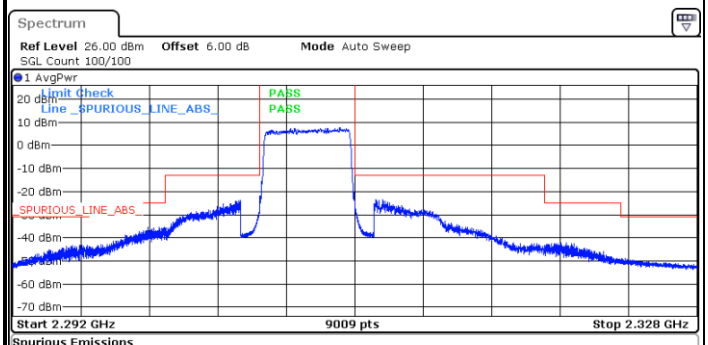



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29561 GHz | -52.28 dBm | -21.28 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29916 GHz | -51.97 dBm | -26.97 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30899 GHz | -49.43 dBm | -36.43 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.30942 GHz | -60.82 dBm | -47.82 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31470 GHz | 21.16 dBm | -8.84 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31500 GHz | -23.30 dBm | -10.30 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31604 GHz | -29.96 dBm | -16.96 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32003 GHz | -48.34 dBm | -23.34 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32575 GHz | -51.33 dBm | -20.33 dB |

Date: 18.NOV.2024 11:22:58

### Lowest Band Edge / Full RB

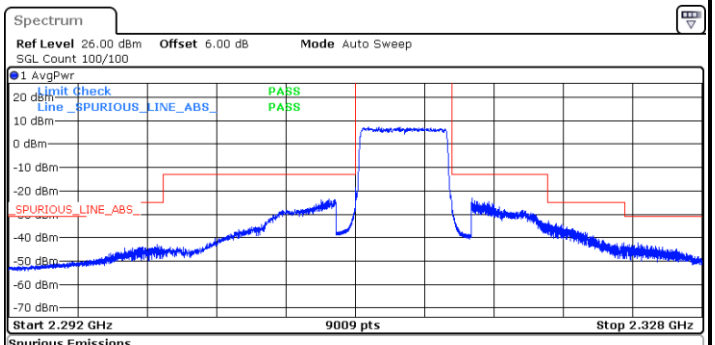



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29514 GHz | -43.11 dBm | -12.11 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29971 GHz | -35.42 dBm | -10.42 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30400 GHz | -23.75 dBm | -10.75 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30499 GHz | -27.77 dBm | -14.77 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30920 GHz | 7.72 dBm | -22.28 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31000 GHz | -26.48 dBm | -13.48 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31109 GHz | -23.30 dBm | -10.30 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32085 GHz | -42.14 dBm | -17.14 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32402 GHz | -48.78 dBm | -17.78 dB |

Date: 18.NOV.2024 11:18:19

### Highest Band Edge / Full RB



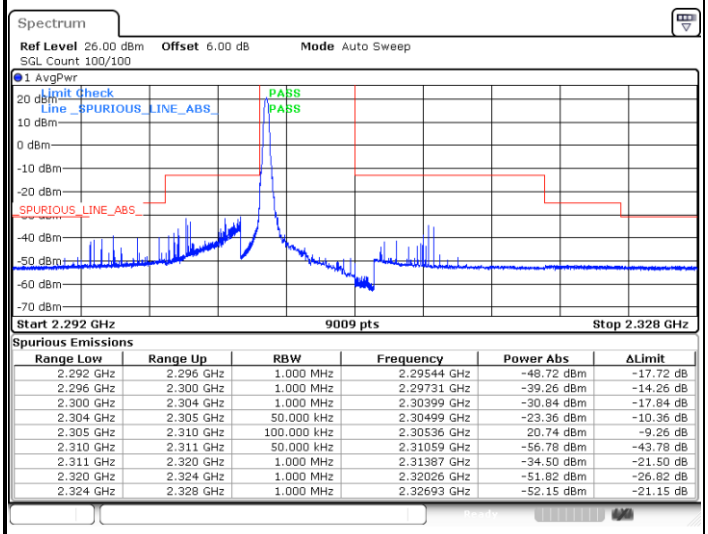

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29592 GHz | -50.14 dBm | -19.14 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29969 GHz | -42.92 dBm | -17.92 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30864 GHz | -23.57 dBm | -10.57 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.31000 GHz | -26.92 dBm | -13.92 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31069 GHz | 7.36 dBm | -22.64 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31501 GHz | -27.28 dBm | -14.28 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31604 GHz | -23.21 dBm | -10.21 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32001 GHz | -32.91 dBm | -7.91 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32469 GHz | -42.22 dBm | -11.22 dB |

Date: 18.NOV.2024 11:27:37

## LTE Band 30 / 5MHz / 16QAM

### Lowest Band Edge / 1RB

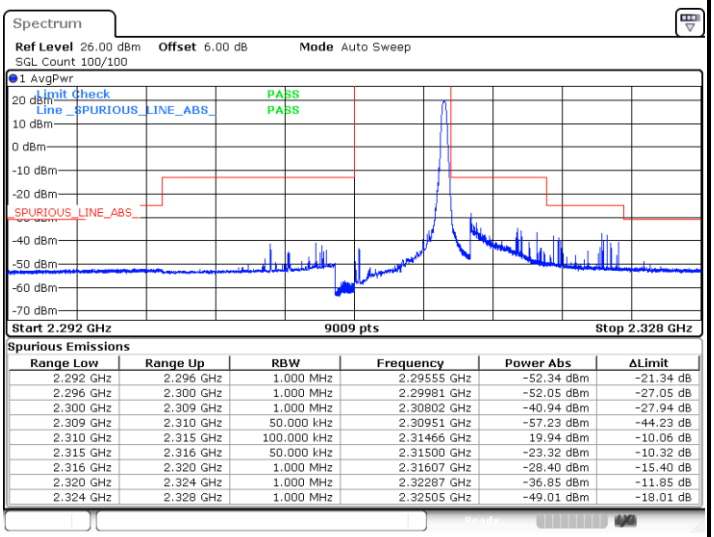



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29544 GHz | -48.72 dBm | -17.72 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29731 GHz | -39.26 dBm | -14.26 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30399 GHz | -30.84 dBm | -17.84 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30499 GHz | -23.36 dBm | -10.36 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30536 GHz | 20.74 dBm | -9.26 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31059 GHz | -56.78 dBm | -43.78 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31387 GHz | -34.50 dBm | -21.50 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32026 GHz | -51.82 dBm | -26.82 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32693 GHz | -52.15 dBm | -21.15 dB |

Date: 18.NOV.2024 11:14:48

### Highest Band Edge / 1 RBMAX

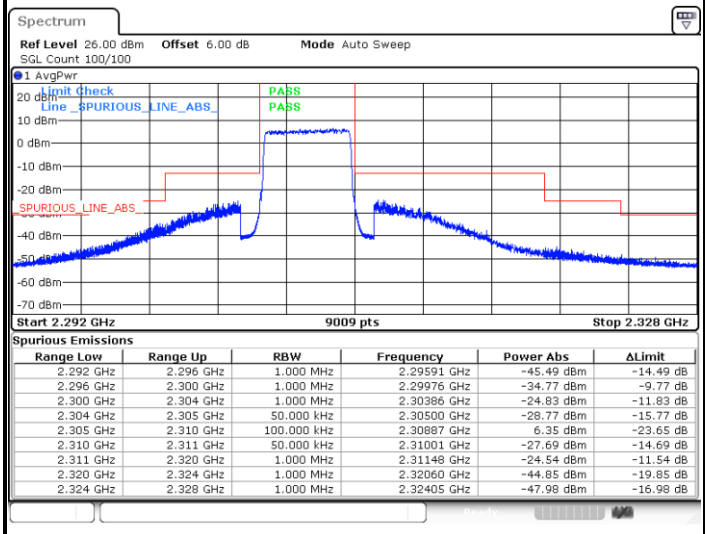



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29555 GHz | -52.34 dBm | -21.34 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29981 GHz | -52.05 dBm | -27.05 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30802 GHz | -40.94 dBm | -27.94 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.30951 GHz | -57.23 dBm | -44.23 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31466 GHz | 19.94 dBm | -10.06 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31500 GHz | -23.32 dBm | -10.32 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31607 GHz | -28.40 dBm | -15.40 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32287 GHz | -36.85 dBm | -11.85 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32505 GHz | -49.01 dBm | -18.01 dB |

Date: 18.NOV.2024 11:24:06

### Lowest Band Edge / Full RB

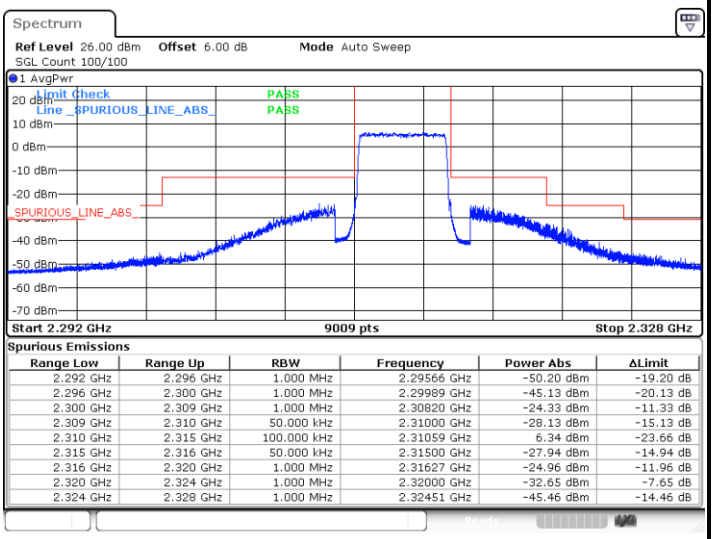



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29591 GHz | -45.49 dBm | -14.49 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29976 GHz | -34.77 dBm | -9.77 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30386 GHz | -24.83 dBm | -11.83 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30500 GHz | -28.77 dBm | -15.77 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30887 GHz | 6.35 dBm | -23.65 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31001 GHz | -27.69 dBm | -14.69 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31148 GHz | -24.54 dBm | -11.54 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32060 GHz | -44.85 dBm | -19.85 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32405 GHz | -47.98 dBm | -16.98 dB |

Date: 18.NOV.2024 11:19:28

### Highest Band Edge / Full RB



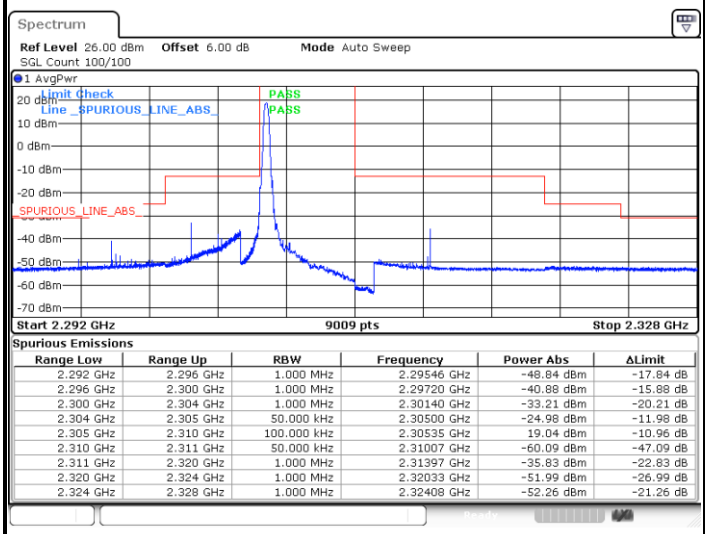

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29566 GHz | -50.20 dBm | -19.20 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29989 GHz | -45.13 dBm | -20.13 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30820 GHz | -24.33 dBm | -11.33 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.31000 GHz | -28.13 dBm | -15.13 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31059 GHz | 6.34 dBm | -23.66 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31500 GHz | -27.94 dBm | -14.94 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31627 GHz | -24.96 dBm | -11.96 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32000 GHz | -32.65 dBm | -7.65 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32451 GHz | -45.46 dBm | -14.46 dB |

Date: 18.NOV.2024 11:28:46

## LTE Band 30 / 5MHz / 64QAM

### Lowest Band Edge / 1RB

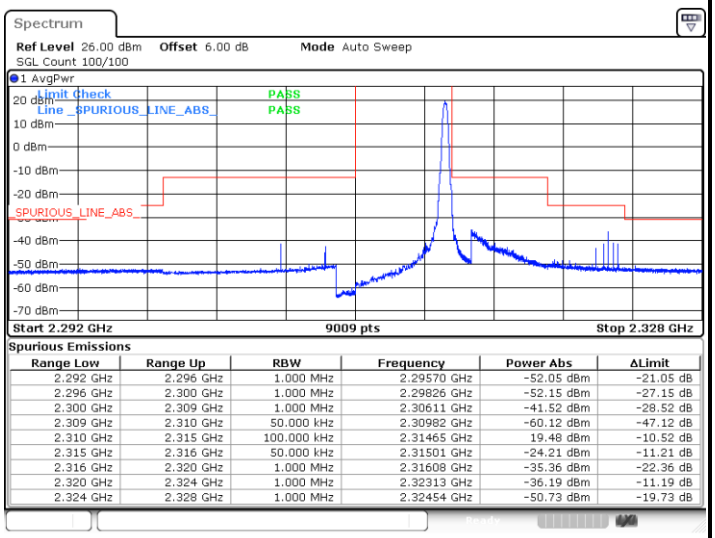



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29546 GHz | -48.84 dBm | -17.84 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29720 GHz | -40.88 dBm | -15.88 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30140 GHz | -33.21 dBm | -20.21 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30500 GHz | -24.98 dBm | -11.98 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30535 GHz | 19.04 dBm | -10.96 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31007 GHz | -60.09 dBm | -47.09 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31397 GHz | -35.83 dBm | -22.83 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32033 GHz | -51.99 dBm | -26.99 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32408 GHz | -52.26 dBm | -21.26 dB |

Date: 18.NOV.2024 11:15:58

### Highest Band Edge / 1 RBMAX

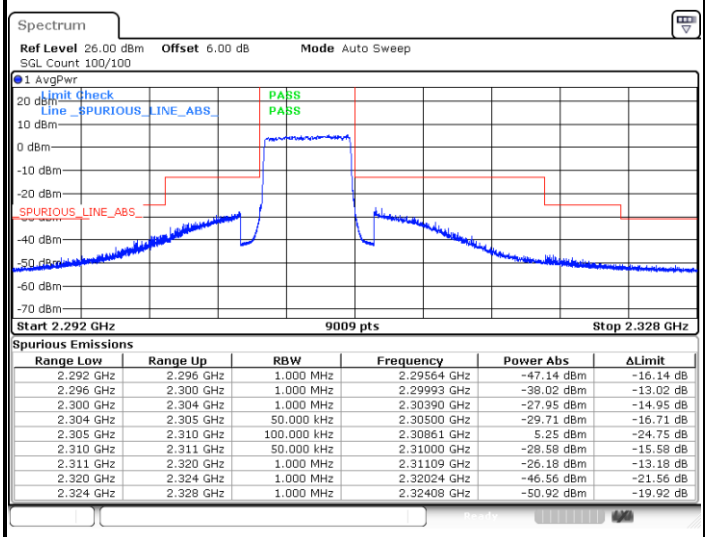



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29570 GHz | -52.05 dBm | -21.05 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29826 GHz | -52.15 dBm | -27.15 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30611 GHz | -41.52 dBm | -28.52 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.30982 GHz | -60.12 dBm | -47.12 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31465 GHz | 19.48 dBm | -10.52 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31501 GHz | -24.21 dBm | -11.21 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31608 GHz | -35.36 dBm | -22.36 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32313 GHz | -36.19 dBm | -11.19 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32454 GHz | -50.73 dBm | -19.73 dB |

Date: 18.NOV.2024 11:25:15

### Lowest Band Edge / Full RB

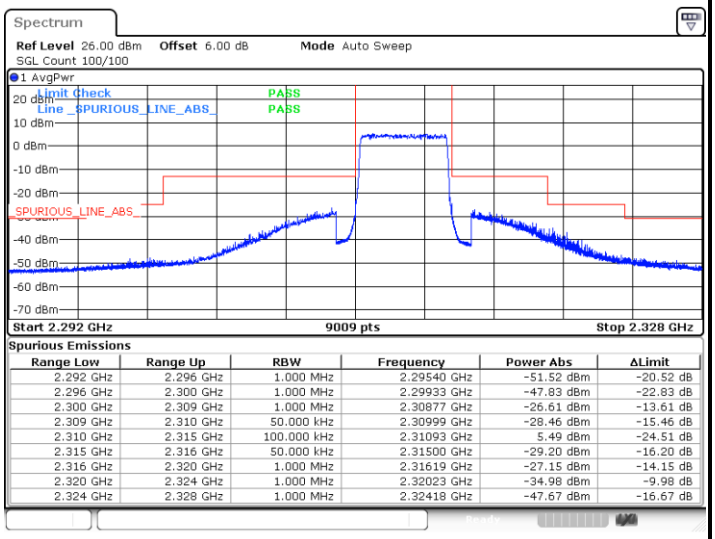



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29564 GHz | -47.14 dBm | -16.14 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29993 GHz | -38.02 dBm | -13.02 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30390 GHz | -27.95 dBm | -14.95 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30500 GHz | -29.71 dBm | -16.71 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30861 GHz | 5.25 dBm | -24.75 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31000 GHz | -28.58 dBm | -15.58 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31109 GHz | -26.18 dBm | -13.18 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32024 GHz | -46.56 dBm | -21.56 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32408 GHz | -50.92 dBm | -19.92 dB |

Date: 18.NOV.2024 11:20:37

### Highest Band Edge / Full RB



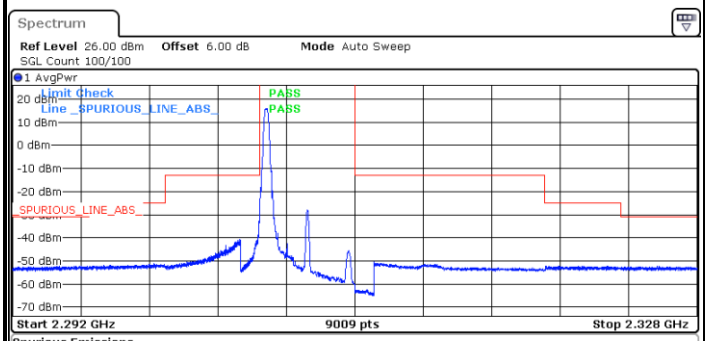

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29540 GHz | -51.52 dBm | -20.52 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29933 GHz | -47.83 dBm | -22.83 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30877 GHz | -26.61 dBm | -13.61 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.30999 GHz | -28.46 dBm | -15.46 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31093 GHz | 5.49 dBm | -24.51 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31500 GHz | -29.20 dBm | -16.20 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31619 GHz | -27.15 dBm | -14.15 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32023 GHz | -34.98 dBm | -9.98 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32418 GHz | -47.67 dBm | -16.67 dB |

Date: 18.NOV.2024 11:29:55

## LTE Band 30 / 5MHz / 256QAM

### Lowest Band Edge / 1RB

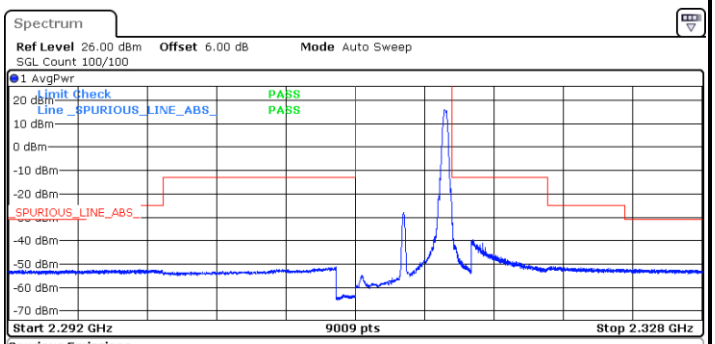



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29433 GHz | -52.34 dBm | -21.34 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29941 GHz | -51.11 dBm | -26.11 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30394 GHz | -40.80 dBm | -27.80 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30500 GHz | -28.71 dBm | -15.71 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30530 GHz | 15.89 dBm | -14.11 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31062 GHz | -62.45 dBm | -49.45 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31101 GHz | -50.44 dBm | -37.44 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32202 GHz | -52.20 dBm | -27.20 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32588 GHz | -52.39 dBm | -21.39 dB |

Date: 18.NOV.2024 11:17:07

### Highest Band Edge / 1 RBMAX

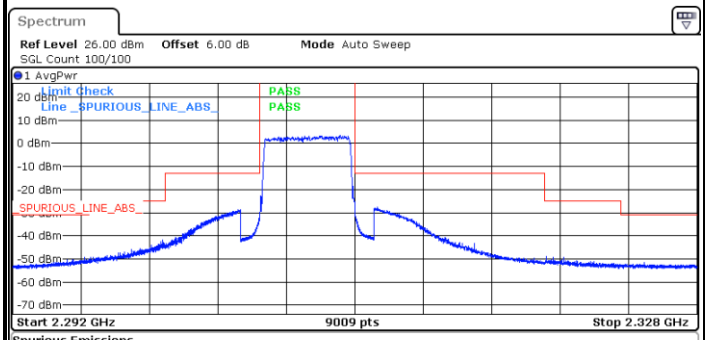



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29494 GHz | -52.49 dBm | -21.49 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29880 GHz | -52.46 dBm | -27.46 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30899 GHz | -51.09 dBm | -38.09 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.30937 GHz | -63.13 dBm | -50.13 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31463 GHz | 15.95 dBm | -14.05 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31500 GHz | -28.70 dBm | -15.70 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31609 GHz | -39.42 dBm | -26.42 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32011 GHz | -51.00 dBm | -26.00 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32478 GHz | -52.13 dBm | -21.13 dB |

Date: 18.NOV.2024 11:26:25

### Lowest Band Edge / Full RB

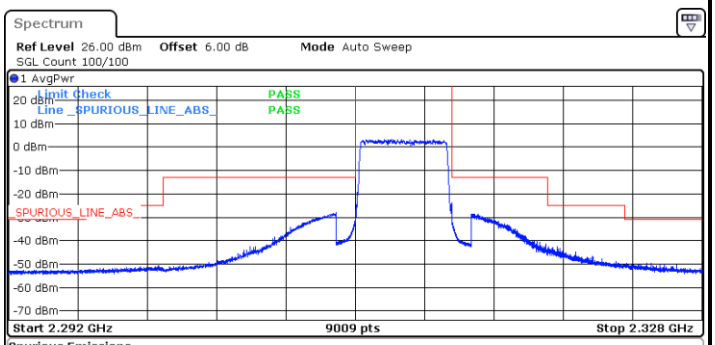



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29580 GHz | -49.31 dBm | -18.31 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29991 GHz | -41.92 dBm | -16.92 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30399 GHz | -28.51 dBm | -15.51 dB |
| 2.304 GHz | 2.305 GHz | 50.000 kHz | 2.30499 GHz | -31.11 dBm | -18.11 dB |
| 2.305 GHz | 2.310 GHz | 100.000 kHz | 2.30923 GHz | 3.46 dBm | -26.54 dB |
| 2.310 GHz | 2.311 GHz | 50.000 kHz | 2.31001 GHz | -30.69 dBm | -17.69 dB |
| 2.311 GHz | 2.320 GHz | 1.000 MHz | 2.31119 GHz | -27.44 dBm | -14.44 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32006 GHz | -48.77 dBm | -23.77 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32524 GHz | -51.54 dBm | -20.54 dB |

Date: 18.NOV.2024 11:21:46

### Highest Band Edge / Full RB



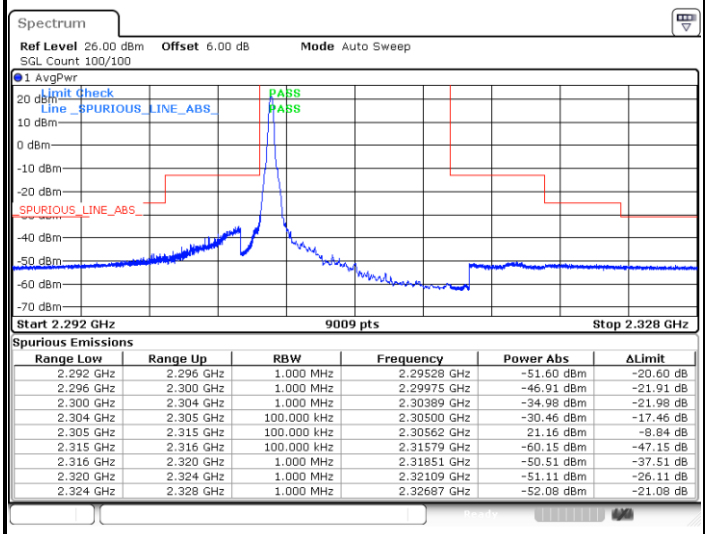

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29570 GHz | -52.52 dBm | -21.52 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29973 GHz | -50.87 dBm | -25.87 dB |
| 2.300 GHz | 2.309 GHz | 1.000 MHz | 2.30900 GHz | -27.82 dBm | -14.82 dB |
| 2.309 GHz | 2.310 GHz | 50.000 kHz | 2.31000 GHz | -30.70 dBm | -17.70 dB |
| 2.310 GHz | 2.315 GHz | 100.000 kHz | 2.31284 GHz | 3.31 dBm | -26.69 dB |
| 2.315 GHz | 2.316 GHz | 50.000 kHz | 2.31501 GHz | -31.10 dBm | -18.10 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31607 GHz | -28.51 dBm | -15.51 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32001 GHz | -42.61 dBm | -17.61 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32536 GHz | -49.69 dBm | -18.69 dB |

Date: 18.NOV.2024 11:31:04

## LTE Band 30 / 10MHz / QPSK

### 1 RB

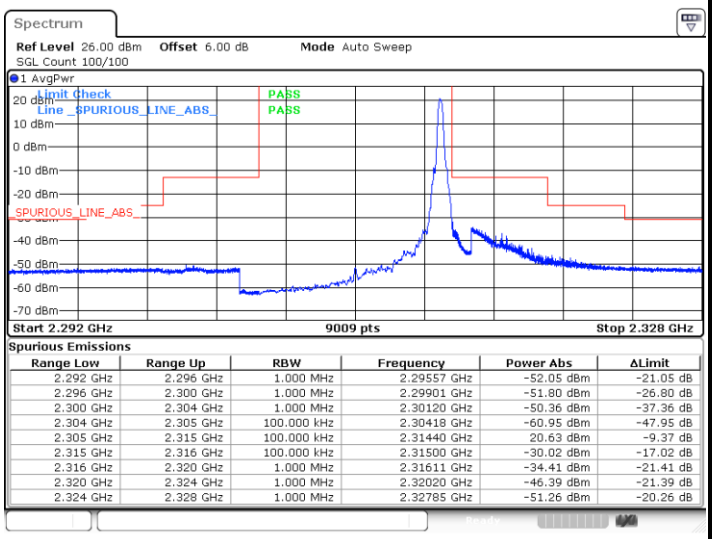



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29528 GHz | -51.60 dBm | -20.60 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29975 GHz | -46.91 dBm | -21.91 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30389 GHz | -34.98 dBm | -21.98 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30500 GHz | -30.46 dBm | -17.46 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.30562 GHz | 21.16 dBm | -8.84 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31579 GHz | -60.15 dBm | -47.15 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31851 GHz | -50.51 dBm | -37.51 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32109 GHz | -51.11 dBm | -26.11 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32687 GHz | -52.08 dBm | -21.08 dB |

Date: 18.NOV.2024 14:24:15

### 1 RBMax

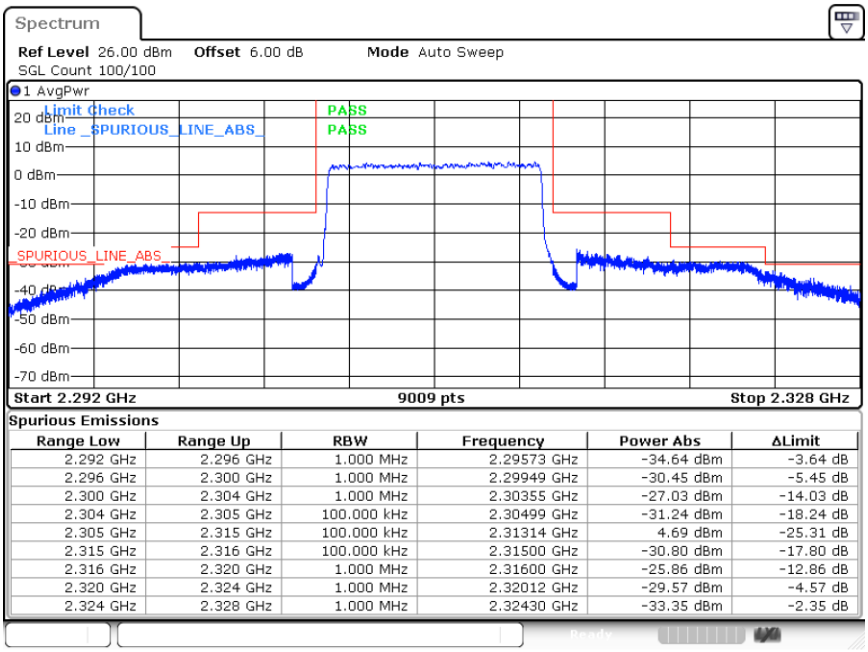



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29557 GHz | -52.05 dBm | -21.05 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29901 GHz | -51.80 dBm | -26.80 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30120 GHz | -50.36 dBm | -37.36 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30418 GHz | -60.95 dBm | -47.95 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31440 GHz | 20.63 dBm | -9.37 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31500 GHz | -30.02 dBm | -17.02 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31611 GHz | -34.41 dBm | -21.41 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32020 GHz | -46.39 dBm | -21.39 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32785 GHz | -51.26 dBm | -20.26 dB |

Date: 18.NOV.2024 14:28:50

### Full RB



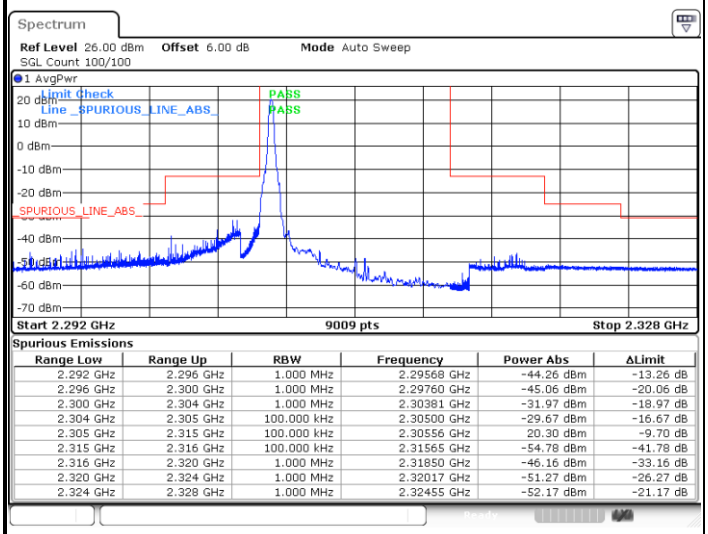

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29573 GHz | -34.64 dBm | -3.64 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29949 GHz | -30.45 dBm | -5.45 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30355 GHz | -27.03 dBm | -14.03 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30499 GHz | -31.24 dBm | -18.24 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31314 GHz | 4.69 dBm | -25.31 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31500 GHz | -30.80 dBm | -17.80 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31600 GHz | -25.86 dBm | -12.86 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32012 GHz | -29.57 dBm | -4.57 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32430 GHz | -33.35 dBm | -2.35 dB |

Date: 18.NOV.2024 11:55:05

## LTE Band 30 / 10MHz / 16QAM

### 1 RB

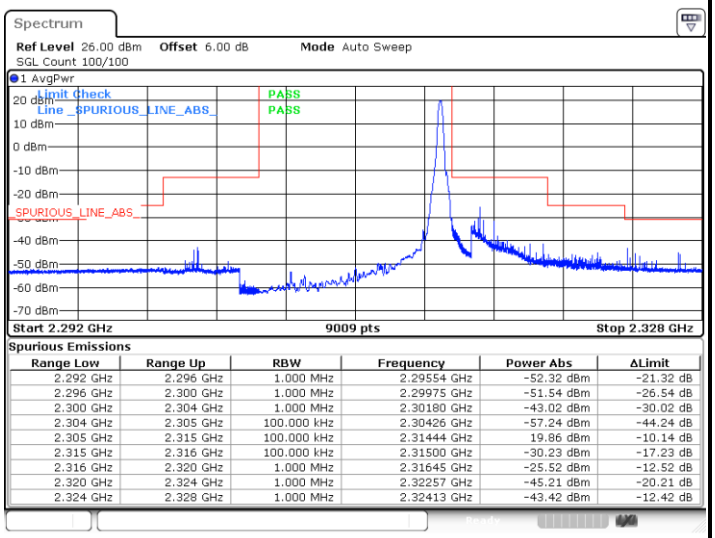



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29568 GHz | -44.26 dBm | -13.26 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29760 GHz | -45.06 dBm | -20.06 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30381 GHz | -31.97 dBm | -18.97 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30500 GHz | -29.67 dBm | -16.67 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.30556 GHz | 20.30 dBm | -9.70 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31565 GHz | -54.78 dBm | -41.78 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31850 GHz | -46.16 dBm | -33.16 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32017 GHz | -51.27 dBm | -26.27 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32455 GHz | -52.17 dBm | -21.17 dB |

Date: 18.NOV.2024 14:25:24

### 1 RBMax

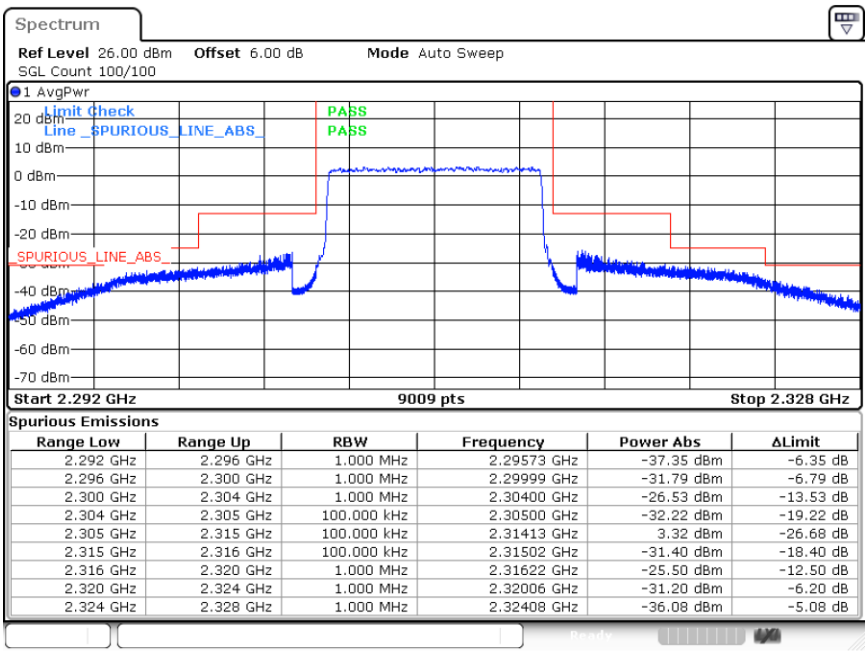



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29554 GHz | -52.32 dBm | -21.32 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29975 GHz | -51.54 dBm | -26.54 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30180 GHz | -43.02 dBm | -30.02 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30426 GHz | -57.24 dBm | -44.24 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31444 GHz | 19.86 dBm | -10.14 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31500 GHz | -30.23 dBm | -17.23 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31645 GHz | -25.52 dBm | -12.52 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32257 GHz | -45.21 dBm | -20.21 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32413 GHz | -43.42 dBm | -12.42 dB |

Date: 18.NOV.2024 14:29:59

### Full RB



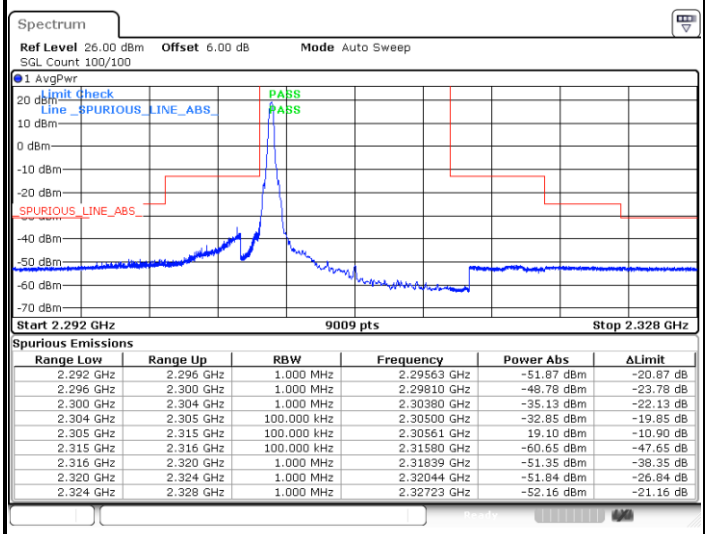

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29573 GHz | -37.35 dBm | -6.35 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29999 GHz | -31.79 dBm | -6.79 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30400 GHz | -26.53 dBm | -13.53 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30500 GHz | -32.22 dBm | -19.22 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31413 GHz | 3.32 dBm | -26.68 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31502 GHz | -31.40 dBm | -18.40 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31622 GHz | -25.50 dBm | -12.50 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32006 GHz | -31.20 dBm | -6.20 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32408 GHz | -36.08 dBm | -5.08 dB |

Date: 18.NOV.2024 11:56:13

## LTE Band 30 / 10MHz / 64QAM

### 1 RB

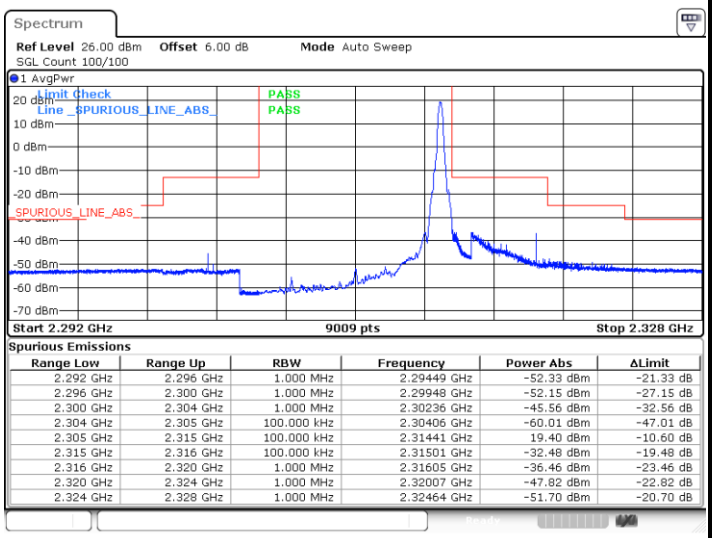



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29563 GHz | -51.87 dBm | -20.87 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29810 GHz | -48.78 dBm | -23.78 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30380 GHz | -35.13 dBm | -22.13 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30500 GHz | -32.85 dBm | -19.85 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.30561 GHz | 19.10 dBm | -10.90 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31580 GHz | -60.65 dBm | -47.65 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31839 GHz | -51.35 dBm | -38.35 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32044 GHz | -51.84 dBm | -26.84 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32723 GHz | -52.16 dBm | -21.16 dB |

Date: 18.NOV.2024 14:26:32

### 1 RBMax

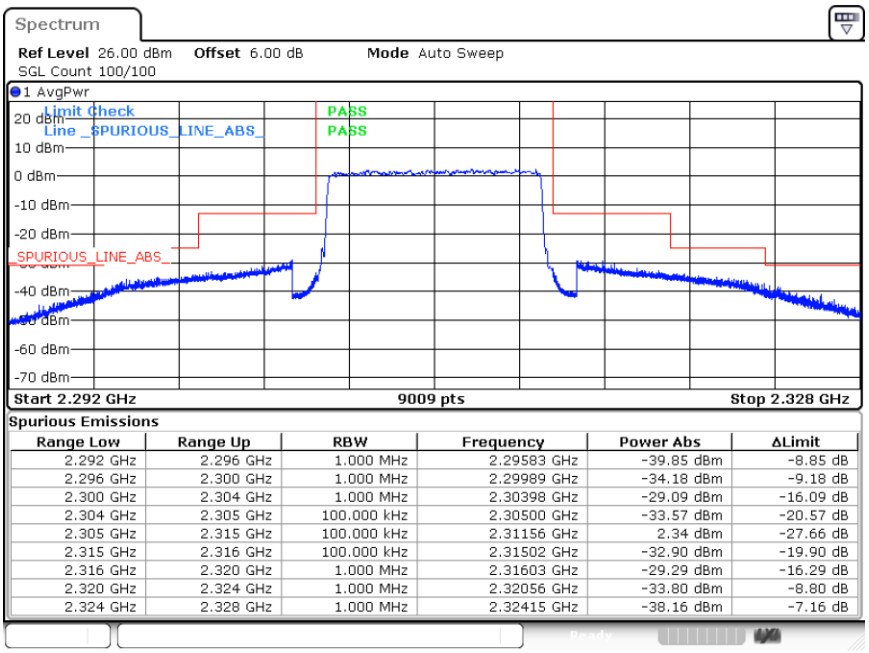



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29449 GHz | -52.33 dBm | -21.33 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29948 GHz | -52.15 dBm | -27.15 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30236 GHz | -45.56 dBm | -32.56 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30406 GHz | -60.01 dBm | -47.01 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31441 GHz | 19.40 dBm | -10.60 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31501 GHz | -32.48 dBm | -19.48 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31605 GHz | -36.46 dBm | -23.46 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32007 GHz | -47.82 dBm | -22.82 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32464 GHz | -51.70 dBm | -20.70 dB |

Date: 18.NOV.2024 14:31:07

## Band Edge / Full RB



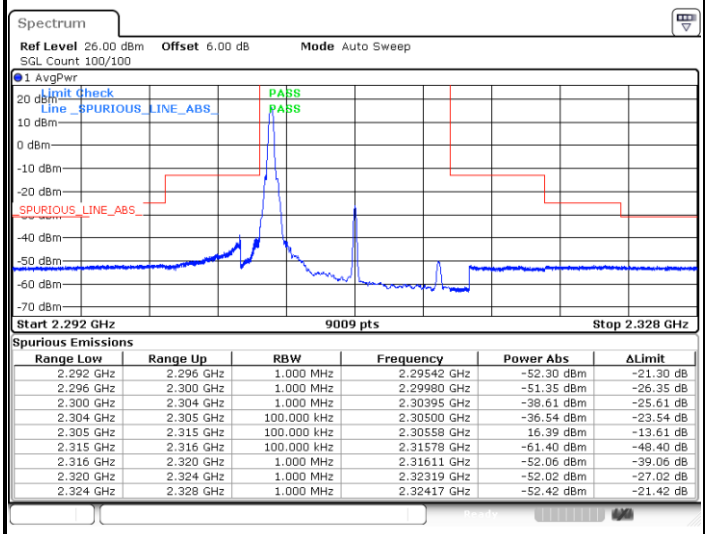

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29583 GHz | -39.85 dBm | -8.85 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29989 GHz | -34.18 dBm | -9.18 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30398 GHz | -29.09 dBm | -16.09 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30500 GHz | -33.57 dBm | -20.57 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31156 GHz | 2.34 dBm | -27.66 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31502 GHz | -32.90 dBm | -19.90 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31603 GHz | -29.29 dBm | -16.29 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32056 GHz | -33.80 dBm | -8.80 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32415 GHz | -38.16 dBm | -7.16 dB |

Date: 18.NOV.2024 11:57:21

## LTE Band 30 / 10MHz / 256QAM

### 1 RB

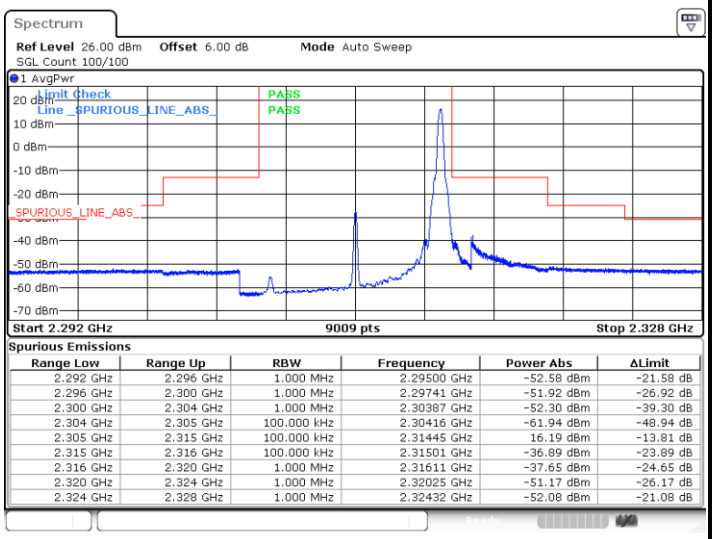



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29542 GHz | -52.30 dBm | -21.30 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29980 GHz | -51.35 dBm | -26.35 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30395 GHz | -38.61 dBm | -25.61 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30500 GHz | -36.54 dBm | -23.54 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.30558 GHz | 16.39 dBm | -13.61 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31578 GHz | -61.40 dBm | -48.40 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31611 GHz | -52.06 dBm | -39.06 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32319 GHz | -52.02 dBm | -27.02 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32417 GHz | -52.42 dBm | -21.42 dB |

Date: 18.NOV.2024 14:27:41

### 1 RBMax

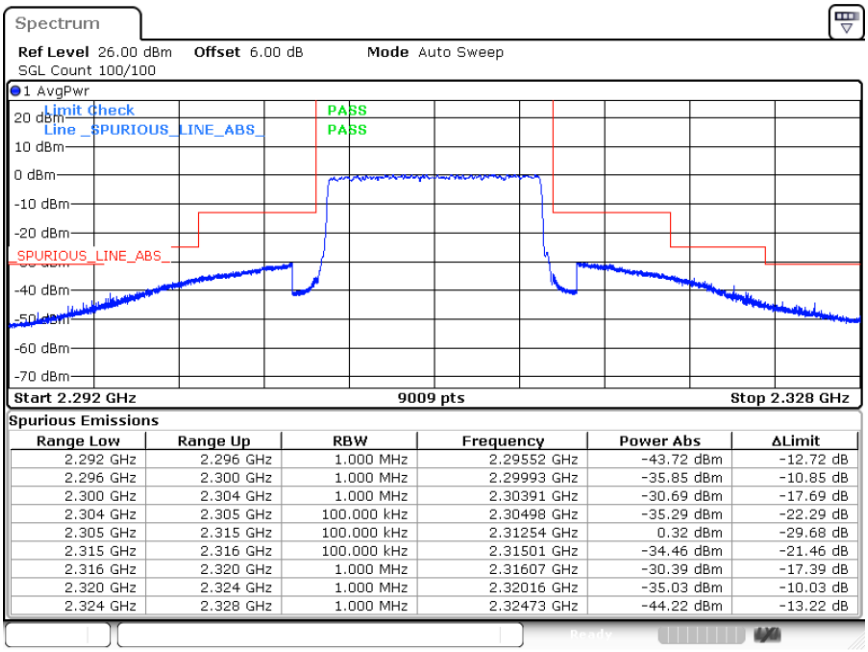



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29500 GHz | -52.58 dBm | -21.58 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29741 GHz | -51.92 dBm | -26.92 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30387 GHz | -52.30 dBm | -39.30 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30416 GHz | -61.94 dBm | -48.94 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31445 GHz | 16.19 dBm | -13.81 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31501 GHz | -36.89 dBm | -23.89 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31611 GHz | -37.65 dBm | -24.65 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32025 GHz | -51.17 dBm | -26.17 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32432 GHz | -52.08 dBm | -21.08 dB |

Date: 18.NOV.2024 14:32:15

## Band Edge / Full RB




Spurious Emissions

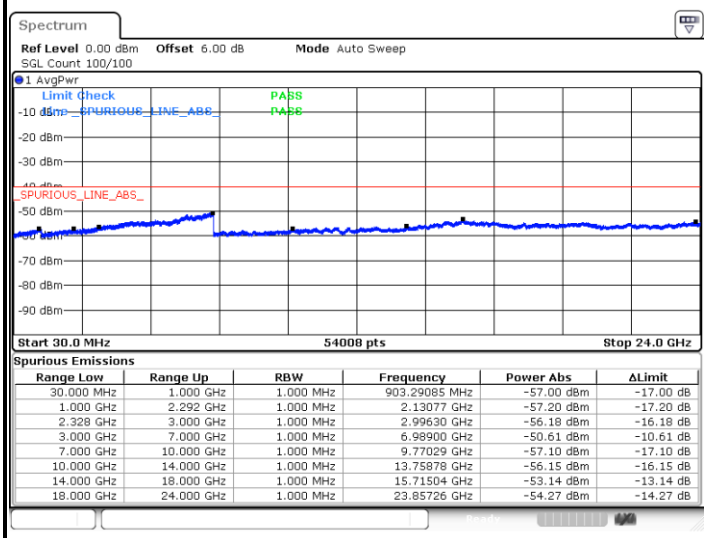
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29552 GHz | -43.72 dBm | -12.72 dB |
| 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29993 GHz | -35.85 dBm | -10.85 dB |
| 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30391 GHz | -30.69 dBm | -17.69 dB |
| 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30498 GHz | -35.29 dBm | -22.29 dB |
| 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.31254 GHz | 0.32 dBm | -29.68 dB |
| 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31501 GHz | -34.46 dBm | -21.46 dB |
| 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31607 GHz | -30.39 dBm | -17.39 dB |
| 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32016 GHz | -35.03 dBm | -10.03 dB |
| 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32473 GHz | -44.22 dBm | -13.22 dB |

Date: 18.NOV.2024 11:58:30

# Conducted Spurious Emission

## LTE Band 30 / 5MHz

### Lowest Channel / QPSK

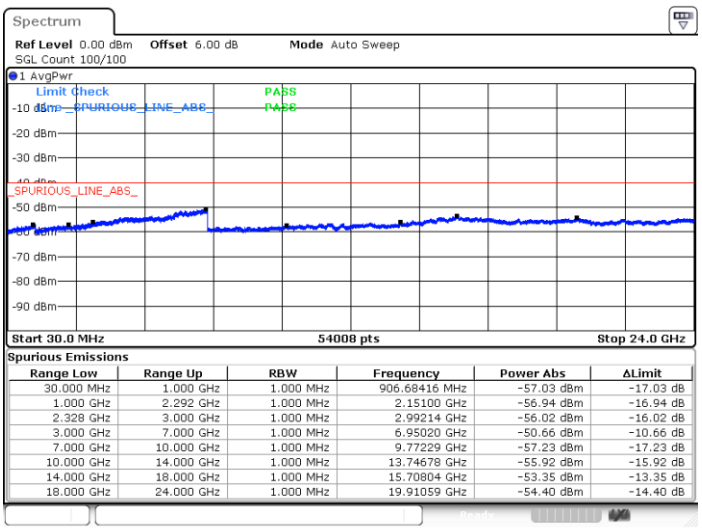



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 903.29085 MHz | -57.00 dBm | -17.00 dB |
| 1.000 GHz | 2.292 GHz | 1.000 MHz | 2.13077 GHz | -57.20 dBm | -17.20 dB |
| 2.328 GHz | 3.000 GHz | 1.000 MHz | 2.99630 GHz | -56.18 dBm | -16.18 dB |
| 3.000 GHz | 7.000 GHz | 1.000 MHz | 6.98900 GHz | -50.61 dBm | -10.61 dB |
| 7.000 GHz | 10.000 GHz | 1.000 MHz | 9.77029 GHz | -57.10 dBm | -17.10 dB |
| 10.000 GHz | 14.000 GHz | 1.000 MHz | 13.75878 GHz | -56.15 dBm | -16.15 dB |
| 14.000 GHz | 18.000 GHz | 1.000 MHz | 15.71504 GHz | -53.14 dBm | -13.14 dB |
| 18.000 GHz | 24.000 GHz | 1.000 MHz | 23.85726 GHz | -54.27 dBm | -14.27 dB |

Date: 18.NOV.2024 12:56:46

### Middle Channel / QPSK

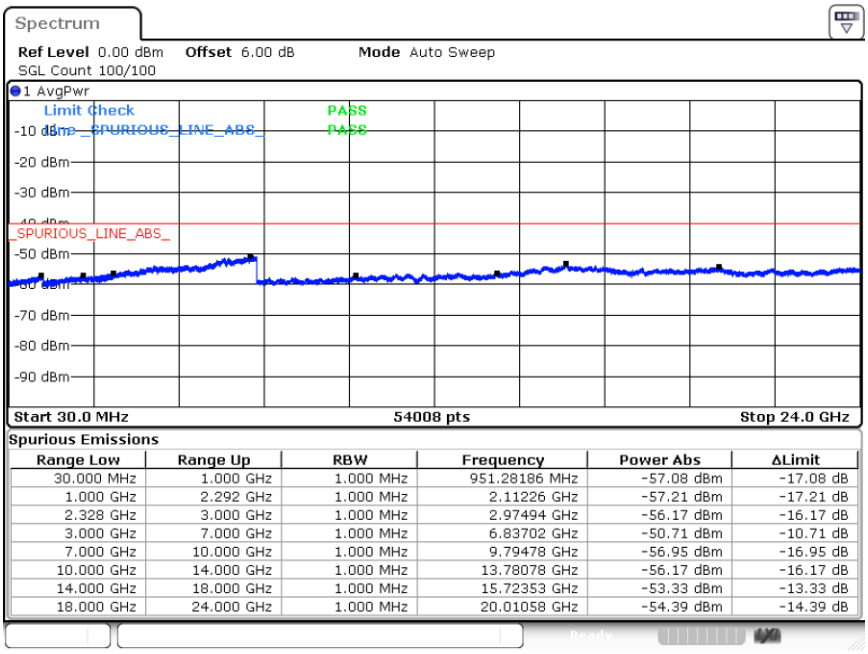



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 906.68416 MHz | -57.03 dBm | -17.03 dB |
| 1.000 GHz | 2.292 GHz | 1.000 MHz | 2.15100 GHz | -56.94 dBm | -16.94 dB |
| 2.328 GHz | 3.000 GHz | 1.000 MHz | 2.99214 GHz | -56.02 dBm | -16.02 dB |
| 3.000 GHz | 7.000 GHz | 1.000 MHz | 6.95020 GHz | -50.66 dBm | -10.66 dB |
| 7.000 GHz | 10.000 GHz | 1.000 MHz | 9.77229 GHz | -57.23 dBm | -17.23 dB |
| 10.000 GHz | 14.000 GHz | 1.000 MHz | 13.74678 GHz | -55.92 dBm | -15.92 dB |
| 14.000 GHz | 18.000 GHz | 1.000 MHz | 15.70804 GHz | -53.35 dBm | -13.35 dB |
| 18.000 GHz | 24.000 GHz | 1.000 MHz | 19.91059 GHz | -54.40 dBm | -14.40 dB |

Date: 18.NOV.2024 12:58:11

### Highest Channel / QPSK



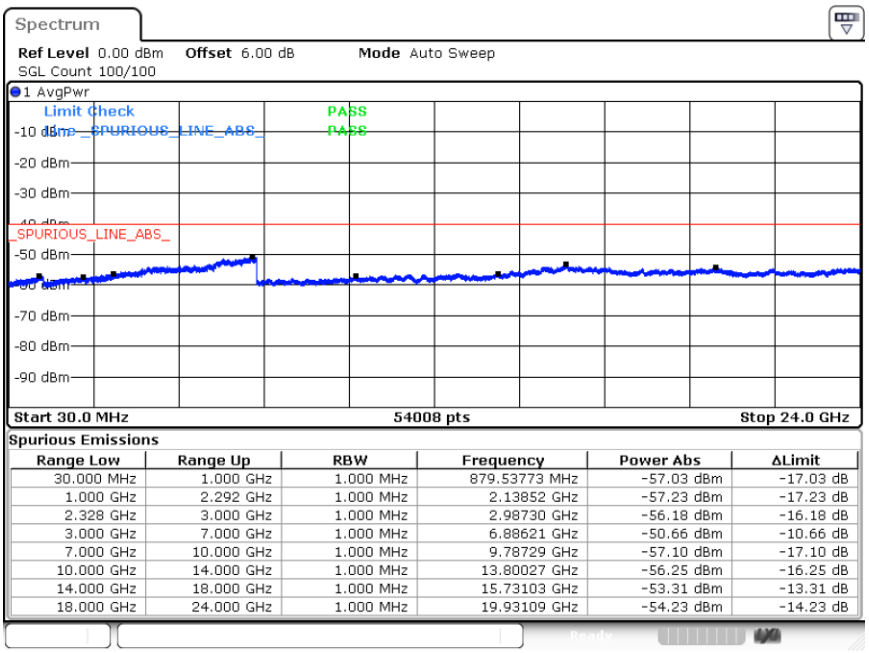

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 951.28186 MHz | -57.08 dBm | -17.08 dB |
| 1.000 GHz | 2.292 GHz | 1.000 MHz | 2.11226 GHz | -57.21 dBm | -17.21 dB |
| 2.328 GHz | 3.000 GHz | 1.000 MHz | 2.97494 GHz | -56.17 dBm | -16.17 dB |
| 3.000 GHz | 7.000 GHz | 1.000 MHz | 6.83702 GHz | -50.71 dBm | -10.71 dB |
| 7.000 GHz | 10.000 GHz | 1.000 MHz | 9.79478 GHz | -56.95 dBm | -16.95 dB |
| 10.000 GHz | 14.000 GHz | 1.000 MHz | 13.78078 GHz | -56.17 dBm | -16.17 dB |
| 14.000 GHz | 18.000 GHz | 1.000 MHz | 15.72353 GHz | -53.33 dBm | -13.33 dB |
| 18.000 GHz | 24.000 GHz | 1.000 MHz | 20.01058 GHz | -54.39 dBm | -14.39 dB |

Date: 18.NOV.2024 12:59:37

## LTE Band 30 / 10MHz

## Middle Channel / QPSK




Spurious Emissions

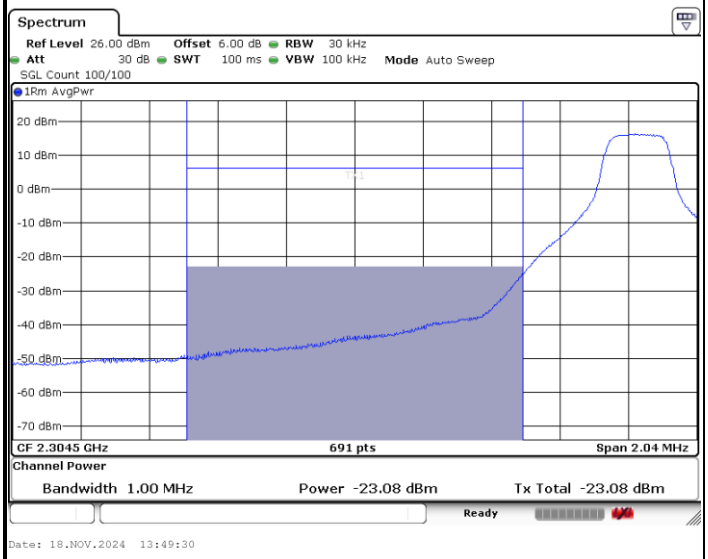
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 879.53773 MHz | -57.03 dBm | -17.03 dB |
| 1.000 GHz | 2.292 GHz | 1.000 MHz | 2.13852 GHz | -57.23 dBm | -17.23 dB |
| 2.328 GHz | 3.000 GHz | 1.000 MHz | 2.98730 GHz | -56.18 dBm | -16.18 dB |
| 3.000 GHz | 7.000 GHz | 1.000 MHz | 6.88621 GHz | -50.66 dBm | -10.66 dB |
| 7.000 GHz | 10.000 GHz | 1.000 MHz | 9.78729 GHz | -57.10 dBm | -17.10 dB |
| 10.000 GHz | 14.000 GHz | 1.000 MHz | 13.80027 GHz | -56.25 dBm | -16.25 dB |
| 14.000 GHz | 18.000 GHz | 1.000 MHz | 15.73103 GHz | -53.31 dBm | -13.31 dB |
| 18.000 GHz | 24.000 GHz | 1.000 MHz | 19.93109 GHz | -54.23 dBm | -14.23 dB |

Date: 18.NOV.2024 13:04:22

# Channel Power Left

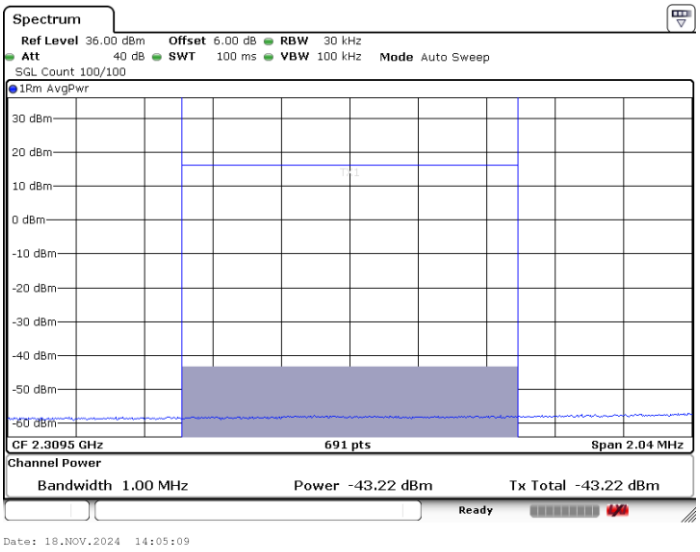
## LTE Band 30 / 5MHz / QPSK

### Lowest Band Edge / 1 RB



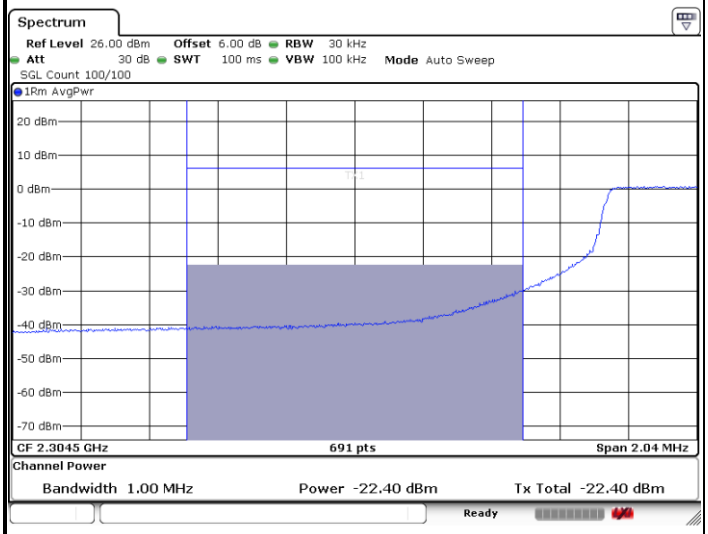

Date: 18.NOV.2024 13:49:30

### Highest Band Edge / 1 RBMAX



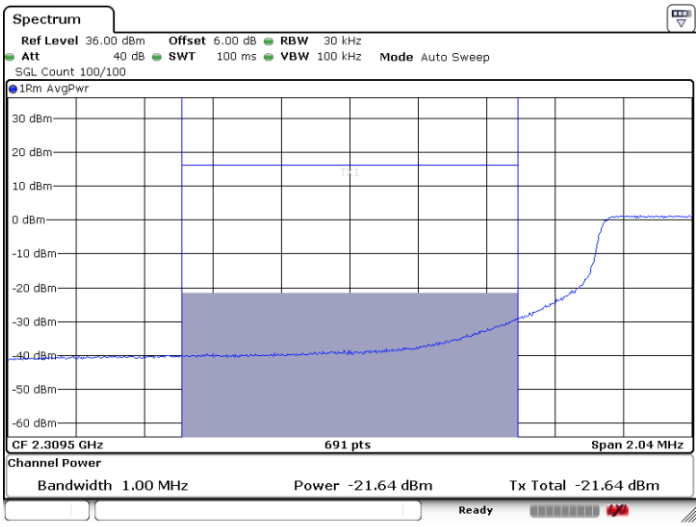

Date: 18.NOV.2024 14:05:09

### Lowest Band Edge / Full RB




Date: 18.NOV.2024 13:48:59

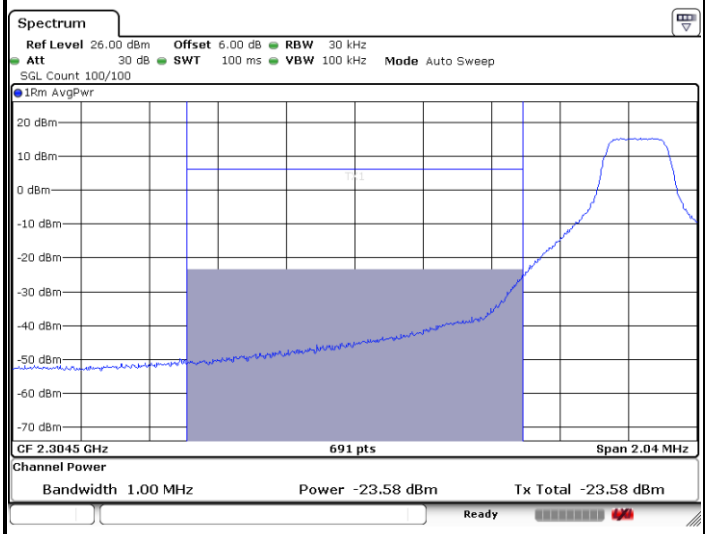
### Highest Band Edge / Full RB




Date: 18.NOV.2024 14:10:05

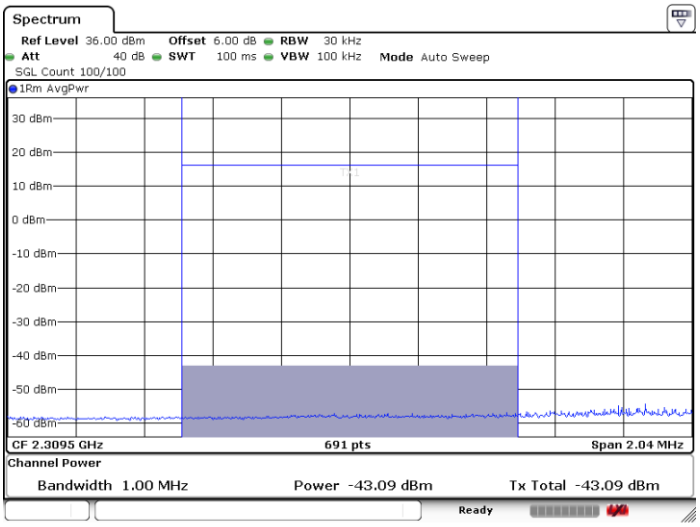
## LTE Band 30 / 5MHz / 16QAM

### Lowest Band Edge / 1RB



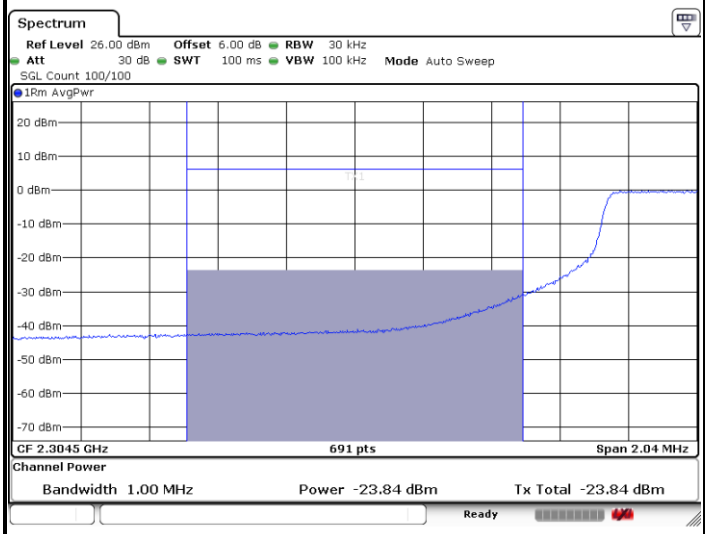

Date: 18.NOV.2024 13:50:13

### Highest Band Edge / 1 RBMAX



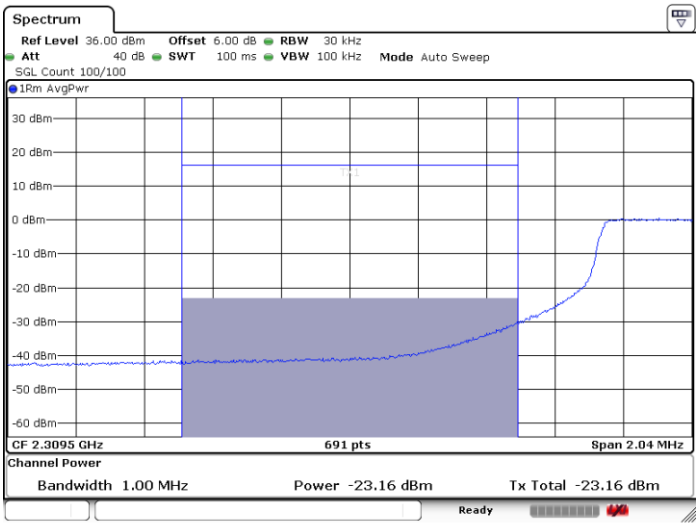

Date: 18.NOV.2024 14:05:48

### Lowest Band Edge / Full RB




Date: 18.NOV.2024 13:48:30

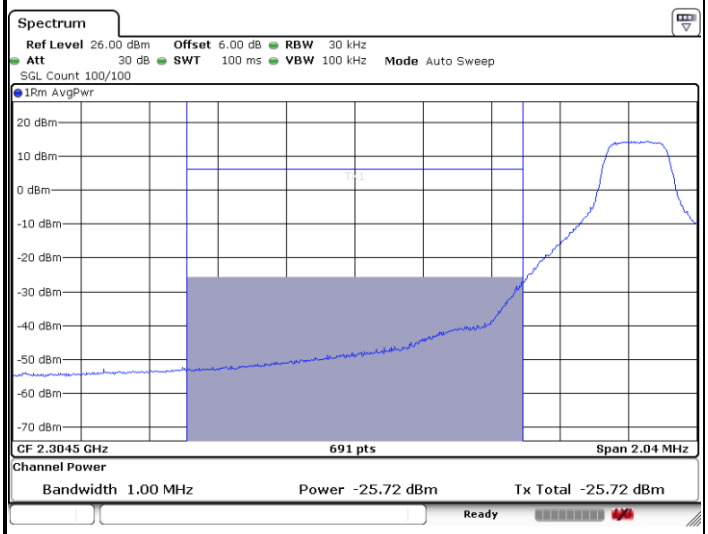
### Highest Band Edge / Full RB




Date: 18.NOV.2024 14:09:22

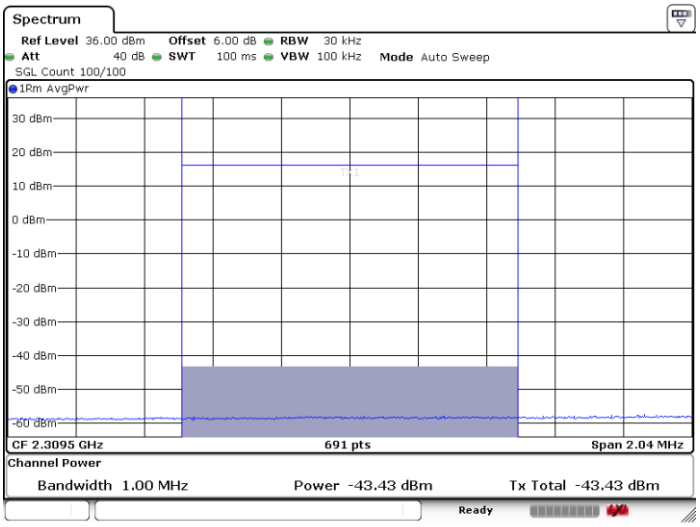
## LTE Band 30 / 5MHz / 64QAM

### Lowest Band Edge / 1RB



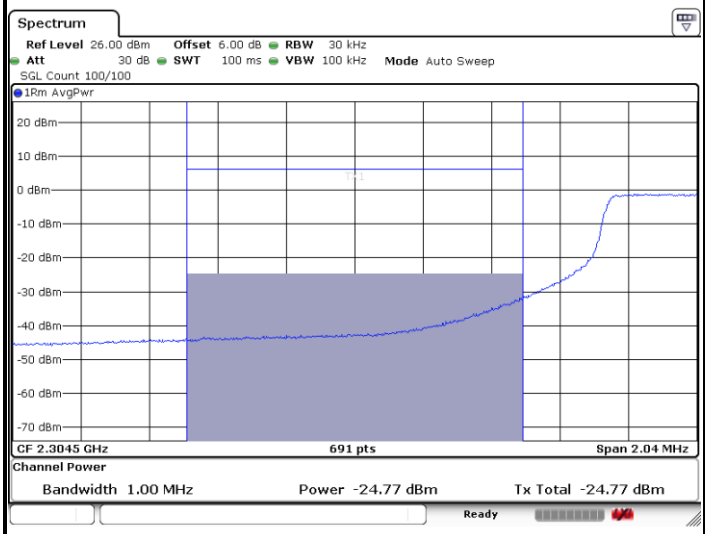

Date: 18.NOV.2024 13:50:44

### Highest Band Edge / 1 RBMAX



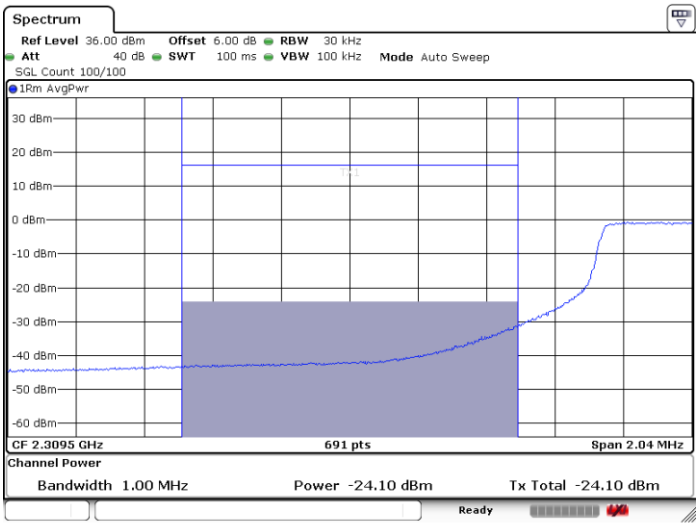

Date: 18.NOV.2024 14:06:10

### Lowest Band Edge / Full RB




Date: 18.NOV.2024 13:47:45

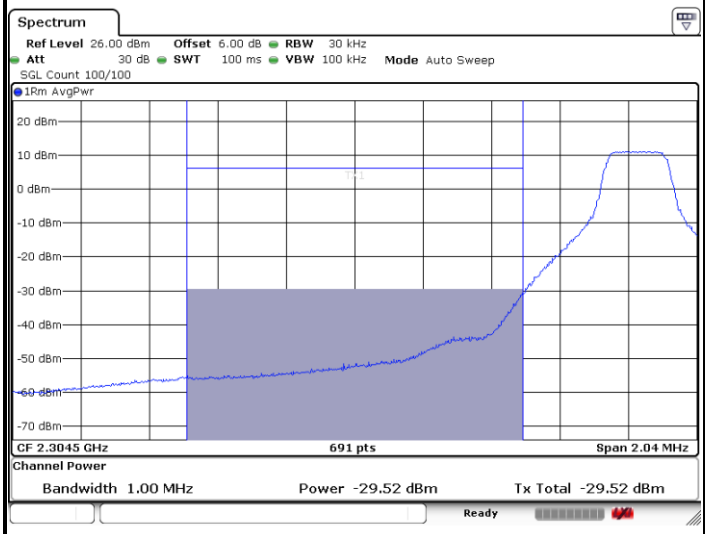
### Highest Band Edge / Full RB




Date: 18.NOV.2024 14:08:51

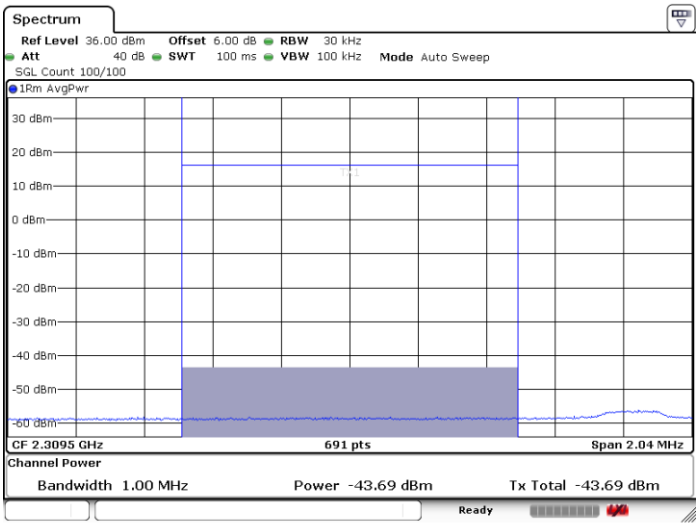
## LTE Band 30 / 5MHz / 256QAM

### Lowest Band Edge / 1RB



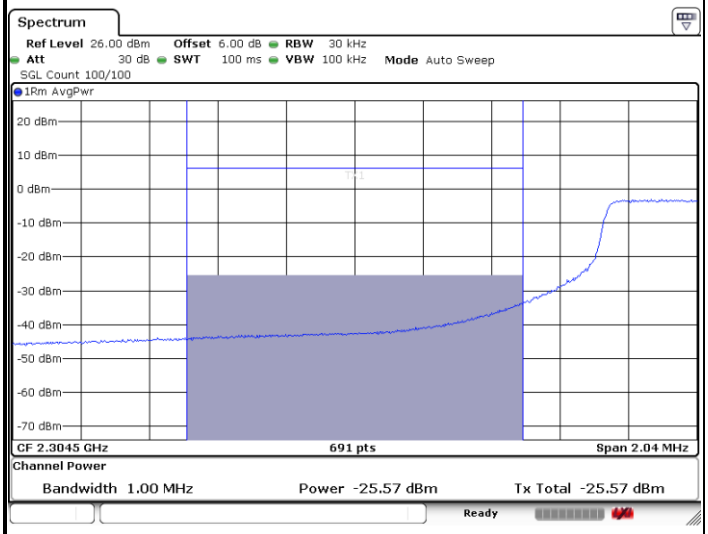

Date: 18.NOV.2024 13:51:30

### Highest Band Edge / 1 RBMAX



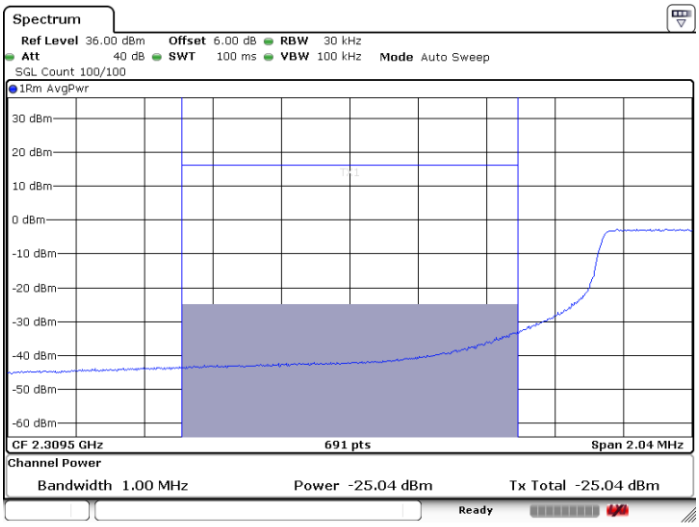

Date: 18.NOV.2024 14:06:53

### Lowest Band Edge / Full RB




Date: 18.NOV.2024 13:45:56

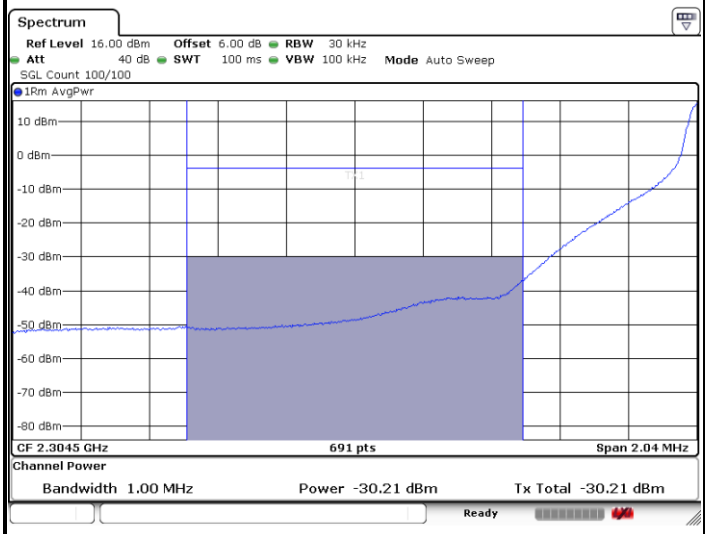
### Highest Band Edge / Full RB




Date: 18.NOV.2024 14:07:46

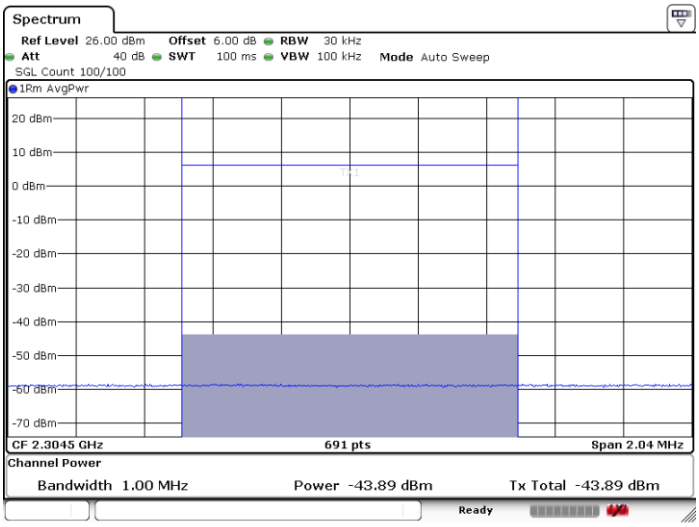
## LTE Band 30 / 10MHz / QPSK

### 1 RB



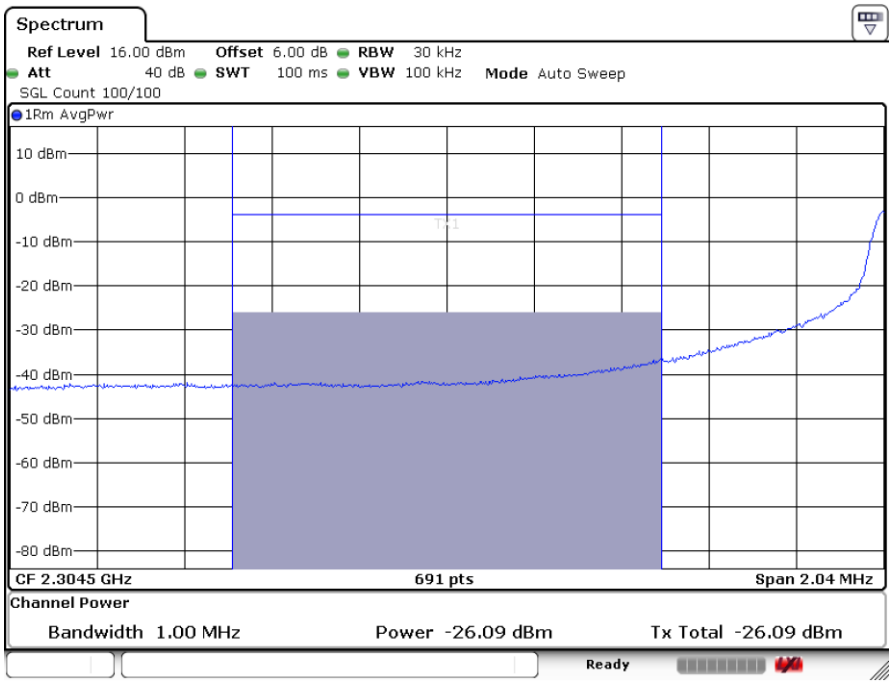

Date: 18.NOV.2024 13:24:28

### 1 RBMax




Date: 18.NOV.2024 13:21:22

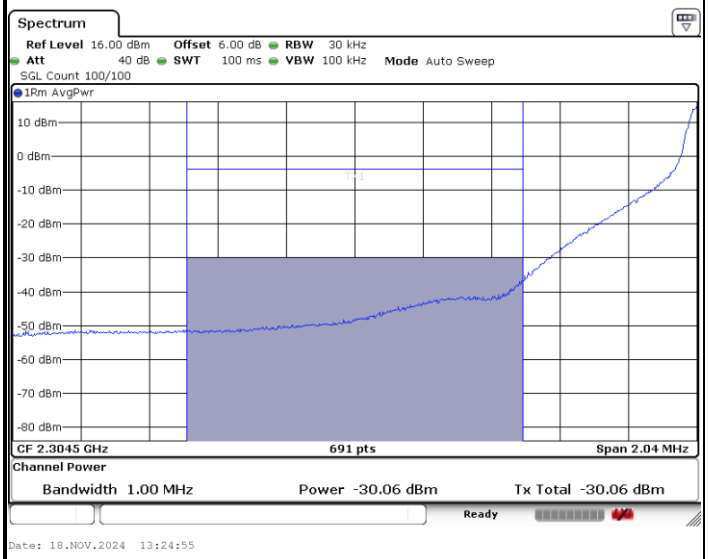
### Full RB




Date: 18.NOV.2024 13:30:05

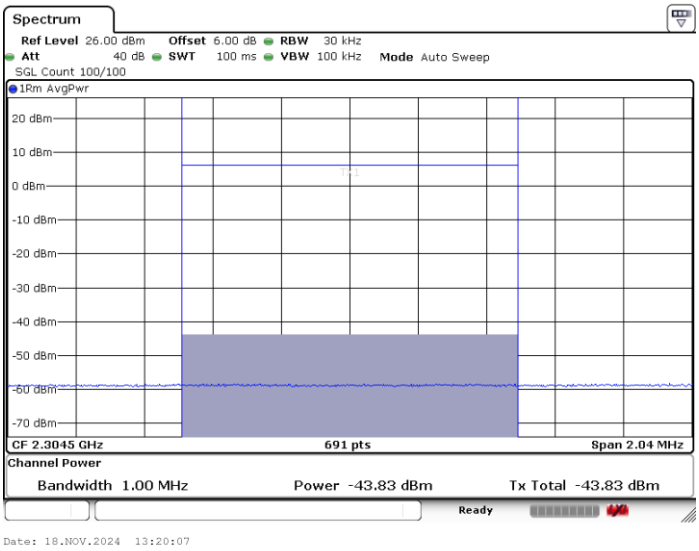
## LTE Band 30 / 10MHz / 16QAM

### 1 RB



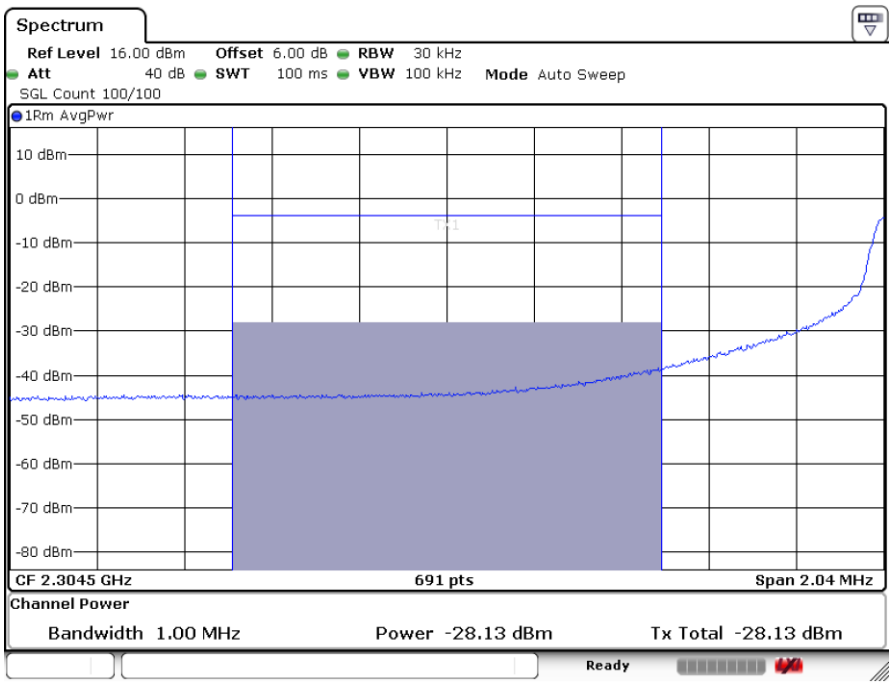

Date: 18.NOV.2024 13:24:55

### 1 RBMax




Date: 18.NOV.2024 13:20:07

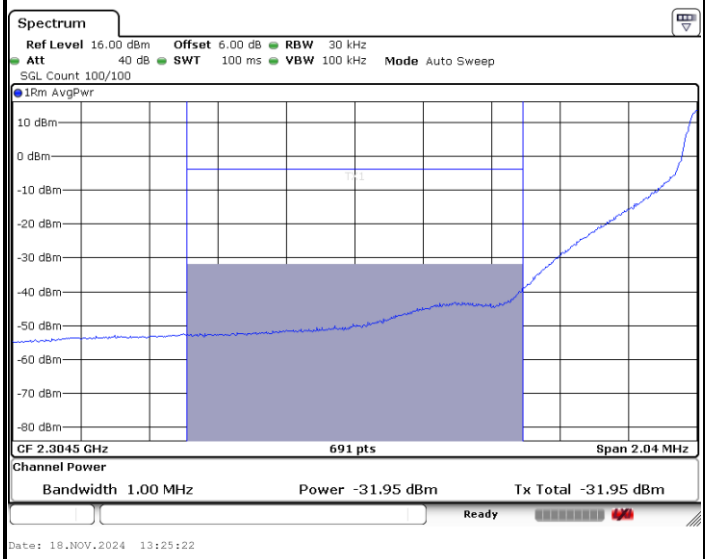
### Full RB




Date: 18.NOV.2024 13:28:34

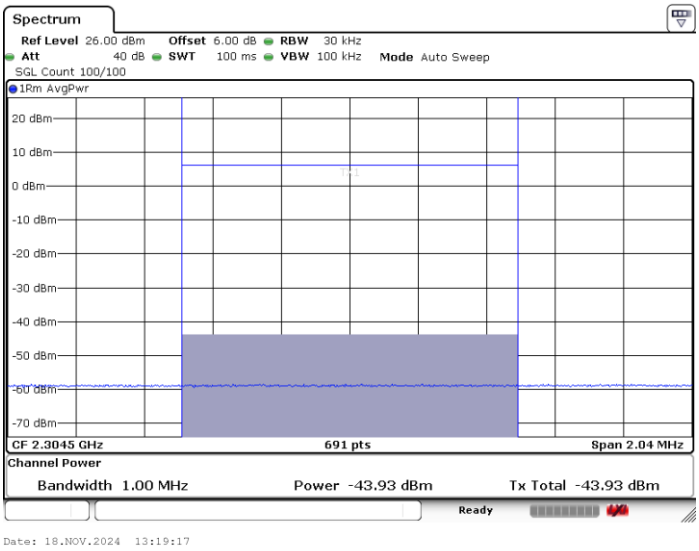
## LTE Band 30 / 10MHz / 64QAM

### 1 RB



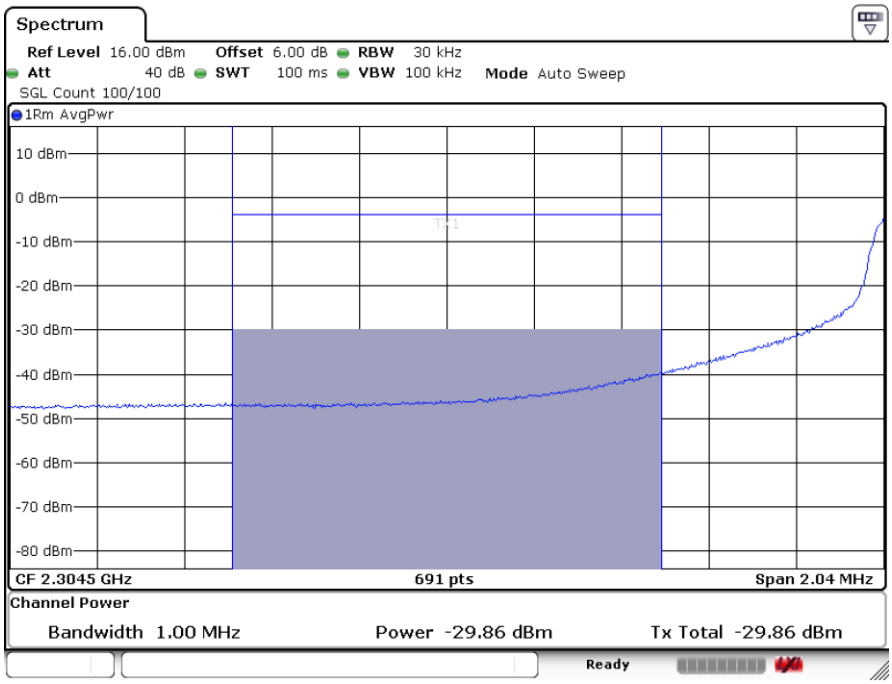

Date: 18.NOV.2024 13:25:22

### 1 RBMax




Date: 18.NOV.2024 13:19:17

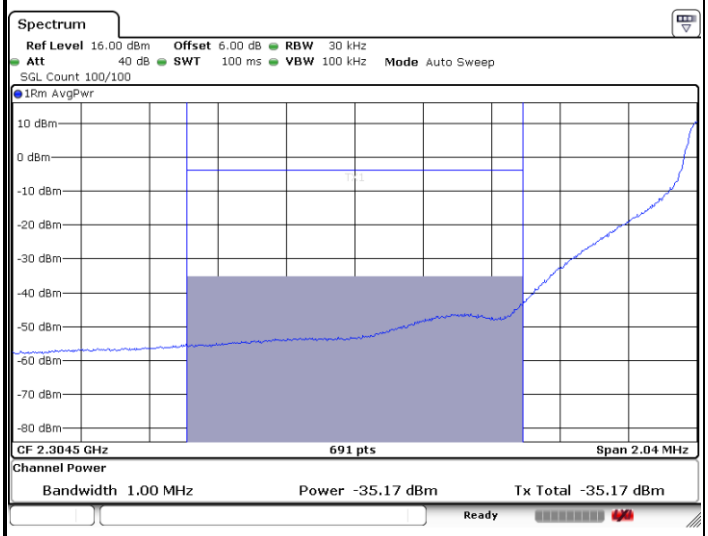
## Band Edge / Full RB




Date: 18.NOV.2024 13:28:57

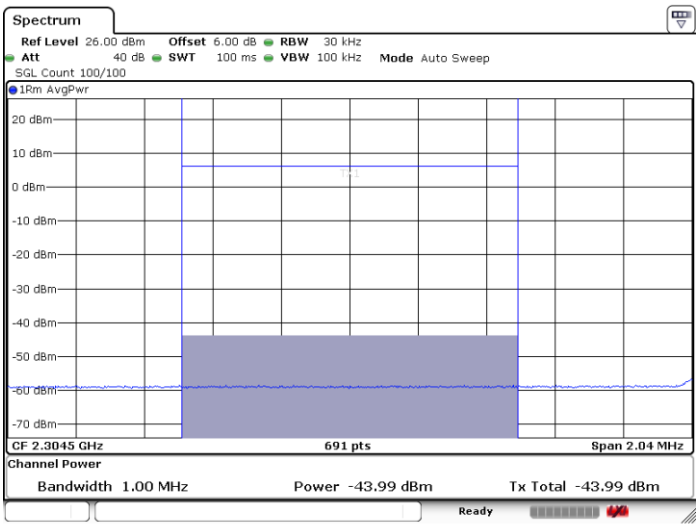
## LTE Band 30 / 10MHz / 256QAM

### 1 RB



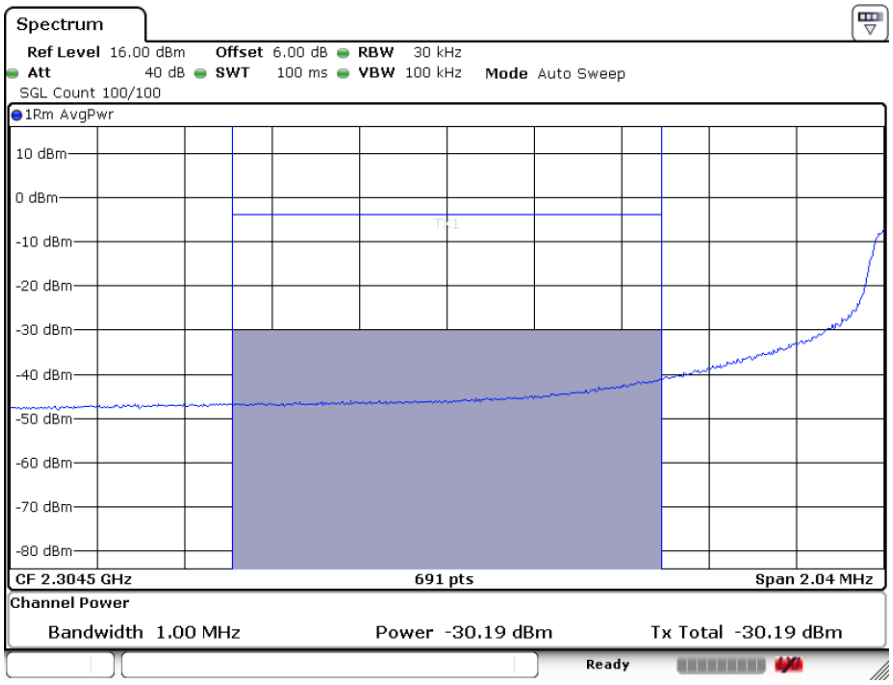

Date: 18.NOV.2024 13:27:00

### 1 RBMax



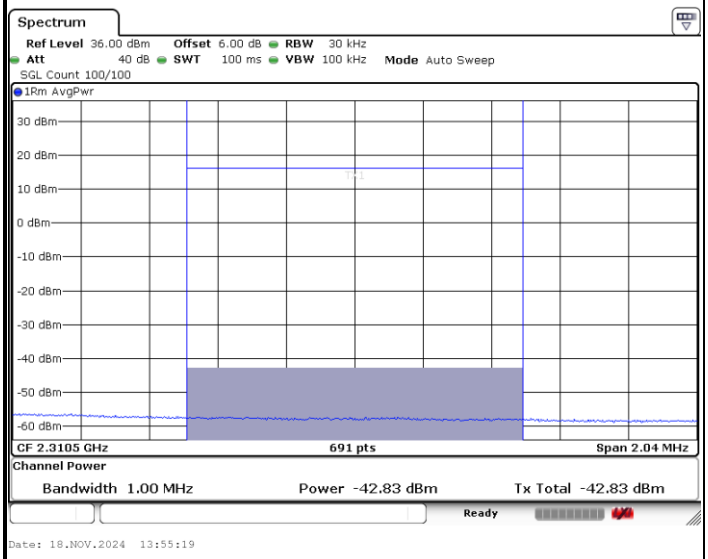
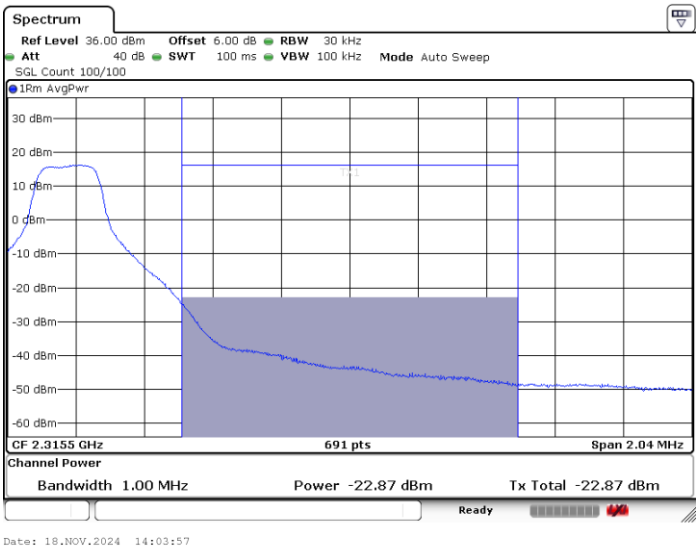
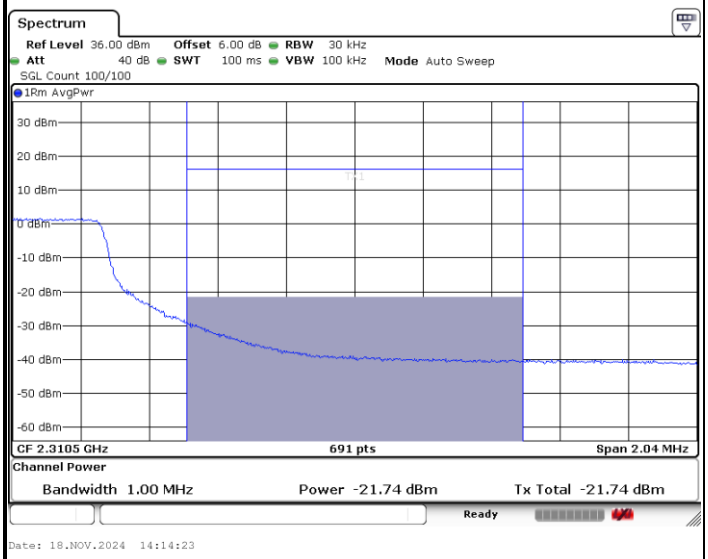
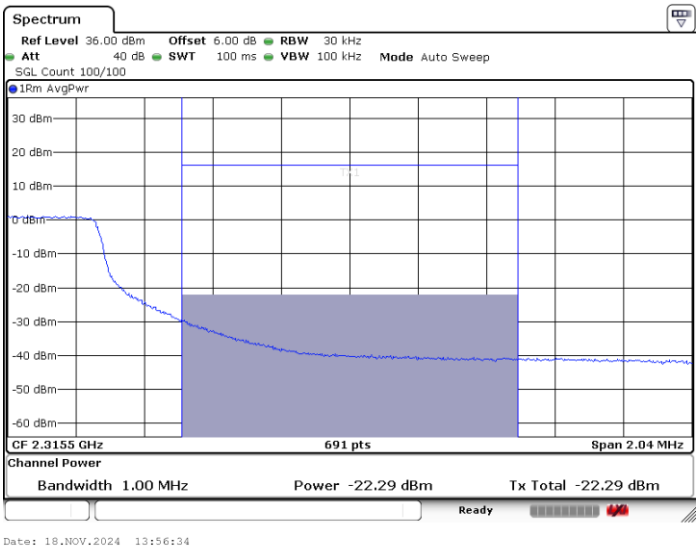

Date: 18.NOV.2024 13:18:27

## Band Edge / Full RB



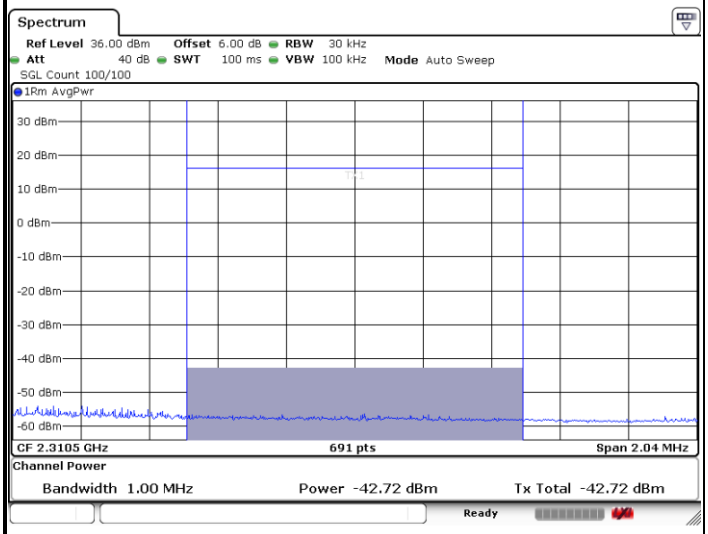

Date: 18.NOV.2024 13:27:48

# Channel Power Right

| LTE Band 30 / 5MHz / QPSK | |
|---|---|
| **Lowest Band Edge / 1 RB** | **Highest Band Edge / 1 RBMAX** |
|   Date: 18.NOV.2024 13:55:19 |   Date: 18.NOV.2024 14:03:57 |
| **Lowest Band Edge / Full RB** | **Highest Band Edge / Full RB** |
|   Date: 18.NOV.2024 14:14:23 |   Date: 18.NOV.2024 13:56:34 |

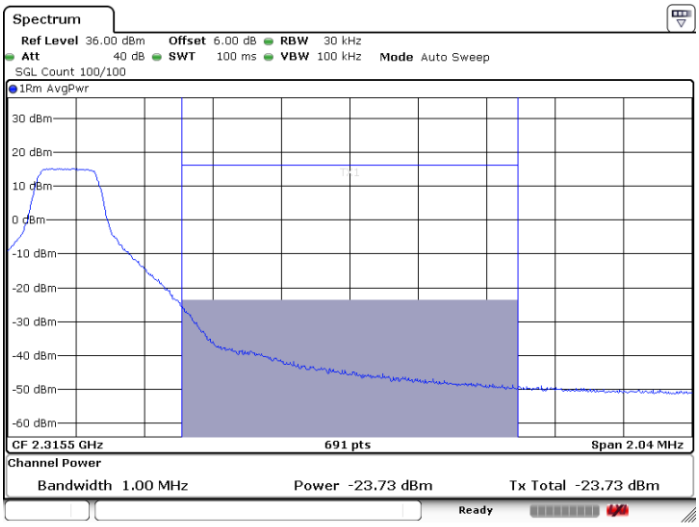
## LTE Band 30 / 5MHz / 16QAM

### Lowest Band Edge / 1RB



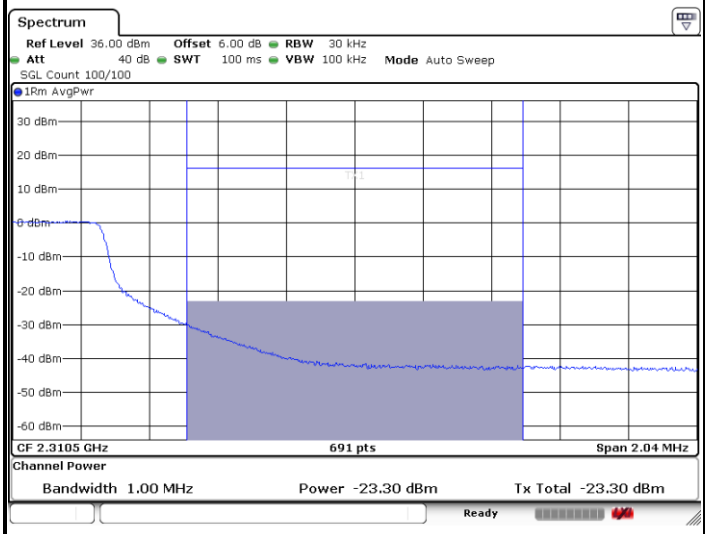

Date: 18.NOV.2024 13:54:47

### Highest Band Edge / 1 RBMAX



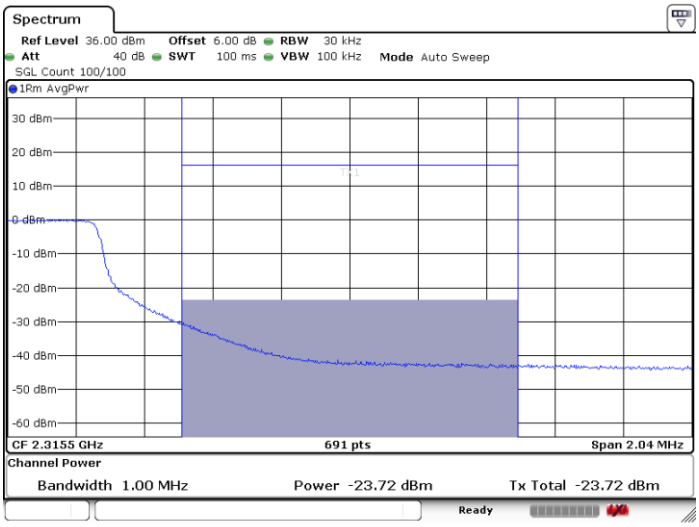

Date: 18.NOV.2024 14:03:16

### Lowest Band Edge / Full RB




Date: 18.NOV.2024 14:15:26

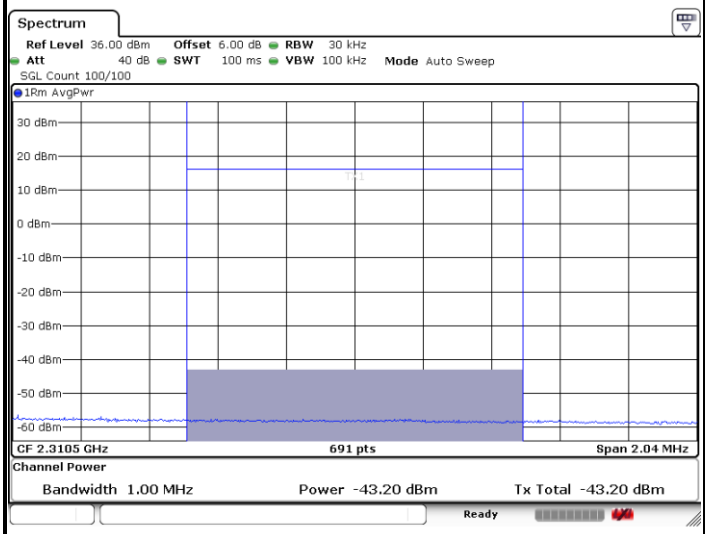
### Highest Band Edge / Full RB




Date: 18.NOV.2024 13:58:40

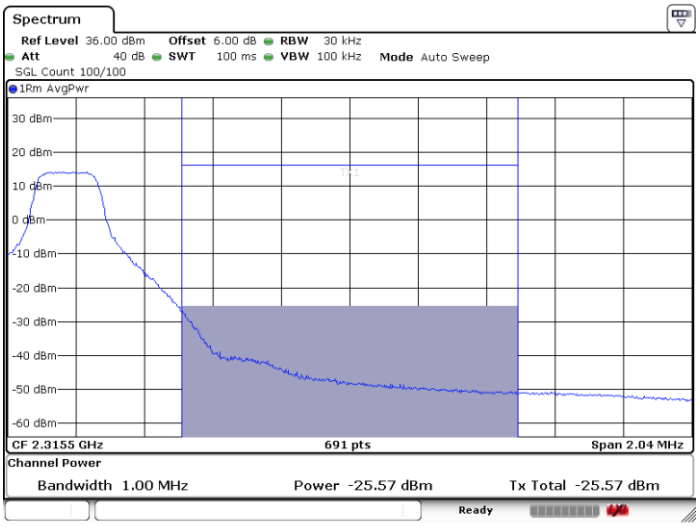
## LTE Band 30 / 5MHz / 64QAM

### Lowest Band Edge / 1RB



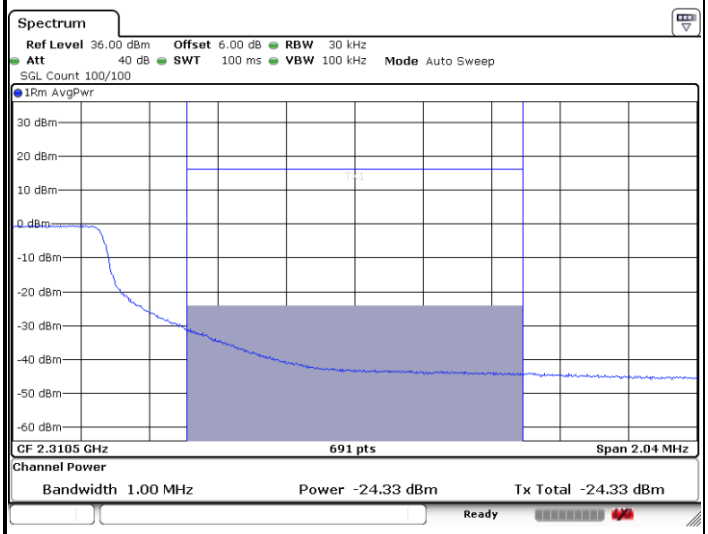

Date: 18.NOV.2024 13:54:06

### Highest Band Edge / 1 RBMAX



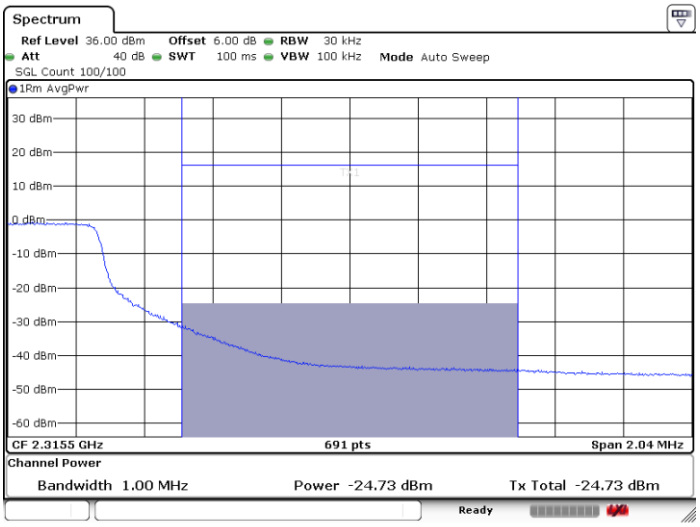

Date: 18.NOV.2024 14:02:39

### Lowest Band Edge / Full RB




Date: 18.NOV.2024 14:16:06

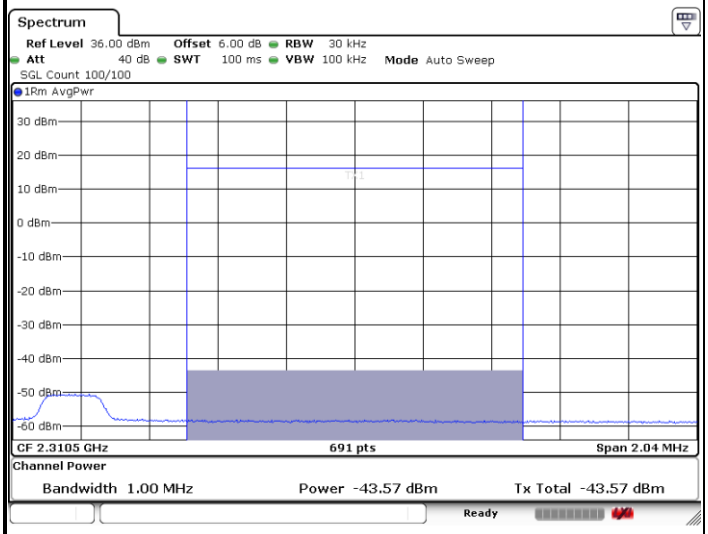
### Highest Band Edge / Full RB




Date: 18.NOV.2024 13:59:14

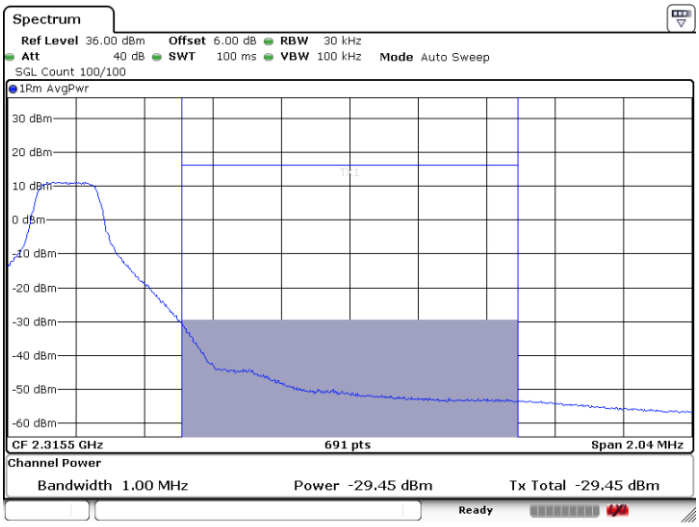
## LTE Band 30 / 5MHz / 256QAM

### Lowest Band Edge / 1RB



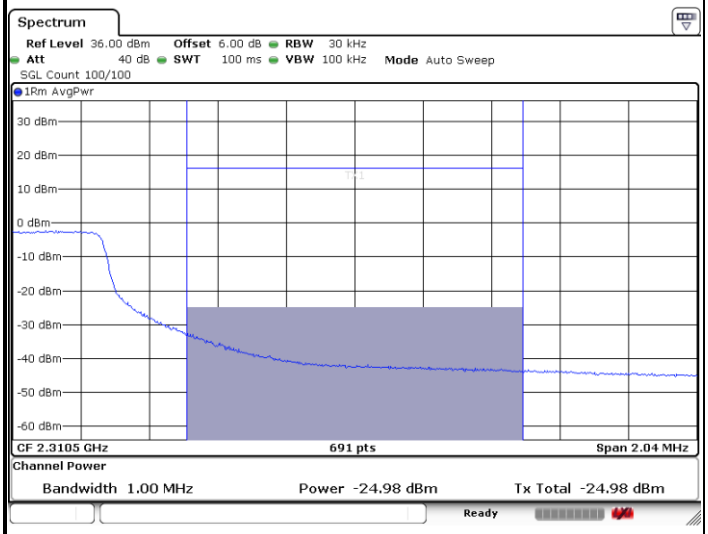

Date: 18.NOV.2024 13:52:59

### Highest Band Edge / 1 RBMAX



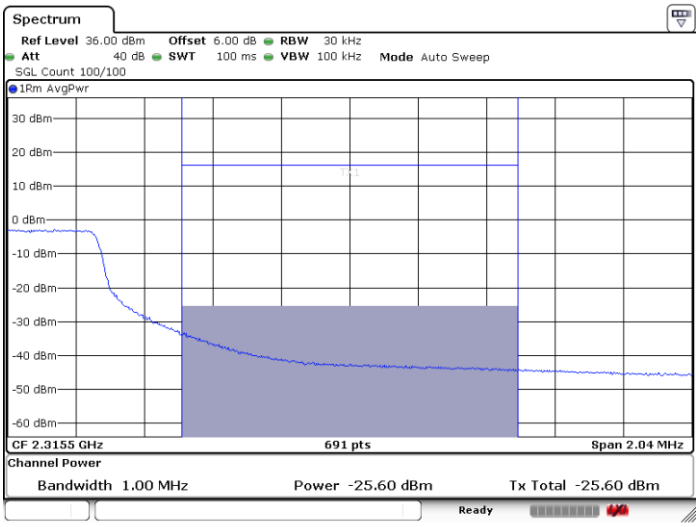

Date: 18.NOV.2024 14:01:38

### Lowest Band Edge / Full RB




Date: 18.NOV.2024 14:16:36

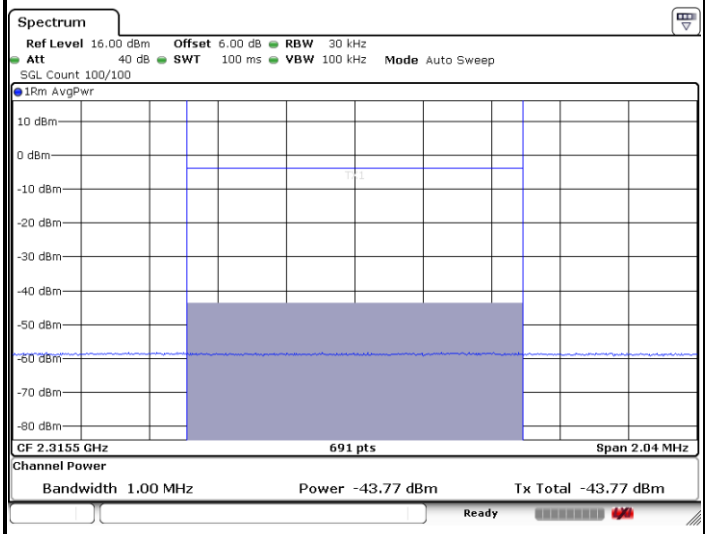
### Highest Band Edge / Full RB




Date: 18.NOV.2024 13:59:58

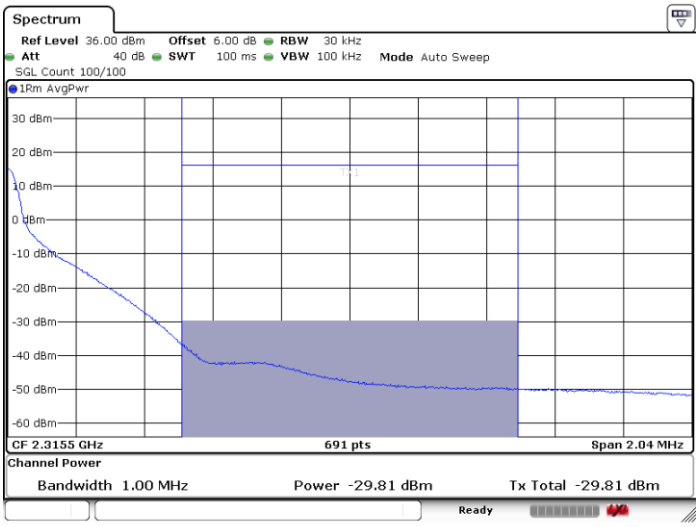
## LTE Band 30 / 10MHz / QPSK

### 1 RB



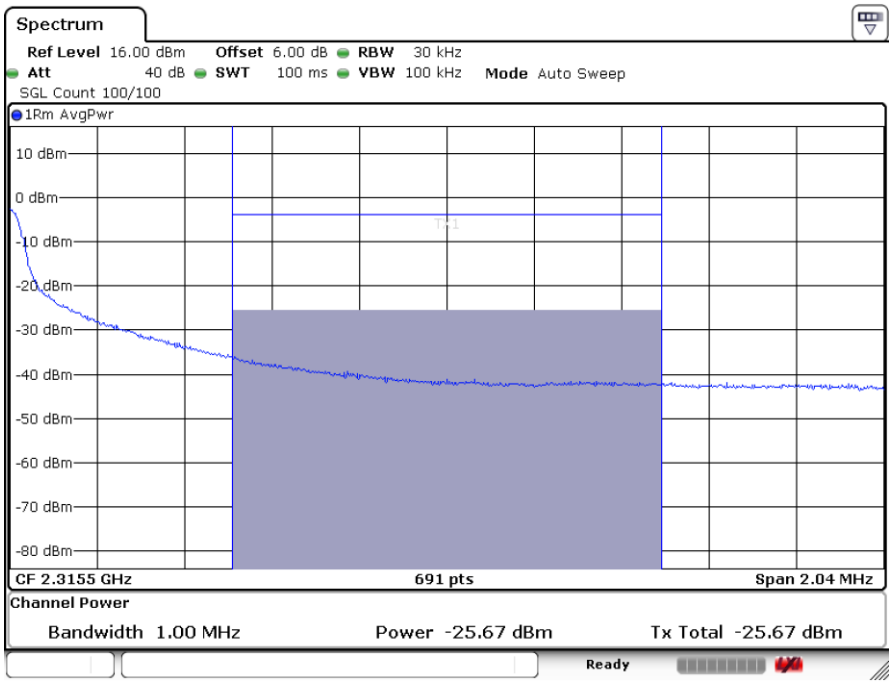

Date: 18.NOV.2024 13:37:30

### 1 RBMax




Date: 18.NOV.2024 13:39:18

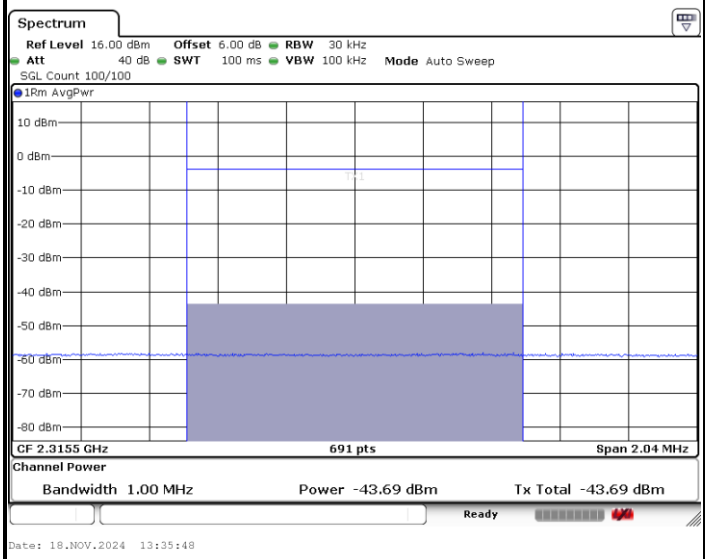
### Full RB



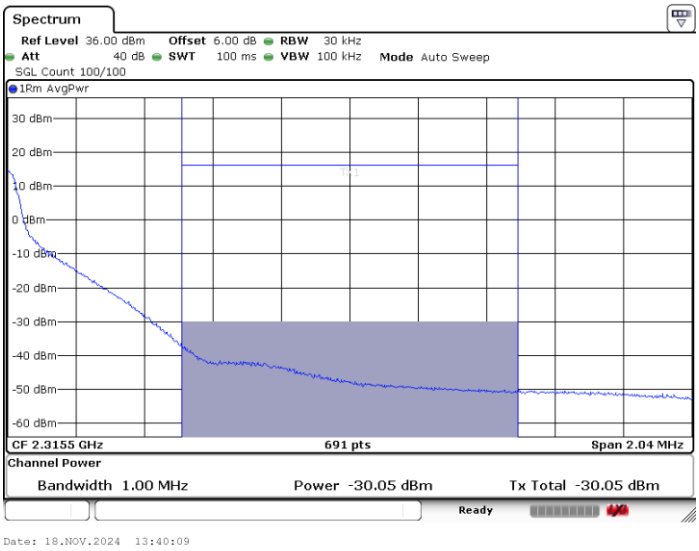

Date: 18.NOV.2024 13:30:48

## LTE Band 30 / 10MHz / 16QAM

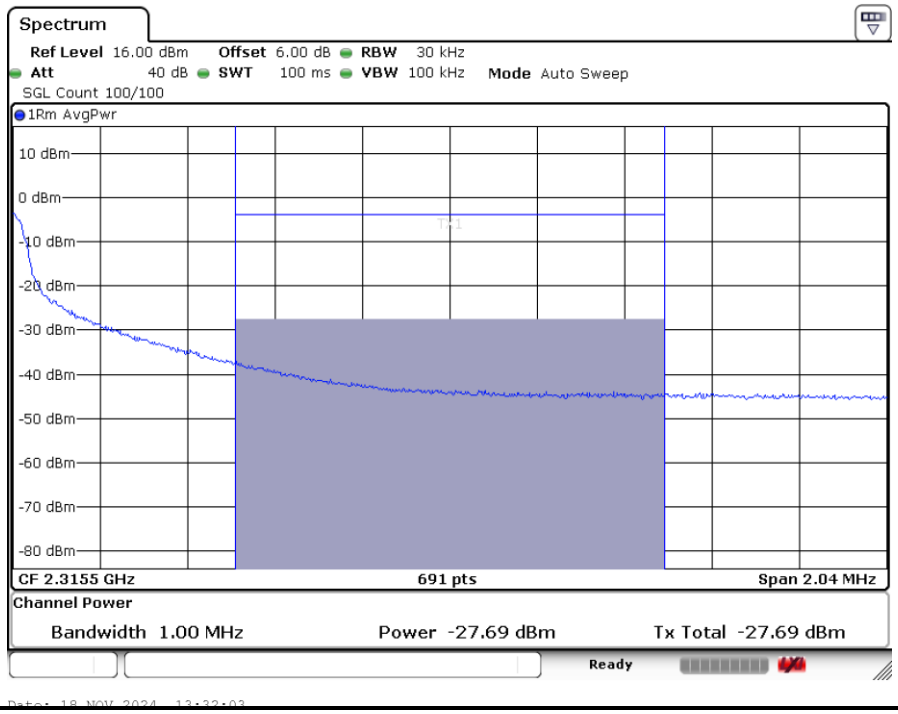
### 1 RB




### 1 RBMax

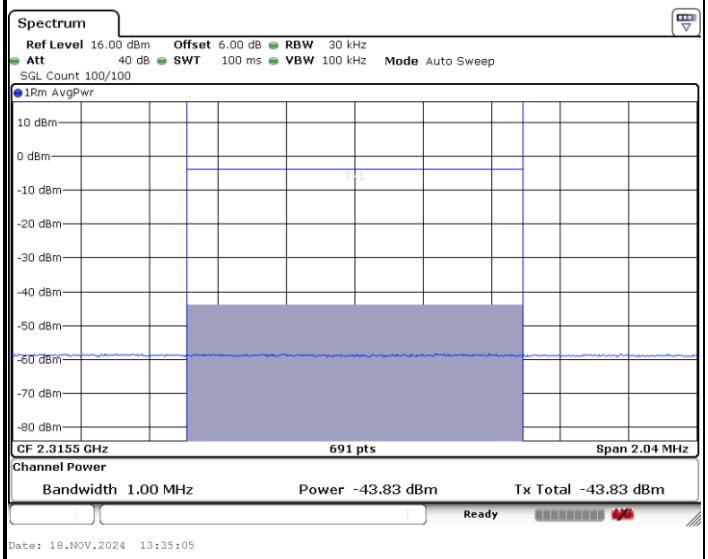



### Full RB

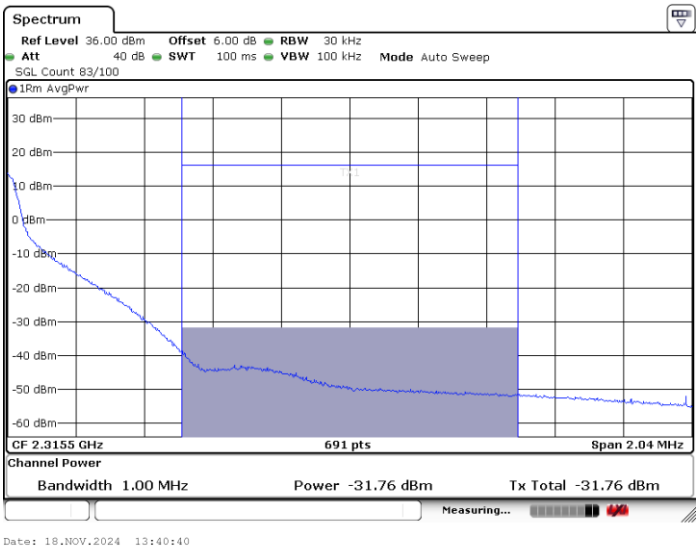


## LTE Band 30 / 10MHz / 64QAM

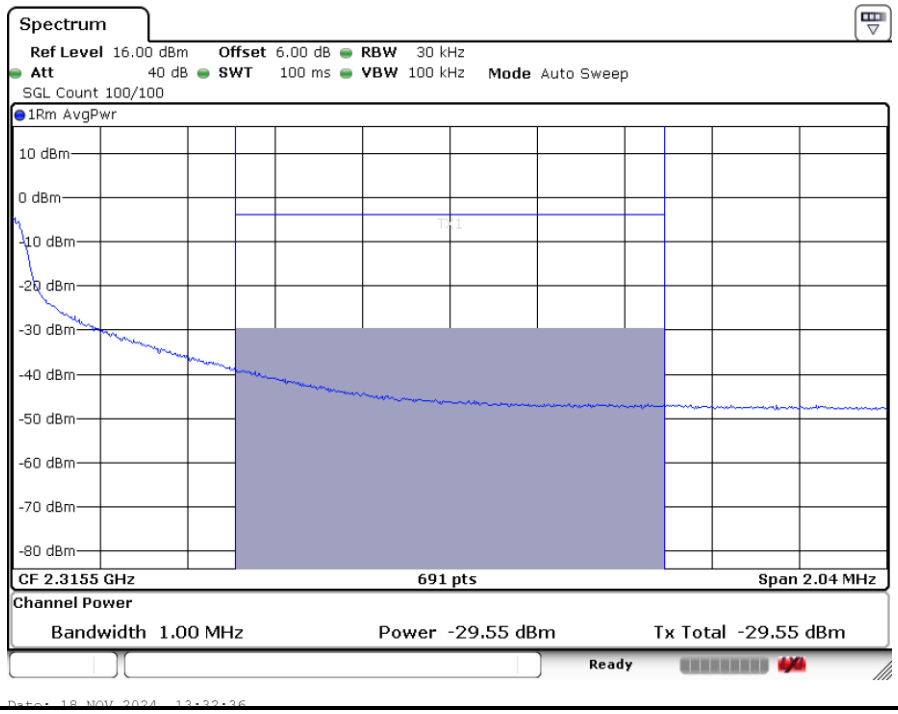
### 1 RB



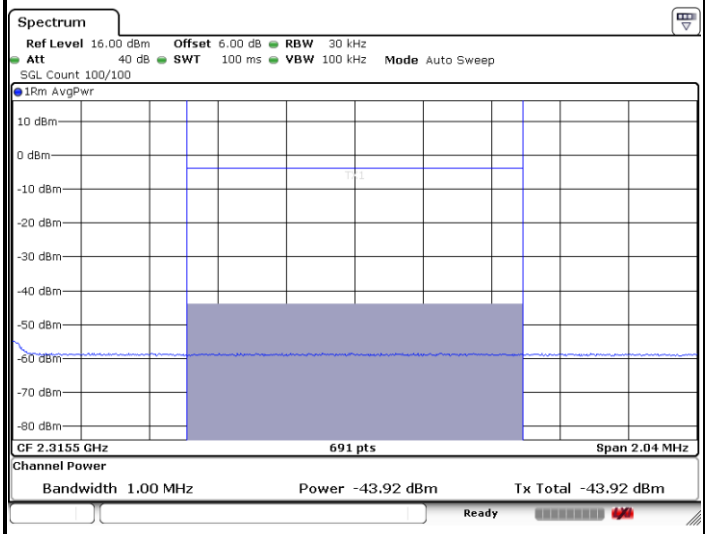

### 1 RBMax

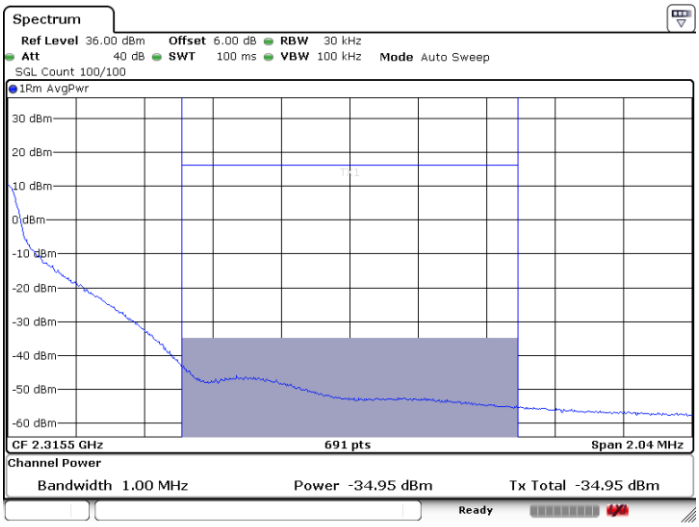



## Band Edge / Full RB

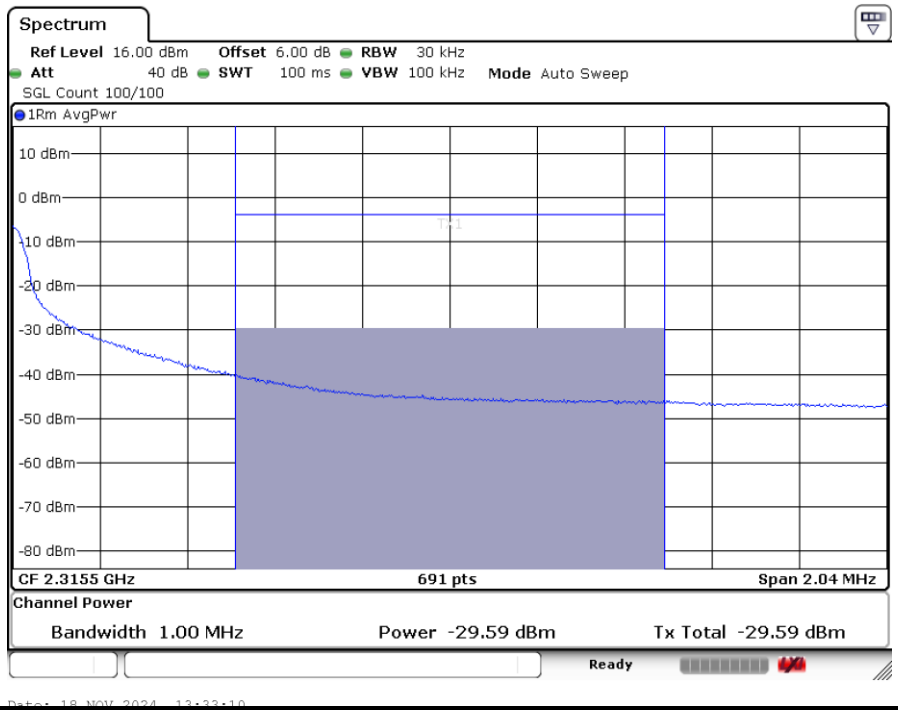


| LTE Band 30 / 10MHz / 256QAM | |
|---|---|
| 1 RB | 1 RBMax |




**Band Edge / Full RB**



# Frequency Stability

| Test Conditions | | LTE Band 30 (QPSK) / Middle Channel | Limit |
|---|---|---|---|
| Temperature (°C) | Voltage (Volt) | BW 10MHz | Note 2. |
| | | Deviation (ppm) | Result |
| 50 | Normal Voltage | 0.0014 | PASS |
| 40 | Normal Voltage | 0.0024 | |
| 30 | Normal Voltage | 0.0009 | |
| 20(Ref.) | Normal Voltage | 0.0000 | |
| 10 | Normal Voltage | 0.0033 | |
| 0 | Normal Voltage | 0.0029 | |
| -10 | Normal Voltage | 0.0027 | |
| -20 | Normal Voltage | 0.0031 | |
| -30 | Normal Voltage | 0.0016 | |
| 20 | Maximum Voltage | 0.0019 | |
| 20 | Normal Voltage | 0.0004 | |
| 20 | Battery End Point | 0.0013 | |

**Note:**

1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.65 V. ; Maximum Voltage =4.45 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

# Appendix B. Test Results of Radiated Test

## Radiated Spurious Emission

| Test Engineer : | Zhaohui Liang | Temperature : | 22~25℃ |
|---|---|---|---|
| | | Relative Humidity : | 48~52% |

| LTE Band 30 / 5MHz / QPSK / ANT2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel | Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading (dBm) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Lowest | 4610.50 | -60.58 | -40 | -20.58 | -64.72 | -66.83 | 6.30 | 12.55 | H |
| | 6915.75 | -60.19 | -40 | -20.19 | -66.73 | -63.59 | 8.25 | 11.65 | H |
| | 9221.00 | -59.69 | -40 | -19.69 | -68.44 | -62.04 | 9.50 | 11.85 | H |
| | 4610.50 | -60.43 | -40 | -20.43 | -64.7 | -66.68 | 6.30 | 12.55 | V |
| | 6915.75 | -58.99 | -40 | -18.99 | -66.63 | -62.39 | 8.25 | 11.65 | V |
| | 9221.00 | -57.35 | -40 | -17.35 | -68.33 | -59.70 | 9.50 | 11.85 | V |
| Middle | 4615.50 | -60.69 | -40 | -20.69 | -64.80 | -66.94 | 6.45 | 12.70 | H |
| | 6923.25 | -59.53 | -40 | -19.53 | -66.07 | -62.93 | 8.40 | 11.80 | H |
| | 9231.00 | -59.08 | -40 | -19.08 | -67.84 | -61.43 | 9.65 | 12.00 | H |
| | 4615.50 | -59.88 | -40 | -19.88 | -64.15 | -66.13 | 6.45 | 12.70 | V |
| | 6923.25 | -58.80 | -40 | -18.80 | -66.44 | -62.20 | 8.40 | 11.80 | V |
| | 9231.00 | -57.38 | -40 | -17.38 | -68.37 | -59.73 | 9.65 | 12.00 | V |
| Highest | 4620.50 | -59.63 | -40 | -19.63 | -63.74 | -65.88 | 6.61 | 12.86 | H |
| | 6930.75 | -59.37 | -40 | -19.37 | -65.95 | -62.75 | 8.56 | 11.94 | H |
| | 9241.00 | -59.33 | -40 | -19.33 | -68.15 | -61.68 | 9.81 | 12.16 | H |
| | 4620.50 | -59.41 | -40 | -19.41 | -63.68 | -65.66 | 6.61 | 12.86 | V |
| | 6930.75 | -58.99 | -40 | -18.99 | -66.49 | -62.37 | 8.56 | 11.94 | V |
| | 9241.00 | -57.16 | -40 | -17.16 | -68.13 | -59.51 | 9.81 | 12.16 | V |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

| LTE Band 30 / 10MHz / QPSK / ANT2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel | Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading (dBm) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle | 4611.00 | -60.56 | -40 | -20.56 | -64.70 | -66.81 | 6.45 | 12.70 | H |
| | 6916.50 | -59.68 | -40 | -19.68 | -66.22 | -63.08 | 8.40 | 11.80 | H |
| | 9222.00 | -59.63 | -40 | -19.63 | -68.38 | -61.98 | 9.65 | 12.00 | H |
| | 4611.00 | -60.55 | -40 | -20.55 | -64.82 | -66.80 | 6.45 | 12.70 | V |
| | 6916.50 | -58.41 | -40 | -18.41 | -66.05 | -61.81 | 8.40 | 11.80 | V |
| | 9222.00 | -57.68 | -40 | -17.68 | -68.66 | -60.03 | 9.65 | 12.00 | V |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.