# FCC RF Test Report

| | |
|---|---|
| APPLICANT | : Xiaomi Communications Co., Ltd. |
| EQUIPMENT | : Mobile Phone |
| BRAND NAME | : POCO |
| MODEL NAME | : 2201116PG |
| FCC ID | : 2AFZZ16PG |
| STANDARD | : 47 CFR Part 2, 27(L), 27(H) |
| CLASSIFICATION | : PCS Licensed Transmitter Held to Ear (PCE) |
| TEST DATE(S) | : Dec. 20, 2021 ~ Dec. 29, 2021 |

**We, Sporton International (Kunshan) Inc., 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.**

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

Jason Jia

**Reviewed by: Jason Jia / Supervisor**

Alex Wang

**Approved by: Alex Wang / Manager**

ACCREDITED Cert #5145.02

***Sporton International (Kunshan) Inc.***

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

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# REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FG1N1013-01B | Rev. 01 | Initial issue of report | Jan. 05, 2022 |
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# SUMMARY OF TEST RESULT

| Report Section | FCC Rule | Description | Limit | Result | Remark |
|---|---|---|---|---|---|
| 3.4 | §2.1046 | Conducted Output Power | - | Report Only | - |
| | §27.50(c)(10) | Effective Radiated Power (Band 12) (Band 17) | ERP < 3 Watt | PASS | - |
| | §27.50(d)(4) | Equivalent Isotropic Radiated Power (Band 4) | EIRP < 1Watt | | - |
| 3.5 | N/A | Peak-to-Average Ratio | <13 dB | PASS | - |
| 3.6 | §2.1049 | Occupied Bandwidth | - | Report Only | - |
| 3.7 | §2.1051<br>§27.53(g)<br>§27.53(h) | Conducted Band Edge Measurement (Band 4) (Band 12) (Band 17) | < 43+10log10(P[Watts]) | PASS | - |
| 3.8 | §2.1051<br>§27.53(g)<br>§27.53(h) | Conducted Spurious Emission (Band 4) (Band 12) (Band 17) | < 43+10log10(P[Watts]) | PASS | - |
| 3.9 | §2.1055<br>§24.235<br>§27.54 | Frequency Stability Temperature & Voltage | Within Authorized Band | PASS | - |
| 4.4 | §2.1053<br>§27.53(g)<br>§27.53(h) | Radiated Spurious Emission (Band 4) (Band 12) (Band 17) | < $43+10\log_{10}$(P[Watts]) | PASS | Under limit 13.77 dB at 3447.000 MHz |

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

# 1 General Description

## 1.1 Applicant

**Xiaomi Communications Co., Ltd.**
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

## 1.2 Manufacturer

**Xiaomi Communications Co., Ltd.**
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

## 1.3 Product Feature of Equipment Under Test

| Product Feature | |
|---|---|
| **Equipment** | Mobile Phone |
| **Brand Name** | POCO |
| **Model Name** | 2201116PG |
| **FCC ID** | 2AFZZ16PG |
| **IMEI Code** | Conducted: 864654050012243/864654050012250<br>Radiation: 864654050021921/864654050021939 |
| **HW Version** | P1.1 |
| **SW Version** | MIUI 13 |
| **EUT Stage** | Identical Prototype |

## 1.4 Product Specification of Equipment Under Test

| Standards-related Product Specification | |
|---|---|
| **Tx Frequency** | LTE Band 4 : 1710 MHz ~ 1755 MHz<br>LTE Band 12 : 699 MHz ~ 716 MHz<br>LTE Band 17 : 704 MHz ~ 716 MHz |
| **Rx Frequency** | LTE Band 4 : 2110 MHz ~ 2155 MHz<br>LTE Band 12 : 729 MHz ~ 746 MHz<br>LTE Band 17 : 734 MHz ~ 746 MHz |
| **Bandwidth** | LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz<br>LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz<br>LTE Band 17 : 5MHz / 10MHz |
| **Maximum Output Power to Antenna** | **Ant. 0:**<br>LTE Band 4 : 24.25 dBm<br>LTE Band 12 : 24.69 dBm<br>LTE Band 17 : 24.68 dBm<br>**Ant. 4:**<br>LTE Band 4 : 23.46 dBm<br>LTE Band 12 : 24.76 dBm<br>LTE Band 17 : 24.74 dBm |
| **Antenna Gain** | **Ant. 0:**<br>LTE Band 4 : -2.9 dBi<br>LTE Band 12 : -5.5 dBi<br>LTE Band 17 : -5.5 dBi<br>**Ant. 4:**<br>LTE Band 4 : -5.6 dBi<br>LTE Band 12 : -7.3 dBi<br>LTE Band 17 : -7.3 dBi |
| **Type of Modulation** | QPSK / 16QAM / 64QAM / 256QAM(Downlink Only) |

**Note:** The ERP/EIRP is calculated from Output power and antenna gain, so the maximum ERP/EIRP is shown in the report, LTE Band 4/12/17 for Antenna 0.

## 1.5 Modification of EUT

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

## 1.6 Maximum ERP/EIRP Power and Emission Designator

| LTE Band 4 | | QPSK | | 16QAM/64QAM | |
|---|---|---|---|---|---|
| BW (MHz) | Frequency Range (MHz) | Maximum EIRP(W) | Emission Designator (99%OBW) | Maximum EIRP(W) | Emission Designator (99%OBW) |
| 20 | 1720.0 ~ 1745.0 | 0.1365 | 17M9G7D | 0.1132 | 17M9W7D |
| **LTE Band 12** | | **QPSK** | | **16QAM/64QAM** | |
| BW (MHz) | Frequency Range (MHz) | Maximum ERP(W) | Emission Designator (99%OBW) | Maximum ERP(W) | Emission Designator (99%OBW) |
| 10 | 704.0 ~ 711.0 | 0.0506 | 9M05G7D | 0.0417 | 9M05W7D |
| **LTE Band 17** | | **QPSK** | | **16QAM/64QAM** | |
| BW (MHz) | Frequency Range (MHz) | Maximum ERP(W) | Emission Designator (99%OBW) | Maximum ERP(W) | Emission Designator (99%OBW) |
| 10 | 709.0 ~ 711.0 | 0.0505 | 9M05G7D | 0.0448 | 9M05W7D |

**Note:**

1. LTE Band 12 overlaps the entire frequency range of LTE Band 17. Therefore, the test results provided in this report covers Band 12 as well as Band 17.
2. All modulations have been tested, and only the worst test results of PSK & QAM are shown in the report .
3. Based on engineering evaluation, only the maximum bandwidth and the worst modulation test results are shown in the report.

## 1.7 Testing Location

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

| | | | |
|---|---|---|---|
| **Test Firm** | Sporton International (Kunshan) Inc. | | |
| **Test Site Location** | No. 1098, Pengxi North Road, Kunshan Economic Development Zone<br>Jiangsu Province 215300 People's Republic of China<br>TEL : +86-512-57900158<br>FAX : +86-512-57900958 | | |
| **Test Site No.** | **Sporton Site No.** | **FCC Designation No.** | **FCC Test Firm Registration No.** |
| | 03CH04-KS<br>TH01-KS | CN1257 | 314309 |

## 1.8 Test Software

| Item | Site | Manufacture | Name | Version |
|---|---|---|---|---|
| 1. | 03CH04-KS | AUDIX | E3 | 6.2009-8-24a |

## 1.9 Applicable Standards

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

- 47 CFR Part 2, 27(L), 27(H)
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems 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

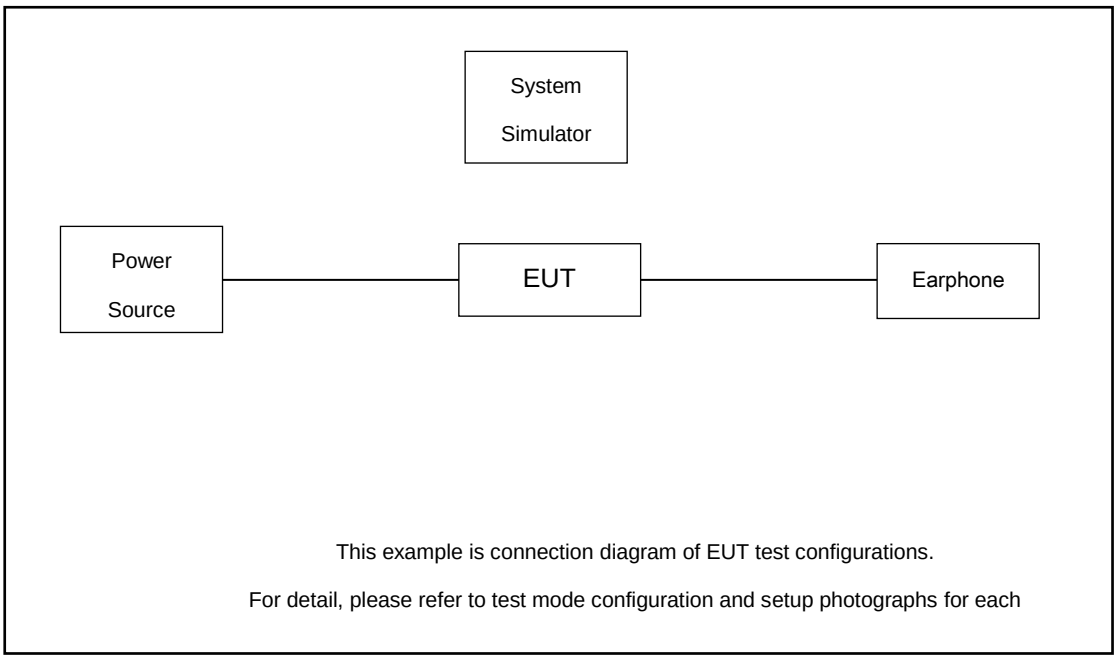
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

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

| Test Items | Band | Bandwidth (MHz) | | | | | | Modulation | | | RB # | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 64QAM | 1 | Half | Full | L | M | H |
| Max. Output Power | 4 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v |
| | 12 | v | v | v | v | - | - | v | v | v | v | v | v | v | v | v |
| | 17 | - | - | v | v | - | - | v | v | v | v | v | v | v | v | v |
| Peak-to-Average Ratio | 4 | | | | | | v | v | v | v | | | v | | v | |
| | 12 | | | | v | - | - | v | v | v | | | v | | v | |
| 26dB and 99% Bandwidth | 4 | | | | | | v | v | v | | | | v | | v | |
| | 12 | | | | v | - | - | v | v | | | | v | | v | |

| Test Items | Band | Bandwidth (MHz) | | | | | | Modulation | | | RB # | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 64QAM | 1 | Half | Full | L | M | H |
| Conducted BandEdge | 4 | v | v | v | v | v | v | v | v | v | v | | v | v | | v |
| | 12 | v | v | v | v | - | - | v | v | v | v | | v | v | | v |
| Conducted Spurious Emission | 4 | v | v | v | v | v | v | v | | | v | | | v | v | v |
| | 12 | v | v | v | v | - | - | v | | | v | | | v | v | v |
| Frequency Stability | 4 | | | | | | v | v | | | v | | | | v | |
| | 12 | | | | v | - | - | v | | | v | | | | v | |
| E.R.P / E.I.R.P | 4 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v |
| | 12 | v | v | v | v | - | - | v | v | v | v | v | v | v | v | v |
| Radiated Spurious Emission | 4 | Worst Case | | | | | | | | | | | | | v | |
| | 12 | Worst Case | | | | | | | | | | | | | 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. | Base Station | Anritsu | MT8820C | N/A | N/A | Unshielded, 1.8 m |
| 3. | Earphone | MI | N/A | N/A | Unshielded,1.2m | N/A |

## 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 and attenuator factor 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 5.0 dB.

Example :

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

= 5.0 (dB)

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

| LTE Band 4 Channel and Frequency List | | | | |
|---|---|---|---|---|
| **BW [MHz]** | **Channel/Frequency(MHz)** | **Lowest** | **Middle** | **Highest** |
| 20 | Channel | 20050 | 20175 | 20300 |
| | Frequency | 1720 | 1732.5 | 1745 |
| 15 | Channel | 20025 | 20175 | 20325 |
| | Frequency | 1717.5 | 1732.5 | 1747.5 |
| 10 | Channel | 20000 | 20175 | 20350 |
| | Frequency | 1715 | 1732.5 | 1750 |
| 5 | Channel | 19975 | 20175 | 20375 |
| | Frequency | 1712.5 | 1732.5 | 1752.5 |
| 3 | Channel | 19965 | 20175 | 20385 |
| | Frequency | 1711.5 | 1732.5 | 1753.5 |
| 1.4 | Channel | 19957 | 20175 | 20393 |
| | Frequency | 1710.7 | 1732.5 | 1754.3 |

| LTE Band 12 Channel and Frequency List | | | | |
|---|---|---|---|---|
| **BW [MHz]** | **Channel/Frequency(MHz)** | **Lowest** | **Middle** | **Highest** |
| 10 | Channel | 23060 | 23095 | 23130 |
| | Frequency | 704 | 707.5 | 711 |
| 5 | Channel | 23035 | 23095 | 23155 |
| | Frequency | 701.5 | 707.5 | 713.5 |
| 3 | Channel | 23025 | 23095 | 23165 |
| | Frequency | 700.5 | 707.5 | 714.5 |
| 1.4 | Channel | 23017 | 23095 | 23173 |
| | Frequency | 699.7 | 707.5 | 715.3 |

| LTE Band 17 Channel and Frequency List | | | | |
|---|---|---|---|---|
| **BW [MHz]** | **Channel/Frequency(MHz)** | **Lowest** | **Middle** | **Highest** |
| 10 | Channel | 23780 | 23790 | 23800 |
| | Frequency | 709 | 710 | 711 |
| 5 | Channel | 23755 | 23790 | 23825 |
| | Frequency | 706.5 | 710 | 713.5 |

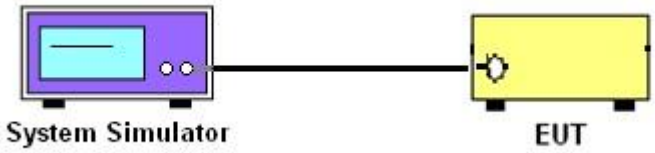
# 3 Conducted Test Items

## 3.1 Measuring Instruments

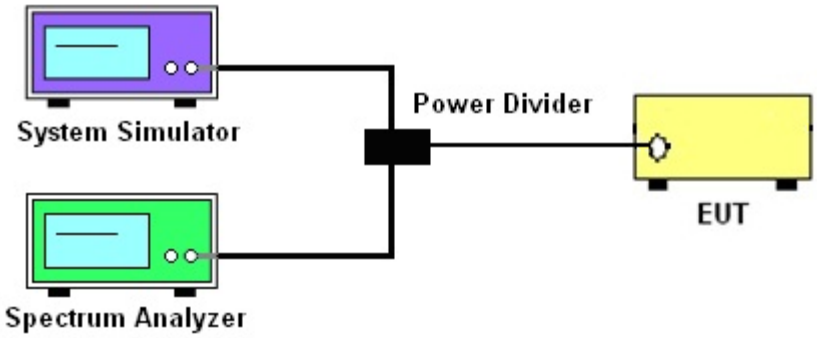
See list of measuring instruments of this test report.

## 3.2 Test Setup

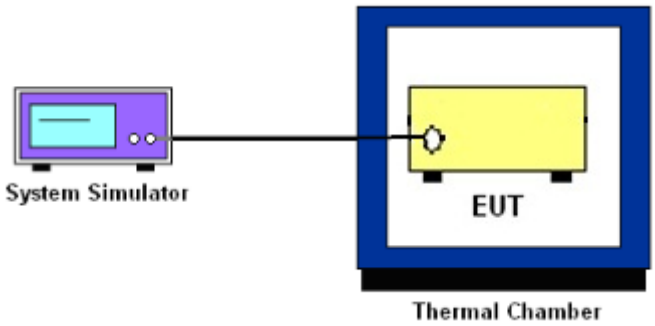
### 3.2.1 Conducted Output Power




### 3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted 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 and ERP/EIRP

### 3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

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

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 12, and Band 17.

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4.

According to KDB 412172 D01 Power Approach,

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

### 3.4.2 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 Occupied Bandwidth

## 3.6.1 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.

## 3.6.2 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.

# 3.7 Conducted Band Edge

## 3.7.1 Description of Conducted Band Edge Measurement

27.53 (g)

For operations in the 600MHz band and 698 -746 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

## 3.7.2 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.

# 3.8 Conducted Spurious Emission

## 3.8.1 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 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10$^{th}$ harmonic.

## 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 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 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 Frequency Stability

## 3.9.1 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. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

## 3.9.2 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.

## 3.9.3 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.

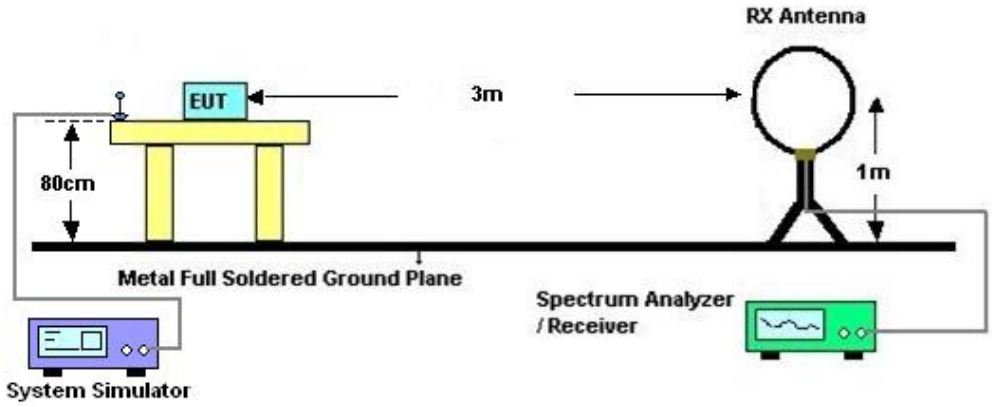
# 4 Radiated Test Items

## 4.1 Measuring Instruments

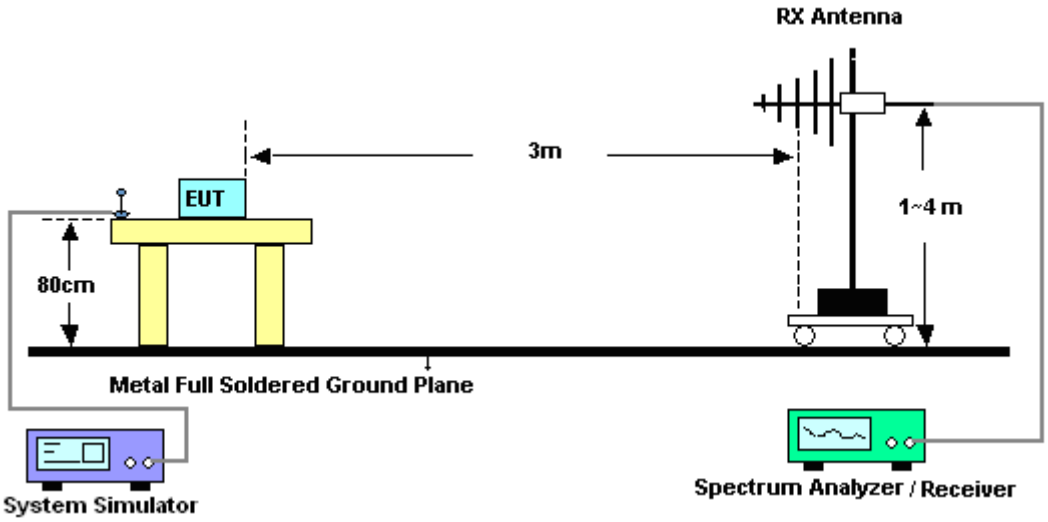
See list of measuring instruments of this test report.

## 4.2 Test Setup

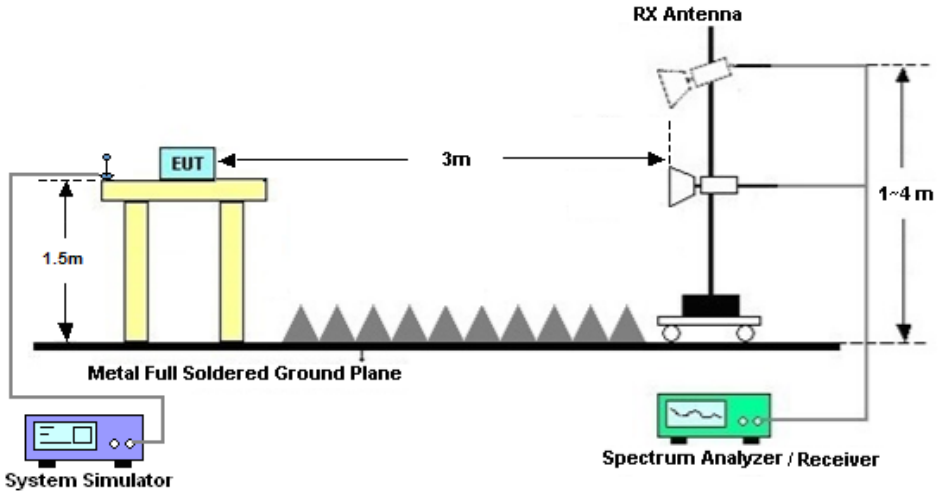
### 4.2.1 For radiated test below 30MHz




### 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

## 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 43 + 10 log (P) dB.

## 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.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    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.

# 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. 14, 2021 | Dec. 20, 2021 | Oct. 13, 2022 | Conducted (TH01-KS) |
| Temperature & humidity chamber | Hongzhan | LP-150U | H2014011440 | -40~+150°C 20%~95%RH | Jul. 12, 2021 | Dec. 20, 2021 | Jul. 11, 2022 | Conducted (TH01-KS) |
| Power divider | STI | STI08-0055 | - | 0.5~40GHz | Aug. 26, 2021 | Dec. 20, 2021 | Aug. 25, 2022 | Conducted (TH01-KS) |
| EXA Spectrum Analyzer | Keysight | N9010A | MY55150244 | 10Hz-44G,MAX 30dB | Apr. 13, 2021 | Dec. 29, 2021 | Apr. 12, 2022 | Radiation (03CH04-KS) |
| Bilog Antenna | TeseQ | CBL6111D | 49922 | 30MHz-1GHz | May 30, 2021 | Dec. 29, 2021 | May 29, 2022 | Radiation (03CH04-KS) |
| Horn Antenna | Schwarzbeck | BBHA9120D | 1356 | 1GHz~18GHz | Apr. 18, 2021 | Dec. 29, 2021 | Apr. 17, 2022 | Radiation (03CH04-KS) |
| SHF-EHF Horn | Com-power | AH-840 | 101115 | 18GHz~40GHz | Jan. 06, 2021 | Dec. 29, 2021 | Jan. 05, 2022 | Radiation (03CH04-KS) |
| Amplifier | SONOMA | 310N | 187289 | 9KHz-1GHz | Jan. 06, 2021 | Dec. 29, 2021 | Jan. 05, 2022 | Radiation (03CH04-KS) |
| Amplifier | MITEQ | EM18G40GGA | 060728 | 18~40GHz | Jan. 07, 2021 | Dec. 29, 2021 | Jan. 06, 2022 | Radiation (03CH04-KS) |
| high gain Amplifier | MITEQ | AMF-7D-00101800-30-10P | 2025788 | 1Ghz-18Ghz | Jan. 06, 2021 | Dec. 29, 2021 | Jan.05, 2022 | Radiation (03CH04-KS) |
| Amplifier | Keysight | 83017A | MY57280106 | 500MHz~26.5GHz | Oct. 13, 2021 | Dec. 29, 2021 | Oct. 12, 2022 | Radiation (03CH04-KS) |
| AC Power Source | Chroma | 61601 | F104090004 | N/A | NCR | Dec. 29, 2021 | NCR | Radiation (03CH04-KS) |
| Turn Table | ChamPro | EM 1000-T | 060762-T | 0~360 degree | NCR | Dec. 29, 2021 | NCR | Radiation (03CH04-KS) |
| Antenna Mast | ChamPro | EM 1000-A | 060762-A | 1 m~4 m | NCR | Dec. 29, 2021 | NCR | Radiation (03CH04-KS) |

NCR: No Calibration Required

# 6 Uncertainty of Evaluation

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

| | |
|---|---|
| **Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))** | **3.3dB** |

**Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)**

| | |
|---|---|
| **Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))** | **2.8dB** |

# Appendix A. Test Results of Conducted Test

## Conducted Output Power(Average power) ERP/EIRP

**LTE Band 4:**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | EIRP(W) | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 20050 | 20175 | 20300 | | | |
| Frequency (MHz) | | | | 1720 | 1732.5 | 1745 | L | M | H |
| 20 | QPSK | 1 | 0 | 24.02 | 24.25 | 24.21 | 0.1294 | 0.1365 | 0.1352 |
| 20 | QPSK | 1 | 99 | 24.02 | 24.02 | 23.84 | 0.1294 | 0.1294 | 0.1242 |
| 20 | QPSK | 100 | 0 | 23.13 | 23.18 | 22.98 | 0.1054 | 0.1067 | 0.1019 |
| 20 | 16QAM | 1 | 0 | 23.11 | 23.44 | 23.44 | 0.1050 | 0.1132 | 0.1132 |
| 20 | 64QAM | 1 | 0 | 22.29 | 22.28 | 22.21 | 0.0869 | 0.0867 | 0.0853 |
| Channel | | | | 20025 | 20175 | 20325 | EIRP(W) | | |
| Frequency (MHz) | | | | 1717.5 | 1732.5 | 1747.5 | L | M | H |
| 15 | QPSK | 1 | 0 | 24.05 | 24.11 | 24.01 | 0.1303 | 0.1321 | 0.1291 |
| 15 | 16QAM | 1 | 0 | 23.28 | 23.12 | 23.15 | 0.1091 | 0.1052 | 0.1059 |
| Channel | | | | 20000 | 20175 | 20350 | EIRP(W) | | |
| Frequency (MHz) | | | | 1715 | 1732.5 | 1750 | L | M | H |
| 10 | QPSK | 1 | 0 | 24.23 | 24.23 | 24.10 | 0.1358 | 0.1358 | 0.1318 |
| 10 | 16QAM | 1 | 0 | 23.33 | 23.20 | 23.13 | 0.1104 | 0.1072 | 0.1054 |
| Channel | | | | 19975 | 20175 | 20375 | EIRP(W) | | |
| Frequency (MHz) | | | | 1712.5 | 1732.5 | 1752.5 | L | M | H |
| 5 | QPSK | 1 | 0 | 24.21 | 24.22 | 23.94 | 0.1352 | 0.1355 | 0.1271 |
| 5 | 16QAM | 1 | 0 | 23.39 | 23.29 | 23.39 | 0.1119 | 0.1094 | 0.1119 |
| Channel | | | | 19965 | 20175 | 20385 | EIRP(W) | | |
| Frequency (MHz) | | | | 1711.5 | 1732.5 | 1753.5 | L | M | H |
| 3 | QPSK | 1 | 0 | 24.22 | 24.11 | 24.06 | 0.1355 | 0.1321 | 0.1306 |
| 3 | 16QAM | 1 | 0 | 23.17 | 23.26 | 23.39 | 0.1064 | 0.1086 | 0.1119 |
| Channel | | | | 19950 | 20175 | 20393 | EIRP(W) | | |
| Frequency (MHz) | | | | 1710 | 1732.5 | 1754.3 | L | M | H |
| 1.4 | QPSK | 1 | 0 | 24.02 | 24.23 | 24.05 | 0.1294 | 0.1358 | 0.1303 |
| 1.4 | 16QAM | 1 | 0 | 23.27 | 23.34 | 23.16 | 0.1089 | 0.1107 | 0.1062 |

**LTE Band 12:**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | ERP(W) | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 23060 | 23095 | 23130 | | | |
| Frequency (MHz) | | | | 704 | 707.5 | 711 | L | M | H |
| 10 | QPSK | 1 | 0 | 24.57 | 24.69 | 24.64 | 0.0492 | 0.0506 | 0.0500 |
| 10 | QPSK | 1 | 49 | 24.67 | 24.65 | 24.61 | 0.0504 | 0.0501 | 0.0497 |
| 10 | QPSK | 50 | 0 | 23.83 | 23.86 | 23.80 | 0.0415 | 0.0418 | 0.0412 |
| 10 | 16QAM | 1 | 0 | 23.85 | 23.79 | 23.61 | 0.0417 | 0.0411 | 0.0394 |
| 10 | 64QAM | 1 | 0 | 22.64 | 22.70 | 22.92 | 0.0316 | 0.0320 | 0.0337 |
| Channel | | | | 23035 | 23095 | 23205 | ERP(W) | | |
| Frequency (MHz) | | | | 701.5 | 707.5 | 718.5 | L | M | H |
| 5 | QPSK | 1 | 0 | 24.68 | 24.58 | 24.44 | 0.0505 | 0.0493 | 0.0478 |
| 5 | 16QAM | 1 | 0 | 23.48 | 23.75 | 23.71 | 0.0383 | 0.0407 | 0.0404 |
| Channel | | | | 23025 | 23095 | 23195 | ERP(W) | | |
| Frequency (MHz) | | | | 700.5 | 707.5 | 717.5 | L | M | H |
| 3 | QPSK | 1 | 0 | 24.57 | 24.66 | 24.46 | 0.0492 | 0.0502 | 0.0480 |
| 3 | 16QAM | 1 | 0 | 23.79 | 23.83 | 23.66 | 0.0411 | 0.0415 | 0.0399 |
| Channel | | | | 23017 | 23095 | 23173 | ERP(W) | | |
| Frequency (MHz) | | | | 699.7 | 707.5 | 715.3 | L | M | H |
| 1.4 | QPSK | 1 | 0 | 24.47 | 24.65 | 24.51 | 0.0481 | 0.0501 | 0.0485 |
| 1.4 | 16QAM | 1 | 0 | 23.56 | 23.84 | 23.68 | 0.0390 | 0.0416 | 0.0401 |

**LTE Band 17:**

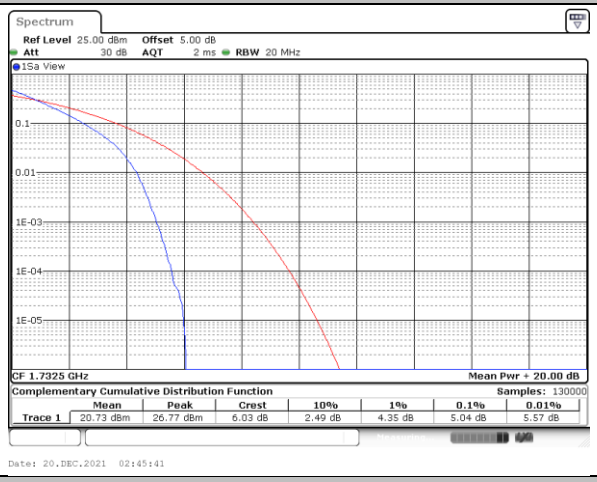
| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | ERP(W) | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 23780 | 23790 | 23800 | | | |
| Frequency (MHz) | | | | 709 | 710 | 711 | L | M | H |
| 10 | QPSK | 1 | 0 | 24.50 | 24.68 | 24.42 | 0.0484 | 0.0505 | 0.0475 |
| 10 | QPSK | 1 | 49 | 24.33 | 24.40 | 24.62 | 0.0466 | 0.0473 | 0.0498 |
| 10 | QPSK | 50 | 0 | 23.79 | 23.90 | 23.58 | 0.0411 | 0.0422 | 0.0392 |
| 10 | 16QAM | 1 | 0 | 23.82 | 24.16 | 23.84 | 0.0414 | 0.0448 | 0.0416 |
| 10 | 64QAM | 1 | 0 | 22.81 | 23.14 | 22.90 | 0.0328 | 0.0354 | 0.0335 |
| Channel | | | | 23755 | 23790 | 23825 | ERP(W) | | |
| Frequency (MHz) | | | | 706.5 | 710 | 713.5 | L | M | H |
| 5 | QPSK | 1 | 0 | 24.67 | 24.67 | 24.56 | 0.0504 | 0.0504 | 0.0491 |
| 5 | 16QAM | 1 | 0 | 23.84 | 23.86 | 23.98 | 0.0416 | 0.0418 | 0.0430 |

# LTE Band 4

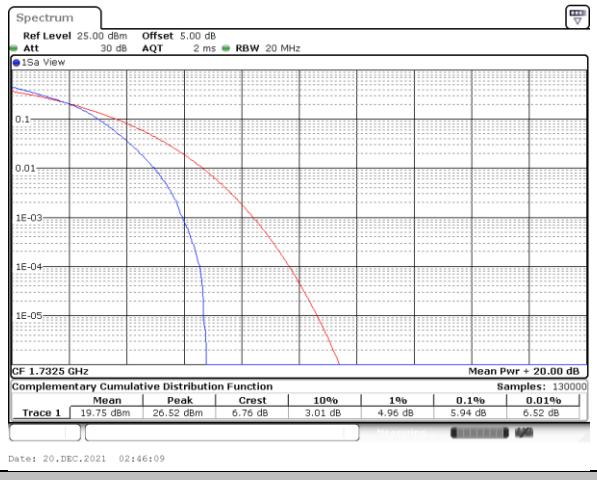
## Peak-to-Average Ratio

| Mode | LTE Band 4 / 20MHz | | | |
|---|---|---|---|---|
| Mod. | QPSK | 16QAM | 64QAM | Limit: 13dB |
| RB Size | Full RB | Full RB | Full RB | Result |
| Middle CH | 5.04 | 5.94 | 5.91 | PASS |

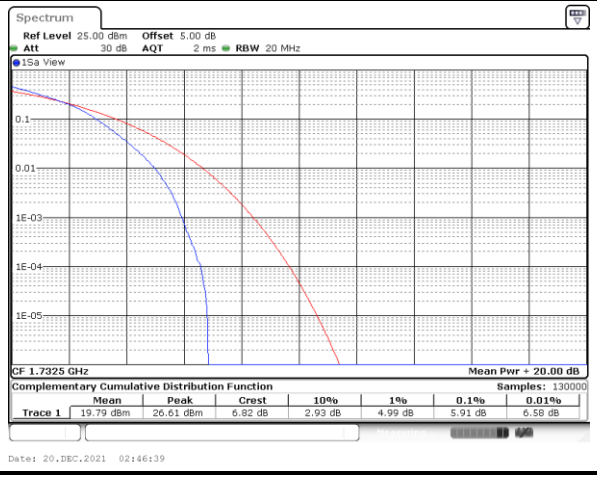
| LTE Band 4 / 20MHz |
|---|
| Middle Channel / Full RB/ QPSK |




| Middle Channel / Full RB/ 16QAM |
|---|




| Middle Channel / Full RB/ 64QAM |
|---|

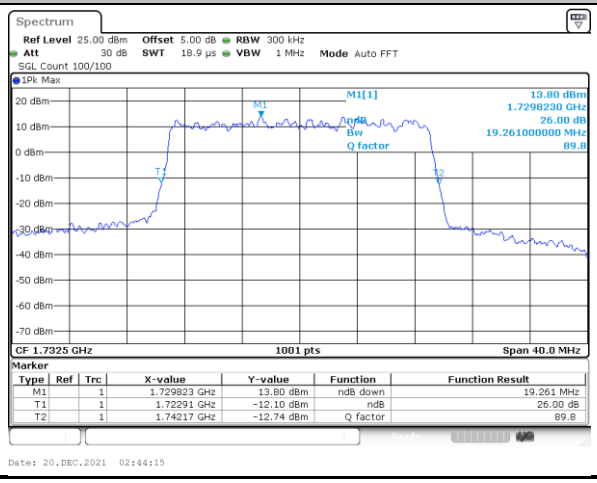


# 26dB Bandwidth

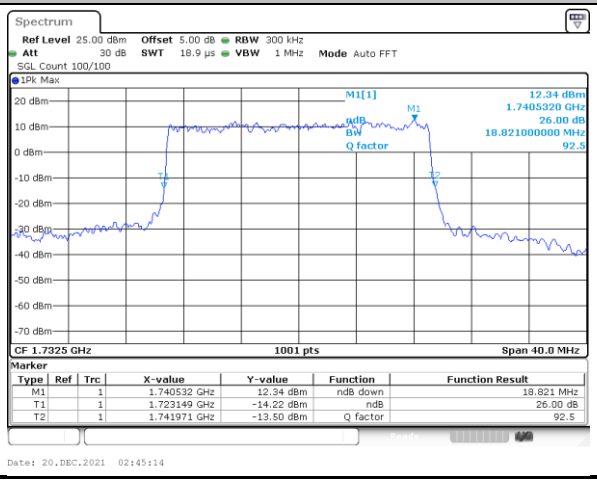
| Mode | LTE Band 4 : 26dB BW(MHz) | |
|---|---|---|
| BW | 20MHz | |
| Mod. | QPSK | 16QAM |
| Middle CH | 19.26 | 18.82 |

**LTE Band 4**

**Middle Channel / 20MHz / QPSK**




**Middle Channel / 20MHz / 16QAM**

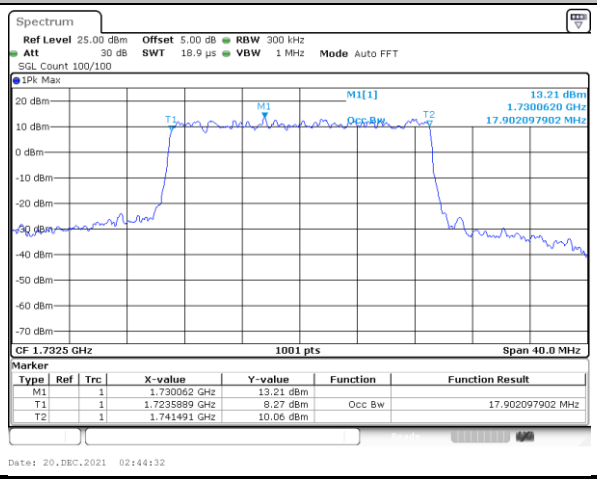


# Occupied Bandwidth

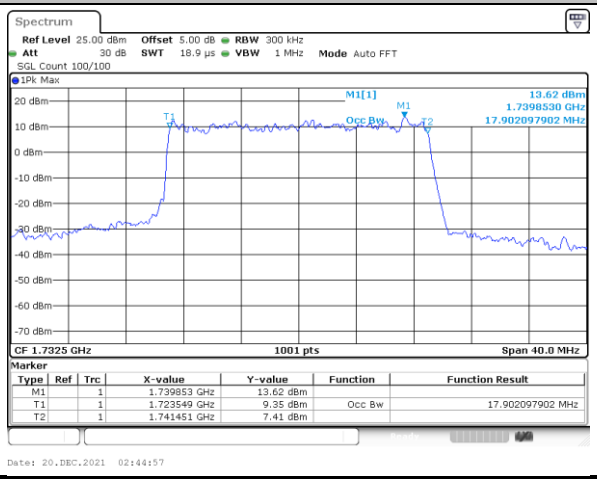
| Mode | LTE Band 4 : 99%OBW(MHz) | |
|---|---|---|
| BW | 20MHz | |
| Mod. | QPSK | 16QAM |
| Middle CH | 17.90 | 17.90 |

**LTE Band 4**

**Middle Channel / 20MHz / QPSK**



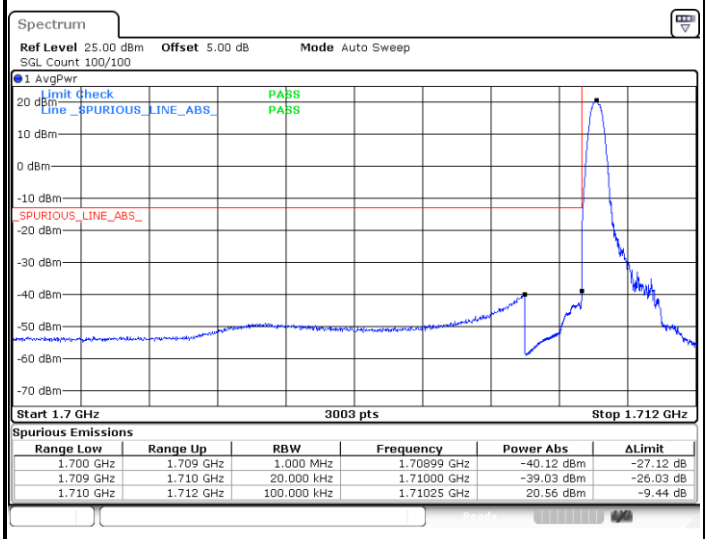

**Middle Channel / 20MHz / 16QAM**



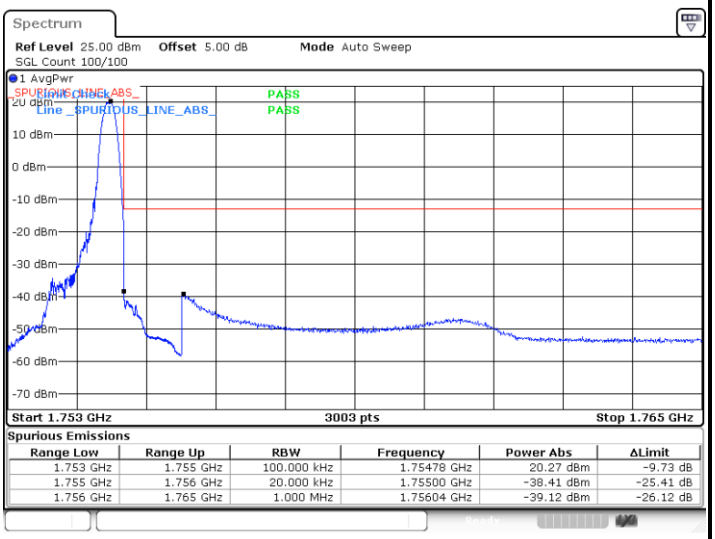
# Conducted Band Edge

## LTE Band 4 / 1.4MHz / QPSK

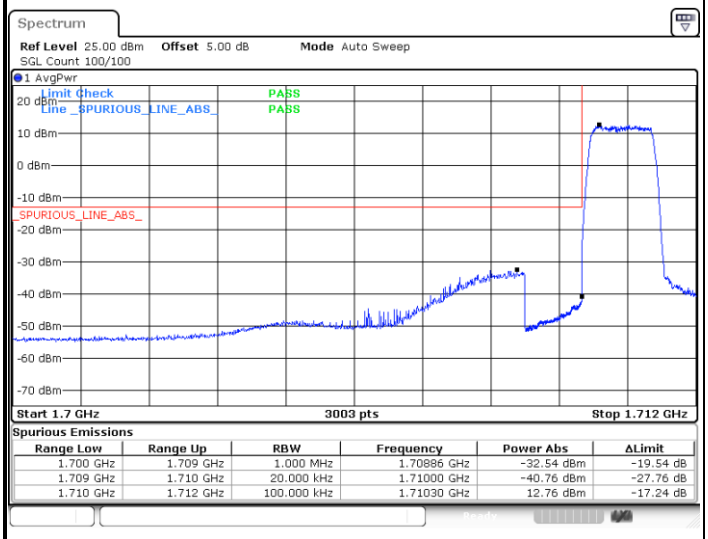
### Lowest Band Edge / 1RB



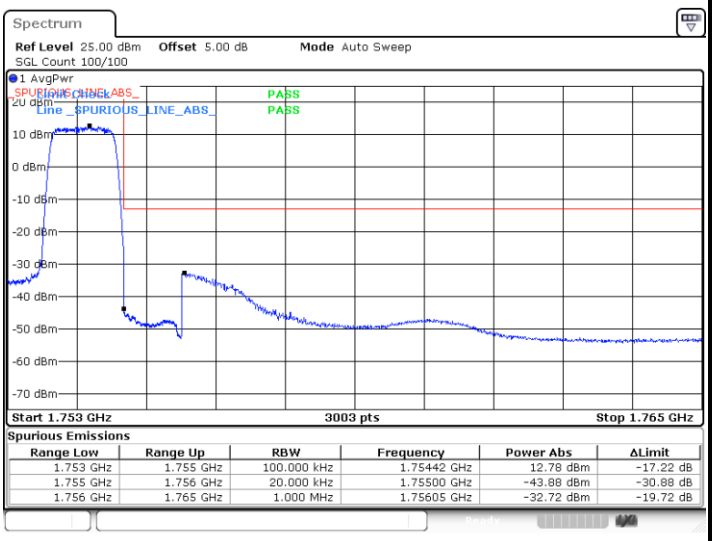

### Highest Band Edge / 1RB



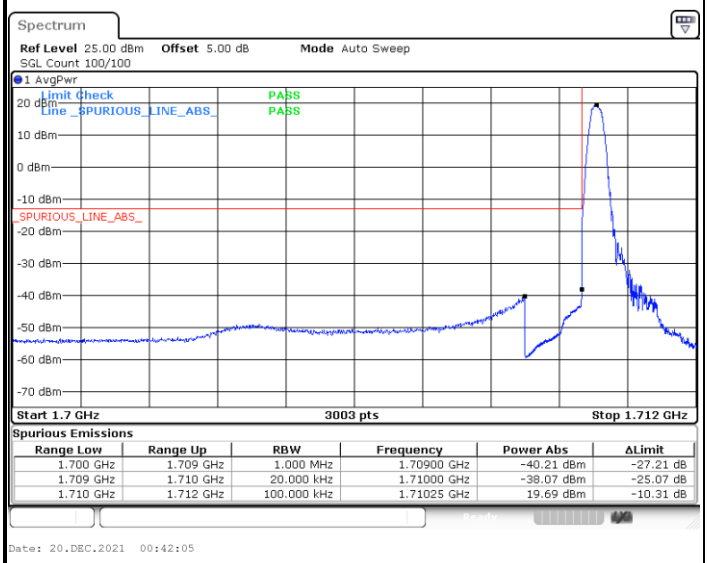

### Lowest Band Edge / Full RB

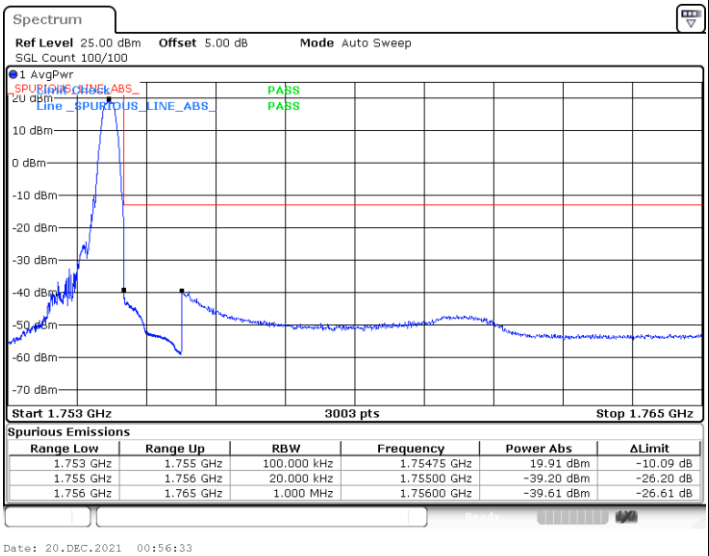


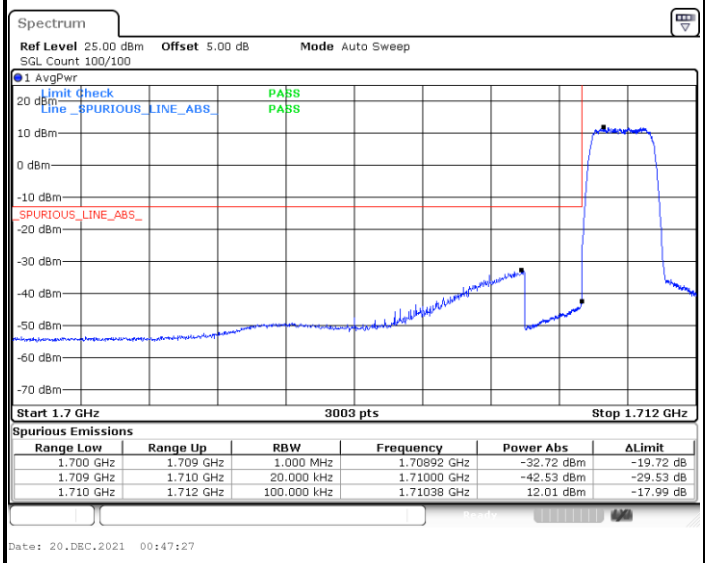

### Highest Band Edge / Full RB

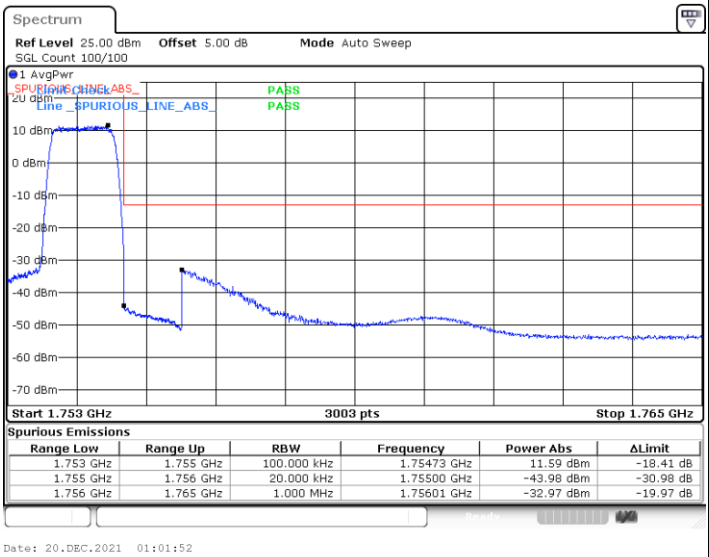


| LTE Band 4 / 1.4MHz / 16QAM | |
|---|---|
| **Lowest Band Edge / 1 RB** | **Highest Band Edge / 1 RB** |
| **Lowest Band Edge / Full RB** | **Highest Band Edge / Full RB** |



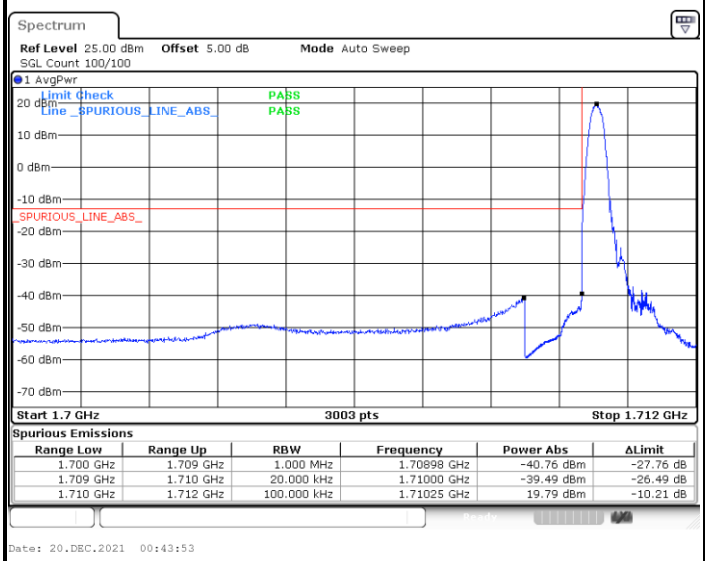



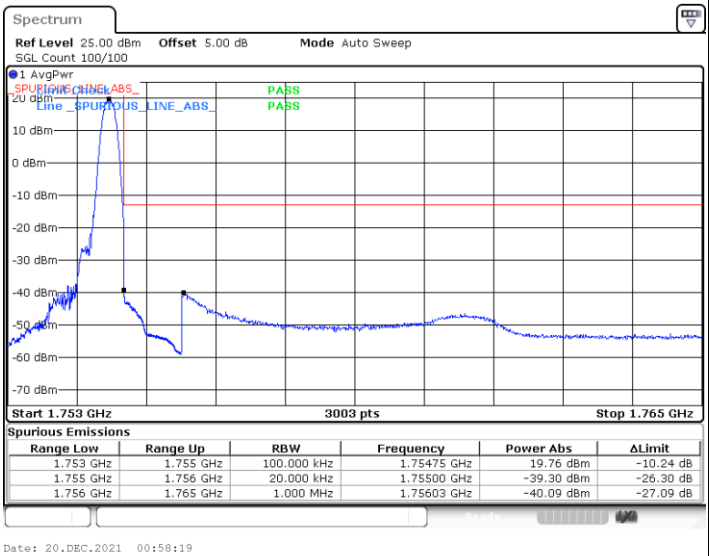



## LTE Band 4 / 1.4MHz / 64QAM

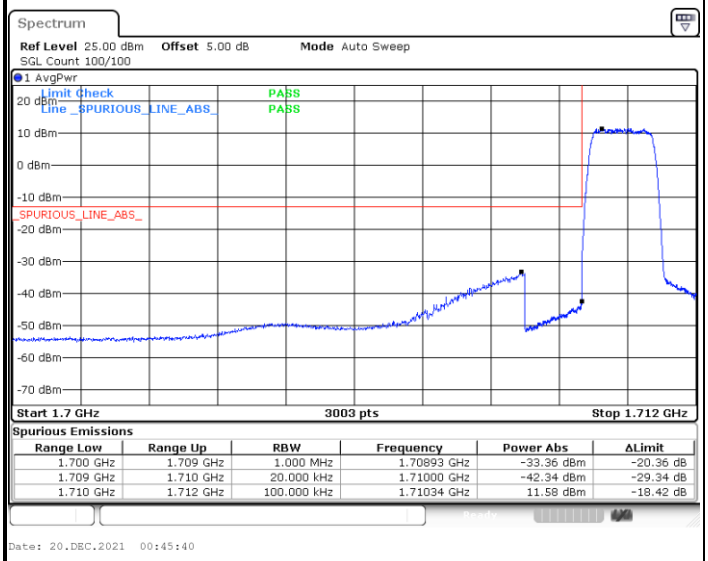
### Lowest Band Edge / 1 RB



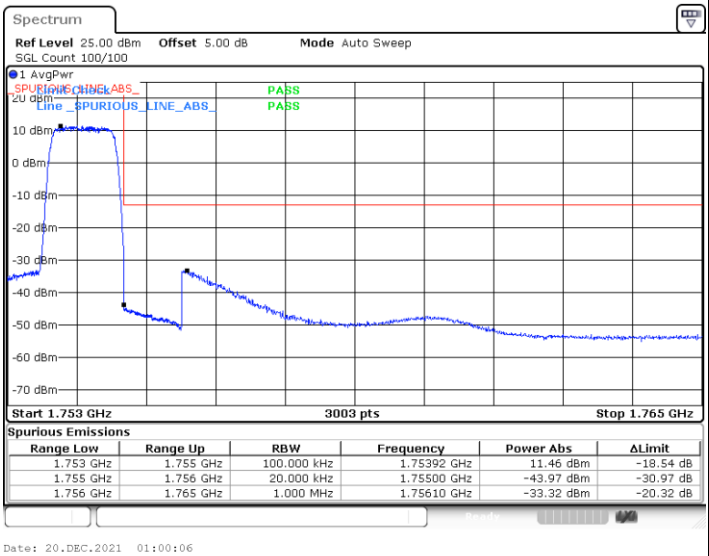

### Highest Band Edge / 1 RB

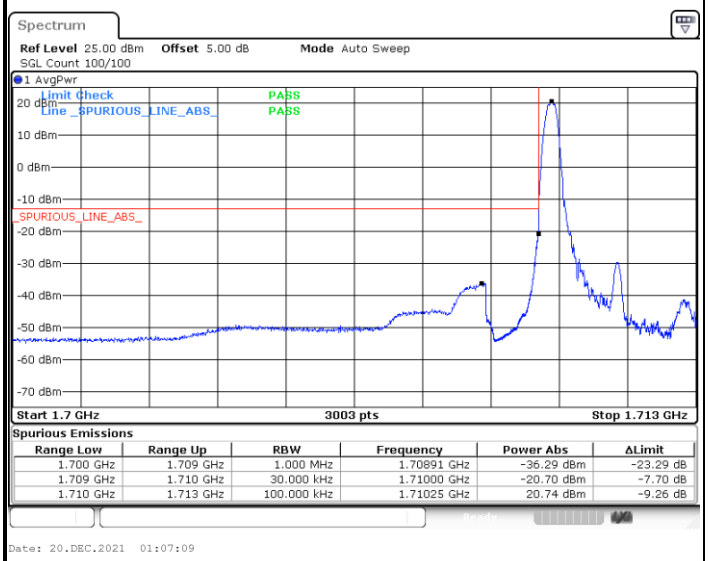
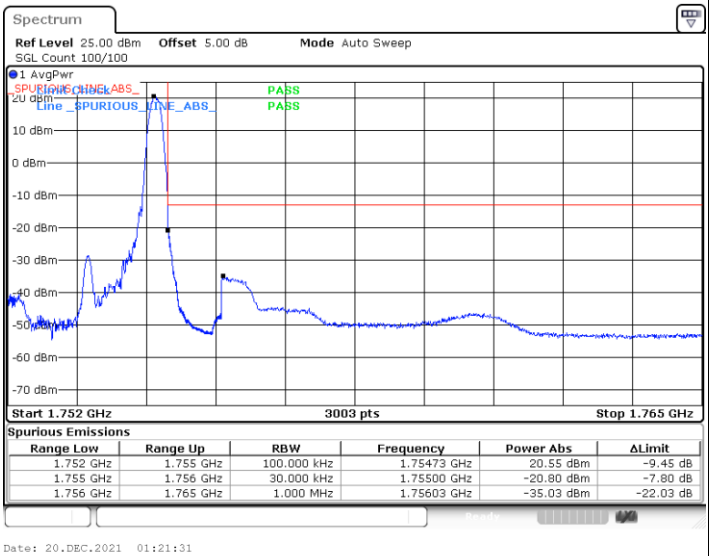
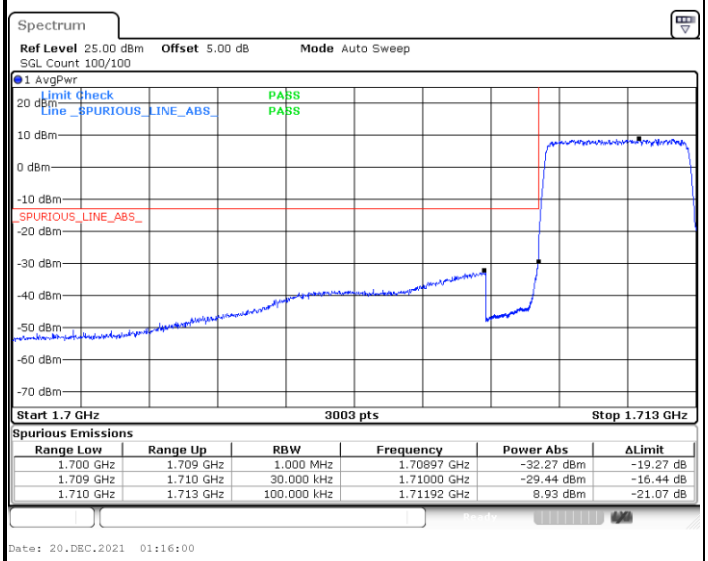
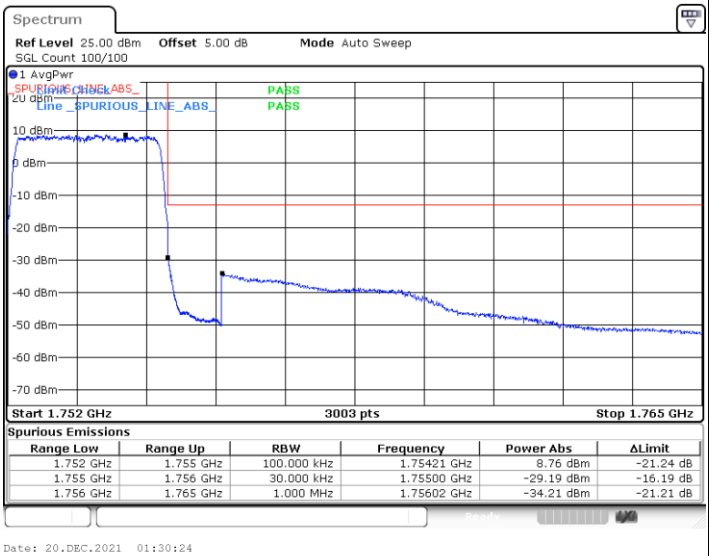



### Lowest Band Edge / Full RB



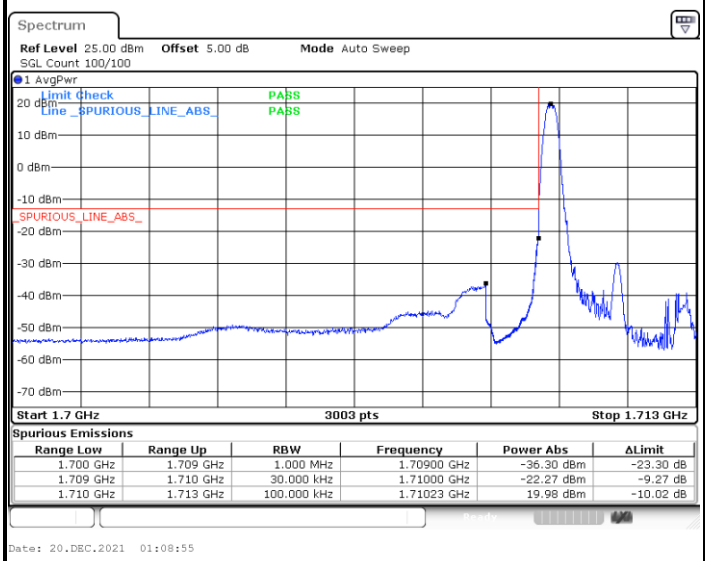

### Highest Band Edge / Full RB



| LTE Band 4 / 3MHz / QPSK | |
|---|---|
| **Lowest Band Edge / 1RB** | **Highest Band Edge / 1 RB** |
|  |  |
| **Lowest Band Edge / Full RB** | **Highest Band Edge / Full RB** |
|  |  |

## LTE Band 4 / 3MHz / 16QAM

### Lowest Band Edge / 1 RB

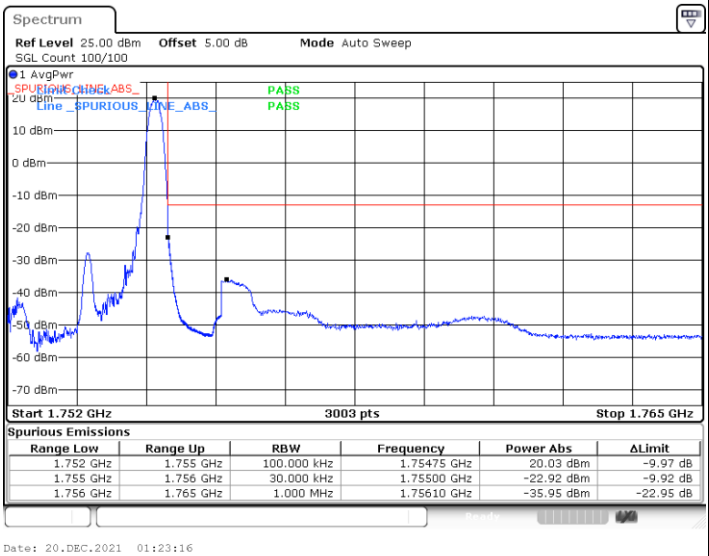



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70900 GHz | -36.30 dBm | -23.30 dB |
| 1.709 GHz | 1.710 GHz | 30.000 kHz | 1.71000 GHz | -22.27 dBm | -9.27 dB |
| 1.710 GHz | 1.713 GHz | 100.000 kHz | 1.71023 GHz | 19.98 dBm | -10.02 dB |

Date: 20.DEC.2021 01:08:55

### Highest Band Edge /1 RB

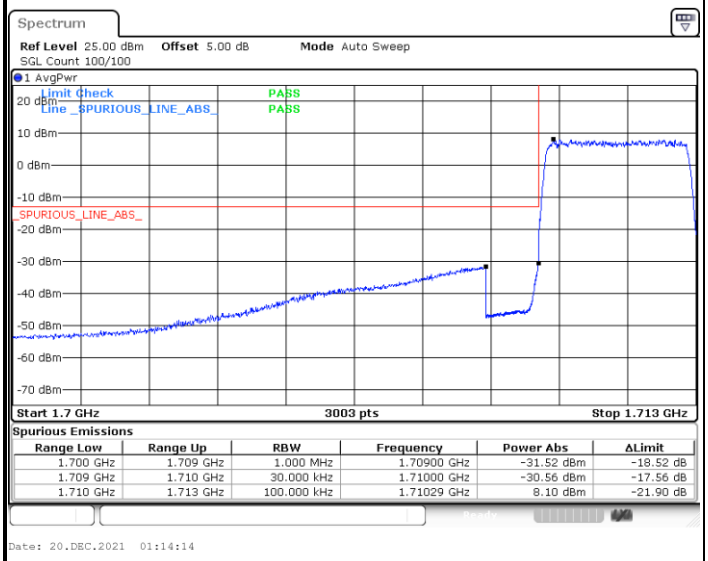



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.752 GHz | 1.755 GHz | 100.000 kHz | 1.75475 GHz | 20.03 dBm | -9.97 dB |
| 1.755 GHz | 1.756 GHz | 30.000 kHz | 1.75500 GHz | -22.92 dBm | -9.92 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.75610 GHz | -35.95 dBm | -22.95 dB |

Date: 20.DEC.2021 01:23:16

### Lowest Band Edge / Full RB

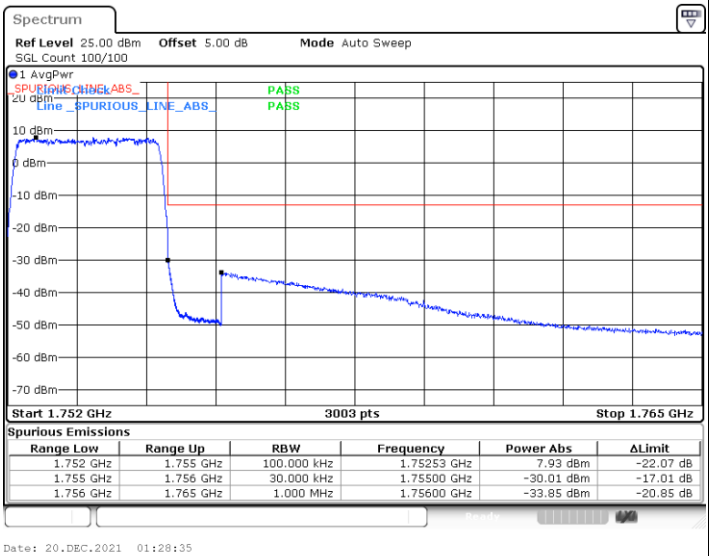



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70900 GHz | -31.52 dBm | -18.52 dB |
| 1.709 GHz | 1.710 GHz | 30.000 kHz | 1.71000 GHz | -30.56 dBm | -17.56 dB |
| 1.710 GHz | 1.713 GHz | 100.000 kHz | 1.71029 GHz | 8.10 dBm | -21.90 dB |

Date: 20.DEC.2021 01:14:14

### Highest Band Edge / Full RB



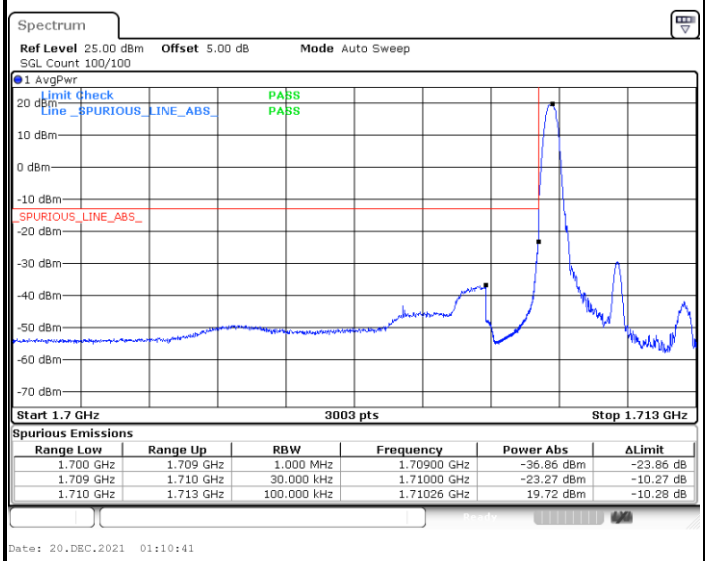

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.752 GHz | 1.755 GHz | 100.000 kHz | 1.75253 GHz | 7.93 dBm | -22.07 dB |
| 1.755 GHz | 1.756 GHz | 30.000 kHz | 1.75500 GHz | -30.01 dBm | -17.01 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.75600 GHz | -33.85 dBm | -20.85 dB |

Date: 20.DEC.2021 01:28:35

## LTE Band 4 / 3MHz / 64QAM

### Lowest Band Edge / 1 RB

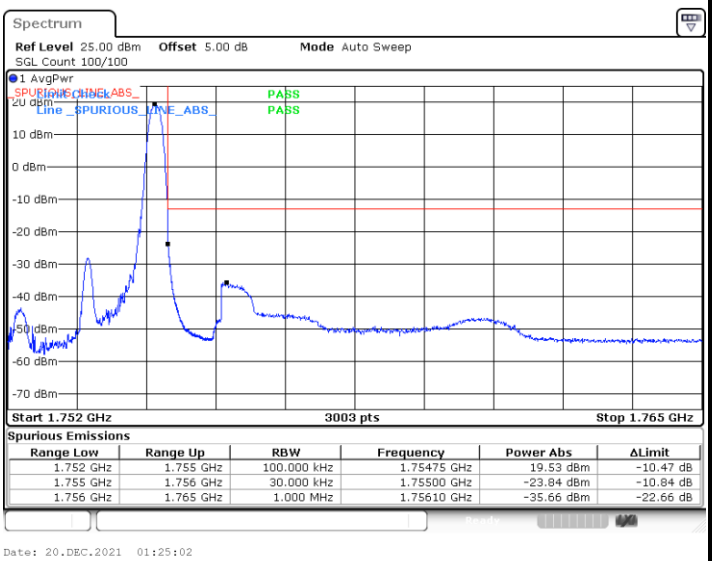



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70900 GHz | -36.86 dBm | -23.86 dB |
| 1.709 GHz | 1.710 GHz | 30.000 kHz | 1.71000 GHz | -23.27 dBm | -10.27 dB |
| 1.710 GHz | 1.713 GHz | 100.000 kHz | 1.71026 GHz | 19.72 dBm | -10.28 dB |

Date: 20.DEC.2021 01:10:41

### Highest Band Edge /1 RB

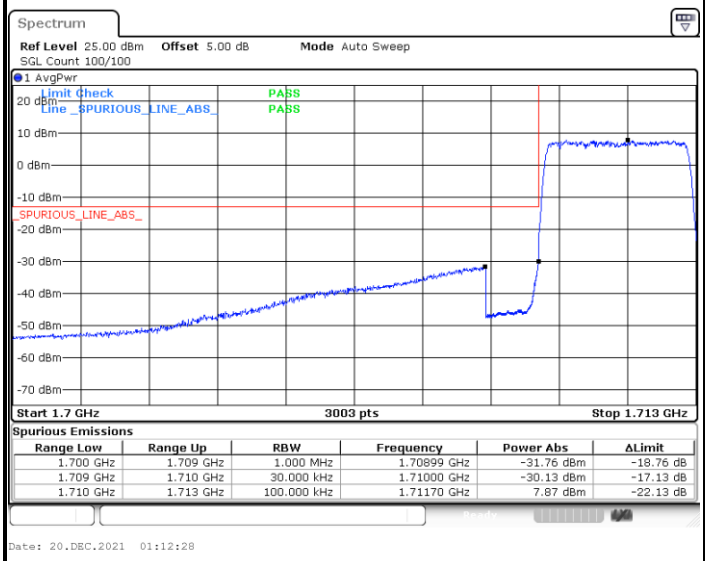



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.752 GHz | 1.755 GHz | 100.000 kHz | 1.75475 GHz | 19.53 dBm | -10.47 dB |
| 1.755 GHz | 1.756 GHz | 30.000 kHz | 1.75500 GHz | -23.84 dBm | -10.84 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.75610 GHz | -35.66 dBm | -22.66 dB |

Date: 20.DEC.2021 01:25:02

### Lowest Band Edge / Full RB

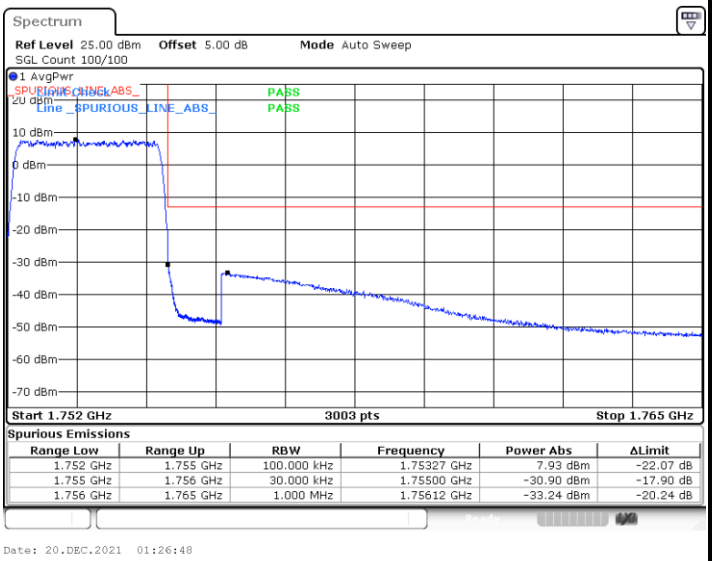



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70899 GHz | -31.76 dBm | -18.76 dB |
| 1.709 GHz | 1.710 GHz | 30.000 kHz | 1.71000 GHz | -30.13 dBm | -17.13 dB |
| 1.710 GHz | 1.713 GHz | 100.000 kHz | 1.71170 GHz | 7.87 dBm | -22.13 dB |

Date: 20.DEC.2021 01:12:28

### Highest Band Edge / Full RB

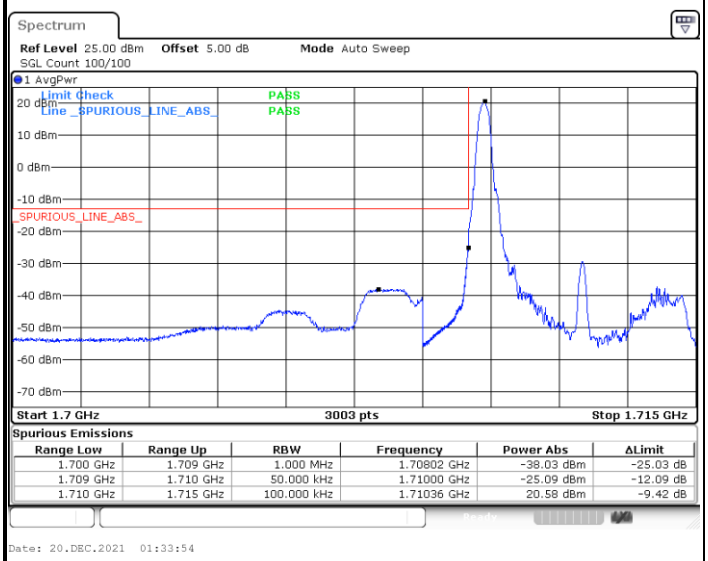


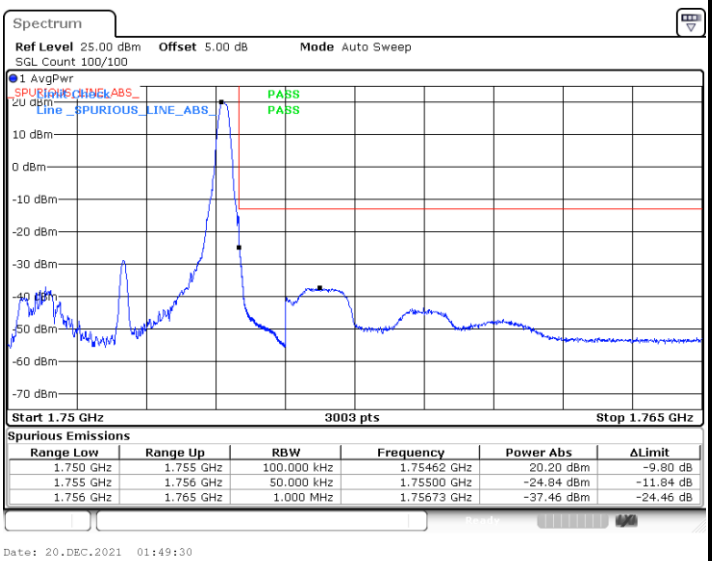

Spurious Emissions

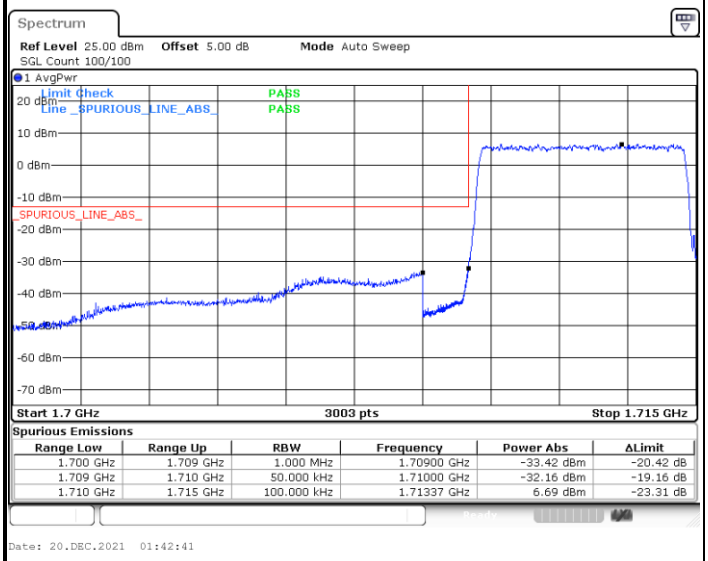
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.752 GHz | 1.755 GHz | 100.000 kHz | 1.75327 GHz | 7.93 dBm | -22.07 dB |
| 1.755 GHz | 1.756 GHz | 30.000 kHz | 1.75500 GHz | -30.90 dBm | -17.90 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.75612 GHz | -33.24 dBm | -20.24 dB |

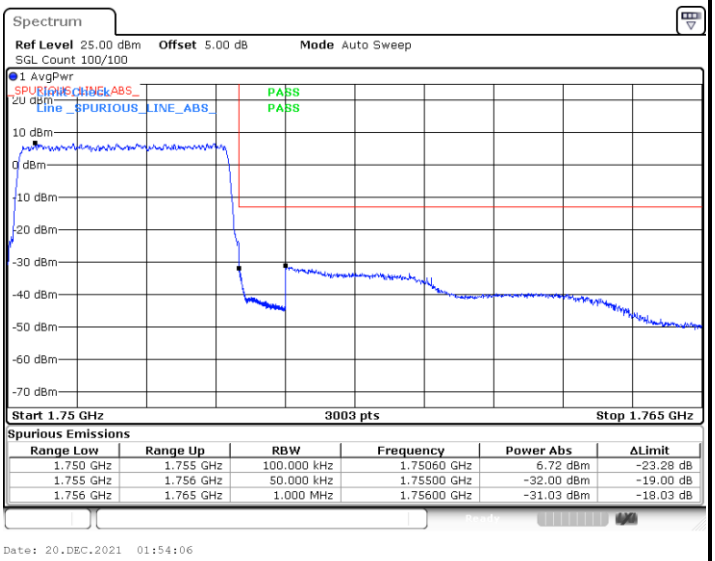
Date: 20.DEC.2021 01:26:48

| LTE Band 4 / 5MHz / QPSK | |
|---|---|
| **Lowest Band Edge / 1 RB** | **Highest Band Edge / 1 RB** |
| **Lowest Band Edge / Full RB** | **Highest Band Edge / Full RB** |

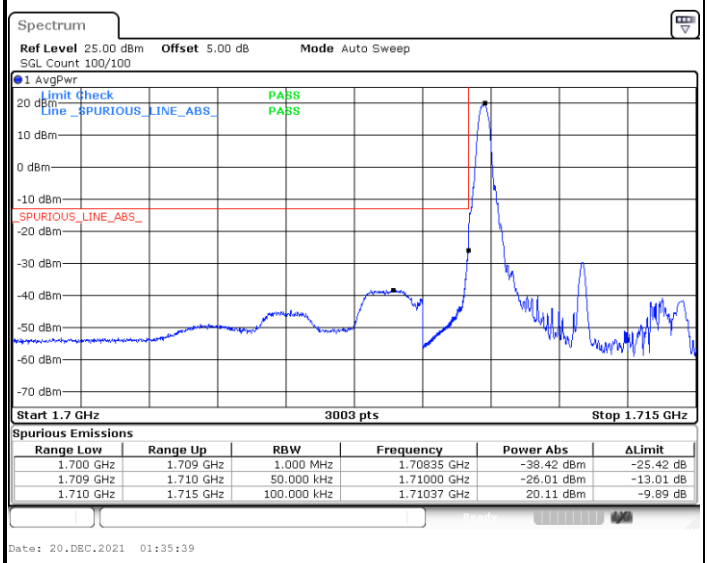


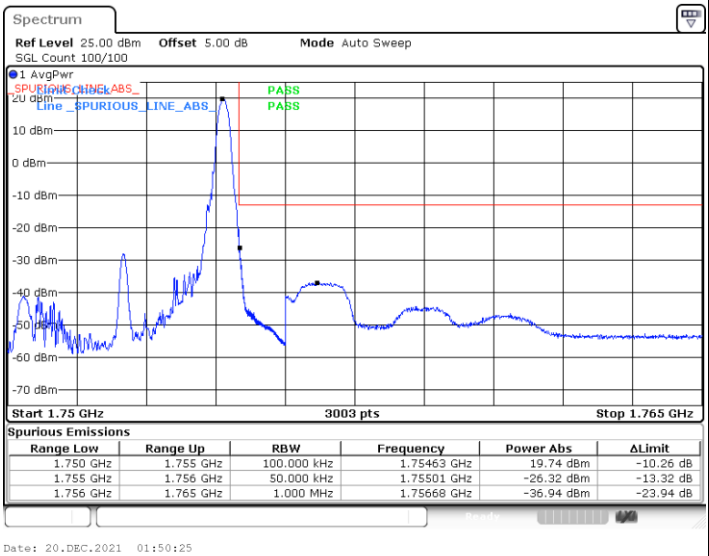



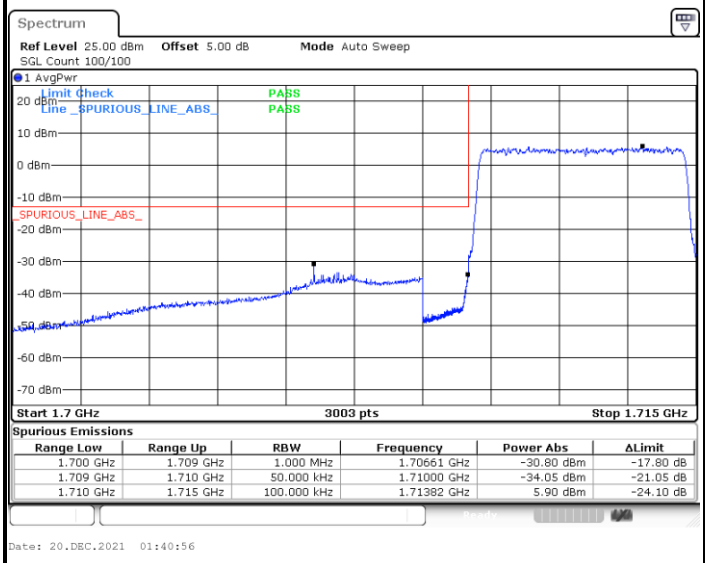



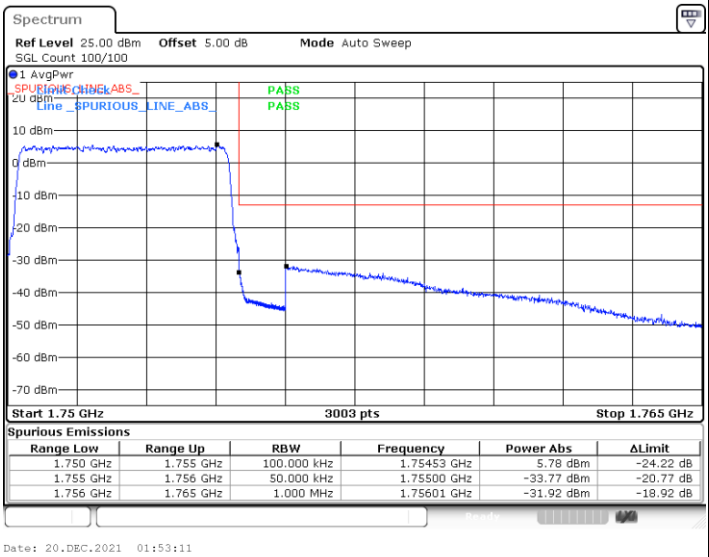



| LTE Band 4 / 5MHz / 16QAM | |
|---|---|
| **Lowest Band Edge / 1RB** | **Highest Band Edge / 1 RB** |
| **Lowest Band Edge / Full RB** | **Highest Band Edge / Full RB** |



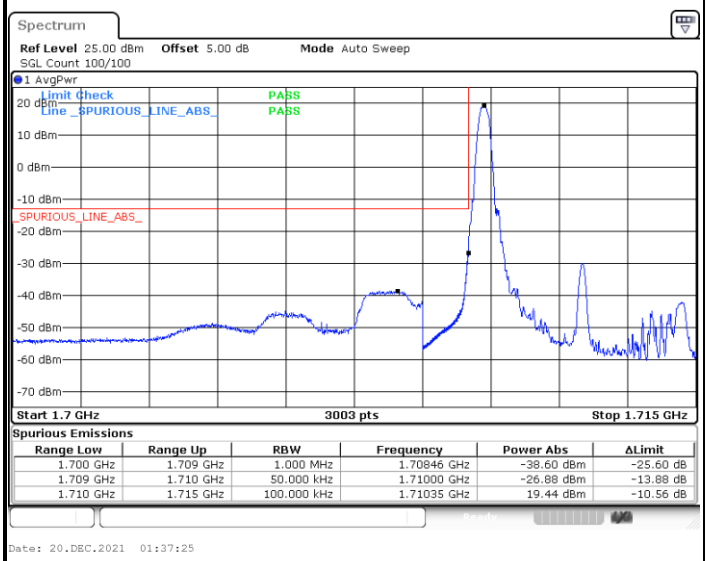



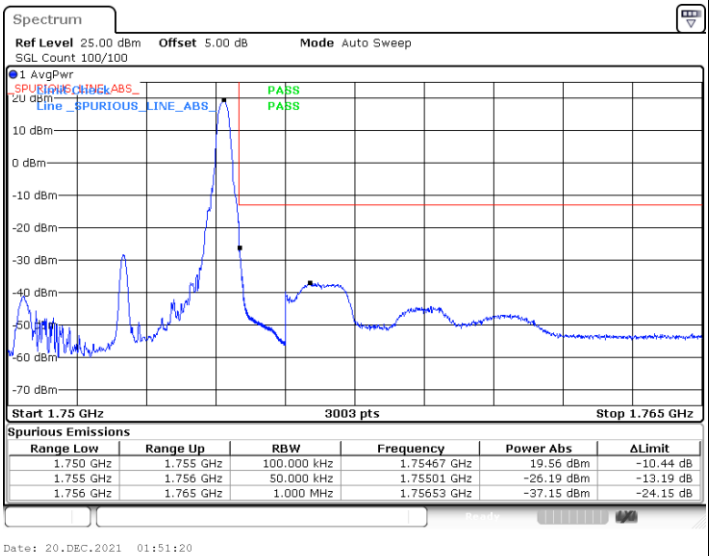
## LTE Band 4 / 5MHz / 64QAM

### Lowest Band Edge / 1RB



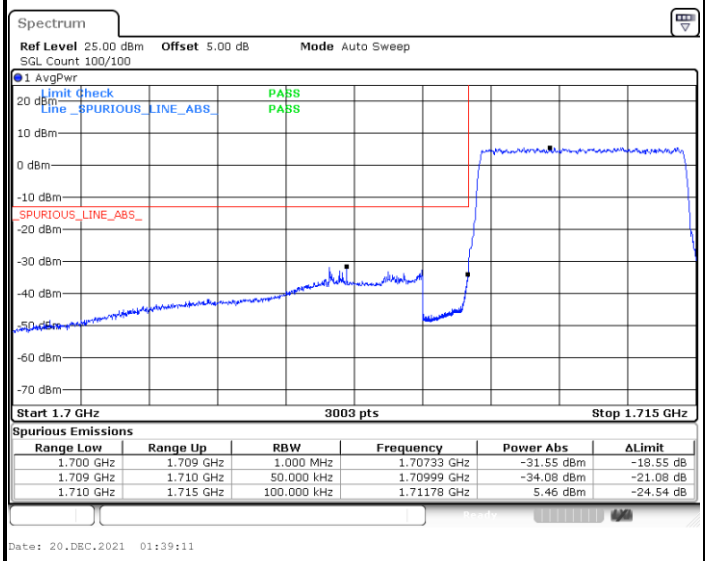

Date: 20.DEC.2021 01:37:25

### Highest Band Edge / 1 RB



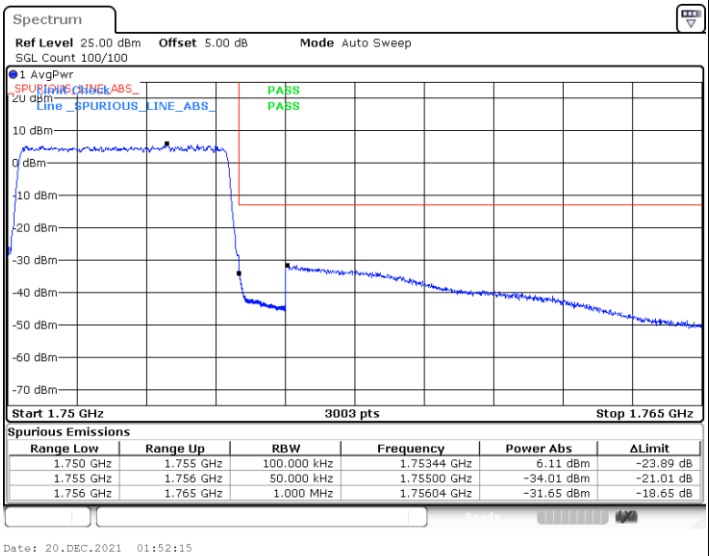

Date: 20.DEC.2021 01:51:20

### Lowest Band Edge / Full RB



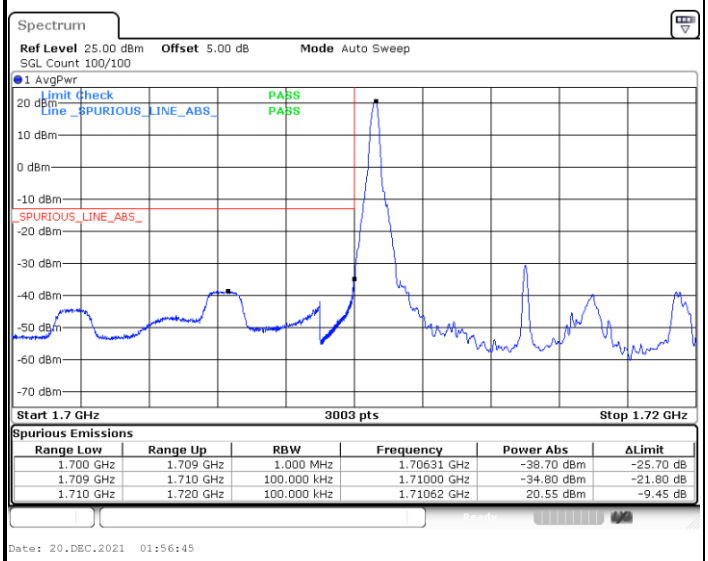

Date: 20.DEC.2021 01:39:11

### Highest Band Edge / Full RB

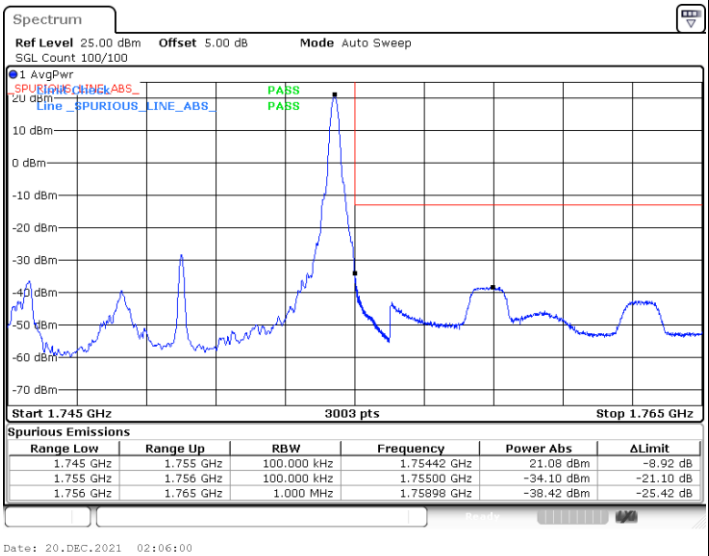



Date: 20.DEC.2021 01:52:15

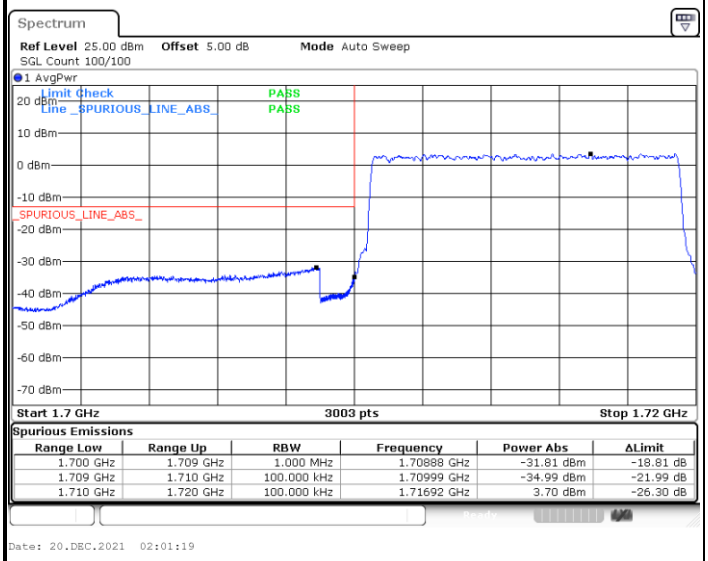
| LTE Band 4 / 10MHz / QPSK | |
|---|---|
| **Lowest Band Edge / 1 RB** | **Highest Band Edge / 1 RB** |
| **Lowest Band Edge / Full RB** | **Highest Band Edge / Full RB** |



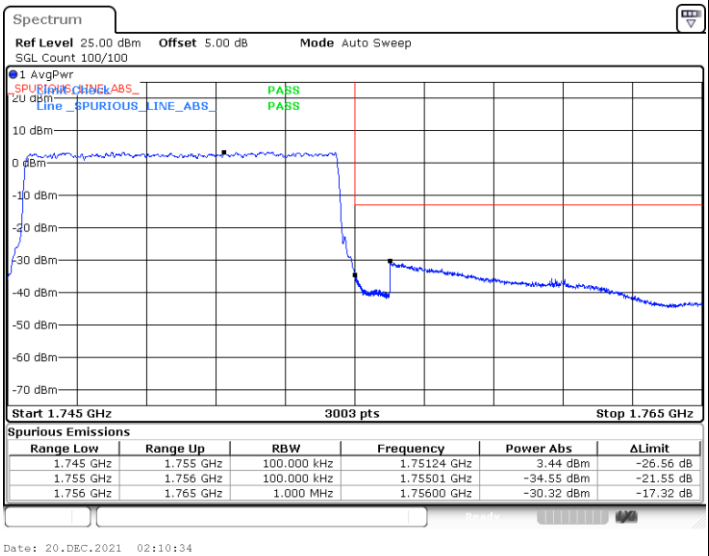

Date: 20.DEC.2021 01:56:45




Date: 20.DEC.2021 02:06:00



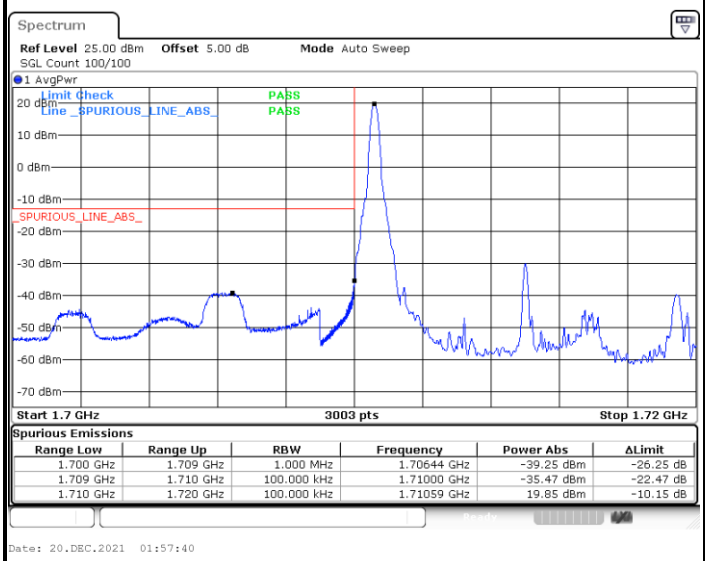

Date: 20.DEC.2021 02:01:19




Date: 20.DEC.2021 02:10:34

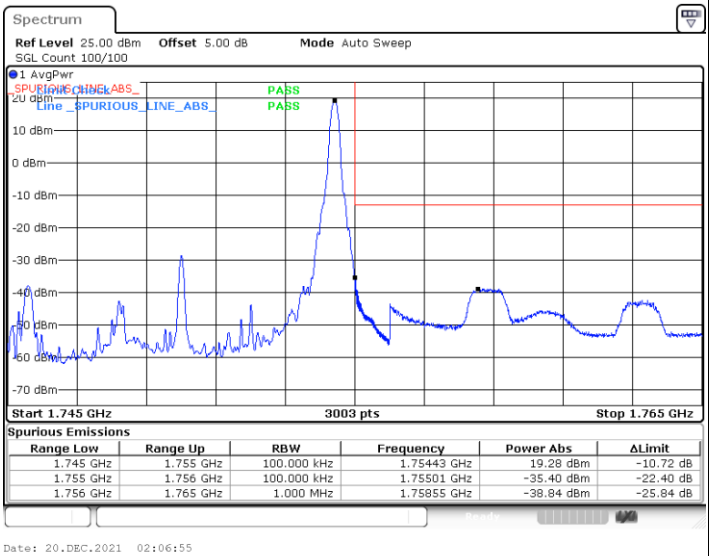
## LTE Band 4 / 10MHz / 16QAM

### Lowest Band Edge / 1 RB



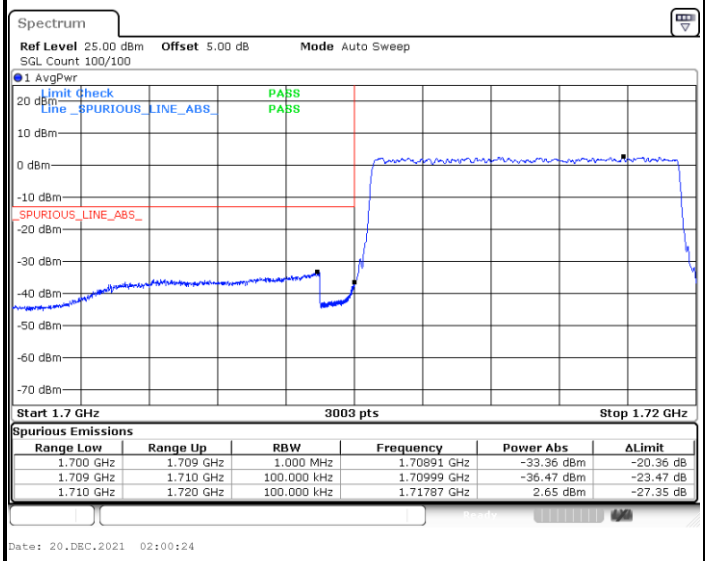

Date: 20.DEC.2021 01:57:40

### Highest Band Edge / 1 RB



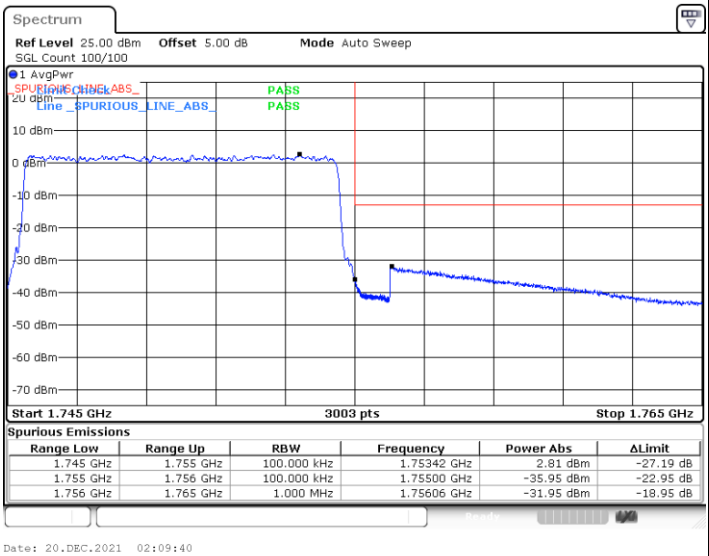

Date: 20.DEC.2021 02:06:55

### Lowest Band Edge / Full RB




Date: 20.DEC.2021 02:00:24

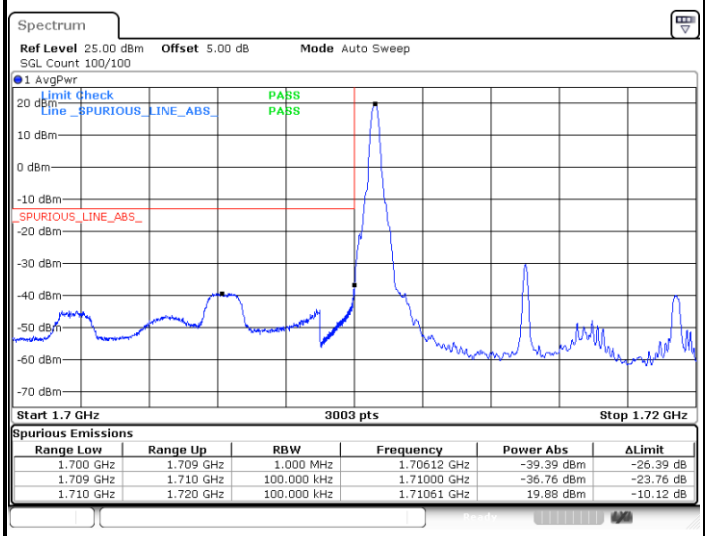
### Highest Band Edge / Full RB




Date: 20.DEC.2021 02:09:40

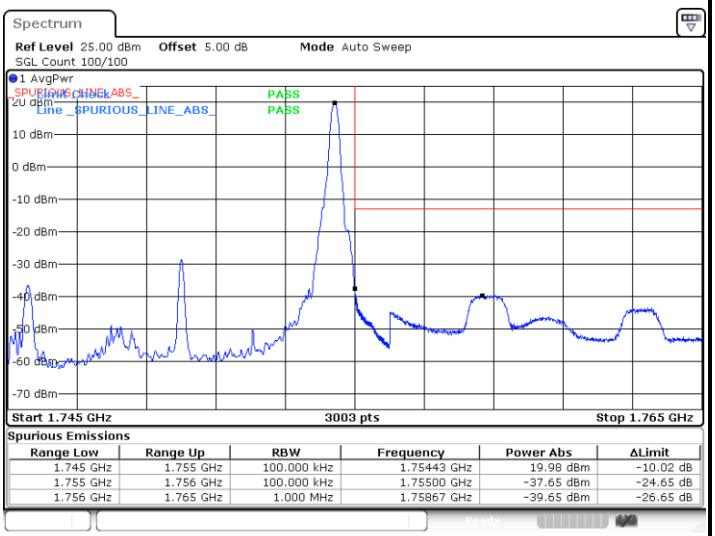
## LTE Band 4 / 10MHz / 64QAM

### Lowest Band Edge / 1 RB



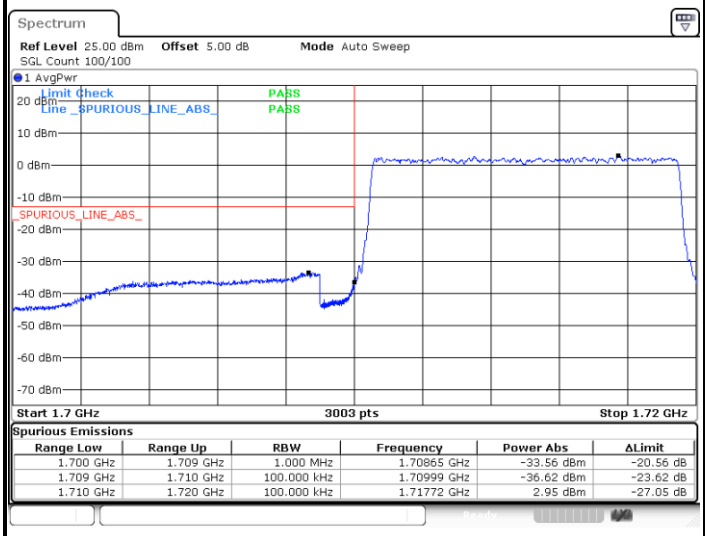

Date: 20.DEC.2021 01:58:35

### Highest Band Edge / 1 RB



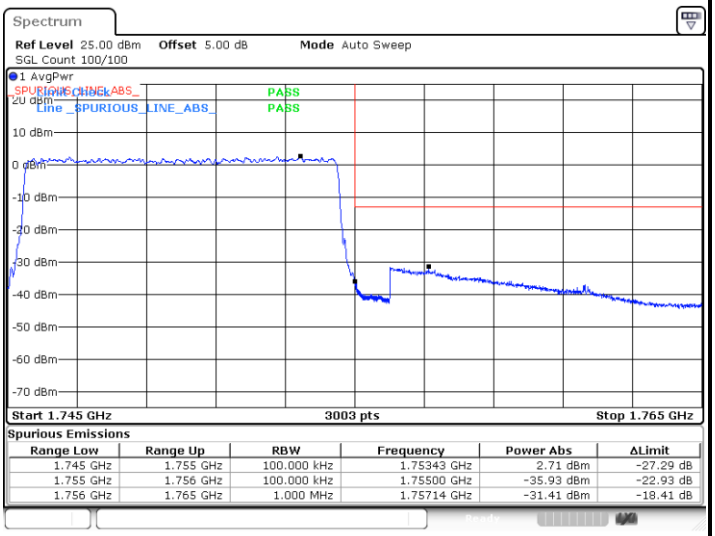

Date: 20.DEC.2021 02:07:50

### Lowest Band Edge / Full RB




Date: 20.DEC.2021 01:59:30

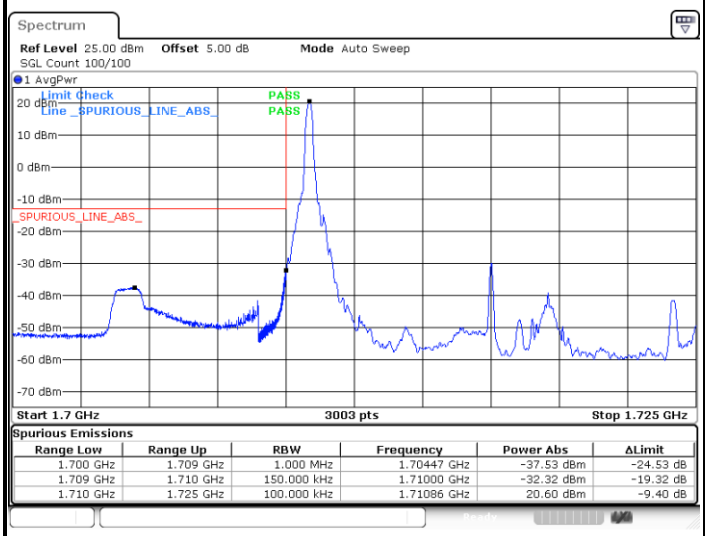
### Highest Band Edge / Full RB




Date: 20.DEC.2021 02:08:45

## LTE Band 4 / 15MHz / QPSK

### Lowest Band Edge / 1 RB

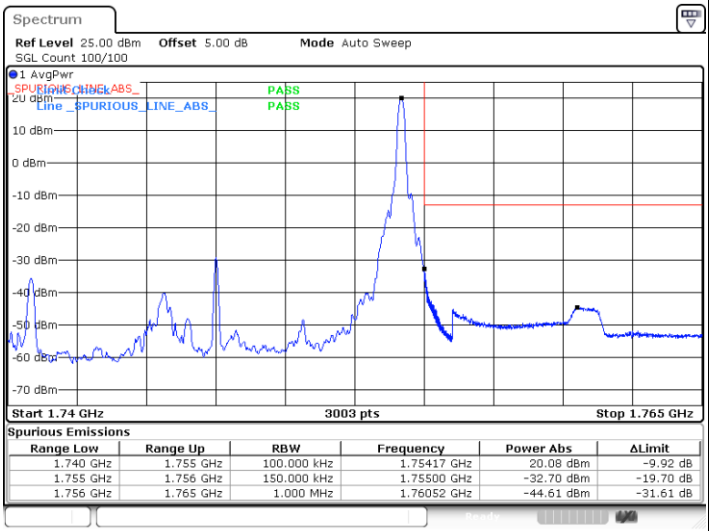



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70447 GHz | -37.53 dBm | -24.53 dB |
| 1.709 GHz | 1.710 GHz | 150.000 kHz | 1.71000 GHz | -32.32 dBm | -19.32 dB |
| 1.710 GHz | 1.725 GHz | 100.000 kHz | 1.71086 GHz | 20.60 dBm | -9.40 dB |

Date: 20.DEC.2021 02:13:13

### Highest Band Edge / 1 RB

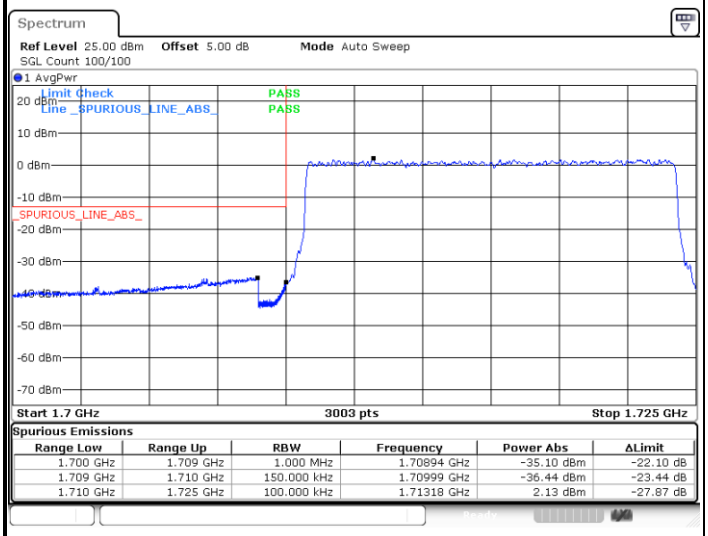



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.740 GHz | 1.755 GHz | 100.000 kHz | 1.75417 GHz | 20.08 dBm | -9.92 dB |
| 1.755 GHz | 1.756 GHz | 150.000 kHz | 1.75500 GHz | -32.70 dBm | -19.70 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.76052 GHz | -44.61 dBm | -31.61 dB |

Date: 20.DEC.2021 02:22:27

### Lowest Band Edge / Full RB

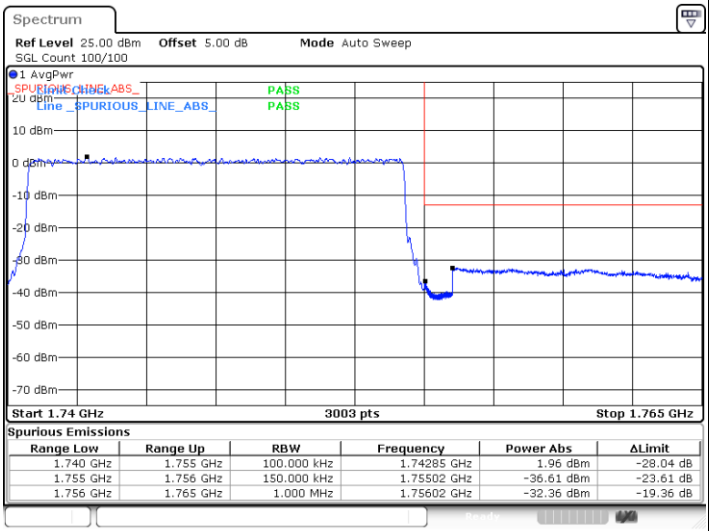



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70894 GHz | -35.10 dBm | -22.10 dB |
| 1.709 GHz | 1.710 GHz | 150.000 kHz | 1.70999 GHz | -36.44 dBm | -23.44 dB |
| 1.710 GHz | 1.725 GHz | 100.000 kHz | 1.71318 GHz | 2.13 dBm | -27.87 dB |

Date: 20.DEC.2021 02:17:46

### Highest Band Edge / Full RB



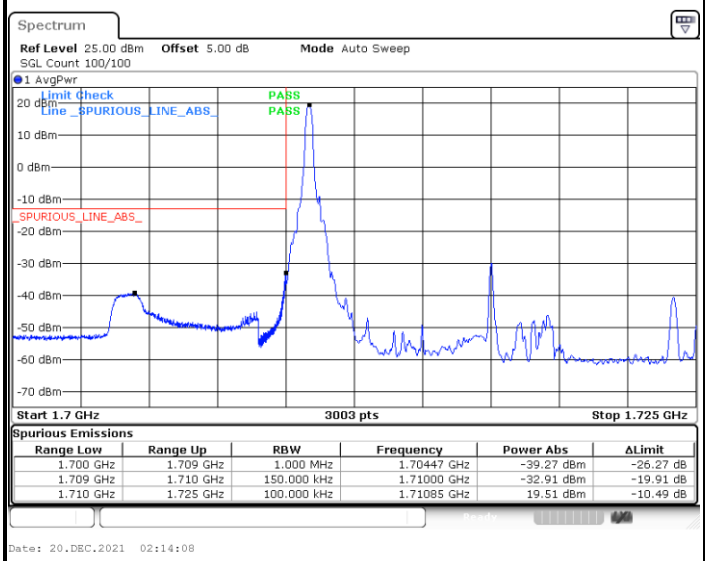

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.740 GHz | 1.755 GHz | 100.000 kHz | 1.74285 GHz | 1.96 dBm | -28.04 dB |
| 1.755 GHz | 1.756 GHz | 150.000 kHz | 1.75502 GHz | -36.61 dBm | -23.61 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.75602 GHz | -32.36 dBm | -19.36 dB |

Date: 20.DEC.2021 02:27:21

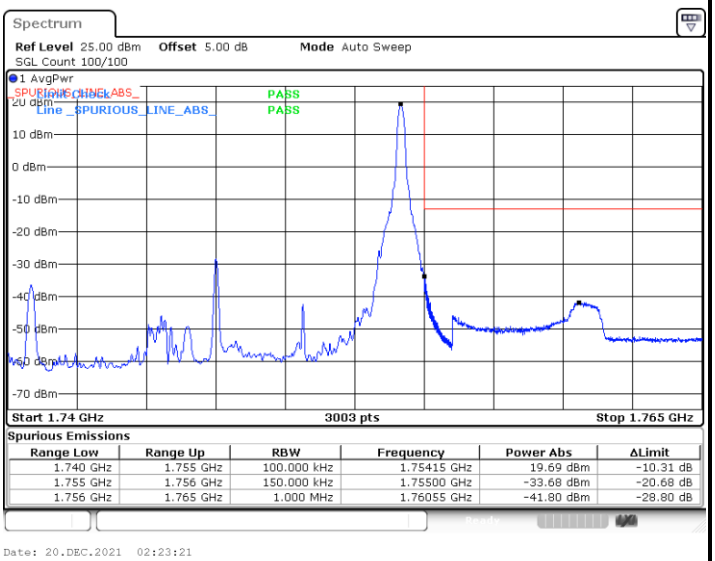
## LTE Band 4 / 15MHz / 16QAM

### Lowest Band Edge / 1 RB



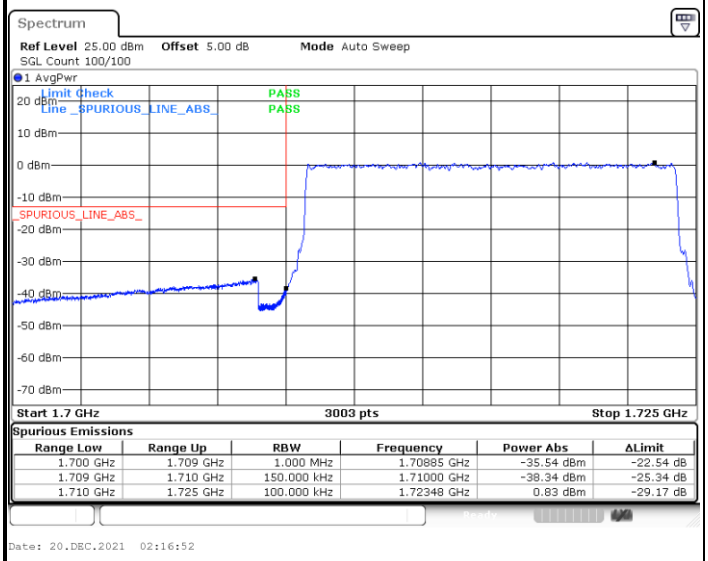

Date: 20.DEC.2021 02:14:08

### Highest Band Edge / 1 RB



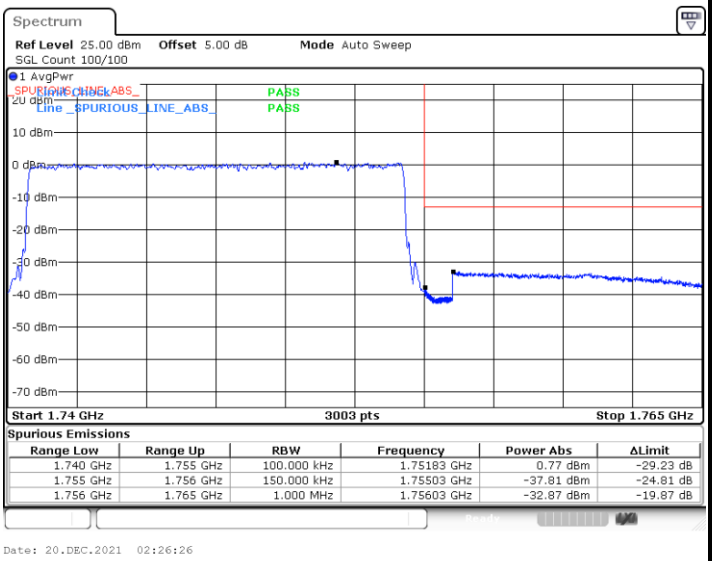

Date: 20.DEC.2021 02:23:21

### Lowest Band Edge / Full RB



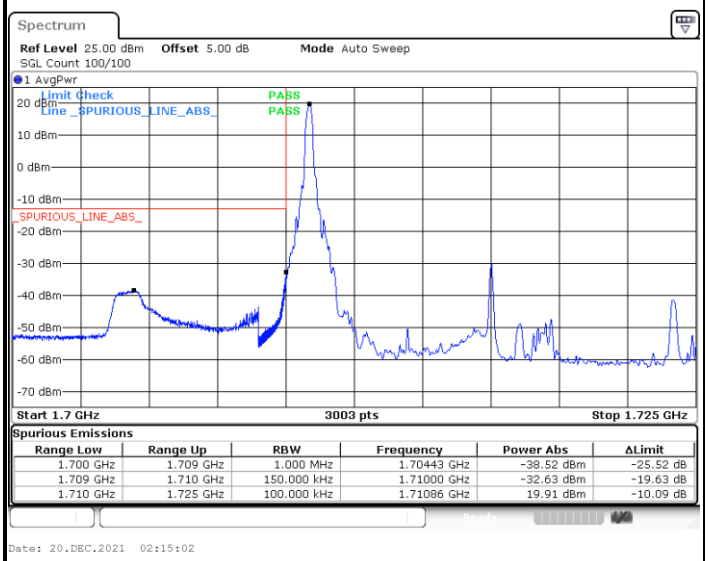

Date: 20.DEC.2021 02:16:52

### Highest Band Edge / Full RB

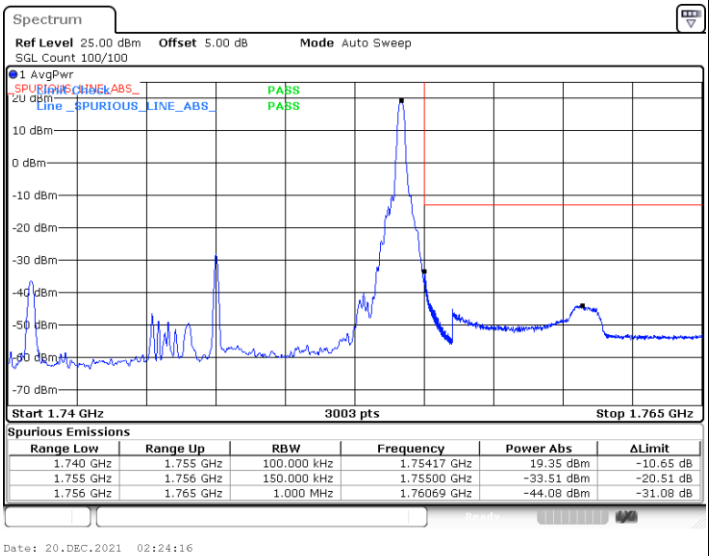



Date: 20.DEC.2021 02:26:26

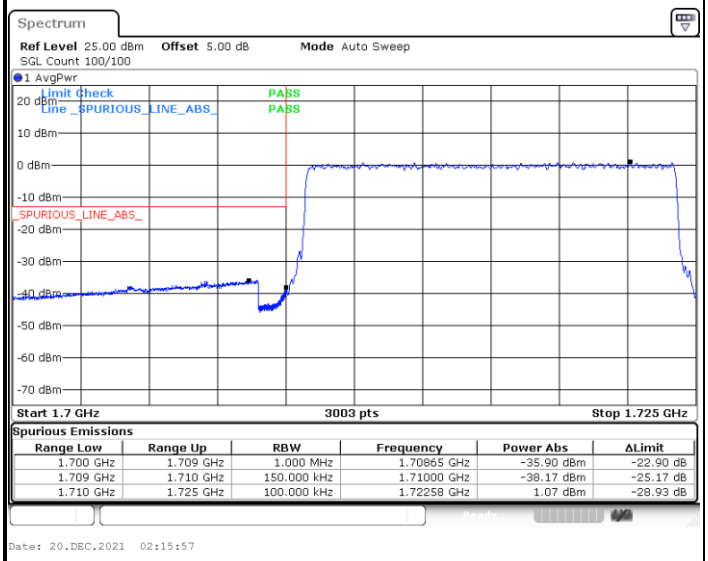
| LTE Band 4 / 15MHz / 64QAM | |
|---|---|
| **Lowest Band Edge / 1 RB** | **Highest Band Edge / 1 RB** |
| **Lowest Band Edge / Full RB** | **Highest Band Edge / Full RB** |



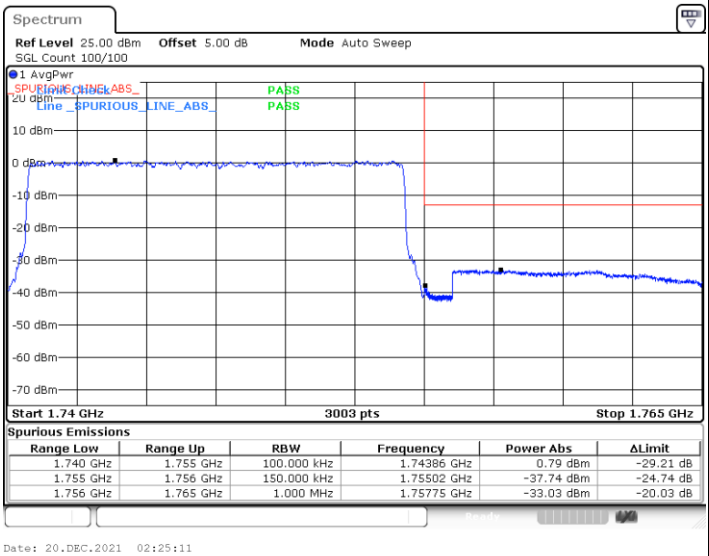

Date: 20.DEC.2021 02:15:02




Date: 20.DEC.2021 02:24:16



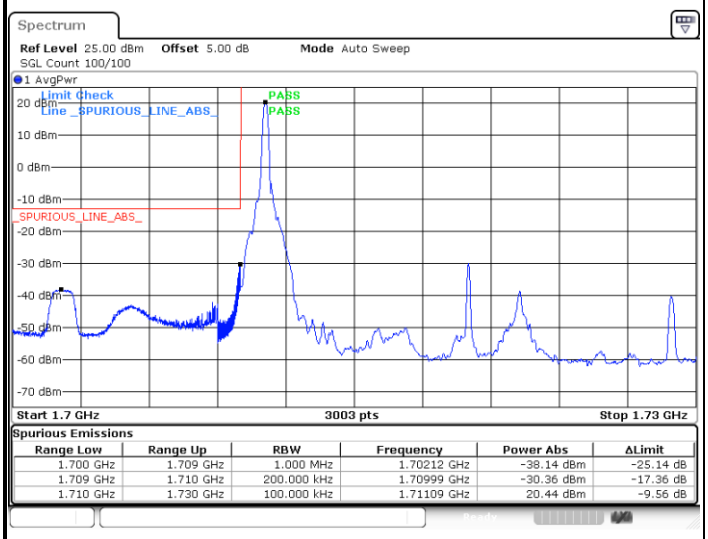

Date: 20.DEC.2021 02:15:57




Date: 20.DEC.2021 02:25:11

## LTE Band 4 / 20MHz / QPSK

### Lowest Band Edge / 1 RB

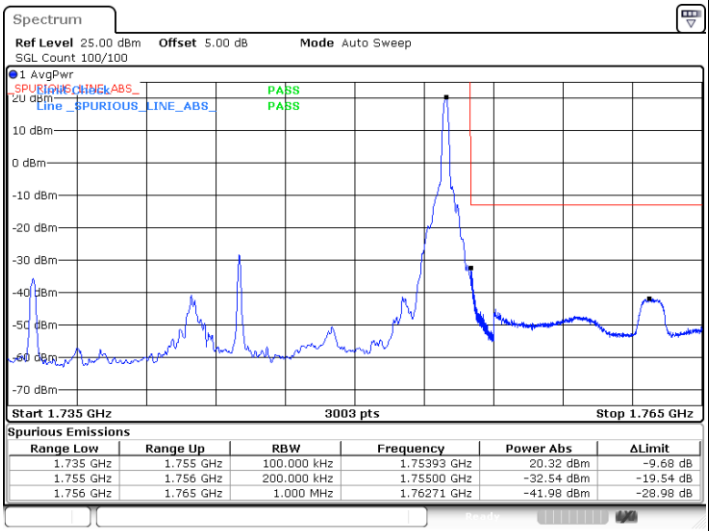



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70212 GHz | -38.14 dBm | -25.14 dB |
| 1.709 GHz | 1.710 GHz | 200.000 kHz | 1.70999 GHz | -30.36 dBm | -17.36 dB |
| 1.710 GHz | 1.730 GHz | 100.000 kHz | 1.71109 GHz | 20.44 dBm | -9.56 dB |

Date: 20.DEC.2021 02:30:01

### Highest Band Edge / 1 RB

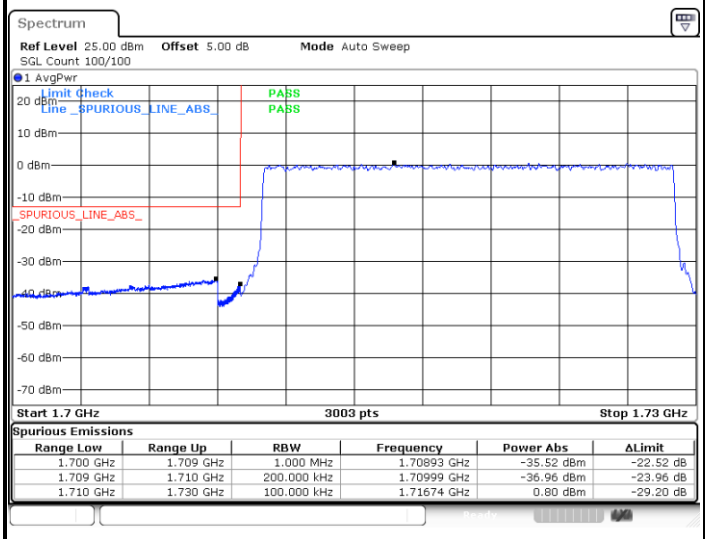



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.735 GHz | 1.755 GHz | 100.000 kHz | 1.75393 GHz | 20.32 dBm | -9.68 dB |
| 1.755 GHz | 1.756 GHz | 200.000 kHz | 1.75500 GHz | -32.54 dBm | -19.54 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.76271 GHz | -41.98 dBm | -28.98 dB |

Date: 20.DEC.2021 02:39:15

### Lowest Band Edge / Full RB

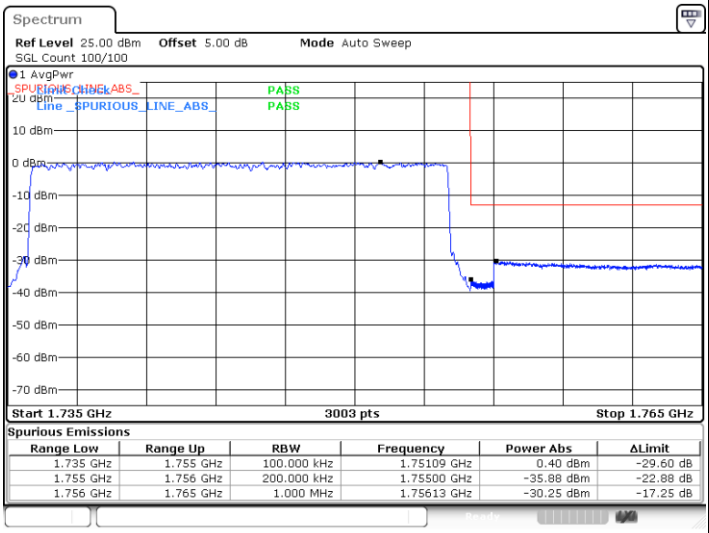



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.700 GHz | 1.709 GHz | 1.000 MHz | 1.70893 GHz | -35.52 dBm | -22.52 dB |
| 1.709 GHz | 1.710 GHz | 200.000 kHz | 1.70999 GHz | -36.96 dBm | -23.96 dB |
| 1.710 GHz | 1.730 GHz | 100.000 kHz | 1.71674 GHz | 0.80 dBm | -29.20 dB |

Date: 20.DEC.2021 02:34:34

### Highest Band Edge / Full RB



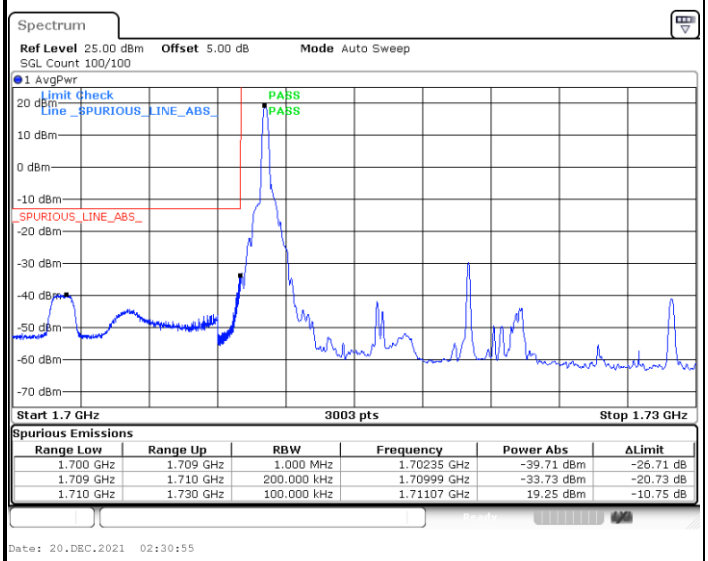

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 1.735 GHz | 1.755 GHz | 100.000 kHz | 1.75109 GHz | 0.40 dBm | -29.60 dB |
| 1.755 GHz | 1.756 GHz | 200.000 kHz | 1.75500 GHz | -35.88 dBm | -22.88 dB |
| 1.756 GHz | 1.765 GHz | 1.000 MHz | 1.75613 GHz | -30.25 dBm | -17.25 dB |

Date: 20.DEC.2021 02:43:49

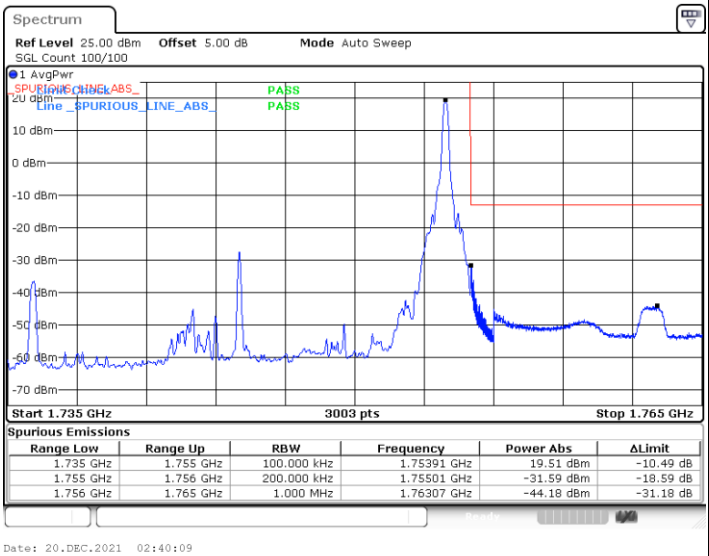
## LTE Band 4 / 20MHz / 16QAM

### Lowest Band Edge / 1 RB



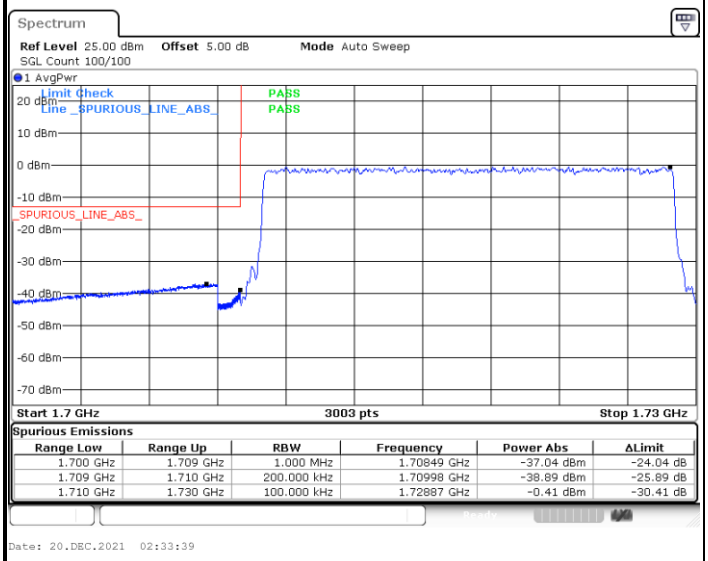

Date: 20.DEC.2021 02:30:55

### Highest Band Edge / 1 RB



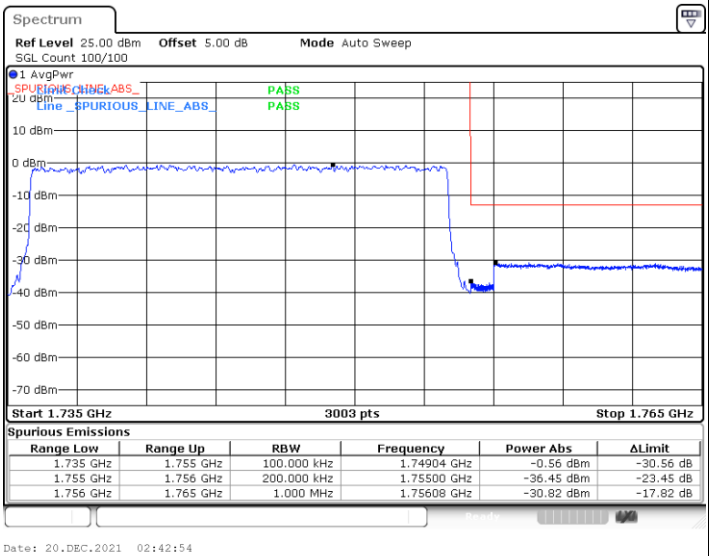

Date: 20.DEC.2021 02:40:09

### Lowest Band Edge / Full RB




Date: 20.DEC.2021 02:33:39

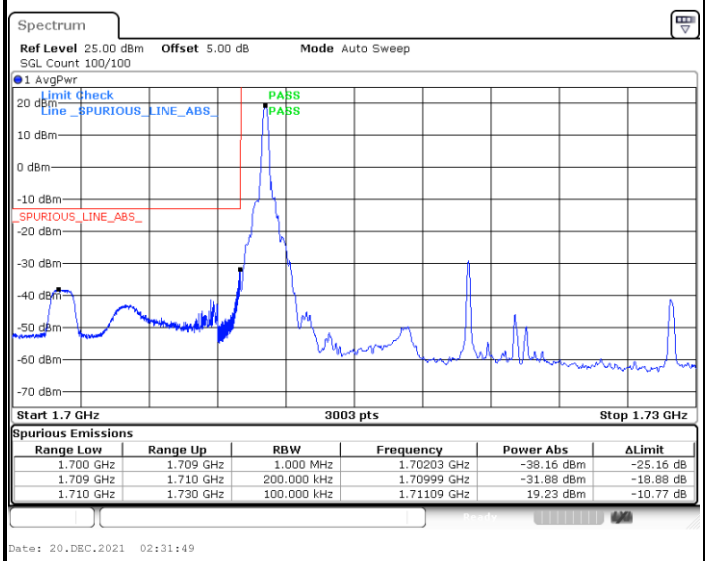
### Highest Band Edge / Full RB



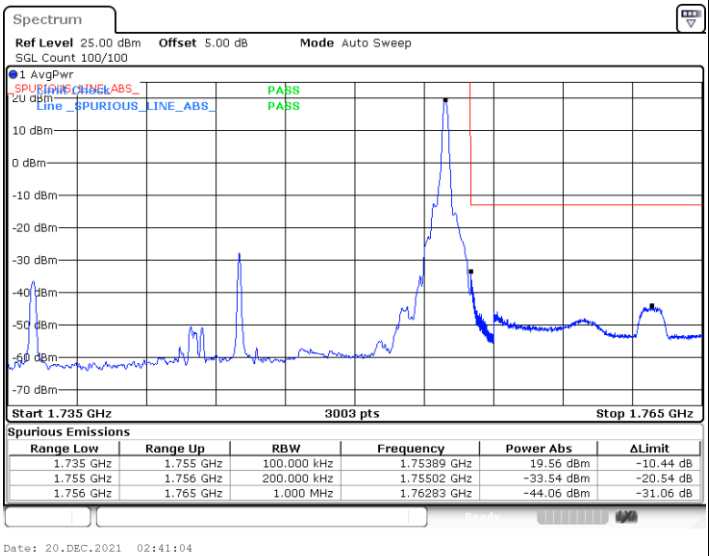

Date: 20.DEC.2021 02:42:54

## LTE Band 4 / 20MHz / 64QAM

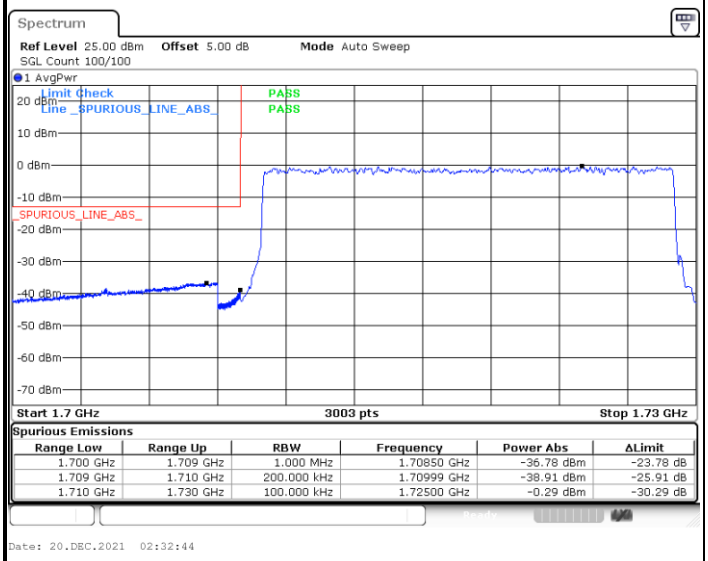
### Lowest Band Edge / 1 RB



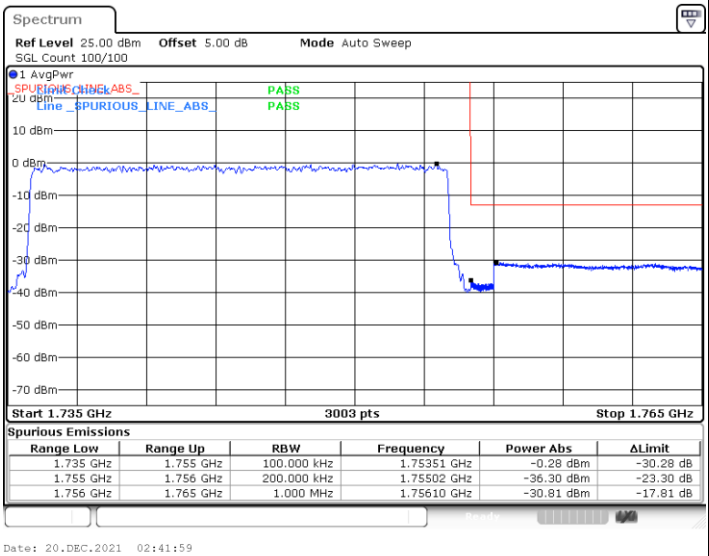

### Highest Band Edge / 1 RB




### Lowest Band Edge / Full RB



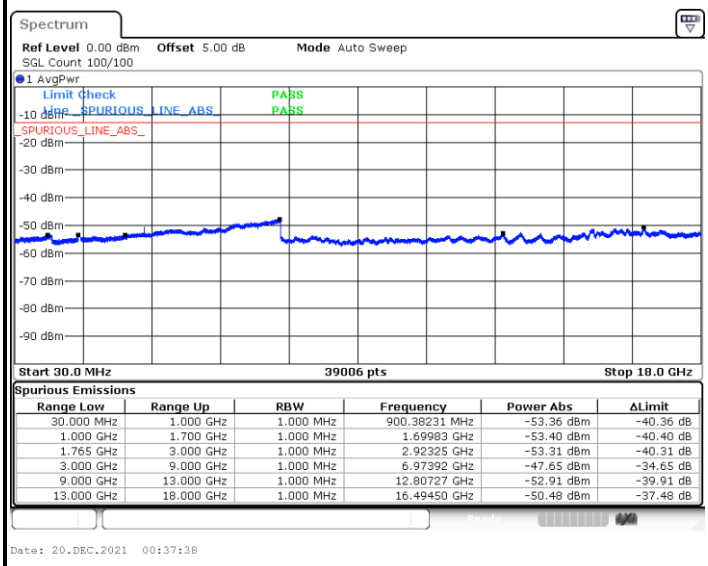

### Highest Band Edge / Full RB



# Conducted Spurious Emission

## LTE Band 4 / 1.4MHz

### Lowest Channel / QPSK

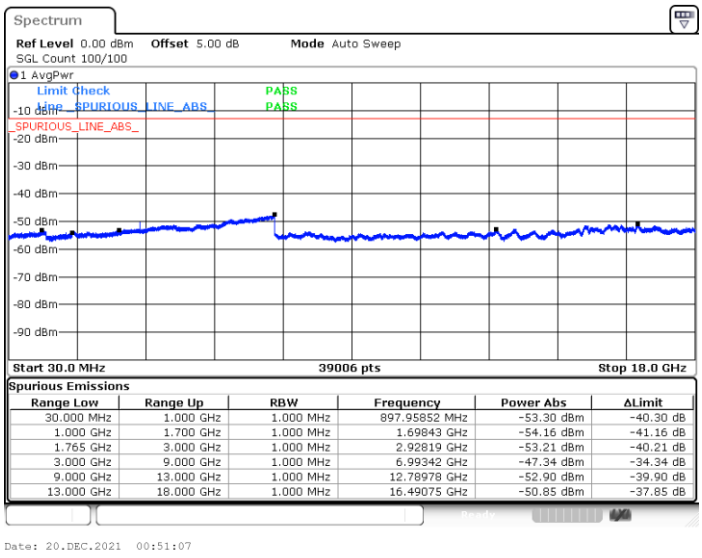



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 900.38231 MHz | -53.36 dBm | -40.36 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.69983 GHz | -53.40 dBm | -40.40 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 2.92325 GHz | -53.31 dBm | -40.31 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.97392 GHz | -47.65 dBm | -34.65 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.80727 GHz | -52.91 dBm | -39.91 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.49450 GHz | -50.48 dBm | -37.48 dB |

Date: 20.DEC.2021 00:37:38

### Middle Channel / QPSK

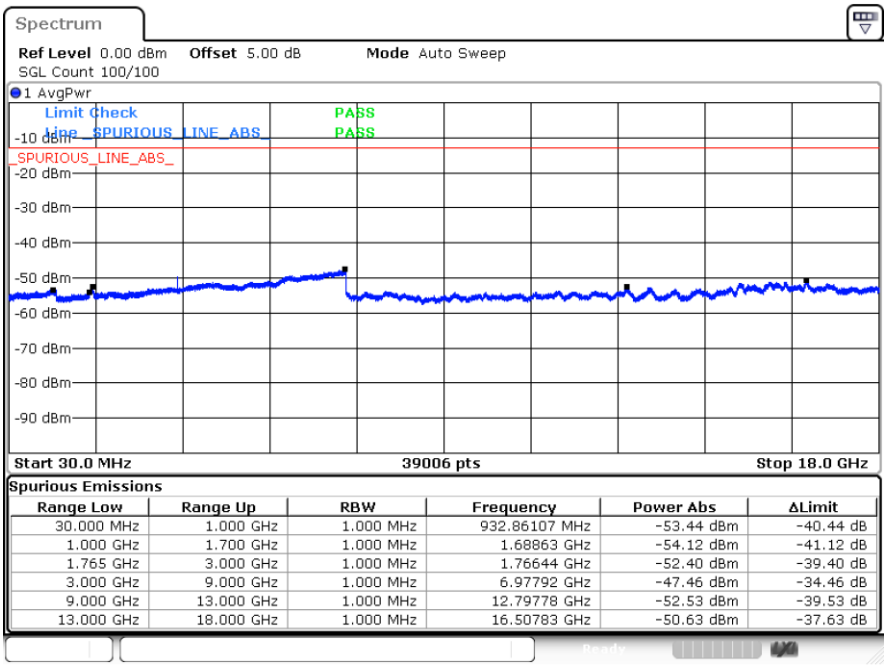



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 897.95852 MHz | -53.30 dBm | -40.30 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.69843 GHz | -54.16 dBm | -41.16 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 2.92819 GHz | -53.21 dBm | -40.21 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.99342 GHz | -47.34 dBm | -34.34 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.78978 GHz | -52.90 dBm | -39.90 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.49075 GHz | -50.85 dBm | -37.85 dB |

Date: 20.DEC.2021 00:51:07

### Highest Channel / QPSK



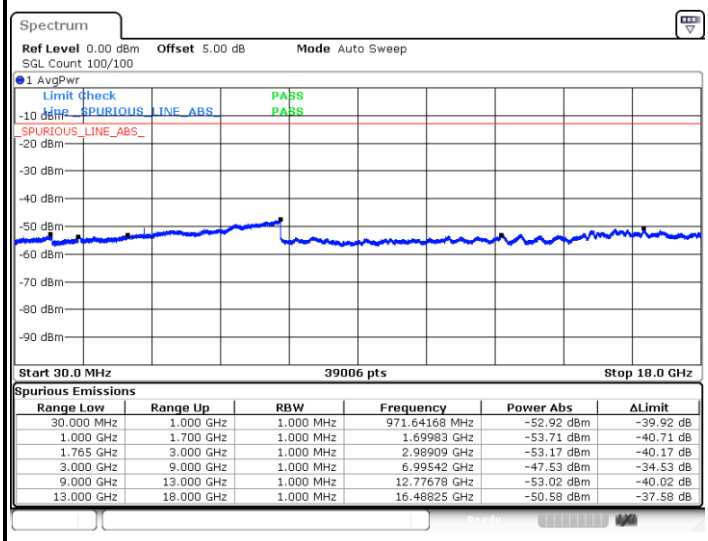

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 932.86107 MHz | -53.44 dBm | -40.44 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.68863 GHz | -54.12 dBm | -41.12 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 1.76644 GHz | -52.40 dBm | -39.40 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.97792 GHz | -47.46 dBm | -34.46 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.79778 GHz | -52.53 dBm | -39.53 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.50783 GHz | -50.63 dBm | -37.63 dB |

Date: 20.DEC.2021 00:53:01

## LTE Band 4 / 3MHz

### Lowest Channel / QPSK

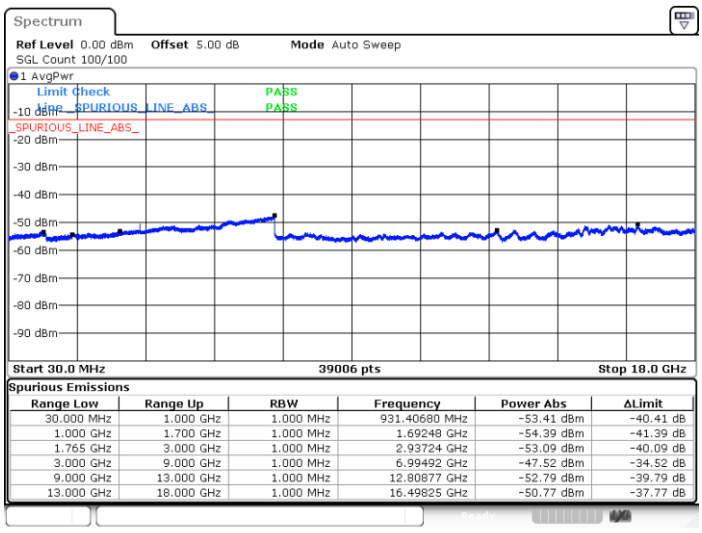



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 971.64168 MHz | -52.92 dBm | -39.92 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.69983 GHz | -53.71 dBm | -40.71 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 2.98909 GHz | -53.17 dBm | -40.17 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.99542 GHz | -47.53 dBm | -34.53 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.77678 GHz | -53.02 dBm | -40.02 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.48825 GHz | -50.58 dBm | -37.58 dB |

Date: 20.DEC.2021 01:05:32

### Middle Channel / QPSK

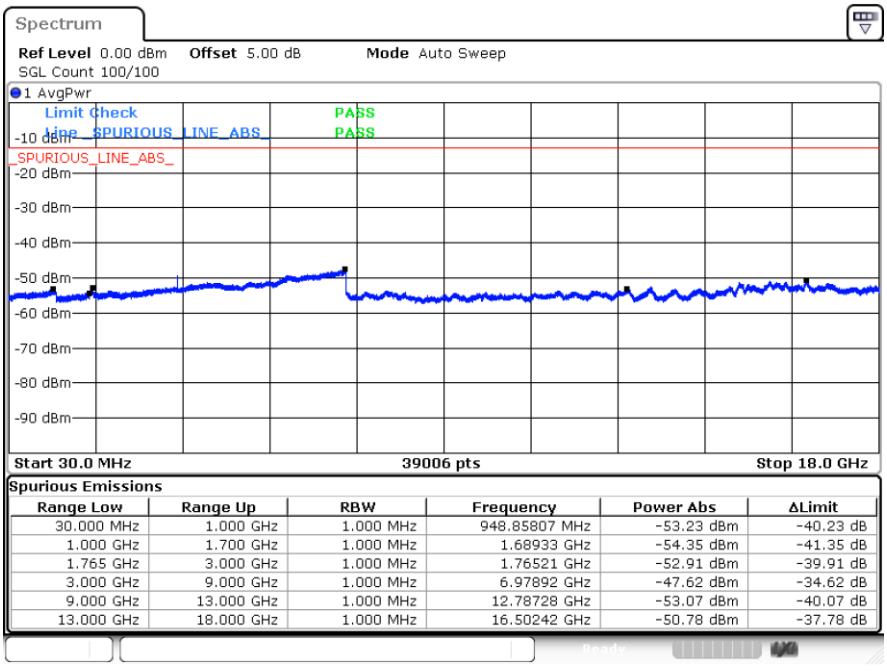



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 931.40680 MHz | -53.41 dBm | -40.41 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.69248 GHz | -54.39 dBm | -41.39 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 2.93724 GHz | -53.09 dBm | -40.09 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.99492 GHz | -47.52 dBm | -34.52 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.80877 GHz | -52.79 dBm | -39.79 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.49825 GHz | -50.77 dBm | -37.77 dB |

Date: 20.DEC.2021 01:17:52

### Highest Channel / QPSK



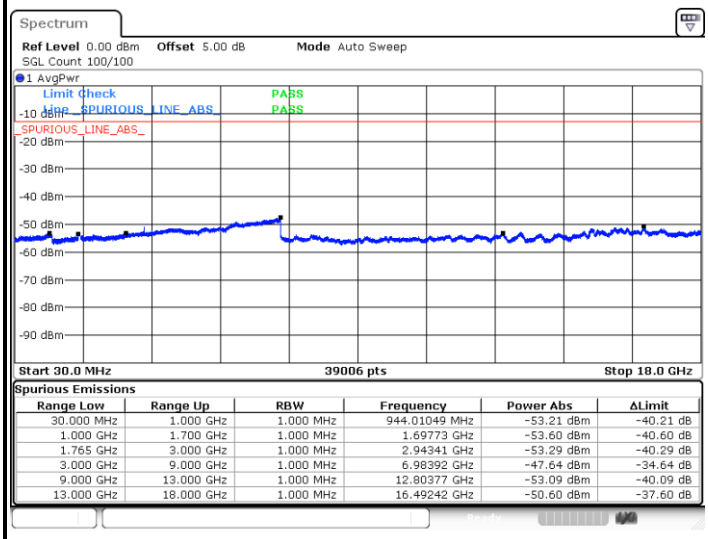

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 948.85807 MHz | -53.23 dBm | -40.23 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.68933 GHz | -54.35 dBm | -41.35 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 1.76521 GHz | -52.91 dBm | -39.91 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.97892 GHz | -47.62 dBm | -34.62 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.78728 GHz | -53.07 dBm | -40.07 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.50242 GHz | -50.78 dBm | -37.78 dB |

Date: 20.DEC.2021 01:19:45

## LTE Band 4 / 5MHz

### Lowest Channel / QPSK

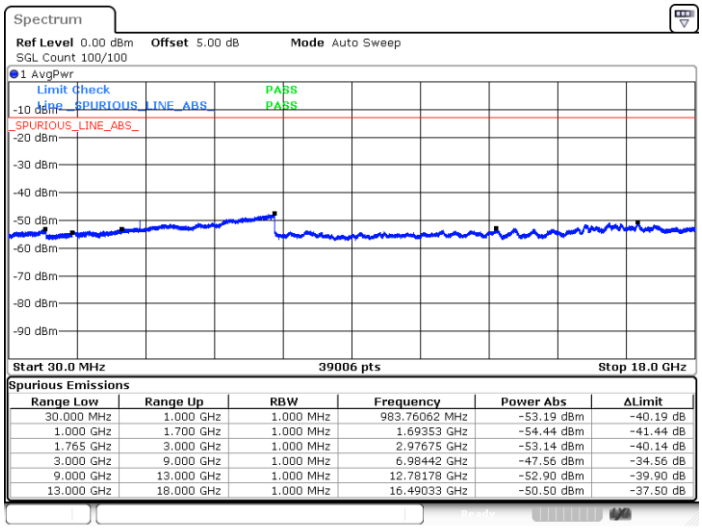



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 944.01049 MHz | -53.21 dBm | -40.21 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.69773 GHz | -53.60 dBm | -40.60 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 2.94341 GHz | -53.29 dBm | -40.29 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.98392 GHz | -47.64 dBm | -34.64 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.80377 GHz | -53.09 dBm | -40.09 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.49242 GHz | -50.60 dBm | -37.60 dB |

Date: 20.DEC.2021 01:32:18

### Middle Channel / QPSK

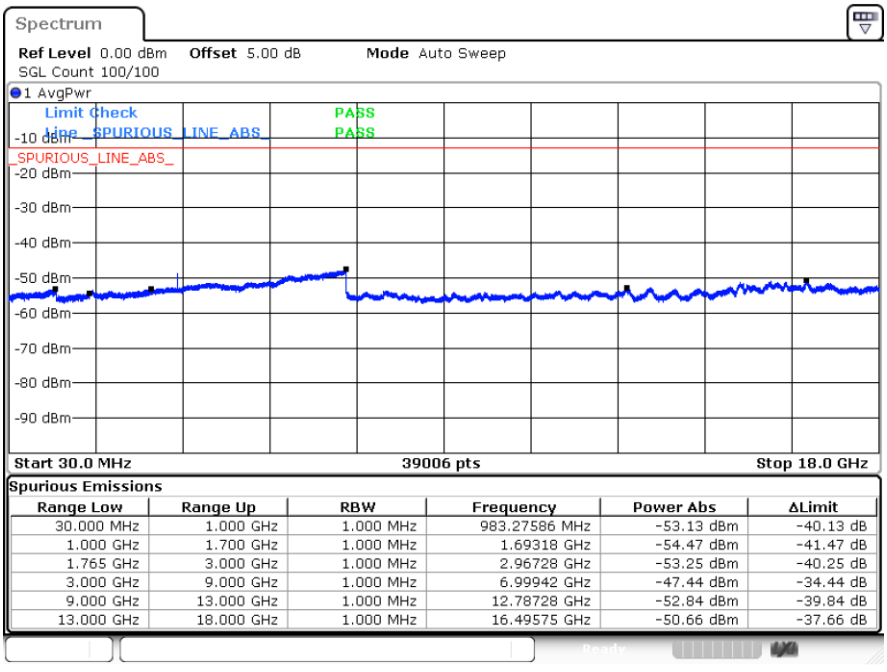



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 983.76062 MHz | -53.19 dBm | -40.19 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.69353 GHz | -54.44 dBm | -41.44 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 2.97675 GHz | -53.14 dBm | -40.14 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.98442 GHz | -47.56 dBm | -34.56 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.78178 GHz | -52.90 dBm | -39.90 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.49033 GHz | -50.50 dBm | -37.50 dB |

Date: 20.DEC.2021 01:44:35

### Highest Channel / QPSK




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 983.27586 MHz | -53.13 dBm | -40.13 dB |
| 1.000 GHz | 1.700 GHz | 1.000 MHz | 1.69318 GHz | -54.47 dBm | -41.47 dB |
| 1.765 GHz | 3.000 GHz | 1.000 MHz | 2.96728 GHz | -53.25 dBm | -40.25 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.99942 GHz | -47.44 dBm | -34.44 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.78728 GHz | -52.84 dBm | -39.84 dB |
| 13.000 GHz | 18.000 GHz | 1.000 MHz | 16.49575 GHz | -50.66 dBm | -37.66 dB |

Date: 20.DEC.2021 01:46:28