



# FCC RADIO TEST REPORT

**FCC ID** : S9GQ410US01  
**Equipment** : Q410 LTE Access Point  
**Brand Name** : Ruckus  
**Model Name** : Q410-US01  
**Applicant** : Ruckus Wireless, Inc.  
350 West Java Drive Sunnyvale California 94089 USA  
**Manufacturer** : Ruckus Wireless, Inc.  
350 West Java Drive Sunnyvale California 94089 USA  
**Standard** : 47 CFR FCC Part2, 96

The product was received on Nov. 14, 2018, and testing was started from Dec. 08, 2018 and completed on Dec. 12, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA-603-E-2016, ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Jordan Hsiao

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**  
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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TEL : 886-3-327-3456  
FAX : 886-3-327-0973  
Report Template No.: HE1-V1 Ver1.0



## Summary of Test Result

| Report Clause | Ref Std. Clause    | Test Items                                        | Result (PASS/FAIL) | Remark |
|---------------|--------------------|---------------------------------------------------|--------------------|--------|
| 3.1           | 2.1046             | Conducted Output Power                            | PASS               | -      |
| 3.2           | 96.41(b)           | Maximum Effective Isotropic Radiated Power (EIRP) | PASS               | -      |
| 3.3           | 96.41(b)           | Maximum Power Spectral Density (PSD)              | PASS               |        |
| 3.4           | 96.41(f)           | Reception limits                                  | PASS               |        |
| 3.5           | 96.41(g)           | Peak-to-average power ratio                       | PASS               | -      |
| 3.6           | 2.1049             | 99% OBW and 26dB Bandwidth                        | PASS               | -      |
| 3.7           | 2.1051<br>96.41(e) | 3.5 GHz Emissions and Interference Limits         | PASS               |        |
| 3.8           | 2.1053             | Field Strength of Spurious Radiation              | PASS               | -      |
| 3.9           | 2.1055             | Frequency Stability for Temperature & Voltage     | PASS               | -      |

**Declaration of Conformity:**

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

**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.

**Reviewed by:** Jordan Hsiao

**Report Producer:** Viola Huang



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

| Items                           | Description               |
|---------------------------------|---------------------------|
| Power Type                      | From power adapter or PoE |
| EUT supports Radios application | LTE                       |

## 1.2 Product Specification subjective to this standard

| Items                           | Description                                                                                                                                                                                                                                                           |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base Station Classes            | <input type="checkbox"/> Wide Area Base Station (Macro Cell)<br><input type="checkbox"/> Medium Range Base Station (Micro Cell)<br><input checked="" type="checkbox"/> Local Area Base Station (Pico Cell)<br><input type="checkbox"/> Home Base Station (Femto Cell) |
| Category of CBSD                | <input checked="" type="checkbox"/> Category A<br><input type="checkbox"/> Category B                                                                                                                                                                                 |
| Professional Installation       | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No                                                                                                                                                                                                |
| RF Test Tool Software of CBSD   | SmallCell DVT Test Client (1.0.306.003)                                                                                                                                                                                                                               |
| TX Frequency                    | 10MHz: 3555 MHz ~ 3695 MHz<br>20MHz: 3560 MHz ~ 3690 MHz                                                                                                                                                                                                              |
| RX Frequency                    | 10MHz: 3555 MHz ~ 3695 MHz<br>20MHz: 3560 MHz ~ 3690 MHz                                                                                                                                                                                                              |
| Bandwidth (MHz)                 | 10/20                                                                                                                                                                                                                                                                 |
| Maximum Output Power to Antenna | 10MHz: 24.91 dBm<br>20MHz: 25.75 dBm                                                                                                                                                                                                                                  |
| Maximum 99% Occupied Bandwidth  | 10MHz: 8.939 MHz<br>20MHz: 17.831 MHz                                                                                                                                                                                                                                 |
| Type of Modulation              | <input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM <input checked="" type="checkbox"/> 64QAM <input type="checkbox"/> 256QAM                                                                                                          |

Note: The above information was declared by manufacturer.



### 1.3 Antenna Information

| Ant. | Brand | P/N          | Antenna Type | Connector | Antenna Gain (dBi) | Cable Loss (dB) | True Gain (dBi) | Remark   |
|------|-------|--------------|--------------|-----------|--------------------|-----------------|-----------------|----------|
| 1    | WNC   | 95XKAB15.G23 | PIFA Antenna | I-PEX     | 2.97               | 0.35            | 2.62            | LTE Ant. |
| 2    | WNC   | 95XKAB15.G24 | PIFA Antenna | I-PEX     | 2.97               | 0.7             | 2.27            | LTE Ant. |
| 3    | WNC   | 95XKAB15.G25 | PIFA Antenna | I-PEX     | 3.06               | -               | 3.06            | GPS Ant. |

Note1: The above information was declared by manufacturer.

Note2: Both Ant. 1 and Ant. 2 could transmit/receive simultaneously.

### 1.4 Maximum EIRP Power, Frequency Tolerance, and Emission Designator

| FCC Rule | System      | Bandwidth | Type of Modulation | Maximum EIRP (dBm/10MHz) | EIRP (W) | Maximum EIRP (dBm/20MHz) | EIRP (W) | Frequency Stability                       | Emission Designator |
|----------|-------------|-----------|--------------------|--------------------------|----------|--------------------------|----------|-------------------------------------------|---------------------|
| Part 96  | LTE Band 48 | 10MHz     | QPSK               | 27.37                    | 0.546    | -                        | -        | With in the authorized bands of operation | 8M93G7D             |
|          |             |           | 16QAM              | 27.41                    | 0.551    | -                        | -        |                                           | 8M94W7D             |
|          |             |           | 64QAM              | 27.53                    | 0.566    | -                        | -        |                                           | 8M92W7D             |
|          |             | 20MHz     | QPSK               | -                        | -        | 28.35                    | 0.684    |                                           | 17M8G7D             |
|          |             |           | 16QAM              | -                        | -        | 28.36                    | 0.685    |                                           | 17M8W7D             |
|          |             |           | 64QAM              | -                        | -        | 28.37                    | 0.687    |                                           | 17M8W7D             |
|          |             |           |                    |                          |          |                          |          |                                           |                     |

### 1.5 Accessories

| Accessories                         |
|-------------------------------------|
| RJ-45 cable*1, non- Shielded, 0.16m |
| Bracket*1                           |
| Pedestal*3                          |



## 1.6 Support Equipment

For TH01-HY

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| A                 | Notebook  | DELL       | E4300      | N/A    |

For 03CH03-HY

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| A                 | Notebook  | DELL       | E4300      | N/A    |
| B                 | Spectrum  | Agilent    | N9010A     | N/A    |

## 1.7 Applicable Standards

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

- 47 CFR FCC Part2, 96
- ANSI / TIA-603-E-2016
- ANSI C63.26-2015
- FCC KDB 971168 D01 v03r01
- FCC KDB 940660 D01 v01
- FCC KDB 412172 D01 v01r01
- FCC KDB 662911 D01 v02r01

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

## 1.8 Testing Location

| Testing Location                    |        |                                                                                                                               |               |                             |
|-------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| <input checked="" type="checkbox"/> | HWA YA | ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973        |               |                             |
| <input type="checkbox"/>            | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.<br>TEL : 886-3-656-9065 FAX : 886-3-656-9085 |               |                             |
| Test Condition                      |        | Test Site No.                                                                                                                 | Test Engineer | Test Environment            |
| RF Conducted                        |        | TH01-HY                                                                                                                       | Roki Liu      | 23°C / 60%                  |
| Radiated Emission                   |        | 03CH03-HY                                                                                                                     | Roki Liu      | 22°C / 54%                  |
|                                     |        |                                                                                                                               |               | Test Date                   |
|                                     |        |                                                                                                                               |               | Dec. 08, 2018–Dec. 12, 2018 |
|                                     |        |                                                                                                                               |               | Dec. 10, 2018               |

Test site Designation No. TW1190 with FCC.

Test site registered number IC 4086B-1 with Industry Canada.

## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

| Test Item                                         | Bandwidth (MHz) | Tested Frequency (MHz) | Mode               |
|---------------------------------------------------|-----------------|------------------------|--------------------|
| Conducted Output Power                            | 10, 20          | B,M,T                  | QPSK,16-QAM,64-QAM |
| Maximum Effective Isotropic Radiated Power (EIRP) | 10, 20          | B,M,T                  | QPSK,16-QAM,64-QAM |
| Maximum Power Spectral Density (PSD)              | 10, 20          | B,M,T                  | QPSK,16-QAM,64-QAM |
| Reception limits                                  | 10, 20          | M                      | -                  |
| Peak-to-average power ratio                       | 10, 20          | B,M,T                  | QPSK,16-QAM,64-QAM |
| 99% OBW and 26dB Bandwidth                        | 10, 20          | B,M,T                  | QPSK,16-QAM,64-QAM |
| 3.5 GHz Emissions and Interference Limits         | 10, 20          | B,M,T                  | QPSK,16-QAM,64-QAM |
| Field Strength of Spurious Radiation              | 20              | B,M,T                  | 64-QAM             |
| Frequency Stability for Temperature & Voltage     | 10, 20          | B, T                   | QPSK,16-QAM,64-QAM |

Note 1:

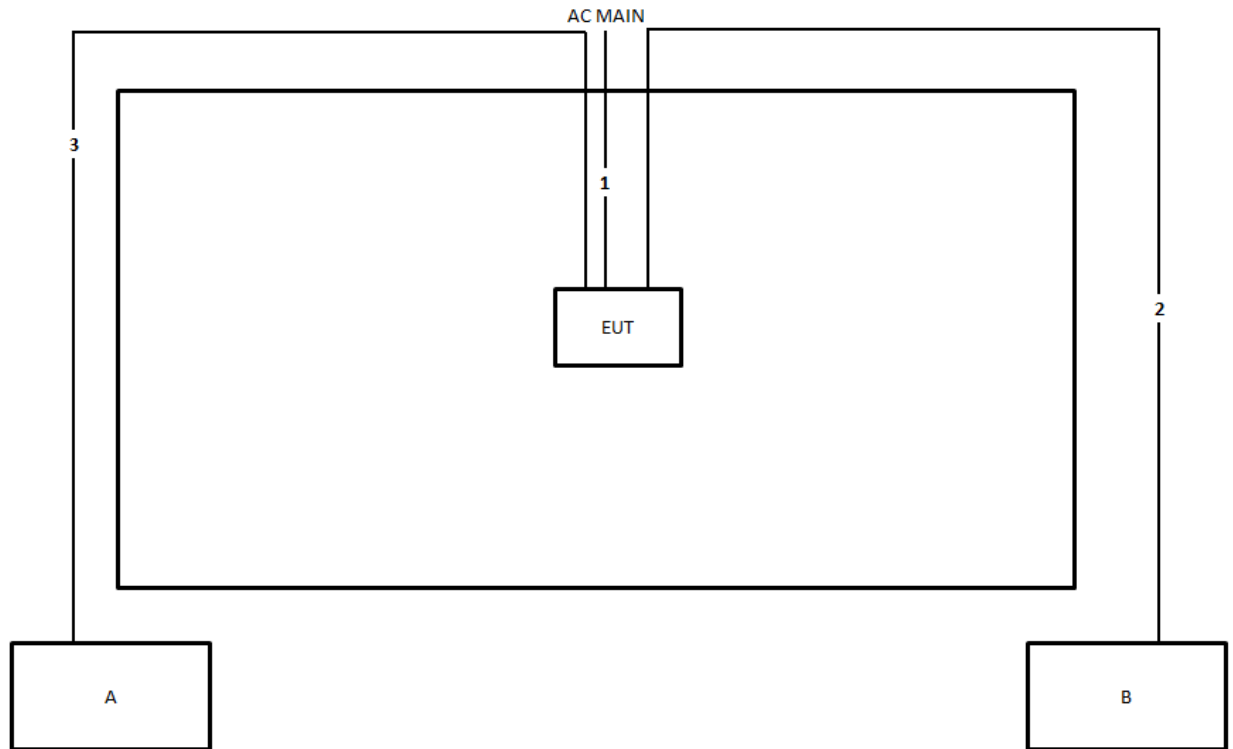
B: Bottom

M: Middle

T: Top

Note 2: It were performed at its Z-axis and Y-axis the worst-case was found at Z-axis for Field Strength of Spurious Radiation. So the measurement will follow this same test configuration.

## 2.2 Test Setup Diagram



| Item | Connection  | Shielded | Length |
|------|-------------|----------|--------|
| 1    | Power cable | No       | 1.5m   |
| 2    | RF cable    | No       | 10m    |
| 3    | RJ-45 cable | No       | 10m    |



## 2.3 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 RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 1 dB and a 20dB attenuator.

Example:

$$\begin{aligned}\text{Offset (dB)} &= \text{RF cable loss (dB)} + \text{attenuator factor (dB)} \\ &= 1 + 20 = 21 \text{ (dB)}\end{aligned}$$

### **For transmission duty cycle < 98% and setting sweep trigger to free run:**

When the EUT cannot be configured to transmit at full-power on a continuous basis (i.e., duty cycle < 98%) and the instrumentation cannot be configured to measure only during active full-power transmissions, then set sweep trigger to free run and add  $10 \log (1/\text{duty cycle})$  to the measured power level if the EUT duty cycle is constant (i.e., duty cycle variations are less than or equal to  $\pm 2\%$ ).

Example:

Add  $[10 \log (1/0.25)] = 6 \text{ dB}$  if the duty cycle is a constant 25%.



### **3 Test Result**

#### **3.1 Conducted Output Power**

##### **3.1.1 Description of the Conducted Output Power measurement**

The EUT shall be set at maximum power through commands provided by manufacturer. The measured power in the radio frequency at the transmitter output terminals shall be reported.

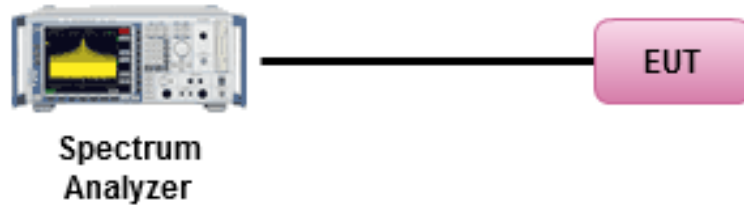
##### **3.1.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

##### **3.1.3 Test Procedures**

1. Connect the transmitter output port of EUT to the spectrum analyzer.
2. Set EUT to transmit at maximum output power.
3. Select lowest, middle, and highest channels for each modulation.
4. Measure the maximum power at RF output terminals .

### 3.1.4 Test Setup



### 3.1.5 Test Result of Conducted Output Power

Refer as Appendix A

## 3.2 Maximum Effective Isotropic Radiated Power (EIRP)

### 3.2.1 Description of the Maximum Effective Isotropic Radiated Power measurement

The EUT shall be set at maximum power through commands provided by manufacturer, and the the EIRP limit shall apply to any 10 MHz portion of the bandwidth. The EIRP of category A CBSD shall be limited to 30dBm/10MHz, and the EIRP of category B CBSD shall be limited to 47dBm/10MHz. According to FCC KDB 940660 D01 v01

Power Approach, the EIRP can be determined from conducted output power.

$EIRP = P_T + G_T - L_C$ , 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

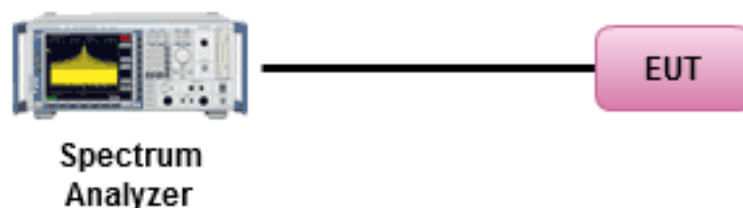
### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.2.3 Test Procedures

1. The testing follows Section 5.2 of ANSI C63.26-2015.
2. Connect the transmitter output port of EUT to the spectrum analyzer.
3. Set EUT to transmit at maximum output power.
4. Select lowest, middle, and highest channels for each modulation.
5. Measure the maximum power in any 10 MHz portion of the bandwidth at RF output terminals.
6. Determining EIRP by conducted RF output power plus transmitting antenna gain.

### 3.2.4 Test Setup



### 3.2.5 Test Result of Maximum Effective Isotropic Radiated Power

Refer as Appendix B

### **3.3 Maximum Power Spectral Density (PSD)**

#### **3.3.1 Description of the Maximum Power Spectral Density Measurement**

The maximum power spectral density measurements, where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission. To perform this measurement, the EUT must be configured to transmit continuously at maximum power. The PSD of category A CBSD shall be limited to 20dBm/MHz, and the EIRP of category B CBSD shall be limited to 37dBm/MHz.

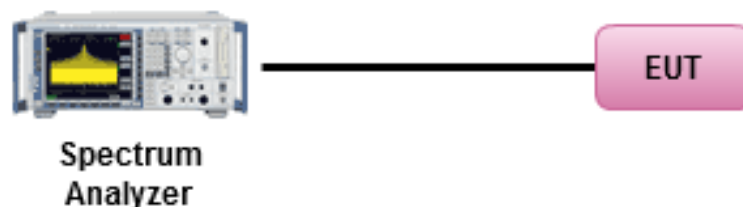
#### **3.3.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

#### **3.3.3 Test Procedures**

1. The testing follows Section 5.2 of ANSI C63.26-2015.
2. Connect the transmitter output port of EUT to the spectrum analyzer.
3. Set EUT to transmit at maximum output power.
4. Select lowest, middle, and highest channels for each modulation.
5. Measure the maximum PSD at RF output terminals .

#### **3.3.4 Test Setup**



#### **3.3.5 Test Result of Maximum Power spectral density**

Refer as Appendix C

### 3.4 Reception limits

#### 3.4.1 Description of the Reception limits Measurement

Priority Access Licensees must accept adjacent channel and in-band blocking interference (3550 and 3700 MHz) up to a power spectral density level not to exceed  $-40$  dBm at receive antenna ports with greater than 99% probability when integrated over a 10 megahertz reference bandwidth.

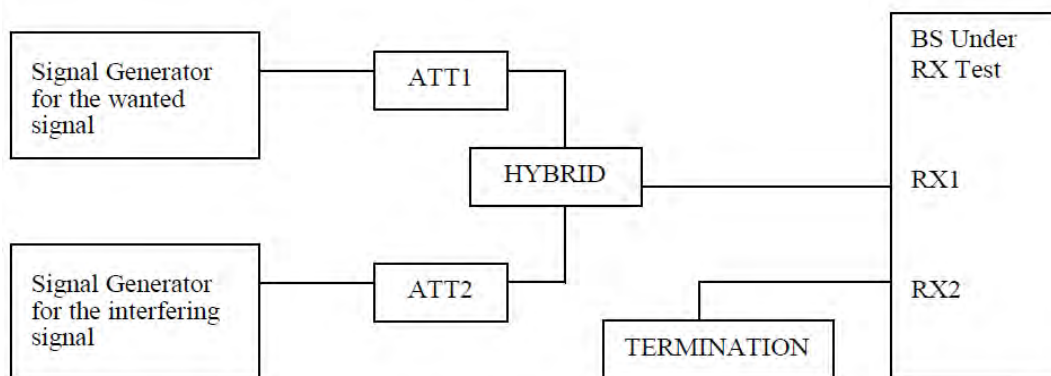
#### 3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.4.3 Test Procedures

1. Refer to the figure in 3.4.4 for connecting EUT and signal generator.
2. Generate the wanted signal and adjust the input level to specified (ex.  $-86.5$  dBm) power level.
3. Select lowest, middle, and highest channels for each modulation.
4. For adjacent channel interference, Set-up the interfering signals at the adjacent channel frequency and adjust the interfering signal level to  $-40$  dBm at receiver antenna ports.
5. For in-band blocking interference, Set-up the interfering signal in the range from 3550 MHz to 3700 MHz and adjust the interfering signal level to  $-40$  dBm at receiver antenna ports.
6. Measure and check the throughput of EUT greater than 99% probability.

#### 3.4.4 Test Setup



#### 3.4.5 Test Result of Reception limits

Refer as Appendix D

### **3.5 Peak-to-Average Power Ratio (PAPR)**

#### **3.5.1 Description of the Peak-to-Average Power Ratio Measurement**

The peak-to-average power ratio of the transmission may not exceed 13 dB.

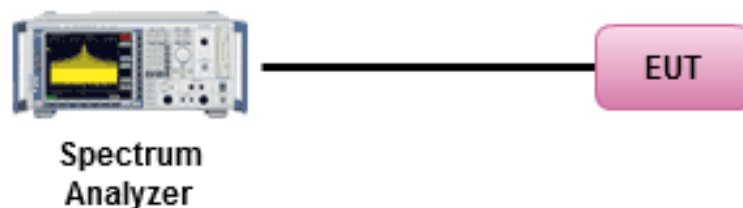
#### **3.5.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

#### **3.5.3 Test Procedures**

1. The testing follows Section 5.2.6 of ANSI C63.26-2015.
2. Connect the transmitter output port of EUT to the spectrum analyzer.
3. Set EUT to transmit at maximum output power.
4. Select lowest, middle, and highest channels for each modulation.
5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.

#### **3.5.4 Test Setup**



#### **3.5.5 Test Result of Peak-to-Average Ratio**

Refer as Appendix E

### **3.6 99% Occupied Bandwidth (OBW) and 26dB Bandwidth**

#### **3.6.1 Description of the 99% Occupied Bandwidth and 26dB Bandwidth Measurement**

The 99% 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 emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

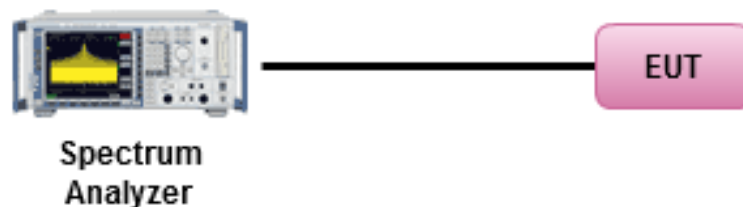
#### **3.6.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

#### **3.6.3 Test Procedures**

1. Connect the transmitter output port of EUT to the spectrum analyzer.
2. Set EUT to transmit at maximum output power.
3. Select lowest, middle, and highest channels for each modulation.
4. The setting of spectrum analyzer follows the FCC KDB 971168 D01 v03r01 Section 4.2 and 4.3.
5. Record the result of 99% occupied bandwidth and the 26dB bandwidth.

#### **3.6.4 Test Setup**



#### **3.6.5 Test Result of Occupied Bandwidth and 26dB Bandwidth**

Refer as Appendix F

### **3.7 3.5 GHz Emissions and Interference Limits**

#### **3.7.1 Description of the 3.5 GHz Emissions and Interference Limits Measurement**

Confirm that the device satisfies the emission limits specified in Section 96.41(e) for all declared channel sizes, at the lowest and highest edges of the band, and in the middle of the band. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic. The limits for emission outside the fundamental are as follows.

- Within 0 MHz to 10 MHz above and below the assigned channel  $\leq -13$  dBm/MHz
- Greater than 10 MHz above and below the assigned channel  $\leq -25$  dBm/MHz
- Any emission below 3530 MHz and above 3720 MHz  $\leq -40$  dBm/MHz

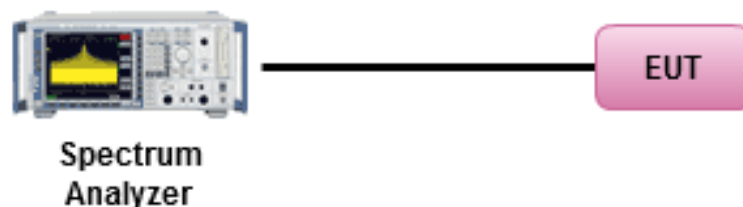
#### **3.7.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

#### **3.7.3 Test Procedures**

1. Connect the transmitter output port of EUT to the spectrum analyzer.
2. Set EUT to transmit at maximum output power.
3. Select lowest, middle, and highest channels for each modulation.
4. The setting of spectrum analyzer follows FCC KDB 940660 D01 v01 Section 6.0.
5. Note that unwanted emissions for CBSDs are relative to the authorized channel

#### **3.7.4 Test Setup**



#### **3.7.5 Test Result (Plots) of Conducted Band Edge**

Refer as Appendix G



### **3.8 Field Strength of Spurious Radiation**

#### **3.8.1 Description of the Field Strength of Spurious Radiated Measurement**

Confirm that the radiated emission satisfies the limits specified in Section 96.41(e) for all declared channel sizes, at the lowest and highest edges of the band, and in the middle of the band. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic. The limits for emission outside the fundamental are as follows.

- Within 0 MHz to 10 MHz above and below the assigned channel  $\leq -13$  dBm/MHz (55.2 dBuV/m at 3m)
- Greater than 10 MHz above and below the assigned channel  $\leq -25$  dBm/MHz (82.2 dBuV/m at 3m)
- Any emission below 3530 MHz and above 3720 MHz  $\leq -40$  dBm/MHz (55.2 dBuV/m at 3m)

#### **3.8.2 Measuring Instruments**

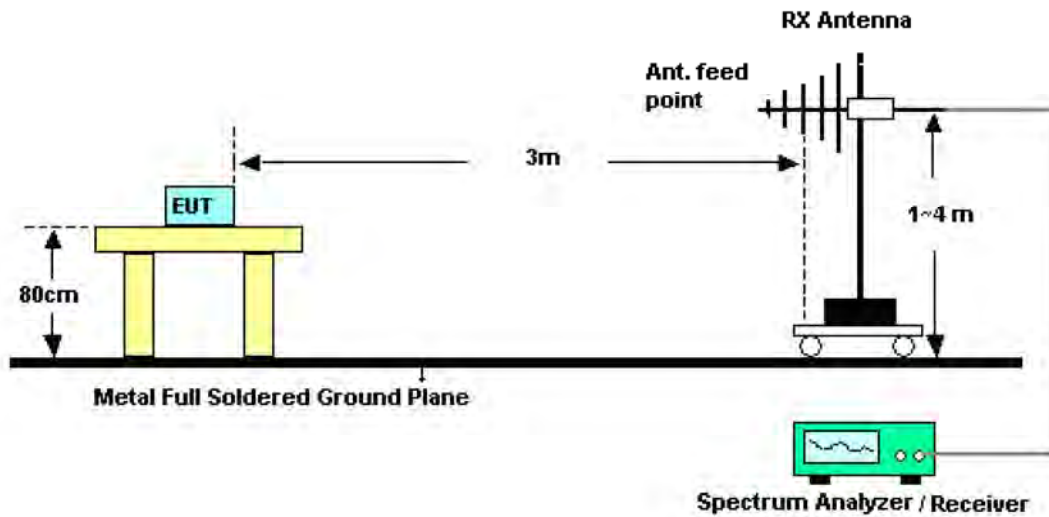
The measuring equipment is listed in the section 4 of this test report.

#### **3.8.3 Test Procedures**

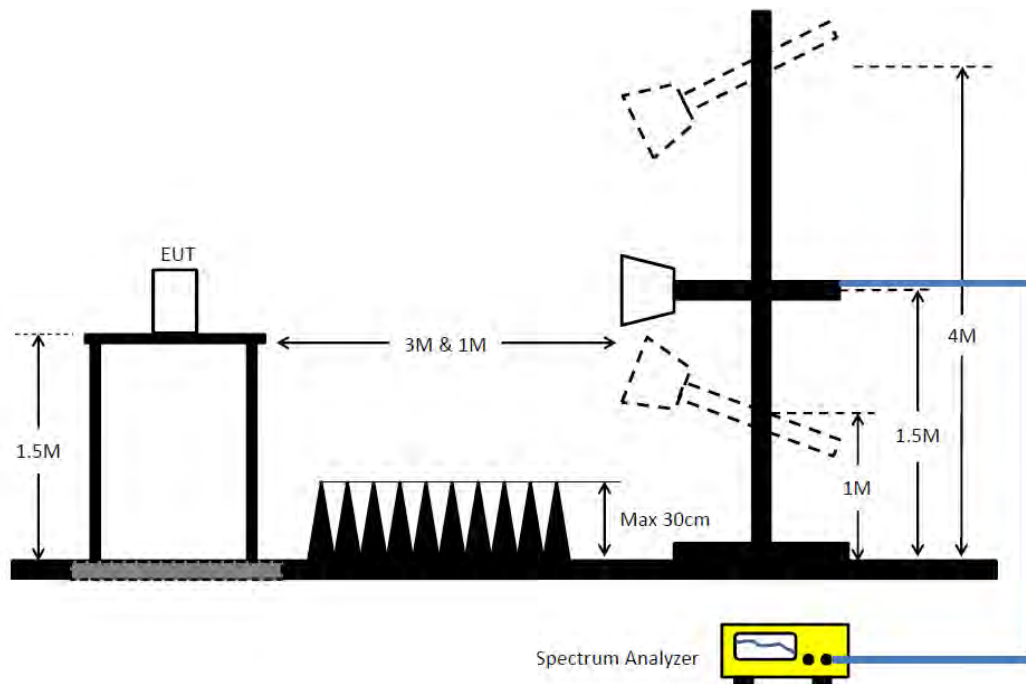
1. The testing follows Section 5.7 of ANSI C63.26-2015.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11.  $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12.  $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

### 3.8.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.8.5 Test Result of Field Strength of Spurious Radiated

Refer as Appendix H

### **3.9 Frequency Stability for Temperature & Voltage**

#### **3.9.1 Description of the Frequency Stability for Temperature & Voltage Measurement**

The frequency stability of the transmitter shall be measured while varying the ambient temperatures and supply voltages over the ranges specified in Section 2.1055. And ensure that the fundamental emission stays within the authorized frequency block.

#### **3.9.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

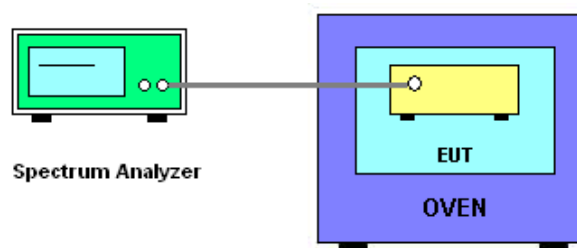
#### **3.9.3 Test Procedures for Temperature Variation**

1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0
2. The EUT was set up in the thermal chamber and connected to the spectrum analyzer.
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 -30°C steps 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.
5. Frequency measurements shall be made at intervals of not more than 10° centigrade through the range.

#### **3.9.4 Test Procedures for Voltage Variation**

1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.
2. The EUT was placed in a temperature chamber at 25±5° C and connected to the spectrum analyzer.
3. The power supply voltage to the EUT was varied from 85 to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

#### **3.9.5 Test Setup**



#### **3.9.6 Test Result of Temperature and Voltage Variation**

Refer as Appendix I



## 4 Test Equipment and Calibration Data

| Instrument                    | Manufacturer   | Model No.         | Serial No.    | Characteristics      | Calibration Date | Calibration Due Date | Remark                |
|-------------------------------|----------------|-------------------|---------------|----------------------|------------------|----------------------|-----------------------|
| Signal analyzer               | Agilent        | N9010A            | MY52220519    | 10kHz~44GHz          | Mar. 20, 2018    | Mar. 19, 2019        | Radiation (03CH03-HY) |
| 3m Semi Anechoic Chamber      | SIDT FRANKONIA | SAC-3M            | 03CH03-HY     | 30MHz ~ 1GHz<br>3m   | Oct. 30, 2018    | Oct. 29, 2019        | Radiation (03CH03-HY) |
| 3m Semi Anechoic Chamber      | SIDT FRANKONIA | SAC-3M            | 03CH03-HY     | 1GHz ~ 18GHz<br>3m   | Oct. 30, 2018    | Oct. 29, 2019        | Radiation (03CH03-HY) |
| Amplifier                     | HP             | 8447D             | 2944A08033    | 10kHz ~ 1.3GHz       | Apr. 23, 2018    | Apr. 19, 2019        | Radiation (03CH03-HY) |
| Microwave System Preamplifier | KEYSIGHT       | 83017A            | MY53270196    | 1GHz ~ 26.5GHz       | Sep. 05, 2018    | Sep. 04, 2019        | Radiation (03CH03-HY) |
| Preamplifier                  | MITEQ          | TTA1840-35-H<br>G | 1864481       | 18GHz ~ 40GHz        | Aug. 24, 2018    | Aug. 23, 2019        | Radiation (03CH03-HY) |
| Broadband Horn Antenna        | SCHWARZBECK    | BBHA 9170         | BBHA 9170154  | 18GHz ~ 40GHz        | Feb. 06, 2018    | Feb. 05, 2019        | Radiation (03CH03-HY) |
| Signal analyzer               | Agilent        | N9010A            | MY52220519    | 10kHz~44GHz          | Mar. 20, 2018    | Mar. 19, 2019        | Conducted (TH01-HY)   |
| Temp. and Humidity Chamber    | GIANT FORCE    | GTH-225-40-CP-AR  | MAA1311-008   | -40~100℃<br>10~98%RH | May 30, 2018     | May 29, 2019         | Conducted (TH01-HY)   |
| RF Cable-high                 | Woken          | RG402             | High Cable-06 | 1 GHz ~26.5 GHz      | Oct. 03, 2018    | Oct. 02, 2019        | Conducted (TH01-HY)   |
| RF Cable-high                 | Woken          | RG402             | High Cable-07 | 1 GHz ~26.5 GHz      | Oct. 03, 2018    | Oct. 02, 2019        | Conducted (TH01-HY)   |
| RF Cable-high                 | Woken          | RG402             | High Cable-08 | 1 GHz ~26.5 GHz      | Oct. 03, 2018    | Oct. 02, 2019        | Conducted (TH01-HY)   |
| RF Cable-high                 | Woken          | RG402             | High Cable-09 | 1 GHz ~26.5 GHz      | Oct. 03, 2018    | Oct. 02, 2019        | Conducted (TH01-HY)   |
| RF Cable-high                 | Woken          | RG402             | High Cable-10 | 1 GHz ~26.5 GHz      | Oct. 03, 2018    | Oct. 02, 2019        | Conducted (TH01-HY)   |
| Power Sensor                  | Agilent        | U2021XA           | MY54320013    | 50MHz~18GHz          | Aug. 13, 2018    | Aug. 12, 2019        | Conducted (TH01-HY)   |
| MW Analog Signal Generator    | Keysight       | N5183A            | MY50142965    | 100kHz~20GHz         | Nov. 19, 2018    | Nov. 18, 2019        | Conducted (TH01-HY)   |
| Vector Signal Generator       | Keysight       | N5182B            | MY53052408    | 9kHz~6GHz            | Jan. 02, 2018    | Jan. 01, 2019        | Conducted (TH01-HY)   |

Note: Calibration Interval of instruments listed above is one year.



## 5 Measurement Uncertainty

| Test Items                           | Uncertainty | Remark                   |
|--------------------------------------|-------------|--------------------------|
| Radiated Emission (30MHz ~ 1,000MHz) | 4.3 dB      | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 3.9 dB      | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 3.5 dB      | Confidence levels of 95% |
| Conducted Emission                   | 1.3 dB      | Confidence levels of 95% |

## Summary

| Mode                          | Power (dBm) | Power (W) |
|-------------------------------|-------------|-----------|
| Band 48                       | -           | -         |
| Band 48_LTE_10MHz_(QPSK)_2TX  | 24.75       | 0.299     |
| Band 48_LTE_10MHz_(16QAM)_2TX | 24.79       | 0.301     |
| Band 48_LTE_10MHz_(64QAM)_2TX | 24.91       | 0.310     |
| Band 48_LTE_20MHz_(QPSK)_2TX  | 25.73       | 0.374     |
| Band 48_LTE_20MHz_(16QAM)_2TX | 25.74       | 0.375     |
| Band 48_LTE_20MHz_(64QAM)_2TX | 25.75       | 0.376     |

## Result

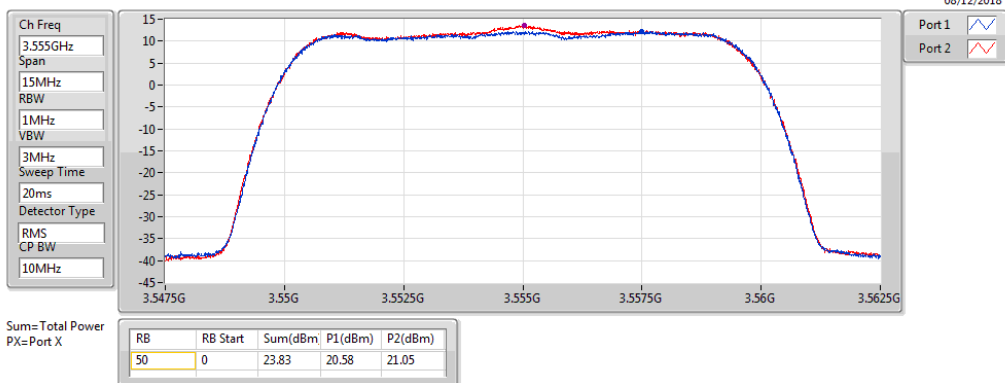
| Mode                  | Setting | Result | RB  | RB Start | DG (dBi) | P1 (dBm) | P2 (dBm) | Power (dBm) | Power (W) |
|-----------------------|---------|--------|-----|----------|----------|----------|----------|-------------|-----------|
| LTE_10MHz_(QPSK)_2TX  |         | -      | -   | -        | -        | -        | -        | -           | -         |
| 3555MHz               | 22      | Pass   | 50  | 0        | 2.62     | 20.58    | 21.05    | 23.83       | 0.242     |
| 3625MHz               | 22      | Pass   | 50  | 0        | 2.62     | 20.95    | 21.81    | 24.41       | 0.276     |
| 3695MHz               | 22      | Pass   | 50  | 0        | 2.62     | 21.76    | 21.71    | 24.75       | 0.299     |
| LTE_10MHz_(16QAM)_2TX |         | -      | -   | -        | -        | -        | -        | -           | -         |
| 3555MHz               | 22      | Pass   | 50  | 0        | 2.62     | 20.52    | 21.06    | 23.81       | 0.240     |
| 3625MHz               | 22      | Pass   | 50  | 0        | 2.62     | 21.30    | 21.84    | 24.59       | 0.288     |
| 3695MHz               | 22      | Pass   | 50  | 0        | 2.62     | 21.81    | 21.75    | 24.79       | 0.301     |
| LTE_10MHz_(64QAM)_2TX |         | -      | -   | -        | -        | -        | -        | -           | -         |
| 3555MHz               | 22      | Pass   | 50  | 0        | 2.62     | 20.71    | 21.16    | 23.95       | 0.248     |
| 3625MHz               | 22      | Pass   | 50  | 0        | 2.62     | 21.12    | 21.70    | 24.43       | 0.277     |
| 3695MHz               | 22      | Pass   | 50  | 0        | 2.62     | 21.77    | 22.03    | 24.91       | 0.310     |
| LTE_20MHz_(QPSK)_2TX  |         | -      | -   | -        | -        | -        | -        | -           | -         |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 21.76    | 22.07    | 24.93       | 0.311     |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 22.67    | 22.51    | 25.60       | 0.363     |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 22.78    | 22.65    | 25.73       | 0.374     |
| LTE_20MHz_(16QAM)_2TX |         | -      | -   | -        | -        | -        | -        | -           | -         |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 21.68    | 22.00    | 24.85       | 0.305     |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 22.48    | 22.57    | 25.54       | 0.358     |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 22.62    | 22.84    | 25.74       | 0.375     |
| LTE_20MHz_(64QAM)_2TX |         | -      | -   | -        | -        | -        | -        | -           | -         |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 21.73    | 22.11    | 24.93       | 0.311     |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 22.38    | 22.65    | 25.53       | 0.357     |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62     | 22.69    | 22.78    | 25.75       | 0.376     |

DG = Directional Gain; Port X = Port X output power  
dBm/10MHz for 10MHz BW, dBm/20MHz for 20MHz BW

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

## AV Power

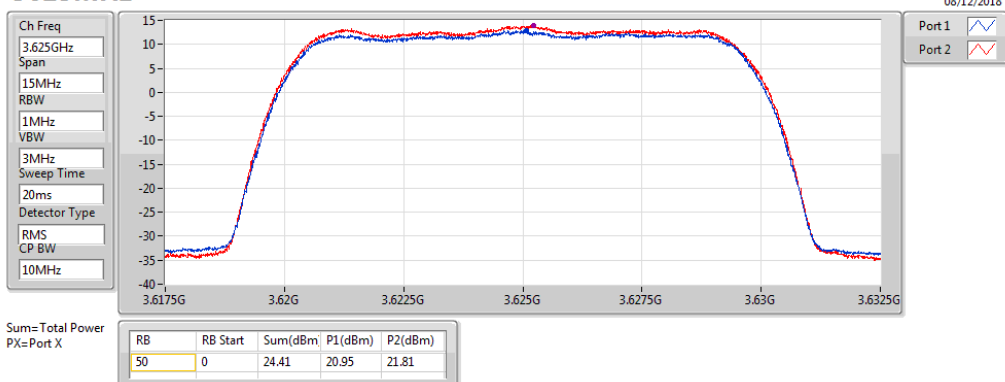
3555MHz



## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

## AV Power

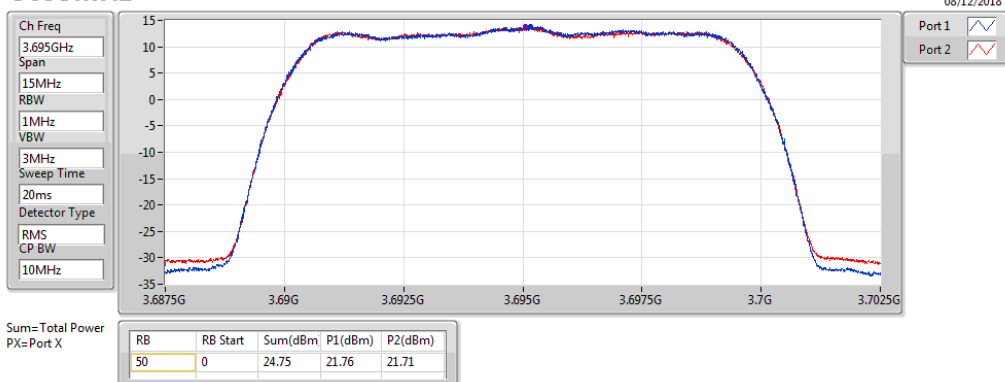
3625MHz



## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

## AV Power

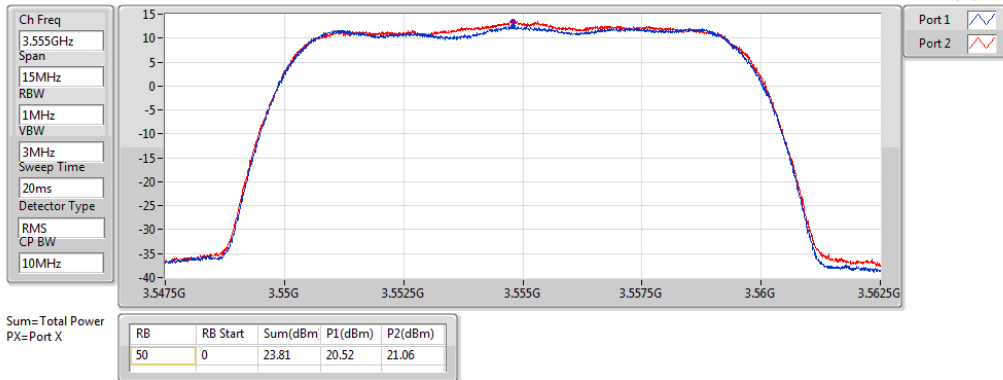
3695MHz



## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

## AV Power

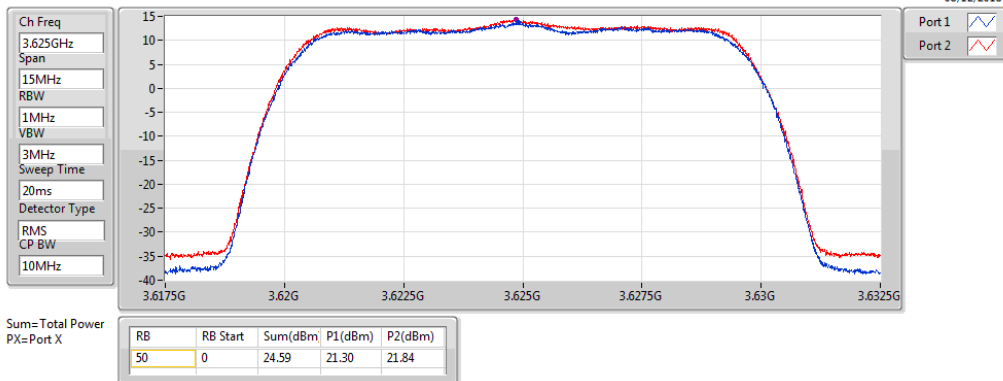
3555MHz



## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

## AV Power

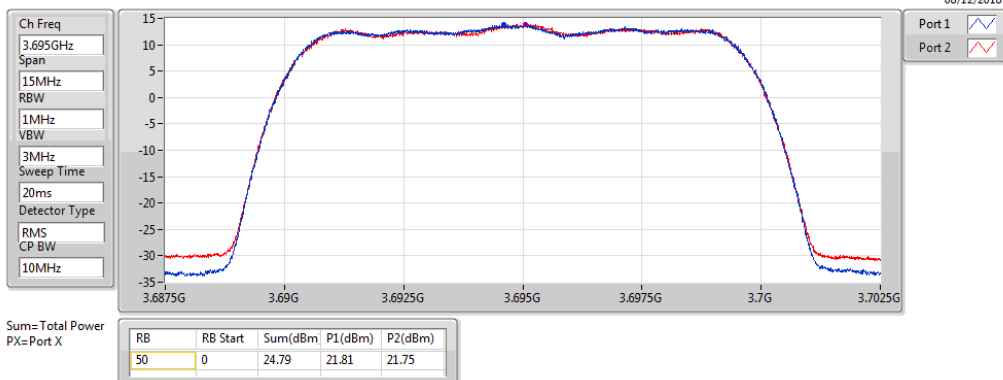
3625MHz



## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

## AV Power

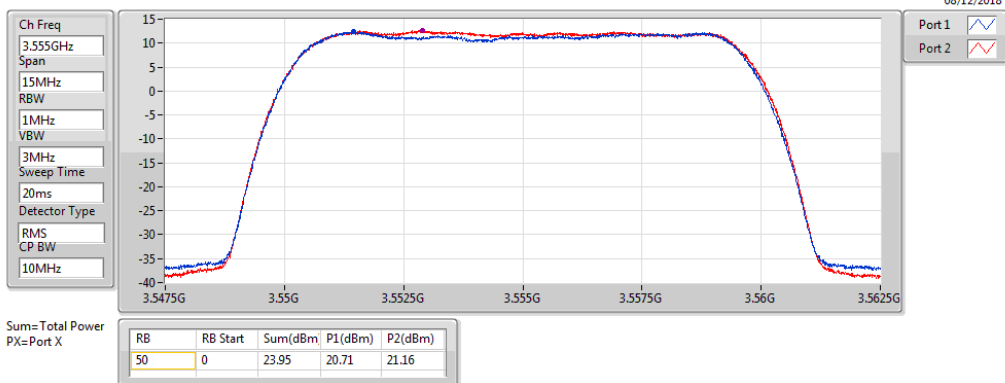
3695MHz



## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

## AV Power

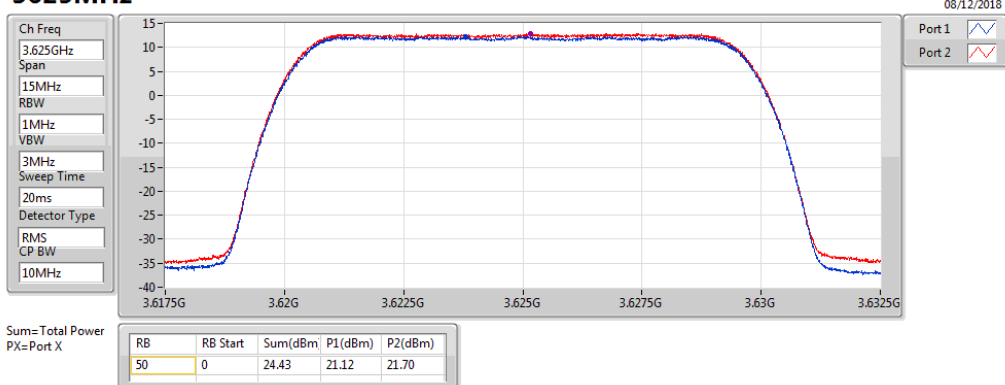
3555MHz



## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

## AV Power

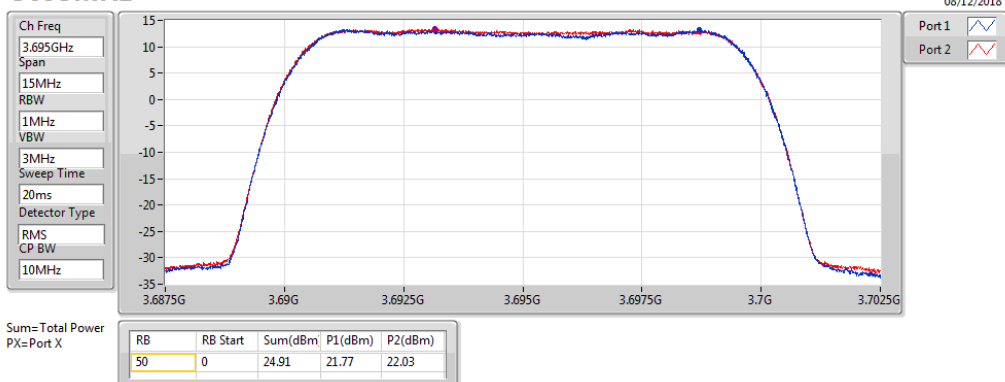
3625MHz



## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

## AV Power

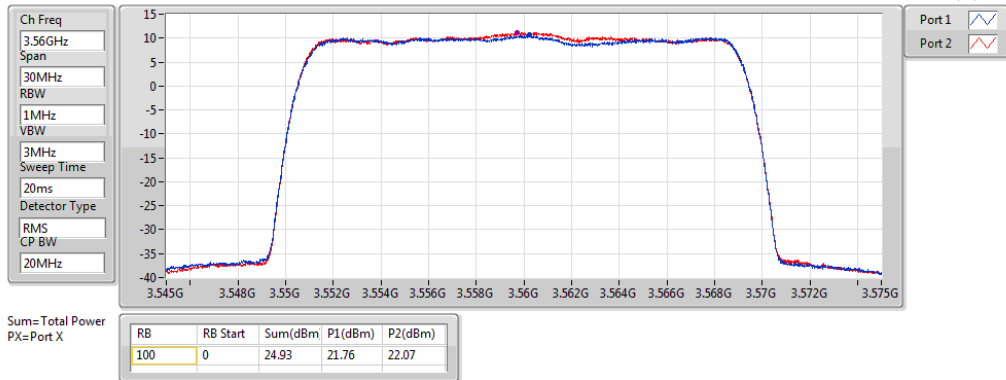
3695MHz



## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

## AV Power

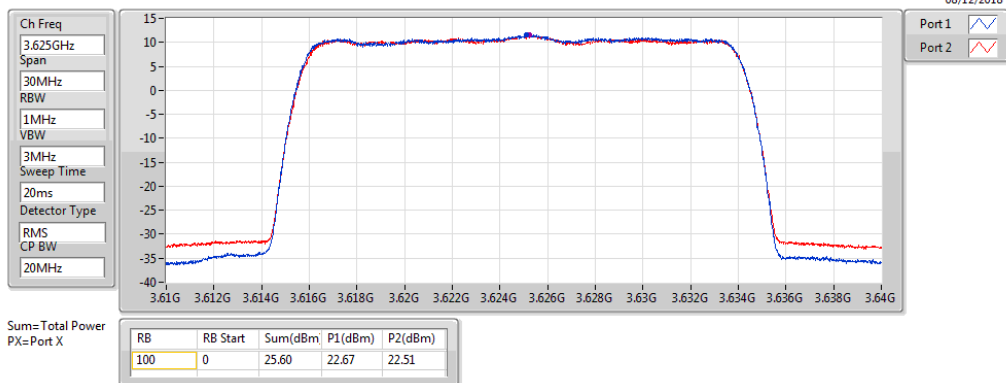
3560MHz



## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

## AV Power

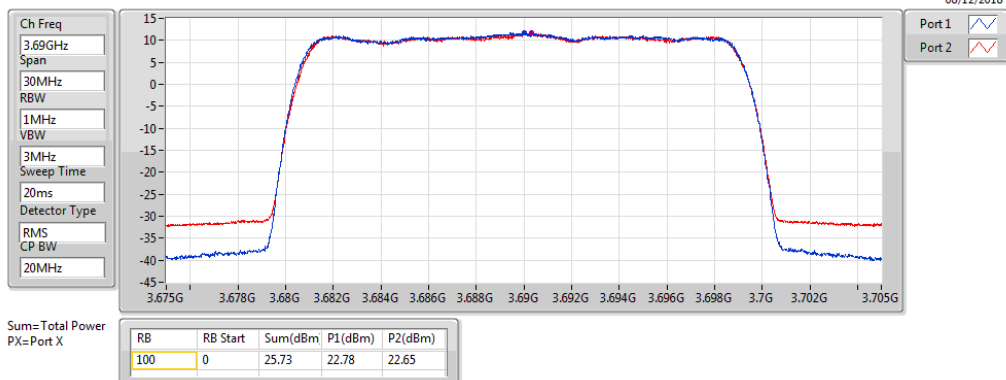
3625MHz



## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

## AV Power

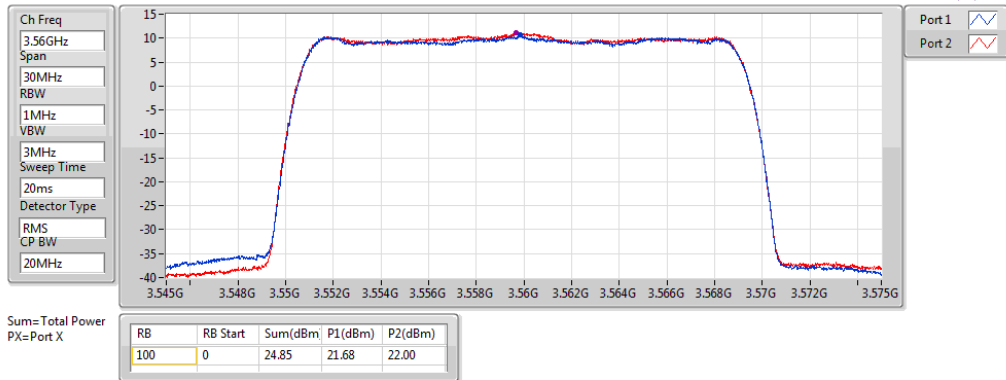
3690MHz



## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

## AV Power

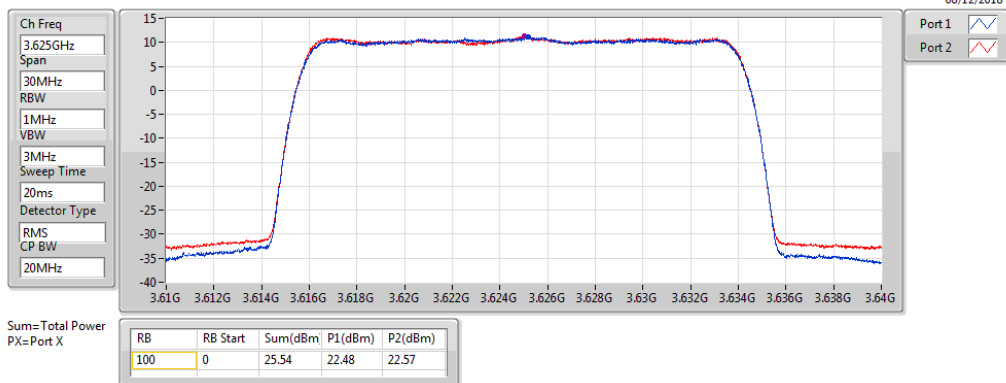
3560MHz



## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

## AV Power

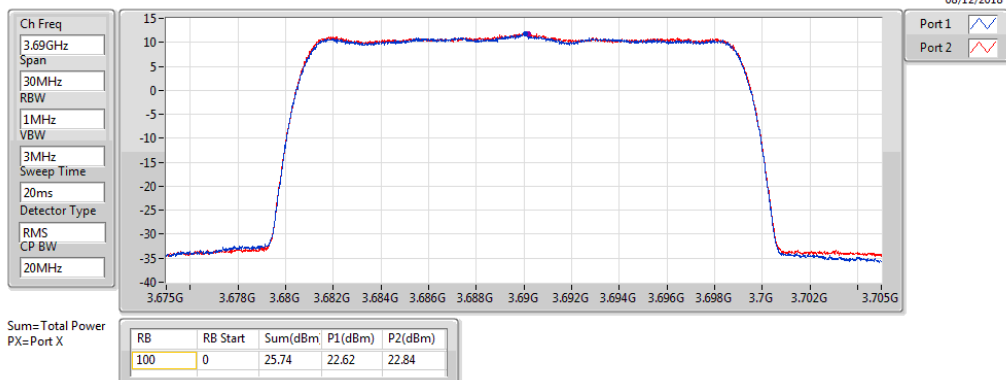
3625MHz



## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

## AV Power

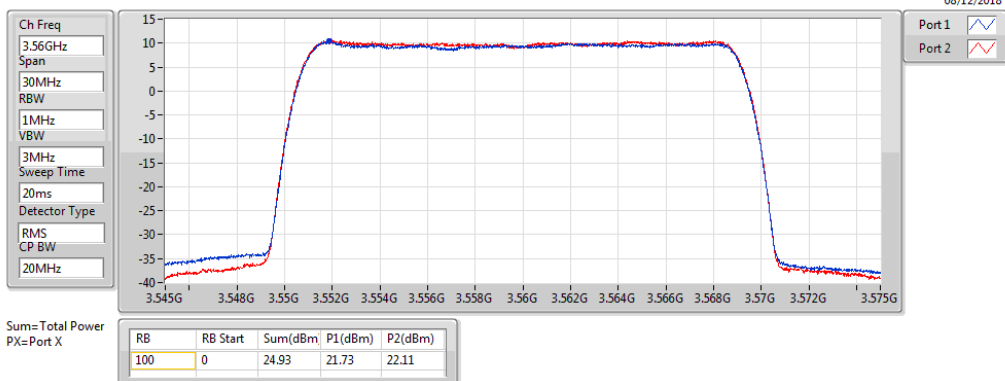
3690MHz



## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

## AV Power

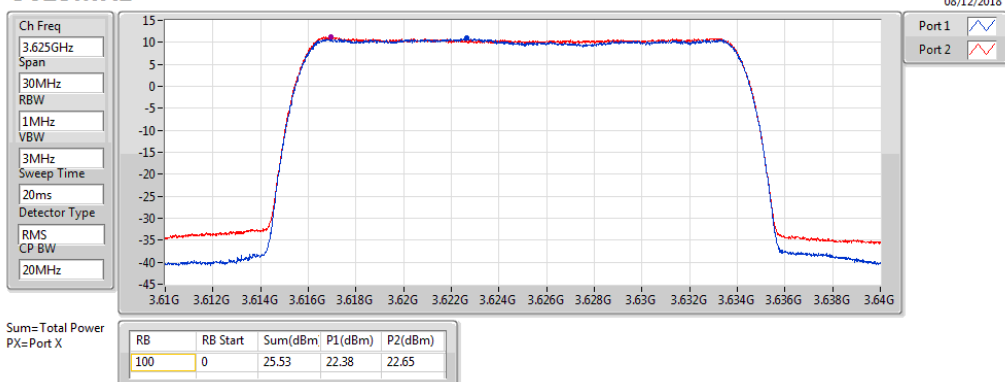
3560MHz



## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

## AV Power

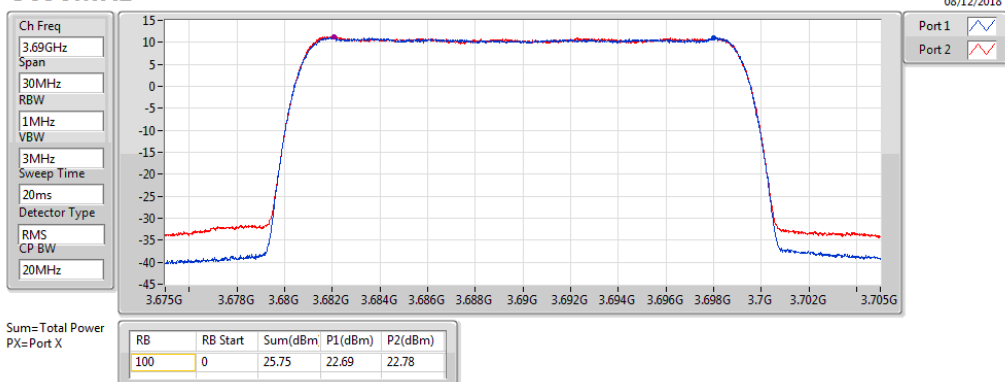
3625MHz



## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

## AV Power

3690MHz



**Summary**

| Mode                          | Power<br>(dBm) | Power<br>(W) | EIRP<br>(dBm) | EIRP<br>(W) |
|-------------------------------|----------------|--------------|---------------|-------------|
| Band 48                       | -              | -            | -             | -           |
| Band 48_LTE_10MHz_(QPSK)_2TX  | 24.75          | 0.299        | 27.37         | 0.546       |
| Band 48_LTE_10MHz_(16QAM)_2TX | 24.79          | 0.301        | 27.41         | 0.551       |
| Band 48_LTE_10MHz_(64QAM)_2TX | 24.91          | 0.310        | 27.53         | 0.566       |
| Band 48_LTE_20MHz_(QPSK)_2TX  | 25.73          | 0.374        | 28.35         | 0.684       |
| Band 48_LTE_20MHz_(16QAM)_2TX | 25.74          | 0.375        | 28.36         | 0.685       |
| Band 48_LTE_20MHz_(64QAM)_2TX | 25.75          | 0.376        | 28.37         | 0.687       |

**Result**

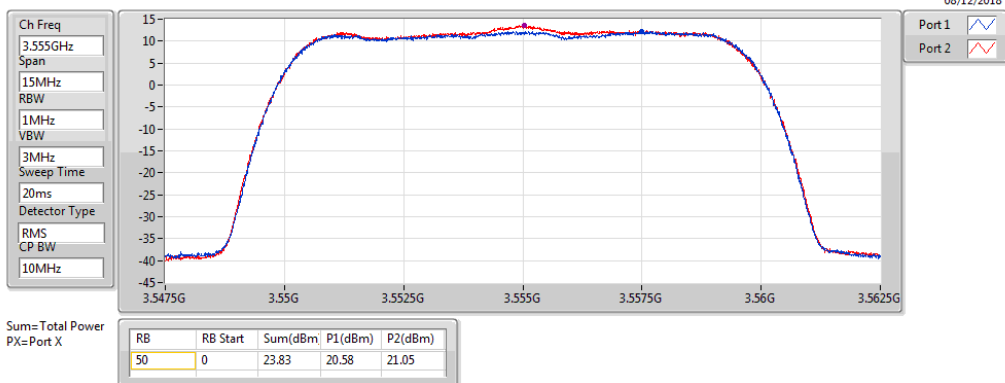
| Mode                  | Setting | Result | RB  | RB<br>Start | DG<br>(dBi) | P1<br>(dBm) | P2<br>(dBm) | Power<br>(dBm) | Power<br>(W) | EIRP<br>(dBm) | EIRP<br>(W) | EIRP<br>Lim.<br>(W) |
|-----------------------|---------|--------|-----|-------------|-------------|-------------|-------------|----------------|--------------|---------------|-------------|---------------------|
| LTE_10MHz_(QPSK)_2TX  |         | -      | -   | -           | -           | -           | -           | -              | -            | -             | -           | -                   |
| 3555MHz               | 22      | Pass   | 50  | 0           | 2.62        | 20.58       | 21.05       | 23.83          | 0.242        | 26.45         | 0.442       | 1                   |
| 3625MHz               | 22      | Pass   | 50  | 0           | 2.62        | 20.95       | 21.81       | 24.41          | 0.276        | 27.03         | 0.505       | 1                   |
| 3695MHz               | 22      | Pass   | 50  | 0           | 2.62        | 21.76       | 21.71       | 24.75          | 0.299        | 27.37         | 0.546       | 1                   |
| LTE_10MHz_(16QAM)_2TX |         | -      | -   | -           | -           | -           | -           | -              | -            | -             | -           | -                   |
| 3555MHz               | 22      | Pass   | 50  | 0           | 2.62        | 20.52       | 21.06       | 23.81          | 0.240        | 26.43         | 0.440       | 1                   |
| 3625MHz               | 22      | Pass   | 50  | 0           | 2.62        | 21.30       | 21.84       | 24.59          | 0.288        | 27.21         | 0.526       | 1                   |
| 3695MHz               | 22      | Pass   | 50  | 0           | 2.62        | 21.81       | 21.75       | 24.79          | 0.301        | 27.41         | 0.551       | 1                   |
| LTE_10MHz_(64QAM)_2TX |         | -      | -   | -           | -           | -           | -           | -              | -            | -             | -           | -                   |
| 3555MHz               | 22      | Pass   | 50  | 0           | 2.62        | 20.71       | 21.16       | 23.95          | 0.248        | 26.57         | 0.454       | 1                   |
| 3625MHz               | 22      | Pass   | 50  | 0           | 2.62        | 21.12       | 21.70       | 24.43          | 0.277        | 27.05         | 0.507       | 1                   |
| 3695MHz               | 22      | Pass   | 50  | 0           | 2.62        | 21.77       | 22.03       | 24.91          | 0.310        | 27.53         | 0.566       | 1                   |
| LTE_20MHz_(QPSK)_2TX  |         | -      | -   | -           | -           | -           | -           | -              | -            | -             | -           | -                   |
| 3560MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 21.76       | 22.07       | 24.93          | 0.311        | 27.55         | 0.569       | Inf                 |
| 3625MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 22.67       | 22.51       | 25.60          | 0.363        | 28.22         | 0.664       | Inf                 |
| 3690MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 22.78       | 22.65       | 25.73          | 0.374        | 28.35         | 0.684       | Inf                 |
| LTE_20MHz_(16QAM)_2TX |         | -      | -   | -           | -           | -           | -           | -              | -            | -             | -           | -                   |
| 3560MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 21.68       | 22.00       | 24.85          | 0.305        | 27.47         | 0.558       | Inf                 |
| 3625MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 22.48       | 22.57       | 25.54          | 0.358        | 28.16         | 0.655       | Inf                 |
| 3690MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 22.62       | 22.84       | 25.74          | 0.375        | 28.36         | 0.685       | Inf                 |
| LTE_20MHz_(64QAM)_2TX |         | -      | -   | -           | -           | -           | -           | -              | -            | -             | -           | -                   |
| 3560MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 21.73       | 22.11       | 24.93          | 0.311        | 27.55         | 0.569       | Inf                 |
| 3625MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 22.38       | 22.65       | 25.53          | 0.357        | 28.15         | 0.653       | Inf                 |
| 3690MHz               | 23.5    | Pass   | 100 | 0           | 2.62        | 22.69       | 22.78       | 25.75          | 0.376        | 28.37         | 0.687       | Inf                 |

**DG** = Directional Gain; **Port X** = Port X output power

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

## AV Power

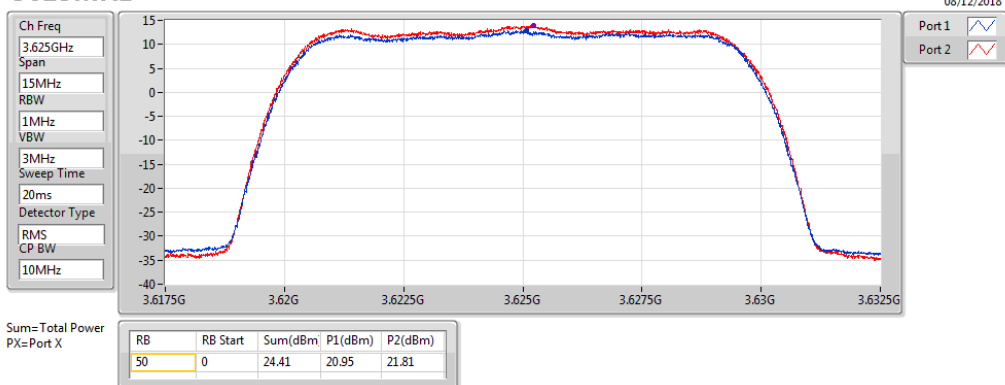
3555MHz



## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

## AV Power

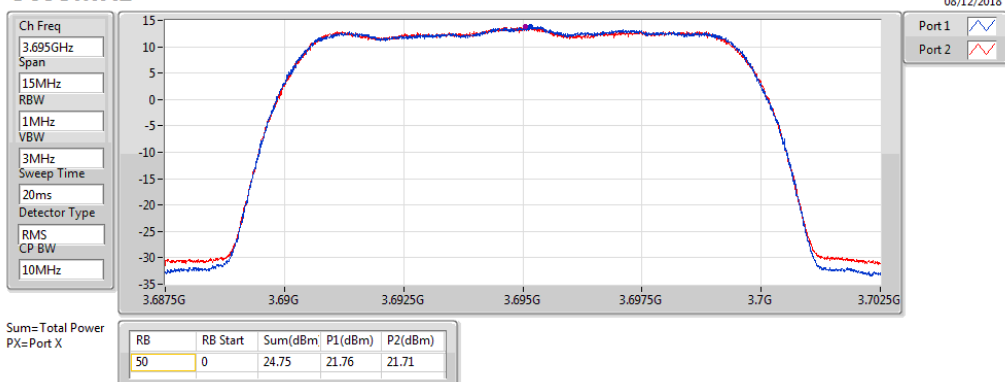
3625MHz



## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

## AV Power

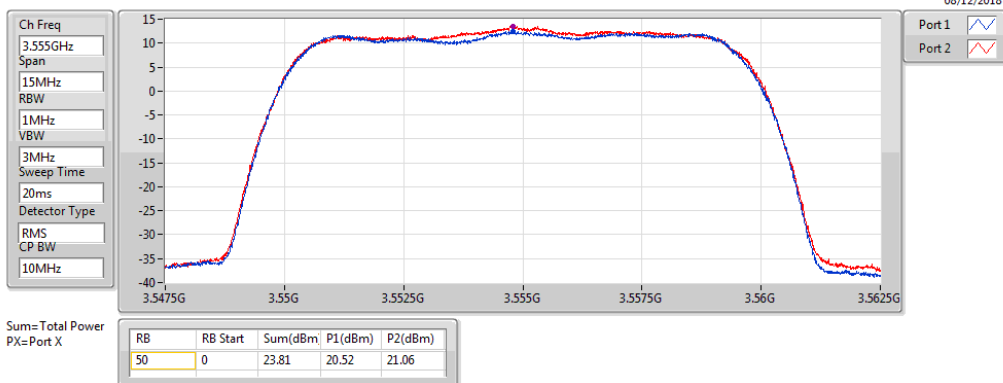
3695MHz



## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

## AV Power

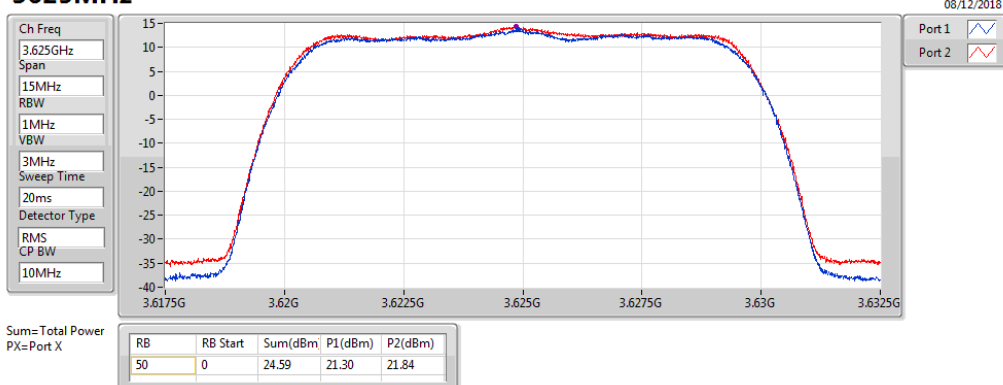
3555MHz



## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

## AV Power

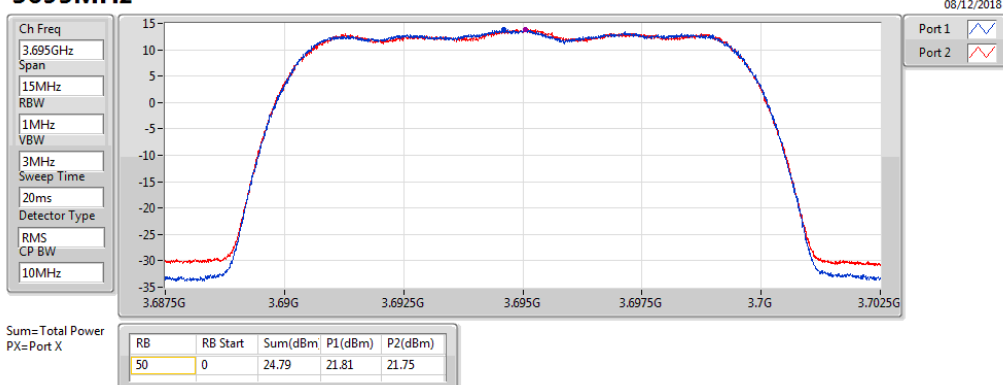
3625MHz



## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

## AV Power

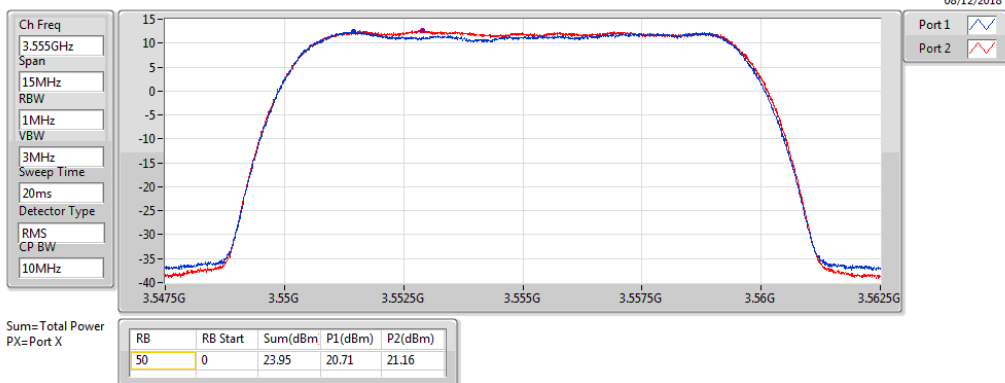
3695MHz



## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

## AV Power

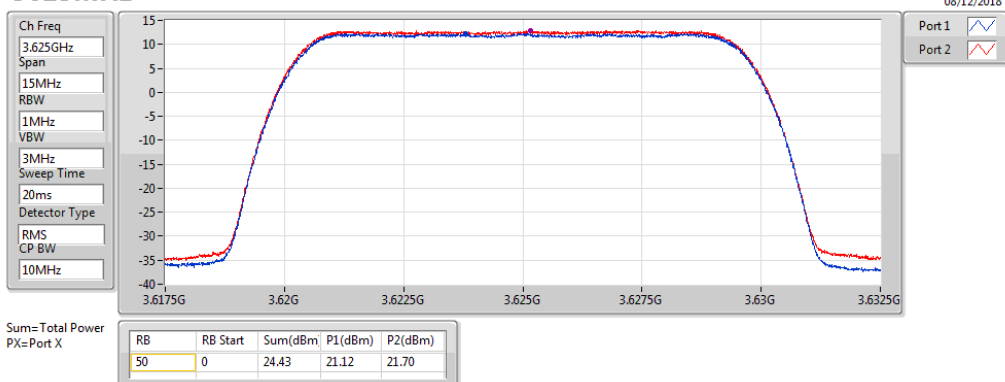
3555MHz



## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

## AV Power

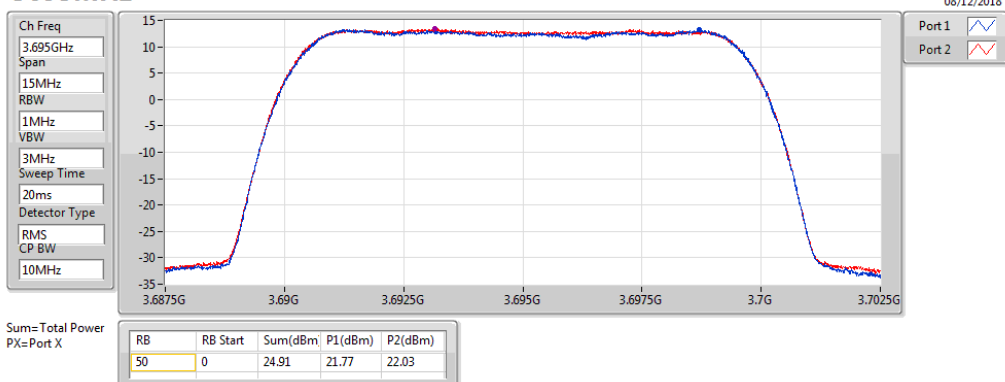
3625MHz



## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

## AV Power

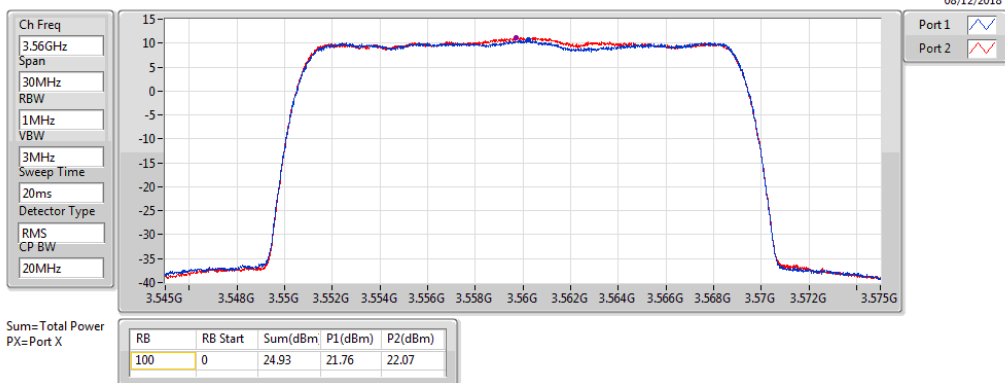
3695MHz



## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

## AV Power

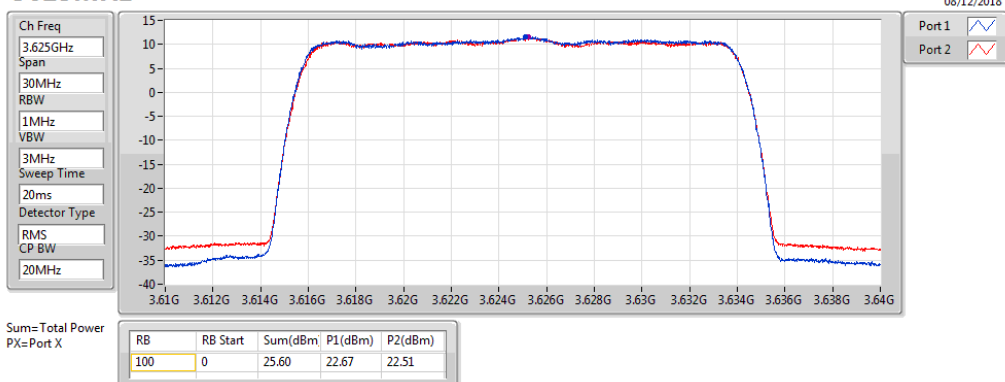
3560MHz



## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

## AV Power

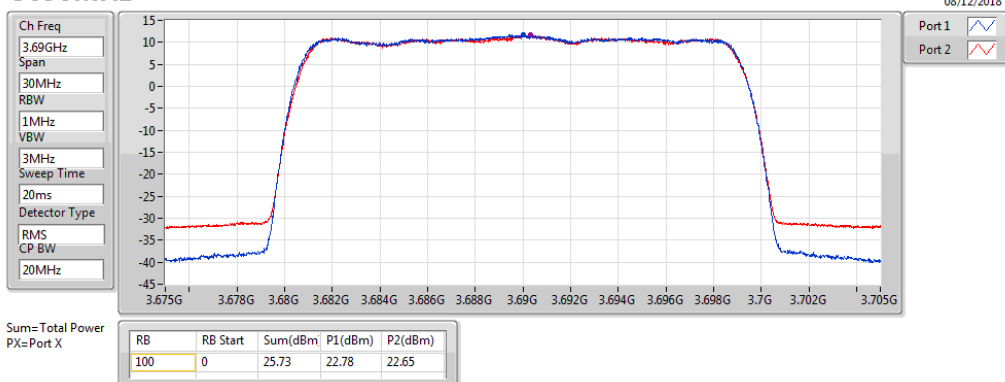
3625MHz



## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

## AV Power

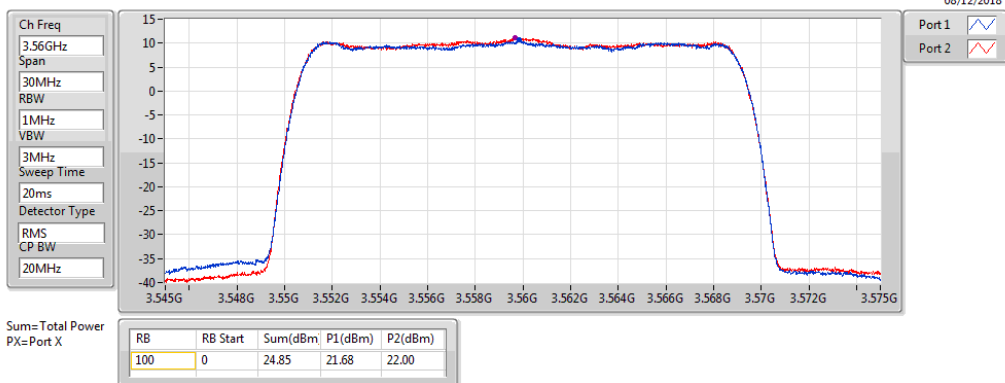
3690MHz



## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

## AV Power

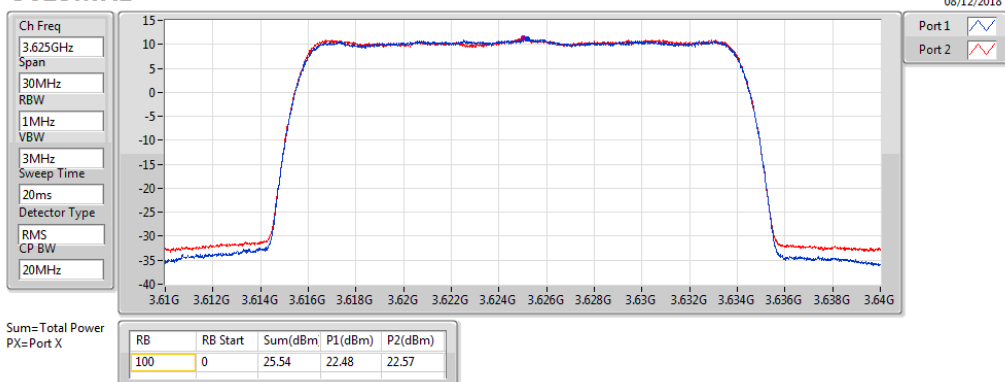
3560MHz



## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

## AV Power

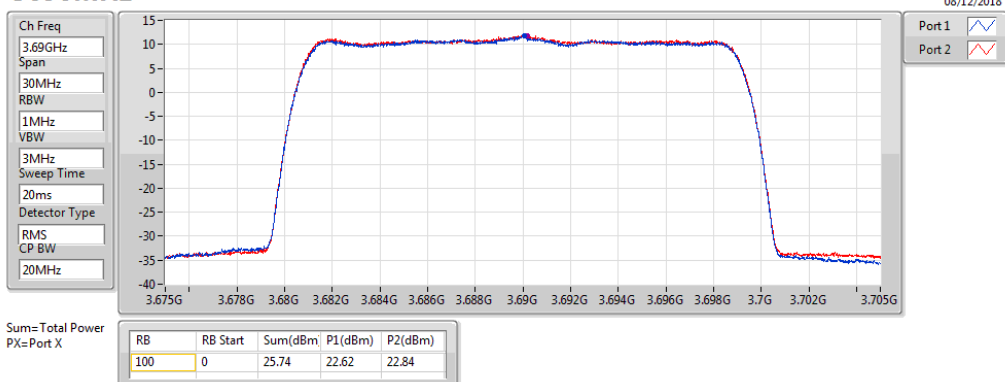
3625MHz



## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

## AV Power

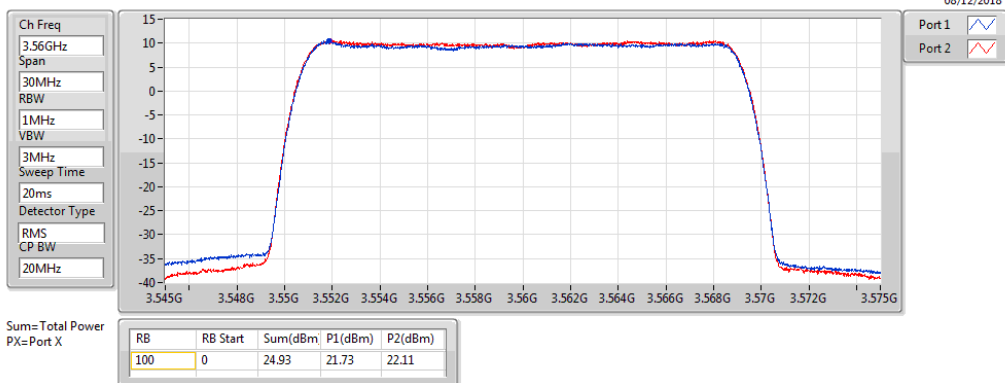
3690MHz



## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

## AV Power

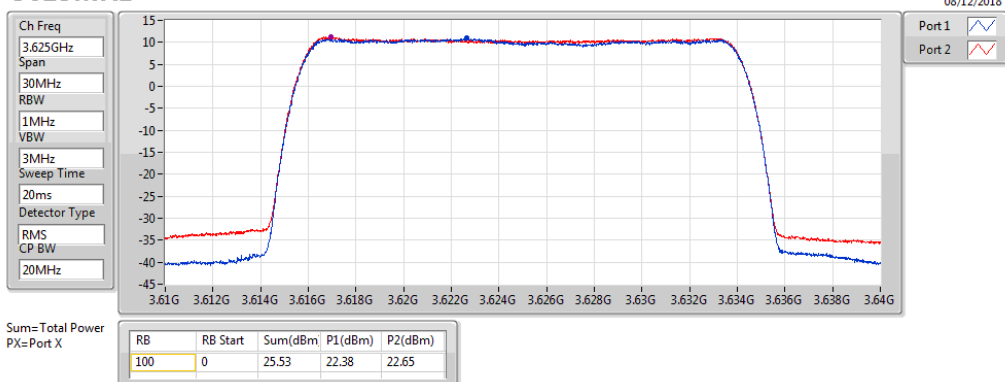
3560MHz



## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

## AV Power

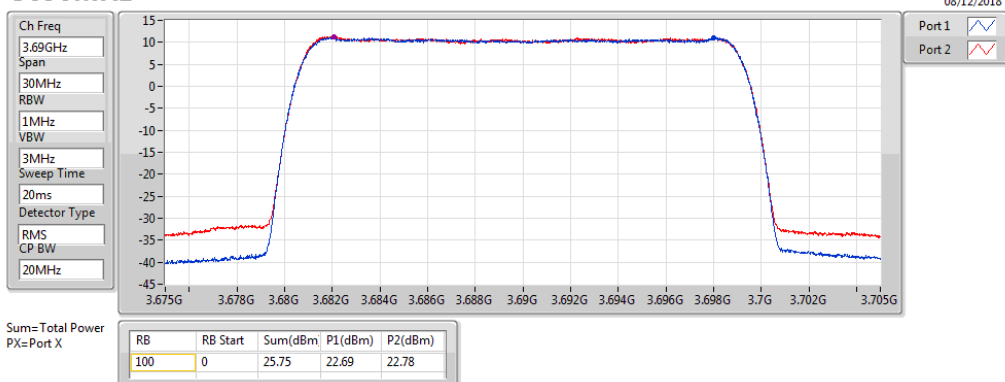
3625MHz



## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

## AV Power

3690MHz



**Summary**

| Mode                          | Power<br>(dBm/10Mhz) | Power<br>(W) | EIRP<br>(dBm/10Mhz) | EIRP<br>(W) |
|-------------------------------|----------------------|--------------|---------------------|-------------|
| Band 48                       | -                    | -            | -                   | -           |
| Band 48_LTE_20MHz_(QPSK)_2TX  | 23.57                | 0.228        | 26.19               | 0.416       |
| Band 48_LTE_20MHz_(16QAM)_2TX | 23.45                | 0.221        | 26.07               | 0.405       |
| Band 48_LTE_20MHz_(64QAM)_2TX | 23.49                | 0.223        | 26.11               | 0.408       |

**Result**

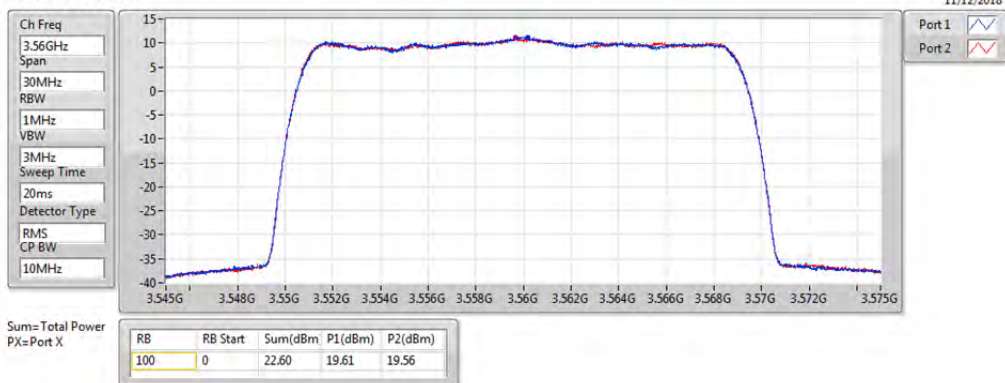
| Mode                  | Setting | Result | RB  | RB Start | DG<br>(dBi) | P1<br>(dBm/10Mhz) | P2<br>(dBm/10Mhz) | Power<br>(dBm/10Mhz) | Power<br>(W) | EIRP<br>(dBm/10Mhz) | EIRP<br>(W) | EIRP Lim.<br>(W) |
|-----------------------|---------|--------|-----|----------|-------------|-------------------|-------------------|----------------------|--------------|---------------------|-------------|------------------|
| LTE_20MHz_(QPSK)_2TX  |         | -      | -   | -        | -           | -                 | -                 | -                    | -            | -                   | -           | -                |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 19.61             | 19.56             | 22.60                | 0.182        | 25.22               | 0.333       | 1                |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 20.78             | 20.24             | 23.53                | 0.225        | 26.15               | 0.412       | 1                |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 20.68             | 20.44             | 23.57                | 0.228        | 26.19               | 0.416       | 1                |
| LTE_20MHz_(16QAM)_2TX |         | -      | -   | -        | -           | -                 | -                 | -                    | -            | -                   | -           | -                |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 19.71             | 19.31             | 22.52                | 0.179        | 25.14               | 0.327       | 1                |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 20.28             | 20.12             | 23.21                | 0.209        | 25.83               | 0.383       | 1                |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 20.49             | 20.39             | 23.45                | 0.221        | 26.07               | 0.405       | 1                |
| LTE_20MHz_(64QAM)_2TX |         | -      | -   | -        | -           | -                 | -                 | -                    | -            | -                   | -           | -                |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 19.34             | 19.04             | 22.20                | 0.166        | 24.82               | 0.303       | 1                |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 20.59             | 20.02             | 23.32                | 0.215        | 25.94               | 0.393       | 1                |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62        | 20.75             | 20.19             | 23.49                | 0.223        | 26.11               | 0.408       | 1                |

**DG** = Directional Gain; **Port X** = Port X output power

## Band 48\_LTE\_20MHz\_(QPSK)\_2TX

## AV Power

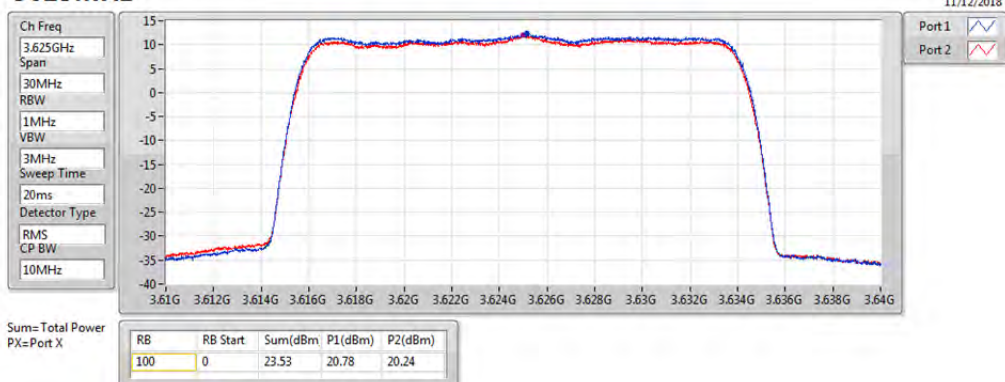
3560MHz



## Band 48\_LTE\_20MHz\_(QPSK)\_2TX

## AV Power

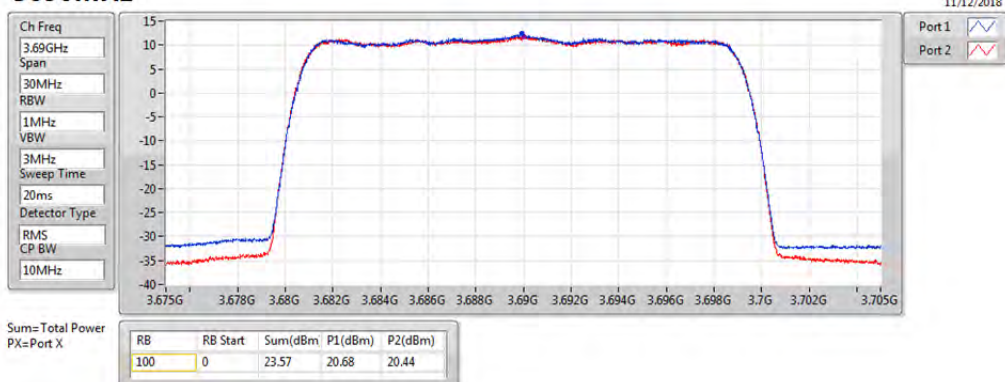
3625MHz



## Band 48\_LTE\_20MHz\_(QPSK)\_2TX

## AV Power

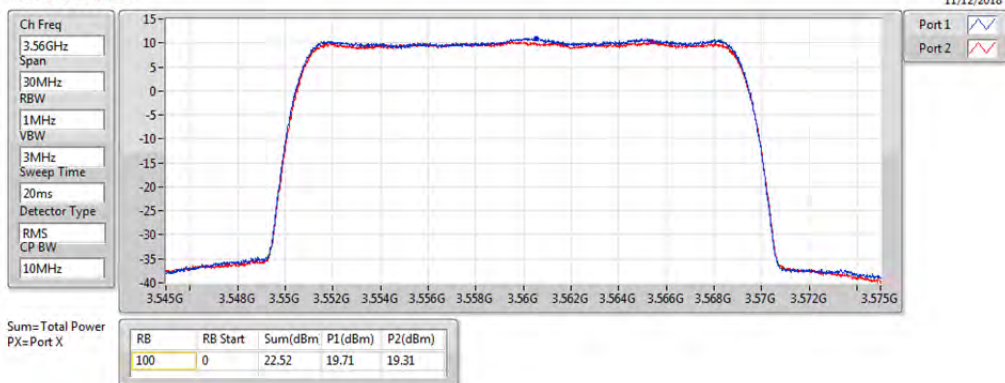
3690MHz



## Band 48\_LTE\_20MHz\_(16QAM)\_2TX

## AV Power

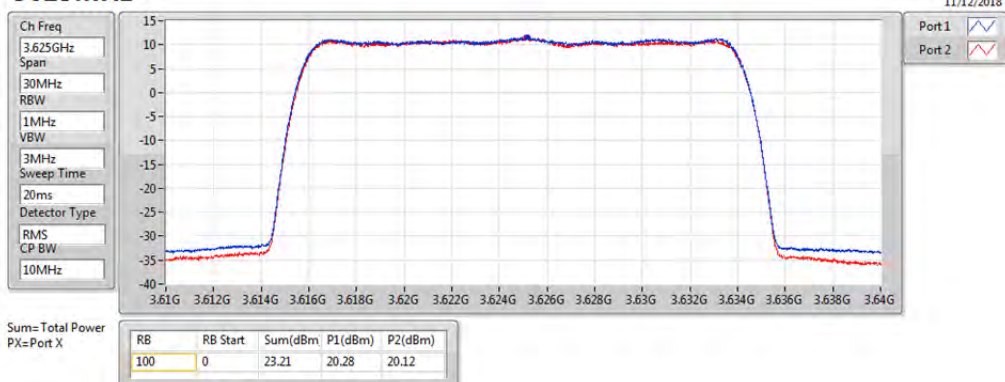
3560MHz



## Band 48\_LTE\_20MHz\_(16QAM)\_2TX

## AV Power

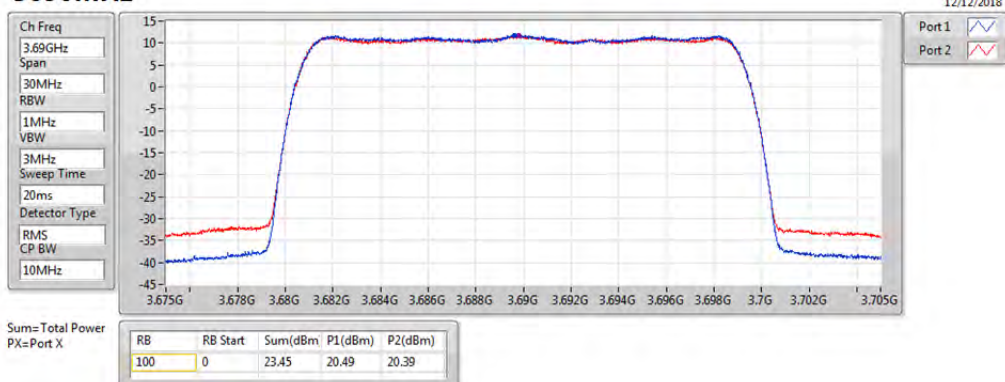
3625MHz



## Band 48\_LTE\_20MHz\_(16QAM)\_2TX

## AV Power

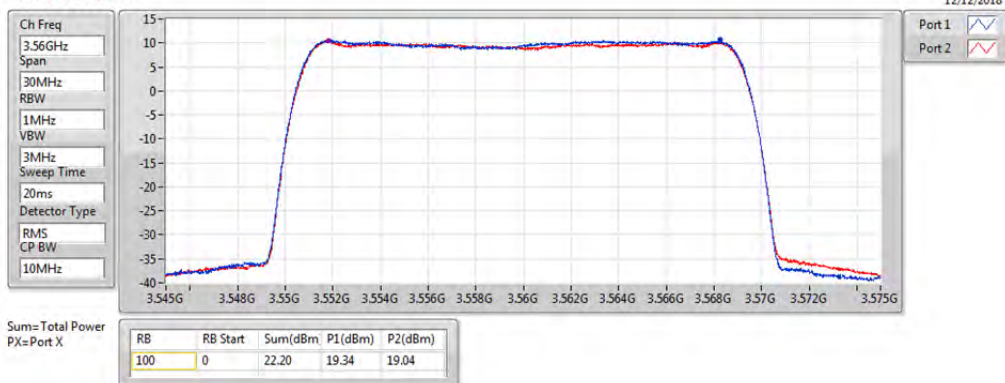
3690MHz



## Band 48\_LTE\_20MHz\_(64QAM)\_2TX

## AV Power

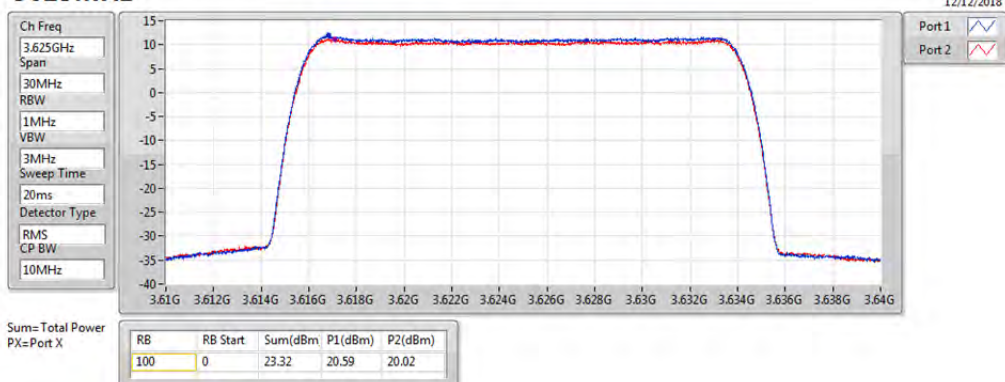
3560MHz



## Band 48\_LTE\_20MHz\_(64QAM)\_2TX

## AV Power

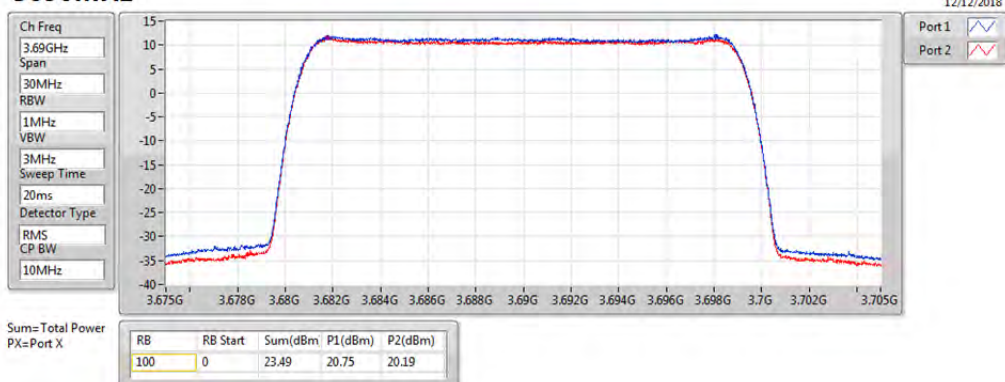
3625MHz



## Band 48\_LTE\_20MHz\_(64QAM)\_2TX

## AV Power

3690MHz



**Summary**

| Mode                          | PD<br>(dBm/MHz) | PD<br>(mW/MHz) | EIRP PD<br>(dBm/MHz) | EIRP PD<br>(mW/MHz) |
|-------------------------------|-----------------|----------------|----------------------|---------------------|
| Band 48                       | -               | -              | -                    | -                   |
| Band 48_LTE_10MHz_(QPSK)_2TX  | 16.92           | 49.20          | 19.54                | 89.95               |
| Band 48_LTE_10MHz_(16QAM)_2TX | 17.22           | 52.72          | 19.84                | 96.38               |
| Band 48_LTE_10MHz_(64QAM)_2TX | 16.18           | 41.50          | 18.80                | 75.86               |
| Band 48_LTE_20MHz_(QPSK)_2TX  | 14.92           | 31.05          | 17.54                | 56.75               |
| Band 48_LTE_20MHz_(16QAM)_2TX | 14.62           | 28.97          | 17.24                | 52.97               |
| Band 48_LTE_20MHz_(64QAM)_2TX | 14.27           | 26.73          | 16.89                | 48.87               |

**Result**

| Mode                  | Setting | Result | RB  | RB Start | Gain<br>(dBi) | Port 1<br>(dBm/MHz) | Port 2<br>(dBm/MHz) | PD<br>(dBm/MHz) | EIRP PD<br>(dBm/MHz) | EIRP PD Limit<br>(dBm/MHz) |
|-----------------------|---------|--------|-----|----------|---------------|---------------------|---------------------|-----------------|----------------------|----------------------------|
| LTE_10MHz_(QPSK)_2TX  |         | -      | -   | -        | -             | -                   | -                   | -               |                      | -                          |
| 3555MHz               | 22      | Pass   | 50  | 0        | 2.62          | 13.27               | 13.44               | 16.37           | 18.99                | 20                         |
| 3625MHz               | 22      | Pass   | 50  | 0        | 2.62          | 13.71               | 13.83               | 16.78           | 19.40                | 20                         |
| 3695MHz               | 22      | Pass   | 50  | 0        | 2.62          | 13.76               | 14.05               | 16.92           | 19.54                | 20                         |
| LTE_10MHz_(16QAM)_2TX |         | -      | -   | -        | -             | -                   | -                   | -               |                      | -                          |
| 3555MHz               | 22      | Pass   | 50  | 0        | 2.62          | 13.28               | 13.27               | 16.29           | 18.91                | 20                         |
| 3625MHz               | 22      | Pass   | 50  | 0        | 2.62          | 13.90               | 14.00               | 16.96           | 19.58                | 20                         |
| 3695MHz               | 22      | Pass   | 50  | 0        | 2.62          | 14.05               | 14.36               | 17.22           | 19.84                | 20                         |
| LTE_10MHz_(64QAM)_2TX |         | -      | -   | -        | -             | -                   | -                   | -               |                      | -                          |
| 3555MHz               | 22      | Pass   | 50  | 0        | 2.62          | 11.83               | 12.36               | 15.11           | 17.73                | 20                         |
| 3625MHz               | 22      | Pass   | 50  | 0        | 2.62          | 12.80               | 13.25               | 16.04           | 18.66                | 20                         |
| 3695MHz               | 22      | Pass   | 50  | 0        | 2.62          | 12.95               | 13.38               | 16.18           | 18.80                | 20                         |
| LTE_20MHz_(QPSK)_2TX  |         | -      | -   | -        | -             | -                   | -                   | -               |                      | -                          |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 11.11               | 11.14               | 14.14           | 16.76                | 20                         |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 11.62               | 11.93               | 14.79           | 17.41                | 20                         |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 12.08               | 11.74               | 14.92           | 17.54                | 20                         |
| LTE_20MHz_(16QAM)_2TX |         | -      | -   | -        | -             | -                   | -                   | -               |                      | -                          |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 10.71               | 10.87               | 13.80           | 16.42                | 20                         |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 11.64               | 11.58               | 14.62           | 17.24                | 20                         |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 11.24               | 11.57               | 14.42           | 17.04                | 20                         |
| LTE_20MHz_(64QAM)_2TX |         | -      | -   | -        | -             | -                   | -                   | -               |                      | -                          |
| 3560MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 10.54               | 10.65               | 13.61           | 16.23                | 20                         |
| 3625MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 11.10               | 11.42               | 14.27           | 16.89                | 20                         |
| 3690MHz               | 23.5    | Pass   | 100 | 0        | 2.62          | 11.30               | 11.13               | 14.23           | 16.85                | 20                         |

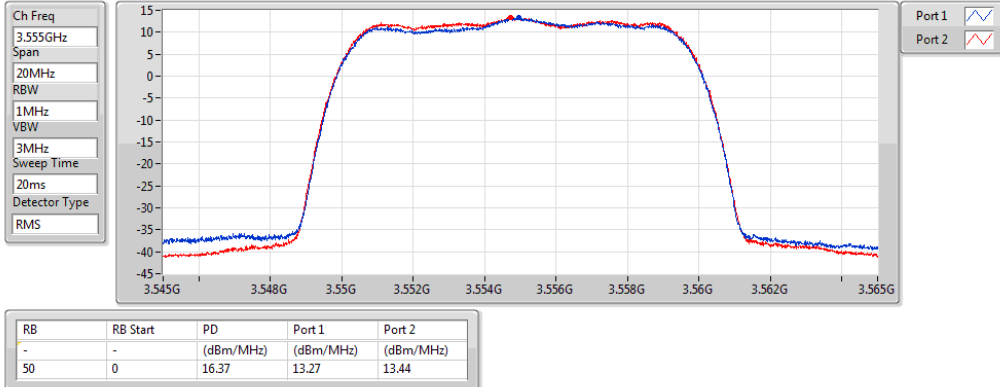
**DG** = Directional Gain;

**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port Xpower density;

### Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PSD

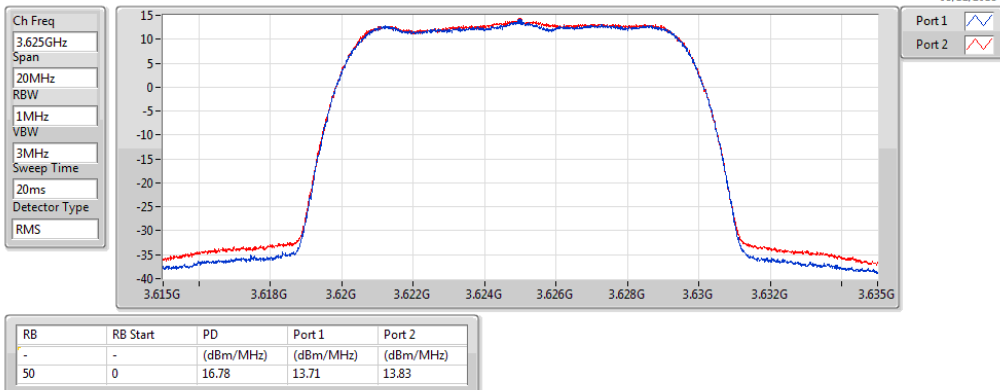
3555MHz



### Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PSD

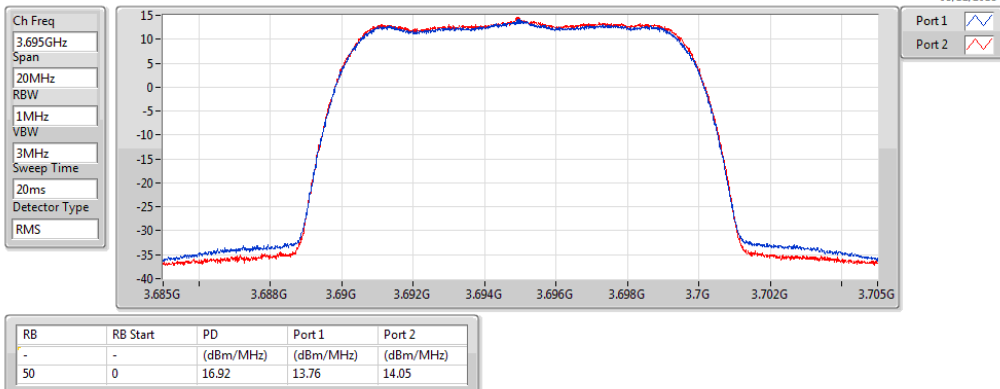
3625MHz



### Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PSD

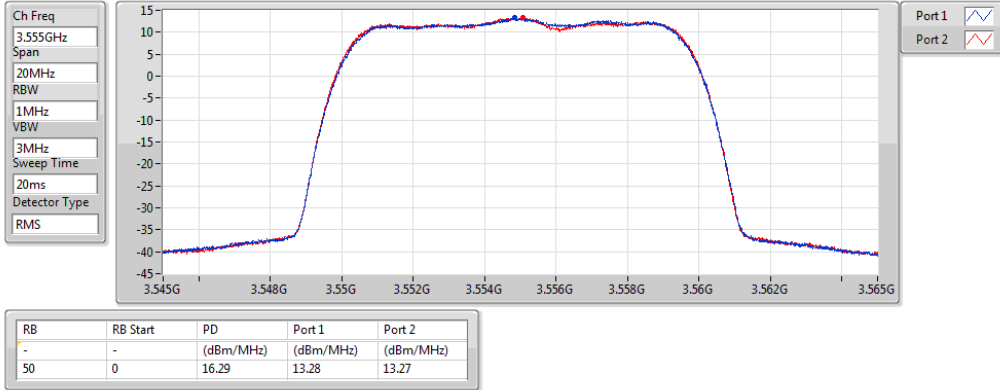
3695MHz



**Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX**

PSD

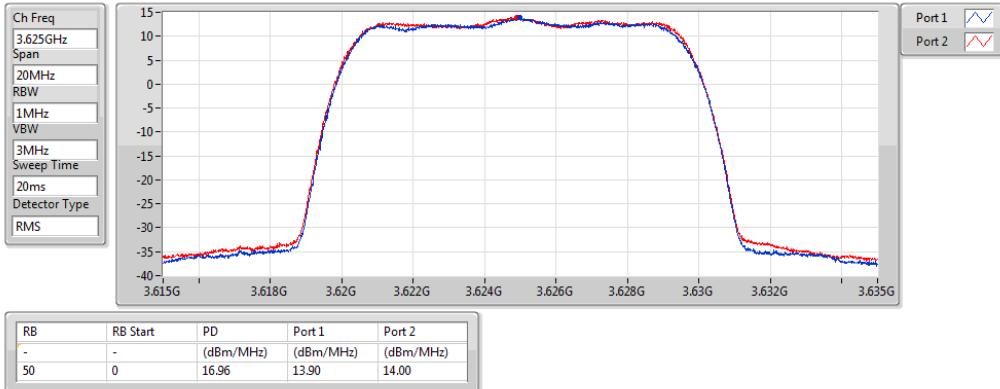
**3555MHz**



**Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX**

PSD

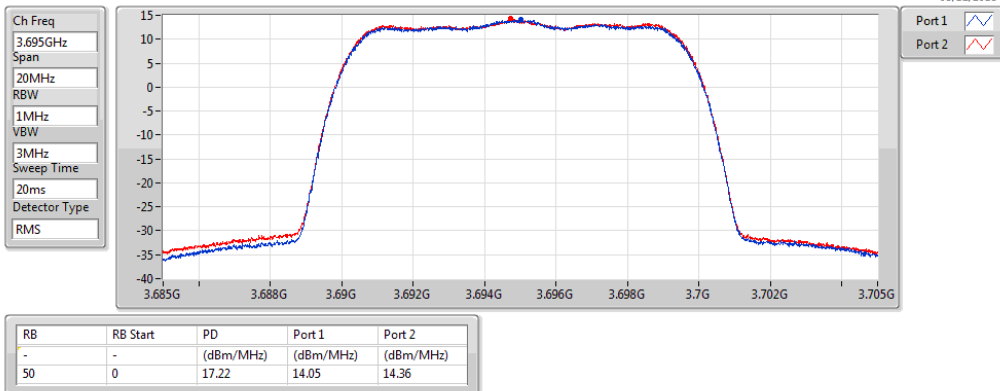
**3625MHz**



**Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX**

PSD

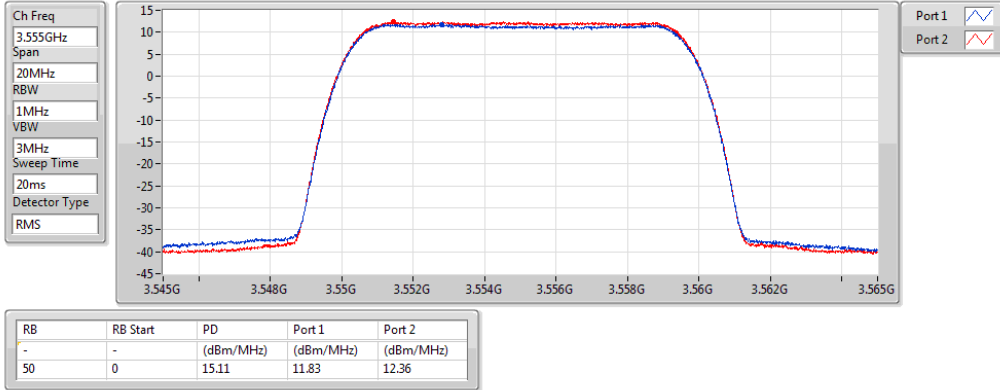
**3695MHz**



**Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX**

PSD

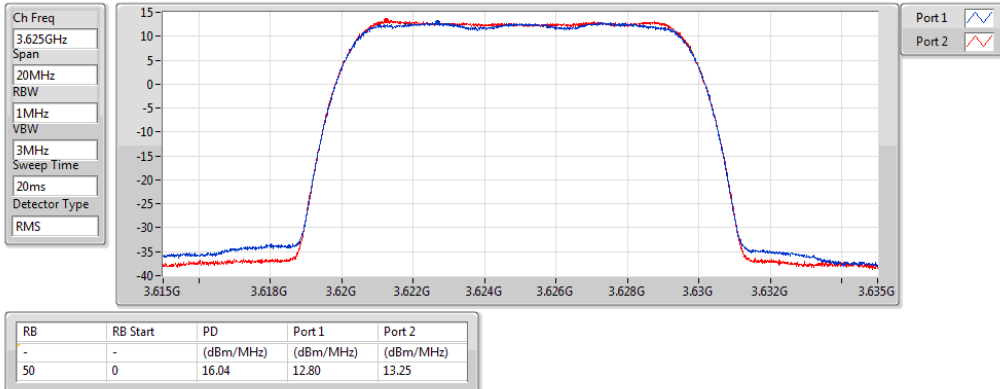
**3555MHz**



**Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX**

PSD

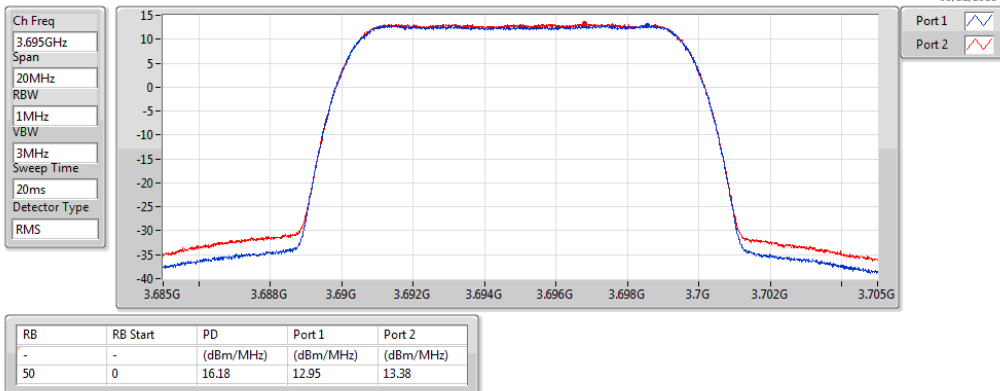
**3625MHz**



**Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX**

PSD

**3695MHz**



**Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX**

PSD

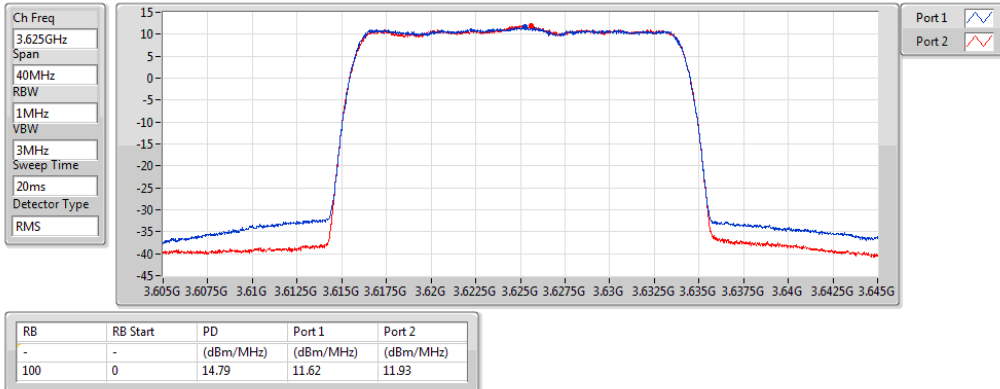
**3560MHz**



**Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX**

PSD

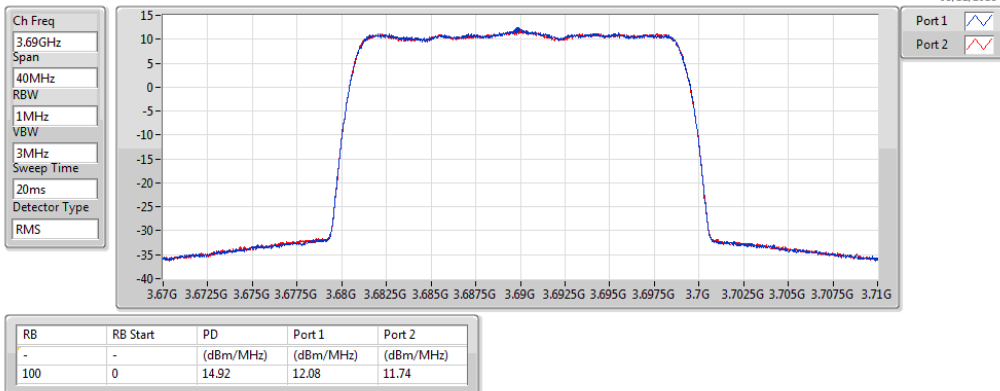
**3625MHz**



**Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX**

PSD

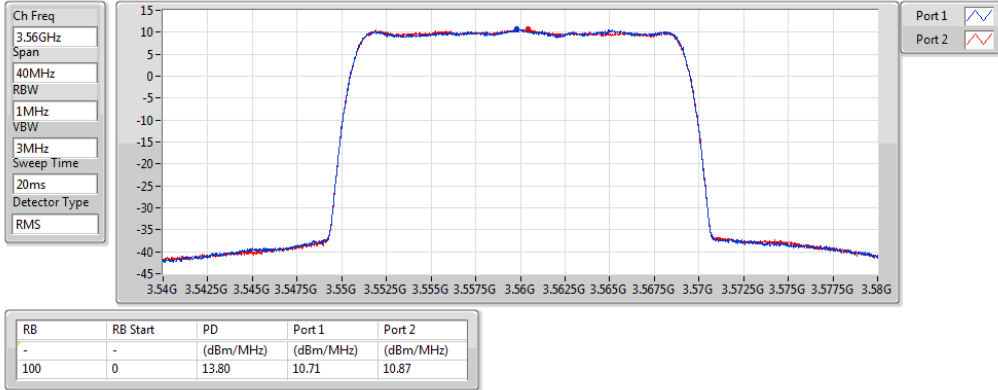
**3690MHz**



**Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX**

PSD

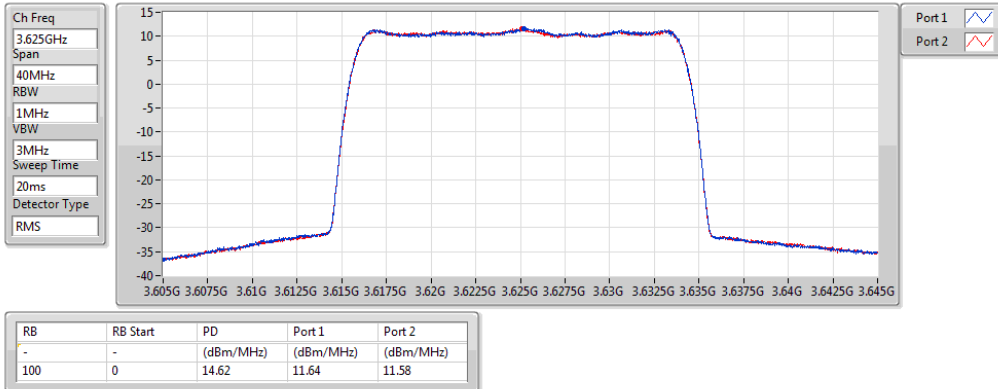
**3560MHz**



**Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX**

PSD

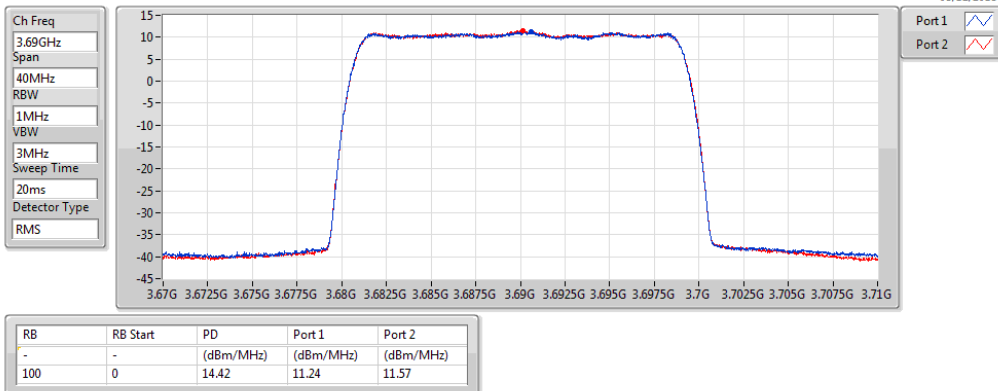
**3625MHz**



**Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX**

PSD

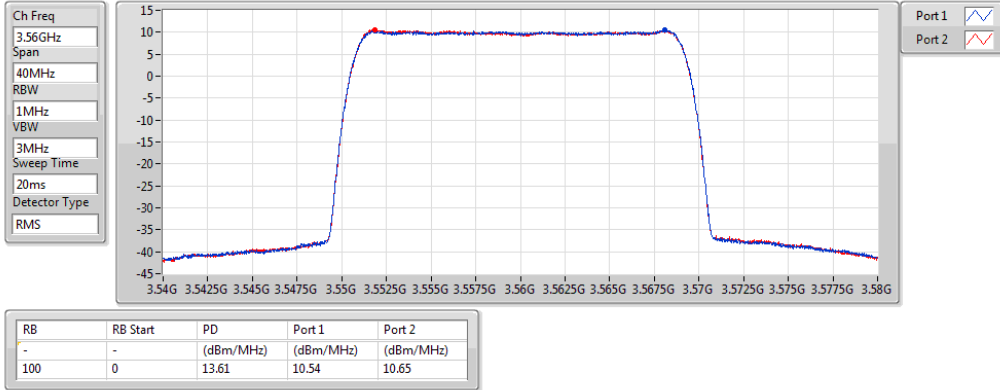
**3690MHz**



**Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX**

PSD

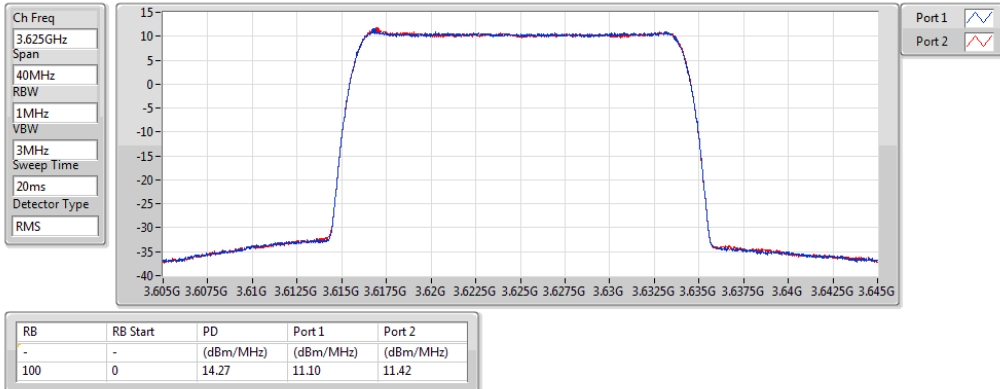
**3560MHz**



**Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX**

PSD

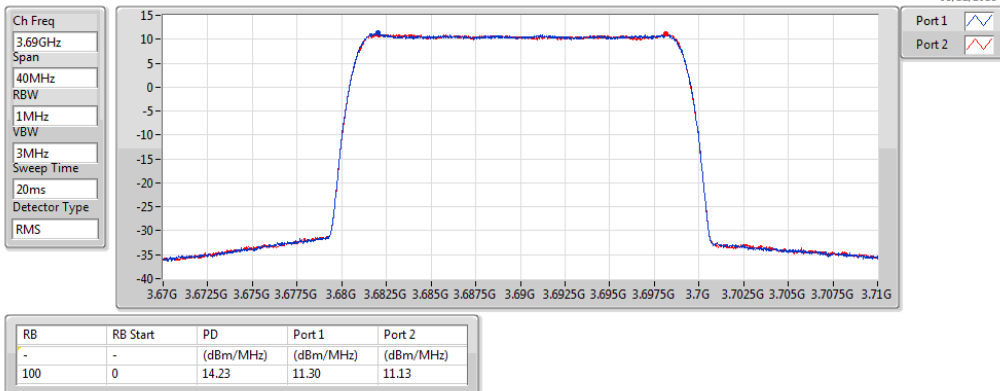
**3625MHz**



**Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX**

PSD

**3690MHz**



**Result**

| Mode                    | P1<br>Wanted signal<br>power level<br><br>(dBm) | Adjacent<br>Channel<br>Selectivity<br>Throughput<br><br>(%) | In-band blocking<br>Throughput<br><br>(%) | P2<br>Wanted signal<br>power level<br><br>(dBm) | Adjacent<br>Channel<br>Selectivity<br>Throughput<br><br>(%) | In-band blocking<br>Throughput<br><br>(%) | Interference<br>signal power<br>level<br><br>(dBm/10MHz) | Result |
|-------------------------|-------------------------------------------------|-------------------------------------------------------------|-------------------------------------------|-------------------------------------------------|-------------------------------------------------------------|-------------------------------------------|----------------------------------------------------------|--------|
| Band 48_LTE_10MHz_2TX   | -                                               | -                                                           | -                                         | -                                               | -                                                           | -                                         |                                                          | -      |
| 3625MHz, RB Offset = 0  | -86.5                                           | 100                                                         | 100                                       | -86.5                                           | 100                                                         | 100                                       | -40                                                      | Pass   |
| 3625MHz, RB Offset = 25 | -86.5                                           | 100                                                         | 100                                       | -86.5                                           | 100                                                         | 100                                       | -40                                                      | Pass   |
| Band 48_LTE_20MHz_2TX   |                                                 |                                                             |                                           |                                                 |                                                             |                                           |                                                          | -      |
| 3625MHz, RB Offset = 0  | -86.5                                           | 100                                                         | 100                                       | -86.5                                           | 100                                                         | 100                                       | -40                                                      | Pass   |
| 3625MHz, RB Offset = 25 | -86.5                                           | 100                                                         | 100                                       | -86.5                                           | 100                                                         | 100                                       | -40                                                      | Pass   |
| 3625MHz, RB Offset = 50 | -86.5                                           | 100                                                         | 100                                       | -86.5                                           | 100                                                         | 100                                       | -40                                                      | Pass   |
| 3625MHz, RB Offset = 75 | -86.5                                           | 100                                                         | 100                                       | -86.5                                           | 100                                                         | 100                                       | -40                                                      | Pass   |

**Note1:** This requirement shall be met for each consecutive application of a single instance of FRC A1-3 mapped to disjoint frequency ranges with a width of 25 resource blocks each.

The parameters of the FRC A1-3 as below:

|                                                              |      |
|--------------------------------------------------------------|------|
| Allocated resource blocks                                    | 25   |
| DFT-OFDM Symbols per subframe                                | 12   |
| Modulation                                                   | QPSK |
| Code rate                                                    | 1/3  |
| Payload size (bits)                                          | 2216 |
| Transport block CRC (bits)                                   | 24   |
| Code block CRC size (bits)                                   | 0    |
| Number of code blocks - C                                    | 1    |
| Coded block size including 12bits trellis termination (bits) | 6732 |
| Total number of bits per sub-frame                           | 7200 |
| Total symbols per sub-frame                                  | 3600 |

**Note2 :** The interference signal is 10MHz(50RB) LTE signal.

**Summary**

| Mode                          | Result | RB  | RB Start | Freq (Hz) | 0.1% | Margin (dB) | Limit (dB) | Port |
|-------------------------------|--------|-----|----------|-----------|------|-------------|------------|------|
| Band 48                       | -      | -   | -        | -         | -    | -           | -          | -    |
| Band 48_LTE_10MHz_(QPSK)_2TX  | Pass   | 50  | 0        | 3.695G    | 9.53 | -3.47       | 13.00      | 1    |
| Band 48_LTE_10MHz_(16QAM)_2TX | Pass   | 50  | 0        | 3.625G    | 8.96 | -4.04       | 13.00      | 1    |
| Band 48_LTE_10MHz_(64QAM)_2TX | Pass   | 50  | 0        | 3.625G    | 9.91 | -3.09       | 13.00      | 1    |
| Band 48_LTE_20MHz_(QPSK)_2TX  | Pass   | 100 | 0        | 3.625G    | 8.71 | -4.29       | 13.00      | 1    |
| Band 48_LTE_20MHz_(16QAM)_2TX | Pass   | 100 | 0        | 3.625G    | 9.73 | -3.27       | 13.00      | 1    |
| Band 48_LTE_20MHz_(64QAM)_2TX | Pass   | 100 | 0        | 3.69G     | 9.77 | -3.23       | 13.00      | 1    |

**Result**

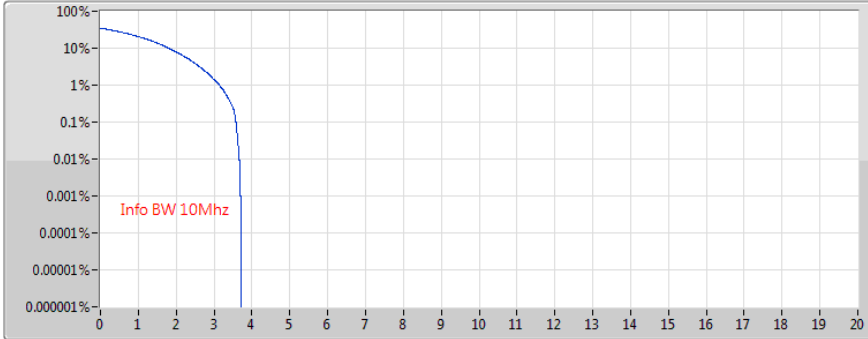
| Mode                  | Result | RB  | RB Start | Freq (Hz) | 0.1% | Margin (dB) | Limit (dB) | Port |
|-----------------------|--------|-----|----------|-----------|------|-------------|------------|------|
| LTE_10MHz_(QPSK)_2TX  | -      | -   | -        | -         | -    | -           | -          | -    |
| 3555MHz               | Pass   | 50  | 0        | 3.555G    | 8.94 | -4.06       | 13.00      | 1    |
| 3625MHz               | Pass   | 50  | 0        | 3.625G    | 9.38 | -3.62       | 13.00      | 1    |
| 3695MHz               | Pass   | 50  | 0        | 3.695G    | 9.53 | -3.47       | 13.00      | 1    |
| LTE_10MHz_(16QAM)_2TX | -      | -   | -        | -         | -    | -           | -          | -    |
| 3555MHz               | Pass   | 50  | 0        | 3.555G    | 8.84 | -4.16       | 13.00      | 1    |
| 3625MHz               | Pass   | 50  | 0        | 3.625G    | 8.96 | -4.04       | 13.00      | 1    |
| 3695MHz               | Pass   | 50  | 0        | 3.695G    | 8.87 | -4.13       | 13.00      | 1    |
| LTE_10MHz_(64QAM)_2TX | -      | -   | -        | -         | -    | -           | -          | -    |
| 3555MHz               | Pass   | 50  | 0        | 3.555G    | 8.81 | -4.19       | 13.00      | 1    |
| 3625MHz               | Pass   | 50  | 0        | 3.625G    | 9.91 | -3.09       | 13.00      | 1    |
| 3695MHz               | Pass   | 50  | 0        | 3.695G    | 8.20 | -4.80       | 13.00      | 1    |
| LTE_20MHz_(QPSK)_2TX  | -      | -   | -        | -         | -    | -           | -          | -    |
| 3560MHz               | Pass   | 100 | 0        | 3.56G     | 8.59 | -4.41       | 13.00      | 1    |
| 3625MHz               | Pass   | 100 | 0        | 3.625G    | 8.71 | -4.29       | 13.00      | 1    |
| 3690MHz               | Pass   | 100 | 0        | 3.69G     | 8.25 | -4.75       | 13.00      | 1    |
| LTE_20MHz_(16QAM)_2TX | -      | -   | -        | -         | -    | -           | -          | -    |
| 3560MHz               | Pass   | 100 | 0        | 3.56G     | 9.64 | -3.36       | 13.00      | 1    |
| 3625MHz               | Pass   | 100 | 0        | 3.625G    | 9.73 | -3.27       | 13.00      | 1    |
| 3690MHz               | Pass   | 100 | 0        | 3.69G     | 7.75 | -5.25       | 13.00      | 1    |
| LTE_20MHz_(64QAM)_2TX | -      | -   | -        | -         | -    | -           | -          | -    |
| 3560MHz               | Pass   | 100 | 0        | 3.56G     | 9.71 | -3.29       | 13.00      | 1    |
| 3625MHz               | Pass   | 100 | 0        | 3.625G    | 8.86 | -4.14       | 13.00      | 1    |
| 3690MHz               | Pass   | 100 | 0        | 3.69G     | 9.77 | -3.23       | 13.00      | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PAR

3555MHz

08/12/2018



1 RB

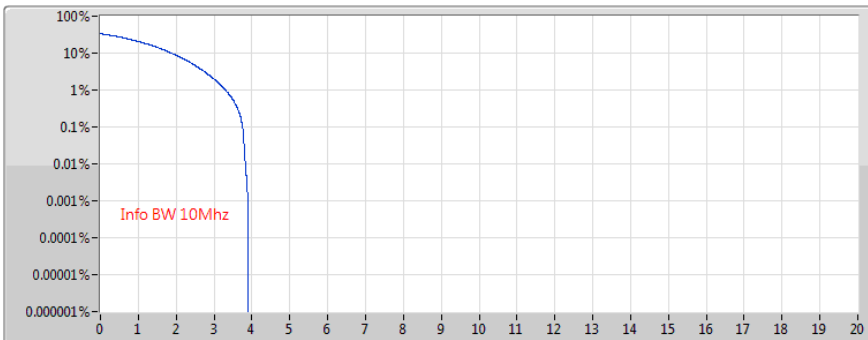
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.94 | -4.06      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PAR

3625MHz

08/12/2018



1 RB

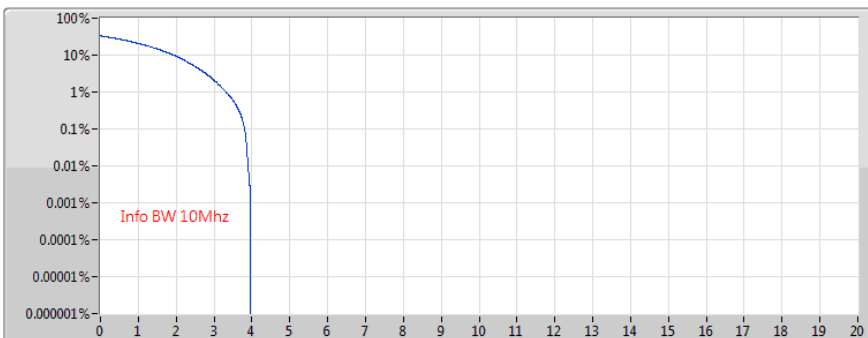
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 9.38 | -3.62      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PAR

3695MHz

08/12/2018



1 RB

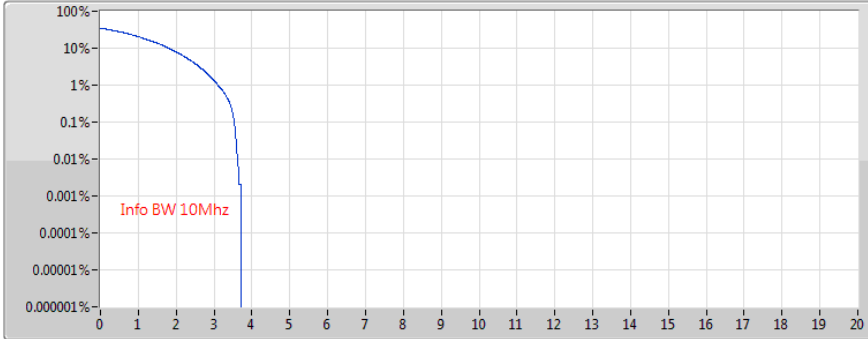
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 9.53 | -3.47      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

PAR

3555MHz

08/12/2018



1 RB



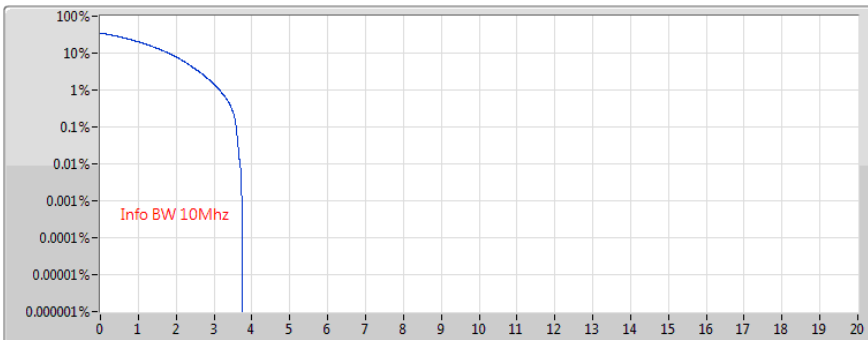
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.84 | -4.16      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB



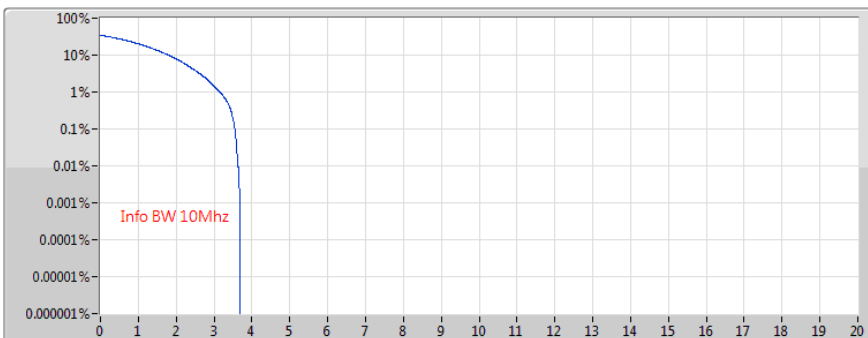
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.96 | -4.04      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

PAR

3695MHz

08/12/2018



1 RB



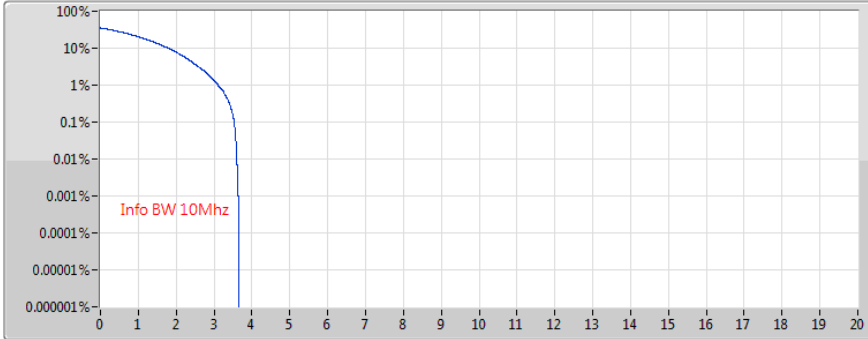
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.87 | -4.13      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

PAR

3555MHz

08/12/2018



1 RB

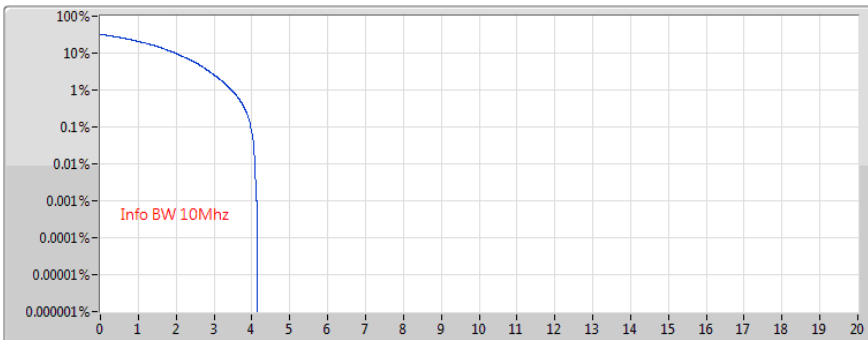
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.81 | -4.19      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB

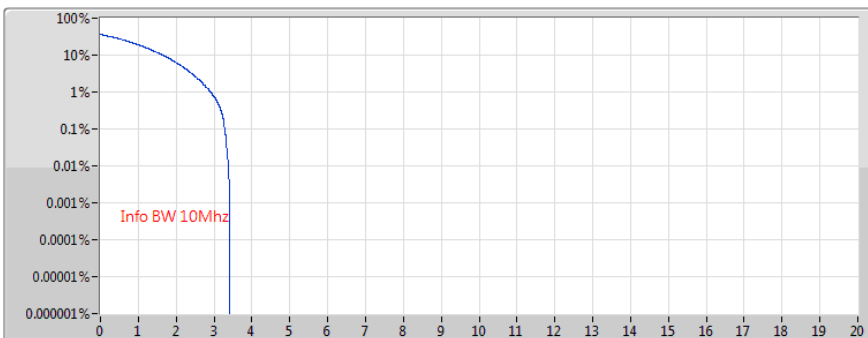
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 9.91 | -3.09      | 13.00     | 1    |

## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

PAR

3695MHz

08/12/2018



1 RB

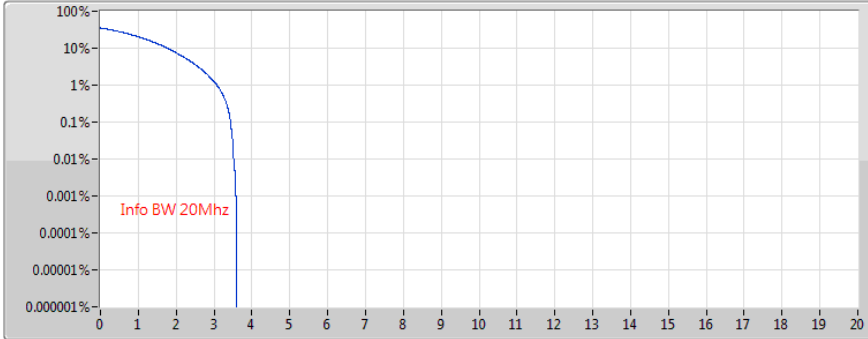
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.20 | -4.80      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

PAR

3560MHz

08/12/2018



1 RB

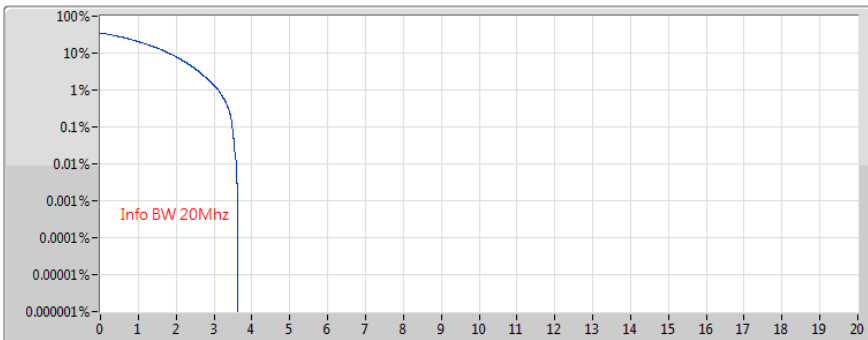
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 8.59 | -4.41      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

PAR

3625MHz

08/12/2018



1 RB

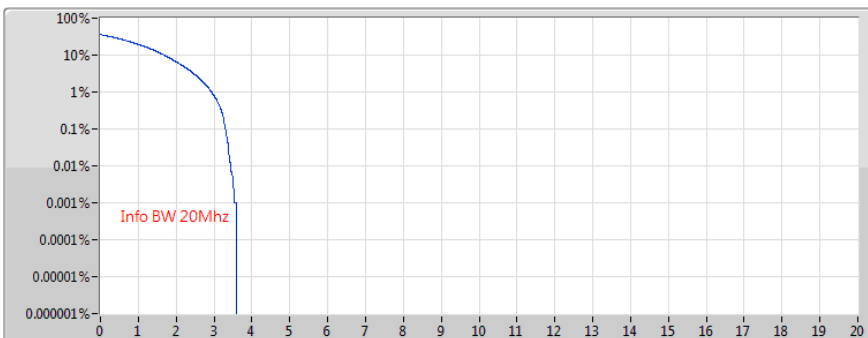
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 8.71 | -4.29      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

PAR

3690MHz

08/12/2018



1 RB

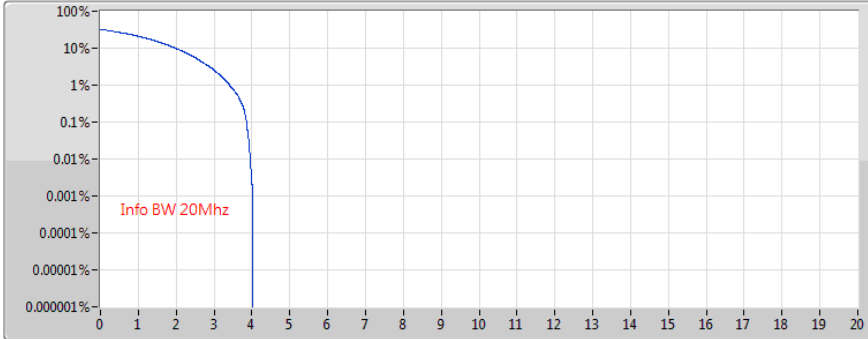
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 8.25 | -4.75      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

PAR

3560MHz

08/12/2018



1 RB

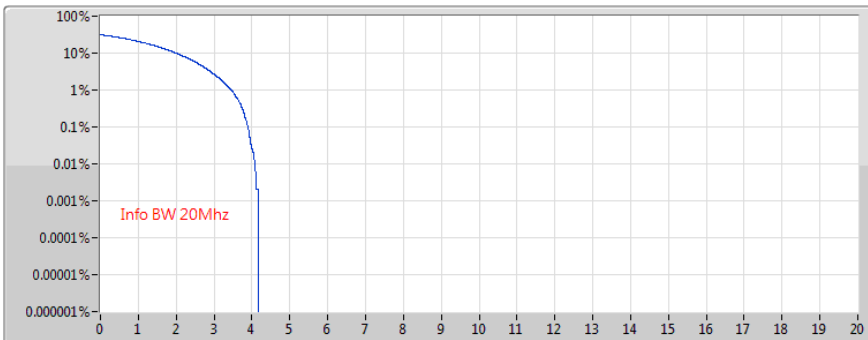
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.64 | -3.36      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB

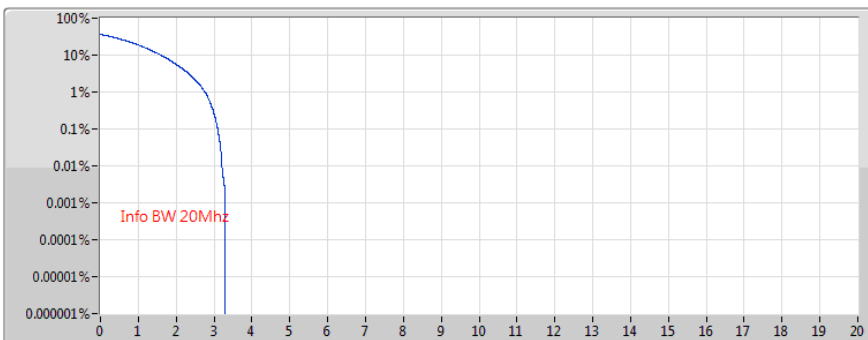
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.73 | -3.27      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

PAR

3690MHz

08/12/2018



1 RB

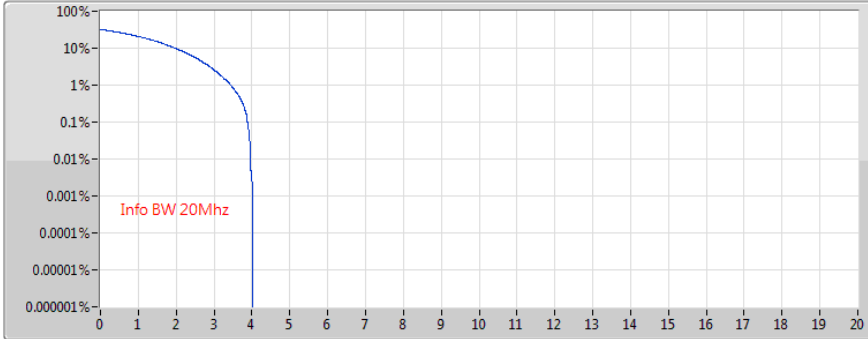
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 7.75 | -5.25      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

PAR

3560MHz

08/12/2018



1 RB

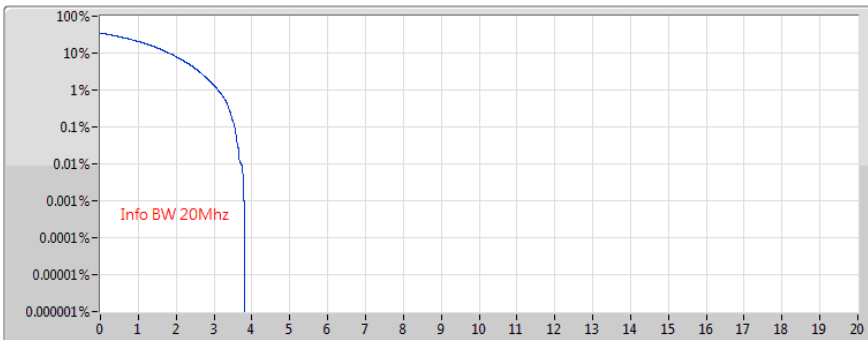
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.71 | -3.29      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB

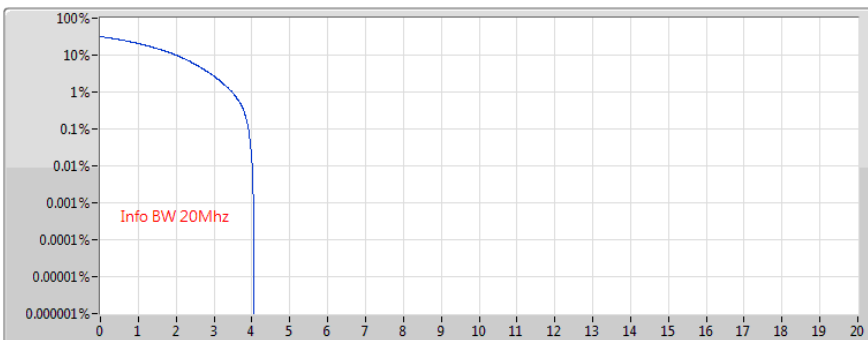
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 8.86 | -4.14      | 13.00     | 1    |

## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

PAR

3690MHz

08/12/2018



1 RB

| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.77 | -3.23      | 13.00     | 1    |



**Summary**

| Mode                          | Result | RB  | RB Start | Freq (Hz) | Margin (dB) | 0.1% | Limit (dB) | Port |
|-------------------------------|--------|-----|----------|-----------|-------------|------|------------|------|
| Band 48                       | -      | -   | -        | -         | -           | -    | -          | -    |
| Band 48_LTE_20MHz_(16QAM)_2TX | Pass   | 100 | 0        | 3.625G    | -3.20       | 9.80 | 13.00      | 2    |

**Result**

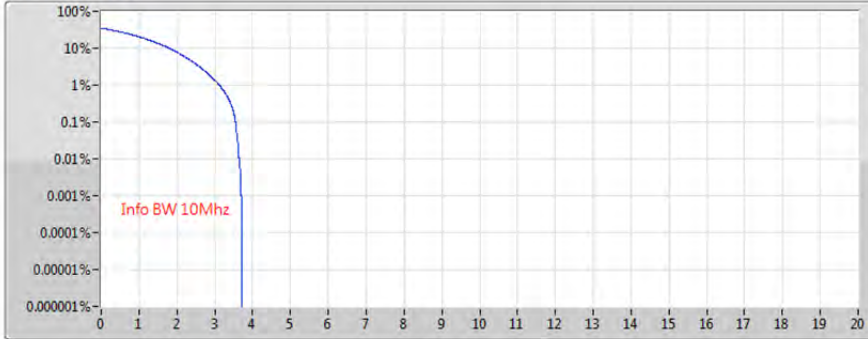
| Mode                  | Result | RB  | RB Start | Freq (Hz) | Margin (dB) | 0.1% | Limit (dB) | Port |
|-----------------------|--------|-----|----------|-----------|-------------|------|------------|------|
| LTE_10MHz_(QPSK)_2TX  | -      | -   | -        | -         | -           | -    | -          | -    |
| 3555MHz               | Pass   | 50  | 0        | 3.555G    | -4.13       | 8.87 | 13.00      | 2    |
| 3625MHz               | Pass   | 50  | 0        | 3.625G    | -4.50       | 8.50 | 13.00      | 2    |
| 3695MHz               | Pass   | 50  | 0        | 3.695G    | -4.49       | 8.51 | 13.00      | 2    |
| LTE_10MHz_(16QAM)_2TX | -      | -   | -        | -         | -           | -    | -          | -    |
| 3555MHz               | Pass   | 50  | 0        | 3.555G    | -4.43       | 8.57 | 13.00      | 2    |
| 3625MHz               | Pass   | 50  | 0        | 3.625G    | -4.07       | 8.93 | 13.00      | 2    |
| 3695MHz               | Pass   | 50  | 0        | 3.695G    | -4.25       | 8.75 | 13.00      | 2    |
| LTE_10MHz_(64QAM)_2TX | -      | -   | -        | -         | -           | -    | -          | -    |
| 3555MHz               | Pass   | 50  | 0        | 3.555G    | -4.69       | 8.31 | 13.00      | 2    |
| 3625MHz               | Pass   | 50  | 0        | 3.625G    | -4.58       | 8.42 | 13.00      | 2    |
| 3695MHz               | Pass   | 50  | 0        | 3.695G    | -3.90       | 9.10 | 13.00      | 2    |
| LTE_20MHz_(QPSK)_2TX  | -      | -   | -        | -         | -           | -    | -          | -    |
| 3560MHz               | Pass   | 100 | 0        | 3.56G     | -3.65       | 9.35 | 13.00      | 2    |
| 3625MHz               | Pass   | 100 | 0        | 3.625G    | -3.23       | 9.77 | 13.00      | 2    |
| 3690MHz               | Pass   | 100 | 0        | 3.69G     | -3.34       | 9.66 | 13.00      | 2    |
| LTE_20MHz_(16QAM)_2TX | -      | -   | -        | -         | -           | -    | -          | -    |
| 3560MHz               | Pass   | 100 | 0        | 3.56G     | -4.14       | 8.86 | 13.00      | 2    |
| 3625MHz               | Pass   | 100 | 0        | 3.625G    | -3.20       | 9.80 | 13.00      | 2    |
| 3690MHz               | Pass   | 100 | 0        | 3.69G     | -3.21       | 9.79 | 13.00      | 2    |
| LTE_20MHz_(64QAM)_2TX | -      | -   | -        | -         | -           | -    | -          | -    |
| 3560MHz               | Pass   | 100 | 0        | 3.56G     | -3.36       | 9.64 | 13.00      | 2    |
| 3625MHz               | Pass   | 100 | 0        | 3.625G    | -3.34       | 9.66 | 13.00      | 2    |
| 3690MHz               | Pass   | 100 | 0        | 3.69G     | -3.21       | 9.79 | 13.00      | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PAR

3555MHz

08/12/2018



1 RB

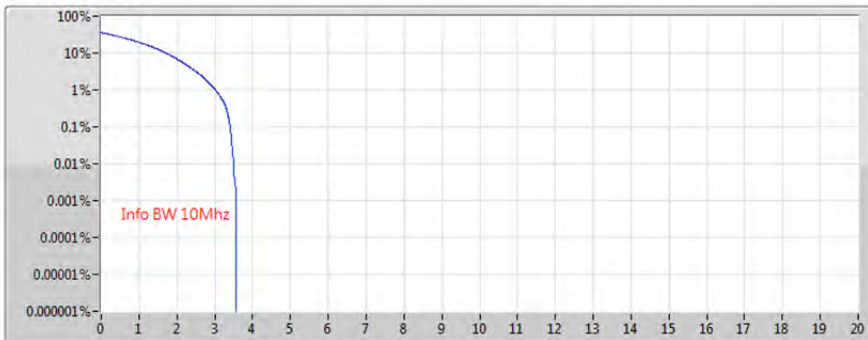
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.87 | -4.13      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PAR

3625MHz

08/12/2018



1 RB

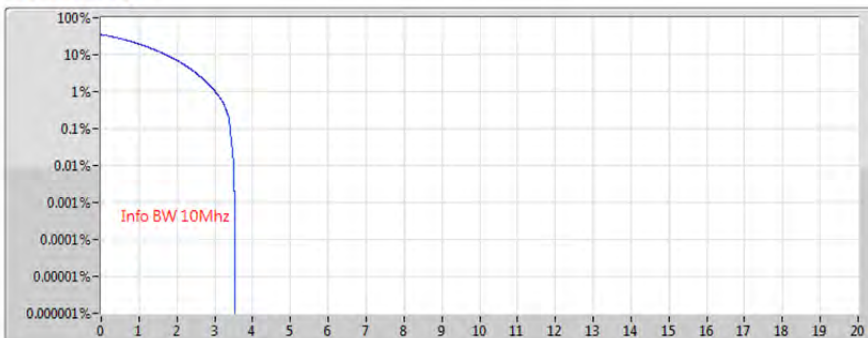
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.50 | -4.50      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

PAR

3695MHz

08/12/2018



1 RB

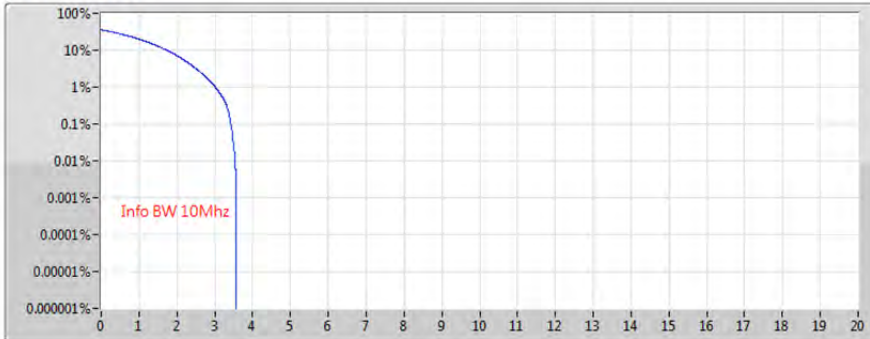
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.51 | -4.49      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

PAR

3555MHz

08/12/2018



1 RB

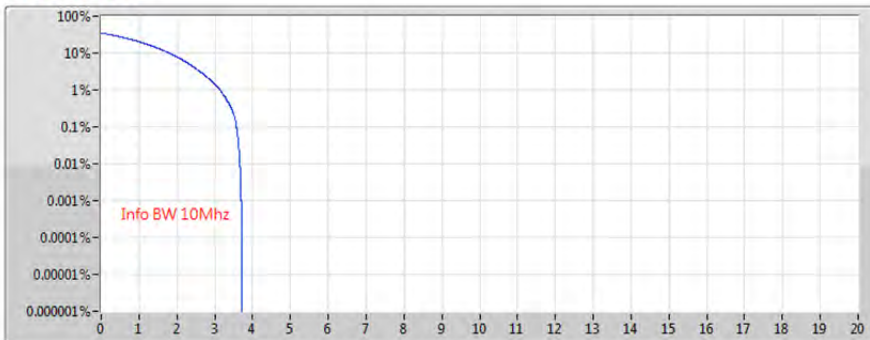
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.57 | -4.43      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB

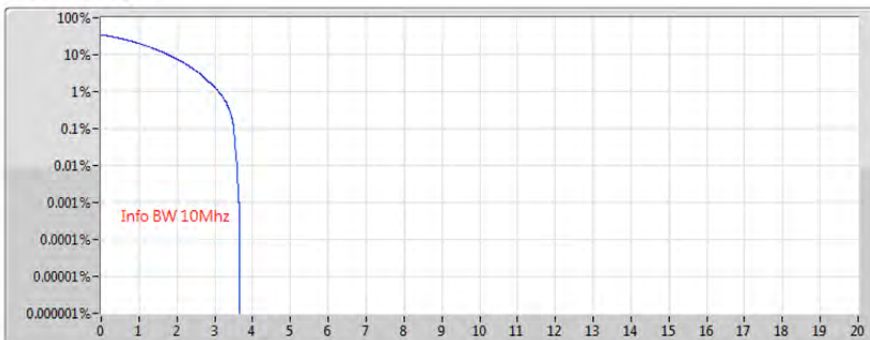
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.93 | -4.07      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

PAR

3695MHz

08/12/2018



1 RB

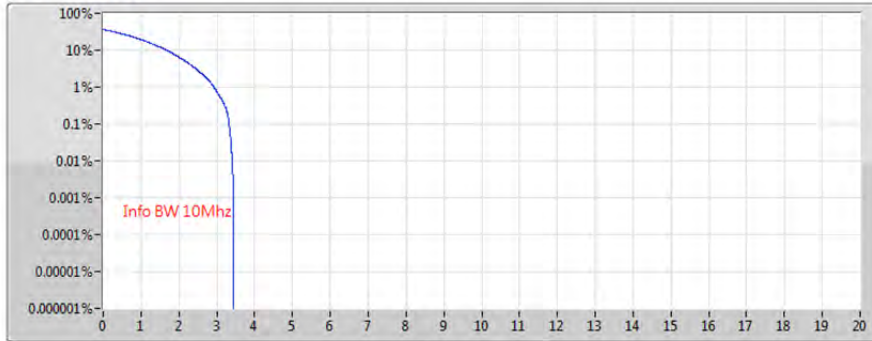
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.75 | -4.25      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

PAR

3555MHz

08/12/2018



1 RB

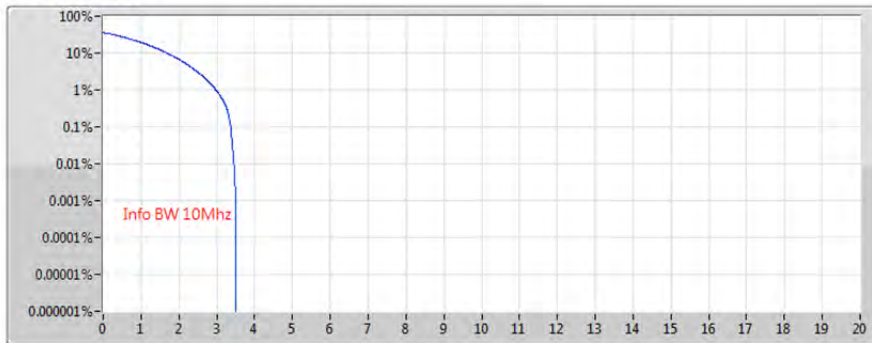
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.31 | -4.69      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB

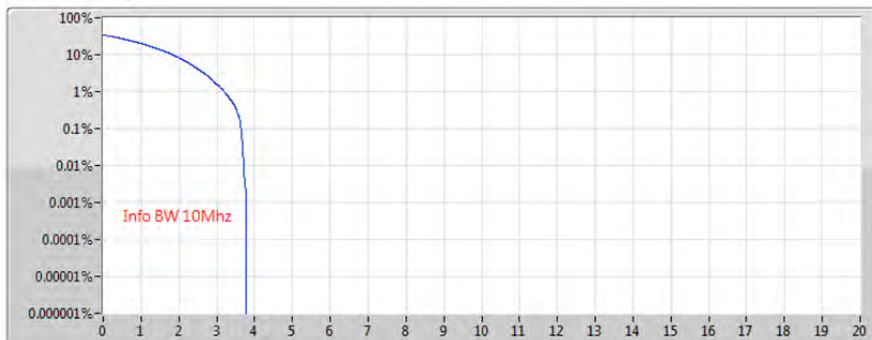
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 8.42 | -4.58      | 13.00     | 2    |

## Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

PAR

3695MHz

08/12/2018



1 RB

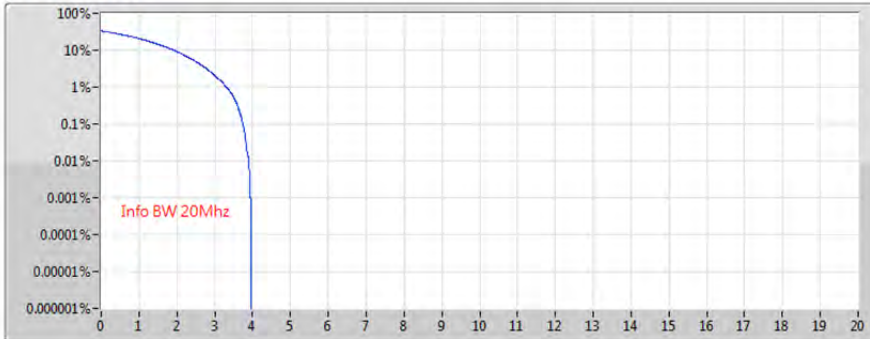
| RB | 0.1% | Margin(dB) | Limit(dB) | Port |
|----|------|------------|-----------|------|
| 50 | 9.10 | -3.90      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

PAR

3560MHz

08/12/2018



1 RB

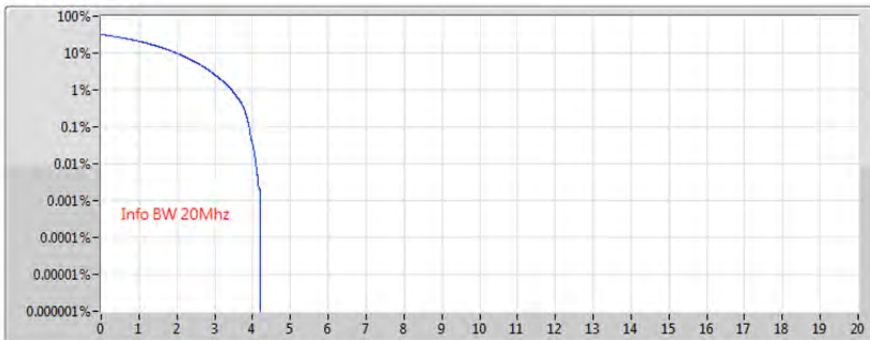
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.35 | -3.65      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

PAR

3625MHz

08/12/2018



1 RB

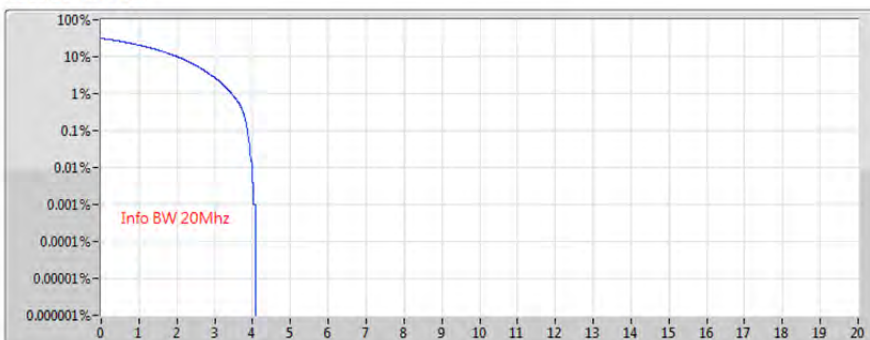
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.77 | -3.23      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

PAR

3690MHz

08/12/2018



1 RB

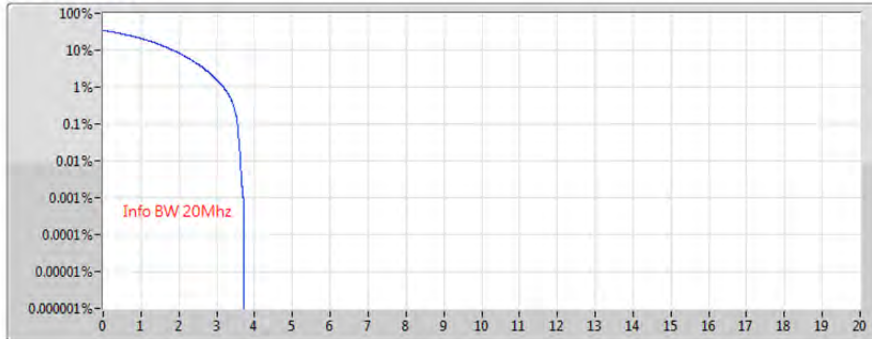
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.66 | -3.34      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

PAR

3560MHz

08/12/2018



1 RB

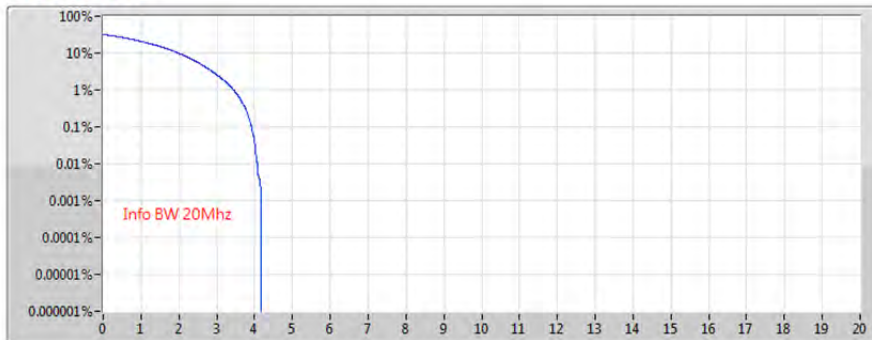
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 8.86 | -4.14      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB

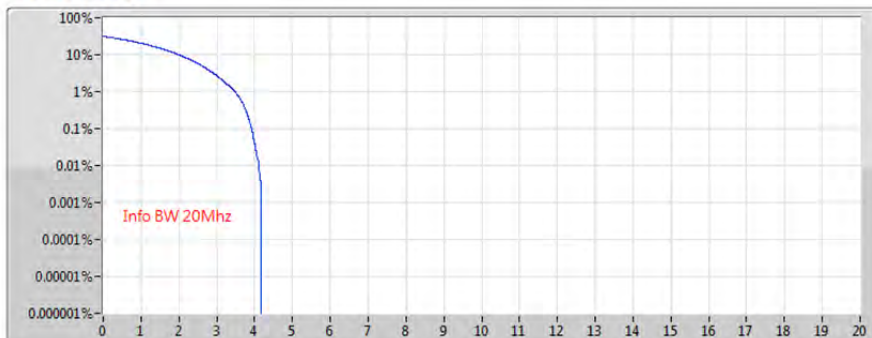
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.80 | -3.20      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX

PAR

3690MHz

08/12/2018



1 RB

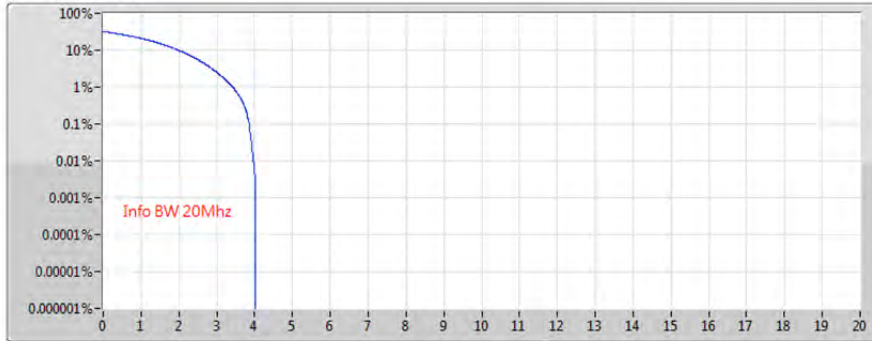
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.79 | -3.21      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

PAR

3560MHz

08/12/2018



1 RB

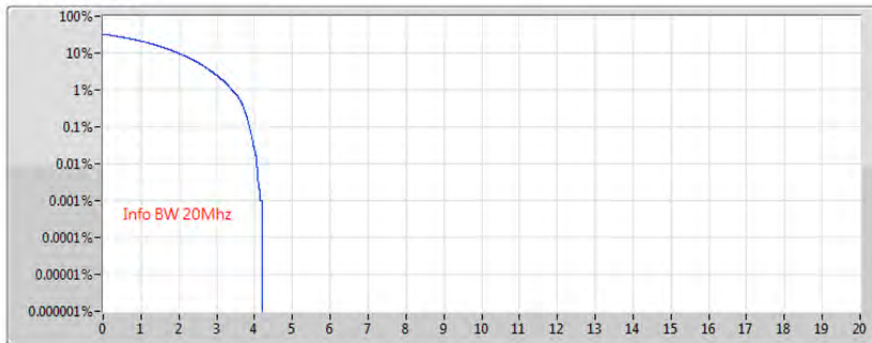
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.64 | -3.36      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

PAR

3625MHz

08/12/2018



1 RB

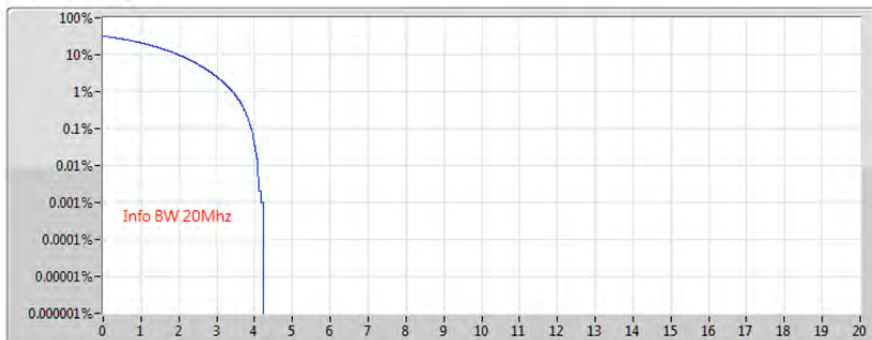
| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.66 | -3.34      | 13.00     | 2    |

## Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

PAR

3690MHz

08/12/2018



1 RB

| RB  | 0.1% | Margin(dB) | Limit(dB) | Port |
|-----|------|------------|-----------|------|
| 100 | 9.79 | -3.21      | 13.00     | 2    |

**Summary**

| Mode                          | Max-N dB<br>(Hz) | Max-OBW<br>(Hz) | ITU-Code | Min-N dB<br>(Hz) | Min-OBW<br>(Hz) |
|-------------------------------|------------------|-----------------|----------|------------------|-----------------|
| Band 48                       | -                | -               | -        | -                | -               |
| Band 48_LTE_10MHz_(QPSK)_2TX  | 9.575M           | 8.928M          | 8M93G7D  | 9.5M             | 8.91M           |
| Band 48_LTE_10MHz_(16QAM)_2TX | 9.6M             | 8.939M          | 8M94W7D  | 9.538M           | 8.927M          |
| Band 48_LTE_10MHz_(64QAM)_2TX | 9.575M           | 8.921M          | 8M92W7D  | 9.488M           | 8.907M          |
| Band 48_LTE_20MHz_(QPSK)_2TX  | 18.75M           | 17.831M         | 17M8G7D  | 18.6M            | 17.783M         |
| Band 48_LTE_20MHz_(16QAM)_2TX | 18.85M           | 17.818M         | 17M8W7D  | 18.7M            | 17.786M         |
| Band 48_LTE_20MHz_(64QAM)_2TX | 18.75M           | 17.824M         | 17M8W7D  | 18.675M          | 17.78M          |

**Max-N dB** = Maximum26dB downbandwidth;**Max-OBW** = Maximum99% occupied bandwidth;

**Min-N dB** = Minimum26dB downbandwidth;**Min-OBW** = Minimum99% occupied bandwidth;

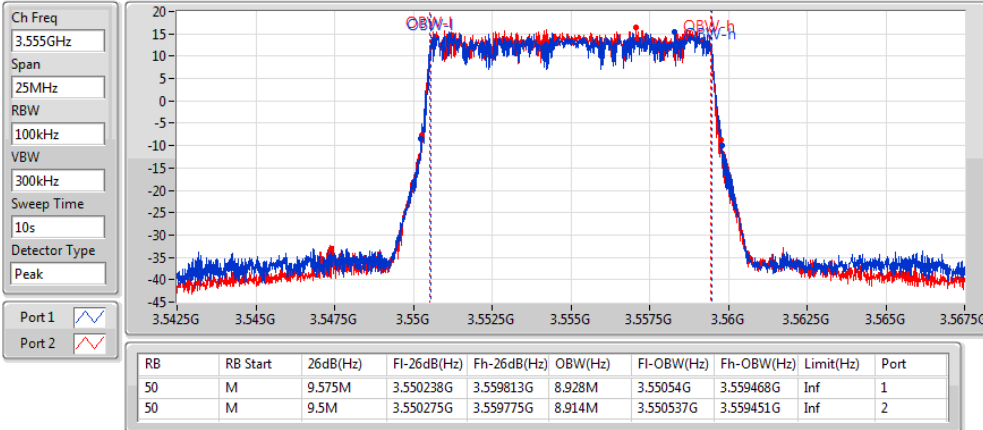
**Result**

| Mode                  | Result | RB  | RB Start | P1-N dB<br>(Hz) | P1-OBW<br>(Hz) | P2-N dB<br>(Hz) | P2-OBW<br>(Hz) |
|-----------------------|--------|-----|----------|-----------------|----------------|-----------------|----------------|
| LTE_10MHz_(QPSK)_2TX  | -      | -   | -        | -               | -              | -               | -              |
| 3555MHz               | Pass   | 50  | M        | 9.575M          | 8.928M         | 9.5M            | 8.914M         |
| 3625MHz               | Pass   | 50  | M        | 9.55M           | 8.92M          | 9.525M          | 8.918M         |
| 3695MHz               | Pass   | 50  | M        | 9.55M           | 8.923M         | 9.513M          | 8.91M          |
| LTE_10MHz_(16QAM)_2TX | -      | -   | -        | -               | -              | -               | -              |
| 3555MHz               | Pass   | 50  | M        | 9.55M           | 8.927M         | 9.538M          | 8.931M         |
| 3625MHz               | Pass   | 50  | M        | 9.538M          | 8.93M          | 9.575M          | 8.93M          |
| 3695MHz               | Pass   | 50  | M        | 9.6M            | 8.939M         | 9.588M          | 8.937M         |
| LTE_10MHz_(64QAM)_2TX | -      | -   | -        | -               | -              | -               | -              |
| 3555MHz               | Pass   | 50  | M        | 9.513M          | 8.908M         | 9.488M          | 8.916M         |
| 3625MHz               | Pass   | 50  | M        | 9.55M           | 8.921M         | 9.575M          | 8.911M         |
| 3695MHz               | Pass   | 50  | M        | 9.5M            | 8.919M         | 9.5M            | 8.907M         |
| LTE_20MHz_(QPSK)_2TX  | -      | -   | -        | -               | -              | -               | -              |
| 3560MHz               | Pass   | 100 | M        | 18.6M           | 17.831M        | 18.7M           | 17.816M        |
| 3625MHz               | Pass   | 100 | M        | 18.7M           | 17.826M        | 18.725M         | 17.783M        |
| 3690MHz               | Pass   | 100 | M        | 18.7M           | 17.8M          | 18.75M          | 17.814M        |
| LTE_20MHz_(16QAM)_2TX | -      | -   | -        | -               | -              | -               | -              |
| 3560MHz               | Pass   | 100 | M        | 18.8M           | 17.806M        | 18.75M          | 17.802M        |
| 3625MHz               | Pass   | 100 | M        | 18.7M           | 17.818M        | 18.85M          | 17.809M        |
| 3690MHz               | Pass   | 100 | M        | 18.75M          | 17.79M         | 18.7M           | 17.786M        |
| LTE_20MHz_(64QAM)_2TX | -      | -   | -        | -               | -              | -               | -              |
| 3560MHz               | Pass   | 100 | M        | 18.75M          | 17.824M        | 18.725M         | 17.811M        |
| 3625MHz               | Pass   | 100 | M        | 18.675M         | 17.796M        | 18.7M           | 17.801M        |
| 3690MHz               | Pass   | 100 | M        | 18.75M          | 17.78M         | 18.7M           | 17.807M        |

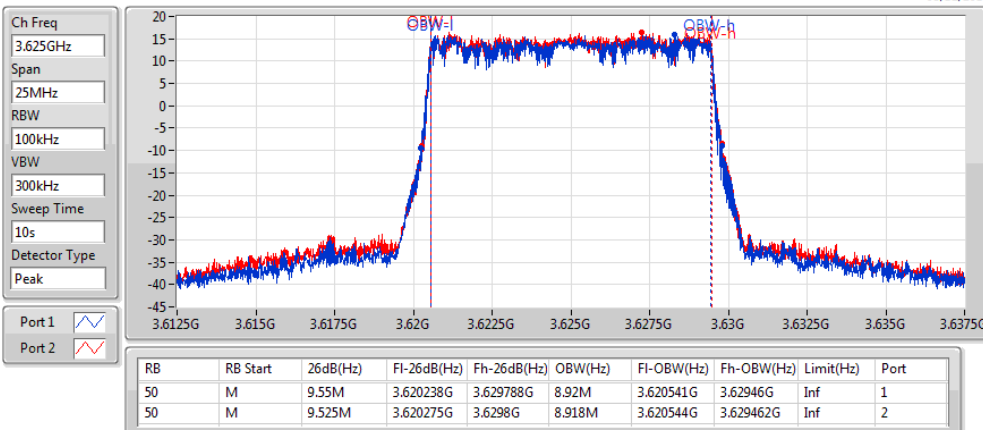
**Port X-N dB** = Port X26dB downbandwidth; **Port X-OBW** = Port X99% occupied bandwidth;

**Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX**
**EBW**
**3555MHz**

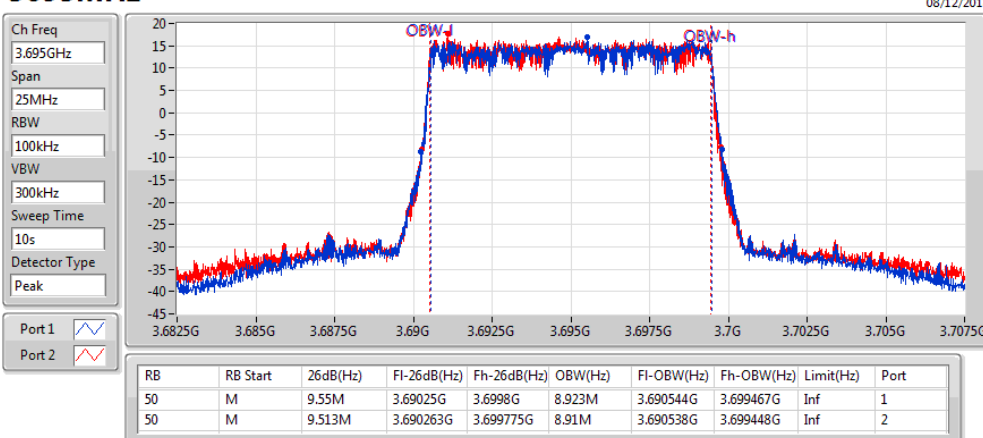
08/12/2018


**Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX**
**EBW**
**3625MHz**

08/12/2018

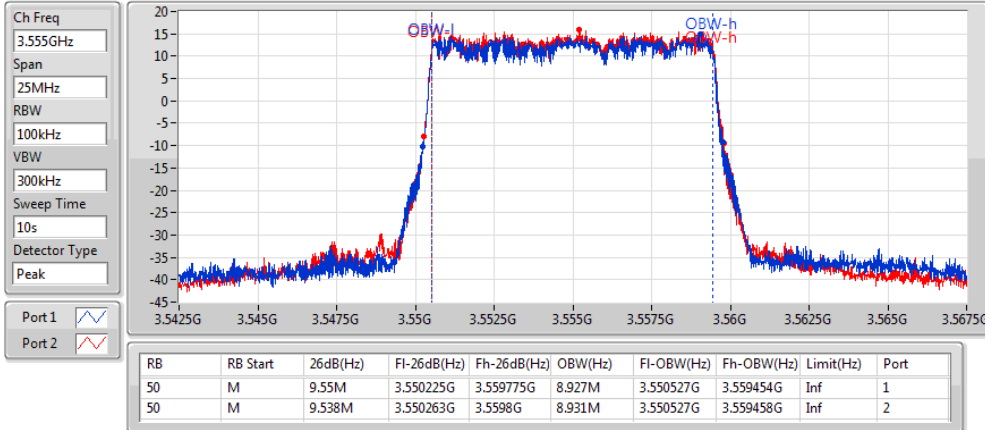

**Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX**
**EBW**
**3695MHz**

08/12/2018

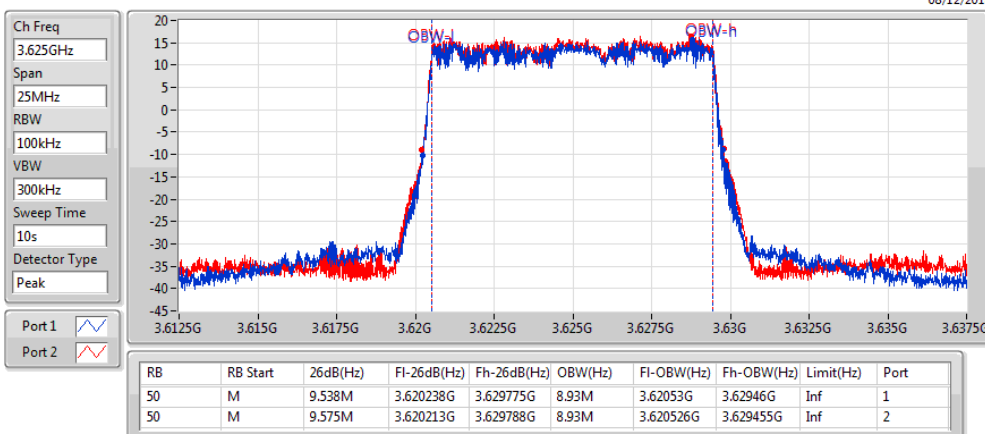


**Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX**
**EBW**
**3555MHz**

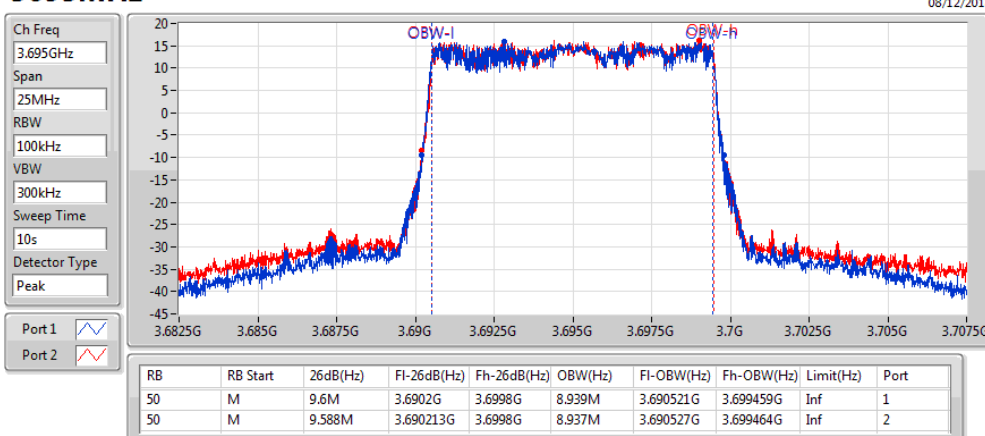
08/12/2018


**Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX**
**EBW**
**3625MHz**

08/12/2018

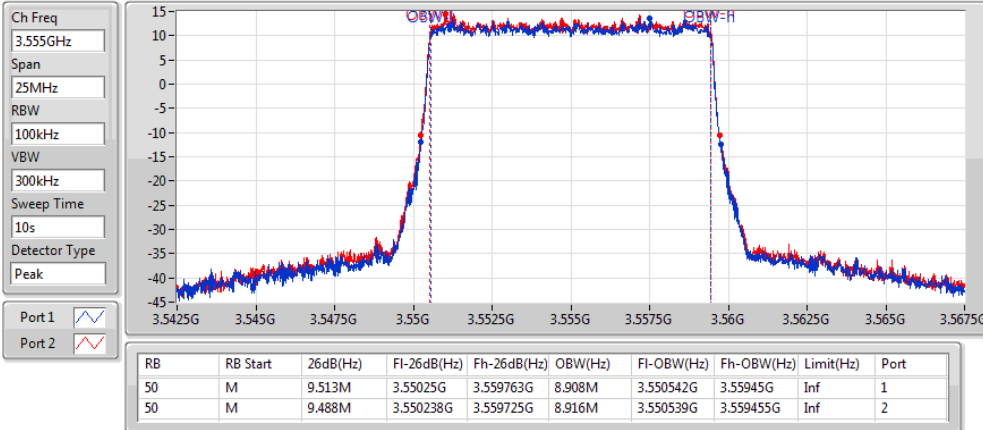

**Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX**
**EBW**
**3695MHz**

08/12/2018

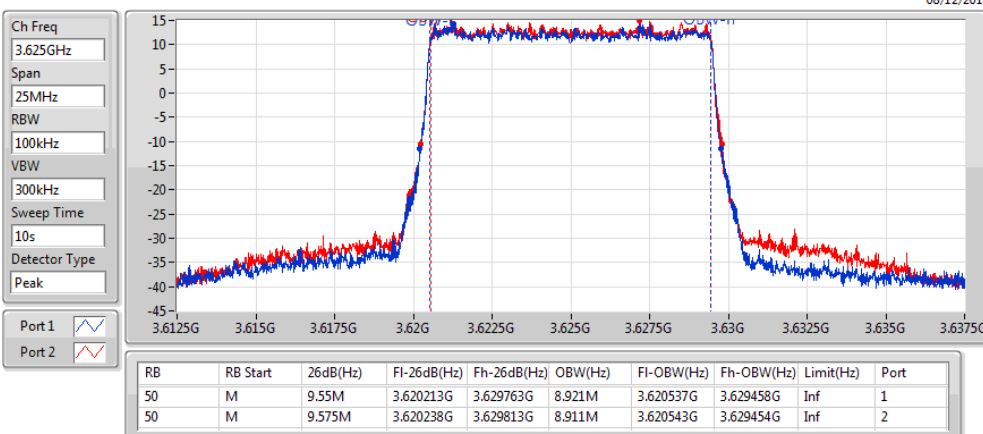


**Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX**
**EBW**
**3555MHz**

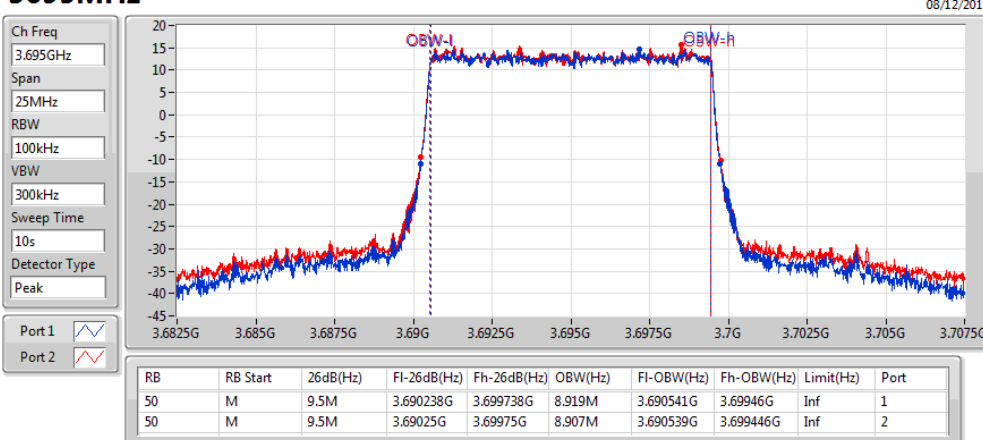
08/12/2018


**Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX**
**EBW**
**3625MHz**

08/12/2018

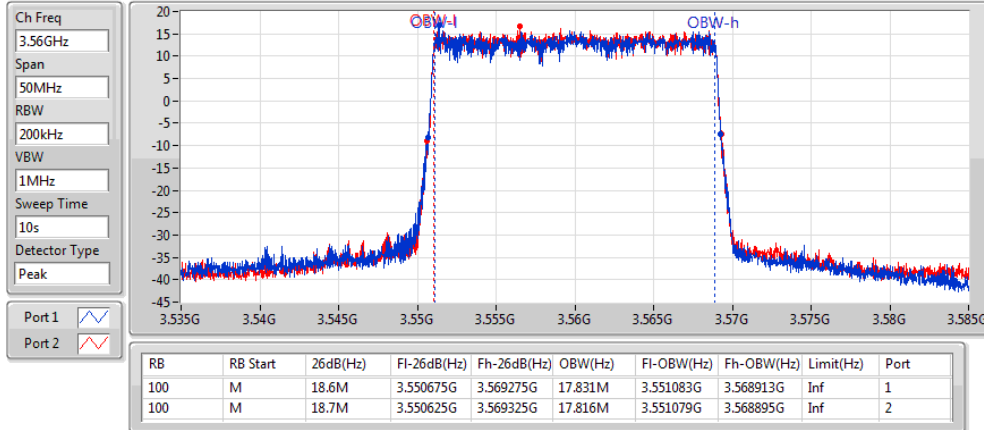

**Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX**
**EBW**
**3695MHz**

08/12/2018

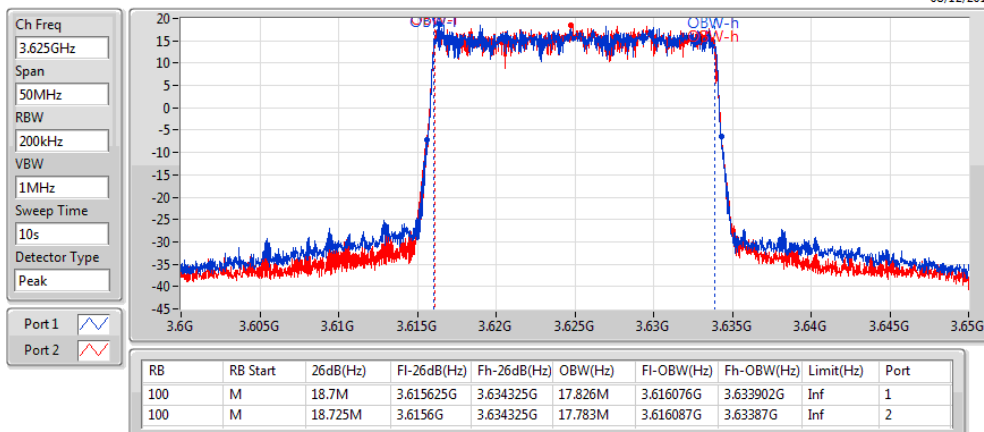


**Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX**
**EBW**
**3560MHz**

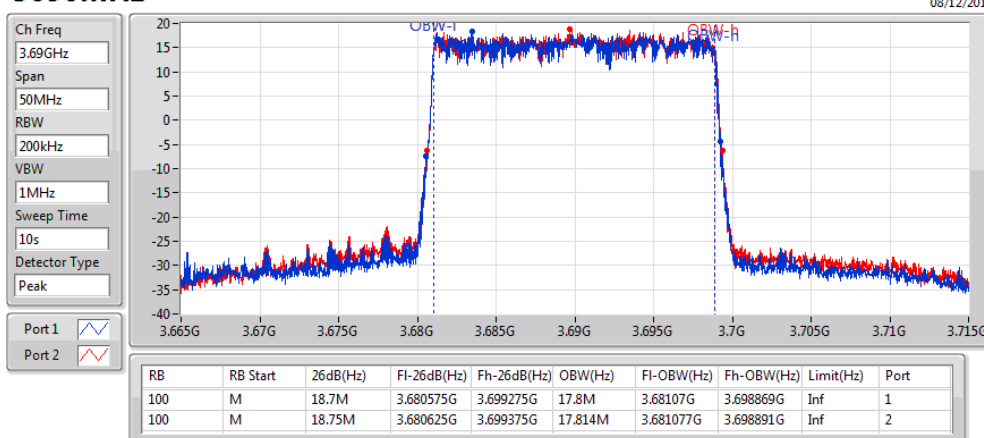
08/12/2018


**Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX**
**EBW**
**3625MHz**

08/12/2018

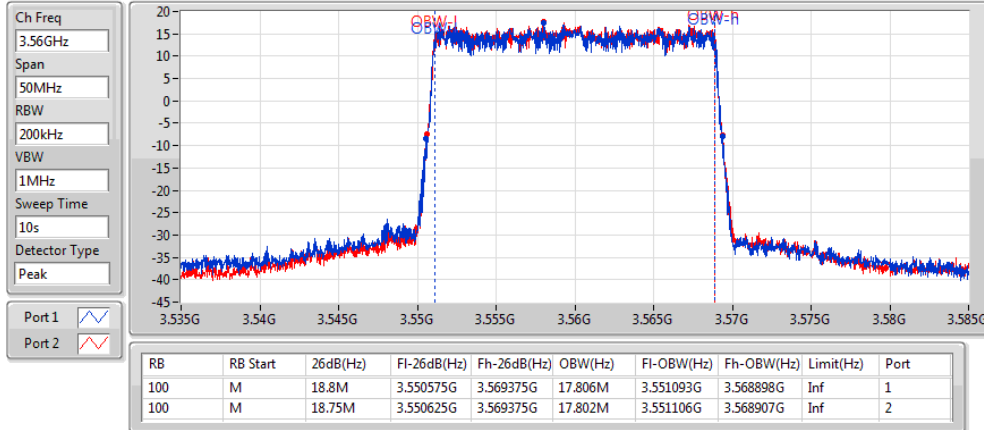

**Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX**
**EBW**
**3690MHz**

08/12/2018

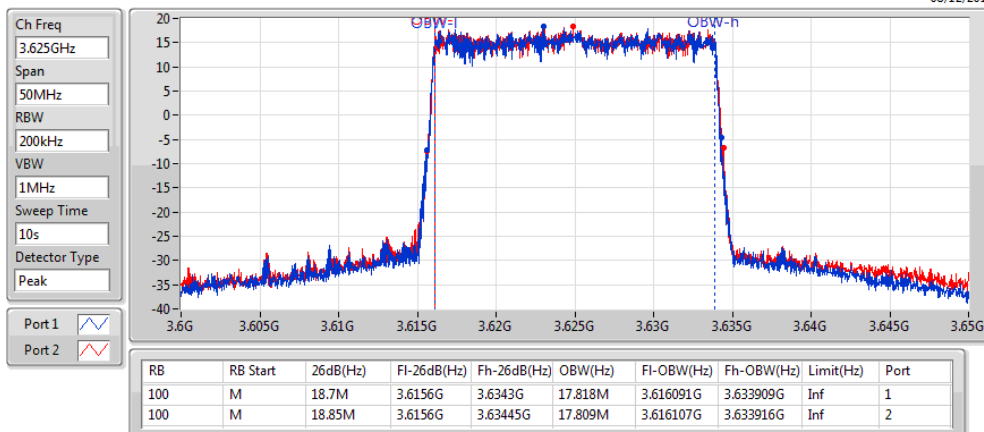


**Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX**
**EBW**
**3560MHz**

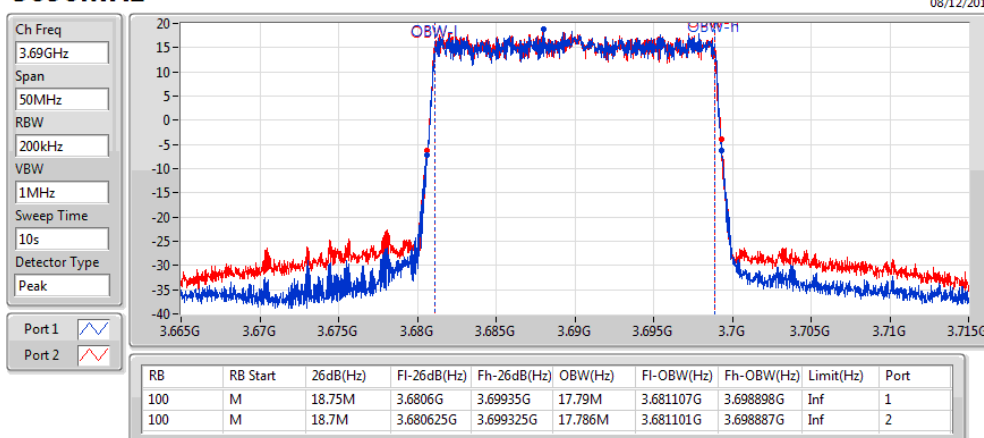
08/12/2018


**Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX**
**EBW**
**3625MHz**

08/12/2018

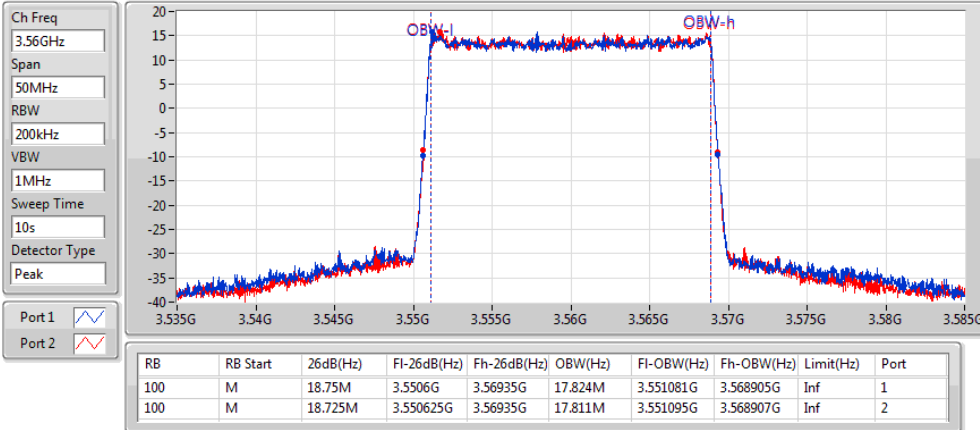

**Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX**
**EBW**
**3690MHz**

08/12/2018

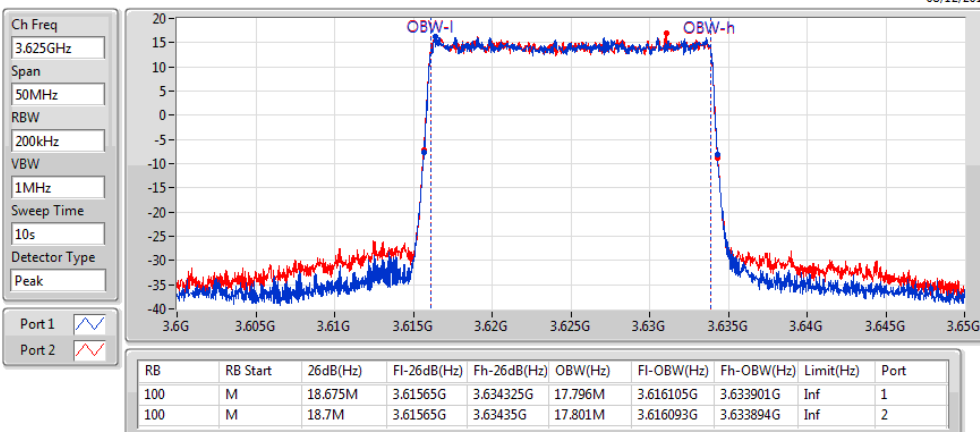


**Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX**
**EBW**
**3560MHz**

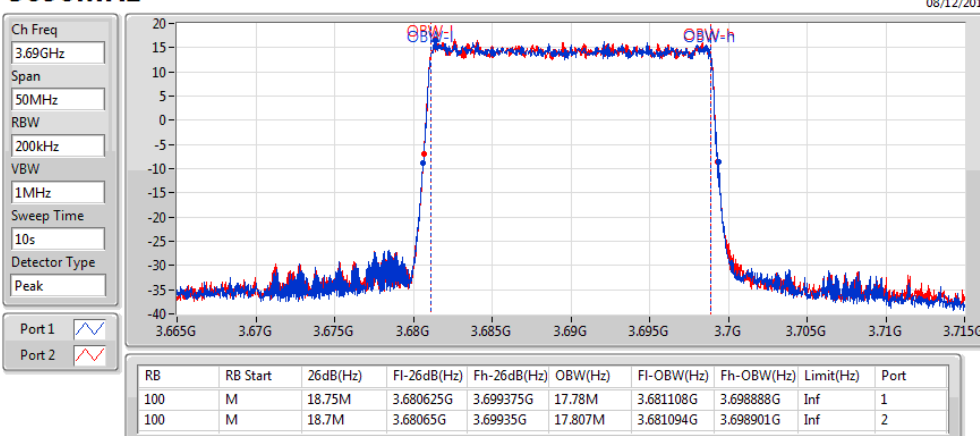
08/12/2018


**Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX**
**EBW**
**3625MHz**

08/12/2018


**Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX**
**EBW**
**3690MHz**

08/12/2018





## 3.5 GHz Emissions and Interference Limits Result

Appendix G

### Summary

| Mode                 | Result | RB  | RB Start | F-Start<br>(Hz) | F-Stop<br>(Hz) | RBW<br>(Hz) | Detector | Freq<br>(Hz) | Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Port | Remark |
|----------------------|--------|-----|----------|-----------------|----------------|-------------|----------|--------------|----------------|----------------|----------------|------|--------|
| LTE_20MHz_(QPSK)_2TX | -      | -   | -        | -               | -              | -           | -        | -            | -              | -              | -              | -    | -      |
| 3560MHz              | Pass   | 100 | 0        | 30M             | 3.53G          | 1M          | RMS      | 3.53G        | -44.22         | -43.00         | -1.22          | 1    | -      |

DG = Directional Gain;

### Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

3555MHz

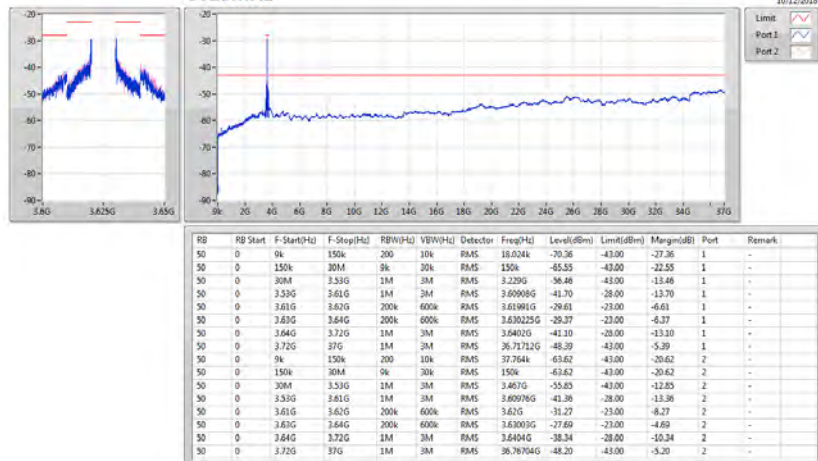
CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

3625MHz

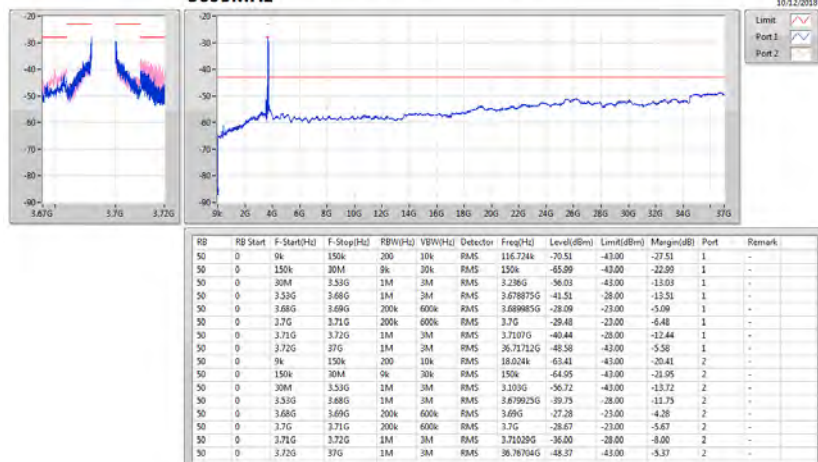
CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(QPSK)\_2TX

3695MHz

CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

3555MHz

CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

3625MHz

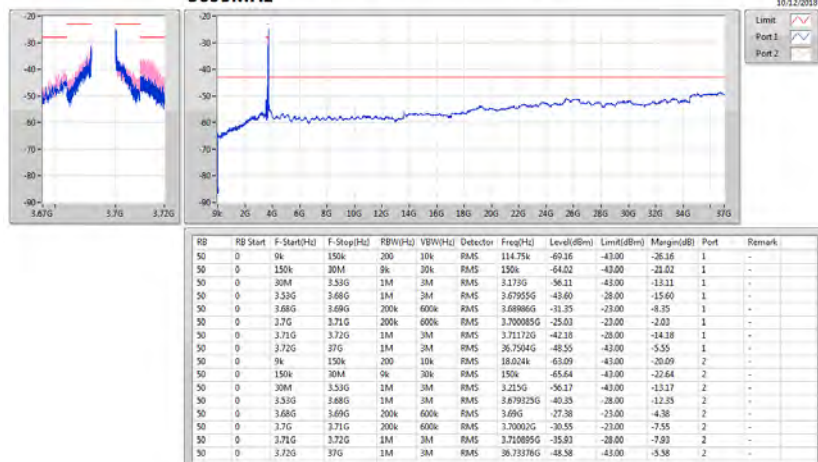
CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(16QAM)\_2TX

3695MHz

CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

3555MHz

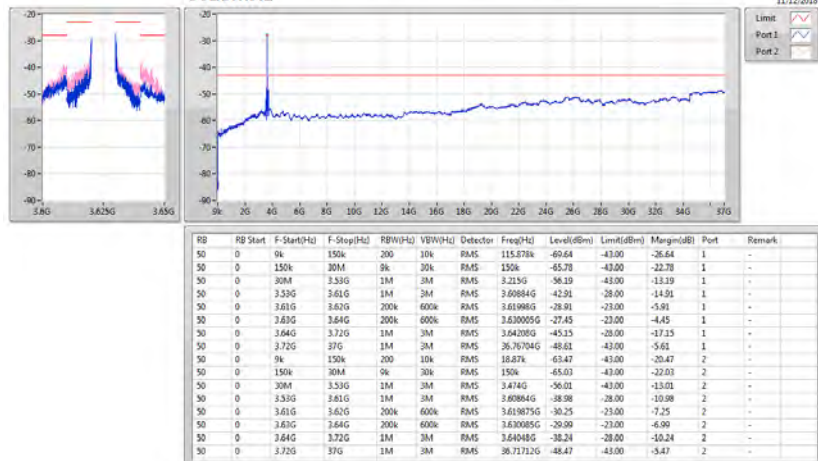
CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

3625MHz

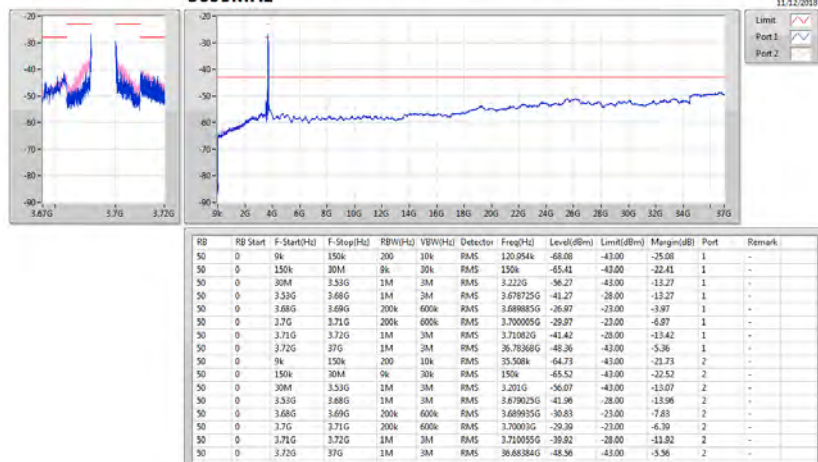
CSE-TX



### Band 48\_LTE\_10MHz\_Nss1,(64QAM)\_2TX

3695MHz

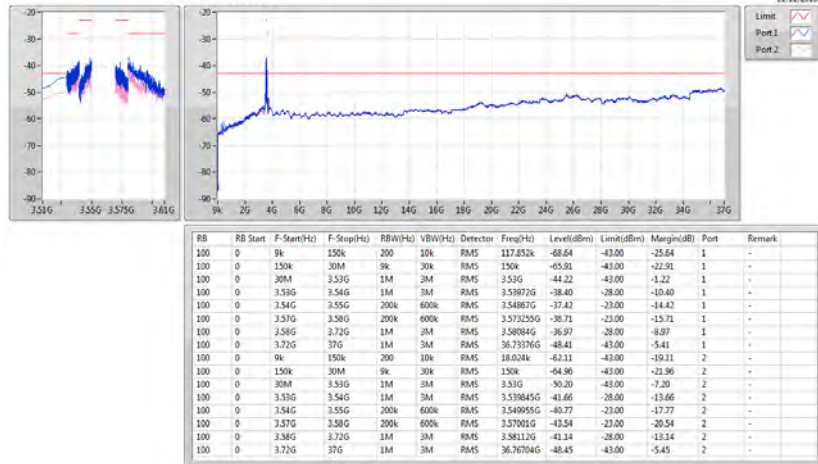
CSE-TX



### Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

3560MHz

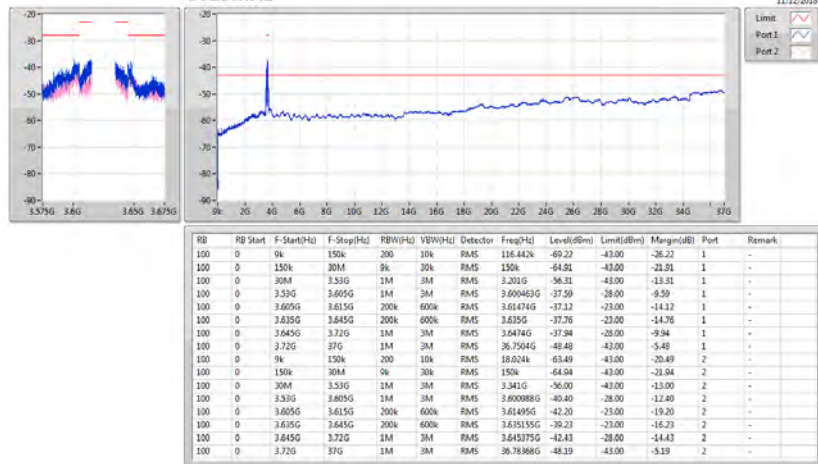
CSE-TX



### Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

3625MHz

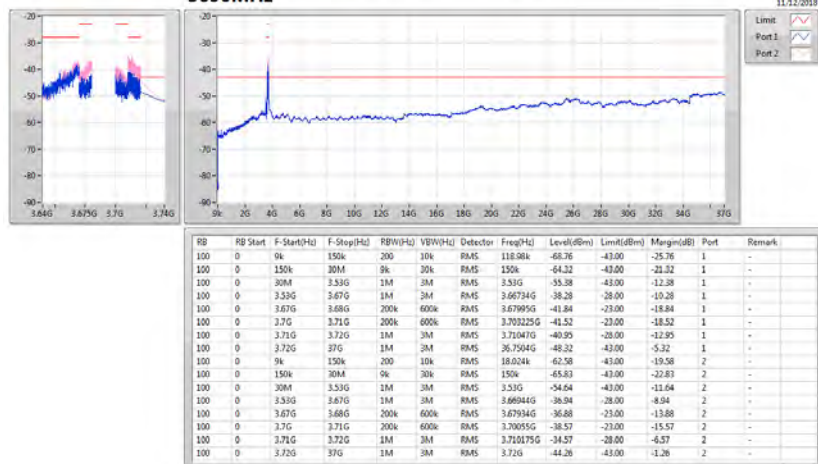
CSE-TX



### Band 48\_LTE\_20MHz\_Nss1,(QPSK)\_2TX

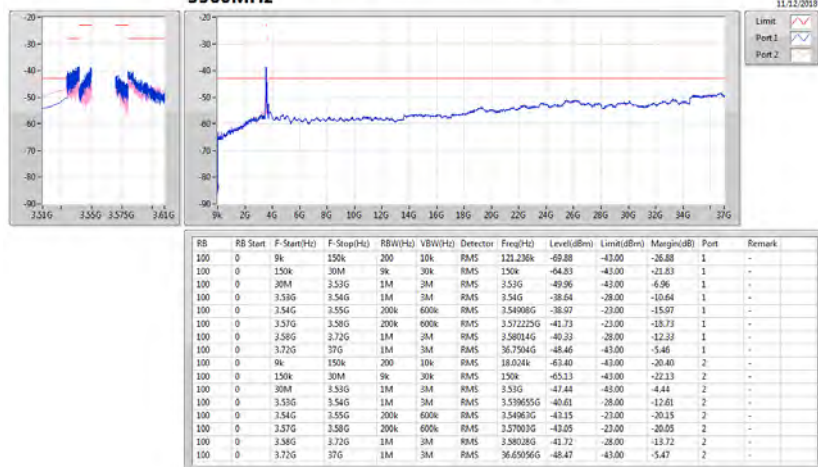
3690MHz

CSE-TX



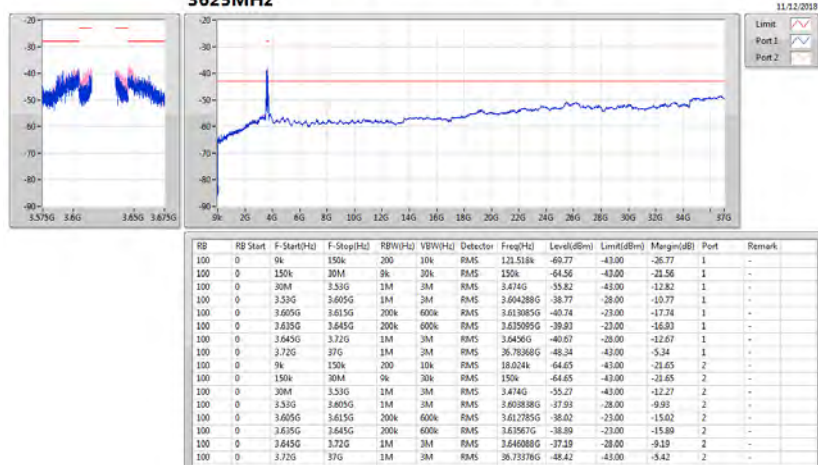
### Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX 3560MHz

CSE-TX



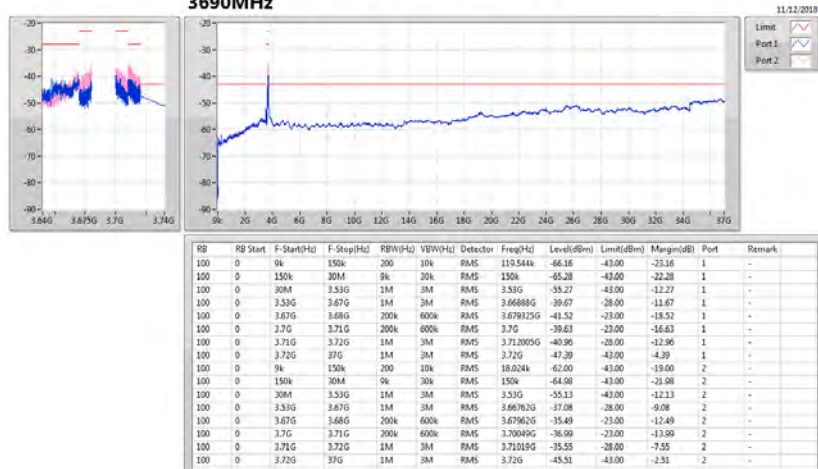
### Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX 3625MHz

CSE-TX



### Band 48\_LTE\_20MHz\_Nss1,(16QAM)\_2TX 3690MHz

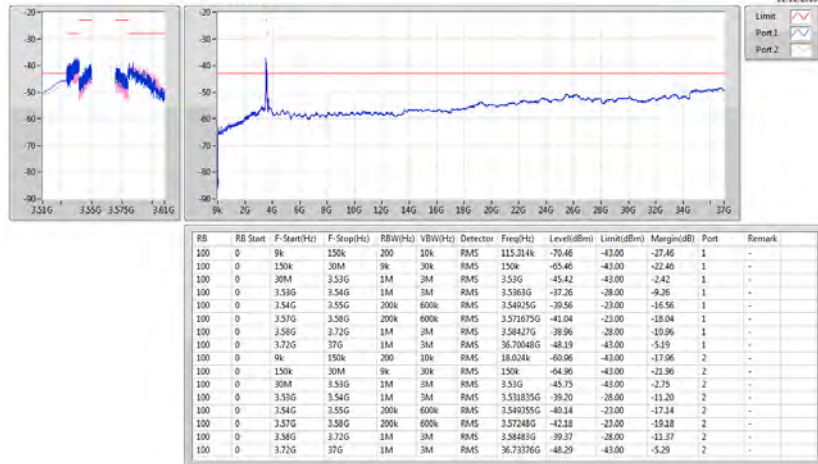
CSE-TX



### Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

3560MHz

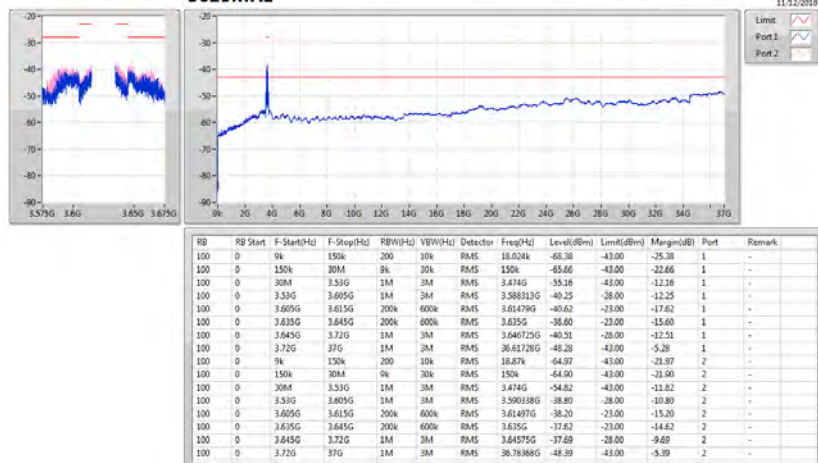
CSE-TX



### Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

3625MHz

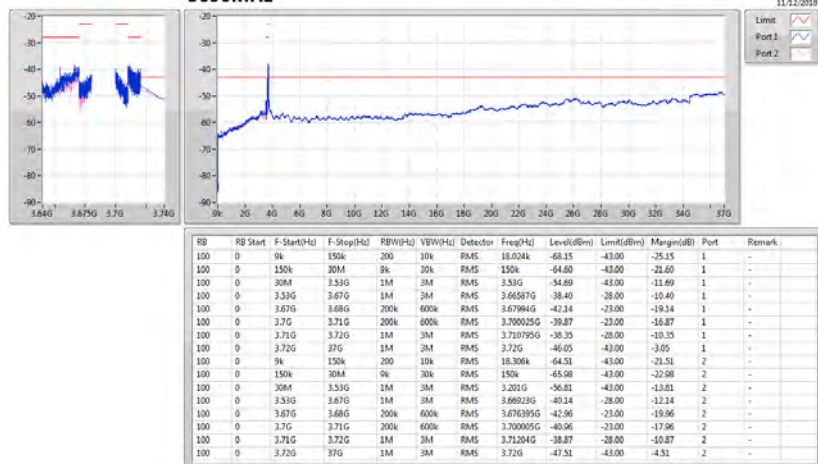
CSE-TX



### Band 48\_LTE\_20MHz\_Nss1,(64QAM)\_2TX

3690MHz

CSE-TX





**Field Strength of Spurious Radiation (30MHz ~ 1GHz)**

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



Field Strength of Spurious Radiation (Above 1GHz) - Harmonic

|                |                          |
|----------------|--------------------------|
| Configurations | 20MHz / 64QAM / 3560 MHz |
|----------------|--------------------------|

Horizontal

|   | Freq    | Level  | Over<br>Limit | Limit<br>Line | Read<br>Level | Factor | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|--------|------------|
|   | MHz     | dBm    | dB            | dBm           | dBm           | dB     |            |
| 1 | 7120.70 | -64.68 | -24.68        | -40.00        | -77.64        | 12.96  | HORIZONTAL |

Vertical

|   | Freq    | Level  | Over<br>Limit | Limit<br>Line | Read<br>Level | Factor | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|--------|-----------|
|   | MHz     | dBm    | dB            | dBm           | dBm           | dB     |           |
| 1 | 7120.00 | -59.25 | -19.25        | -40.00        | -73.98        | 14.73  | VERTICAL  |

|                       |                          |
|-----------------------|--------------------------|
| <b>Configurations</b> | 20MHz / 64QAM / 3625 MHz |
|-----------------------|--------------------------|

**Horizontal**

|   | Freq    | Level  | Over<br>Limit | Limit<br>Line | Read<br>Level | Factor | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|--------|------------|
|   | MHz     | dBm    | dB            | dBm           | dBm           | dB     |            |
| 1 | 7250.20 | -63.69 | -23.69        | -40.00        | -76.71        | 13.02  | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Over<br>Limit | Limit<br>Line | Read<br>Level | Factor | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|--------|-----------|
|   | MHz     | dBm    | dB            | dBm           | dBm           | dB     |           |
| 1 | 7250.10 | -58.15 | -18.15        | -40.00        | -72.99        | 14.84  | VERTICAL  |



|                |                          |
|----------------|--------------------------|
| Configurations | 20MHz / 64QAM / 3690 MHz |
|----------------|--------------------------|

**Horizontal**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Factor | Pol/Phase  |
|---|---------|--------|------------|------------|------------|--------|------------|
|   | MHz     | dBm    | dB         | dBm        | dBm        | dB     |            |
| 1 | 7381.80 | -64.59 | -24.59     | -40.00     | -77.68     | 13.09  | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Factor | Pol/Phase |
|---|---------|--------|------------|------------|------------|--------|-----------|
|   | MHz     | dBm    | dB         | dBm        | dBm        | dB     |           |
| 1 | 7381.10 | -57.49 | -17.49     | -40.00     | -72.46     | 14.97  | VERTICAL  |



## Frequency Stability Result

Appendix I

### Summary

| Mode                            | Result | Voltage<br>(V) | Temp<br>(°C) | Ch<br>(Hz) | Fl<br>(Hz) | Fh<br>(Hz) | Fl Limit<br>(Hz) | Fh Limit<br>(Hz) | ppm   | Port | Remark |
|---------------------------------|--------|----------------|--------------|------------|------------|------------|------------------|------------------|-------|------|--------|
| Band 48                         | -      |                |              | -          | -          | -          | -                | -                |       | -    | -      |
| LTE_20MHz_(QPSK)_2TX<br>3560MHz | Pass   | 110            | -20          | 3.56G      | 3.551078G  | 3.568886G  | 3.55G            | 3.7G             | -5.06 | 1    | -      |

**Result**

| Mode                  | Result | Voltage (V) | Temp (°C) | Ch (Hz) | FI (Hz)   | Fh (Hz)   | FI Limit (Hz) | Fh Limit (Hz) | ppm    | Port | Remark |
|-----------------------|--------|-------------|-----------|---------|-----------|-----------|---------------|---------------|--------|------|--------|
| LTE_10MHz_(QPSK)_2TX  | -      |             |           | -       | -         | -         | -             | -             | -      | -    | -      |
| 3555MHz               | Pass   | 110         | -30       | 3.555G  | 3.550528G | 3.559458G | 3.55G         | 3.7G          | -2.08  | 1    | -      |
| 3555MHz               | Pass   | 110         | -20       | 3.555G  | 3.550526G | 3.559468G | 3.55G         | 3.7G          | -0.845 | 1    | -      |
| 3555MHz               | Pass   | 110         | -10       | 3.555G  | 3.550527G | 3.559471G | 3.55G         | 3.7G          | -0.297 | 1    | -      |
| 3555MHz               | Pass   | 110         | 0         | 3.555G  | 3.550528G | 3.559471G | 3.55G         | 3.7G          | -0.15  | 1    | -      |
| 3555MHz               | Pass   | 110         | 10        | 3.555G  | 3.550536G | 3.559458G | 3.55G         | 3.7G          | -0.924 | 1    | -      |
| 3555MHz               | Pass   | 93.5        | 20        | 3.555G  | 3.550522G | 3.559461G | 3.55G         | 3.7G          | -2.359 | 1    | -      |
| 3555MHz               | Pass   | 110         | 20        | 3.555G  | 3.550528G | 3.559454G | 3.55G         | 3.7G          | -2.568 | 1    | -      |
| 3555MHz               | Pass   | 126.5       | 20        | 3.555G  | 3.55053G  | 3.559463G | 3.55G         | 3.7G          | -0.956 | 1    | -      |
| 3555MHz               | Pass   | 110         | 30        | 3.555G  | 3.550526G | 3.559459G | 3.55G         | 3.7G          | -2.137 | 1    | -      |
| 3555MHz               | Pass   | 110         | 40        | 3.555G  | 3.550531G | 3.559449G | 3.55G         | 3.7G          | -2.827 | 1    | -      |
| 3555MHz               | Pass   | 110         | 50        | 3.555G  | 3.550529G | 3.55946G  | 3.55G         | 3.7G          | -1.633 | 1    | -      |
| 3695MHz               | Pass   | 110         | -30       | 3.695G  | 3.690534G | 3.699451G | 3.55G         | 3.7G          | -2.068 | 1    | -      |
| 3695MHz               | Pass   | 110         | -20       | 3.695G  | 3.690532G | 3.699456G | 3.55G         | 3.7G          | -1.626 | 1    | -      |
| 3695MHz               | Pass   | 110         | -10       | 3.695G  | 3.69053G  | 3.699471G | 3.55G         | 3.7G          | 0.086  | 1    | -      |
| 3695MHz               | Pass   | 110         | 0         | 3.695G  | 3.690534G | 3.699454G | 3.55G         | 3.7G          | -1.586 | 1    | -      |
| 3695MHz               | Pass   | 110         | 10        | 3.695G  | 3.690528G | 3.699455G | 3.55G         | 3.7G          | -2.321 | 1    | -      |
| 3695MHz               | Pass   | 93.5        | 20        | 3.695G  | 3.69053G  | 3.699451G | 3.55G         | 3.7G          | -2.56  | 1    | -      |
| 3695MHz               | Pass   | 110         | 20        | 3.695G  | 3.69053G  | 3.699458G | 3.55G         | 3.7G          | -1.651 | 1    | -      |
| 3695MHz               | Pass   | 126.5       | 20        | 3.695G  | 3.69053G  | 3.699457G | 3.55G         | 3.7G          | -1.72  | 1    | -      |
| 3695MHz               | Pass   | 110         | 30        | 3.695G  | 3.690531G | 3.699452G | 3.55G         | 3.7G          | -2.299 | 1    | -      |
| 3695MHz               | Pass   | 110         | 40        | 3.695G  | 3.69053G  | 3.699459G | 3.55G         | 3.7G          | -1.565 | 1    | -      |
| 3695MHz               | Pass   | 110         | 50        | 3.695G  | 3.690525G | 3.69946G  | 3.55G         | 3.7G          | -1.957 | 1    | -      |
| LTE_10MHz_(16QAM)_2TX | -      |             |           | -       | -         | -         | -             | -             | -      | -    | -      |
| 3555MHz               | Pass   | 110         | -30       | 3.555G  | 3.550524G | 3.559449G | 3.55G         | 3.7G          | -3.766 | 1    | -      |
| 3555MHz               | Pass   | 110         | -20       | 3.555G  | 3.550528G | 3.559449G | 3.55G         | 3.7G          | -3.177 | 1    | -      |
| 3555MHz               | Pass   | 110         | -10       | 3.555G  | 3.550525G | 3.559448G | 3.55G         | 3.7G          | -3.883 | 1    | -      |
| 3555MHz               | Pass   | 110         | 0         | 3.555G  | 3.550531G | 3.559447G | 3.55G         | 3.7G          | -3.115 | 1    | -      |
| 3555MHz               | Pass   | 110         | 10        | 3.555G  | 3.550525G | 3.559449G | 3.55G         | 3.7G          | -3.672 | 1    | -      |
| 3555MHz               | Pass   | 93.5        | 20        | 3.555G  | 3.550524G | 3.559461G | 3.55G         | 3.7G          | -2.164 | 1    | -      |
| 3555MHz               | Pass   | 110         | 20        | 3.555G  | 3.550525G | 3.559454G | 3.55G         | 3.7G          | -3.064 | 1    | -      |
| 3555MHz               | Pass   | 126.5       | 20        | 3.555G  | 3.550525G | 3.559457G | 3.55G         | 3.7G          | -2.632 | 1    | -      |
| 3555MHz               | Pass   | 110         | 30        | 3.555G  | 3.550521G | 3.559445G | 3.55G         | 3.7G          | -4.774 | 1    | -      |
| 3555MHz               | Pass   | 110         | 40        | 3.555G  | 3.550523G | 3.559455G | 3.55G         | 3.7G          | -3.019 | 1    | -      |
| 3555MHz               | Pass   | 110         | 50        | 3.555G  | 3.550521G | 3.559452G | 3.55G         | 3.7G          | -3.749 | 1    | -      |
| 3695MHz               | Pass   | 110         | -30       | 3.695G  | 3.690522G | 3.699441G | 3.55G         | 3.7G          | -5.038 | 1    | -      |
| 3695MHz               | Pass   | 110         | -20       | 3.695G  | 3.690525G | 3.699454G | 3.55G         | 3.7G          | -2.929 | 1    | -      |
| 3695MHz               | Pass   | 110         | -10       | 3.695G  | 3.690524G | 3.699447G | 3.55G         | 3.7G          | -4.025 | 1    | -      |
| 3695MHz               | Pass   | 110         | 0         | 3.695G  | 3.69053G  | 3.699455G | 3.55G         | 3.7G          | -2.138 | 1    | -      |
| 3695MHz               | Pass   | 110         | 10        | 3.695G  | 3.690527G | 3.69945G  | 3.55G         | 3.7G          | -3.192 | 1    | -      |
| 3695MHz               | Pass   | 93.5        | 20        | 3.695G  | 3.690531G | 3.69945G  | 3.55G         | 3.7G          | -2.592 | 1    | -      |
| 3695MHz               | Pass   | 110         | 20        | 3.695G  | 3.690534G | 3.699451G | 3.55G         | 3.7G          | -2.111 | 1    | -      |
| 3695MHz               | Pass   | 126.5       | 20        | 3.695G  | 3.690531G | 3.699452G | 3.55G         | 3.7G          | -2.406 | 1    | -      |
| 3695MHz               | Pass   | 110         | 30        | 3.695G  | 3.690533G | 3.699455G | 3.55G         | 3.7G          | -1.631 | 1    | -      |



## Frequency Stability Result

## Appendix I

| Mode                  | Result | Voltage (V) | Temp (°C) | Ch (Hz) | Fl (Hz)   | Fh (Hz)   | Fl Limit (Hz) | Fh Limit (Hz) | ppm    | Port | Remark |
|-----------------------|--------|-------------|-----------|---------|-----------|-----------|---------------|---------------|--------|------|--------|
| 3695MHz               | Pass   | 110         | 40        | 3.695G  | 3.690525G | 3.699452G | 3.55G         | 3.7G          | -3.141 | 1    | -      |
| 3695MHz               | Pass   | 110         | 50        | 3.695G  | 3.69053G  | 3.699445G | 3.55G         | 3.7G          | -3.347 | 1    | -      |
| LTE_10MHz_(64QAM)_2TX | -      |             |           | -       | -         | -         | -             | -             | -      | -    | -      |
| 3555MHz               | Pass   | 110         | -30       | 3.555G  | 3.550531G | 3.559458G | 3.55G         | 3.7G          | -1.578 | 1    | -      |
| 3555MHz               | Pass   | 110         | -20       | 3.555G  | 3.550534G | 3.559458G | 3.55G         | 3.7G          | -1.013 | 1    | -      |
| 3555MHz               | Pass   | 110         | -10       | 3.555G  | 3.550536G | 3.559454G | 3.55G         | 3.7G          | -1.323 | 1    | -      |
| 3555MHz               | Pass   | 110         | 0         | 3.555G  | 3.550539G | 3.559458G | 3.55G         | 3.7G          | -0.335 | 1    | -      |
| 3555MHz               | Pass   | 110         | 10        | 3.555G  | 3.550537G | 3.559464G | 3.55G         | 3.7G          | 0.133  | 1    | -      |
| 3555MHz               | Pass   | 93.5        | 20        | 3.555G  | 3.550531G | 3.559459G | 3.55G         | 3.7G          | -1.419 | 1    | -      |
| 3555MHz               | Pass   | 110         | 20        | 3.555G  | 3.550537G | 3.559455G | 3.55G         | 3.7G          | -1.069 | 1    | -      |
| 3555MHz               | Pass   | 126.5       | 20        | 3.555G  | 3.550534G | 3.559461G | 3.55G         | 3.7G          | -0.701 | 1    | -      |
| 3555MHz               | Pass   | 110         | 30        | 3.555G  | 3.550533G | 3.559461G | 3.55G         | 3.7G          | -0.857 | 1    | -      |
| 3555MHz               | Pass   | 110         | 40        | 3.555G  | 3.550531G | 3.559461G | 3.55G         | 3.7G          | -1.114 | 1    | -      |
| 3555MHz               | Pass   | 110         | 50        | 3.555G  | 3.550533G | 3.559459G | 3.55G         | 3.7G          | -1.054 | 1    | -      |
| 3695MHz               | Pass   | 110         | -30       | 3.695G  | 3.690532G | 3.699462G | 3.55G         | 3.7G          | -0.896 | 1    | -      |
| 3695MHz               | Pass   | 110         | -20       | 3.695G  | 3.690526G | 3.699464G | 3.55G         | 3.7G          | -1.433 | 1    | -      |
| 3695MHz               | Pass   | 110         | -10       | 3.695G  | 3.690535G | 3.699461G | 3.55G         | 3.7G          | -0.515 | 1    | -      |
| 3695MHz               | Pass   | 110         | 0         | 3.695G  | 3.690542G | 3.699458G | 3.55G         | 3.7G          | -0.11  | 1    | -      |
| 3695MHz               | Pass   | 110         | 10        | 3.695G  | 3.690544G | 3.699461G | 3.55G         | 3.7G          | 0.638  | 1    | -      |
| 3695MHz               | Pass   | 93.5        | 20        | 3.695G  | 3.690539G | 3.699459G | 3.55G         | 3.7G          | -0.217 | 1    | -      |
| 3695MHz               | Pass   | 110         | 20        | 3.695G  | 3.690539G | 3.699463G | 3.55G         | 3.7G          | 0.254  | 1    | -      |
| 3695MHz               | Pass   | 126.5       | 20        | 3.695G  | 3.690534G | 3.699459G | 3.55G         | 3.7G          | -1.039 | 1    | -      |
| 3695MHz               | Pass   | 110         | 30        | 3.695G  | 3.690541G | 3.699464G | 3.55G         | 3.7G          | 0.718  | 1    | -      |
| 3695MHz               | Pass   | 110         | 40        | 3.695G  | 3.690538G | 3.699458G | 3.55G         | 3.7G          | -0.524 | 1    | -      |
| 3695MHz               | Pass   | 110         | 50        | 3.695G  | 3.690536G | 3.699461G | 3.55G         | 3.7G          | -0.384 | 1    | -      |
| LTE_20MHz_(QPSK)_2TX  | -      |             |           | -       | -         | -         | -             | -             | -      | -    | -      |
| 3560MHz               | Pass   | 110         | -30       | 3.56G   | 3.551112G | 3.56889G  | 3.55G         | 3.7G          | 0.282  | 1    | -      |
| 3560MHz               | Pass   | 110         | -20       | 3.56G   | 3.551078G | 3.568886G | 3.55G         | 3.7G          | -5.06  | 1    | -      |
| 3560MHz               | Pass   | 110         | -10       | 3.56G   | 3.551088G | 3.568891G | 3.55G         | 3.7G          | -2.893 | 1    | -      |
| 3560MHz               | Pass   | 110         | 0         | 3.56G   | 3.55111G  | 3.568887G | 3.55G         | 3.7G          | -1.757 | 1    | -      |
| 3560MHz               | Pass   | 110         | 10        | 3.56G   | 3.551092G | 3.568891G | 3.55G         | 3.7G          | -2.481 | 1    | -      |
| 3560MHz               | Pass   | 93.5        | 20        | 3.56G   | 3.551087G | 3.568887G | 3.55G         | 3.7G          | -3.606 | 1    | -      |
| 3560MHz               | Pass   | 110         | 20        | 3.56G   | 3.551089G | 3.568879G | 3.55G         | 3.7G          | -4.547 | 1    | -      |
| 3560MHz               | Pass   | 126.5       | 20        | 3.56G   | 3.551092G | 3.568899G | 3.55G         | 3.7G          | -1.295 | 1    | -      |
| 3560MHz               | Pass   | 110         | 30        | 3.56G   | 3.551092G | 3.568872G | 3.55G         | 3.7G          | -5.009 | 1    | -      |
| 3560MHz               | Pass   | 110         | 40        | 3.56G   | 3.551097G | 3.568902G | 3.55G         | 3.7G          | -0.126 | 1    | -      |
| 3560MHz               | Pass   | 110         | 50        | 3.56G   | 3.551105G | 3.56889G  | 3.55G         | 3.7G          | -0.789 | 1    | -      |
| 3690MHz               | Pass   | 110         | -30       | 3.69G   | 3.68109G  | 3.698887G | 3.55G         | 3.7G          | -3.149 | 1    | -      |
| 3690MHz               | Pass   | 110         | -20       | 3.69G   | 3.681092G | 3.698888G | 3.55G         | 3.7G          | -2.689 | 1    | -      |
| 3690MHz               | Pass   | 110         | -10       | 3.69G   | 3.681106G | 3.698898G | 3.55G         | 3.7G          | 0.496  | 1    | -      |
| 3690MHz               | Pass   | 110         | 0         | 3.69G   | 3.681116G | 3.698873G | 3.55G         | 3.7G          | -1.422 | 1    | -      |
| 3690MHz               | Pass   | 110         | 10        | 3.69G   | 3.681094G | 3.69888G  | 3.55G         | 3.7G          | -3.572 | 1    | -      |
| 3690MHz               | Pass   | 93.5        | 20        | 3.69G   | 3.681113G | 3.698881G | 3.55G         | 3.7G          | -0.73  | 1    | -      |
| 3690MHz               | Pass   | 110         | 20        | 3.69G   | 3.681107G | 3.698889G | 3.55G         | 3.7G          | -0.535 | 1    | -      |
| 3690MHz               | Pass   | 126.5       | 20        | 3.69G   | 3.68111G  | 3.698884G | 3.55G         | 3.7G          | -2.127 | 1    | -      |



## Frequency Stability Result

## Appendix I

| Mode                  | Result | Voltage (V) | Temp (°C) | Ch (Hz) | Fl (Hz)   | Fh (Hz)   | Fl Limit (Hz) | Fh Limit (Hz) | ppm    | Port | Remark |
|-----------------------|--------|-------------|-----------|---------|-----------|-----------|---------------|---------------|--------|------|--------|
| 3690MHz               | Pass   | 110         | 30        | 3.69G   | 3.681102G | 3.698898G | 3.55G         | 3.7G          | -0.042 | 1    | -      |
| 3690MHz               | Pass   | 110         | 40        | 3.69G   | 3.681101G | 3.698899G | 3.55G         | 3.7G          | 0.066  | 1    | -      |
| 3690MHz               | Pass   | 110         | 50        | 3.69G   | 3.681102G | 3.698901G | 3.55G         | 3.7G          | 0.394  | 1    | -      |
| LTE_20MHz_(16QAM)_2TX | -      |             |           | -       | -         | -         | -             | -             | -      | -    | -      |
| 3560MHz               | Pass   | 110         | -30       | 3.56G   | 3.551093G | 3.568884G | 3.55G         | 3.7G          | -3.16  | 1    | -      |
| 3560MHz               | Pass   | 110         | -20       | 3.56G   | 3.551091G | 3.56888G  | 3.55G         | 3.7G          | -4.1   | 1    | -      |
| 3560MHz               | Pass   | 110         | -10       | 3.56G   | 3.551098G | 3.568899G | 3.55G         | 3.7G          | -0.409 | 1    | -      |
| 3560MHz               | Pass   | 110         | 0         | 3.56G   | 3.551101G | 3.568893G | 3.55G         | 3.7G          | -0.915 | 1    | -      |
| 3560MHz               | Pass   | 110         | 10        | 3.56G   | 3.551082G | 3.568891G | 3.55G         | 3.7G          | -3.771 | 1    | -      |
| 3560MHz               | Pass   | 93.5        | 20        | 3.56G   | 3.551085G | 3.568906G | 3.55G         | 3.7G          | -1.274 | 1    | -      |
| 3560MHz               | Pass   | 110         | 20        | 3.56G   | 3.551086G | 3.568902G | 3.55G         | 3.7G          | -1.757 | 1    | -      |
| 3560MHz               | Pass   | 126.5       | 20        | 3.56G   | 3.55108G  | 3.568894G | 3.55G         | 3.7G          | -3.72  | 1    | -      |
| 3560MHz               | Pass   | 110         | 30        | 3.56G   | 3.551086G | 3.568886G | 3.55G         | 3.7G          | -3.938 | 1    | -      |
| 3560MHz               | Pass   | 110         | 40        | 3.56G   | 3.551084G | 3.568901G | 3.55G         | 3.7G          | -2.084 | 1    | -      |
| 3560MHz               | Pass   | 110         | 50        | 3.56G   | 3.551088G | 3.568896G | 3.55G         | 3.7G          | -2.114 | 1    | -      |
| 3690MHz               | Pass   | 110         | -30       | 3.69G   | 3.681096G | 3.698887G | 3.55G         | 3.7G          | -2.407 | 1    | -      |
| 3690MHz               | Pass   | 110         | -20       | 3.69G   | 3.681107G | 3.69889G  | 3.55G         | 3.7G          | -0.409 | 1    | -      |
| 3690MHz               | Pass   | 110         | -10       | 3.69G   | 3.681105G | 3.698892G | 3.55G         | 3.7G          | -0.442 | 1    | -      |
| 3690MHz               | Pass   | 110         | 0         | 3.69G   | 3.681094G | 3.698898G | 3.55G         | 3.7G          | -1.038 | 1    | -      |
| 3690MHz               | Pass   | 110         | 10        | 3.69G   | 3.681092G | 3.69888G  | 3.55G         | 3.7G          | -3.79  | 1    | -      |
| 3690MHz               | Pass   | 93.5        | 20        | 3.69G   | 3.681102G | 3.698874G | 3.55G         | 3.7G          | -3.162 | 1    | -      |
| 3690MHz               | Pass   | 110         | 20        | 3.69G   | 3.681106G | 3.698879G | 3.55G         | 3.7G          | -1.986 | 1    | -      |
| 3690MHz               | Pass   | 126.5       | 20        | 3.69G   | 3.681097G | 3.698894G | 3.55G         | 3.7G          | -1.169 | 1    | -      |
| 3690MHz               | Pass   | 110         | 30        | 3.69G   | 3.681096G | 3.69889G  | 3.55G         | 3.7G          | -1.976 | 1    | -      |
| 3690MHz               | Pass   | 110         | 40        | 3.69G   | 3.681108G | 3.698894G | 3.55G         | 3.7G          | 0.274  | 1    | -      |
| 3690MHz               | Pass   | 110         | 50        | 3.69G   | 3.681102G | 3.698896G | 3.55G         | 3.7G          | -0.158 | 1    | -      |
| LTE_20MHz_(64QAM)_2TX | -      |             |           | -       | -         | -         | -             | -             | -      | -    | -      |
| 3560MHz               | Pass   | 110         | -30       | 3.56G   | 3.551084G | 3.568911G | 3.55G         | 3.7G          | -0.696 | 1    | -      |
| 3560MHz               | Pass   | 110         | -20       | 3.56G   | 3.551098G | 3.568902G | 3.55G         | 3.7G          | -0.02  | 1    | -      |
| 3560MHz               | Pass   | 110         | -10       | 3.56G   | 3.551087G | 3.5689G   | 3.55G         | 3.7G          | -1.856 | 1    | -      |
| 3560MHz               | Pass   | 110         | 0         | 3.56G   | 3.5511G   | 3.568898G | 3.55G         | 3.7G          | -0.338 | 1    | -      |
| 3560MHz               | Pass   | 110         | 10        | 3.56G   | 3.551093G | 3.5689G   | 3.55G         | 3.7G          | -0.981 | 1    | -      |
| 3560MHz               | Pass   | 93.5        | 20        | 3.56G   | 3.551085G | 3.568898G | 3.55G         | 3.7G          | -2.438 | 1    | -      |
| 3560MHz               | Pass   | 110         | 20        | 3.56G   | 3.551086G | 3.5689G   | 3.55G         | 3.7G          | -1.967 | 1    | -      |
| 3560MHz               | Pass   | 126.5       | 20        | 3.56G   | 3.551081G | 3.568894G | 3.55G         | 3.7G          | -3.605 | 1    | -      |
| 3560MHz               | Pass   | 110         | 30        | 3.56G   | 3.55109G  | 3.568891G | 3.55G         | 3.7G          | -2.545 | 1    | -      |
| 3560MHz               | Pass   | 110         | 40        | 3.56G   | 3.551098G | 3.568898G | 3.55G         | 3.7G          | -0.597 | 1    | -      |
| 3560MHz               | Pass   | 110         | 50        | 3.56G   | 3.551102G | 3.568905G | 3.55G         | 3.7G          | 0.965  | 1    | -      |
| 3690MHz               | Pass   | 110         | -30       | 3.69G   | 3.681094G | 3.698902G | 3.55G         | 3.7G          | -0.562 | 1    | -      |
| 3690MHz               | Pass   | 110         | -20       | 3.69G   | 3.681103G | 3.698899G | 3.55G         | 3.7G          | 0.325  | 1    | -      |
| 3690MHz               | Pass   | 110         | -10       | 3.69G   | 3.68109G  | 3.698892G | 3.55G         | 3.7G          | -2.502 | 1    | -      |
| 3690MHz               | Pass   | 110         | 0         | 3.69G   | 3.681094G | 3.698904G | 3.55G         | 3.7G          | -0.227 | 1    | -      |
| 3690MHz               | Pass   | 110         | 10        | 3.69G   | 3.681093G | 3.698898G | 3.55G         | 3.7G          | -1.134 | 1    | -      |
| 3690MHz               | Pass   | 93.5        | 20        | 3.69G   | 3.681094G | 3.698901G | 3.55G         | 3.7G          | -0.712 | 1    | -      |
| 3690MHz               | Pass   | 110         | 20        | 3.69G   | 3.681084G | 3.698898G | 3.55G         | 3.7G          | -2.429 | 1    | -      |



## Frequency Stability Result

Appendix I

| Mode    | Result | Voltage<br>(V) | Temp<br>(°C) | Ch<br>(Hz) | Fl<br>(Hz) | Fh<br>(Hz) | Fl Limit<br>(Hz) | Fh Limit<br>(Hz) | ppm    | Port | Remark |
|---------|--------|----------------|--------------|------------|------------|------------|------------------|------------------|--------|------|--------|
| 3690MHz | Pass   | 126.5          | 20           | 3.69G      | 3.681079G  | 3.698898G  | 3.55G            | 3.7G             | -3.115 | 1    | -      |
| 3690MHz | Pass   | 110            | 30           | 3.69G      | 3.681086G  | 3.69891G   | 3.55G            | 3.7G             | -0.57  | 1    | -      |
| 3690MHz | Pass   | 110            | 40           | 3.69G      | 3.681086G  | 3.698902G  | 3.55G            | 3.7G             | -1.664 | 1    | -      |
| 3690MHz | Pass   | 110            | 50           | 3.69G      | 3.681089G  | 3.698897G  | 3.55G            | 3.7G             | -1.964 | 1    | -      |