# FCC Test Report

| | | |
|---|---|---|
| **Equipment** | : | **OH-335 LTE Cat. 6 Outdoor CPE** |
| **Brand Name** | : | **Greenpacket** |
| **Model No.** | : | **OH-335** |
| **FCC ID** | : | **W9V-OH335-GP** |
| **FCC Standard** | : | **47 CFR FCC Part 90(Z)** |
| **LTE Band** | : | **XLIII** |
| **FCC Classification** | : | **TNB** |
| **Applicant** | : | **Green Packet Berhad, Taiwan**<br>6F, No.21, Lane 583, Rueiguang Rd. Neihu District, Taipei City 11492, Taiwan |
| **Manufacturer** | : | **Green Packet Berhad, Taiwan**<br>1. 6F, No.21, Lane 583, Rueiguang Rd. Neihu District, Taipei City 11492, Taiwan<br>2. Room A68, 3F, 151, Huaqiang Bld., Keyuan Road, Zhangjiang Hi-Tech Park, Pudong New District, Shanghai 201203, PRC |

**The product sample received on Sep. 06, 2016 and completely tested on Nov. 23, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI/TIA-603-D-2010 and shown compliance with the applicable technical standards.**
**The test results in this report apply exclusively to the tested model / sample. Wit1j6hout written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.**

**Reviewed by:**


Testing Laboratory
1190

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# Summary of Test Result

| Test Specifications | | | | | |
|---|---|---|---|---|---|
| **Report Clause** | **FCC Std. Clause** | **Description** | **Measured** | **Limit** | **Result** |
| 3.1 | 2.1049<br>90.1323 | Emission Bandwidth | Bandwidth<br>19.48MHz | Information for Emission Designator | Complied |
| 3.1.6 | 2.1047 | Emission Designator | G7D, W7D | Information only | Complied |
| 3.2 | 2.1046 | Transmitter Conducted Output Power | Conducted Power<br>32.89dBm EIRP | 25W/25MHz EIRP | Complied |
| 3.3 | 90.1321 | Peak EIRP Density | 29.41W/MHz EIRP | ≤1W/MHz EIRP | Complied |
| 3.4 | 2.1051<br>90.1323 | Transmitter Conducted Bandedge Emissions | refer to test data | ≤43+10log(P)<br>[-13dBm]<br>P=TX Power in Watts | Complied |
| 3.5 | 90.210 | Emission Mask | refer to test data | Mask B | Complied |
| 3.6 | 2.1051<br>90.1323 | Transmitter Conducted Unwanted Emissions | refer to test data | ≤43+10log(P)<br>[-13dBm]<br>P=TX Power in Watts | Complied |
| 3.7 | 2.1055 | Frequency Stability | 0.0075ppm | within band | Complied |
| 3.8 | 2.1053<br>90.1323 | Transmitter Radiated Unwanted Emissions | [dBm]: 7336.8MHz<br>-32.33 (Margin19.33dB) | ≤43+10log(P)<br>[-13dBm]<br>P=TX Power in Watts | Complied |

# Revision History

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| FG690511TN | Rev. 01 | Initial issue of report | Nov. 25, 2016 |
| FG690511TN | Rev. 02 | Update FCC Classification<br>Update Emission Designator code<br>Update Power<br>Add Accessories: two cores | Dec. 02, 2016 |
| FG690511TN | Rev. 03 | Add Adaptivity data | Dec. 08, 2016 |
| FG690511TN | Rev. 04 | Remove Adaptivity data | Jan. 16, 2017 |
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# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| RF General Information | | | | | | |
|---|---|---|---|---|---|---|
| Mode | TX Ch. Freq. (MHz) | Channel Number | BW (MHz) | Emission Designator | Max. EIRP | |
| | | | | | (dBm) | (W) |
| Band 43 | 3652.5-3697.5 | 44115-44565 | 5-20 | 17M9W7D | 32.89 | 1.9454 |
| Type of modulation : QPSK / 16QAM | | | | | | |

### 1.1.2 Antenna Information

| Antenna Category | |
|---|---|
| ☐ | Equipment placed on the market without antennas |
| ☒ | Integral antenna (antenna permanently attached) |
| | ☒ Temporary RF connector provided |
| | ☐ No temporary RF connector provided<br>Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path. |
| ☐ | External antenna (dedicated antennas) |

| Antenna General Information | | | | |
|---|---|---|---|---|
| Operating Band | Ant. Cat. | Ant. Type | Connector | Gain (dBi) |
| Band 43 | Integral | Embedded | I-pex | 10 |

### 1.1.3 Type of EUT

| Identify EUT | |
|---|---|
| EUT Serial Number | N/A |
| HW Ver. / FW Ver. | N/A |
| Presentation of Equipment | ☒ Production ; ☐ Pre-Production ; ☐ Prototype |

| Type of EUT | |
|---|---|
| ☒ | Stand-alone |
| ☐ | Combined (EUT where the radio part is fully integrated within another device)<br>Combined Equipment - Brand Name / Model No.: … |
| ☐ | Plug-in radio (EUT intended for a variety of host systems)<br>Host System - Brand Name / Model No.: … |
| ☐ | Other: |

### 1.1.4 EUT Operational Condition

| | | | |
|---|---|---|---|
| **Supply Voltage** | ☐ AC mains | ☒ DC | |
| **Type of DC Source** | ☐ Internal DC supply | ☐ External AC adapter | ☒ PoE |
| **Test Voltage** | ☒ Vnom (12V) | ☒ Vmax (13.8 V) | ☒ Vmin (10.2V) |
| **Test Climatic** | ☒ Tnom (20°C) | ☒ Tmax (55°C) | ☒ Tmin (-40°C) |

## 1.2 Testing Applied Standards

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

- 47 CFR FCC Part 90(Z)
- ANSI/TIA-603-D-2010
- KDB 971168 D01 v02r02
- KDB 412172 D01 v01r01
- KDB 552295 D01 v02r02
- KDB 965270 D01 v01

## 1.3 Testing Location Information

| **Testing Location** | | | | | |
|---|---|---|---|---|---|
| ☒ | HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973 | | | |
| **Test Condition** | | **Test Site No.** | **Test Engineer** | **Test Environment** | **Test Date** |
| RF Conducted | | TH01-HY | Candy Wu | 24.3°C / 62% | 23/11/2016 |
| Radiated Emission | | 03CH03-HY | Jeff Lin | 24.2°C / 57% | 20/11/2016 |

Test site registered number [ 553509 ] with FCC.

## 1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

| Measurement Uncertainty | | |
|---|---|---|
| **Test Item** | | **Uncertainty** |
| AC power-line conducted emissions | | ±2.2 dB |
| Emission bandwidth | | ±1.4 % |
| RF output power, conducted | | ±0.6 dB |
| Unwanted emissions, conducted | 30 – 1000 MHz | ±0.5 dB |
| | 1 – 18 GHz | ±0.6 dB |
| | 18 – 40 GHz | ±0.8 dB |
| | 40 – 200 GHz | N/A |
| All emissions, radiated | 30 – 1000 MHz | ±2.5 dB |
| | 1 – 18 GHz | ±3.5 dB |
| | 18 – 40 GHz | ±3.8 dB |
| | 40 – 200 GHz | N/A |
| Temperature | | ±0.8 °C |
| Humidity | | ±3 % |
| DC and low frequency voltages | | ±3 % |
| Time | | ±1.4 % |
| Duty Cycle | | ±1.4 % |

# 2 Test Configuration of EUT

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

| BW (MHz) | Channel/Freq.(MHz) | Lowest | Middle | Highest |
|---|---|---|---|---|
| 20 | Channel | 44190 | 44340 | 44490 |
| | Freq.(MHz) | 3660 | 3675 | 3690 |
| 15 | Channel | 44165 | 44340 | 44515 |
| | Freq.(MHz) | 3657.5 | 3675 | 3692.5 |
| 10 | Channel | 44140 | 44340 | 44540 |
| | Freq.(MHz) | 3655 | 3675 | 3695 |
| 5 | Channel | 44115 | 44340 | 44565 |
| | Freq.(MHz) | 3652.5 | 3675 | 3697.5 |

## 2.2 Test Mode

| Test Items | Band | Bandwidth (MHz) | | | | Modulation | | RB# | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 10 | 15 | 20 | QPSK | 16QAM | 1 | Half | Full | L | H | M |
| Transmitter Conducted Output Power | 43 | v | v | v | v | v | v | v | v | v | v | v | v |
| EIRP | 43 | v | v | v | v | v | v | v | - | - | v | v | v |
| Peak EIRP Density | 43 | v | v | v | v | v | v | v | - | - | v | v | v |
| Emission Bandwidth | 43 | v | v | v | v | v | v | - | - | v | v | v | v |
| Conducted Band Edge | 43 | v | v | v | v | v | v | v | - | v | v | - | v |
| Emission Mask | 43 | v | v | v | v | v | v | v | - | v | v | v | v |
| Conducted Spurious Emission | 43 | v | v | v | v | v | v | v | - | - | v | v | v |
| Frequency Stability | 43 | - | v | - | - | v | - | - | - | v | - | - | v |
| Radiated Spurious Emission | 43 | v | v | v | v | v | - | v | - | - | - | v | - |
| Adaptivity | 43 | v | v | v | v | v | - | v | - | - | v | v | - |
| Note | 1. The mark “v “ means that this configuration is chosen for testing<br>2. The mark “-“ means that this bandwidth is not supported.<br>3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. | | | | | | | | | | | | |

## 2.3 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Tests Item** | Transmitter Conducted Output Power<br>Peak EIRP Density<br>Emission Bandwidth<br>Conducted Band Edge<br>Emission Mask<br>Conducted Spurious Emission<br>Frequency Stability<br>Effective Isotropic Radiated Power (EIRP) |
| **Test Condition** | Conducted measurement at transmit chains |
| **Modulation Mode** | LTE |

| The Worst Case Mode for Following Conformance Tests | | |
|---|---|---|
| **Tests Item** | Radiated Spurious Emission | |
| **Test Condition** | Radiated measurement | |
| **Modulation Mode** | LTE | |
| **User Position** | ☒ | EUT will be placed in fixed position. |
| | ☐ | EUT will be placed in mobile position and operating multiple positions. |
| | ☐ | EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. |
| **Orthogonal Planes of EUT** | **X Plane** | |
| |  | |
| **Worst Planes of EUT** | V | |

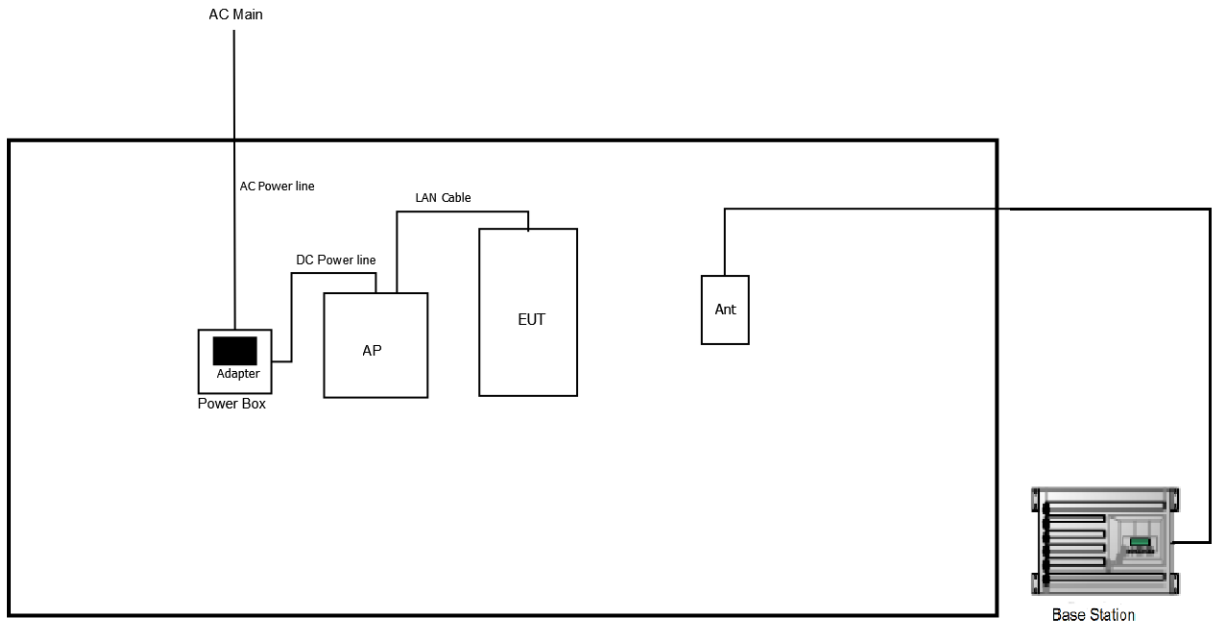
## 2.4 Accessories and Support Equipment

| Accessories | | | | |
|---|---|---|---|---|
| Greenpacket Wi-Fi 11ac/b/g/n Router | Brand Name | Greenpacket | Model Name | WA-1200 |
| AC Adapter 1 | Brand Name | Asian Power Device | Model Name | WA-24Q12R |
| | Power Rating | I/P: 100 - 240 Vac ~50/60Hz 0.7 A, O/P: 12V, 2A | | |
| | Power Cord | 1.14 meter, non-shielded cable, with w/o ferrite core | | |
| AC Adapter 2 | Brand Name | SWITCHING POWER SUPPLY | Model Name | S024AMM1200200 |
| | Power Rating | I/P: 100- 240 Vac ~50/60Hz 600 mA, O/P: 12V, 2000 mA | | |
| | Power Cord | 1.2 meter, non-shielded cable, with w/o ferrite core | | |
| RJ45 Cable 1 | Category | 5E | Model Name | E485131 |
| | Power Cord | 1.5 meter, shield or non-shielded cable | | |
| RJ45 Cable 2 | Category | 5E | Model Name | E473734 |
| | Power Cord | 1.5 meter, shield or non-shielded cable | | |
| CORE | - | core code :130 | | |
| CORE | - | core code :130 | | |

| Support Equipment- Conducted | | | |
|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** |
| 1 | SIM card | - | - |

## 2.5 Test Setup Diagram

**Test Setup Diagram - Radiated Test**



# 3 Transmitter Test Result

## 3.1 Emission Bandwidth

### 3.1.1 Emission Bandwidth Limit

| Emission Bandwidth Limit |
|---|
| Information for Emission Designator. |
| Note 1: The 99% occupied bandwidth is the frequency bandwidth of the signal power at the 99% channel power of occupied bandwidth when resolution bandwidth should be approximately 1 % to 5 % of the span. These measurements shall also be performed at normal test conditions. |

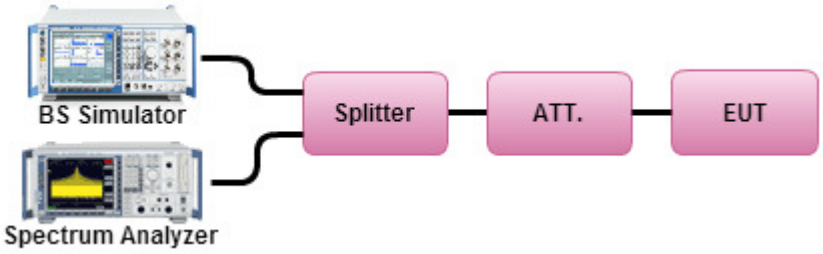
### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.1.3 Test Procedures

| Test Method | | |
|---|---|---|
| ☒ | For the emission bandwidth shall be measured using one of the options below: | |
| | ☐ | Refer as ANSI/TIA-603-D, clause 1.3.4.4 for test bandwidth. |
| | ☒ | Refer as KDB 971168 D01, clause 4 for occupied bandwidth. |
| | ☐ | Refer as IC RSS-Gen, clause 6.6 for emission bandwidth. |
| ☒ | For conducted measurement. | |
| | ☒ | If EUT supports single transmit chain and measurements performed on this transmit chain. |
| | ☐ | If EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. |
| | ☐ | If EUT supports multiple transmit chains using options given below: |
| | | ☐ Option 1: Multiple transmit chains measurements need to be performed on one of the active transmit chains (antenna outputs). All measurement had be performed on transmit chains 1. |
| | | ☐ Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains. |
| ☐ | For radiated measurement. The equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted power level. | |

### 3.1.4 Test Setup

| Emission Bandwidth |
|---|
|  |

### 3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A

### 3.1.6 Emission Designator

Refer as Appendix A

## 3.2 Transmitter Conducted Output Power and EIRP

### 3.2.1 Transmitter Conducted Output Power Limit

| Transmitter Conducted Output Power Limit |
|---|
| Information for RF exposure |

### 3.2.2 EIRP Limit

| EIRP Limit |
|---|
| 25Watts/25MHz |

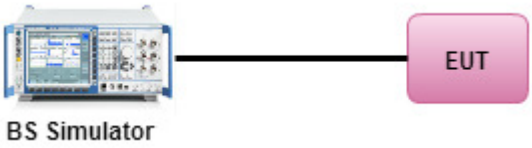
### 3.2.3 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.2.4 Test Procedures

| Test Method | |
|---|---|
| ☒ | Transmitter Conducted Output Power |
| | ☒ Refer as KDB 971168 D01, clause 5 for RF power output. |
| ☒ | EIRP |
| | ☒ Refer as KDB 412172, clause 1.2 following as power approach. EIRP= $P_T+G_T+L_{C.}$ |
| ☒ | For conducted measurement. |
| | ☒ If EUT supports single transmit chain and measurements performed on this transmit chain. |
| | ☐ If EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. |
| | ☐ If EUT supports multiple transmit chains using options given below:<br>Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. |

### 3.2.5 Test Setup

| Transmitter Conducted Output Power |
|---|
|  |

### 3.2.6 Test Result of Transmitter Conducted Output Power

Refer as Appendix B

### 3.2.7 Test Result of E.I.R.P

Refer as Appendix B

# 3.3 Peak E.I.R.P Density

## 3.3.1 Peak E.I.R.P Density Limit

| Peak E.I.R.P Density Limit |
|---|
| In any event, the peak EIRP power density shall not exceed 1 Watt in any one-megahertz slice of spectrum. |

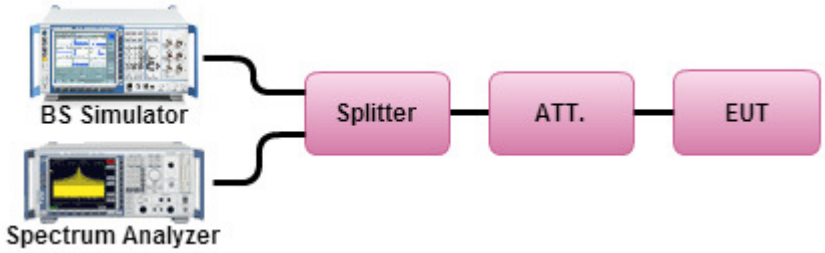
## 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.3.3 Test Procedures

| Test Method | | |
|---|---|---|
| ☒ | Refer as KDB 965270 D01 for Maximum power spectral density measurement | |
| ☐ | Refer as RSS-Gen, clause 6.13 for transmitter unwanted emissions measurement. | |
| ☐ | In case a narrower measurement bandwidth was used, the following conversion formula has to be applied: (e.g. if reference bandwidth 1 MHz and measurement bandwidth 100 kHz, then measurement bandwidth conversion factor is 10 dB); B = A + 10 log ($BW_{ref}$ / $BW_{measured}$)<br>• A is the value at the narrower measurement bandwidth;<br>• B is the value referred to the reference bandwidth;<br>• Correction Factor(dB)= 10log(1% Emission BW/RBW); | |
| ☒ | For conducted measurement. | |
| | ☒ | For conducted measurements on devices with single transmit chain. |
| | ☐ | For conducted measurements on devices with multiple transmit chains using options given below: |
| | | ☐ Option 1: measure and sum the spectra across the transmitter outputs. |
| | | ☐ Option 2: N transmitter outputs, then spurious emissions limits on each individual output. Measure and add 10 log (N) dB. |

## 3.3.4 Test Setup

| Transmitter Conducted Bandedge Emissions |
|---|
|  |



## 3.3.5 Test Result of Transmitter Conducted Bandedge Emissions

Refer as Appendix C

# 3.4 Transmitter Conducted Bandedge Emissions

## 3.4.1 Transmitter Conducted Bandedge Emissions Limit

| Transmitter Conducted Bandedge Emissions Limit |
|---|
| The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth. |

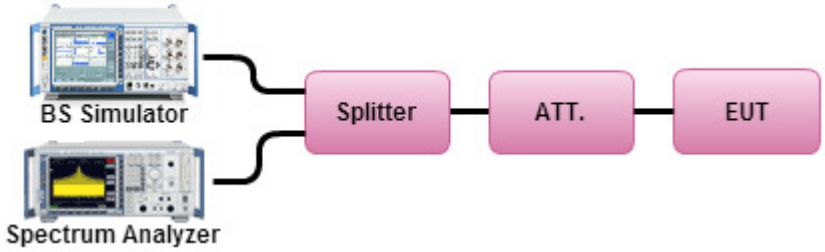
## 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.4.3 Test Procedures

| Test Method | | | |
|---|---|---|---|
| ☒ | Refer as KDB 971168 D01, clause 6 for spurious emissions. | | |
| ☐ | Refer as RSS-Gen, clause 6.13 for transmitter unwanted emissions measurement. | | |
| ☐ | In case a narrower measurement bandwidth was used, the following conversion formula has to be applied: (e.g. if reference bandwidth 1 MHz and measurement bandwidth 100 kHz, then measurement bandwidth conversion factor is 10 dB); B = A + 10 log ($BW_{ref}$ / $BW_{measured}$)<br>• A is the value at the narrower measurement bandwidth;<br>• B is the value referred to the reference bandwidth;<br>• Correction Factor(dB)= 10log(1% Emission BW/RBW); | | |
| ☒ | For conducted measurement. | | |
| | ☒ | For conducted measurements on devices with single transmit chain. | |
| | ☐ | For conducted measurements on devices with multiple transmit chains using options given below: | |
| | | ☐ | Option 1: measure and sum the spectra across the transmitter outputs. |
| | | ☐ | Option 2: N transmitter outputs, then spurious emissions limits on each individual output. Measure and add 10 log (N) dB. |

## 3.4.4 Test Setup

| Transmitter Conducted Bandedge Emissions |
|---|
|  |



## 3.4.5 Test Result of Transmitter Conducted Bandedge Emissions

Refer as Appendix D

# 3.5 Emission Mask

## 3.5.1 Emission Mask Limit

| Emission Mask Limit |
|---|
| (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.<br>(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.<br>(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB. |

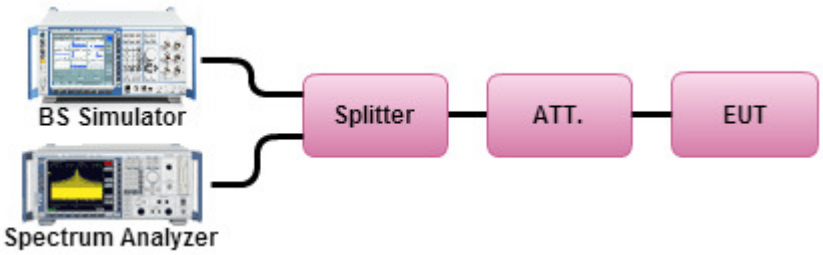
## 3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.5.3 Test Procedures

| Test Method | | | |
|---|---|---|---|
| ☒ | Refer as KDB 971168 D01, clause 6 for spurious emissions. | | |
| ☐ | Refer as RSS-Gen, clause 6.13 for transmitter unwanted emissions measurement. | | |
| ☐ | In case a narrower measurement bandwidth was used, the following conversion formula has to be applied: (e.g. if reference bandwidth 1 MHz and measurement bandwidth 100 kHz, then measurement bandwidth conversion factor is 10 dB); B = A + 10 log ($BW_{ref}$ / $BW_{measured}$)<br>• A is the value at the narrower measurement bandwidth;<br>• B is the value referred to the reference bandwidth;<br>• Correction Factor(dB)= 10log(1% Emission BW/RBW); | | |
| ☒ | For conducted measurement. | | |
| | ☒ | For conducted measurements on devices with single transmit chain. | |
| | ☐ | For conducted measurements on devices with multiple transmit chains using options given below: | |
| | | ☐ | Option 1: measure and sum the spectra across the transmitter outputs. |
| | | ☐ | Option 2: N transmitter outputs, then spurious emissions limits on each individual output. Measure and add 10 log (N) dB. |

## 3.5.4 Test Setup

| Transmitter Conducted Unwanted Emissions |
|---|
|  |



## 3.5.5 Test Result of Transmitter Conducted Unwanted Emissions

Refer as Appendix E

# 3.6 Transmitter Conducted Unwanted Emissions

## 3.6.1 Transmitter Conducted Unwanted Emissions Limit

| Transmitter Conducted Unwanted Emissions Limit |
|---|
| The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic. |

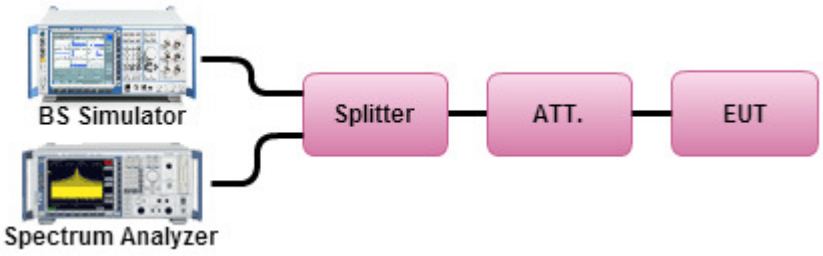
## 3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.6.3 Test Procedures

| Test Method | | | |
|---|---|---|---|
| ☒ | Refer as KDB 971168 D01, clause 6 for spurious emissions. | | |
| ☐ | Refer as RSS-Gen, clause 6.13 for transmitter unwanted emissions measurement. | | |
| ☐ | In case a narrower measurement bandwidth was used, the following conversion formula has to be applied: (e.g. if reference bandwidth 1 MHz and measurement bandwidth 100 kHz, then measurement bandwidth conversion factor is 10 dB); B = A + 10 log ($BW_{ref}$ / $BW_{measured}$)<br>• A is the value at the narrower measurement bandwidth;<br>• B is the value referred to the reference bandwidth;<br>• Correction Factor(dB)= 10log(1% Emission BW/RBW); | | |
| ☒ | For conducted measurement. | | |
| | ☒ | For conducted measurements on devices with single transmit chain. | |
| | ☐ | For conducted measurements on devices with multiple transmit chains using options given below: | |
| | | ☐ | Option 1: measure and sum the spectra across the transmitter outputs. |
| | | ☐ | Option 2: N transmitter outputs, then spurious emissions limits on each individual output. Measure and add 10 log (N) dB. |

## 3.6.4 Test Setup

| Transmitter Conducted Unwanted Emissions |
|---|
|  |



## 3.6.5 Test Result of Transmitter Conducted Unwanted Emissions

Refer as Appendix F

# 3.7 Frequency Stability

## 3.7.1 Frequency Stability Limit

| Frequency Stability Limit | |
|---|---|
| ☒ | The transmitter center frequency stability shall be ± 2.5 ppm maximum. The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation. |
| ☒ | Temperature: |
| ☒ | -40°C to +55°C in 10°C step. |
| ☒ | If the EUT cannot be turned on at -40°C, the testing lowest temperature will be raised in 10°C step until the EUT can be turned on. |
| ☒ | Voltage: |
| ☒ | For non hand-carried battery and AC powered equipment: 85% to 115% of the nominal value |
| ☒ | For hand-carried, battery-powered equipment: Voltage is reduced to the battery operating end point which shall be specified by the manufacturer. |
| Note 1: These measurements shall also be performed at normal and extreme test conditions. | |

## 3.7.2 Measuring Instruments

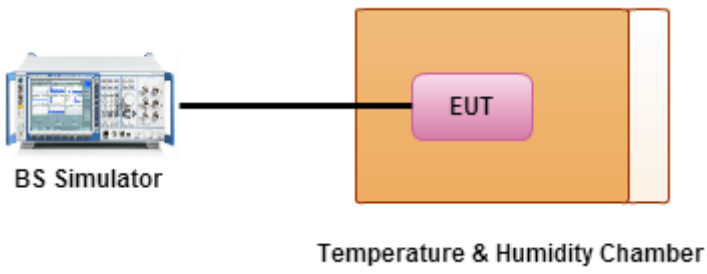
Refer a test equipment and calibration data table in this test report.

## 3.7.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as KDB 971168 D01, clause 9 for frequency stability. |
| ☒ | Frequency stability with respect to ambient temperature |
| ☒ | Frequency stability when varying supply voltage |
| ☒ | For conducted measurement. |
| ☐ | For radiated measurement. The equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted power level. |

## 3.7.4 Test Setup

**Frequency Stability**




## 3.7.5 Test Result of Frequency Stability

Refer as Appendix G

# 3.8 Transmitter Radiated Unwanted Emissions

## 3.8.1 Transmitter Radiated Unwanted Emissions Limit

| Transmitter Radiated Unwanted Emissions Limit |
|---|
| The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its $10^{th}$ harmonic. |

## 3.8.2 Measuring Instruments

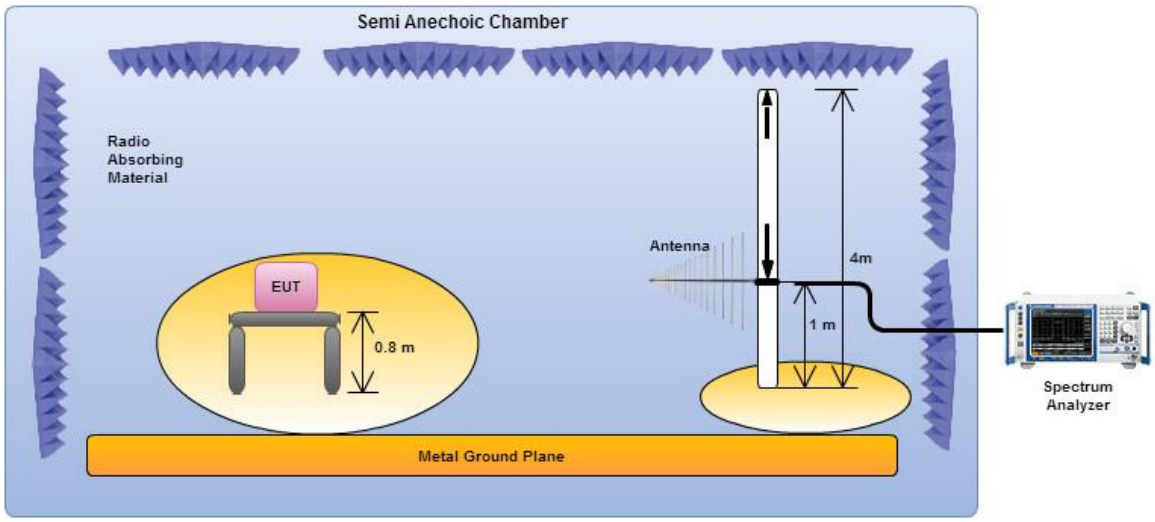
Refer a test equipment and calibration data table in this test report.

## 3.8.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as KDB 971168 D01, clause 6 for spurious emissions. |
| ☒ | Refer as RSS-Gen, clause 6.13 for transmitter unwanted emissions measurement. |
| ☐ | In case a narrower measurement bandwidth was used, the following conversion formula has to be applied: (e.g. if reference bandwidth 1 MHz and measurement bandwidth 100 kHz, then measurement bandwidth conversion factor is 10 dB)<br>$B = A + 10 \log (BW_{ref} / BW_{measured})$<br>• A is the value at the narrower measurement bandwidth;<br>• B is the value referred to the reference bandwidth;<br>• Correction Factor(dB)= 10log(1% Emission BW/RBW); |
| ☒ | Effective Isotropic Radiated Power (EIRP) |
| ☒ | Refer as KDB 412172, clause 1.2 following as power approach. EIRP= $P_T+G_T+L_{C.}$ |
| ☐ | Refer as KDB 412172, clause 1.1 following as field strength approach. EIRP= $(E \times d)^2 / 30$. |
| ☒ | For radiated measurement. |
| ☐ | Refer as KDB 412172, clause 2.2 following EIRP can be used radiated test configuration. |
| ☒ | Refer as KDB 412172, clause 2.3 following EIRP can be used signal/antenna substitution techniques. |
| ☐ | Refer as ANSI/TIA-603-D-2010, clause 2.2.12 for radiated measurement. |

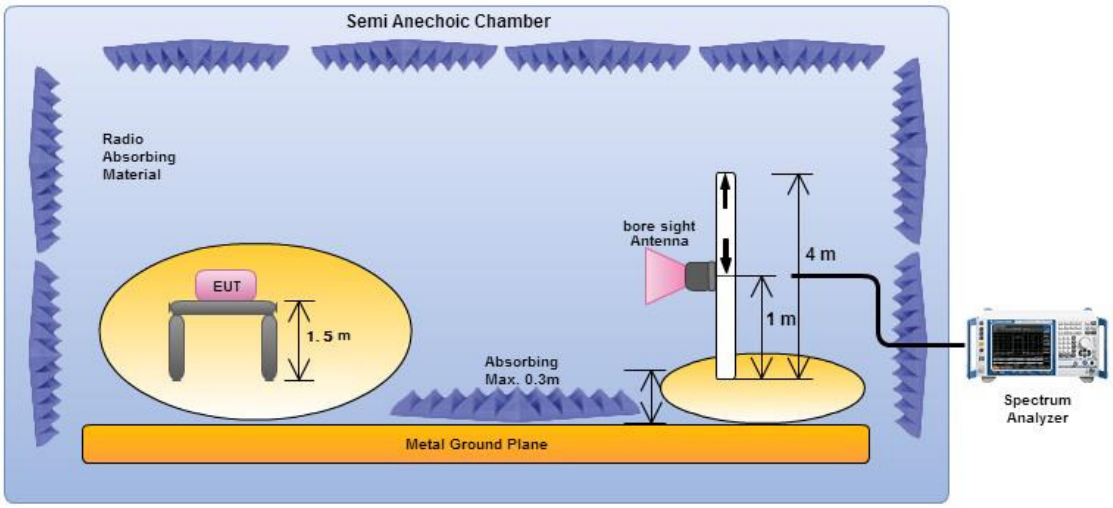
### 3.8.4 Test Setup

**Transmitter Radiated Unwanted Emissions (below 1GHz)**




Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna

**Transmitter Radiated Unwanted Emissions (Above 1GHz)**




Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

### 3.8.5 Test Result of Transmitter Radiated Unwanted Emissions

Refer as Appendix H

# 4 Test Equipment and Calibration Data

### Instrument for Conducted Test

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| Radio Communication Analyzer | Anritsu | MT8820C | MY53202219 | N/A | 03/05/2016 | 03/05/2017 |
| Spectrum Analyzer | R&S | FSV 40 | 101013 | 9KHz~40GHz | 16/02/2016 | 15/02/2017 |
| Temp. and Humidity Chamber | Giant Force | GTH-225-40-CP-AR | MAA1311-008 | -40 ~ 100℃ | 04/05/2016 | 03/05/2017 |
| DC Power Source | G.W. | GPC-6030D | C671845 | DC 1V ~ 60V | 27/07/2016 | 26/07/2017 |
| Radio Communication Analyzer | Anritsu | MT8820C | 6201465544 | WWAN Station | 19/08/2016 | 18/08/2017 |

### Instrument for Radiated Test

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M | 03CH03-HY | 30MHz ~ 1GHz 3m | 28/11/2015 | 27/11/2016 |
| 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M | 03CH03-HY | 1GHz ~ 18GHz 3m | 16/12/2015 | 15/12/2016 |
| Amplifier | HP | 8447D | 2944A08033 | 10kHz ~ 1.3GHz | 10/05//2016 | 09/05/2017 |
| Amplifier | Keysight | 83017A | MY53270197 | 1GHz ~ 26.5GHz | 29/08/2016 | 28/08/2017 |
| Spectrum | R&S | FSV40 | 101513 | 9kHz ~ 40GHz | 16/02/ 2016 | 15/02/2017 |
| Bilog Antenna | SCHAFFNER | CBL 6112B | 2723 | 30MHz ~ 1GHz | 01/10/2016 | 30/09/2017 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 1531 | 1GHz ~ 18GHz | 22/04/ 2016 | 21/04/2017 |
| Horn Antenna | SCHWARZBECK | BBHA9170 | BBHA9170154 | 18GHz ~ 40GHz | 29/01/ 2016 | 28/01/2017 |
| Amplifier | MITEQ | JS44-18004000-33-8P | 1840917 | 18GHz ~ 40GHz | 02/06/ 2015 | 01/06/2017 |
| Radio Communication Analyzer | Anritsu | MT8820C | 6201465544 | WWAN Station | 19/08/2016 | 18/08/2017 |

### Instrument for Adaptivity Test

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| Vector Signal Generator | R&S | SMU200A | 102098 | 100kHz ~ 6GHz | 22/12/2015 | 21/12/2016 |
| Spectrum Analyzer | Keysight | N9010A | MY55150165 | 9kHz~7GHz | 28/10/2016 | 27/10/2017 |
| Radio Communication Analyzer | Anritsu | MT8820C | 6201465544 | WWAN Station | 19/08/2016 | 18/08/2017 |

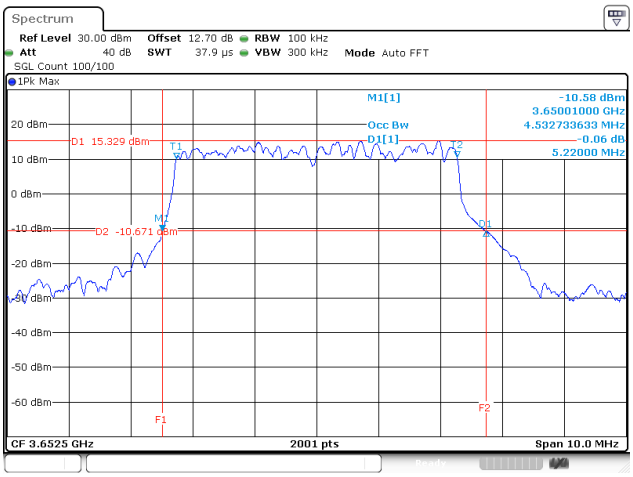
| Mode | LTE Band 43: 99%OBW (MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Bandwidth (MHz) | 5 | | 10 | | 15 | | 20 | |
| Mod. | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM |
| Lowest CH. | 4.53 | 4.50 | 8.92 | 8.91 | 13.40 | 13.35 | 17.87 | 17.89 |
| Middle CH. | 4.50 | 4.49 | 8.86 | 8.95 | 13.43 | 13.46 | 17.83 | 17.89 |
| Highest CH. | 4.50 | 4.50 | 8.88 | 8.97 | 13.43 | 13.38 | 17.91 | 17.95 |

| Mode | LTE Band 43 : 26dB bandwidth (MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Bandwidth (MHz) | 5 | | 10 | | 15 | | 20 | |
| Mod. | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM |
| Lowest CH. | 5.22 | 4.88 | 9.84 | 9.54 | 14.56 | 14.92 | 18.58 | 19.32 |
| Middle CH. | 5.21 | 4.89 | 9.88 | 9.52 | 14.41 | 14.46 | 18.92 | 19.9 |
| Highest CH. | 5.10 | 4.88 | 9.23 | 9.94 | 14.59 | 14.35 | 19.08 | 19.48 |

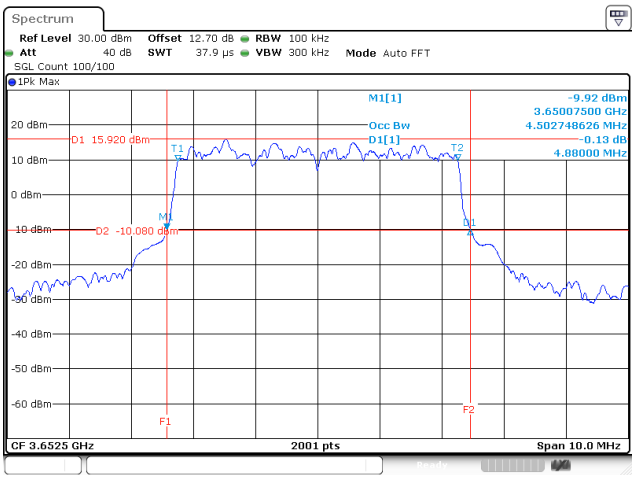
| LTE Band 43 Emission Designator | | |
|---|---|---|
| Bandwidth (MHz) | Mode | Emission Designator |
| 5 | QPSK | 4M53G7D |
| | 16QAM | 4M50W7D |
| 10 | QPSK | 8M92G7D |
| | 16QAM | 8M97W7D |
| 15 | QPSK | 13M4G7D |
| | 16QAM | 13M4W7D |
| 20 | QPSK | 17M9G7D |
| | 16QAM | 17M9W7D |

## LTE Band 43 / 5MHz

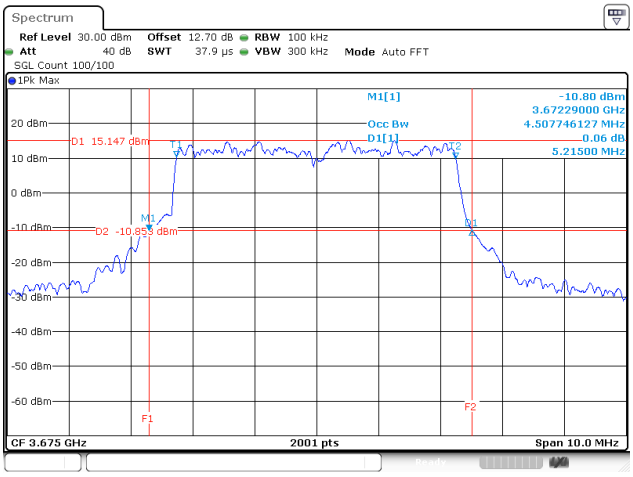
### Lowest Channel / QPSK



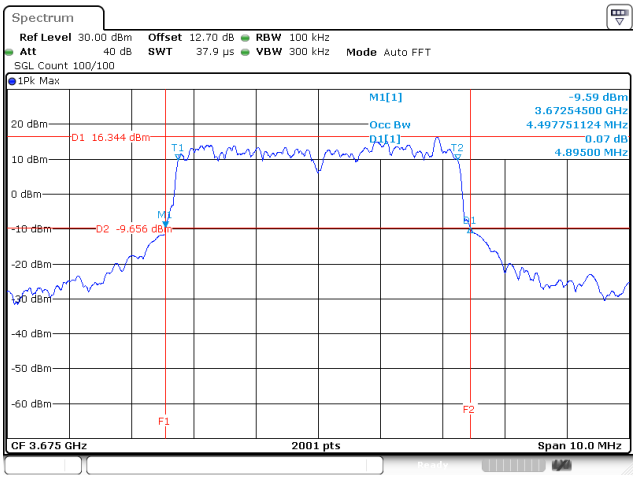

### Lowest Channel / 16QAM



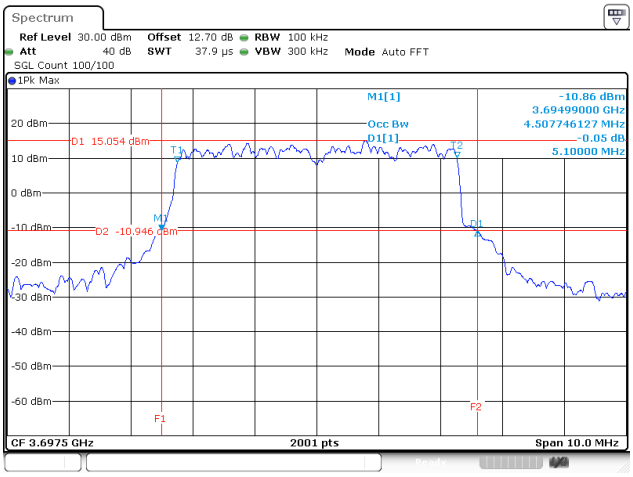

### Middle Channel / QPSK



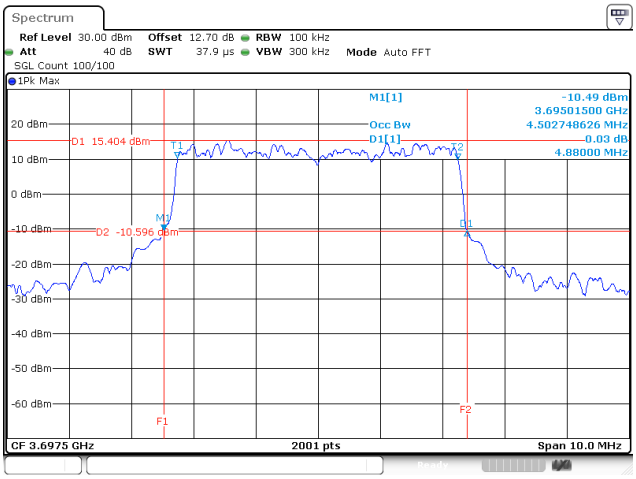

### Middle Channel / 16QAM




### Highest Channel / QPSK

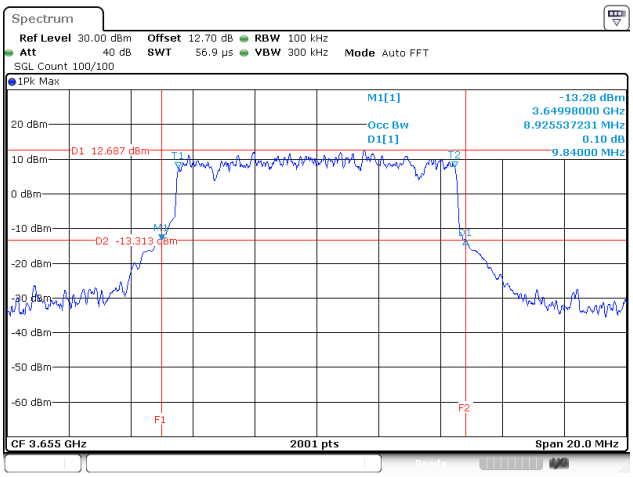



### Highest Channel / 16QAM

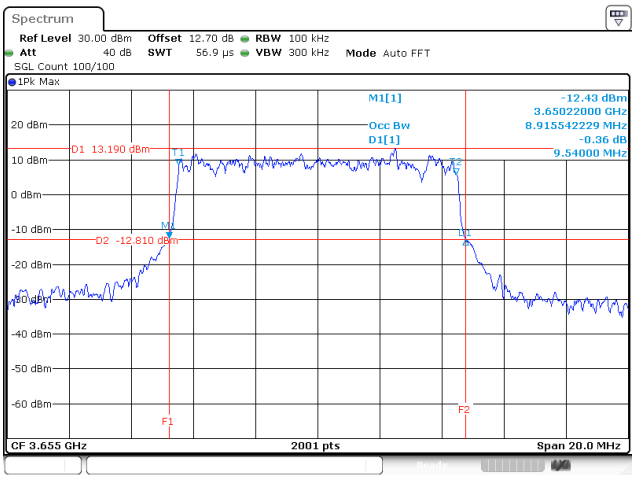


## LTE Band 43 / 10MHz

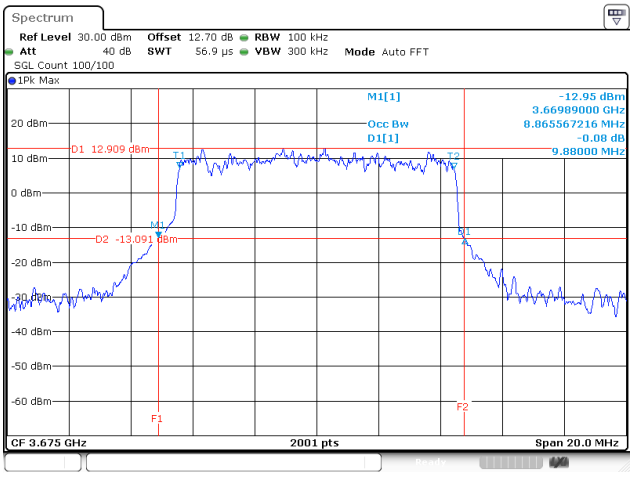
### Lowest Channel / QPSK



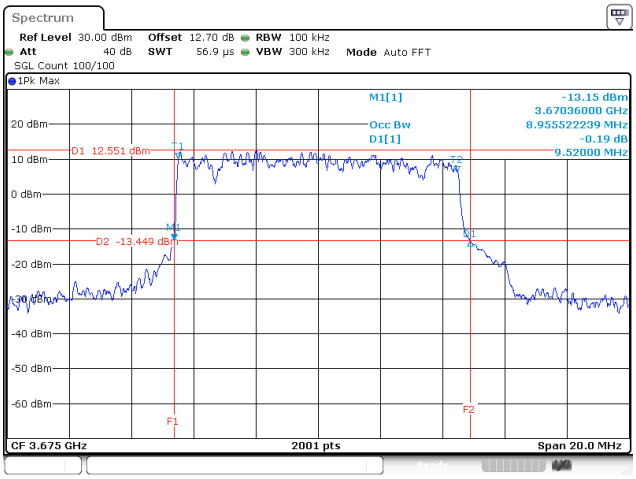

### Lowest Channel / 16QAM



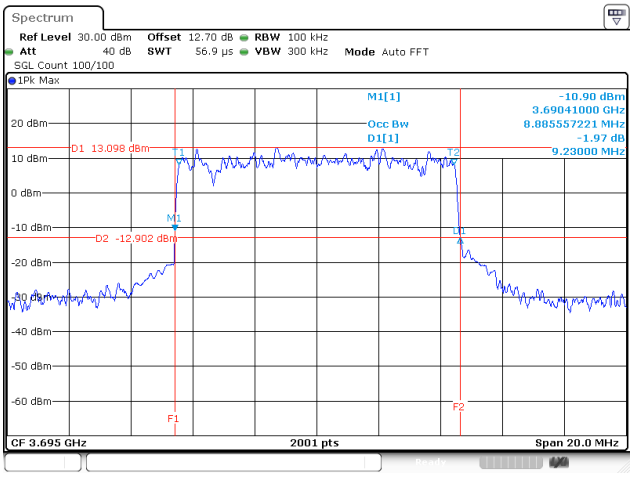

### Middle Channel / QPSK



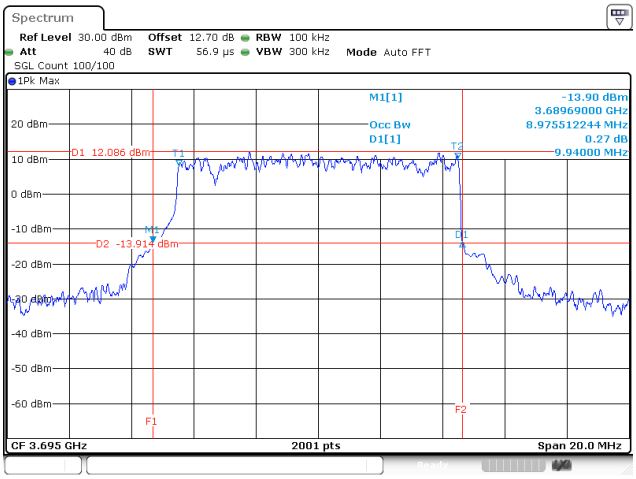

### Midddle Channel / 16QAM




### Highest Channel / QPSK

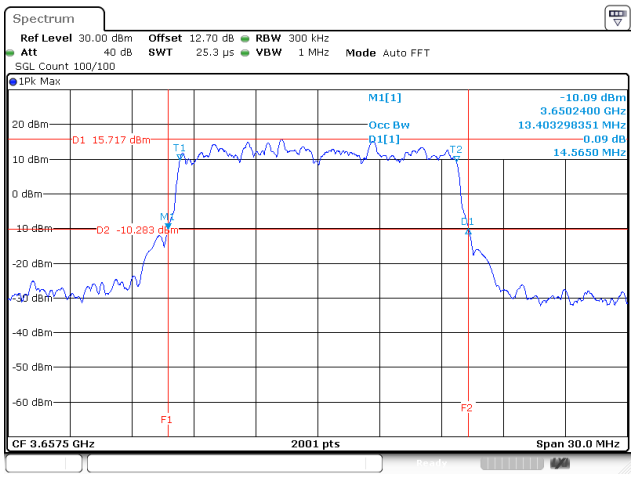



### Highest Channel / 16QAM

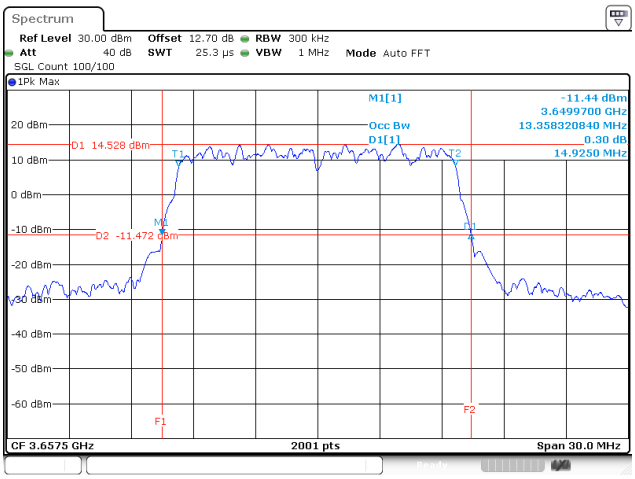


## LTE Band 43 / 15MHz

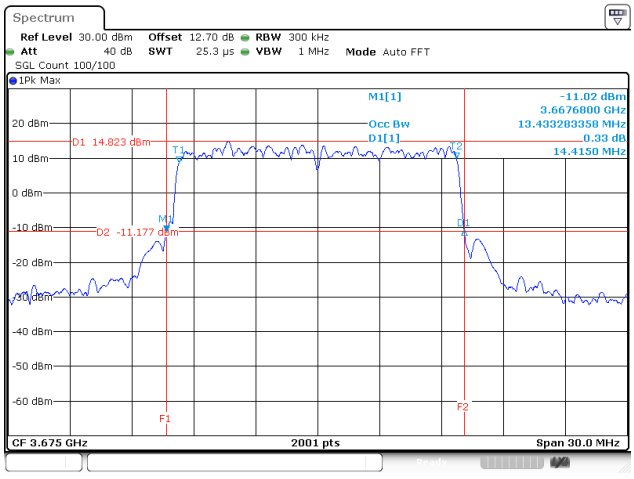
### Lowest Channel / QPSK



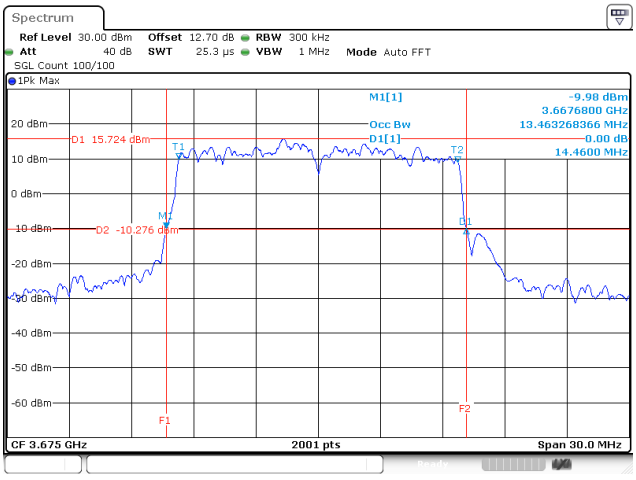

### Lowest Channel / 16QAM



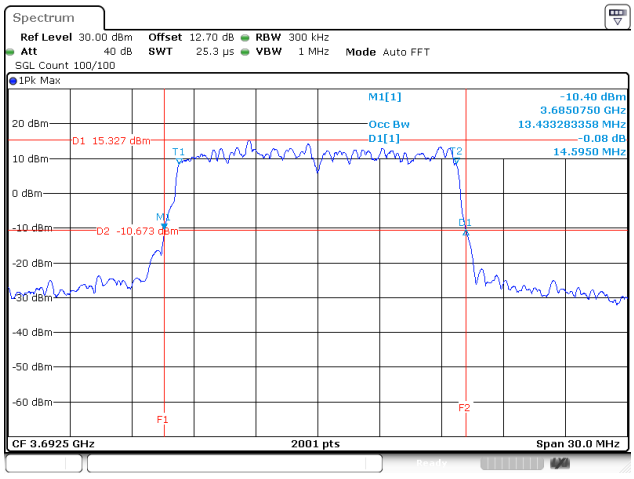

### Middle Channel / QPSK



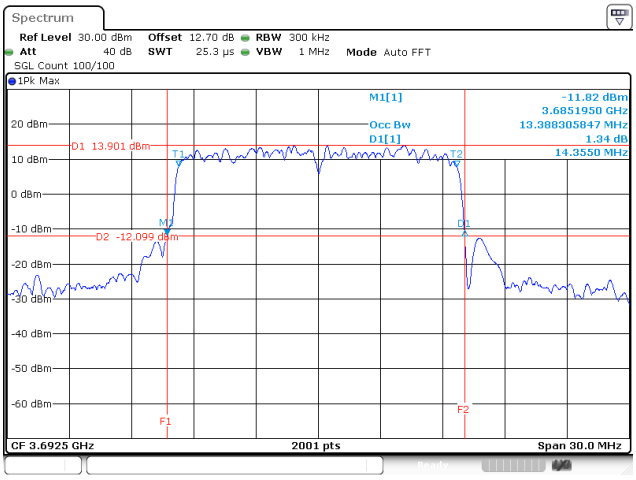

### Middle Channel / 16QAM




### Highest Channel / QPSK

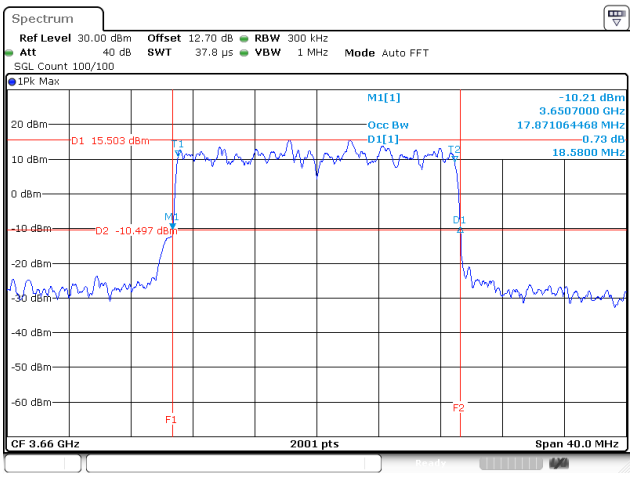



### Highest Channel / 16QAM

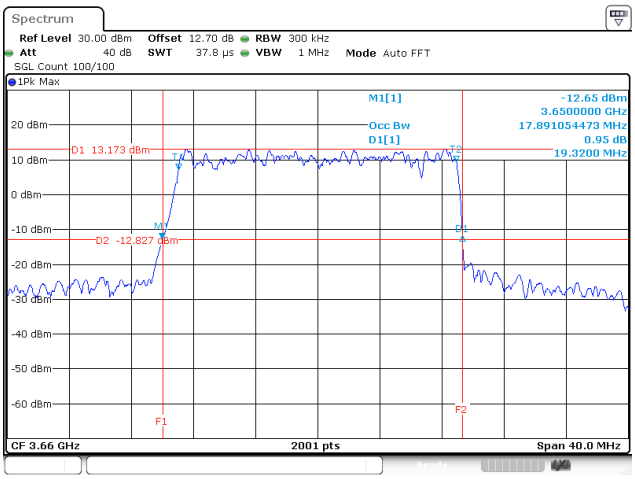


## LTE Band 43 / 20MHz

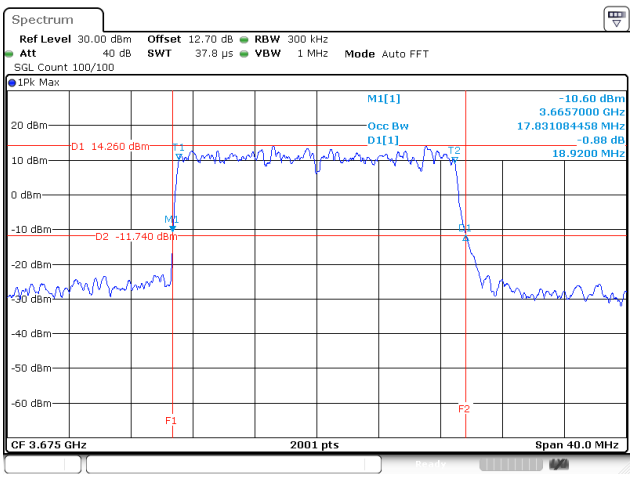
### Lowest Channel / QPSK



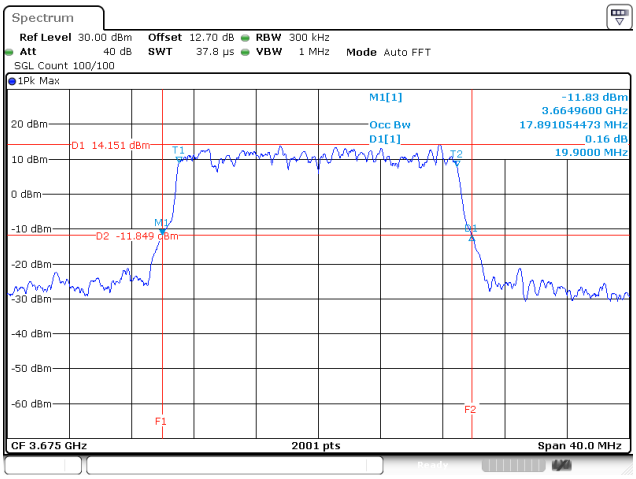

### Lowest Channel / 16QAM



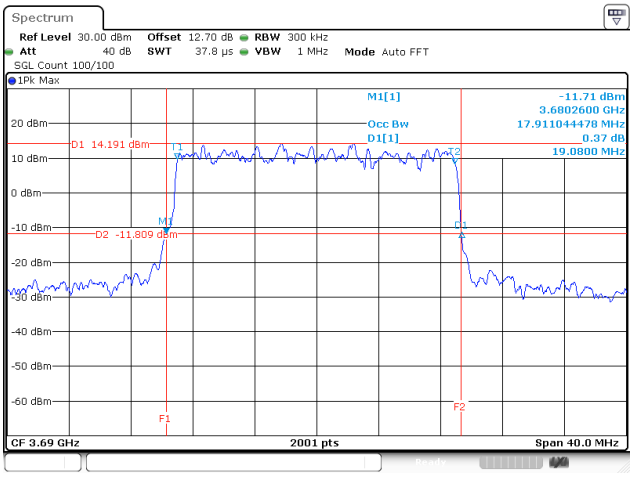

### Middle Channel / QPSK



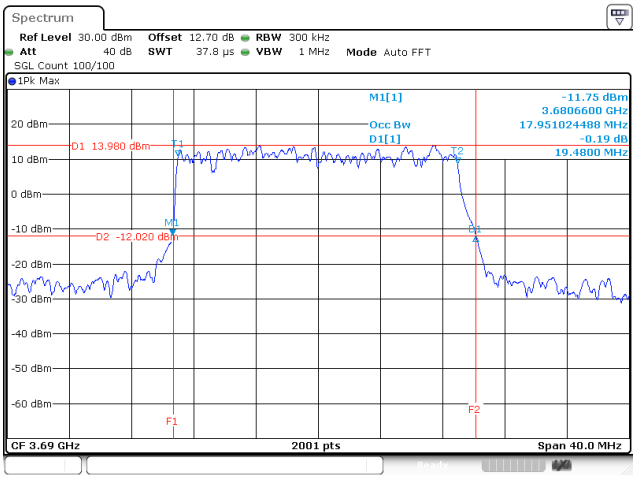

### Middle Channel / 16QAM




### Highest Channel / QPSK




### Highest Channel / 16QAM



| LTE Band 43-Conducted Output Power(Average power) | | | | | | |
|---|---|---|---|---|---|---|
| **BW** | **Mod.** | **RB Size** | **RB Offset** | **Lowest CH.** | **Middle CH.** | **Highest CH.** |
| **Channel** | | | | **44190** | **44340** | **44490** |
| **Frequency(MHz)** | | | | **3660** | **3675** | **3690** |
| **20M** | **QPSK** | **1** | **0** | 22.89 | 22.81 | 22.83 |
| | | **1** | **49** | 22.24 | 22.21 | 22.26 |
| | | **1** | **99** | 22.60 | 22.64 | 22.74 |
| | | **50** | **0** | 22.52 | 22.37 | 22.49 |
| | | **50** | **24** | 22.32 | 22.23 | 22.37 |
| | | **50** | **50** | 22.43 | 22.3 | 22.47 |
| | | **100** | **0** | 22.52 | 22.34 | 22.48 |
| | **16QAM** | **1** | **0** | 22.45 | 22.41 | 22.38 |
| | | **1** | **49** | 22.40 | 22.38 | 22.28 |
| | | **1** | **99** | 22.47 | 22.41 | 22.31 |
| | | **50** | **0** | 21.94 | 21.77 | 21.93 |
| | | **50** | **24** | 21.73 | 21.62 | 21.8 |
| | | **50** | **50** | 21.74 | 21.69 | 21.9 |
| | | **100** | **0** | 21.79 | 21.72 | 21.89 |
| **Channel** | | | | **44165** | **44340** | **44515** |
| **Frequency(MHz)** | | | | **3657.5** | **3675** | **3692.5** |
| **15M** | **QPSK** | **1** | **0** | 22.73 | 22.70 | 22.69 |
| | | **1** | **37** | 22.61 | 22.65 | 22.81 |
| | | **1** | **74** | 22.40 | 22.46 | 22.65 |
| | | **36** | **0** | 22.18 | 22.17 | 22.31 |
| | | **36** | **20** | 22.04 | 22.03 | 22.23 |
| | | **36** | **39** | 22.14 | 22.19 | 22.37 |
| | | **75** | **0** | 22.15 | 22.16 | 22.35 |
| | **16QAM** | **1** | **0** | 22.21 | 22.31 | 22.19 |
| | | **1** | **37** | 22.63 | 22.56 | 22.65 |
| | | **1** | **74** | 22.15 | 22.54 | 22.45 |
| | | **36** | **0** | 21.72 | 21.75 | 21.88 |
| | | **36** | **20** | 21.94 | 21.92 | 21.98 |
| | | **36** | **39** | 21.68 | 21.73 | 21.9 |
| | | **75** | **0** | 21.67 | 21.69 | 21.86 |

| LTE Band 43-Conducted Output Power(Average power) | | | | | | |
|---|---|---|---|---|---|---|
| Channel | | | | 44140 | 44340 | 44540 |
| Frequency(MHz) | | | | 3655 | 3675 | 3695 |
| 10M | QPSK | 1 | 0 | 22.78 | 22.74 | 22.61 |
| | | 1 | 25 | 22.49 | 22.48 | 22.53 |
| | | 1 | 49 | 22.22 | 22.18 | 22.25 |
| | | 25 | 0 | 22.28 | 22.13 | 22.13 |
| | | 25 | 12 | 22.44 | 22.34 | 22.35 |
| | | 25 | 25 | 22.23 | 22.15 | 22.18 |
| | | 50 | 0 | 22.18 | 21.96 | 22.11 |
| | 16QAM | 1 | 0 | 22.24 | 22.09 | 22.12 |
| | | 1 | 25 | 22.48 | 22.31 | 22.44 |
| | | 1 | 49 | 22.13 | 21.89 | 22.11 |
| | | 25 | 0 | 21.96 | 21.97 | 21.88 |
| | | 25 | 12 | 21.83 | 21.49 | 21.68 |
| | | 25 | 25 | 21.61 | 21.31 | 21.54 |
| | | 50 | 0 | 21.54 | 21.29 | 21.45 |
| Channel | | | | 44115 | 44340 | 44565 |
| Frequency(MHz) | | | | 3652.5 | 3675 | 3697.5 |
| 5M | QPSK | 1 | 0 | 22.64 | 22.54 | 22.48 |
| | | 1 | 12 | 22.28 | 22.14 | 22.05 |
| | | 1 | 24 | 22.04 | 22.15 | 22.11 |
| | | 12 | 0 | 22.24 | 22.1 | 21.81 |
| | | 12 | 7 | 22.35 | 22.21 | 21.92 |
| | | 12 | 13 | 22.17 | 21.51 | 21.82 |
| | | 25 | 0 | 22.25 | 21.57 | 21.85 |
| | 16QAM | 1 | 0 | 22.41 | 22.25 | 22.31 |
| | | 1 | 12 | 22.04 | 22.16 | 22.48 |
| | | 1 | 24 | 22.09 | 22.13 | 22.08 |
| | | 12 | 0 | 21.43 | 21.53 | 21.84 |
| | | 12 | 7 | 21.54 | 21.59 | 21.94 |
| | | 12 | 13 | 21.43 | 21.46 | 21.84 |
| | | 25 | 0 | 21.65 | 21.74 | 21.88 |

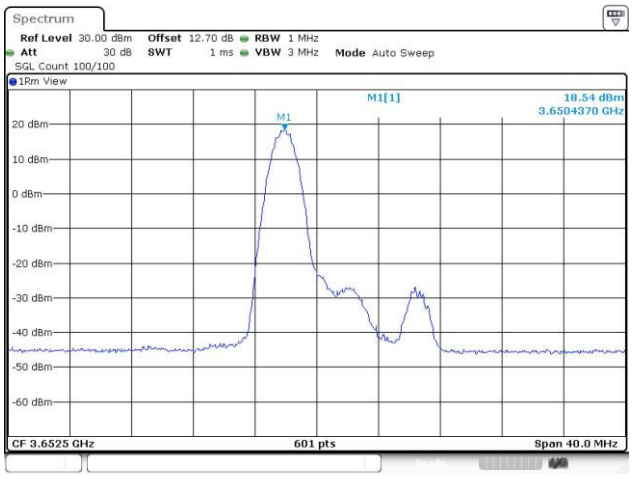
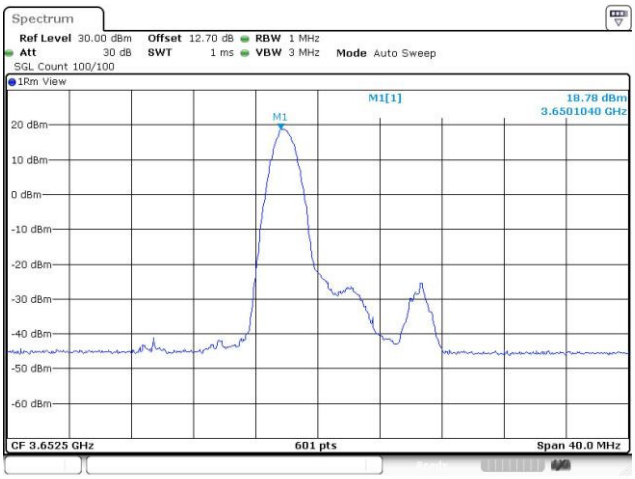
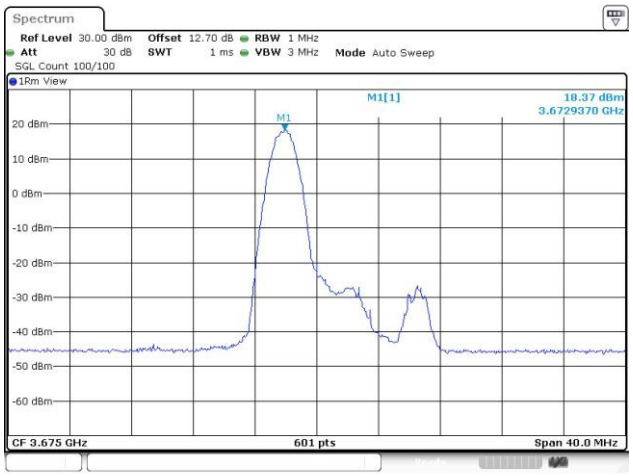
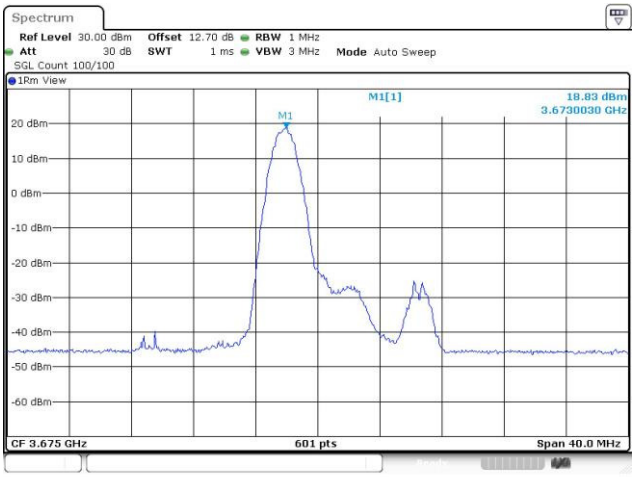
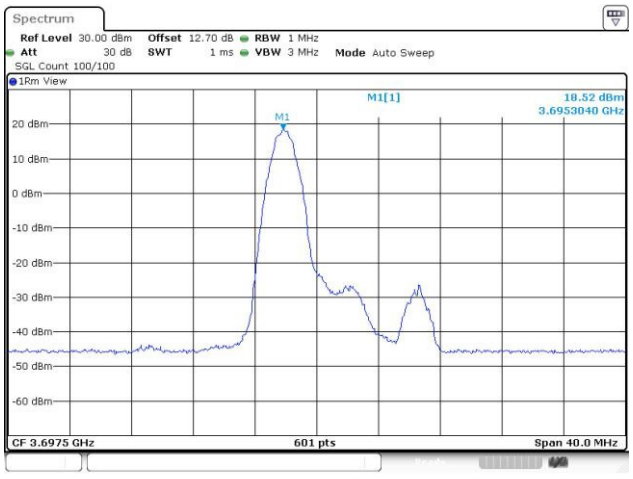
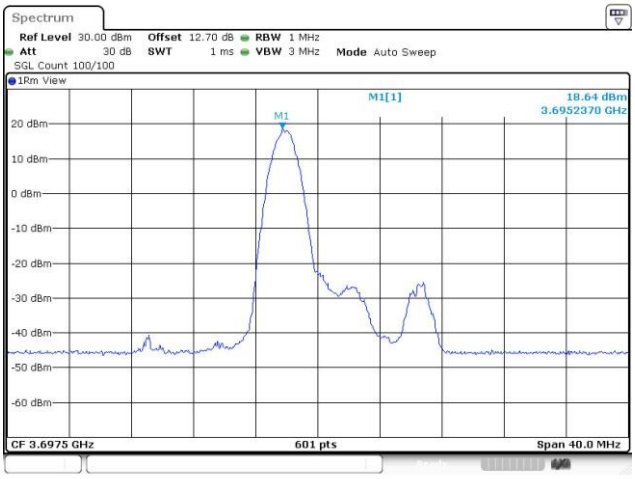
| ($G_T$-$L_C$= 10 dB) | | | | | | |
|---|---|---|---|---|---|---|
| **Modes** | **LTE Band 43 (QPSK,BW=5M)** | | | **LTE Band 43 (16QAM,BW=5M)** | | |
| **Channel** | **44115 (Low)** | **44340 (Mid)** | **44565 (High)** | **44115 (Low)** | **44340 (Mid)** | **44565 (High)** |
| **Frequency (MHz)** | **3652.5** | **3675** | **3697.5** | **3652.5** | **3675** | **3697.5** |
| **Conducted power $P_T$ (dBm)** | 22.64 | 22.54 | 22.48 | 22.41 | 22.25 | 22.48 |
| **Conducted power $P_T$ (Watts)** | 0.1837 | 0.1795 | 0.1770 | 0.1742 | 0.1679 | 0.1770 |
| **EIRP (dBm)** | 32.64 | 32.54 | 32.48 | 32.41 | 32.25 | 32.48 |
| **EIRP (Watts)** | 1.8365 | 1.7947 | 1.7701 | 1.7418 | 1.6788 | 1.7701 |

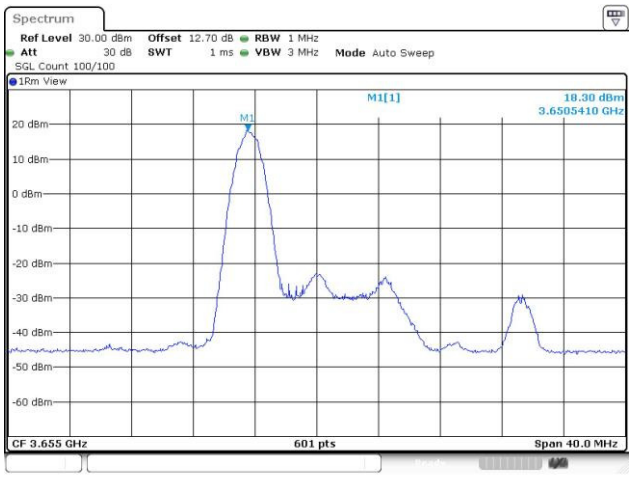
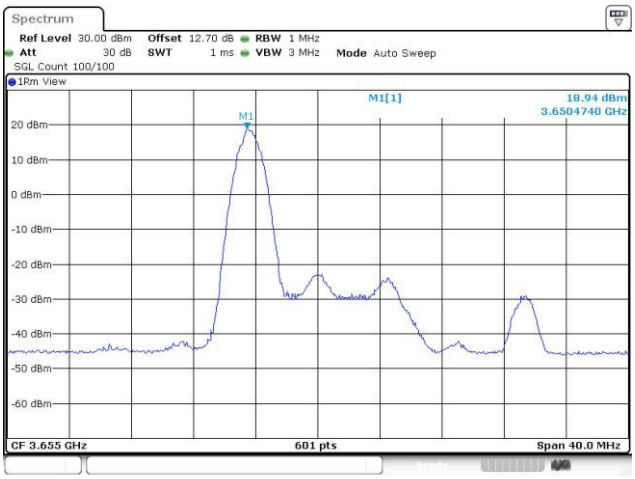
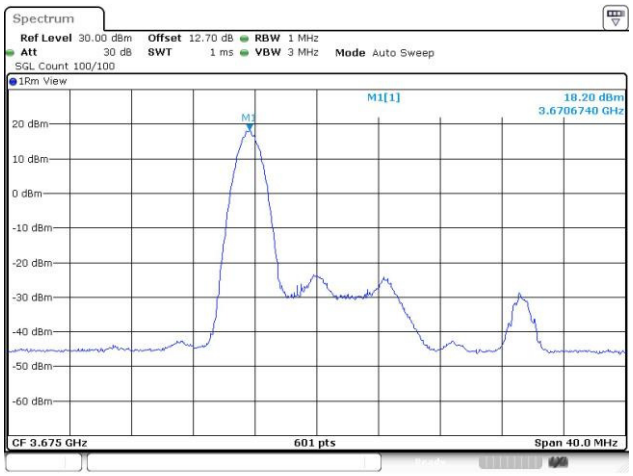
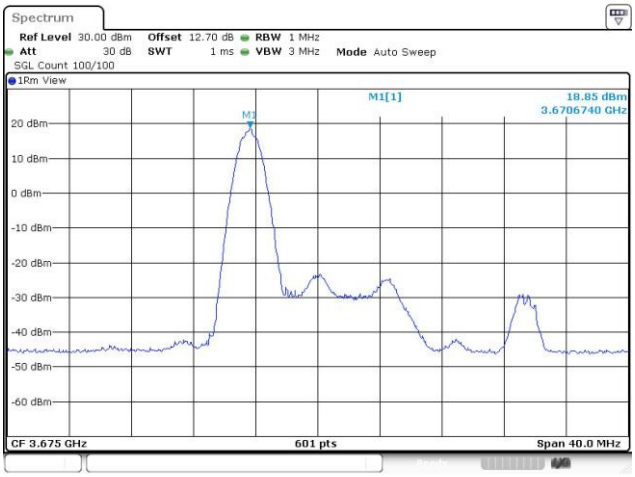
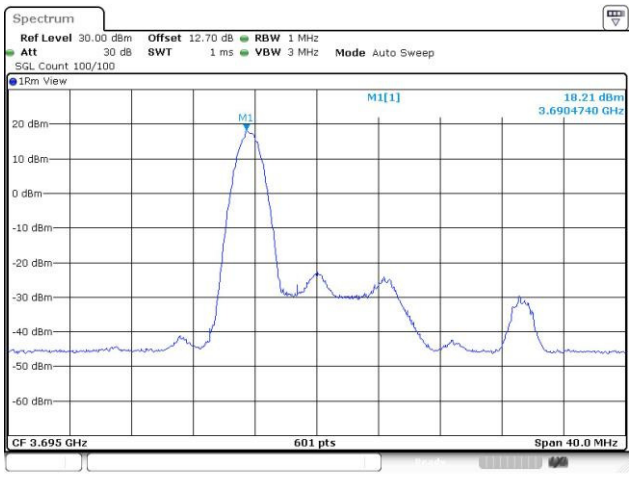
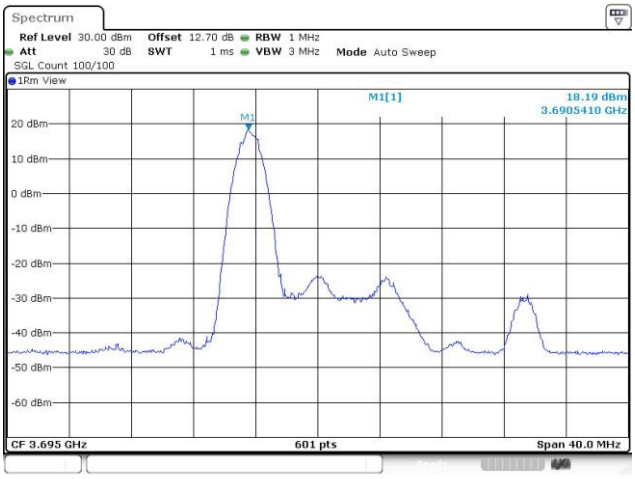
| ($G_T$-$L_C$= 10 dB) | | | | | | |
|---|---|---|---|---|---|---|
| **Modes** | **LTE Band 43 (QPSK,BW=10M)** | | | **LTE Band 43 (16QAM,BW=10M)** | | |
| **Channel** | **44140 (Low)** | **44340 (Mid)** | **44540 (High)** | **44140 (Low)** | **44340 (Mid)** | **44540 (High)** |
| **Frequency (MHz)** | **3655** | **3675** | **3695** | **3655** | **3675** | **3695** |
| **Conducted power $P_T$ (dBm)** | 22.78 | 22.74 | 22.61 | 22.48 | 22.31 | 22.44 |
| **Conducted power $P_T$ (Watts)** | 0.1897 | 0.1879 | 0.1824 | 0.1770 | 0.1702 | 0.1754 |
| **EIRP (dBm)** | 32.78 | 32.74 | 32.61 | 32.48 | 32.31 | 32.44 |
| **EIRP (Watts)** | 1.8967 | 1.8793 | 1.8239 | 1.7701 | 1.7022 | 1.7539 |

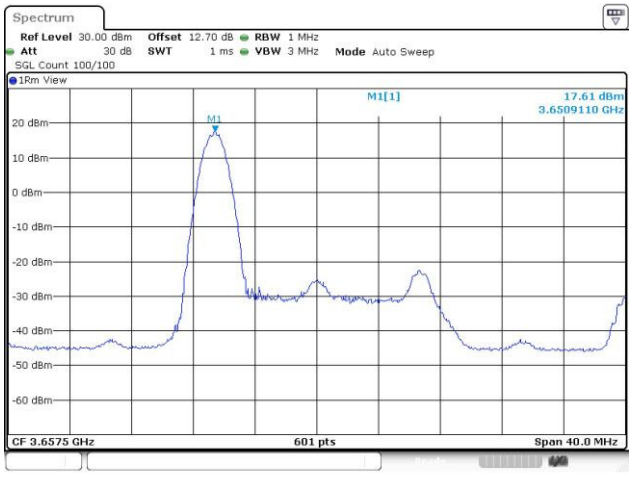
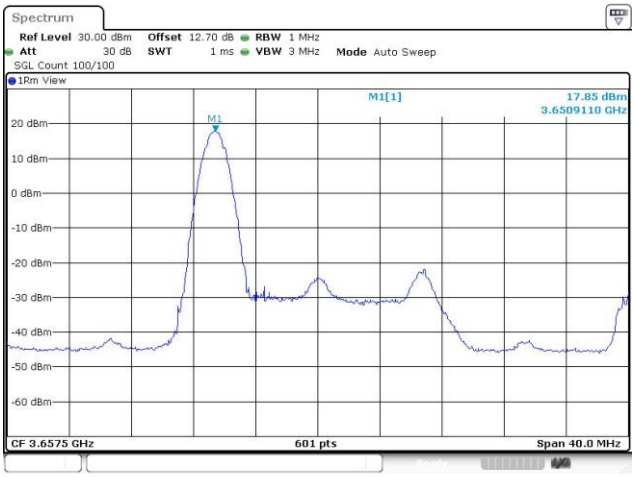
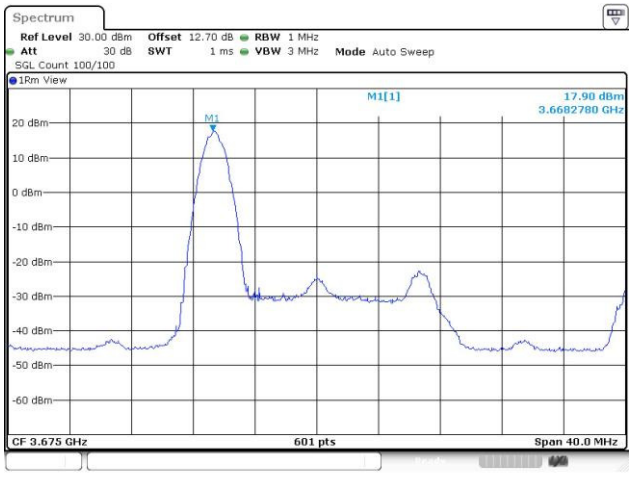
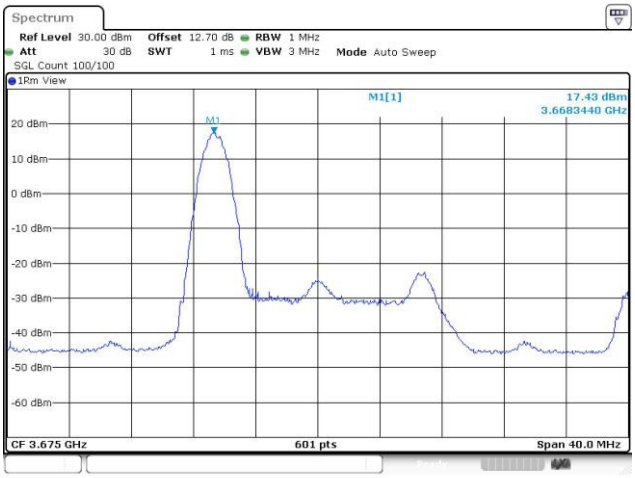
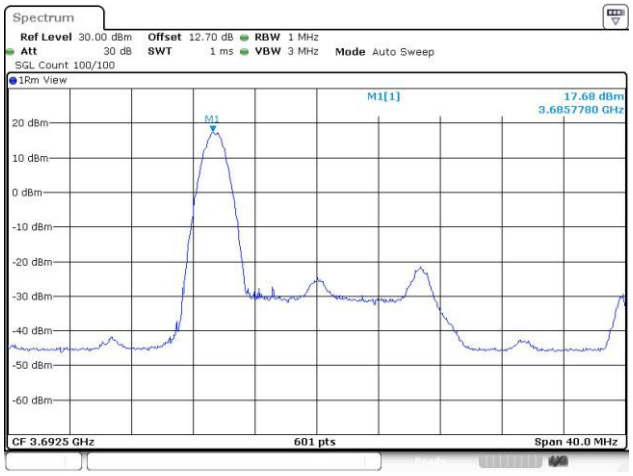
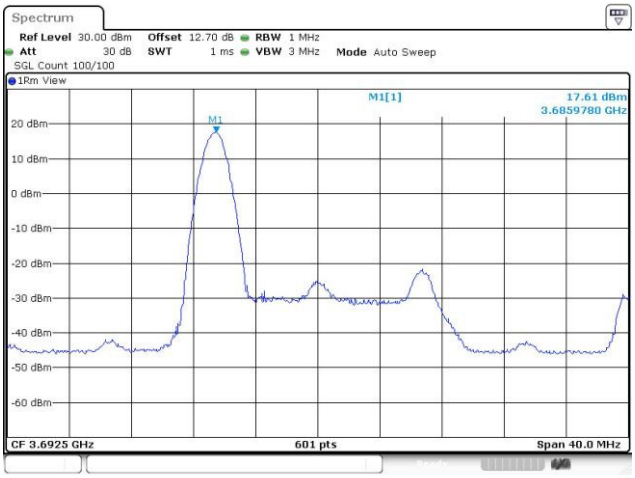
| ($G_T$-$L_C$= 10 dB) | | | | | | |
|---|---|---|---|---|---|---|
| **Modes** | **LTE Band 43 (QPSK,BW=15M)** | | | **LTE Band 43 (16QAM,BW=15M)** | | |
| **Channel** | **44165 (Low)** | **44340 (Mid)** | **44515 (High)** | **44165 (Low)** | **44340 (Mid)** | **44515 (High)** |
| **Frequency (MHz)** | **3657.5** | **3675** | **3692.5** | **3657.5** | **3675** | **3692.5** |
| **Conducted power $P_T$ (dBm)** | 22.73 | 22.7 | 22.81 | 22.63 | 22.56 | 22.65 |
| **Conducted power $P_T$ (Watts)** | 0.1875 | 0.1862 | 0.1910 | 0.1832 | 0.1803 | 0.1841 |
| **EIRP (dBm)** | 32.73 | 32.7 | 32.81 | 32.63 | 32.56 | 32.65 |
| **EIRP (Watts)** | 1.8750 | 1.8621 | 1.9099 | 1.8323 | 1.8030 | 1.8408 |

| ($G_T$-$L_C$= 10 dB) | | | | | | |
|---|---|---|---|---|---|---|
| **Modes** | **LTE Band 43 (QPSK,BW=20M)** | | | **LTE Band 43 (16QAM,BW=20M)** | | |
| **Channel** | **44190 (Low)** | **44340 (Mid)** | **44490 (High)** | **44190 (Low)** | **44340 (Mid)** | **44490 (High)** |
| **Frequency (MHz)** | **3660** | **3675** | **3690** | **3660** | **3675** | **3690** |
| **Conducted power $P_T$ (dBm)** | 22.89 | 22.81 | 22.83 | 22.47 | 22.41 | 22.38 |
| **Conducted power $P_T$ (Watts)** | 0.1945 | 0.1910 | 0.1919 | 0.1766 | 0.1742 | 0.1730 |
| **EIRP (dBm)** | 32.89 | 32.81 | 32.83 | 32.47 | 32.41 | 32.38 |
| **EIRP (Watts)** | 1.9454 | 1.9099 | 1.9187 | 1.7660 | 1.7418 | 1.7298 |

| Mode | LTE Band 43 : Peak EIRP Density (dBm/MHz) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Bandwidth (MHz) | 5 | | 10 | | 15 | | 20 | | Limit (dBm/MHz) |
| Mod. | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | |
| Lowest CH. | 28.54 | 28.78 | 28.3 | 28.94 | 27.61 | 27.85 | 29.14 | 29.35 | 30 |
| Middle CH. | 28.37 | 28.83 | 28.2 | 28.85 | 27.9 | 27.43 | 29.35 | 29.41 | 30 |
| Highest CH. | 28.52 | 28.64 | 28.21 | 28.19 | 27.68 | 27.61 | 29.33 | 29.24 | 30 |

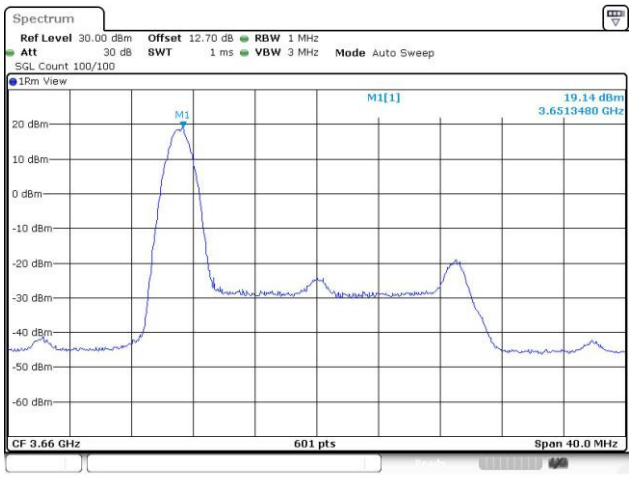
| LTE Band 43 / 5MHz | |
|---|---|
| **Lowest Channel / QPSK** | **Lowest Channel / 16QAM** |
|  |  |
| **Middle Channel / QPSK** | **Midddle Channel / 16QAM** |
|  |  |
| **Highest Channel / QPSK** | **Highest Channel / 16QAM** |
|  |  |

| LTE Band 43 / 10MHz | |
|---|---|
| **Lowest Channel / QPSK** | **Lowest Channel / 16QAM** |
|  |  |
| **Middle Channel / QPSK** | **Midddle Channel / 16QAM** |
|  |  |
| **Highest Channel / QPSK** | **Highest Channel / 16QAM** |
|  |  |

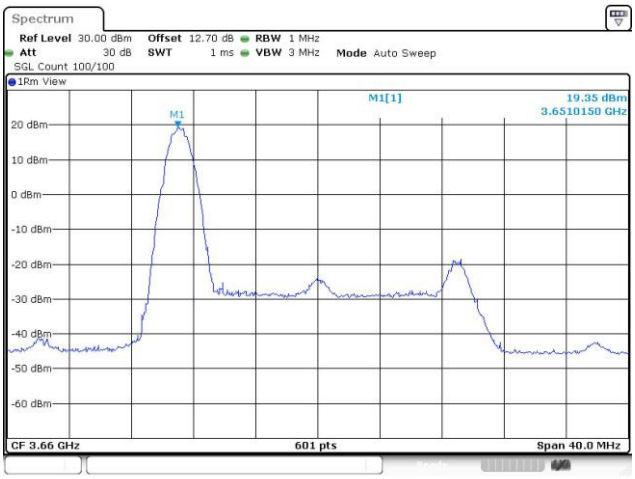
| LTE Band 43 / 15MHz | |
|---|---|
| **Lowest Channel / QPSK** | **Lowest Channel / 16QAM** |
|  |  |
| **Middle Channel / QPSK** | **Midddle Channel / 16QAM** |
|  |  |
| **Highest Channel / QPSK** | **Highest Channel / 16QAM** |
|  |  |

## LTE Band 43 / 20MHz

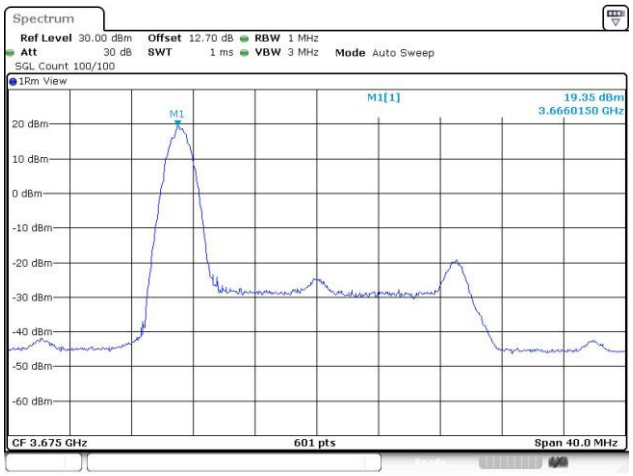
**Lowest Channel / QPSK**



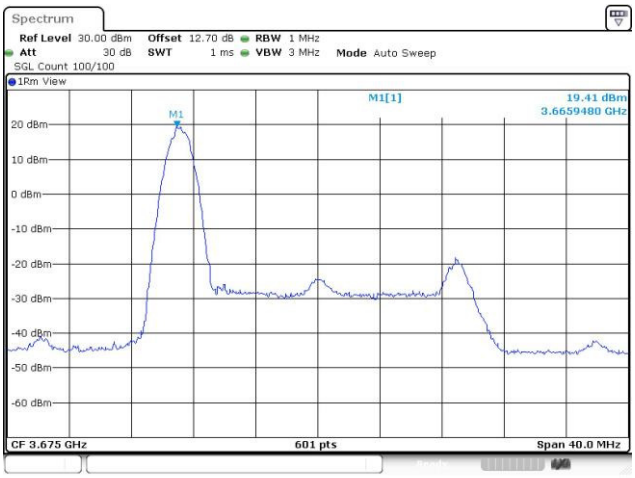

**Lowest Channel / 16QAM**



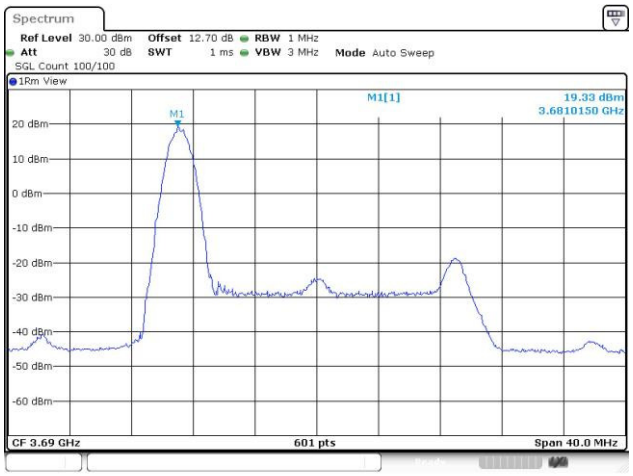

**Middle Channel / QPSK**



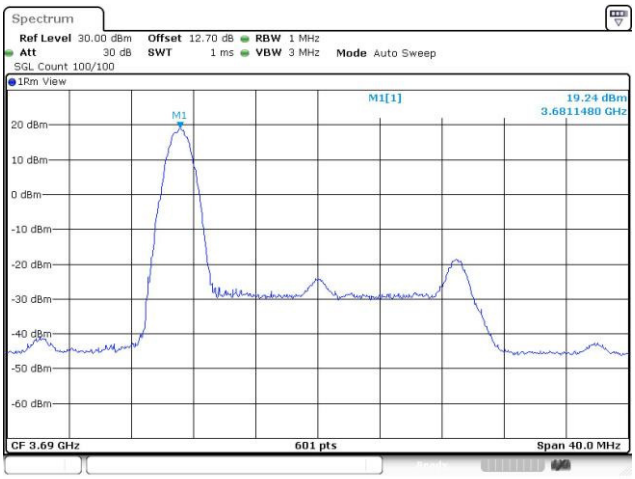

**Midddle Channel / 16QAM**




**Highest Channel / QPSK**

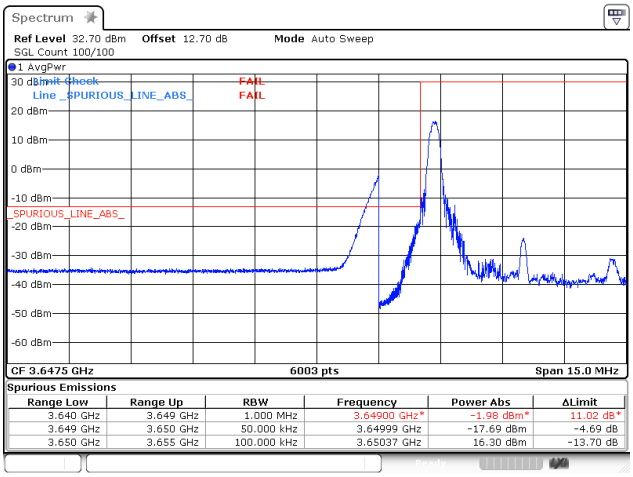



**Highest Channel / 16QAM**



## LTE Band 43 / 5MHz/ QPSK

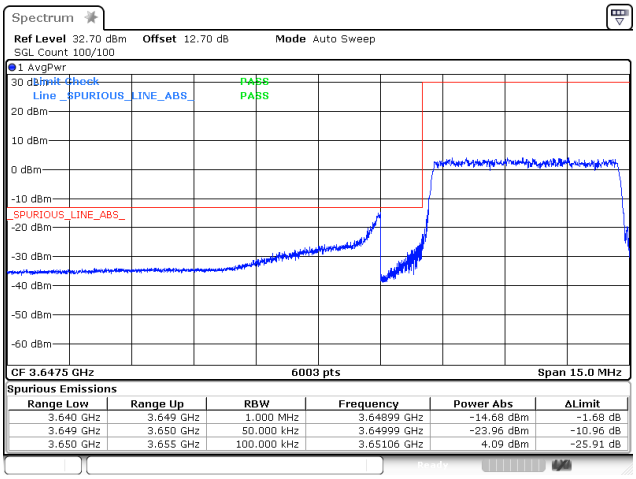
### Lowest Band Edge / 1RB




Spurious Emissions

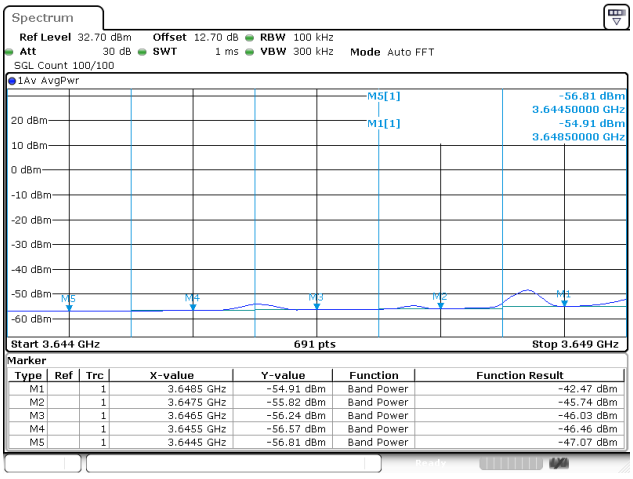
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64900 GHz* | -1.98 dBm* | 11.02 dB* |
| 3.649 GHz | 3.650 GHz | 50.000 kHz | 3.64999 GHz | -17.69 dBm | -4.69 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65037 GHz | 16.30 dBm | -13.70 dB |

### Lowest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64899 GHz | -14.68 dBm | -1.68 dB |
| 3.649 GHz | 3.650 GHz | 50.000 kHz | 3.64999 GHz | -23.96 dBm | -10.96 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65106 GHz | 4.09 dBm | -25.91 dB |

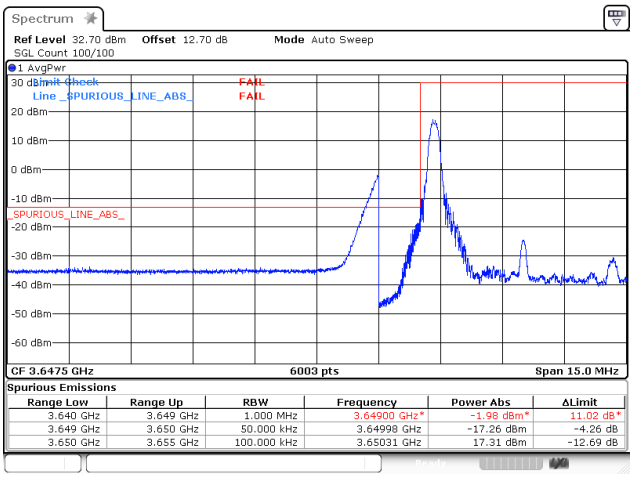



Marker

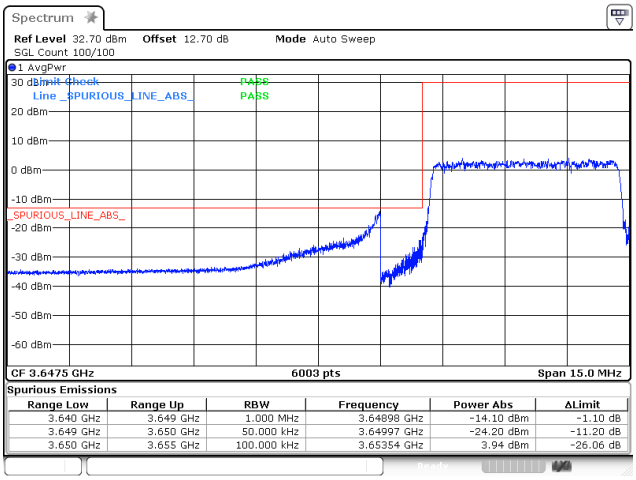
| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 3.6485 GHz | -54.91 dBm | Band Power | -42.47 dBm |
| M2 | | 1 | 3.6475 GHz | -55.82 dBm | Band Power | -45.74 dBm |
| M3 | | 1 | 3.6465 GHz | -56.24 dBm | Band Power | -46.03 dBm |
| M4 | | 1 | 3.6455 GHz | -56.57 dBm | Band Power | -46.46 dBm |
| M5 | | 1 | 3.6445 GHz | -56.81 dBm | Band Power | -47.07 dBm |

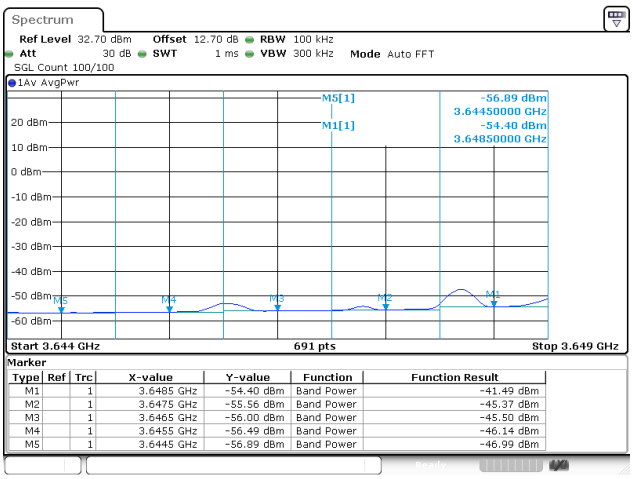
## LTE Band 43 / 5MHz/ 16QAM

### Lowest Band Edge / 1RB



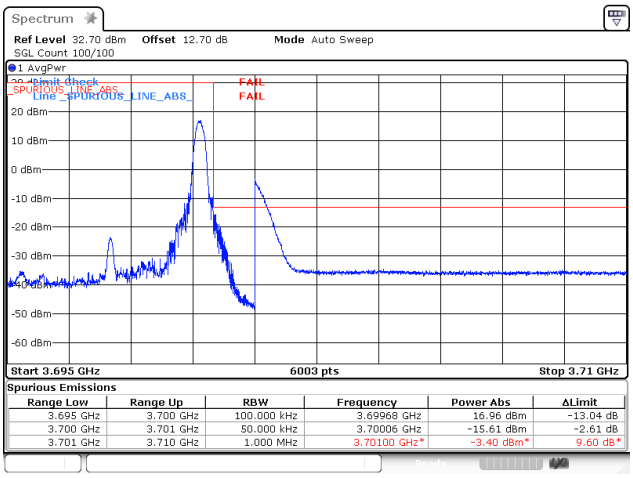

### Lowest Band Edge / Full RB



## LTE Band 43 / 5MHz/ QPSK

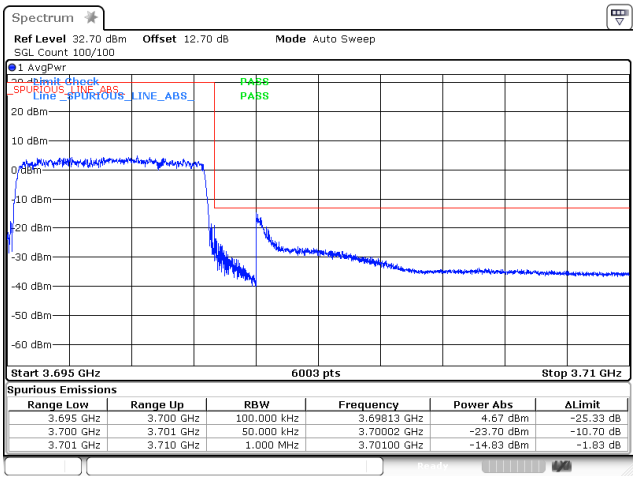
### Highest Band Edge / 1RB




Spurious Emissions

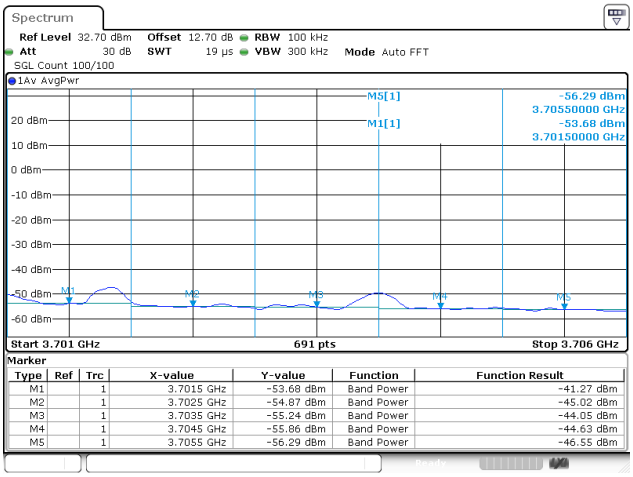
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69968 GHz | 16.96 dBm | -13.04 dB |
| 3.700 GHz | 3.701 GHz | 50.000 kHz | 3.70006 GHz | -15.61 dBm | -2.61 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz* | -3.40 dBm* | 9.60 dB* |

### Highest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69813 GHz | 4.67 dBm | -25.33 dB |
| 3.700 GHz | 3.701 GHz | 50.000 kHz | 3.70002 GHz | -23.70 dBm | -10.70 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz | -14.83 dBm | -1.83 dB |

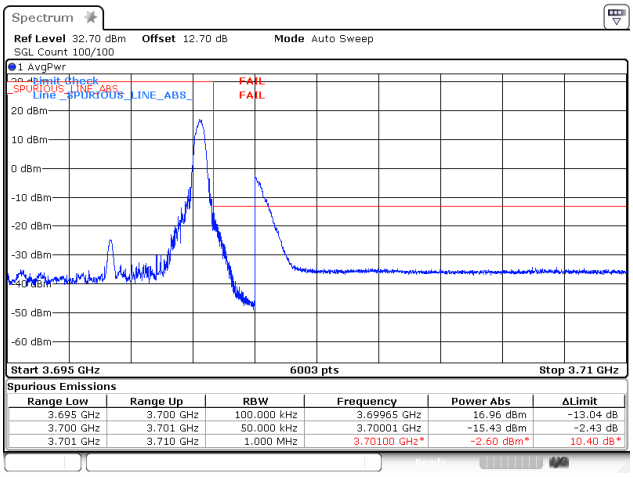



Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 3.7015 GHz | -53.68 dBm | Band Power | -41.27 dBm |
| M2 | | 1 | 3.7025 GHz | -54.87 dBm | Band Power | -45.02 dBm |
| M3 | | 1 | 3.7035 GHz | -55.24 dBm | Band Power | -44.05 dBm |
| M4 | | 1 | 3.7045 GHz | -55.86 dBm | Band Power | -44.63 dBm |
| M5 | | 1 | 3.7055 GHz | -56.29 dBm | Band Power | -46.55 dBm |

## LTE Band 43 / 5MHz/ 16QAM

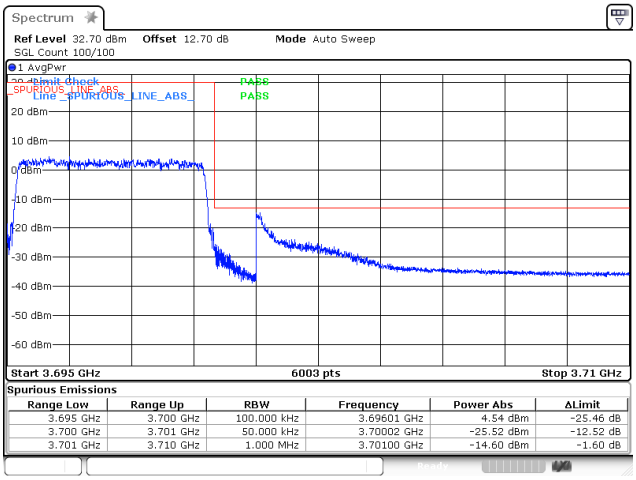
### Highest Band Edge / 1RB




Spurious Emissions

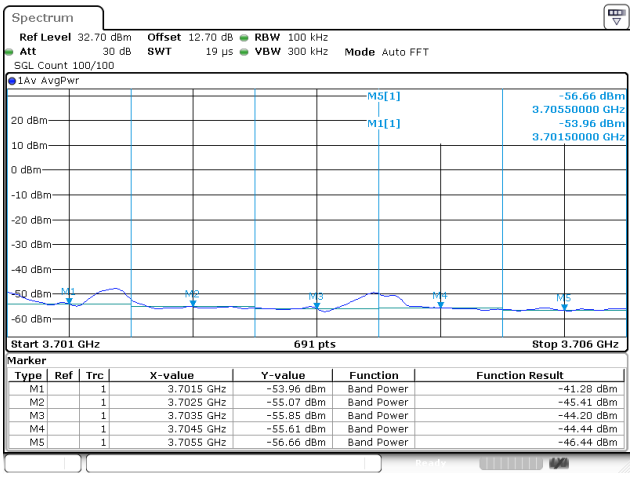
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69965 GHz | 16.96 dBm | -13.04 dB |
| 3.700 GHz | 3.701 GHz | 50.000 kHz | 3.70001 GHz | -15.43 dBm | -2.43 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz* | -2.60 dBm* | 10.40 dB* |

### Highest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69601 GHz | 4.54 dBm | -25.46 dB |
| 3.700 GHz | 3.701 GHz | 50.000 kHz | 3.70002 GHz | -25.52 dBm | -12.52 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz | -14.60 dBm | -1.60 dB |

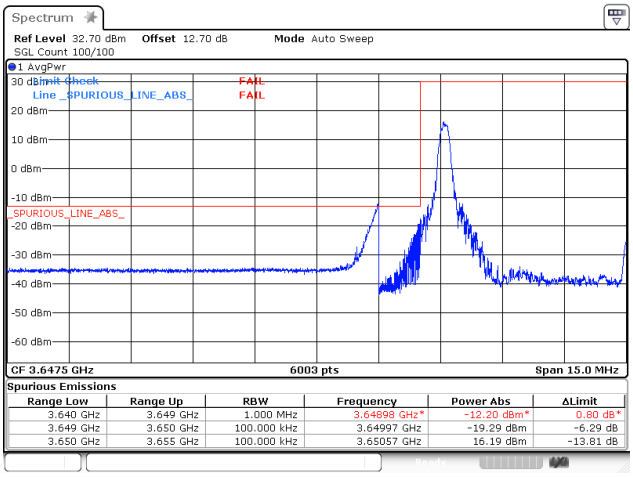



Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 3.7015 GHz | -53.96 dBm | Band Power | -41.28 dBm |
| M2 | | 1 | 3.7025 GHz | -55.07 dBm | Band Power | -45.41 dBm |
| M3 | | 1 | 3.7035 GHz | -55.85 dBm | Band Power | -44.20 dBm |
| M4 | | 1 | 3.7045 GHz | -55.61 dBm | Band Power | -44.44 dBm |
| M5 | | 1 | 3.7055 GHz | -56.66 dBm | Band Power | -46.44 dBm |

## LTE Band 43 / 10MHz/ QPSK

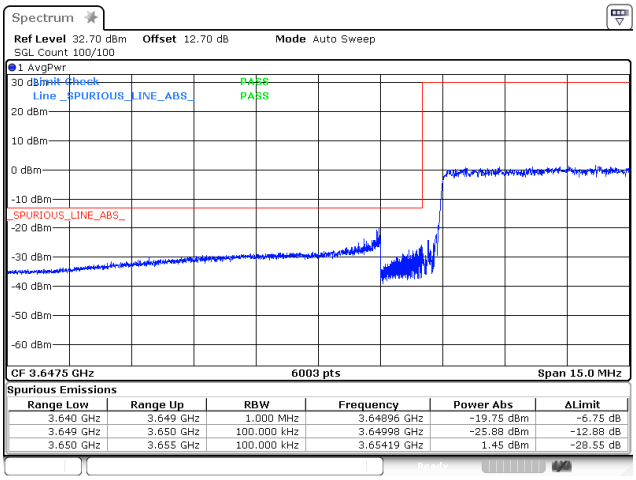
### Lowest Band Edge / 1RB




Spurious Emissions

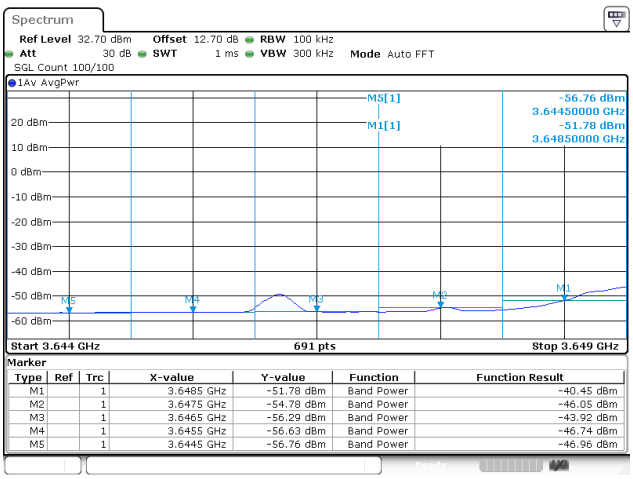
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64898 GHz* | -12.20 dBm* | 0.80 dB* |
| 3.649 GHz | 3.650 GHz | 100.000 kHz | 3.64997 GHz | -19.29 dBm | -6.29 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65057 GHz | 16.19 dBm | -13.81 dB |

### Lowest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64896 GHz | -19.75 dBm | -6.75 dB |
| 3.649 GHz | 3.650 GHz | 100.000 kHz | 3.64998 GHz | -25.88 dBm | -12.88 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65419 GHz | 1.45 dBm | -28.55 dB |

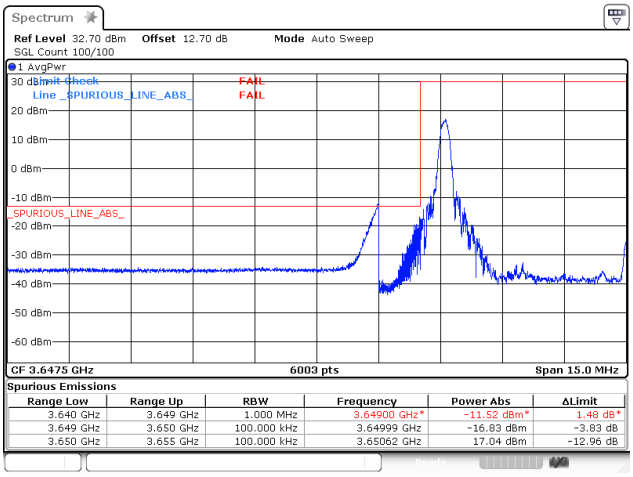



Marker

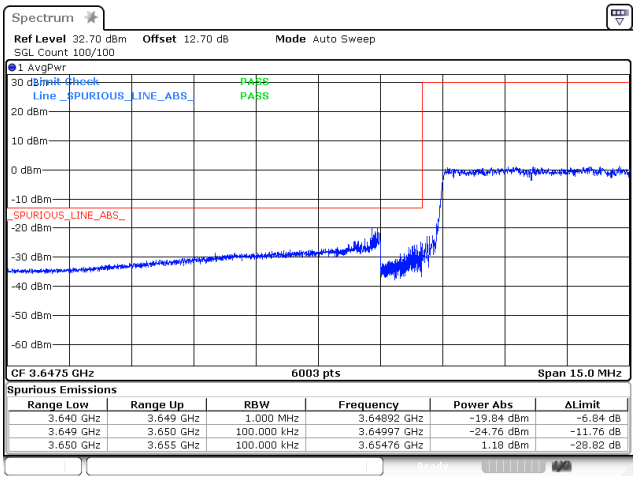
| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 3.6485 GHz | -51.78 dBm | Band Power | -40.45 dBm |
| M2 | | 1 | 3.6475 GHz | -54.78 dBm | Band Power | -46.05 dBm |
| M3 | | 1 | 3.6465 GHz | -56.29 dBm | Band Power | -43.92 dBm |
| M4 | | 1 | 3.6455 GHz | -56.63 dBm | Band Power | -46.74 dBm |
| M5 | | 1 | 3.6445 GHz | -56.76 dBm | Band Power | -46.96 dBm |

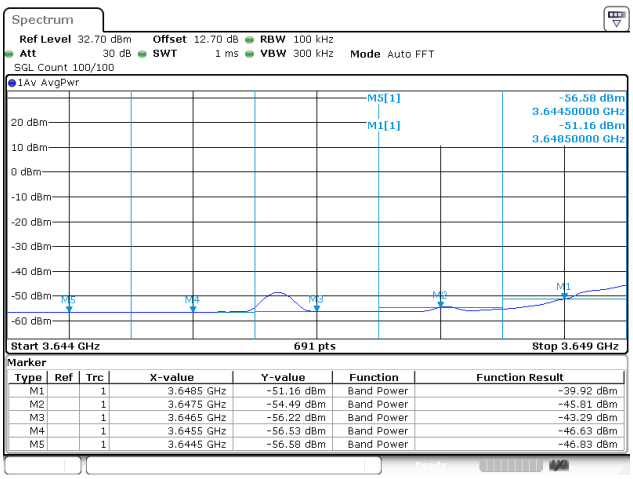
## LTE Band 43 / 10MHz/ 16QAM

### Lowest Band Edge / 1RB



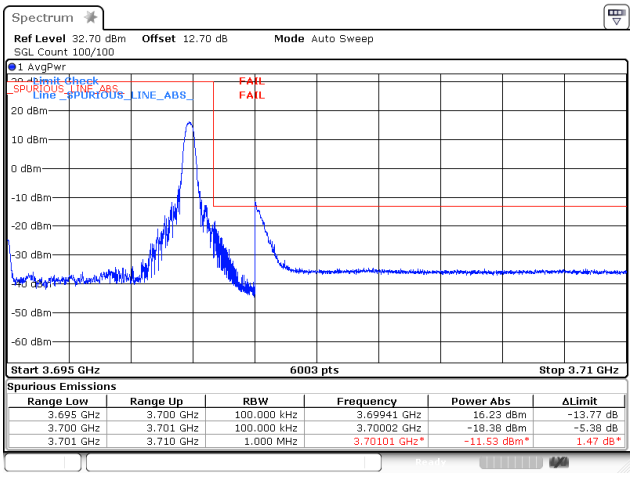

### Lowest Band Edge / Full RB



## LTE Band 43 / 10MHz/ QPSK

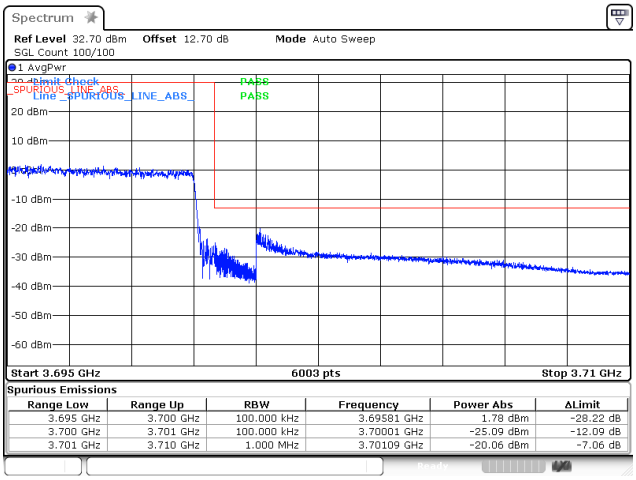
### Highest Band Edge / 1RB




Spurious Emissions

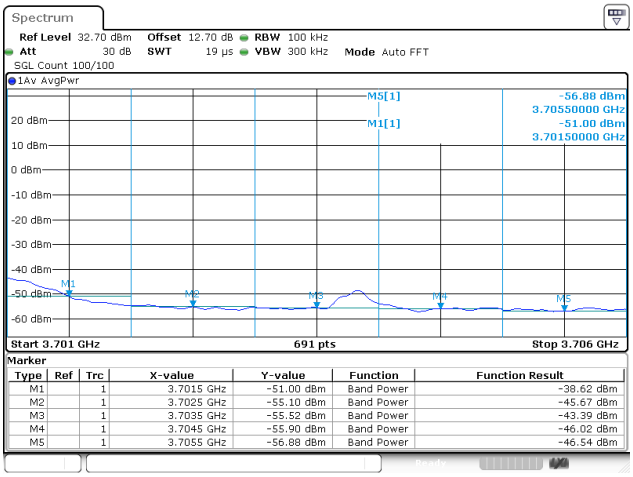
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69941 GHz | 16.23 dBm | -13.77 dB |
| 3.700 GHz | 3.701 GHz | 100.000 kHz | 3.70002 GHz | -18.38 dBm | -5.38 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70101 GHz* | -11.53 dBm* | 1.47 dB* |

### Highest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69581 GHz | 1.78 dBm | -28.22 dB |
| 3.700 GHz | 3.701 GHz | 100.000 kHz | 3.70001 GHz | -25.09 dBm | -12.09 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70109 GHz | -20.06 dBm | -7.06 dB |

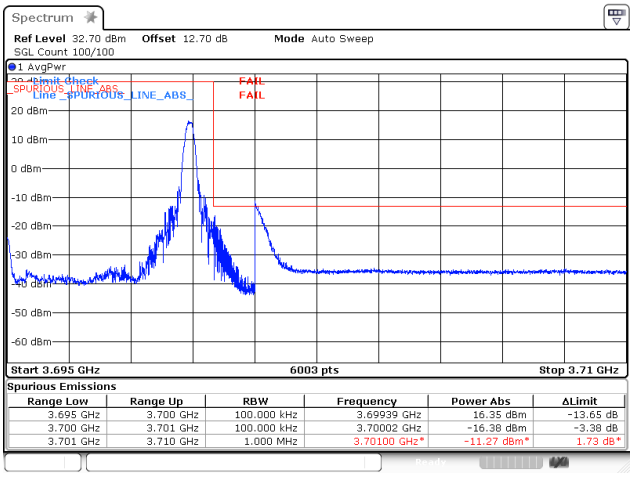



Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 3.7015 GHz | -51.00 dBm | Band Power | -38.62 dBm |
| M2 | | 1 | 3.7025 GHz | -55.10 dBm | Band Power | -45.67 dBm |
| M3 | | 1 | 3.7035 GHz | -55.52 dBm | Band Power | -43.39 dBm |
| M4 | | 1 | 3.7045 GHz | -55.90 dBm | Band Power | -46.02 dBm |
| M5 | | 1 | 3.7055 GHz | -56.88 dBm | Band Power | -46.54 dBm |

## LTE Band 43 / 10MHz/ 16QAM

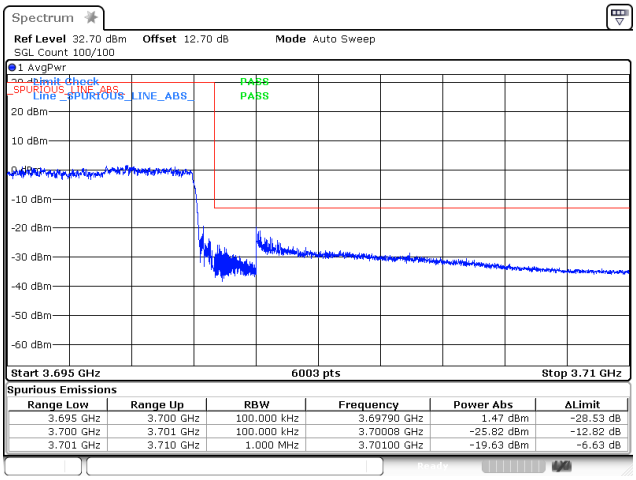
### Highest Band Edge / 1RB




Spurious Emissions

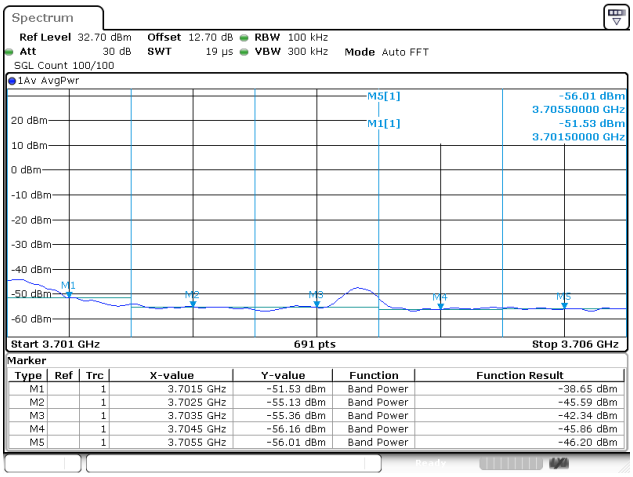
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69939 GHz | 16.35 dBm | -13.65 dB |
| 3.700 GHz | 3.701 GHz | 100.000 kHz | 3.70002 GHz | -16.38 dBm | -3.38 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz* | -11.27 dBm* | 1.73 dB* |

### Highest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69790 GHz | 1.47 dBm | -28.53 dB |
| 3.700 GHz | 3.701 GHz | 100.000 kHz | 3.70008 GHz | -25.82 dBm | -12.82 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz | -19.63 dBm | -6.63 dB |

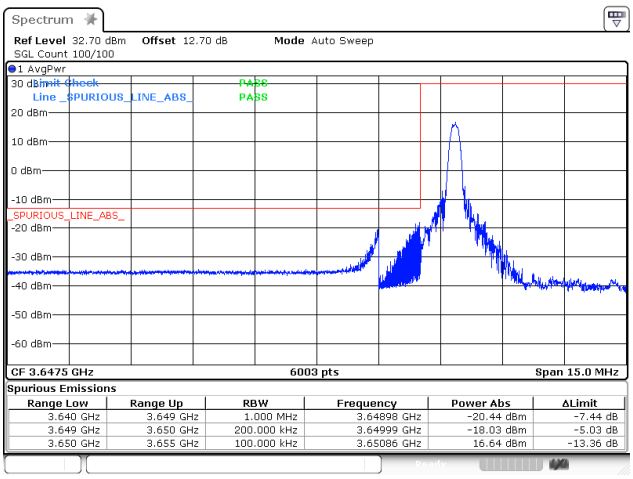



Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 3.7015 GHz | -51.53 dBm | Band Power | -38.65 dBm |
| M2 | | 1 | 3.7025 GHz | -55.13 dBm | Band Power | -45.59 dBm |
| M3 | | 1 | 3.7035 GHz | -55.36 dBm | Band Power | -42.34 dBm |
| M4 | | 1 | 3.7045 GHz | -56.16 dBm | Band Power | -45.86 dBm |
| M5 | | 1 | 3.7055 GHz | -56.01 dBm | Band Power | -46.20 dBm |

## LTE Band 43 / 15MHz/ QPSK

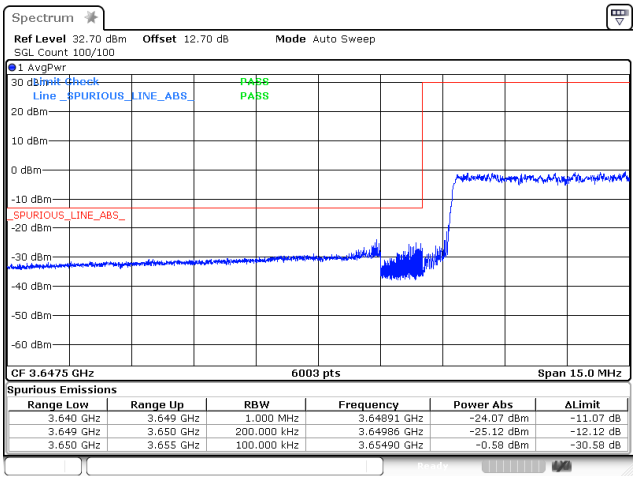
### Lowest Band Edge / 1RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64898 GHz | -20.44 dBm | -7.44 dB |
| 3.649 GHz | 3.650 GHz | 200.000 kHz | 3.64999 GHz | -18.03 dBm | -5.03 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65086 GHz | 16.64 dBm | -13.36 dB |

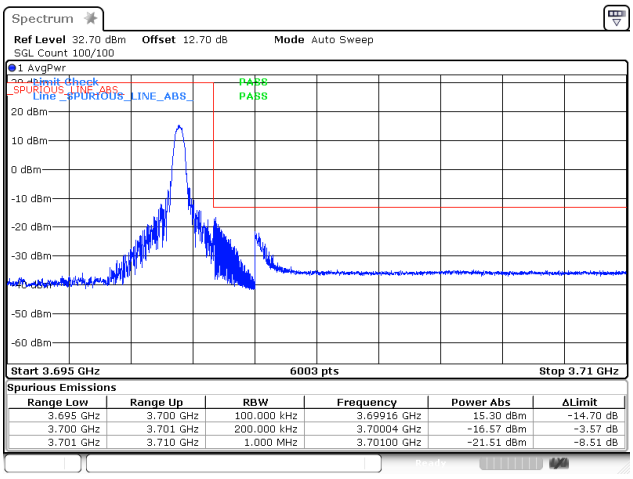
### Lowest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64891 GHz | -24.07 dBm | -11.07 dB |
| 3.649 GHz | 3.650 GHz | 200.000 kHz | 3.64986 GHz | -25.12 dBm | -12.12 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65490 GHz | -0.58 dBm | -30.58 dB |

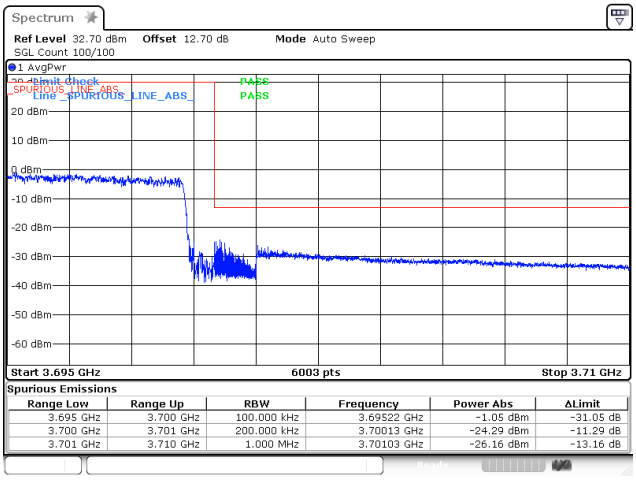
### Highest Band Edge / 1RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69916 GHz | 15.30 dBm | -14.70 dB |
| 3.700 GHz | 3.701 GHz | 200.000 kHz | 3.70004 GHz | -16.57 dBm | -3.57 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz | -21.51 dBm | -8.51 dB |

### Highest Band Edge / Full RB

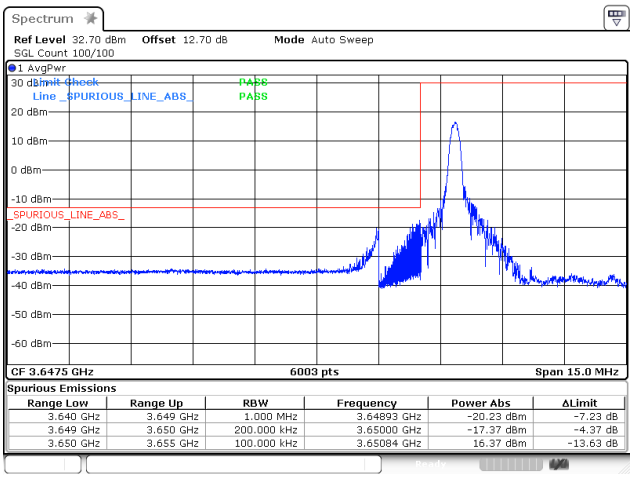



Spurious Emissions

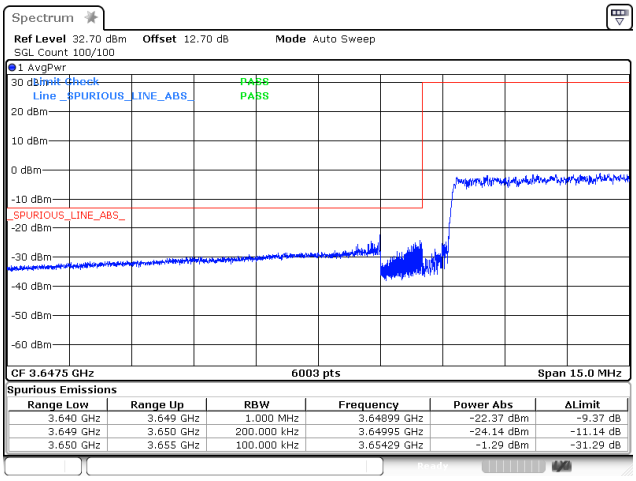
| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69522 GHz | -1.05 dBm | -31.05 dB |
| 3.700 GHz | 3.701 GHz | 200.000 kHz | 3.70013 GHz | -24.29 dBm | -11.29 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70103 GHz | -26.16 dBm | -13.16 dB |

## LTE Band 43 / 15MHz/ 16QAM

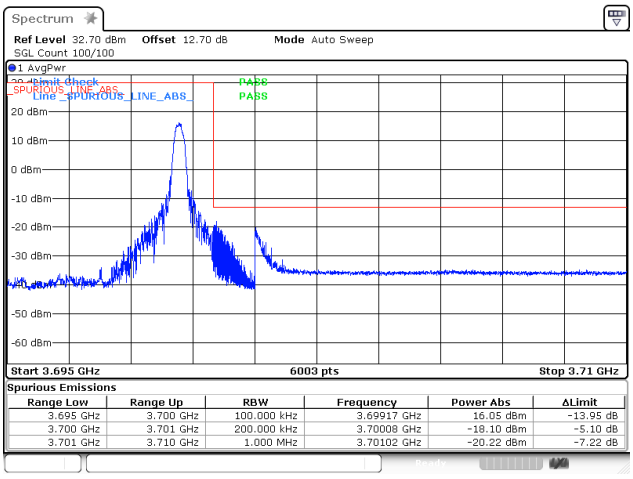
### Lowest Band Edge / 1RB



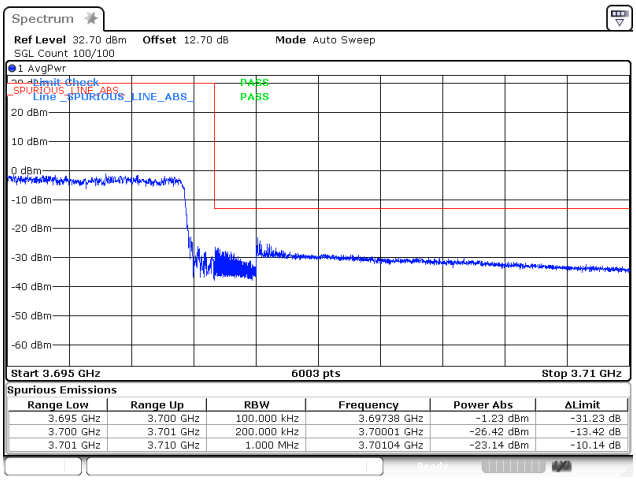

### Lowest Band Edge / Full RB




### Highest Band Edge / 1RB

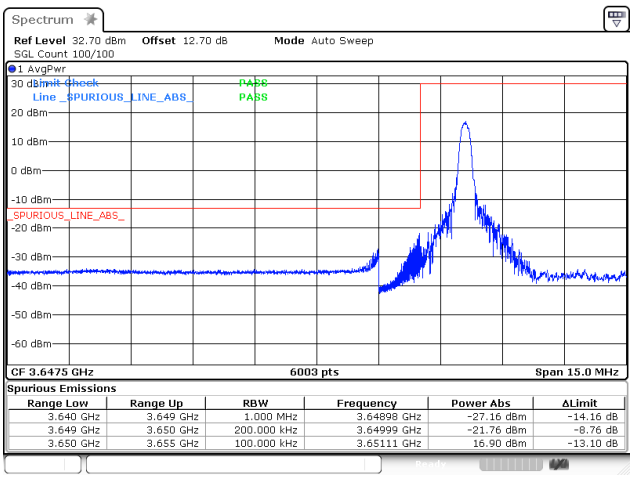



### Highest Band Edge / Full RB



## LTE Band 43 / 20MHz/ QPSK

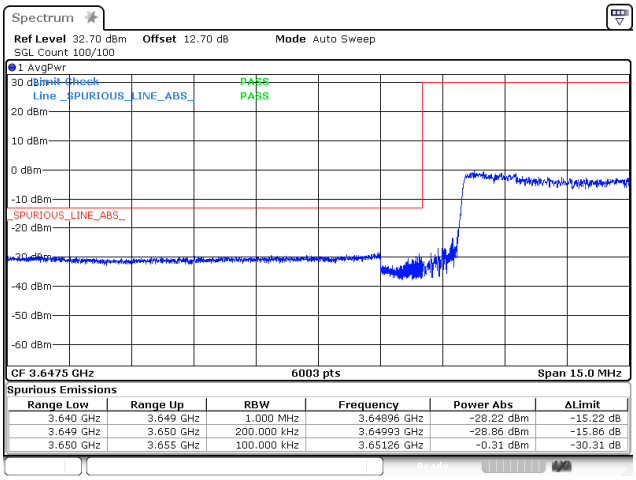
### Lowest Band Edge / 1RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64898 GHz | -27.16 dBm | -14.16 dB |
| 3.649 GHz | 3.650 GHz | 200.000 kHz | 3.64999 GHz | -21.76 dBm | -8.76 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65111 GHz | 16.90 dBm | -13.10 dB |

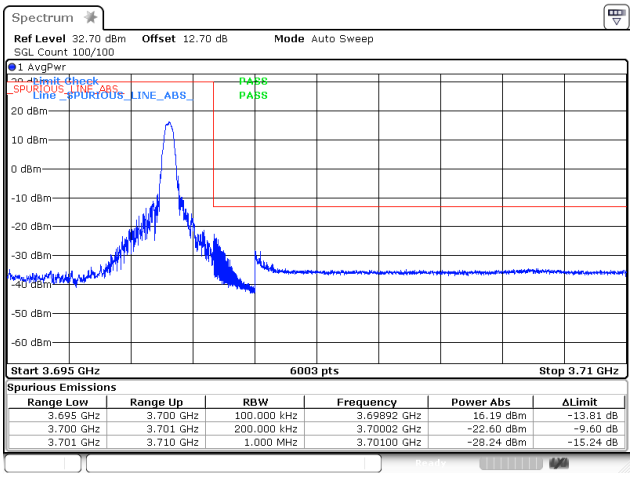
### Lowest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64896 GHz | -28.22 dBm | -15.22 dB |
| 3.649 GHz | 3.650 GHz | 200.000 kHz | 3.64993 GHz | -28.86 dBm | -15.86 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65126 GHz | -0.31 dBm | -30.31 dB |

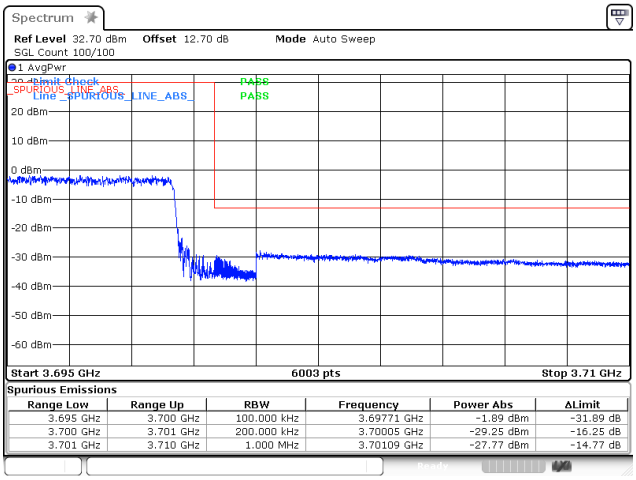
### Highest Band Edge / 1RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69892 GHz | 16.19 dBm | -13.81 dB |
| 3.700 GHz | 3.701 GHz | 200.000 kHz | 3.70002 GHz | -22.60 dBm | -9.60 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70100 GHz | -28.24 dBm | -15.24 dB |

### Highest Band Edge / Full RB

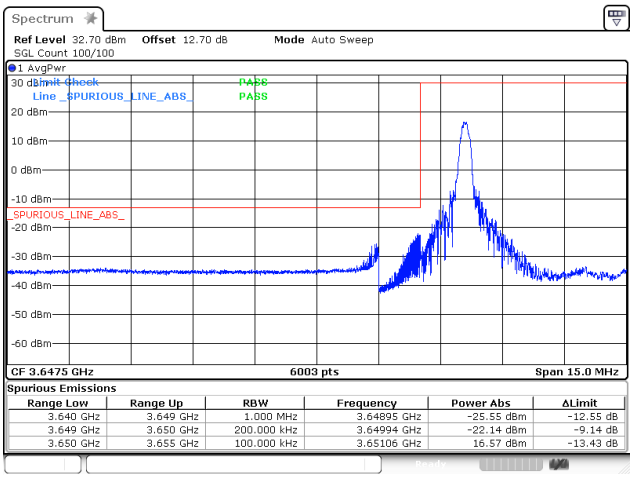



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69771 GHz | -1.89 dBm | -31.89 dB |
| 3.700 GHz | 3.701 GHz | 200.000 kHz | 3.70005 GHz | -29.25 dBm | -16.25 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70109 GHz | -27.77 dBm | -14.77 dB |

## LTE Band 43 / 20MHz/ 16QAM

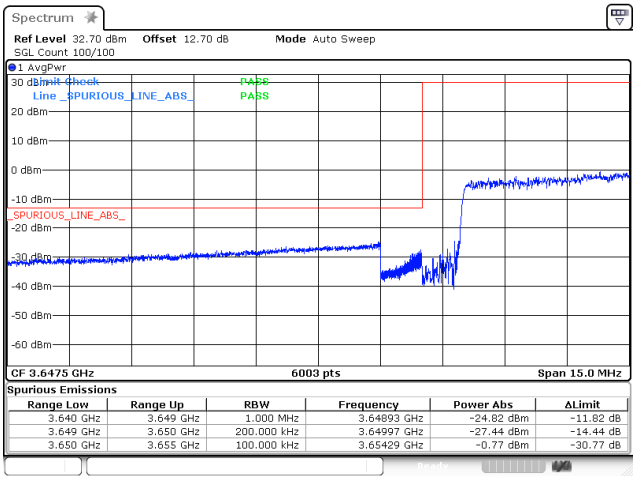
### Lowest Band Edge / 1RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64895 GHz | -25.55 dBm | -12.55 dB |
| 3.649 GHz | 3.650 GHz | 200.000 kHz | 3.64994 GHz | -22.14 dBm | -9.14 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65106 GHz | 16.57 dBm | -13.43 dB |

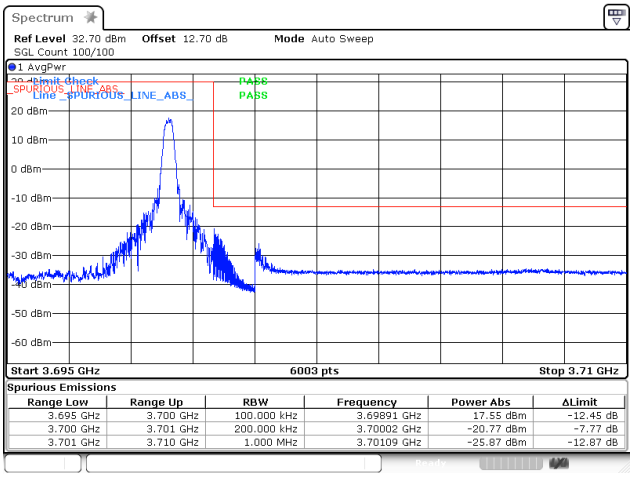
### Lowest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.640 GHz | 3.649 GHz | 1.000 MHz | 3.64893 GHz | -24.82 dBm | -11.82 dB |
| 3.649 GHz | 3.650 GHz | 200.000 kHz | 3.64997 GHz | -27.44 dBm | -14.44 dB |
| 3.650 GHz | 3.655 GHz | 100.000 kHz | 3.65429 GHz | -0.77 dBm | -30.77 dB |

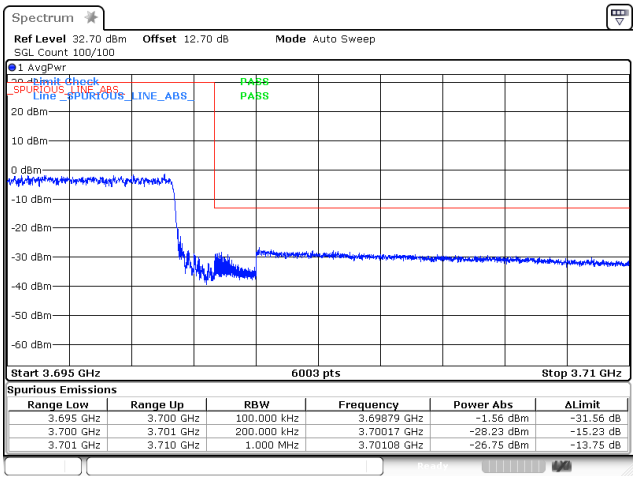
### Highest Band Edge / 1RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69891 GHz | 17.55 dBm | -12.45 dB |
| 3.700 GHz | 3.701 GHz | 200.000 kHz | 3.70002 GHz | -20.77 dBm | -7.77 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70109 GHz | -25.87 dBm | -12.87 dB |

### Highest Band Edge / Full RB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 3.695 GHz | 3.700 GHz | 100.000 kHz | 3.69879 GHz | -1.56 dBm | -31.56 dB |
| 3.700 GHz | 3.701 GHz | 200.000 kHz | 3.70017 GHz | -28.23 dBm | -15.23 dB |
| 3.701 GHz | 3.710 GHz | 1.000 MHz | 3.70108 GHz | -26.75 dBm | -13.75 dB |