Report No.SH16060006W02

# FCC RF TEST REPORT

*Issued to*

**Shanghai Rising Digital Co.,Ltd.**

*For*

**SECD-3I5A-02 display screen**

| | | |
|---|---|---|
| Model Name | : | SECD-3I5A-02 |
| Trade Name | : | RISING |
| Brand Name | : | RISING |
| Standard | : | 47 CFR Part 2<br>47 CFR Part 22 Subpart H<br>47 CFR Part 24 Subpart E<br>47 CFR Part 27 |
| FCC ID | : | 2AJONSECD-3I5A-02 |
| Test date | : | Jul.20,2016 to Jul.28,2016 |
| Issue date | : | Jul.30,2016 |

SKYLABS Certification by **Shanghai Skylabs Co., Ltd.**

*Tested by* Wu Hongfei *Approved by* Gan Yaping *Review by* Xiao dong Wei

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## Change History

| Issue | Date | Reason for change |
|---|---|---|
| 1.0 | Jul.30,2016 | First edition |
| | | |
| | | |
| | | |
| | | |
| | | |

# General Information

## 1.1 Applicant

**Shanghai Rising Digital Co.,Ltd.**
No 318 ,Chuanda Road , Pudong New District, Shanghai,China

## 1.2 Manufacturer

**Shanghai Rising Digital Co.,Ltd.**
No 318 ,Chuanda Road , Pudong New District, Shanghai,China

## 1.3 Description of EUT

| | |
|---|---|
| EUT Type .....: | SECD-3I5A-02 display screen |
| Brand Name.....: | RISING |
| Trade Name .....: | RISING |
| Model Name.....: | SECD-3I5A-02 |
| Hardware Version.....: | V109 |
| Software Version .....: | V1318 |
| Antenna type…… : | PCB and GPS antenna |
| Antenna gain…… : | PCB 1.5 dBi |
| Frequency Range..... | GSM 850MHz:<br>Tx: 824.20-848.80 MHz (at intervals of 200kHz);<br>Rx: 869.20-893.80 MHz (at intervals of 200kHz)<br>GSM 1900MHz<br>Tx: 1850.20-1909.80 MHz (at intervals of 200kHz);<br>Rx: 1930.20-1989.80 MHz (at intervals of 200kHz)<br>WCDMA Band II<br>Tx: 1852.4 - 1907.6MHz (at intervals of 200kHz);<br>Rx: 1932.4 - 1987.6MHz (at intervals of 200kHz)<br>WCDMA Band IV<br>Tx: 1712.4 - 1752.6 MHz (at intervals of 200kHz);<br>Rx: 2112.4 - 2152.6 MHz (at intervals of 200kHz)<br>WCDMA Band V<br>Tx: 826.4 - 846.6MHz (at intervals of 200kHz);<br>Rx: 871.4 - 891.6MHz (at intervals of 200kHz)<br><br>LTE Band 2<br>TX: 1852.5 ~ 1907.5 MHz<br>RX: 1932.5 ~ 1987.5 MHz<br>LTE Band 4 |

| | |
|---|---|
| | TX: 1712.5 ~ 1752.5 MHz |
| | RX: 2112.5 ~ 2152.5 MHz |
| | LTE Band 5 |
| | TX: 826.5 ~ 846.5 MHz |
| | RX: 871.5 ~ 891.5 MHz |
| | LTE Band 12 |
| | TX: 699.7 ~ 715.3 MHz |
| | RX: 729.7~ 745.3MHz |
| | LTE Band 17 |
| | TX: 706.5 ~ 713.5 MHz; |
| | RX: 736.5 ~ 743.5 MHz |
| Bandwidth .....: | Band 2: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz |
| | Band 4: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz |
| | Band 5: 1.4MHz / 3MHz / 5MHz / 10MHz |
| | Band 12: 1.4MHz / 3MHz / 5MHz / 10MHz |
| | Band 17: 5MHz / 10MHz |
| Modulation Type .....: | QPSK,16QAM |
| Power.....: | DC 24V |

*NOTE：*

*(1) For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.*

# Facilities and Accreditations

## 1.4 Test Facility

Shanghai Skylabs Co., Ltd. is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. FCC listed: 196218, IC listed: 21609.
The accreditation certificate number is L6644. A 9*6*6(m) fully anechoic chamber was used for the radiated spurious emissions test.

## 1.5 Environmental Conditions

Ambient temperature: 20~25°C
Relative humidity: 40~60%
Atmosphere pressure: 86-102kPa

## 1.6 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.
Uncertainty of Conducted Emission: ±1.76dB
Uncertainty of Radiated Emission: ±3.16dB

## 1.7 List of Equipments Used

| Description | Manufacturer | Model | Serial No. | Cal. Date | Cal. Due |
|---|---|---|---|---|---|
| System Simulator | R&S | CMW500 | 100830 | 2015.9.22 | 1year |
| Spectrum Analyzer | Rohde&Schwarz | FSU26 | 200880 | 2016.6.17 | 1year |
| Spectrum Analyzer | Agilent | N9020A | MY55320135 | 2016.2.25 | 1year |
| Power Splitter | Weinschel | 1506A | NW521 | (n.a.) | (n.a.) |
| Power Splitter | Mini-Circuits | ZFRSC-183-S+ | 765001016 | (n.a.) | (n.a.) |
| Attenuator 1 | Mini-Circuits | 10dB | (n.a.) | (n.a.) | (n.a.) |
| Attenuator 2 | Resnet | 10dB | (n.a.) | (n.a.) | (n.a.) |
| Attenuator 3 | Resnet | 3dB | (n.a.) | (n.a.) | (n.a.) |
| DC/AC Power supplier | NF | ES2000S | 9087735 | 2015.10.17 | 1year |
| Temperature Chamber | YinHe Experimental Equip. | HL4003T | (n.a.) | 2015.9.20 | 1year |
| Full/Half-Anechoic Chamber | CHENGYU | 9.2×6.25×6.15m | SAR | 2016.04.11 | 3year |
| Signal Generator | Rohde&Schwarz | SMF100A | 101935 | 2015.9.22 | 1year |
| Broadband Trilog Antenna | Schwarzbeck | VULB 9163 | 9163-561 | 2016.07.25 | 2year |
| Substitution Broadband Trilog Antenna | Schwarzbeck | VULB 9163 | 9163-572 | 2016.07.25 | 2year |
| Broadband Horn Antenna | Schwarzbeck | BBHA 9120D | 9120D-1033 | 2016.07.25 | 2year |
| Substitution Broadband Horn Antenna | Schwarzbeck | BBHA 9120D | 9120D-1034 | 2016.07.25 | 2year |
| Broadband Horn Antenna | Schwarzbeck | BBHA 9170 | BBHA91970171 | 2015.9.22 | 2year |
| Substitution Broadband Horn Antenna | Schwarzbeck | BBHA 9170 | BBHA91970208 | 2015.9.22 | 2year |
| Test Antenna-Loop | Rohde&Schwarz | HFH2-Z2 | 860004/001 | 2015.9.22 | 2year |
| RF Cable | (n.a.) | 0-25GHz | (n.a.) | (n.a.) | (n.a.) |

*NOTE:*
*Equipments listed above have been calibrated and are in the period of validation.*

# Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22, Part 24 and Part 27 for the EUT FCC ID Certification:

| No. | Identity | Document Title |
|---|---|---|
| 1 | 47 CFR Part 2 | Frequency Allocations and Radio Treaty Matters; General Rules and Regulations |
| 2 | 47 CFR Part 22 | Public Mobile Services |
| 3 | 47 CFR Part 24 | Personal Communications Services |
| 4 | 47 CFR Part 27 | Miscellaneous Wireless Communications Services |

Test detailed items/section required by FCC rules and results are as below:

| No. | FCC Rules | Description | Result |
|---|---|---|---|
| 1 | 2.1046 | Conducted Output Power | PASS |
| 2 | 2.1049<br>22.917(b)<br>24.238(b)<br>27.53(h)(3)<br>27.53(m)(6) | Occupied Bandwidth | PASS |
| 3 | 2.1055<br>22.355<br>24.235<br>27.54 | Frequency Stability | PASS |
| 4 | 24.232(d)<br>27.50(d)(5) | Peak-to-Average Ratio | PASS |
| 5 | 2.1051<br>22.917(a)<br>24.238(a)<br>27.53(h) | Conducted Out of Band Emissions | PASS |
| 6 | 2.1051<br>22.917(a)<br>24.238(a)<br>27.53(h)<br>27.53(m) | Band Edge | PASS |
| 7 | 2.1046<br>22.913(a)(2)<br>24.232(c)<br>27.50(c)(10)<br>27.50(d)(4) | Transmitter Radiated Power (EIPR/ERP) | PASS |
| 8 | 2.1053<br>22.917(a)<br>24.238(a)<br>27.53(h) | Radiated Out of Band Emissions | PASS |

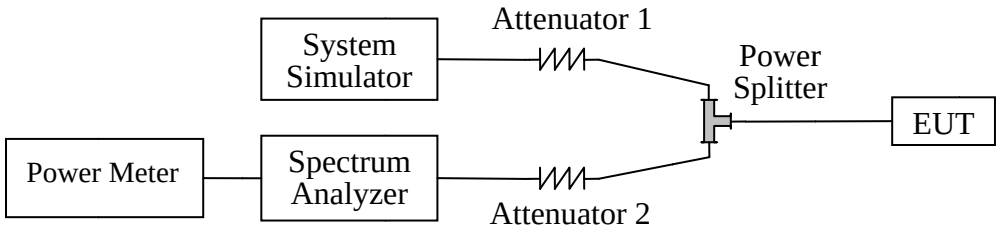
# Test Result

## 1.8 Conducted Output Power

### 1.8.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

### 1.8.2 Test Description




The EUT, which is powered by battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factories calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

### 1.8.3 Test Result

LTE Band 2

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 20MHz | 18700 | 1860.0 | QPSK | 1 | 0 | 0 | 21.98 | 22.5±1 |
| | | | | 1 | 49 | 0 | 22.00 | 22.5±1 |
| | | | | 1 | 99 | 0 | 22.05 | 22.5±1 |
| | | | | 50 | 0 | 1 | 20.91 | 21.5±1 |
| | | | | 50 | 24 | 1 | 20.94 | 21.5±1 |
| | | | | 50 | 49 | 1 | 20.93 | 21.5±1 |
| | | | | 100 | 0 | 1 | 20.88 | 21.5±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.76 | 21.5±1 |
| | | | | 1 | 49 | 1 | 20.85 | 21.5±1 |
| | | | | 1 | 99 | 1 | 20.86 | 21.5±1 |
| | | | | 50 | 0 | 2 | 20.56 | 21.5±1 |
| | | | | 50 | 24 | 2 | 20.59 | 21.5±1 |
| | | | | 50 | 49 | 2 | 20.56 | 21.5±1 |
| | | | | 100 | 0 | 2 | 20.89 | 21.5±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 22.00 | 21.5±1 |
| | | | | 1 | 49 | 0 | 22.06 | 21.5±1 |
| | | | | 1 | 99 | 0 | 22.10 | 21.5±1 |
| | | | | 50 | 0 | 1 | 20.89 | 21.5±1 |
| | | | | 50 | 24 | 1 | 20.88 | 21.5±1 |
| | | | | 50 | 49 | 1 | 21.02 | 21.5±1 |
| | | | | 100 | 0 | 1 | 20.87 | 21.5±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.46 | 21.5±1 |
| | | | | 1 | 49 | 1 | 21.45 | 21.5±1 |
| | | | | 1 | 99 | 1 | 21.52 | 21.5±1 |
| | | | | 50 | 0 | 2 | 20.69 | 21.5±1 |
| | | | | 50 | 24 | 2 | 20.86 | 21.5±1 |
| | | | | 50 | 49 | 2 | 20.87 | 21.5±1 |
| | | | | 100 | 0 | 2 | 21.91 | 21.5±1 |
| | 19100 | 1900.0 | QPSK | 1 | 0 | 0 | 22.06 | 21.5±1 |
| | | | | 1 | 49 | 0 | 22.00 | 21.5±1 |
| | | | | 1 | 99 | 0 | 21.75 | 21.5±1 |
| | | | | 50 | 0 | 1 | 20.86 | 21.5±1 |
| | | | | 50 | 24 | 1 | 20.85 | 21.5±1 |
| | | | | 50 | 49 | 1 | 20.88 | 21.5±1 |
| | | | | 100 | 0 | 1 | 20.85 | 21.5±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.28 | 21.5±1 |
| | | | | 1 | 49 | 1 | 21.15 | 21.5±1 |
| | | | | 1 | 99 | 1 | 21.04 | 21.5±1 |
| | | | | 50 | 0 | 2 | 20.98 | 21.5±1 |
| | | | | 50 | 24 | 2 | 20.95 | 21.5±1 |
| | | | | 50 | 49 | 2 | 20.89 | 21.5±1 |
| | | | | 100 | 0 | 2 | 20.63 | 21.5±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 15MHz | 18675 | 1857.5 | QPSK | 1 | 0 | 0 | 21.75 | 22.5±1 |
| | | | | 1 | 37 | 0 | 21.76 | 22.5±1 |
| | | | | 1 | 74 | 0 | 21.79 | 22.5±1 |
| | | | | 36 | 0 | 1 | 20.77 | 21.5±1 |
| | | | | 36 | 16 | 1 | 20.75 | 21.5±1 |
| | | | | 36 | 35 | 1 | 20.76 | 21.5±1 |
| | | | | 75 | 0 | 1 | 20.64 | 21.5±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.42 | 21.3±1 |
| | | | | 1 | 37 | 1 | 21.45 | 21.3±1 |
| | | | | 1 | 74 | 1 | 21.50 | 21.3±1 |
| | | | | 36 | 0 | 2 | 20.87 | 21.3±1 |
| | | | | 36 | 16 | 2 | 20.86 | 21.3±1 |
| | | | | 36 | 35 | 2 | 20.89 | 21.3±1 |
| | | | | 75 | 0 | 2 | 20.68 | 21.3±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.64 | 21.3±1 |
| | | | | 1 | 37 | 0 | 21.70 | 21.3±1 |
| | | | | 1 | 74 | 0 | 21.73 | 21.3±1 |
| | | | | 36 | 0 | 1 | 20.80 | 21.3±1 |
| | | | | 36 | 16 | 1 | 20.79 | 21.3±1 |
| | | | | 36 | 35 | 1 | 20.81 | 21.3±1 |
| | | | | 75 | 0 | 1 | 20.65 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.36 | 21.3±1 |
| | | | | 1 | 37 | 1 | 21.31 | 21.3±1 |
| | | | | 1 | 74 | 1 | 21.27 | 21.3±1 |
| | | | | 36 | 0 | 2 | 20.86 | 21.3±1 |
| | | | | 36 | 16 | 2 | 20.89 | 21.3±1 |
| | | | | 36 | 35 | 2 | 20.89 | 21.3±1 |
| | | | | 75 | 0 | 2 | 20.77 | 21.3±1 |
| | 19125 | 1902.5 | QPSK | 1 | 0 | 0 | 21.76 | 21.3±1 |
| | | | | 1 | 37 | 0 | 21.71 | 21.3±1 |
| | | | | 1 | 74 | 0 | 21.62 | 21.3±1 |
| | | | | 36 | 0 | 1 | 20.85 | 21.3±1 |
| | | | | 36 | 16 | 1 | 20.87 | 21.3±1 |
| | | | | 36 | 35 | 1 | 20.88 | 21.3±1 |
| | | | | 75 | 0 | 1 | 20.83 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.76 | 20.3±1 |
| | | | | 1 | 37 | 1 | 20.65 | 20.3±1 |
| | | | | 1 | 74 | 1 | 20.48 | 20.3±1 |
| | | | | 36 | 0 | 2 | 20.16 | 20.3±1 |
| | | | | 36 | 16 | 2 | 20.18 | 20.3±1 |
| | | | | 36 | 35 | 2 | 20.15 | 20.3±1 |
| | | | | 75 | 0 | 2 | 20.82 | 20.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 18650 | 1855 | QPSK | 1 | 0 | 0 | 21.95 | 22.5±1 |
| | | | | 1 | 24 | 0 | 21.99 | 22.5±1 |
| | | | | 1 | 49 | 0 | 22.02 | 22.5±1 |
| | | | | 25 | 0 | 1 | 20.92 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.95 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.93 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.81 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.54 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.56 | 21.3±1 |
| | | | | 1 | 49 | 1 | 20.66 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.46 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.43 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.48 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.88 | 21.3±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.79 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.93 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.93 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.89 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.88 | 21.3±1 |
| | | | | 25 | 24 | 1 | 21.01 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.81 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.58 | 20.3±1 |
| | | | | 1 | 24 | 1 | 20.60 | 20.3±1 |
| | | | | 1 | 49 | 1 | 20.64 | 20.3±1 |
| | | | | 25 | 0 | 2 | 20.15 | 20.3±1 |
| | | | | 25 | 12 | 2 | 20.19 | 20.3±1 |
| | | | | 25 | 24 | 2 | 20.27 | 20.3±1 |
| | | | | 50 | 0 | 2 | 20.86 | 20.3±1 |
| | 19150 | 1905 | QPSK | 1 | 0 | 0 | 21.99 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.86 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.61 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.95 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.96 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.96 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.76 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.64 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.35 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.16 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.54 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.65 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.45 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.87 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 18625 | 1852.5 | QPSK | 1 | 0 | 0 | 21.98 | 22.5±1 |
| | | | | 1 | 12 | 0 | 21.99 | 22.5±1 |
| | | | | 1 | 24 | 0 | 22.10 | 22.5±1 |
| | | | | 12 | 0 | 1 | 20.94 | 21.3±1 |
| | | | | 12 | 6 | 1 | 20.95 | 21.3±1 |
| | | | | 12 | 11 | 1 | 20.93 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.93 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.98 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.03 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.06 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.78 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.76 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.78 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.82 | 21.3±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.64 | 21.3±1 |
| | | | | 1 | 12 | 0 | 21.68 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.80 | 21.3±1 |
| | | | | 12 | 0 | 1 | 20.94 | 21.3±1 |
| | | | | 12 | 6 | 1 | 20.96 | 21.3±1 |
| | | | | 12 | 11 | 1 | 20.93 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.88 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.91 | 21.3±1 |
| | | | | 1 | 12 | 1 | 20.99 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.00 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.56 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.59 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.58 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.94 | 21.3±1 |
| | 19175 | 1907.5 | QPSK | 1 | 0 | 0 | 21.91 | 21.3±1 |
| | | | | 1 | 12 | 0 | 21.84 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.66 | 21.3±1 |
| | | | | 12 | 0 | 1 | 20.97 | 21.3±1 |
| | | | | 12 | 6 | 1 | 20.96 | 21.3±1 |
| | | | | 12 | 11 | 1 | 20.93 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.88 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.52 | 21.3±1 |
| | | | | 1 | 12 | 1 | 20.46 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.44 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.75 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.56 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.69 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.40 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 3MHz | 18625 | 1852.5 | QPSK | 1 | 0 | 0 | 21.93 | 22.5±1 |
| | | | | 1 | 7 | 0 | 21.96 | 22.5±1 |
| | | | | 1 | 14 | 0 | 21.90 | 22.5±1 |
| | | | | 8 | 0 | 1 | 20.98 | 21.3±1 |
| | | | | 8 | 4 | 1 | 20.95 | 21.3±1 |
| | | | | 8 | 7 | 1 | 20.96 | 21.3±1 |
| | | | | 15 | 0 | 1 | 20.91 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.51 | 21.3±1 |
| | | | | 1 | 7 | 1 | 20.53 | 21.3±1 |
| | | | | 1 | 14 | 1 | 20.56 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.87 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.53 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.72 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.93 | 21.3±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.88 | 21.3±1 |
| | | | | 1 | 7 | 0 | 21.89 | 21.3±1 |
| | | | | 1 | 14 | 0 | 21.88 | 21.3±1 |
| | | | | 8 | 0 | 1 | 20.92 | 21.3±1 |
| | | | | 8 | 4 | 1 | 20.96 | 21.3±1 |
| | | | | 8 | 7 | 1 | 20.95 | 21.3±1 |
| | | | | 15 | 0 | 1 | 21.01 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.60 | 21.3±1 |
| | | | | 1 | 7 | 1 | 20.50 | 21.3±1 |
| | | | | 1 | 14 | 1 | 20.40 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.88 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.98 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.54 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.47 | 21.3±1 |
| | 19175 | 1907.5 | QPSK | 1 | 0 | 0 | 21.78 | 21.3±1 |
| | | | | 1 | 7 | 0 | 21.65 | 21.3±1 |
| | | | | 1 | 14 | 0 | 21.55 | 21.3±1 |
| | | | | 8 | 0 | 1 | 20.84 | 21.3±1 |
| | | | | 8 | 4 | 1 | 20.83 | 21.3±1 |
| | | | | 8 | 7 | 1 | 20.82 | 21.3±1 |
| | | | | 15 | 0 | 1 | 20.87 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.18 | 21.3±1 |
| | | | | 1 | 7 | 1 | 21.11 | 21.3±1 |
| | | | | 1 | 14 | 1 | 21.16 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.86 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.88 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.83 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.48 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 1.4MHz | 18607 | 1850.7 | QPSK | 1 | 0 | 0 | 21.85 | 22.5±1 |
| | | | | 1 | 2 | 0 | 21.88 | 22.5±1 |
| | | | | 1 | 5 | 0 | 21.89 | 22.5±1 |
| | | | | 3 | 0 | 0 | 21.99 | 21.3±1 |
| | | | | 3 | 1 | 0 | 21.95 | 21.3±1 |
| | | | | 3 | 2 | 0 | 21.96 | 21.3±1 |
| | | | | 6 | 0 | 1 | 20.89 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.35 | 21.3±1 |
| | | | | 1 | 2 | 1 | 20.34 | 21.3±1 |
| | | | | 1 | 5 | 1 | 20.36 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.86 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.58 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.49 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.89 | 21.3±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.97 | 21.3±1 |
| | | | | 1 | 2 | 0 | 21.96 | 21.3±1 |
| | | | | 1 | 5 | 0 | 21.91 | 21.3±1 |
| | | | | 3 | 0 | 0 | 22.07 | 21.3±1 |
| | | | | 3 | 1 | 0 | 22.03 | 21.3±1 |
| | | | | 3 | 2 | 0 | 22.08 | 21.3±1 |
| | | | | 6 | 0 | 1 | 21.00 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.57 | 21.3±1 |
| | | | | 1 | 2 | 1 | 20.56 | 21.3±1 |
| | | | | 1 | 5 | 1 | 20.59 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.74 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.88 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.56 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.85 | 21.3±1 |
| | 19193 | 1909.3 | QPSK | 1 | 0 | 0 | 21.76 | 21.3±1 |
| | | | | 1 | 2 | 0 | 21.73 | 21.3±1 |
| | | | | 1 | 5 | 0 | 21.78 | 21.3±1 |
| | | | | 3 | 0 | 0 | 21.73 | 21.3±1 |
| | | | | 3 | 1 | 0 | 21.76 | 21.3±1 |
| | | | | 3 | 2 | 0 | 21.74 | 21.3±1 |
| | | | | 6 | 0 | 1 | 20.86 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.58 | 21.3±1 |
| | | | | 1 | 2 | 1 | 20.56 | 21.3±1 |
| | | | | 1 | 5 | 1 | 20.54 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.35 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.39 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.34 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.81 | 21.3±1 |

LTE Band 4

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 20MHz | 20050 | 1720.0 | QPSK | 1 | 0 | 0 | 21.55 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.68 | 21.3±1 |
| | | | | 1 | 99 | 0 | 21.89 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.68 | 21.3±1 |
| | | | | 50 | 24 | 1 | 20.79 | 21.3±1 |
| | | | | 50 | 49 | 1 | 20.56 | 21.3±1 |
| | | | | 100 | 0 | 1 | 20.31 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.35 | 21.3±1 |
| | | | | 1 | 49 | 1 | 20.49 | 21.3±1 |
| | | | | 1 | 99 | 1 | 20.86 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.74 | 21.3±1 |
| | | | | 50 | 24 | 2 | 20.58 | 21.3±1 |
| | | | | 50 | 49 | 2 | 20.49 | 21.3±1 |
| | | | | 100 | 0 | 2 | 20.36 | 21.3±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 21.55 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.69 | 21.3±1 |
| | | | | 1 | 99 | 0 | 21.81 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.73 | 21.3±1 |
| | | | | 50 | 24 | 1 | 20.75 | 21.3±1 |
| | | | | 50 | 49 | 1 | 20.74 | 21.3±1 |
| | | | | 100 | 0 | 1 | 20.73 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.88 | 21.3±1 |
| | | | | 1 | 49 | 1 | 20.96 | 21.3±1 |
| | | | | 1 | 99 | 1 | 21.09 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.68 | 21.3±1 |
| | | | | 50 | 24 | 2 | 20.86 | 21.3±1 |
| | | | | 50 | 49 | 2 | 20.87 | 21.3±1 |
| | | | | 100 | 0 | 2 | 20.76 | 21.3±1 |
| | 20300 | 1745.0 | QPSK | 1 | 0 | 0 | 21.94 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.88 | 21.3±1 |
| | | | | 1 | 99 | 0 | 21.62 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.33 | 21.3±1 |
| | | | | 50 | 24 | 1 | 20.43 | 21.3±1 |
| | | | | 50 | 49 | 1 | 20.36 | 21.3±1 |
| | | | | 100 | 0 | 1 | 20.39 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.31 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.15 | 21.3±1 |
| | | | | 1 | 99 | 1 | 20.89 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.87 | 21.3±1 |
| | | | | 50 | 24 | 2 | 20.86 | 21.3±1 |
| | | | | 50 | 49 | 2 | 20.84 | 21.3±1 |
| | | | | 100 | 0 | 2 | 20.51 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 15MHz | 20025 | 1717.5 | QPSK | 1 | 0 | 0 | 21.55 | 21.3±1 |
| | | | | 1 | 37 | 0 | 21.56 | 21.3±1 |
| | | | | 1 | 74 | 0 | 21.76 | 21.3±1 |
| | | | | 36 | 0 | 1 | 20.37 | 21.3±1 |
| | | | | 36 | 16 | 1 | 20.36 | 21.3±1 |
| | | | | 36 | 35 | 1 | 20.39 | 21.3±1 |
| | | | | 75 | 0 | 1 | 20.87 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.76 | 21.3±1 |
| | | | | 1 | 37 | 1 | 20.55 | 21.3±1 |
| | | | | 1 | 74 | 1 | 20.42 | 21.3±1 |
| | | | | 36 | 0 | 2 | 20.56 | 21.3±1 |
| | | | | 36 | 16 | 2 | 20.78 | 21.3±1 |
| | | | | 36 | 35 | 2 | 20.59 | 21.3±1 |
| | | | | 75 | 0 | 2 | 20.45 | 21.3±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 21.68 | 21.3±1 |
| | | | | 1 | 37 | 0 | 21.78 | 21.3±1 |
| | | | | 1 | 74 | 0 | 21.95 | 21.3±1 |
| | | | | 36 | 0 | 1 | 20.67 | 21.3±1 |
| | | | | 36 | 16 | 1 | 20.65 | 21.3±1 |
| | | | | 36 | 35 | 1 | 20.68 | 21.3±1 |
| | | | | 75 | 0 | 1 | 20.75 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.66 | 21.3±1 |
| | | | | 1 | 37 | 1 | 20.74 | 21.3±1 |
| | | | | 1 | 74 | 1 | 21.05 | 21.3±1 |
| | | | | 36 | 0 | 2 | 20.46 | 21.3±1 |
| | | | | 36 | 16 | 2 | 20.49 | 21.3±1 |
| | | | | 36 | 35 | 2 | 20.48 | 21.3±1 |
| | | | | 75 | 0 | 2 | 20.73 | 21.3±1 |
| | 20325 | 1747.5 | QPSK | 1 | 0 | 0 | 21.78 | 21.3±1 |
| | | | | 1 | 37 | 0 | 21.64 | 21.3±1 |
| | | | | 1 | 74 | 0 | 21.59 | 21.3±1 |
| | | | | 36 | 0 | 1 | 20.50 | 21.3±1 |
| | | | | 36 | 16 | 1 | 20.53 | 21.3±1 |
| | | | | 36 | 35 | 1 | 20.54 | 21.3±1 |
| | | | | 75 | 0 | 1 | 20.42 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.44 | 21.3±1 |
| | | | | 1 | 37 | 1 | 21.36 | 21.3±1 |
| | | | | 1 | 74 | 1 | 21.15 | 21.3±1 |
| | | | | 36 | 0 | 2 | 20.98 | 21.3±1 |
| | | | | 36 | 16 | 2 | 20.92 | 21.3±1 |
| | | | | 36 | 35 | 2 | 20.95 | 21.3±1 |
| | | | | 75 | 0 | 2 | 20.48 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 20000 | 1715.0 | QPSK | 1 | 0 | 0 | 21.59 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.50 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.42 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.42 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.45 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.43 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.55 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.71 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.46 | 21.3±1 |
| | | | | 1 | 49 | 1 | 20.88 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.66 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.45 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.63 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.50 | 21.3±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 21.87 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.94 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.88 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.95 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.96 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.93 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.82 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.57 | 20.3±1 |
| | | | | 1 | 24 | 1 | 20.66 | 20.3±1 |
| | | | | 1 | 49 | 1 | 20.75 | 20.3±1 |
| | | | | 25 | 0 | 2 | 20.16 | 20.3±1 |
| | | | | 25 | 12 | 2 | 20.13 | 20.3±1 |
| | | | | 25 | 24 | 2 | 20.11 | 20.3±1 |
| | | | | 50 | 0 | 2 | 20.93 | 20.3±1 |
| | 20350 | 1750.0 | QPSK | 1 | 0 | 0 | 21.42 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.55 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.68 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.55 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.56 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.58 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.42 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.14 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.16 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.20 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.98 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.95 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.93 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.51 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 20000 | 1715.0 | QPSK | 1 | 0 | 0 | 21.59 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.50 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.42 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.42 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.45 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.43 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.55 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.71 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.46 | 21.3±1 |
| | | | | 1 | 49 | 1 | 20.88 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.66 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.45 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.63 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.50 | 21.3±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 21.87 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.94 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.88 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.95 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.96 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.93 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.82 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.57 | 20.3±1 |
| | | | | 1 | 24 | 1 | 20.66 | 20.3±1 |
| | | | | 1 | 49 | 1 | 20.75 | 20.3±1 |
| | | | | 25 | 0 | 2 | 20.16 | 20.3±1 |
| | | | | 25 | 12 | 2 | 20.13 | 20.3±1 |
| | | | | 25 | 24 | 2 | 20.11 | 20.3±1 |
| | | | | 50 | 0 | 2 | 20.93 | 20.3±1 |
| | 20350 | 1750.0 | QPSK | 1 | 0 | 0 | 21.42 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.55 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.68 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.55 | 21.3±1 |
| | | | | 25 | 12 | 1 | 20.56 | 21.3±1 |
| | | | | 25 | 24 | 1 | 20.58 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.42 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.14 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.16 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.20 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.98 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.95 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.93 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.51 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 20000 | 1715.0 | QPSK | 1 | 0 | 0 | 21.72 | 21.3±1 |
| | | | | 1 | 12 | 0 | 21.68 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.60 | 21.3±1 |
| | | | | 12 | 0 | 1 | 20.60 | 21.3±1 |
| | | | | 12 | 6 | 1 | 20.63 | 21.3±1 |
| | | | | 12 | 11 | 1 | 20.65 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.52 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.73 | 21.3±1 |
| | | | | 1 | 12 | 1 | 20.64 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.55 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.35 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.36 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.38 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.59 | 21.3±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 21.99 | 21.3±1 |
| | | | | 1 | 12 | 0 | 21.99 | 21.3±1 |
| | | | | 1 | 24 | 0 | 22.03 | 21.3±1 |
| | | | | 12 | 0 | 1 | 21.07 | 21.3±1 |
| | | | | 12 | 6 | 1 | 21.03 | 21.3±1 |
| | | | | 12 | 11 | 1 | 20.55 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.93 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.61 | 21.3±1 |
| | | | | 1 | 12 | 1 | 20.70 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.77 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.45 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.48 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.43 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.83 | 21.3±1 |
| | 20350 | 1750.0 | QPSK | 1 | 0 | 0 | 21.40 | 21.3±1 |
| | | | | 1 | 12 | 0 | 21.56 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.74 | 21.3±1 |
| | | | | 12 | 0 | 1 | 20.57 | 21.3±1 |
| | | | | 12 | 6 | 1 | 20.56 | 21.3±1 |
| | | | | 12 | 11 | 1 | 20.58 | 21.3±1 |
| | | | | 25 | 0 | 1 | 20.59 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.66 | 21.3±1 |
| | | | | 1 | 12 | 1 | 20.78 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.91 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.76 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.75 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.77 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.56 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 3MHz | 19965 | 1711.5 | QPSK | 1 | 0 | 0 | 21.64 | 21.3±1 |
| | | | | 1 | 7 | 0 | 21.53 | 21.3±1 |
| | | | | 1 | 14 | 0 | 21.48 | 21.3±1 |
| | | | | 8 | 0 | 1 | 20.57 | 21.3±1 |
| | | | | 8 | 4 | 1 | 20.53 | 21.3±1 |
| | | | | 8 | 7 | 1 | 20.58 | 21.3±1 |
| | | | | 15 | 0 | 1 | 20.53 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.77 | 21.3±1 |
| | | | | 1 | 7 | 1 | 20.56 | 21.3±1 |
| | | | | 1 | 14 | 1 | 20.42 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.48 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.46 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.44 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.53 | 21.3±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 22.07 | 21.3±1 |
| | | | | 1 | 7 | 0 | 22.05 | 21.3±1 |
| | | | | 1 | 14 | 0 | 22.02 | 21.3±1 |
| | | | | 8 | 0 | 1 | 21.03 | 21.3±1 |
| | | | | 8 | 4 | 1 | 21.01 | 21.3±1 |
| | | | | 8 | 7 | 1 | 20.98 | 21.3±1 |
| | | | | 15 | 0 | 1 | 21.02 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.74 | 21.3±1 |
| | | | | 1 | 7 | 1 | 20.73 | 21.3±1 |
| | | | | 1 | 14 | 1 | 20.72 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.93 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.96 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.95 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.52 | 21.3±1 |
| | 20385 | 1753.5 | QPSK | 1 | 0 | 0 | 21.46 | 21.3±1 |
| | | | | 1 | 7 | 0 | 21.55 | 21.3±1 |
| | | | | 1 | 14 | 0 | 21.66 | 21.3±1 |
| | | | | 8 | 0 | 1 | 20.60 | 21.3±1 |
| | | | | 8 | 4 | 1 | 20.00 | 21.3±1 |
| | | | | 8 | 7 | 1 | 20.63 | 21.3±1 |
| | | | | 15 | 0 | 1 | 20.64 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.06 | 21.3±1 |
| | | | | 1 | 7 | 1 | 21.11 | 21.3±1 |
| | | | | 1 | 14 | 1 | 21.19 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.60 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.64 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.63 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.83 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 1.4MHz | 19957 | 1710.7 | QPSK | 1 | 0 | 0 | 21.65 | 21.3±1 |
| | | | | 1 | 2 | 0 | 21.63 | 21.3±1 |
| | | | | 1 | 5 | 0 | 21.69 | 21.3±1 |
| | | | | 3 | 0 | 0 | 21.65 | 21.3±1 |
| | | | | 3 | 1 | 0 | 21.63 | 21.3±1 |
| | | | | 3 | 2 | 0 | 20.69 | 21.3±1 |
| | | | | 6 | 0 | 1 | 21.24 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.26 | 21.3±1 |
| | | | | 1 | 2 | 1 | 21.28 | 21.3±1 |
| | | | | 1 | 5 | 1 | 21.15 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.46 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.58 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.62 | 21.3±1 |
| | | | | 6 | 0 | 2 | 22.21 | 21.3±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 22.15 | 21.3±1 |
| | | | | 1 | 2 | 0 | 22.02 | 21.3±1 |
| | | | | 1 | 5 | 0 | 21.94 | 21.3±1 |
| | | | | 3 | 0 | 0 | 21.93 | 21.3±1 |
| | | | | 3 | 1 | 0 | 21.96 | 21.3±1 |
| | | | | 3 | 2 | 0 | 21.12 | 21.3±1 |
| | | | | 6 | 0 | 1 | 20.78 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.77 | 21.3±1 |
| | | | | 1 | 2 | 1 | 20.74 | 21.3±1 |
| | | | | 1 | 5 | 1 | 20.56 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.59 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.54 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.68 | 21.3±1 |
| | | | | 6 | 0 | 2 | 21.58 | 21.3±1 |
| | 20393 | 1754.3 | QPSK | 1 | 0 | 0 | 21.68 | 21.3±1 |
| | | | | 1 | 2 | 0 | 21.80 | 21.3±1 |
| | | | | 1 | 5 | 0 | 21.65 | 21.3±1 |
| | | | | 3 | 0 | 0 | 21.62 | 21.3±1 |
| | | | | 3 | 1 | 0 | 21.00 | 21.3±1 |
| | | | | 3 | 2 | 0 | 21.65 | 21.3±1 |
| | | | | 6 | 0 | 1 | 21.76 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.61 | 21.3±1 |
| | | | | 1 | 2 | 1 | 20.76 | 21.3±1 |
| | | | | 1 | 5 | 1 | 20.44 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.75 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.59 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.89 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.74 | 21.3±1 |

LTE Band 5:

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 20450 | 829 | QPSK | 1 | 0 | 0 | 22.78 | 22±1 |
| | | | | 1 | 24 | 0 | 22.65 | 22±1 |
| | | | | 1 | 49 | 0 | 22.48 | 22±1 |
| | | | | 25 | 0 | 1 | 21.62 | 22±1 |
| | | | | 25 | 12 | 1 | 21.63 | 22±1 |
| | | | | 25 | 24 | 1 | 21.64 | 22±1 |
| | | | | 50 | 0 | 1 | 21.26 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.34 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.25 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.02 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.76 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.72 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.73 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.35 | 21.3±1 |
| | 20525 | 836.5 | QPSK | 1 | 0 | 0 | 22.36 | 22±1 |
| | | | | 1 | 24 | 0 | 22.46 | 22±1 |
| | | | | 1 | 49 | 0 | 22.71 | 22±1 |
| | | | | 25 | 0 | 1 | 21.29 | 22±1 |
| | | | | 25 | 12 | 1 | 21.25 | 22±1 |
| | | | | 25 | 24 | 1 | 21.26 | 22±1 |
| | | | | 50 | 0 | 1 | 21.30 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.02 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.15 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.36 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.68 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.69 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.65 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.38 | 21.3±1 |
| | 20600 | 844 | QPSK | 1 | 0 | 0 | 22.47 | 22±1 |
| | | | | 1 | 24 | 0 | 22.36 | 22±1 |
| | | | | 1 | 49 | 0 | 22.27 | 22±1 |
| | | | | 25 | 0 | 1 | 21.53 | 22±1 |
| | | | | 25 | 12 | 1 | 21.56 | 22±1 |
| | | | | 25 | 24 | 1 | 21.54 | 22±1 |
| | | | | 50 | 0 | 1 | 21.39 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.08 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.99 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.92 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.85 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.83 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.81 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.43 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 20425 | 826.5 | QPSK | 1 | 0 | 0 | **22.91** | 22±1 |
| | | | | 1 | 12 | 0 | 22.85 | 22±1 |
| | | | | 1 | 24 | 0 | 22.70 | 22±1 |
| | | | | 12 | 0 | 1 | 21.74 | 22±1 |
| | | | | 12 | 6 | 1 | 21.76 | 22±1 |
| | | | | 12 | 11 | 1 | 21.72 | 22±1 |
| | | | | 25 | 0 | 1 | 21.68 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.78 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.75 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.68 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.84 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.82 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.83 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.70 | 21.3±1 |
| | 20525 | 836.5 | QPSK | 1 | 0 | 0 | 22.39 | 22±1 |
| | | | | 1 | 12 | 0 | 22.42 | 22±1 |
| | | | | 1 | 24 | 0 | 22.57 | 22±1 |
| | | | | 12 | 0 | 1 | 21.46 | 22±1 |
| | | | | 12 | 6 | 1 | 21.45 | 22±1 |
| | | | | 12 | 11 | 1 | 21.48 | 22±1 |
| | | | | 25 | 0 | 1 | 21.34 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.59 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.65 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.70 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.76 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.72 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.75 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.38 | 21.3±1 |
| | 20625 | 846.5 | QPSK | 1 | 0 | 0 | 22.69 | 22±1 |
| | | | | 1 | 12 | 0 | 22.59 | 22±1 |
| | | | | 1 | 24 | 0 | 22.22 | 22±1 |
| | | | | 12 | 0 | 1 | 21.74 | 22±1 |
| | | | | 12 | 6 | 1 | 21.75 | 22±1 |
| | | | | 12 | 11 | 1 | 21.76 | 22±1 |
| | | | | 25 | 0 | 1 | 21.45 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.38 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.25 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.18 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.78 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.85 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.83 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.62 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 3MHz | 20415 | 825.5 | QPSK | 1 | 0 | 0 | 22.79 | 22±1 |
| | | | | 1 | 7 | 0 | 22.78 | 22±1 |
| | | | | 1 | 14 | 0 | 22.70 | 22±1 |
| | | | | 8 | 0 | 1 | 21.73 | 22±1 |
| | | | | 8 | 4 | 1 | 21.74 | 22±1 |
| | | | | 8 | 7 | 1 | 21.71 | 22±1 |
| | | | | 15 | 0 | 1 | 21.70 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.36 | 21.3±1 |
| | | | | 1 | 7 | 1 | 21.30 | 21.3±1 |
| | | | | 1 | 14 | 1 | 20.98 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.62 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.65 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.63 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.71 | 21.3±1 |
| | 20525 | 836.5 | QPSK | 1 | 0 | 0 | 22.39 | 22±1 |
| | | | | 1 | 7 | 0 | 22.45 | 22±1 |
| | | | | 1 | 14 | 0 | 22.45 | 22±1 |
| | | | | 8 | 0 | 1 | 21.40 | 22±1 |
| | | | | 8 | 4 | 1 | 21.43 | 22±1 |
| | | | | 8 | 7 | 1 | 21.45 | 22±1 |
| | | | | 15 | 0 | 1 | 21.33 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.09 | 21.3±1 |
| | | | | 1 | 7 | 1 | 21.10 | 21.3±1 |
| | | | | 1 | 14 | 1 | 21.14 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.27 | 20.3±1 |
| | | | | 8 | 4 | 2 | 20.23 | 20.3±1 |
| | | | | 8 | 7 | 2 | 20.25 | 20.3±1 |
| | | | | 15 | 0 | 2 | 20.39 | 20.3±1 |
| | 20635 | 847.5 | QPSK | 1 | 0 | 0 | 22.32 | 22±1 |
| | | | | 1 | 7 | 0 | 22.26 | 22±1 |
| | | | | 1 | 14 | 0 | 22.16 | 22±1 |
| | | | | 8 | 0 | 1 | 21.62 | 22±1 |
| | | | | 8 | 4 | 1 | 21.65 | 22±1 |
| | | | | 8 | 7 | 1 | 21.65 | 22±1 |
| | | | | 15 | 0 | 1 | 21.49 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.07 | 21.3±1 |
| | | | | 1 | 7 | 1 | 21.98 | 21.3±1 |
| | | | | 1 | 14 | 1 | 21.82 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.58 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.56 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.59 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.63 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 1.4MHz | 20407 | 824.7 | QPSK | 1 | 0 | 0 | 22.72 | 22±1 |
| | | | | 1 | 2 | 0 | 22.70 | 22±1 |
| | | | | 1 | 5 | 0 | 22.66 | 22±1 |
| | | | | 3 | 0 | 0 | 22.85 | 22±1 |
| | | | | 3 | 1 | 0 | 22.84 | 22±1 |
| | | | | 3 | 2 | 0 | 22.82 | 22±1 |
| | | | | 6 | 0 | 1 | 21.78 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.17 | 21.3±1 |
| | | | | 1 | 2 | 1 | 21.16 | 21.3±1 |
| | | | | 1 | 5 | 1 | 21.12 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.88 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.89 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.86 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.72 | 21.3±1 |
| | 20525 | 836.5 | QPSK | 1 | 0 | 0 | 22.48 | 22±1 |
| | | | | 1 | 2 | 0 | 22.49 | 22±1 |
| | | | | 1 | 5 | 0 | 22.52 | 22±1 |
| | | | | 3 | 0 | 0 | 22.54 | 22±1 |
| | | | | 3 | 1 | 0 | 22.56 | 22±1 |
| | | | | 3 | 2 | 0 | 22.53 | 22±1 |
| | | | | 6 | 0 | 1 | 21.47 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.12 | 21.3±1 |
| | | | | 1 | 2 | 1 | 21.11 | 21.3±1 |
| | | | | 1 | 5 | 1 | 21.10 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.88 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.89 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.85 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.36 | 21.3±1 |
| | 20643 | 848.3 | QPSK | 1 | 0 | 0 | 22.39 | 22±1 |
| | | | | 1 | 2 | 0 | 22.30 | 22±1 |
| | | | | 1 | 5 | 0 | 22.28 | 22±1 |
| | | | | 3 | 0 | 0 | 22.41 | 22±1 |
| | | | | 3 | 1 | 0 | 22.45 | 22±1 |
| | | | | 3 | 2 | 0 | 22.43 | 22±1 |
| | | | | 6 | 0 | 1 | 21.38 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.05 | 21.3±1 |
| | | | | 1 | 2 | 1 | 21.04 | 21.3±1 |
| | | | | 1 | 5 | 1 | 21.03 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.87 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.84 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.82 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.33 | 21.3±1 |

LTE Band 12:

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 23060 | 704 | QPSK | 1 | 0 | 0 | 22.57 | 22±1 |
| | | | | 1 | 24 | 0 | 22.46 | 22±1 |
| | | | | 1 | 49 | 0 | 22.29 | 22±1 |
| | | | | 25 | 0 | 1 | 21.35 | 22±1 |
| | | | | 25 | 12 | 1 | 21.34 | 22±1 |
| | | | | 25 | 24 | 1 | 21.39 | 22±1 |
| | | | | 50 | 0 | 1 | 21.22 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.05 | 20.3±1 |
| | | | | 1 | 24 | 1 | 20.98 | 20.3±1 |
| | | | | 1 | 49 | 1 | 20.88 | 20.3±1 |
| | | | | 25 | 0 | 2 | 20.65 | 20.3±1 |
| | | | | 25 | 12 | 2 | 20.64 | 20.3±1 |
| | | | | 25 | 24 | 2 | 20.63 | 20.3±1 |
| | | | | 50 | 0 | 2 | 20.27 | 20.3±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 22.29 | 22±1 |
| | | | | 1 | 24 | 0 | 22.30 | 22±1 |
| | | | | 1 | 49 | 0 | 22.38 | 22±1 |
| | | | | 25 | 0 | 1 | 21.21 | 22±1 |
| | | | | 25 | 12 | 1 | 21.19 | 22±1 |
| | | | | 25 | 24 | 1 | 21.10 | 22±1 |
| | | | | 50 | 0 | 1 | 21.07 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.93 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.02 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.09 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.65 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.63 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.68 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.42 | 21.3±1 |
| | 23130 | 711 | QPSK | 1 | 0 | 0 | 22.04 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.85 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.65 | 21.3±1 |
| | | | | 25 | 0 | 1 | 21.30 | 21.3±1 |
| | | | | 25 | 12 | 1 | 21.36 | 21.3±1 |
| | | | | 25 | 24 | 1 | 21.42 | 21.3±1 |
| | | | | 50 | 0 | 1 | 21.01 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.65 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.47 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.25 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.77 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.74 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.73 | 21.3±1 |
| | | | | 50 | 0 | 2 | 20.82 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 23035 | 701.5 | QPSK | 1 | 0 | 0 | 22.47 | 22±1 |
| | | | | 1 | 12 | 0 | 22.45 | 22±1 |
| | | | | 1 | 24 | 0 | 22.41 | 22±1 |
| | | | | 12 | 0 | 1 | 21.61 | 22±1 |
| | | | | 12 | 6 | 1 | 21.53 | 22±1 |
| | | | | 12 | 11 | 1 | 21.64 | 22±1 |
| | | | | 25 | 0 | 1 | 21.32 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.41 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.35 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.30 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.76 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.75 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.74 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.34 | 21.3±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 22.21 | 22±1 |
| | | | | 1 | 12 | 0 | 22.26 | 22±1 |
| | | | | 1 | 24 | 0 | 22.31 | 22±1 |
| | | | | 12 | 0 | 1 | 21.16 | 22±1 |
| | | | | 12 | 6 | 1 | 21.19 | 22±1 |
| | | | | 12 | 11 | 1 | 21.15 | 22±1 |
| | | | | 25 | 0 | 1 | 21.23 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.39 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.46 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.50 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.85 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.83 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.81 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.67 | 21.3±1 |
| | 23155 | 713.5 | QPSK | 1 | 0 | 0 | 22.43 | 22±1 |
| | | | | 1 | 12 | 0 | 22.06 | 22±1 |
| | | | | 1 | 24 | 0 | 21.81 | 22±1 |
| | | | | 12 | 0 | 1 | 21.37 | 22±1 |
| | | | | 12 | 6 | 1 | 21.56 | 22±1 |
| | | | | 12 | 11 | 1 | 21.39 | 22±1 |
| | | | | 25 | 0 | 1 | 21.13 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.03 | 21.3±1 |
| | | | | 1 | 12 | 1 | 20.88 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.51 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.53 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.62 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.64 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.56 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 3MHz | 23025 | 700.5 | QPSK | 1 | 0 | 0 | 22.46 | 22±1 |
| | | | | 1 | 7 | 0 | 22.50 | 22±1 |
| | | | | 1 | 14 | 0 | 22.51 | 22±1 |
| | | | | 8 | 0 | 1 | 21.57 | 22±1 |
| | | | | 8 | 4 | 1 | 21.56 | 22±1 |
| | | | | 8 | 7 | 1 | 21.53 | 22±1 |
| | | | | 15 | 0 | 1 | 21.47 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.12 | 21.3±1 |
| | | | | 1 | 7 | 1 | 21.06 | 21.3±1 |
| | | | | 1 | 14 | 1 | 21.06 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.46 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.45 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.43 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.54 | 21.3±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 22.19 | 22±1 |
| | | | | 1 | 7 | 0 | 22.20 | 22±1 |
| | | | | 1 | 14 | 0 | 22.30 | 22±1 |
| | | | | 8 | 0 | 1 | 21.31 | 22±1 |
| | | | | 8 | 4 | 1 | 21.35 | 22±1 |
| | | | | 8 | 7 | 1 | 21.36 | 22±1 |
| | | | | 15 | 0 | 1 | 21.26 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.84 | 20.3±1 |
| | | | | 1 | 7 | 1 | 20.88 | 20.3±1 |
| | | | | 1 | 14 | 1 | 20.95 | 20.3±1 |
| | | | | 8 | 0 | 2 | 20.24 | 20.3±1 |
| | | | | 8 | 4 | 2 | 20.23 | 20.3±1 |
| | | | | 8 | 7 | 2 | 20.25 | 20.3±1 |
| | | | | 15 | 0 | 2 | 20.29 | 20.3±1 |
| | 23025 | 714.5 | QPSK | 1 | 0 | 0 | 22.06 | 21.3±1 |
| | | | | 1 | 7 | 0 | 22.00 | 21.3±1 |
| | | | | 1 | 14 | 0 | 21.60 | 21.3±1 |
| | | | | 8 | 0 | 1 | 20.98 | 21.3±1 |
| | | | | 8 | 4 | 1 | 20.95 | 21.3±1 |
| | | | | 8 | 7 | 1 | 20.93 | 21.3±1 |
| | | | | 15 | 0 | 1 | 20.98 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.72 | 21.3±1 |
| | | | | 1 | 7 | 1 | 21.70 | 21.3±1 |
| | | | | 1 | 14 | 1 | 21.26 | 21.3±1 |
| | | | | 8 | 0 | 2 | 20.92 | 21.3±1 |
| | | | | 8 | 4 | 2 | 20.96 | 21.3±1 |
| | | | | 8 | 7 | 2 | 20.95 | 21.3±1 |
| | | | | 15 | 0 | 2 | 20.79 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 1.4MHz | 23017 | 699.7 | QPSK | 1 | 0 | 0 | 22.47 | 22±1 |
| | | | | 1 | 2 | 0 | 22.46 | 22±1 |
| | | | | 1 | 5 | 0 | 22.00 | 22±1 |
| | | | | 3 | 0 | 0 | 22.54 | 22±1 |
| | | | | 3 | 1 | 0 | **22.59** | 22±1 |
| | | | | 3 | 2 | 0 | 22.53 | 22±1 |
| | | | | 6 | 0 | 1 | 21.65 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.98 | 21.3±1 |
| | | | | 1 | 2 | 1 | 21.16 | 21.3±1 |
| | | | | 1 | 5 | 1 | 21.12 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.75 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.73 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.78 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.46 | 21.3±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 22.10 | 21.3±1 |
| | | | | 1 | 2 | 0 | 22.05 | 21.3±1 |
| | | | | 1 | 5 | 0 | 22.03 | 21.3±1 |
| | | | | 3 | 0 | 0 | 22.11 | 21.3±1 |
| | | | | 3 | 1 | 0 | 22.15 | 21.3±1 |
| | | | | 3 | 2 | 0 | 22.13 | 21.3±1 |
| | | | | 6 | 0 | 1 | 21.18 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.79 | 21.3±1 |
| | | | | 1 | 2 | 1 | 20.76 | 21.3±1 |
| | | | | 1 | 5 | 1 | 20.78 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.78 | 21.3±1 |
| | | | | 3 | 1 | 1 | 20.79 | 21.3±1 |
| | | | | 3 | 2 | 1 | 20.76 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.57 | 21.3±1 |
| | 23173 | 715.3 | QPSK | 1 | 0 | 0 | 21.84 | 21.3±1 |
| | | | | 1 | 2 | 0 | 21.79 | 21.3±1 |
| | | | | 1 | 5 | 0 | 21.74 | 21.3±1 |
| | | | | 3 | 0 | 0 | 21.91 | 21.3±1 |
| | | | | 3 | 1 | 0 | 21.93 | 21.3±1 |
| | | | | 3 | 2 | 0 | 21.86 | 21.3±1 |
| | | | | 6 | 0 | 1 | 20.91 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.32 | 21.3±1 |
| | | | | 1 | 2 | 1 | 21.24 | 21.3±1 |
| | | | | 1 | 5 | 1 | 21.19 | 21.3±1 |
| | | | | 3 | 0 | 1 | 20.52 | 21.3±1 |
| | | | | 3 | 1 | 1 | 21.13 | 21.3±1 |
| | | | | 3 | 2 | 1 | 21.13 | 21.3±1 |
| | | | | 6 | 0 | 2 | 20.92 | 21.3±1 |

LTE Band 17:

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 23780 | 709.0 | QPSK | 1 | 0 | 0 | 22.27 | 22±1 |
| | | | | 1 | 24 | 0 | 22.25 | 22±1 |
| | | | | 1 | 49 | 0 | 22.25 | 22±1 |
| | | | | 25 | 0 | 1 | 21.06 | 22±1 |
| | | | | 25 | 12 | 1 | 21.05 | 22±1 |
| | | | | 25 | 24 | 1 | 21.03 | 22±1 |
| | | | | 50 | 0 | 1 | 21.05 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.77 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.77 | 21.3±1 |
| | | | | 1 | 49 | 1 | 20.78 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.46 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.48 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.43 | 21.3±1 |
| | | | | 50 | 0 | 2 | 21.07 | 21.3±1 |
| | 23790 | 701.0 | QPSK | 1 | 0 | 0 | 22.05 | 21.3±1 |
| | | | | 1 | 24 | 0 | 22.09 | 21.3±1 |
| | | | | 1 | 49 | 0 | 22.11 | 21.3±1 |
| | | | | 25 | 0 | 1 | 21.21 | 21.3±1 |
| | | | | 25 | 12 | 1 | 21.22 | 21.3±1 |
| | | | | 25 | 24 | 1 | 21.23 | 21.3±1 |
| | | | | 50 | 0 | 1 | 21.10 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.64 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.66 | 21.3±1 |
| | | | | 1 | 49 | 1 | 20.73 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.48 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.48 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.41 | 21.3±1 |
| | | | | 50 | 0 | 2 | 21.19 | 21.3±1 |
| | 23800 | 711.0 | QPSK | 1 | 0 | 0 | 22.10 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.96 | 21.3±1 |
| | | | | 1 | 49 | 0 | 21.68 | 21.3±1 |
| | | | | 25 | 0 | 1 | 21.10 | 21.3±1 |
| | | | | 25 | 12 | 1 | 21.14 | 21.3±1 |
| | | | | 25 | 24 | 1 | 21.45 | 21.3±1 |
| | | | | 50 | 0 | 1 | 20.98 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.71 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.56 | 21.3±1 |
| | | | | 1 | 49 | 1 | 21.30 | 21.3±1 |
| | | | | 25 | 0 | 2 | 20.59 | 21.3±1 |
| | | | | 25 | 12 | 2 | 20.56 | 21.3±1 |
| | | | | 25 | 24 | 2 | 20.51 | 21.3±1 |
| | | | | 50 | 0 | 2 | 21.14 | 21.3±1 |

| BW (MHz) | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Offset | MPR | Average power (dBm) | Tune up Power tolerant |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 23755 | 706.5 | QPSK | 1 | 0 | 0 | 22.36 | 22±1 |
| | | | | 1 | 12 | 0 | 22.35 | 22±1 |
| | | | | 1 | 24 | 0 | 22.35 | 22±1 |
| | | | | 12 | 0 | 1 | 21.13 | 22±1 |
| | | | | 12 | 6 | 1 | 21.15 | 22±1 |
| | | | | 12 | 11 | 1 | 21.14 | 22±1 |
| | | | | 25 | 0 | 1 | 21.06 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.28 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.26 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.27 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.58 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.56 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.57 | 21.3±1 |
| | | | | 25 | 0 | 2 | 21.11 | 21.3±1 |
| | 23790 | 710.0 | QPSK | 1 | 0 | 0 | 22.11 | 21.3±1 |
| | | | | 1 | 12 | 0 | 22.16 | 21.3±1 |
| | | | | 1 | 24 | 0 | 22.30 | 21.3±1 |
| | | | | 12 | 0 | 1 | 21.21 | 21.3±1 |
| | | | | 12 | 6 | 1 | 21.23 | 21.3±1 |
| | | | | 12 | 11 | 1 | 21.24 | 21.3±1 |
| | | | | 25 | 0 | 1 | 21.32 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.76 | 21.3±1 |
| | | | | 1 | 12 | 1 | 21.65 | 21.3±1 |
| | | | | 1 | 24 | 1 | 21.55 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.56 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.53 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.54 | 21.3±1 |
| | | | | 25 | 0 | 2 | 21.31 | 21.3±1 |
| | 23825 | 713.5 | QPSK | 1 | 0 | 0 | **22.46** | 21.3±1 |
| | | | | 1 | 12 | 0 | 22.26 | 21.3±1 |
| | | | | 1 | 24 | 0 | 21.73 | 21.3±1 |
| | | | | 12 | 0 | 1 | 21.32 | 21.3±1 |
| | | | | 12 | 6 | 1 | 21.35 | 21.3±1 |
| | | | | 12 | 11 | 1 | 21.36 | 21.3±1 |
| | | | | 25 | 0 | 1 | 21.07 | 21.3±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.03 | 21.3±1 |
| | | | | 1 | 12 | 1 | 20.78 | 21.3±1 |
| | | | | 1 | 24 | 1 | 20.49 | 21.3±1 |
| | | | | 12 | 0 | 2 | 20.45 | 21.3±1 |
| | | | | 12 | 6 | 2 | 20.48 | 21.3±1 |
| | | | | 12 | 11 | 2 | 20.43 | 21.3±1 |
| | | | | 25 | 0 | 2 | 21.20 | 21.3±1 |

## 1.9 Occupied Bandwidth

### 1.9.1 Definition

According to FCC section 2.1049, 22.917(b), 24.238(b), 27.53(h)(3) and 27.53(m)(6), the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.
Occupied bandwidth is also known as the 99% emission bandwidth, or 26dB bandwidth taking the total RF output power as reference.

### 1.9.2 Test Description

See section 4.2.1 of this report.

### 1.9.3 Test Results

LTE Band 2:

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 18607 | 1850.7 | 16QAM | 1.1067 | 1.327 |
| | | | QPSK | 1.1045 | 1.335 |
| 1.4 | 18900 | 1880 | 16QAM | 1.1036 | 1.321 |
| | | | QPSK | 1.1018 | 1.318 |
| 1.4 | 19193 | 1909.3 | 16QAM | 1.1077 | 1.342 |
| | | | QPSK | 1.1011 | 1.353 |
| 3 | 18615 | 1851.5 | 16QAM | 2.7400 | 3.141 |
| | | | QPSK | 2.7424 | 3.114 |
| 3 | 18900 | 1880 | 16QAM | 2.7308 | 3.113 |
| | | | QPSK | 2.7349 | 3.123 |
| 3 | 19185 | 1908.5 | 16QAM | 2.7560 | 3.183 |
| | | | QPSK | 2.7502 | 3.140 |
| 5 | 18625 | 1852.5 | 16QAM | 4.5083 | 5.073 |
| | | | QPSK | 4.5012 | 5.056 |
| 5 | 18900 | 1880 | 16QAM | 4.4945 | 5.079 |
| | | | QPSK | 4.5059 | 5.060 |
| 5 | 19175 | 1907.5 | 16QAM | 4.5078 | 5.081 |
| | | | QPSK | 4.5010 | 5.023 |
| 10 | 18650 | 1855 | 16QAM | 9.0460 | 10.084 |
| | | | QPSK | 9.0257 | 9.980 |
| 10 | 18900 | 1880 | 16QAM | 9.0542 | 10.121 |
| | | | QPSK | 9.0054 | 10.134 |
| 10 | 19150 | 1905 | 16QAM | 9.0465 | 10.240 |
| | | | QPSK | 9.0936 | 10.227 |
| 15 | 18675 | 1857.5 | 16QAM | 13.4096 | 14.830 |
| | | | QPSK | 13.4439 | 14.852 |
| 15 | 18900 | 1880 | 16QAM | 13.4171 | 14.903 |
| | | | QPSK | 13.4114 | 14.890 |
| 15 | 19125 | 1902.5 | 16QAM | 13.4732 | 14.914 |
| | | | QPSK | 13.4590 | 14.904 |
| 20 | 18700 | 1860 | 16QAM | 17.8284 | 19.505 |
| | | | QPSK | 17.8631 | 19.350 |
| 20 | 18900 | 1880 | 16QAM | 17.8888 | 19.486 |
| | | | QPSK | 17.8471 | 19.587 |
| 20 | 19100 | 1900 | 16QAM | 17.8447 | 19.271 |
| | | | QPSK | 17.8308 | 19.370 |

LTE Band 4

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 19957 | 1710.7 | 16QAM | 1.0971 | 1.315 |
| | | | QPSK | 1.0921 | 1.296 |
| 1.4 | 20175 | 1732.5 | 16QAM | 1.0955 | 1.347 |
| | | | QPSK | 1.0968 | 1.308 |
| 1.4 | 20393 | 1754.3 | 16QAM | 1.1021 | 1.301 |
| | | | QPSK | 1.1045 | 1.313 |
| 3 | 19965 | 1711.5 | 16QAM | 2.7400 | 3.127 |
| | | | QPSK | 2.7312 | 3.154 |
| 3 | 20175 | 1732.5 | 16QAM | 2.7545 | 3.171 |
| | | | QPSK | 2.7438 | 3.164 |
| 3 | 20385 | 1753.5 | 16QAM | 2.7620 | 3.140 |
| | | | QPSK | 2.7740 | 3.144 |
| 5 | 19975 | 1712.5 | 16QAM | 4.5011 | 5.105 |
| | | | QPSK | 4.5142 | 5.063 |
| 5 | 20175 | 1732.5 | 16QAM | 4.5034 | 4.994 |
| | | | QPSK | 4.5060 | 5.129 |
| 5 | 20375 | 1752.5 | 16QAM | 4.5091 | 5.077 |
| | | | QPSK | 4.5101 | 5.061 |
| 10 | 20000 | 1715 | 16QAM | 9.0387 | 10.156 |
| | | | QPSK | 9.0401 | 10.227 |
| 10 | 20175 | 1732.5 | 16QAM | 9.0716 | 10.179 |
| | | | QPSK | 9.0657 | 9.995 |
| 10 | 20350 | 1750 | 16QAM | 9.0534 | 10.135 |
| | | | QPSK | 9.0569 | 10.036 |
| 15 | 20025 | 1717.5 | 16QAM | 13.4216 | 14.757 |
| | | | QPSK | 13.4175 | 14.837 |
| 15 | 20175 | 1732.5 | 16QAM | 13.4854 | 14.808 |
| | | | QPSK | 13.4634 | 14.958 |
| 15 | 20325 | 1747.5 | 16QAM | 13.4535 | 14.886 |
| | | | QPSK | 13.4296 | 14.631 |
| 20 | 20050 | 1720 | 16QAM | 17.8573 | 19.273 |
| | | | QPSK | 17.8518 | 19.389 |
| 20 | 20175 | 1732.5 | 16QAM | 17.9143 | 19.561 |
| | | | QPSK | 17.8965 | 19.278 |
| 20 | 20300 | 1745 | 16QAM | 17.8461 | 19.219 |
| | | | QPSK | 17.8308 | 19.209 |

LTE Band 5

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 20407 | 824.7 | 16QAM | 1.1094 | 1.312 |
| | | | QPSK | 1.0936 | 1.322 |
| 1.4 | 20525 | 936.5 | 16QAM | 1.0962 | 1.326 |
| | | | QPSK | 1.1000 | 1.341 |
| 1.4 | 20643 | 949.3 | 16QAM | 1.0950 | 1.311 |
| | | | QPSK | 1.0933 | 1.320 |
| 3 | 20415 | 825.5 | 16QAM | 2.7339 | 3.170 |
| | | | QPSK | 2.7412 | 3.128 |
| 3 | 20525 | 936.5 | 16QAM | 2.7356 | 3.176 |
| | | | QPSK | 2.7369 | 3.150 |
| 3 | 20635 | 847.5 | 16QAM | 2.7398 | 3.152 |
| | | | QPSK | 2.7323 | 3.104 |
| 5 | 20425 | 826.5 | 16QAM | 4.5002 | 5.019 |
| | | | QPSK | 4.4968 | 5.032 |
| 5 | 20525 | 936.5 | 16QAM | 4.4929 | 5.100 |
| | | | QPSK | 4.4990 | 5.064 |
| 5 | 20625 | 846.5 | 16QAM | 4.5106 | 5.034 |
| | | | QPSK | 4.5021 | 4.987 |
| 10 | 20450 | 829 | 16QAM | 9.0440 | 9.998 |
| | | | QPSK | 9.0553 | 10.192 |
| 10 | 20525 | 936.5 | 16QAM | 9.0572 | 10.054 |
| | | | QPSK | 9.0476 | 10.058 |
| 10 | 20800 | 844 | 16QAM | 9.0381 | 9.977 |
| | | | QPSK | 8.9961 | 10.030 |

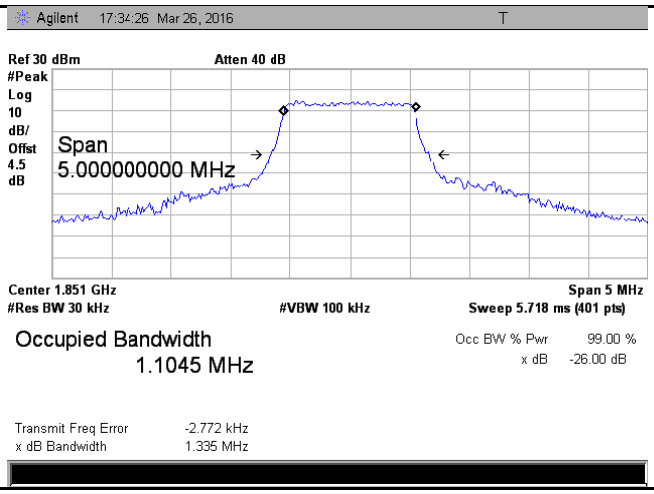
LTE Band 12

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 23017 | 699.7 | 16QAM | 1.0959 | 1.296 |
| | | | QPSK | 1.1059 | 1.318 |
| 1.4 | 23095 | 707.5 | 16QAM | 1.1036 | 1.325 |
| | | | QPSK | 1.1044 | 1.342 |
| 1.4 | 23173 | 715.3 | 16QAM | 1.0905 | 1.316 |
| | | | QPSK | 1.0912 | 1.311 |
| 3 | 23025 | 700.5 | 16QAM | 2.7581 | 3.155 |
| | | | QPSK | 2.7488 | 3.154 |
| 3 | 23095 | 707.5 | 16QAM | 2.7409 | 3.150 |
| | | | QPSK | 2.7515 | 3.126 |
| 3 | 23165 | 714.5 | 16QAM | 2.7354 | 3.144 |
| | | | QPSK | 2.7332 | 3.126 |
| 5 | 23035 | 701.5 | 16QAM | 4.5286 | 4.992 |
| | | | QPSK | 4.5383 | 5.157 |
| 5 | 23095 | 707.5 | 16QAM | 4.4922 | 4.972 |
| | | | QPSK | 4.4786 | 5.039 |
| 5 | 23055 | 713.5 | 16QAM | 4.5311 | 5.071 |
| | | | QPSK | 4.5075 | 5.048 |
| 10 | 23060 | 704 | 16QAM | 8.9806 | 10.109 |
| | | | QPSK | 9.0203 | 10.104 |
| 10 | 23095 | 707.5 | 16QAM | 9.0303 | 10.199 |
| | | | QPSK | 9.0150 | 9.934 |
| 10 | 23130 | 711 | 16QAM | 9.1300 | 10.291 |
| | | | QPSK | 9.1449 | 10.078 |

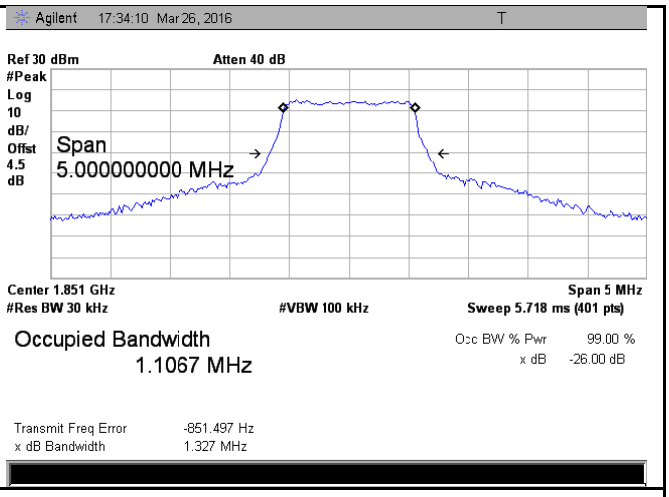
LTE Band 17

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 5 | 23755 | 706.5 | 16QAM | 4.4856 | 5.034 |
| | | | QPSK | 4.4902 | 4.980 |
| 5 | 23790 | 710 | 16QAM | 4.5115 | 5.001 |
| | | | QPSK | 4.5241 | 5.143 |
| 5 | 23825 | 713.5 | 16QAM | 4.5188 | 5.099 |
| | | | QPSK | 4.5245 | 5.085 |
| 10 | 23780 | 709 | 16QAM | 9.0279 | 9.957 |
| | | | QPSK | 9.0642 | 10.047 |
| 10 | 23790 | 710 | 16QAM | 9.0662 | 10.053 |
| | | | QPSK | 9.1003 | 10.145 |
| 10 | 23800 | 711 | 16QAM | 9.1217 | 10.106 |
| | | | QPSK | 9.1435 | 9.977 |

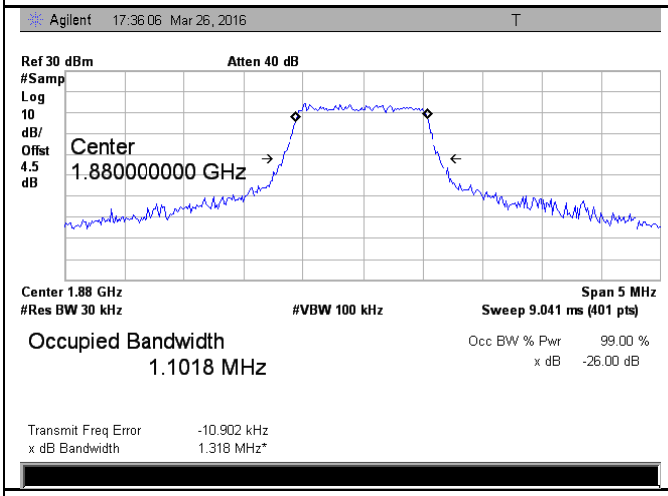
Test Plots:



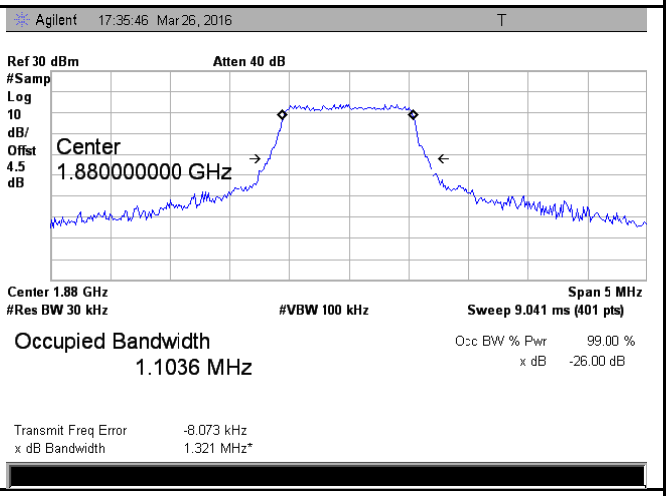

LTE band 2 - Low CH QPSK-1.4



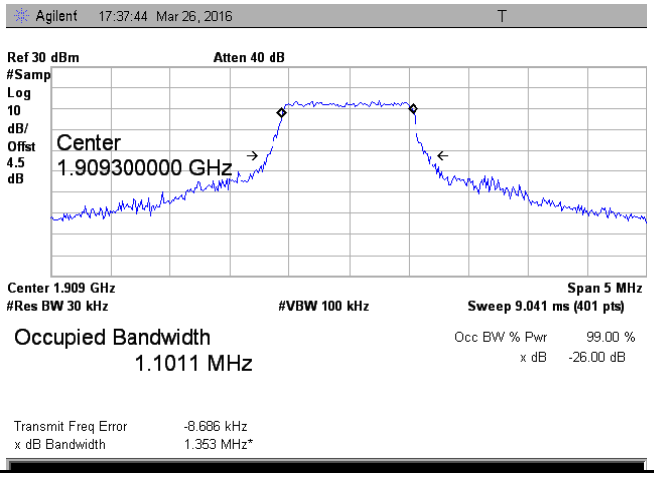

LTE band 2 - Low CH 16QAM-1.4



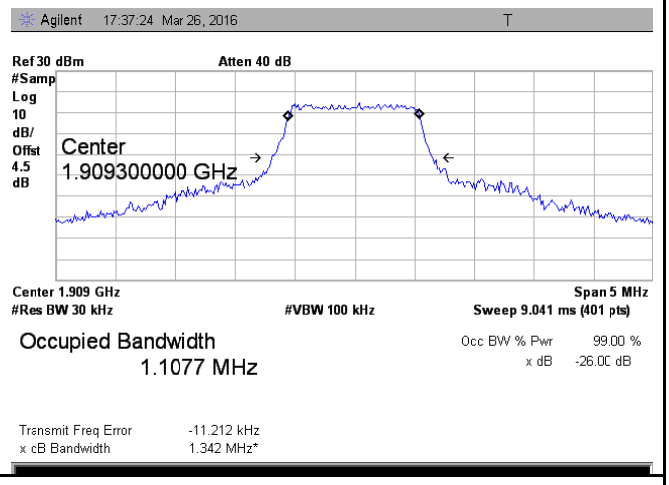

LTE band 2 - Middle CH QPSK-1.4



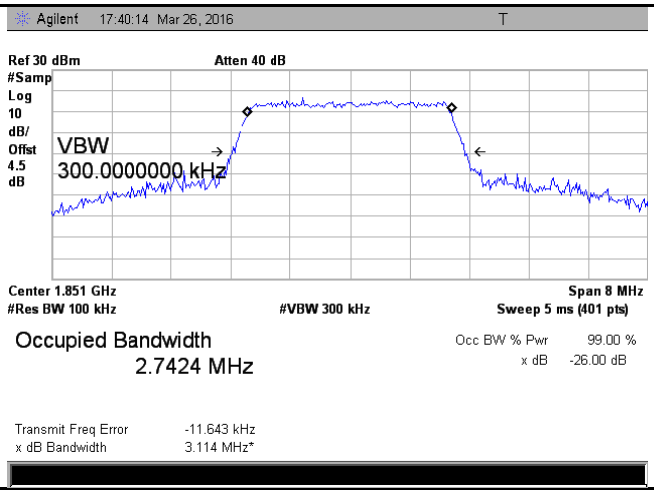

LTE band 2 - Middle CH 16QAM-1.4



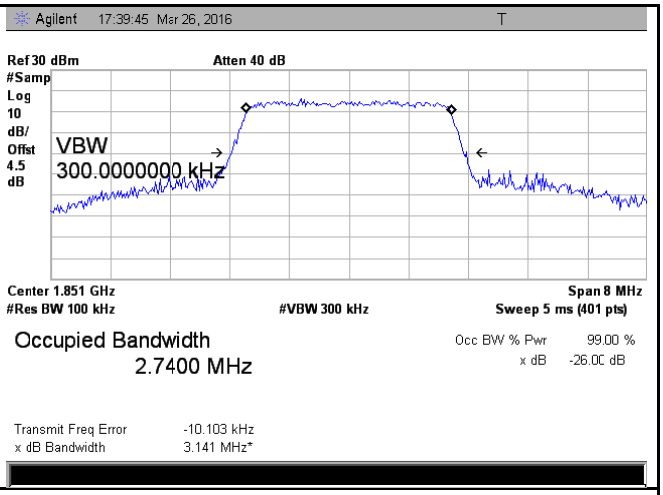

LTE band 2 - High CH QPSK-1.4



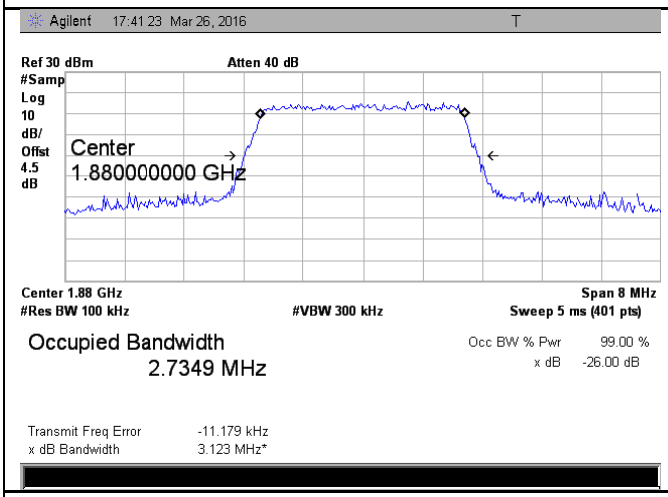

LTE band 2 - High CH 16QAM-1.4



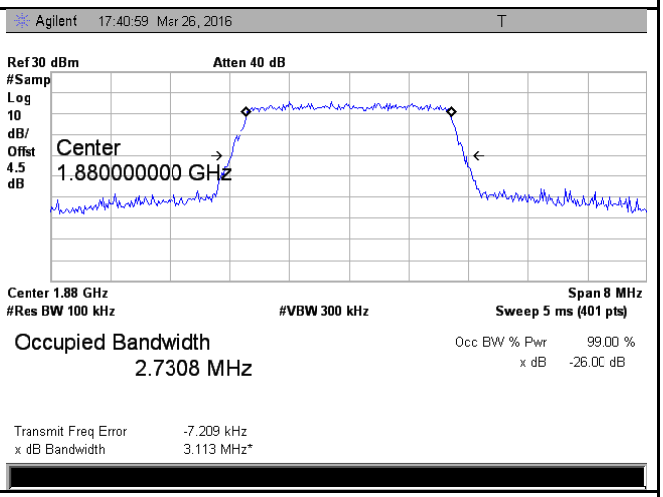

LTE band 2 - Low CH QPSK-3



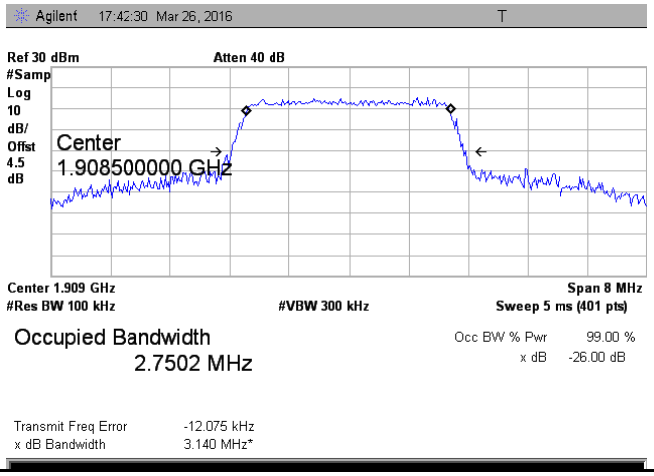

LTE band 2 - Low CH 16QAM-3



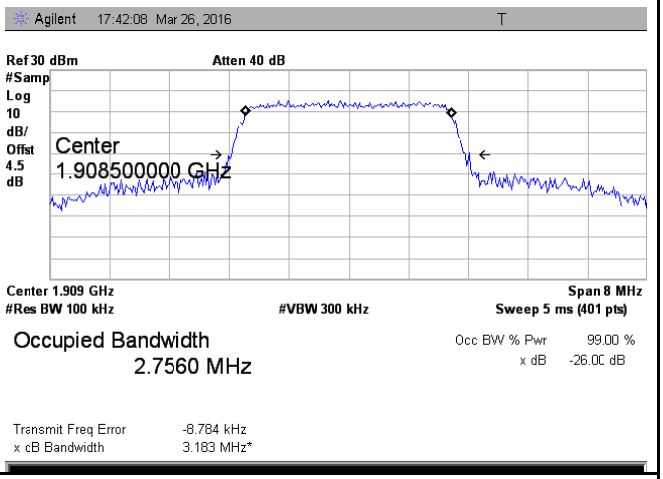

LTE band 2 - Middle CH QPSK-3



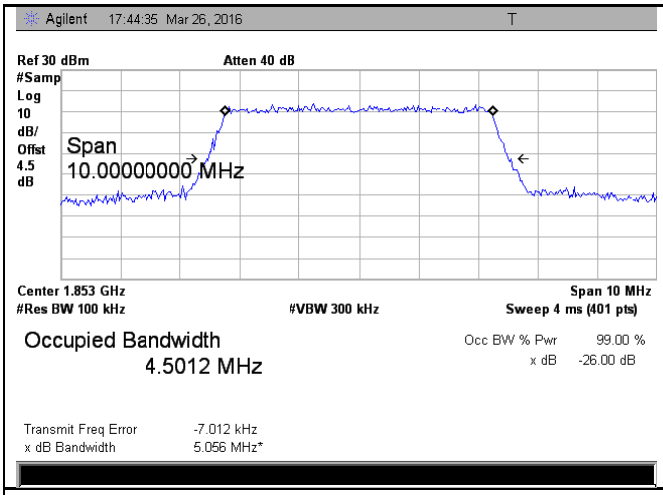

LTE band 2 - Middle CH 16QAM-3



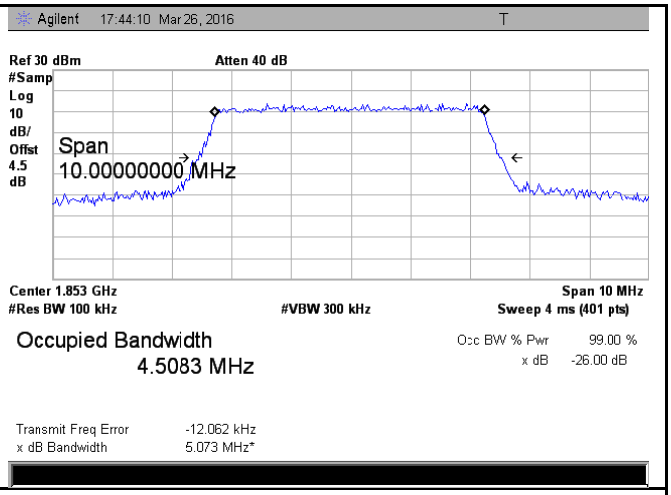

LTE band 2 - High CH QPSK-3



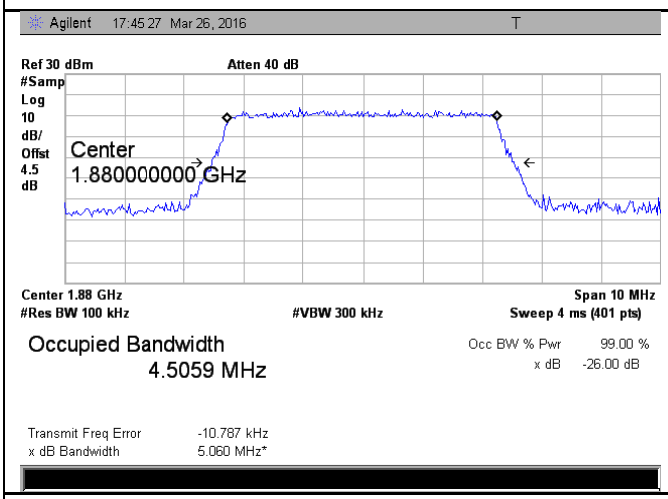

LTE band 2 - High CH 16QAM-3



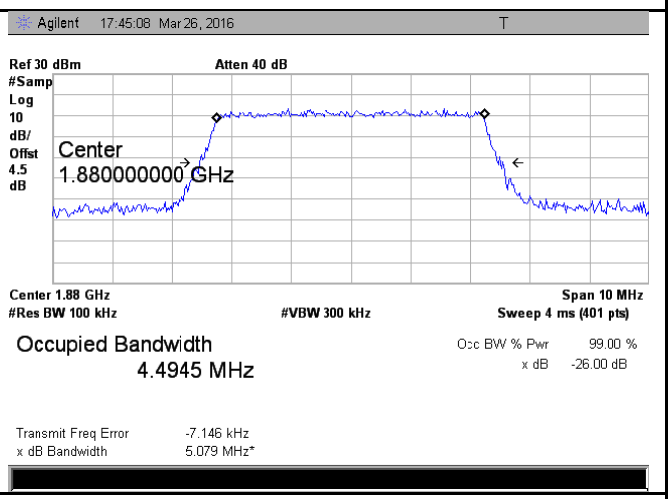

LTE band 2 - Low CH QPSK-5



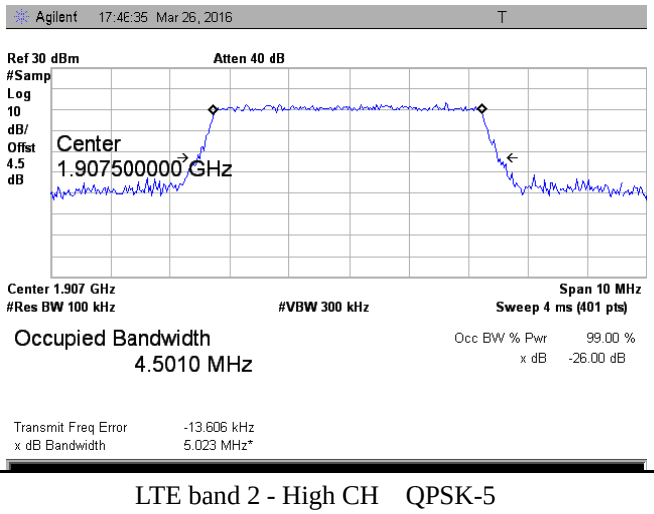

LTE band 2 - Low CH 16QAM-5



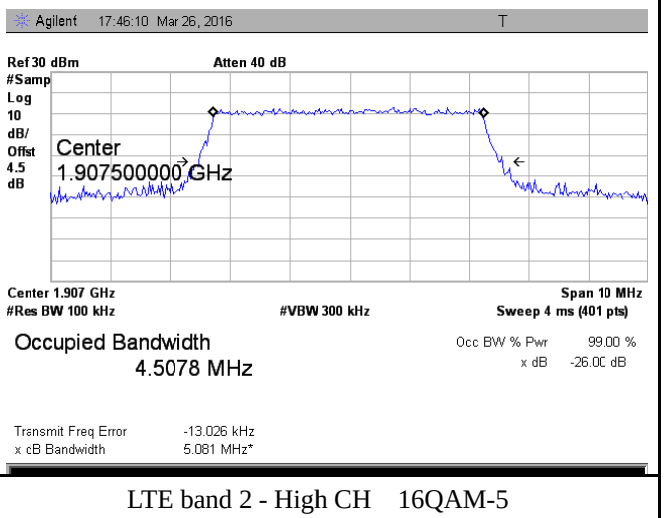

LTE band 2 - Middle CH QPSK-5



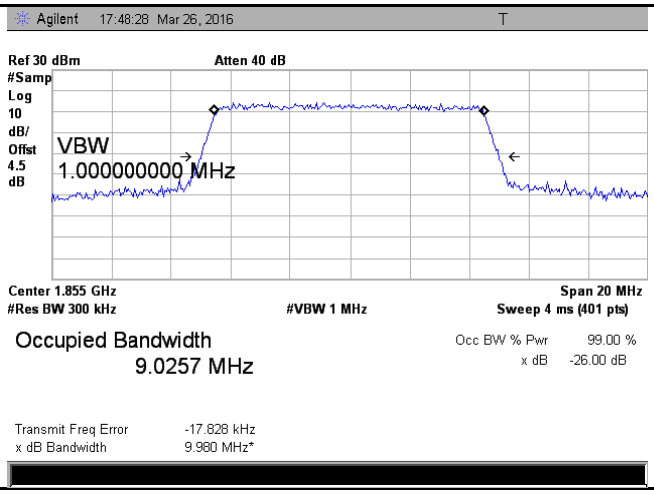

LTE band 2 - Middle CH 16QAM-5



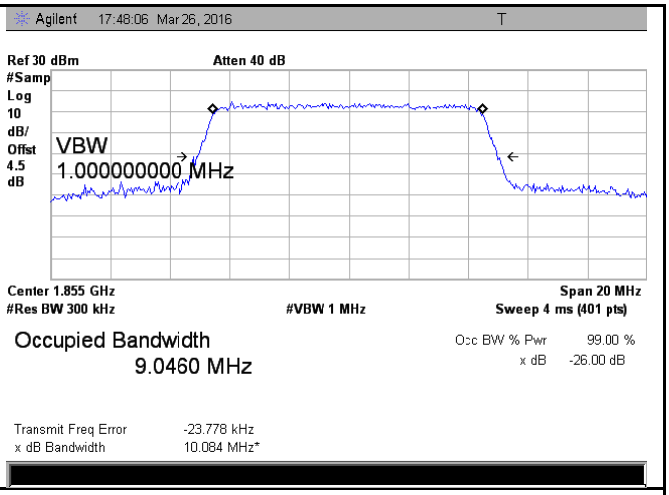

LTE band 2 - High CH QPSK-5



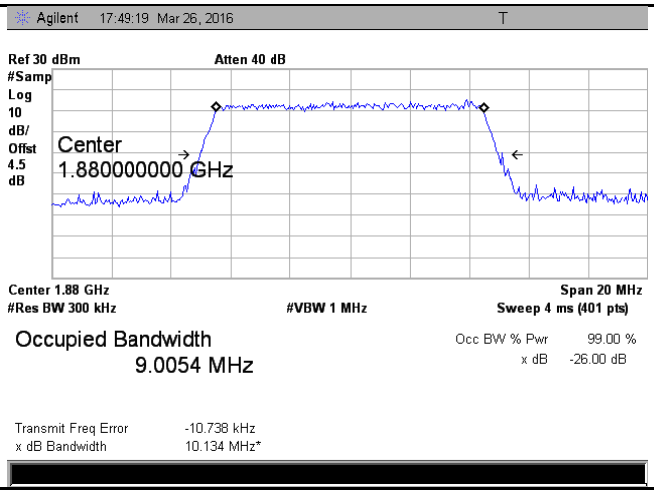

LTE band 2 - High CH 16QAM-5



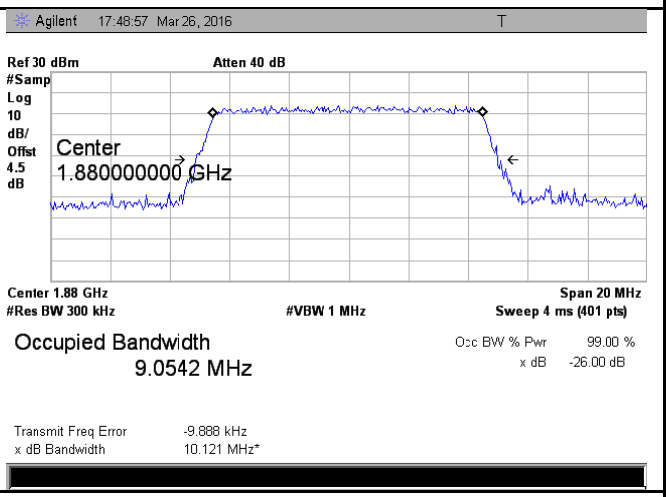

LTE band 2 - Low CH QPSK-10



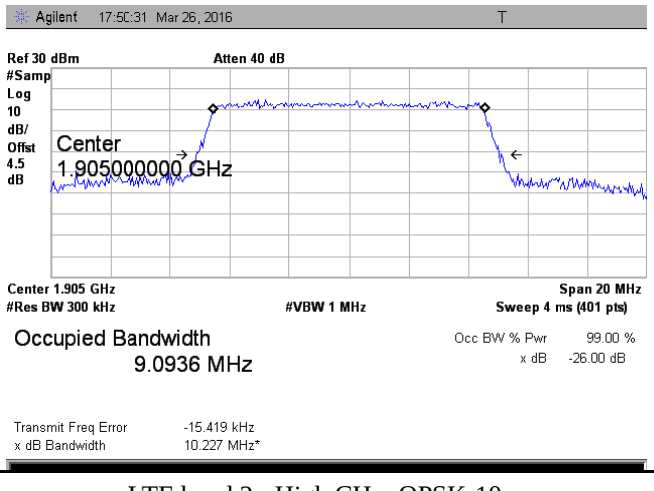

LTE band 2 - Low CH 16QAM-10



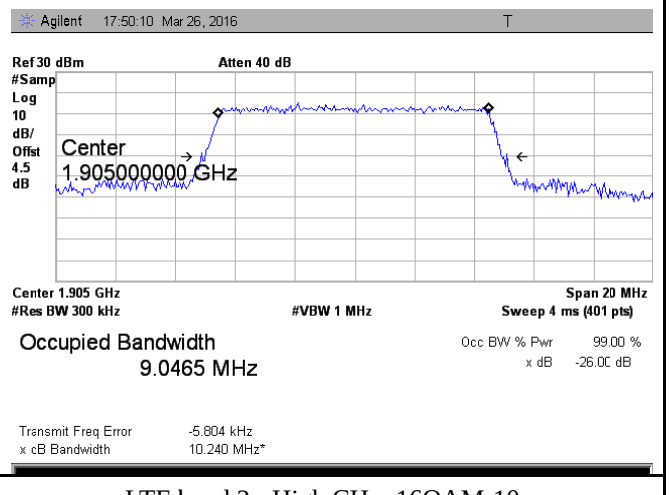

LTE band 2 - Middle CH QPSK-10



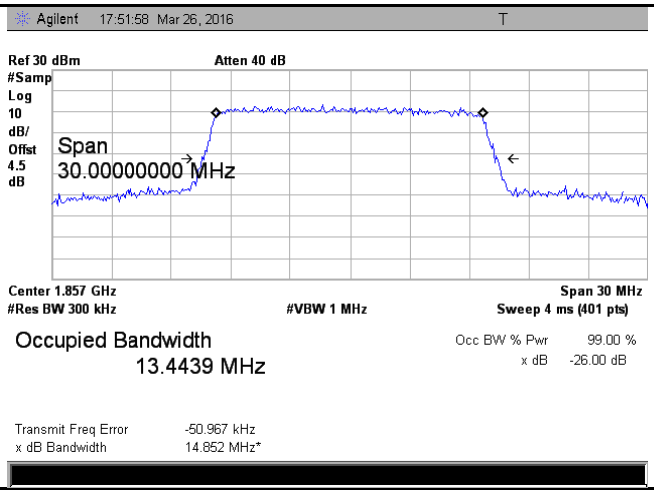

LTE band 2 - Middle CH 16QAM-10



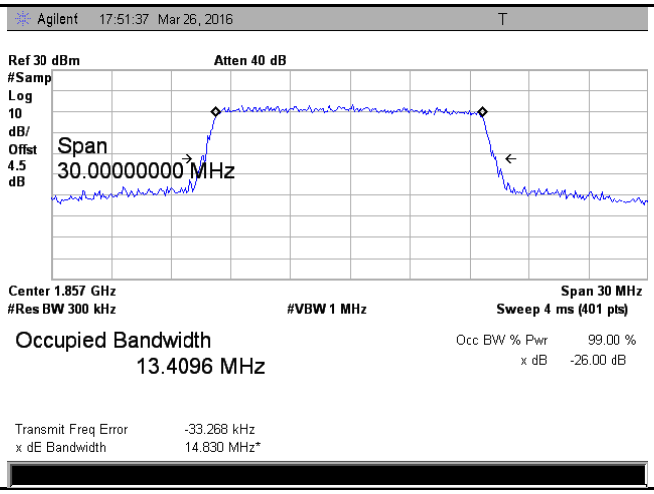

LTE band 2 - High CH QPSK-10



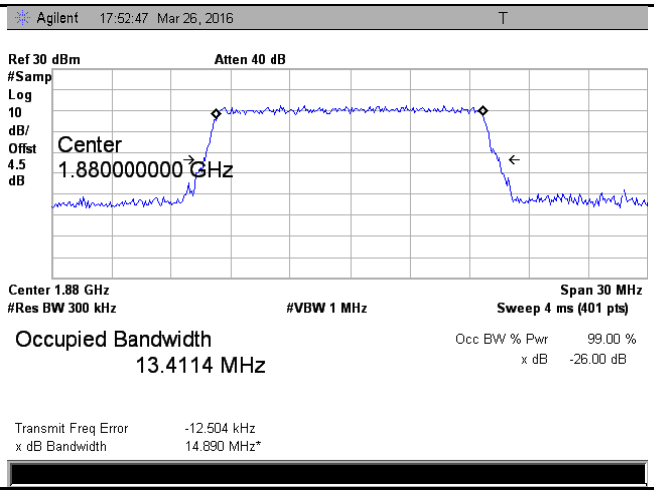

LTE band 2 - High CH 16QAM-10



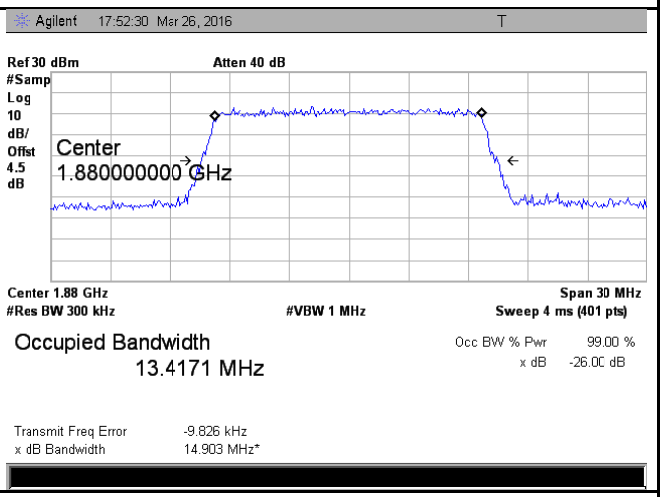

LTE band 2 - Low CH QPSK-15



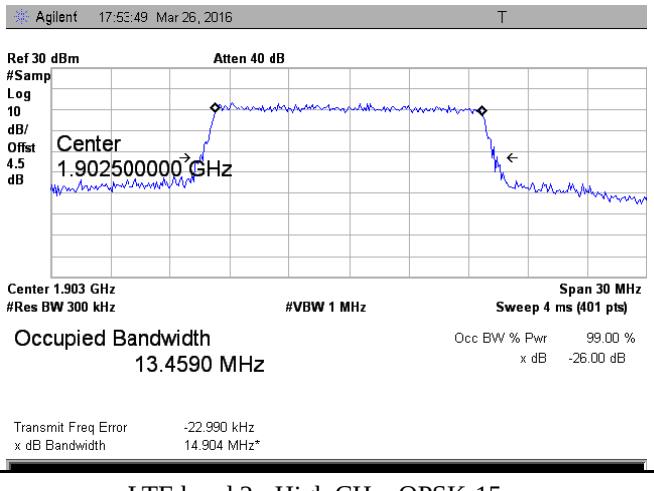

LTE band 2 - Low CH 16QAM-15



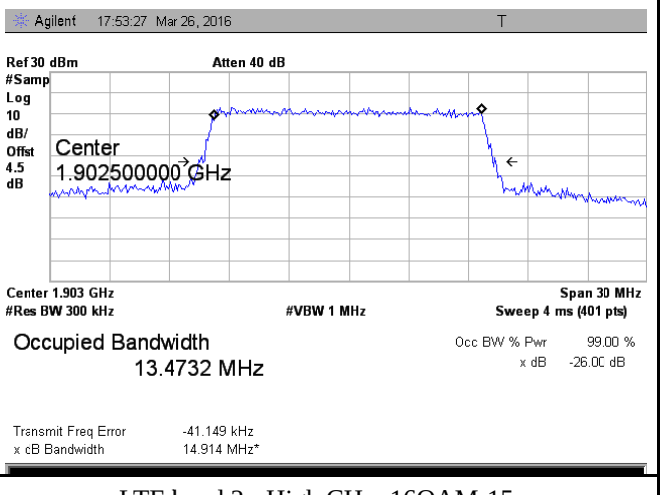

LTE band 2 - Middle CH QPSK-15



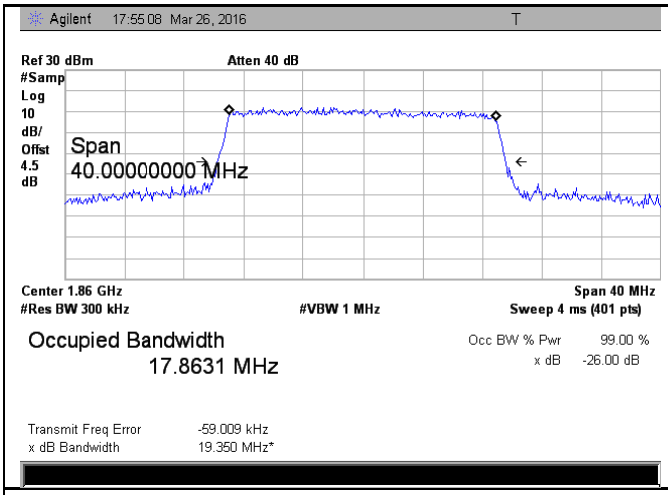

LTE band 2 - Middle CH 16QAM-15



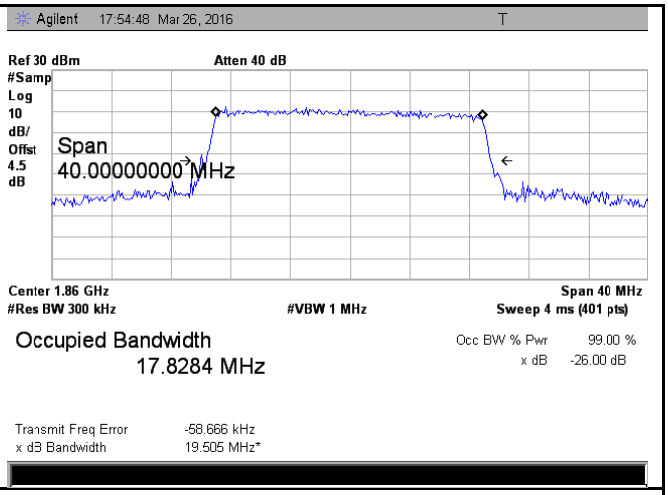

LTE band 2 - High CH QPSK-15



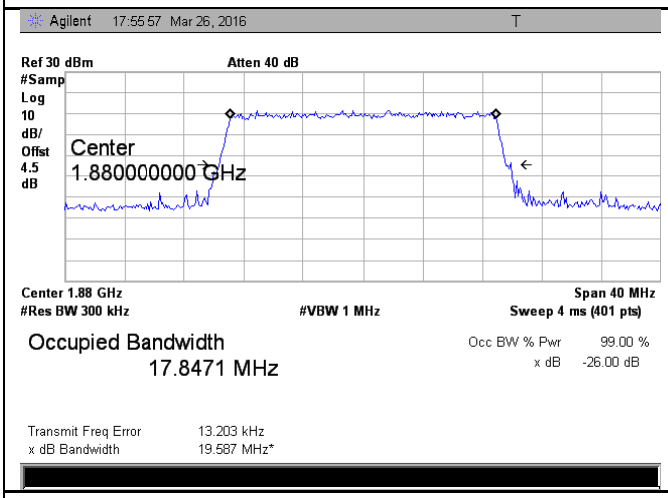

LTE band 2 - High CH 16QAM-15



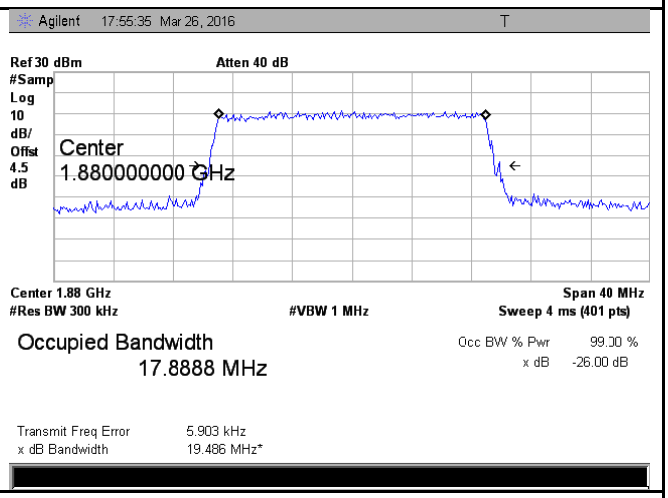

LTE band 2 - Low CH QPSK-20



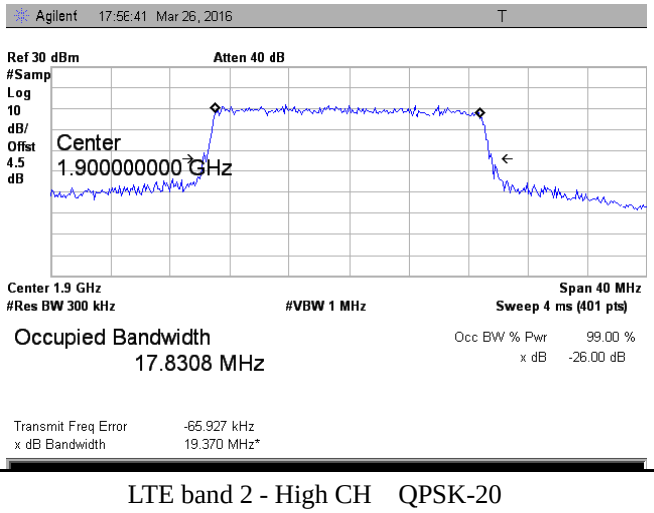

LTE band 2 - Low CH 16QAM-20



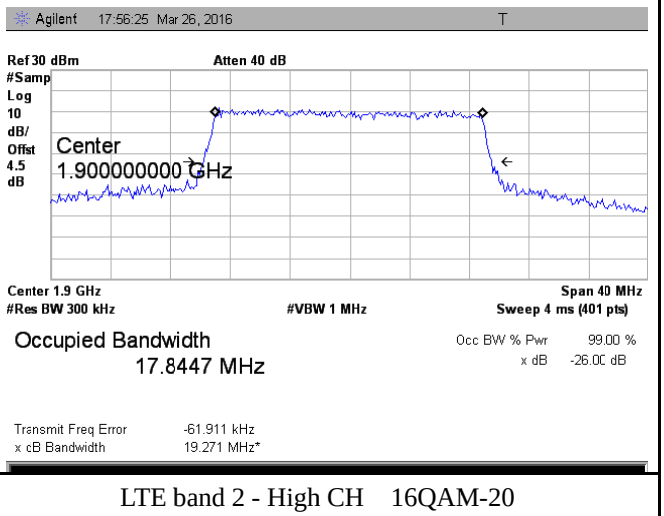

LTE band 2 - Middle CH QPSK-20




LTE band 2 - Middle CH 16QAM-20

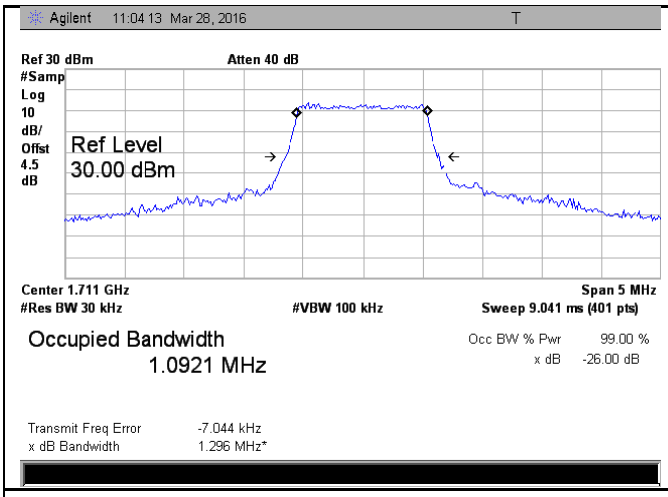



LTE band 2 - High CH QPSK-20

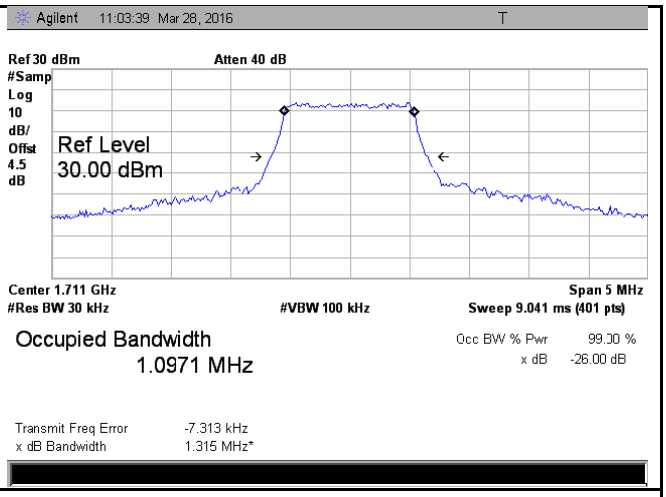



LTE band 2 - High CH 16QAM-20

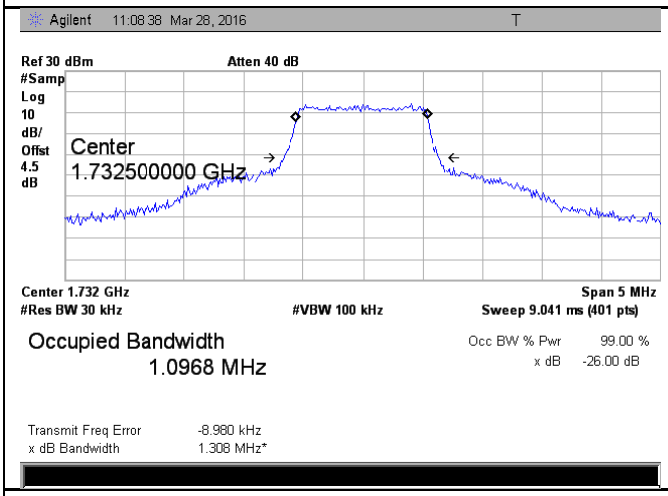
LTE Band 4:



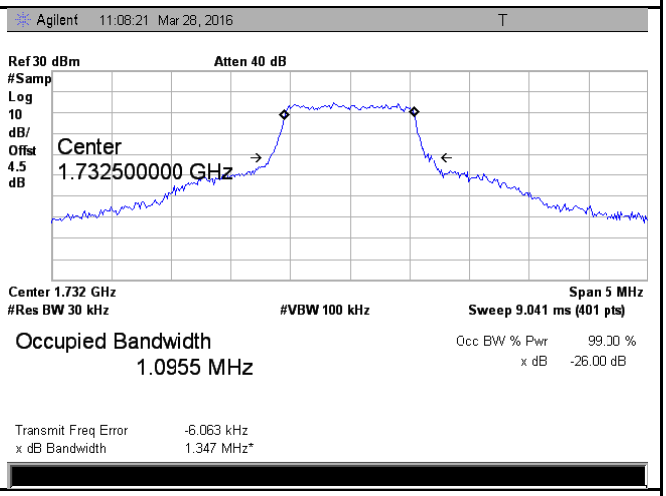

LTE band 4 - Low CH QPSK-1.4




LTE band 4 - Low CH 16QAM-1.4




LTE band 4 - Middle CH QPSK-1.4

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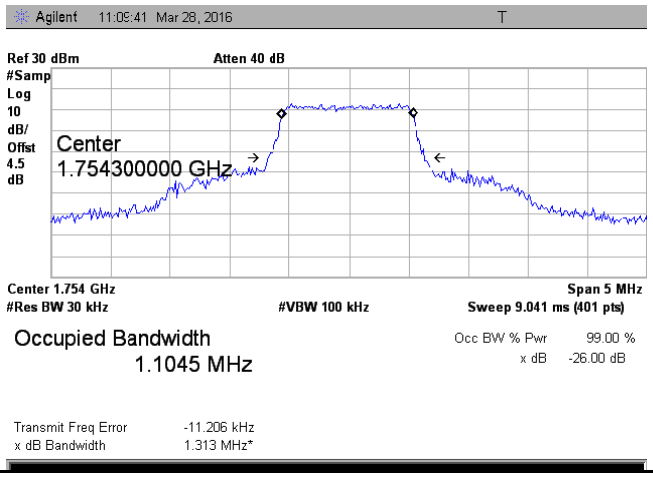


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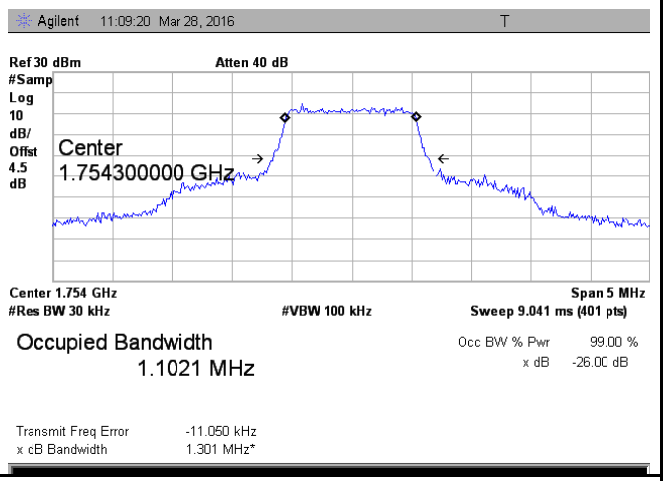


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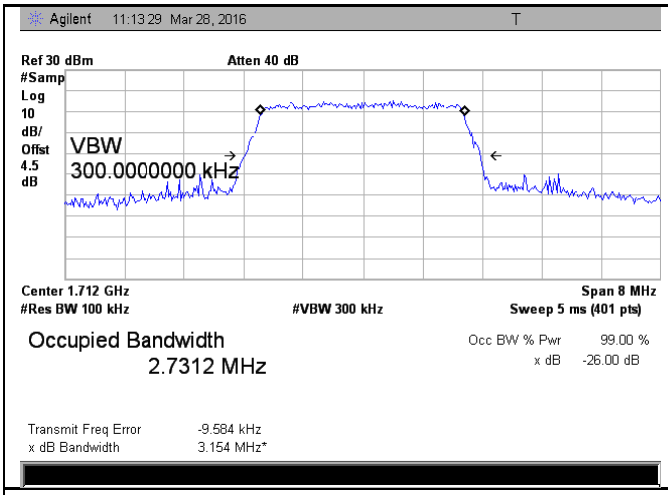
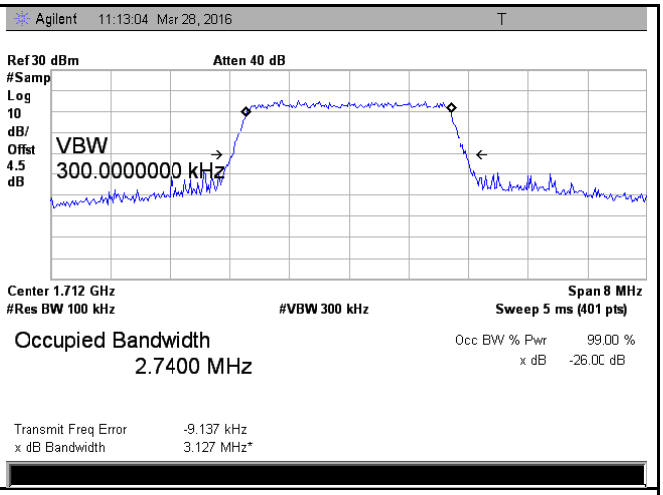
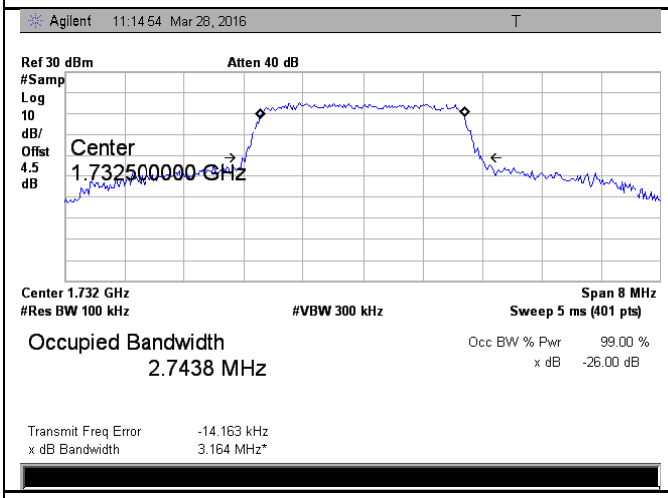


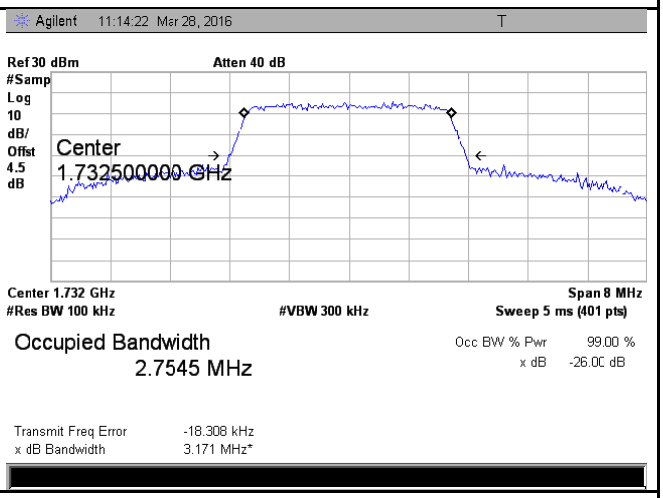

LTE band 4 - Low CH QPSK-3



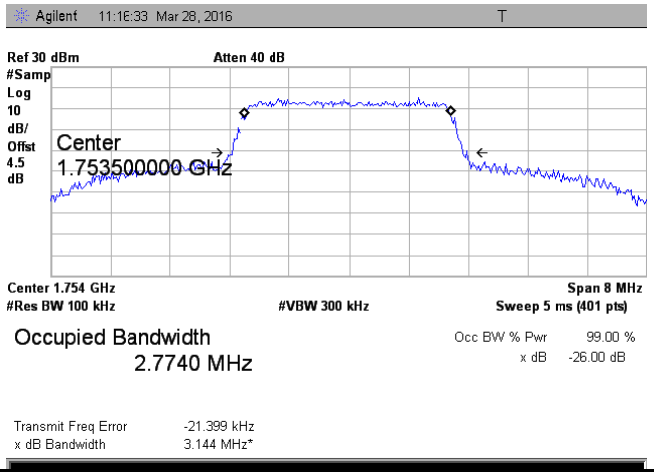

LTE band 4 - Low CH 16QAM-3



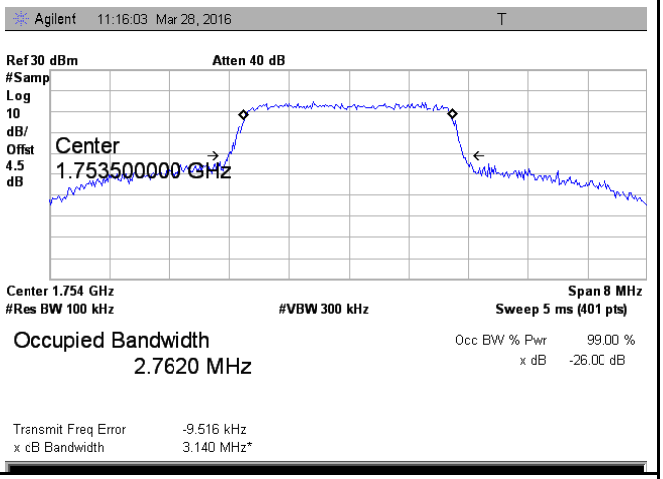

LTE band 4 - Middle CH QPSK-3



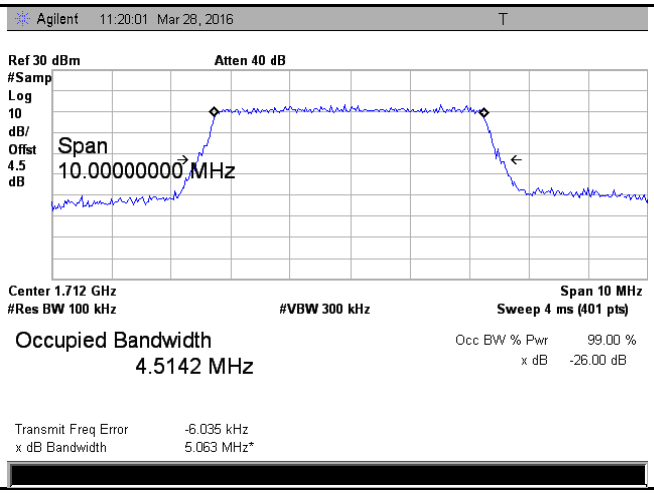

LTE band 4 - Middle CH 16QAM-3



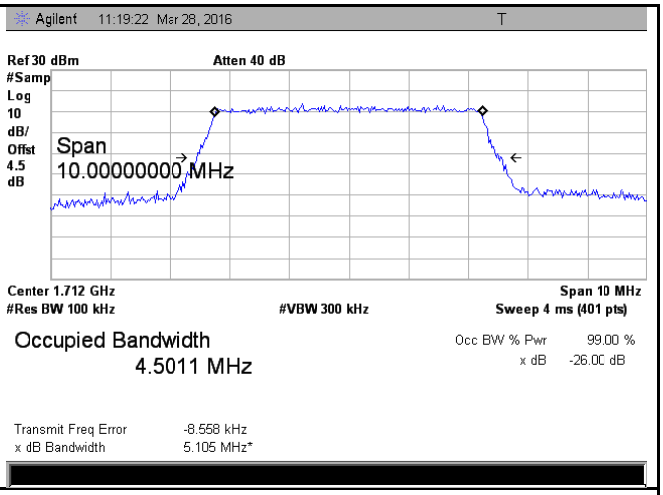

LTE band 4 - High CH QPSK-3



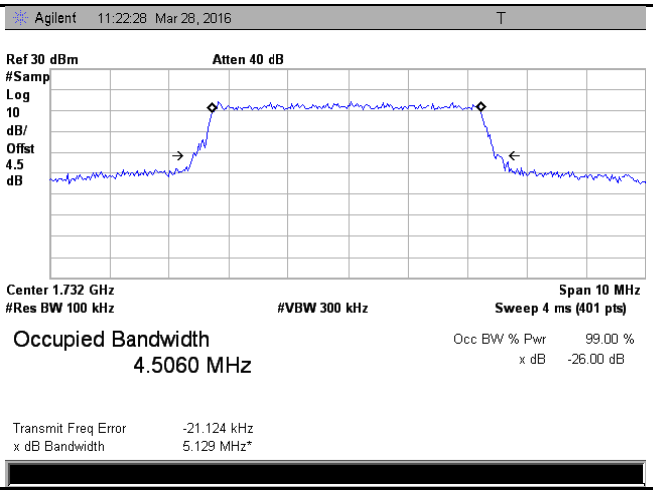

LTE band 4 - High CH 16QAM-3



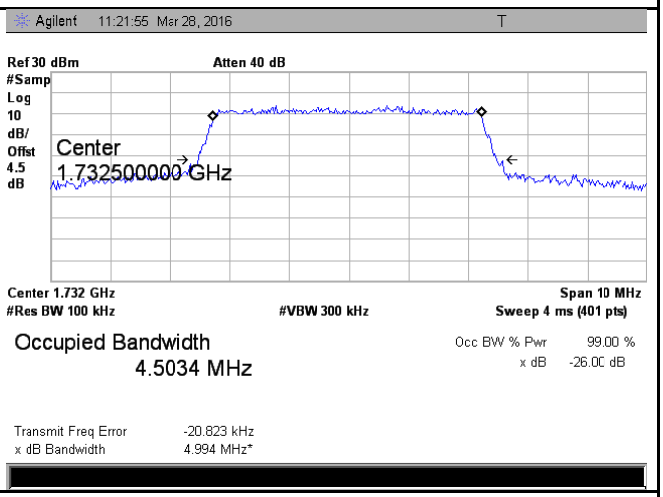

LTE band 4 - Low CH QPSK-5



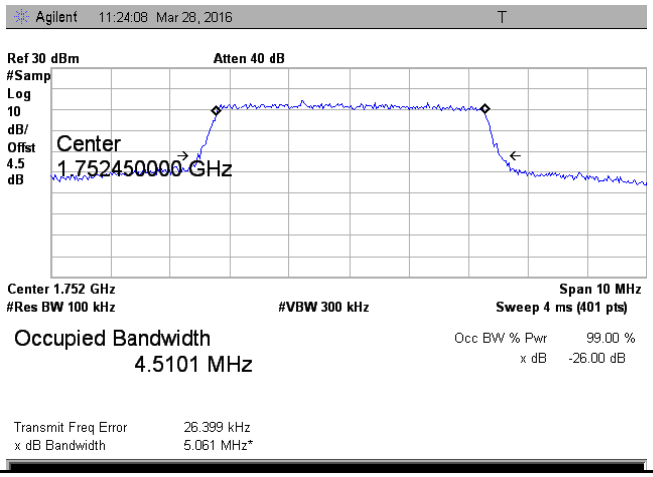

LTE band 4 - Low CH 16QAM-5



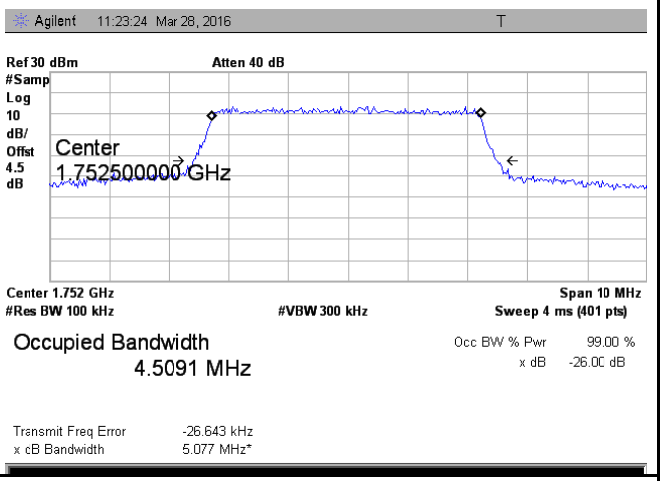

LTE band 4 - Middle CH QPSK-5



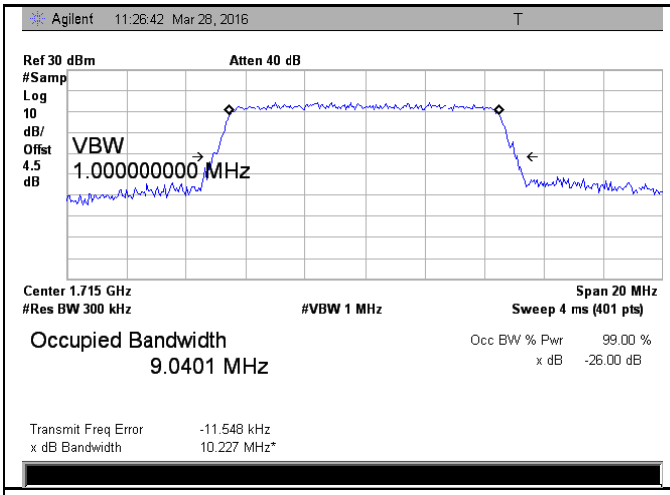

LTE band 4 - Middle CH 16QAM-5



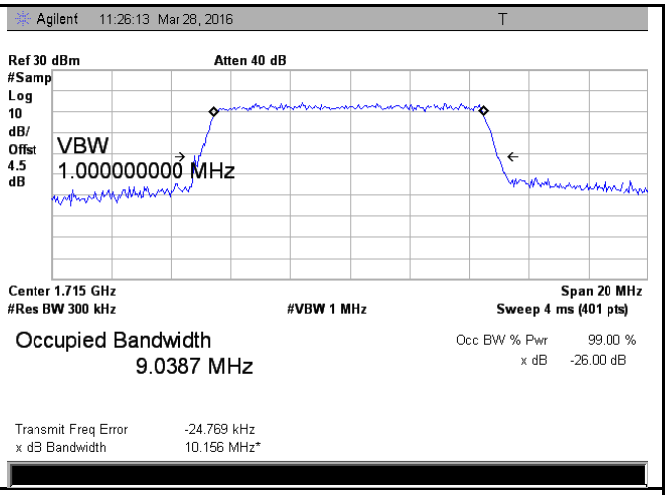

LTE band 4 - High CH QPSK-5



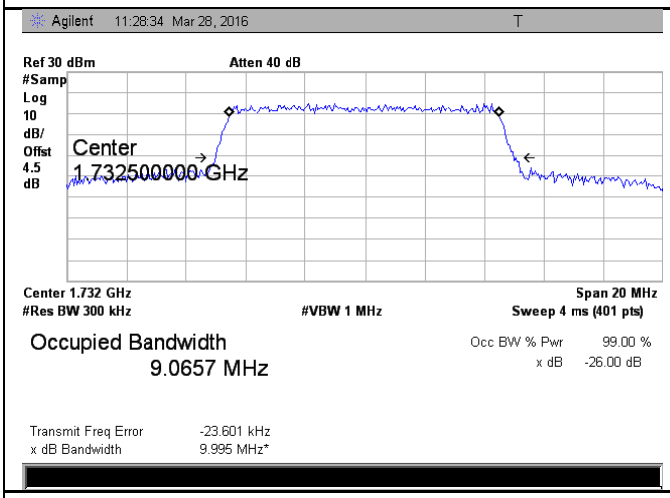

LTE band 4 - High CH 16QAM-5



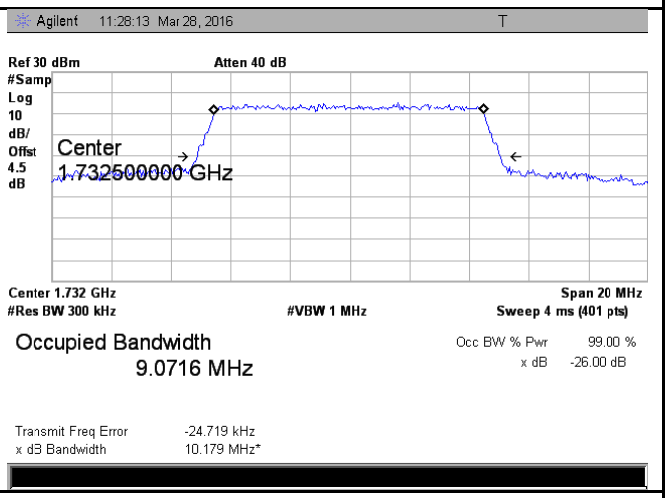

LTE band 4 - Low CH QPSK-10



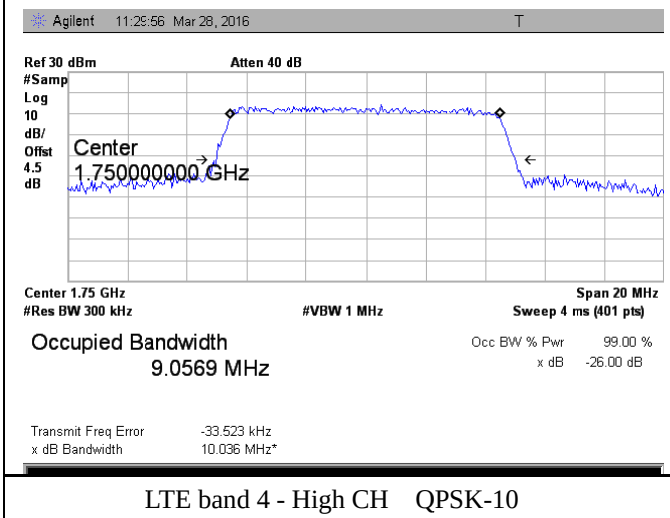

LTE band 4 - Low CH 16QAM-10



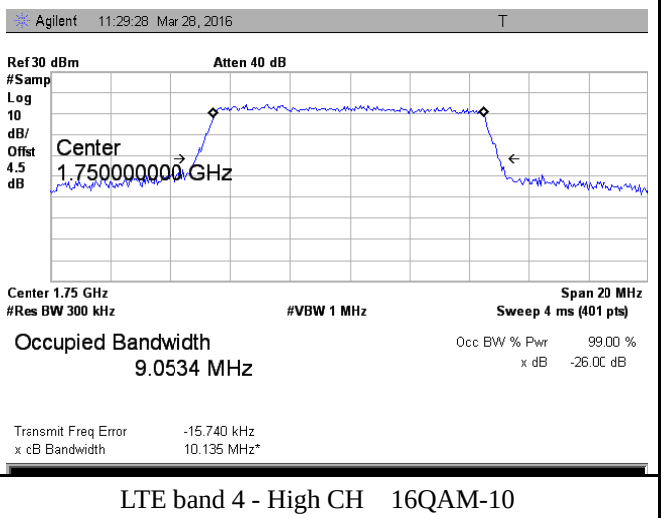

LTE band 4 - Middle CH QPSK-10



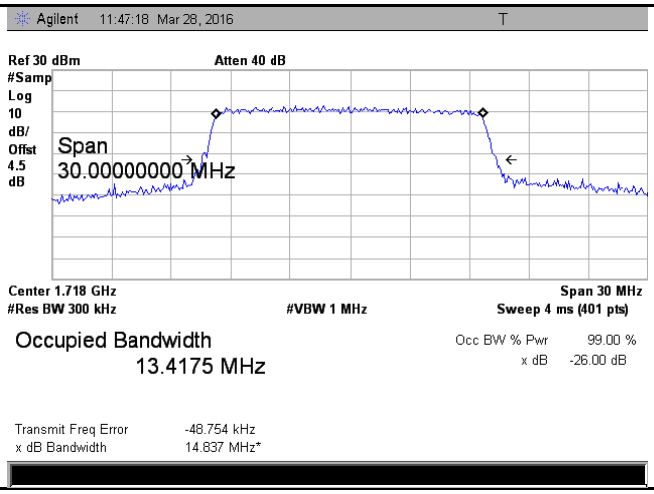

LTE band 4 - Middle CH 16QAM-10



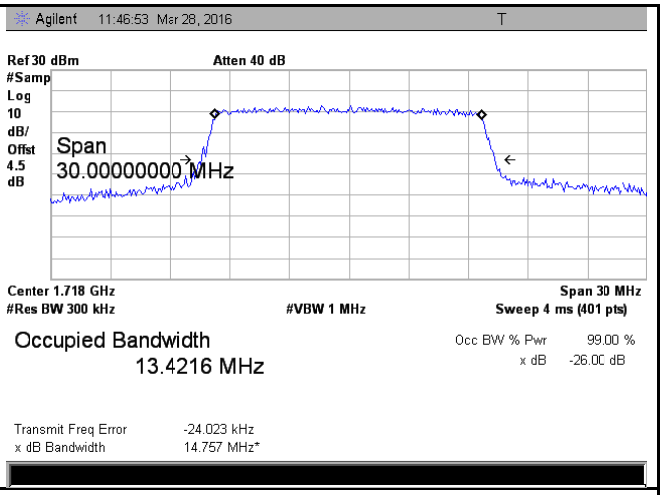

LTE band 4 - High CH QPSK-10



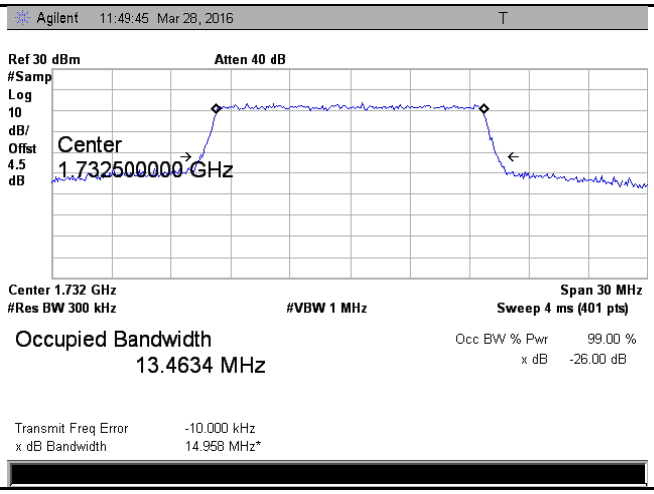

LTE band 4 - High CH 16QAM-10



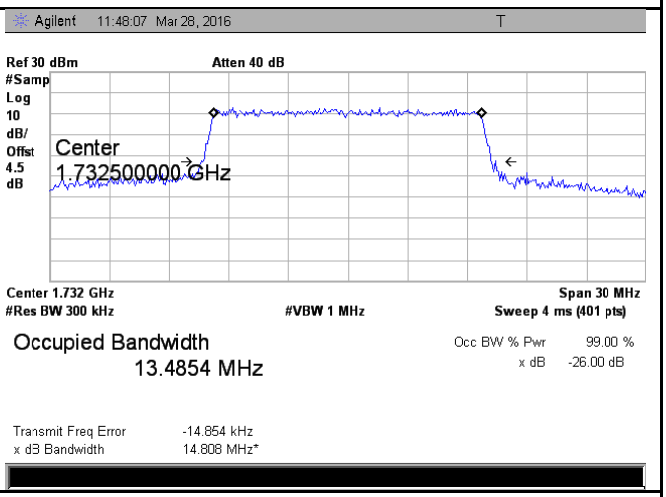

LTE band 4 - Low CH QPSK-15



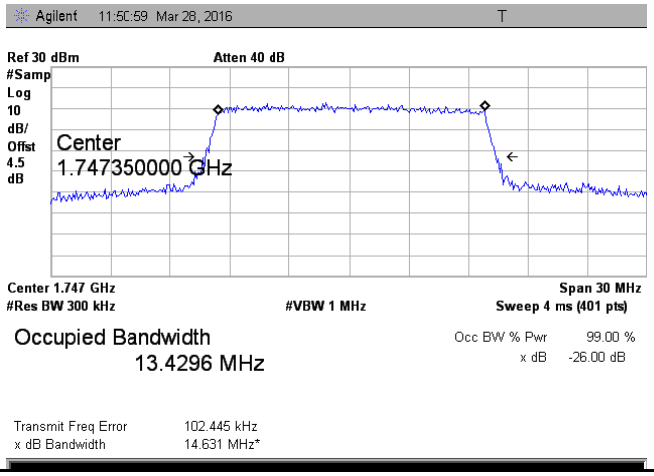

LTE band 4 - Low CH 16QAM-15



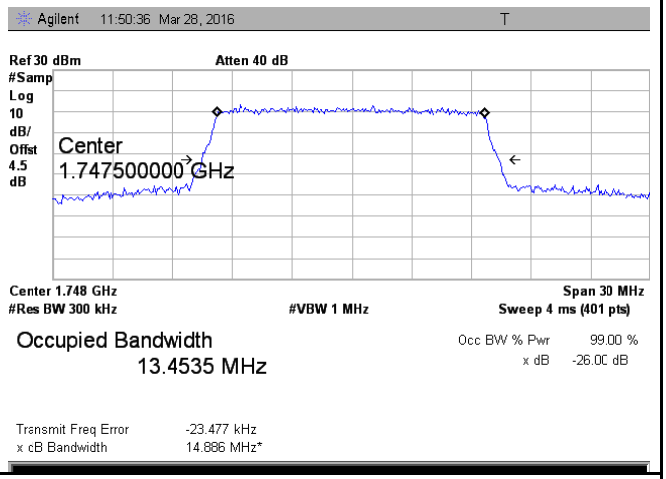

LTE band 4 - Middle CH QPSK-15



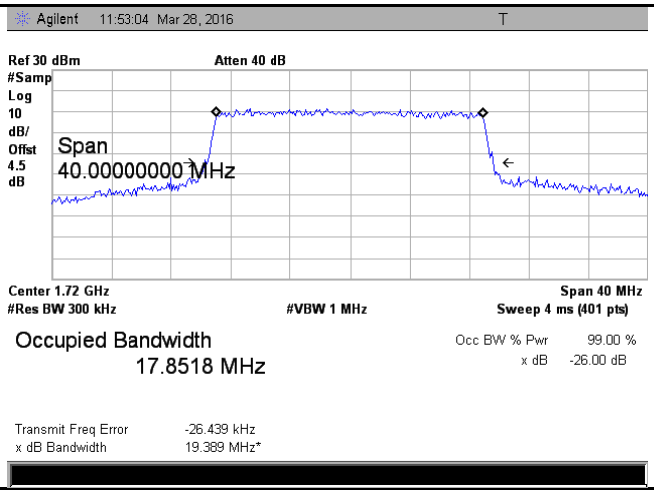

LTE band 4 - Middle CH 16QAM-15



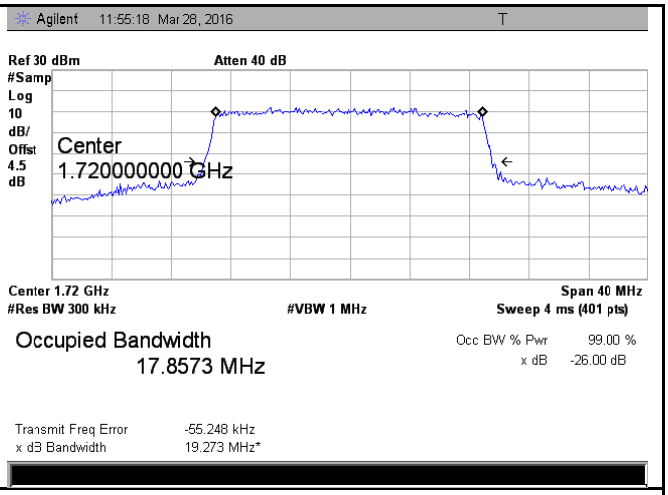

LTE band 4 - High CH QPSK-15



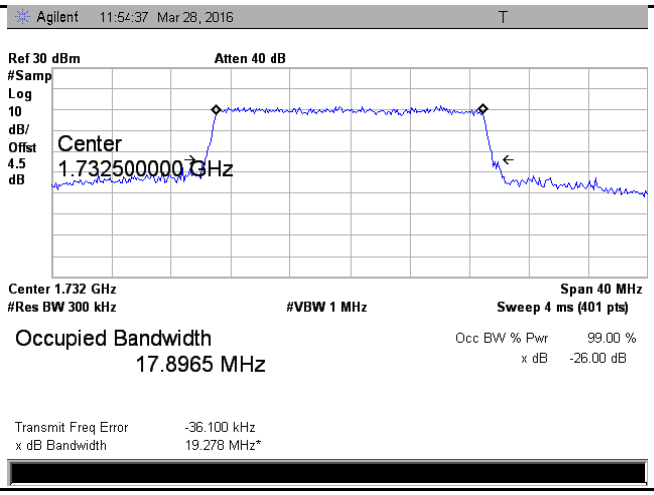

LTE band 4 - High CH 16QAM-15



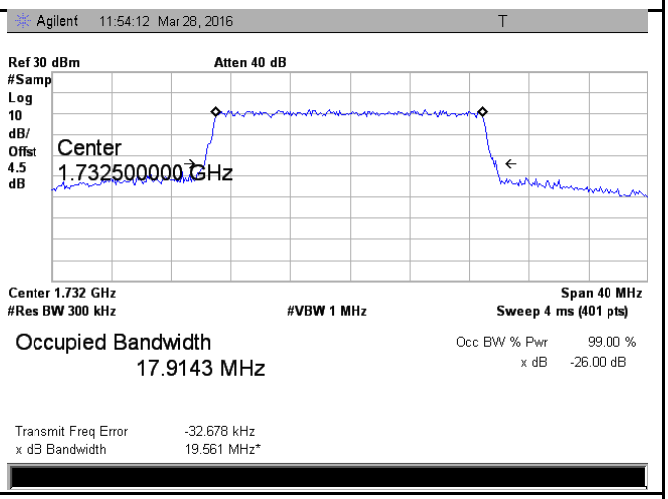

LTE band 4 - Low CH QPSK-20



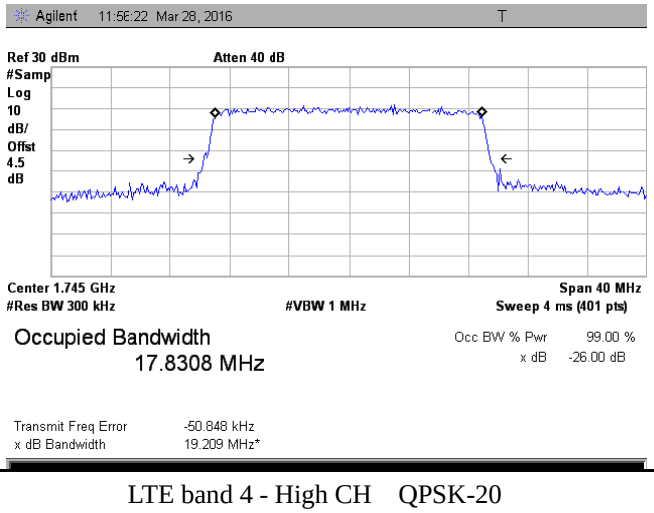

LTE band 4 - Low CH 16QAM-20



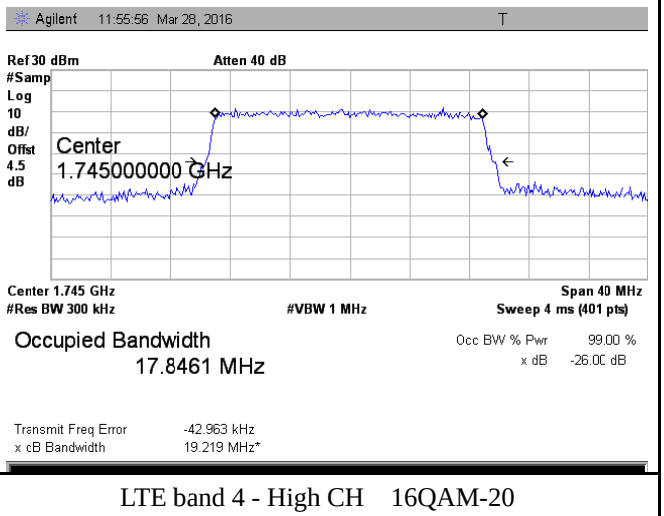

LTE band 4 - Middle CH QPSK-20




LTE band 4 - Middle CH 16QAM-20

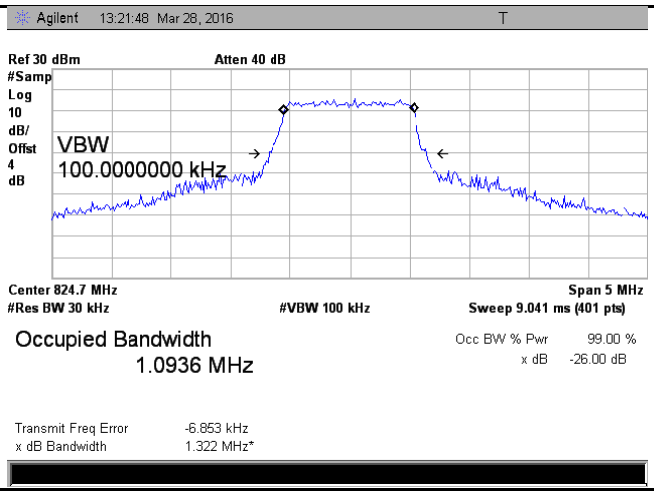



LTE band 4 - High CH QPSK-20

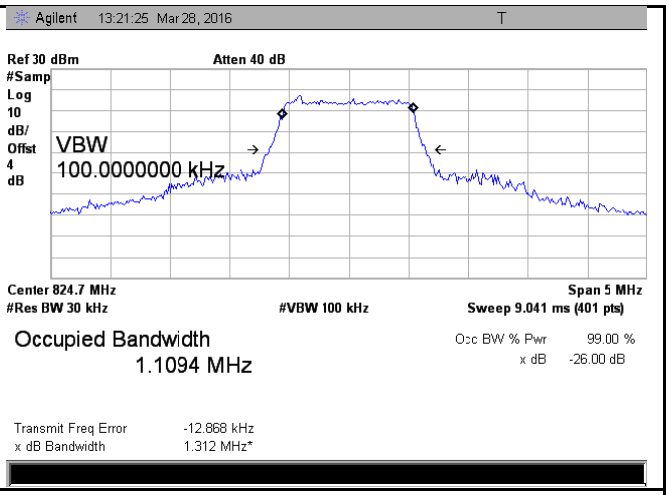



LTE band 4 - High CH 16QAM-20

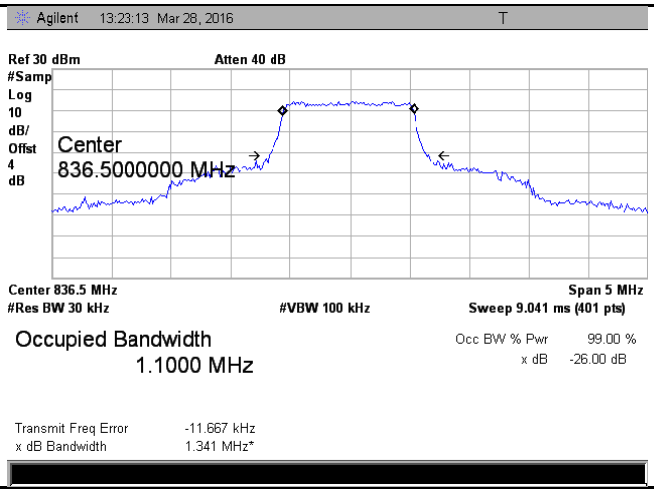
LTE Band 5:



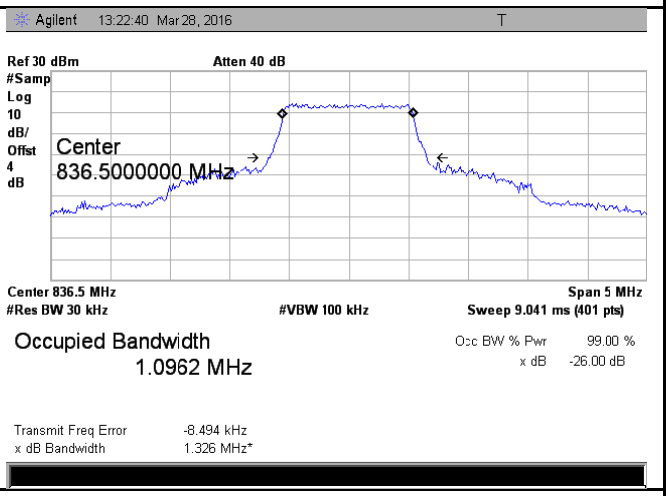

LTE band 5 - Low CH QPSK-1.4



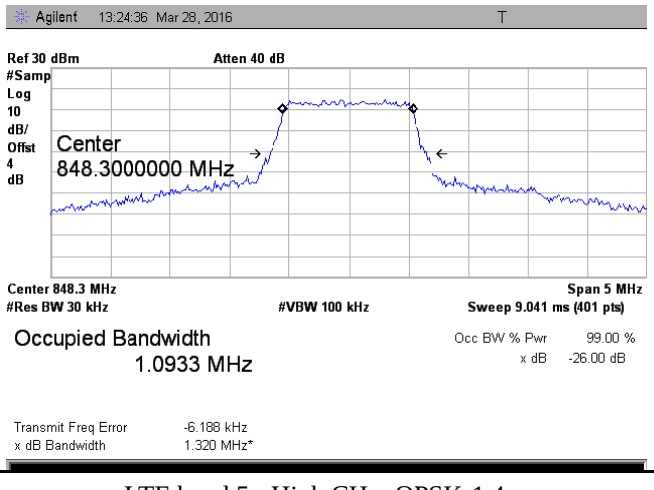

LTE band 5 - Low CH 16QAM-1.4



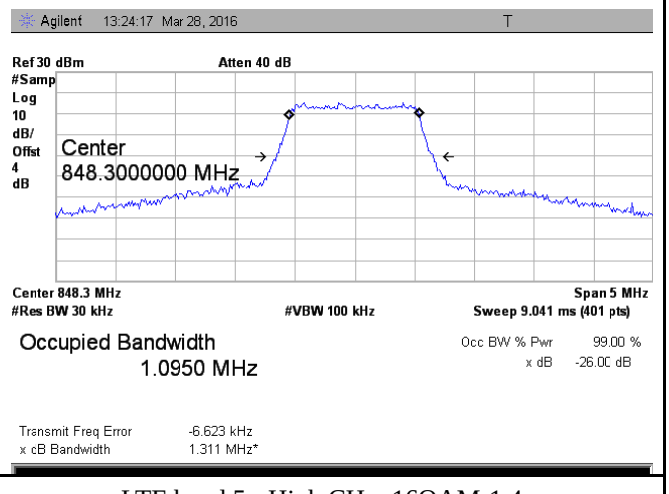

LTE band 5 - Middle CH QPSK-1.4



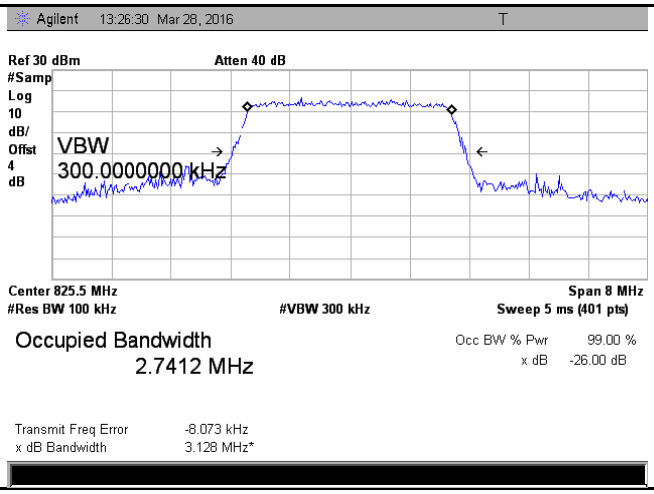

LTE band 5 - Middle CH 16QAM-1.4



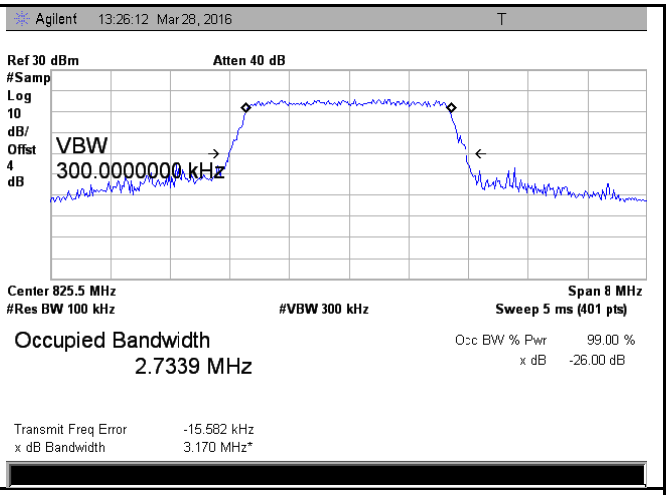

LTE band 5 - High CH QPSK-1.4



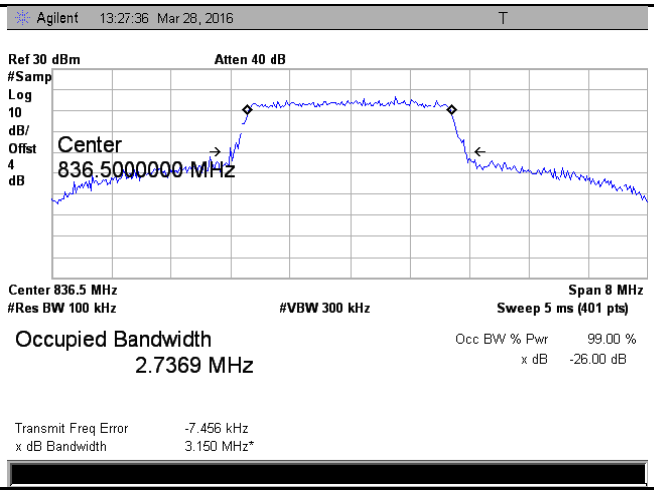

LTE band 5 - High CH 16QAM-1.4



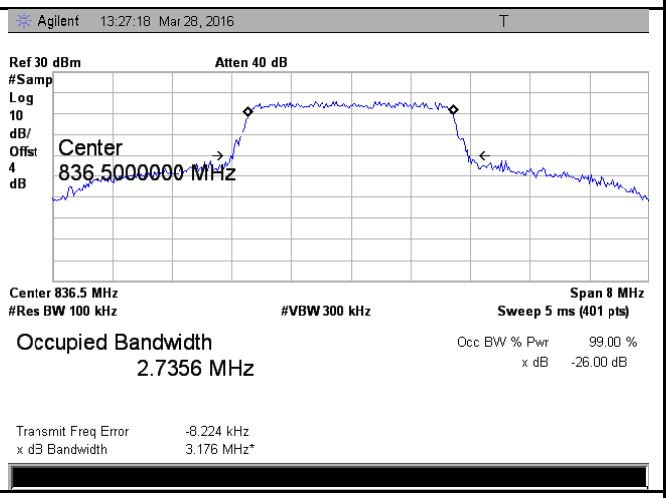

LTE band 5 - Low CH QPSK-3



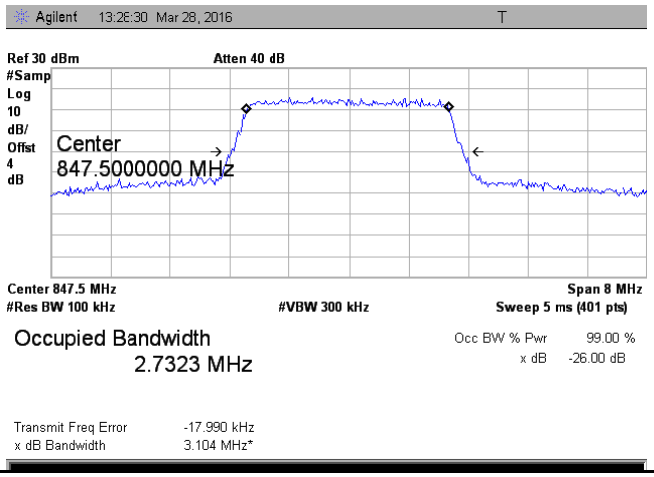

LTE band 5 - Low CH 16QAM-3



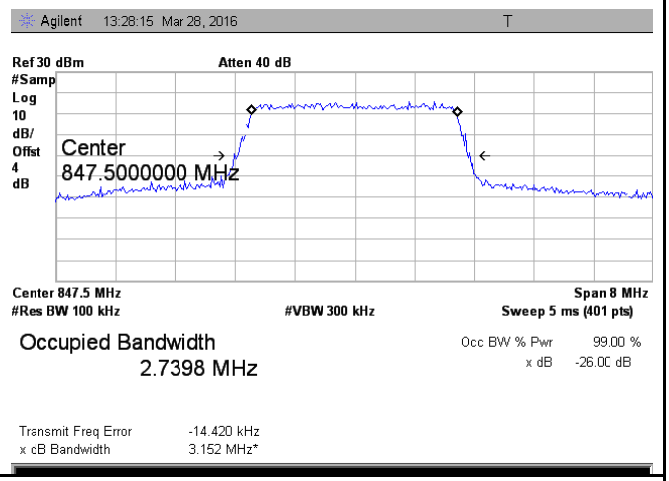

LTE band 5 - Middle CH QPSK-3



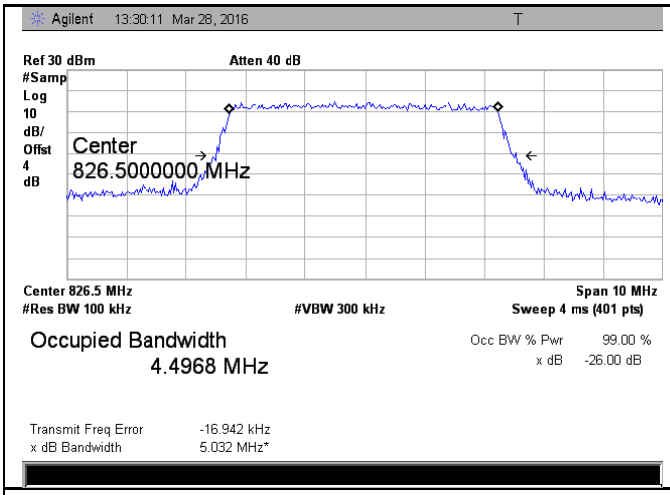

LTE band 5 - Middle CH 16QAM-3



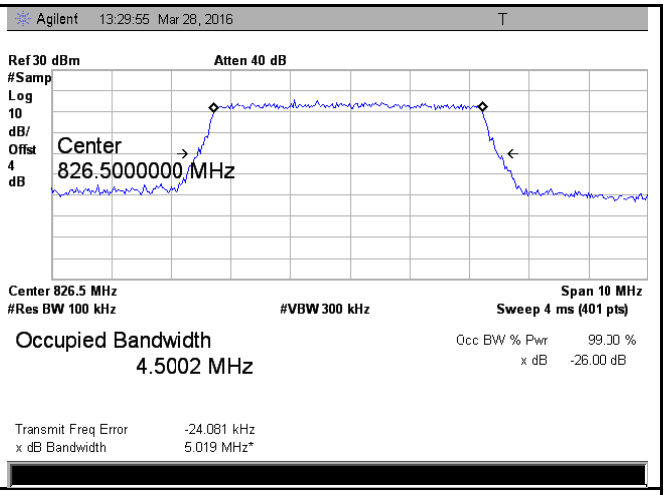

LTE band 5 - High CH QPSK-3



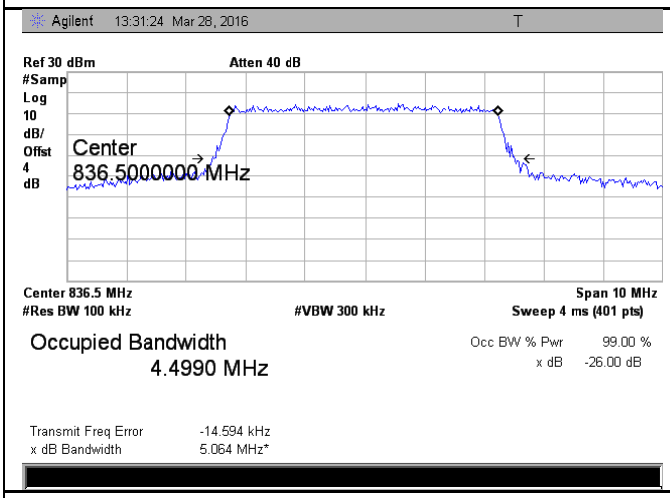

LTE band 5 - High CH 16QAM-3



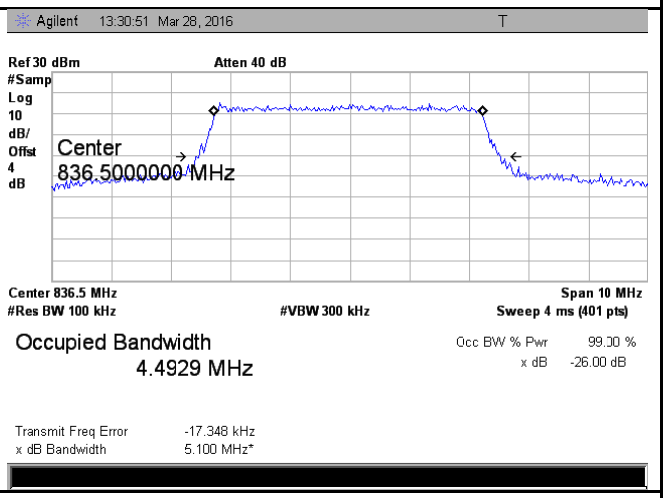

LTE band 5 - Low CH QPSK-5



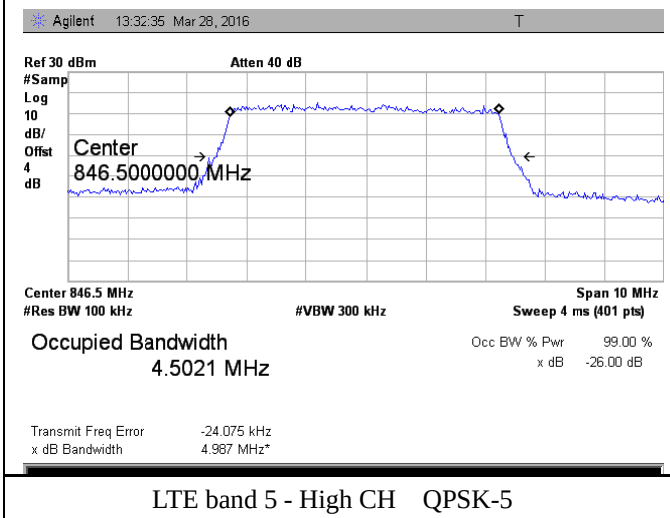

LTE band 5 - Low CH 16QAM-5



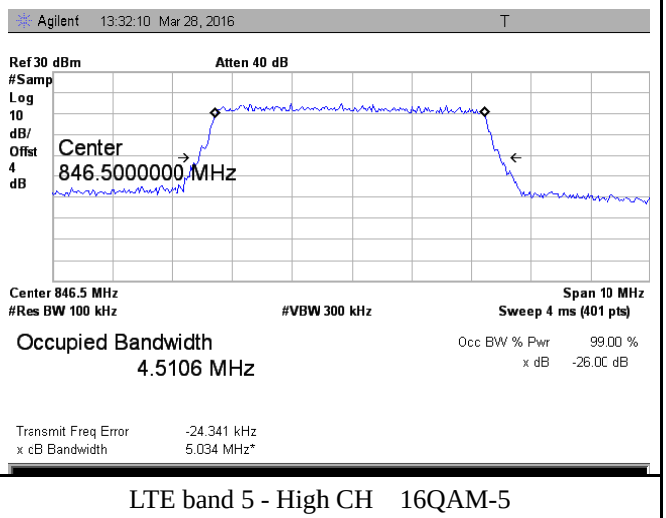

LTE band 5 - Middle CH QPSK-5



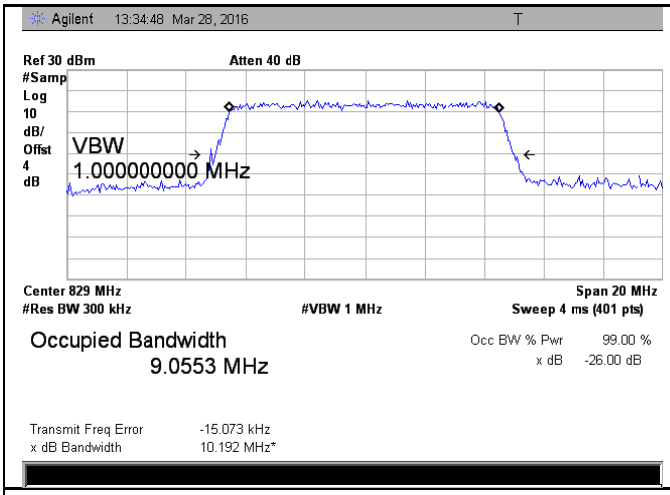

LTE band 5 - Middle CH 16QAM-5



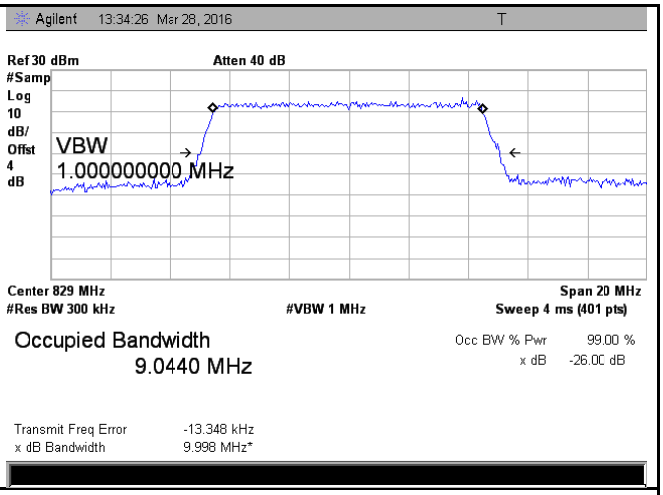

LTE band 5 - High CH QPSK-5



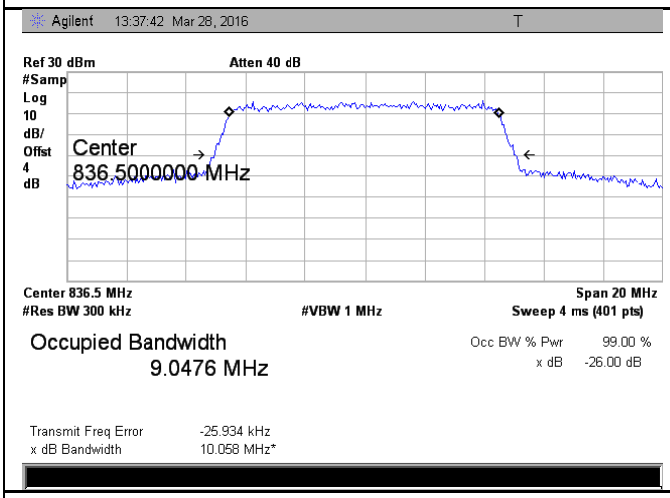

LTE band 5 - High CH 16QAM-5



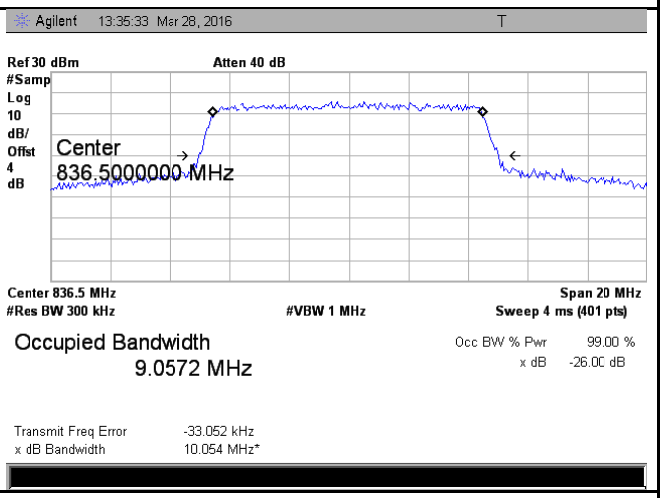

LTE band 5 - Low CH QPSK-10



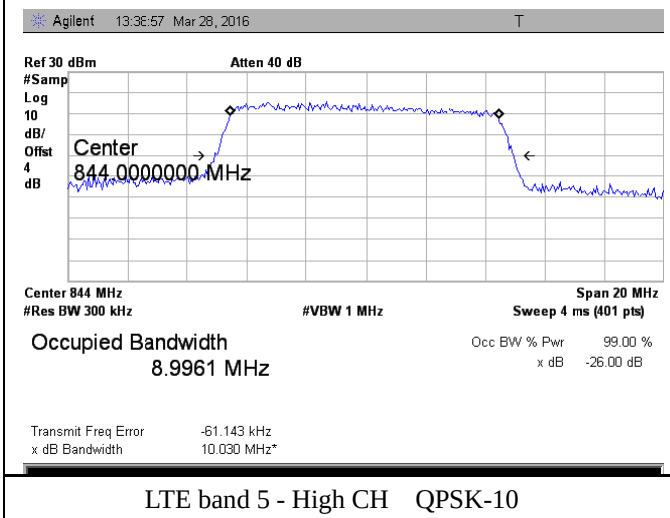

LTE band 5 - Low CH 16QAM-10



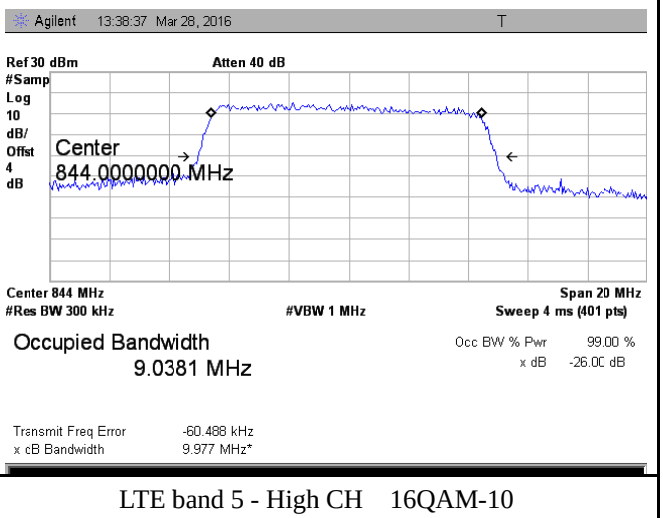

LTE band 5 - Middle CH QPSK-10




LTE band 5 - Middle CH 16QAM-10

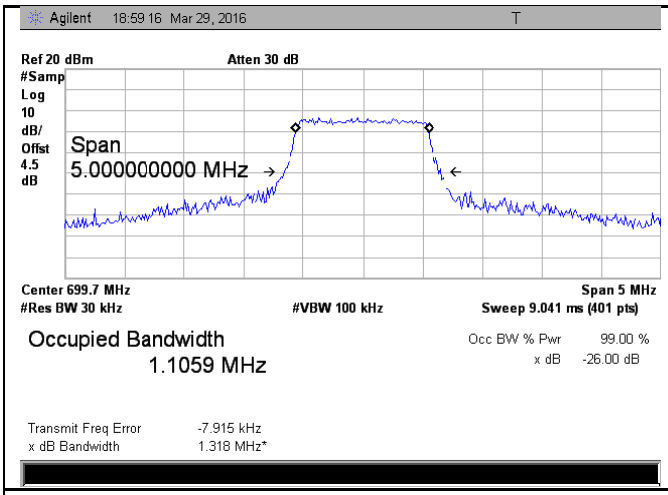



LTE band 5 - High CH QPSK-10

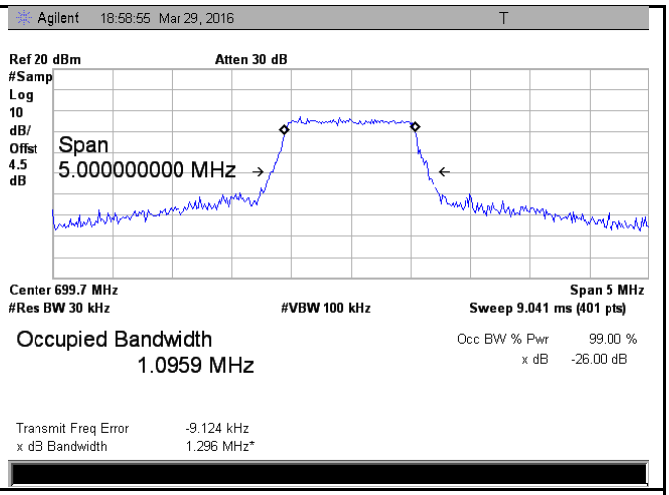



LTE band 5 - High CH 16QAM-10

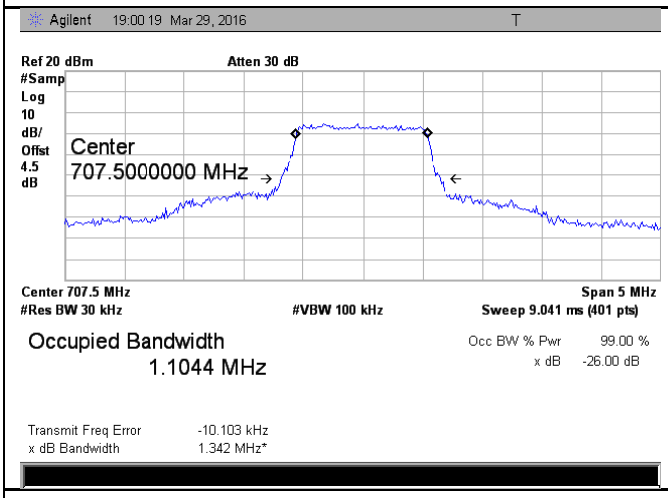
LTE Band 12:



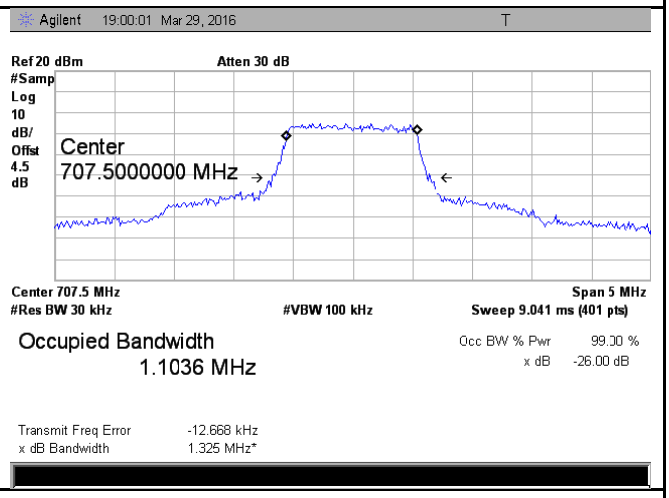

LTE band 12 - Low CH QPSK-1.4



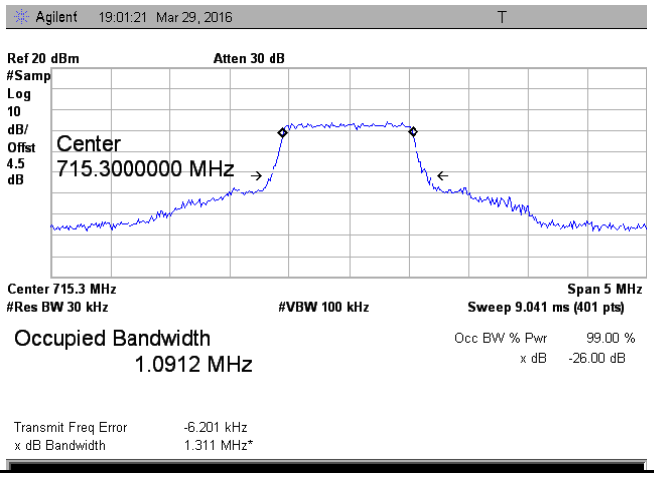

LTE band 12 - Low CH 16QAM-1.4



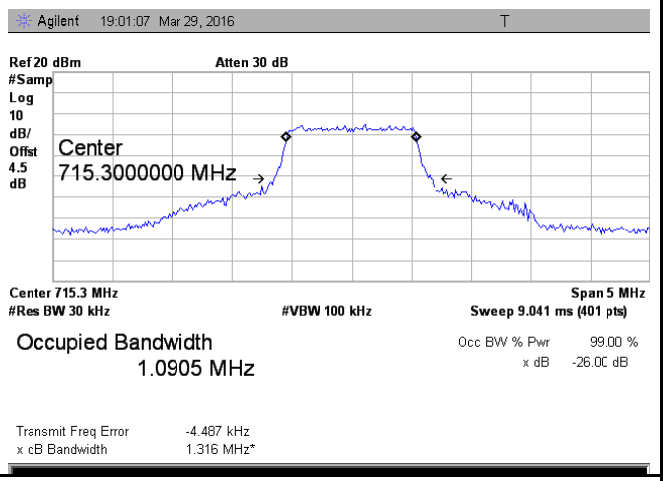

LTE band 12 - Middle CH QPSK-1.4



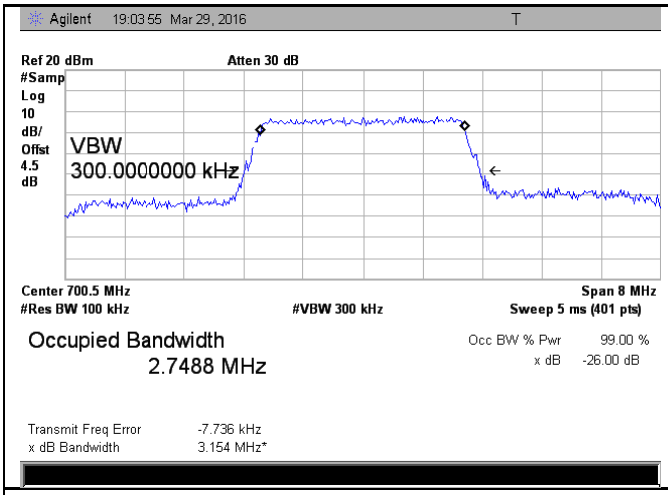

LTE band 12 - Middle CH 16QAM-1.4



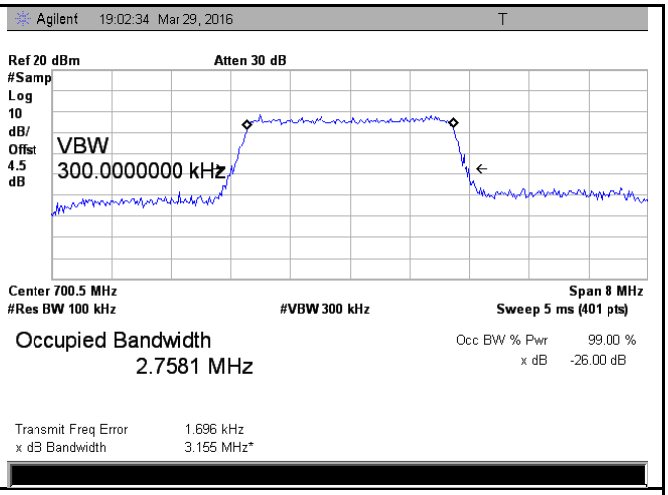

LTE band 12 - High CH QPSK-1.4



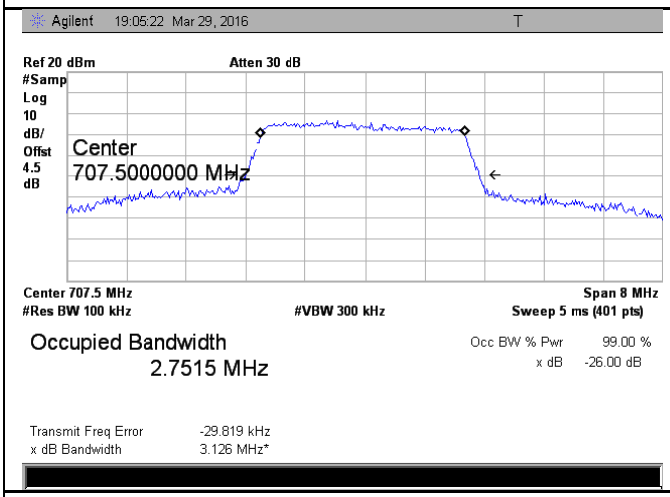

LTE band 12 - High CH 16QAM-1.4



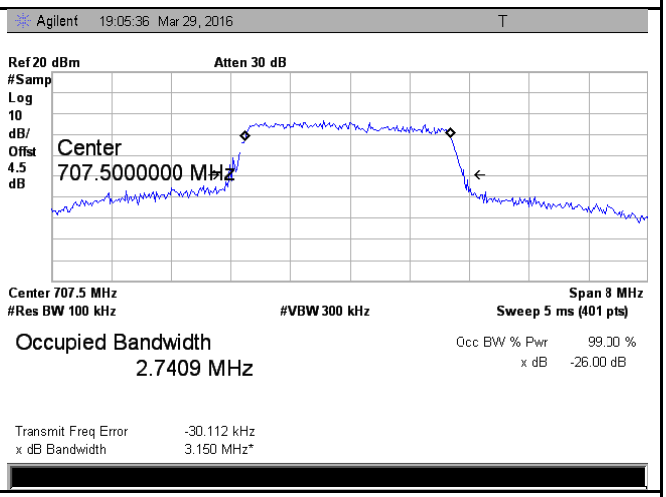

LTE band 12 - Low CH QPSK-3



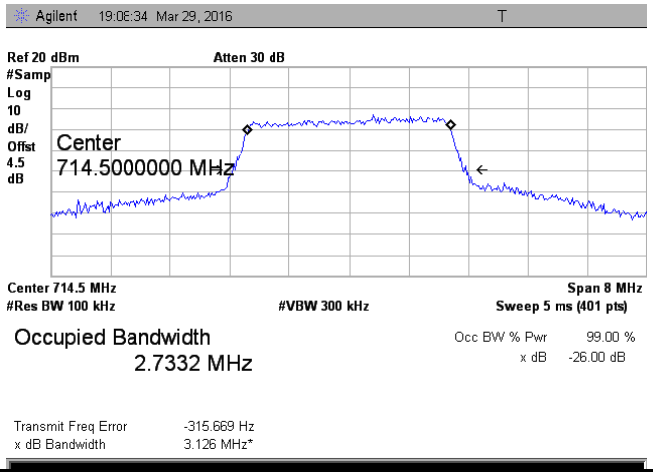

LTE band 12 - Low CH 16QAM-3



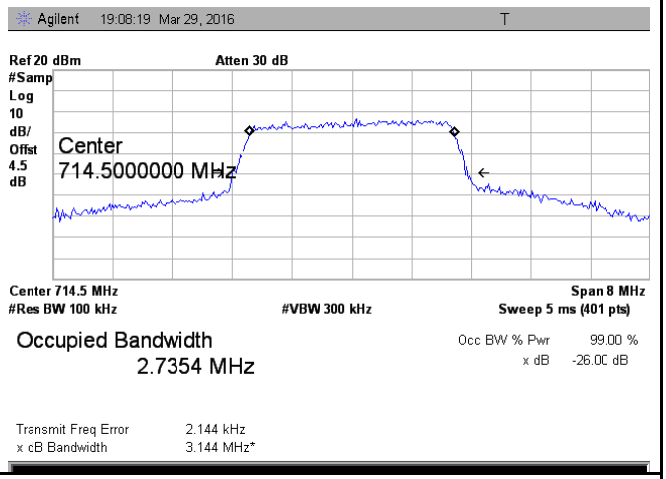

LTE band 12 - Middle CH QPSK-3



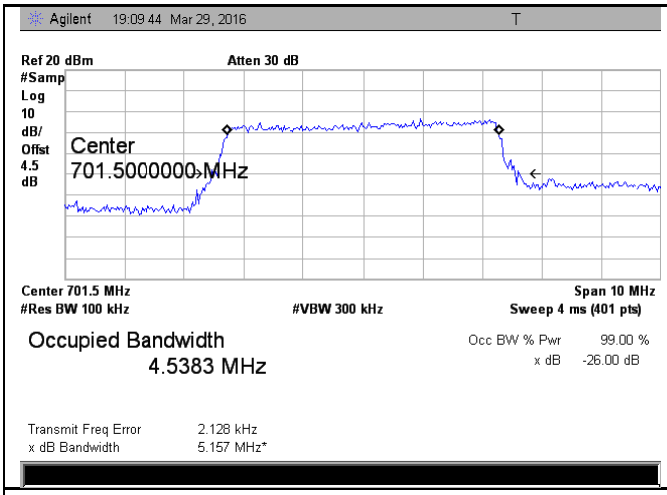

LTE band 12 - Middle CH 16QAM-3



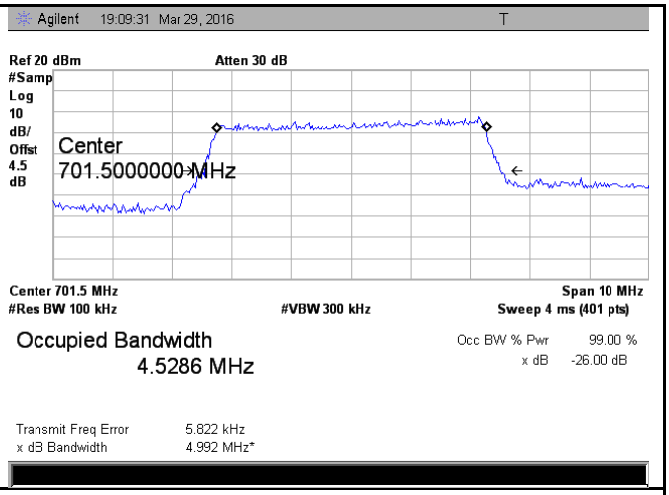

LTE band 12 - High CH QPSK-3



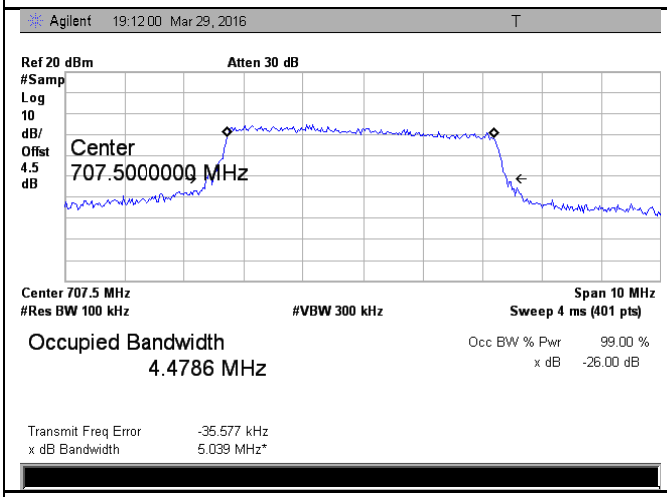

LTE band 12 - High CH 16QAM-3



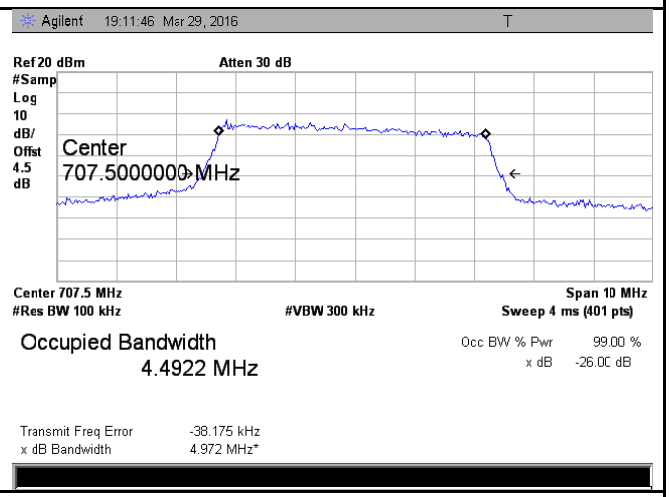

LTE band 12 - Low CH QPSK-5



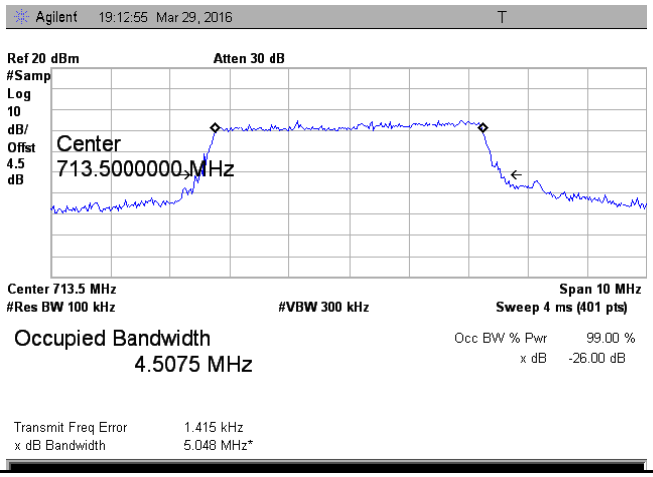

LTE band 12 - Low CH 16QAM-5



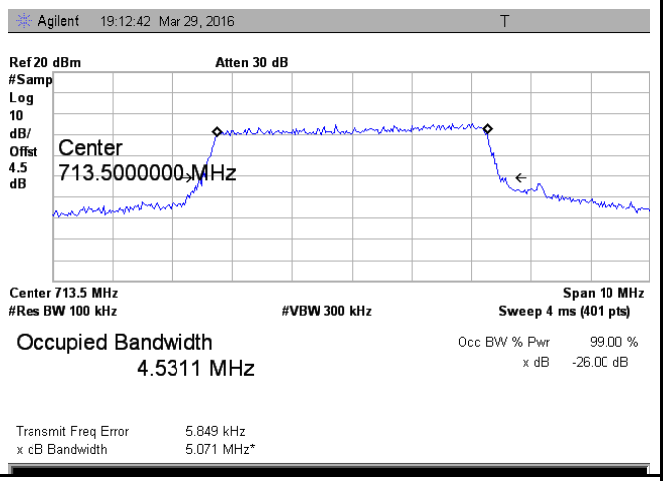

LTE band 12 - Middle CH QPSK-5



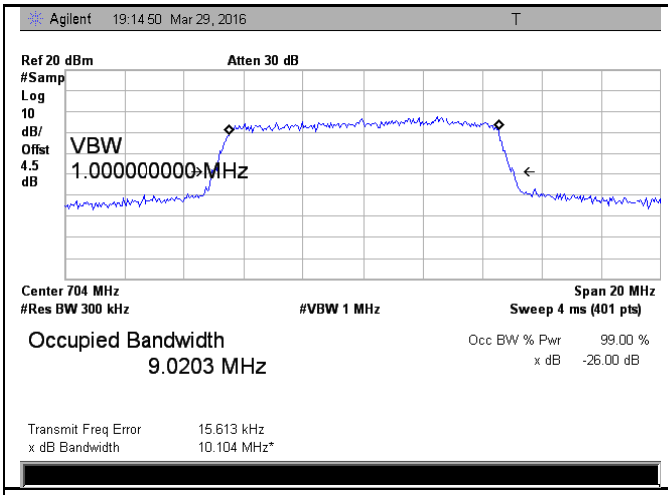

LTE band 12 - Middle CH 16QAM-5



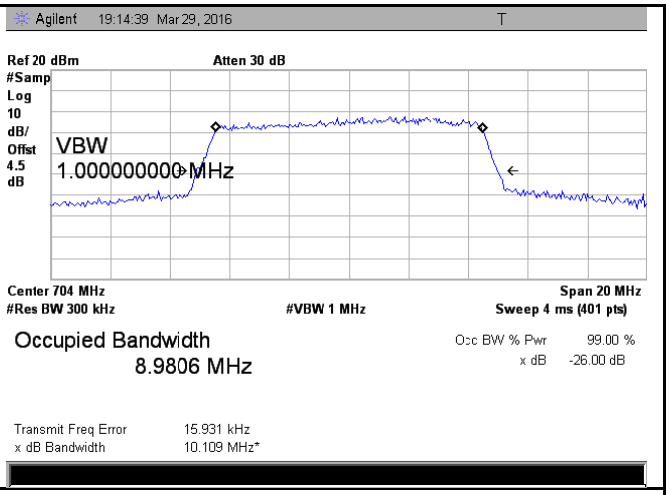

LTE band 12 - High CH QPSK-5



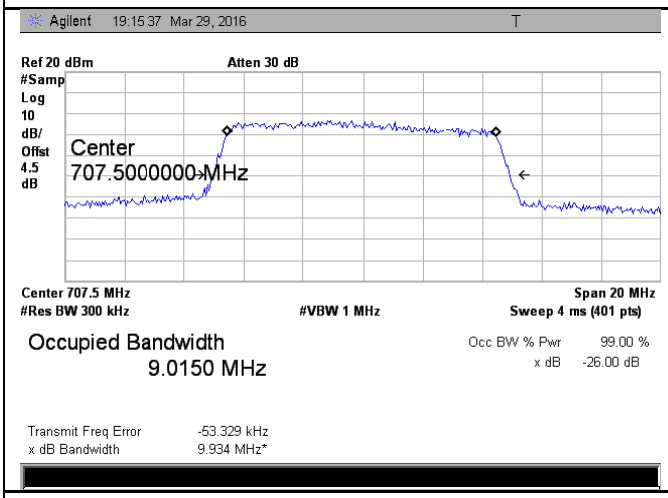

LTE band 12 - High CH 16QAM-5



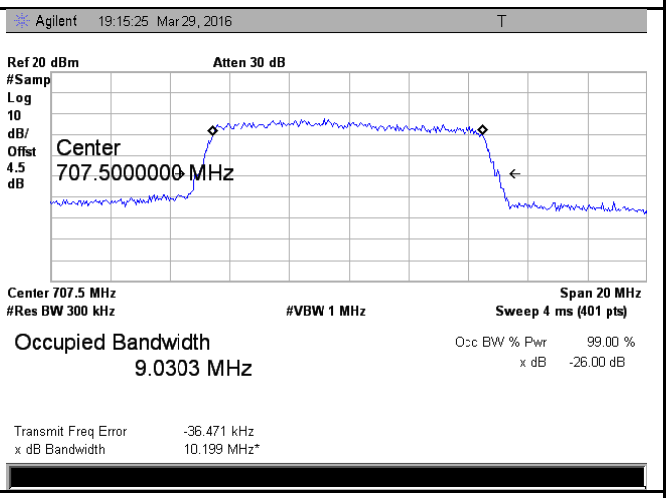

LTE band 12 - Low CH QPSK-10



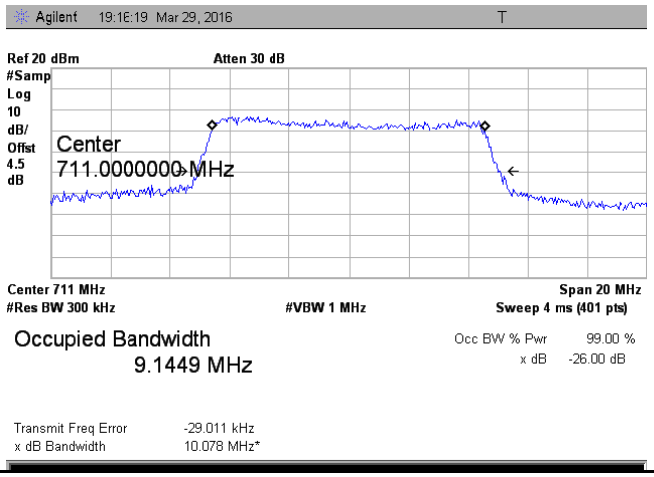

LTE band 12 - Low CH 16QAM-10



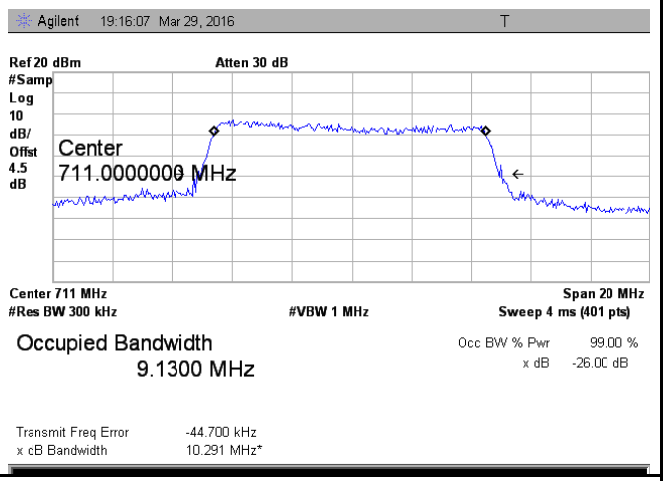

LTE band 12 - Middle CH QPSK-10




LTE band 12 - Middle CH 16QAM-10

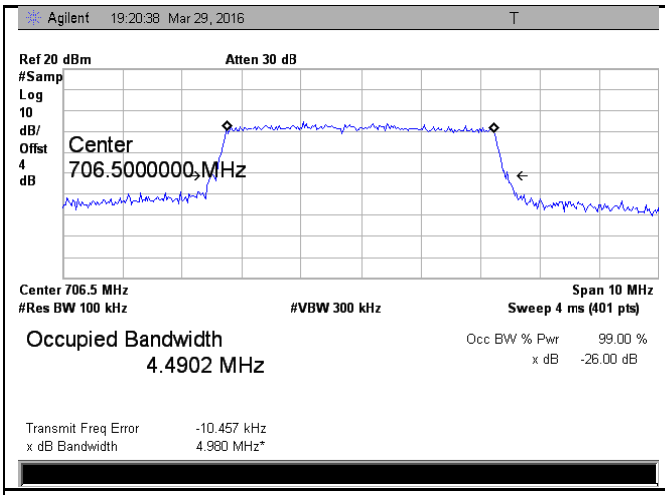



LTE band 12 - High CH QPSK-10

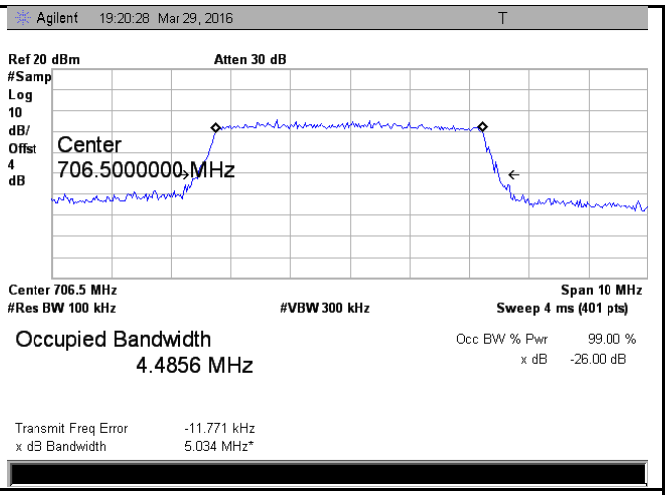



LTE band 12 - High CH 16QAM-10

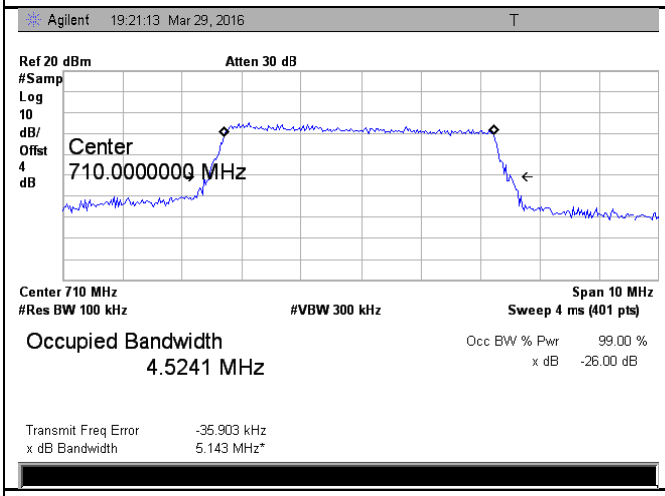
LTE Band 17



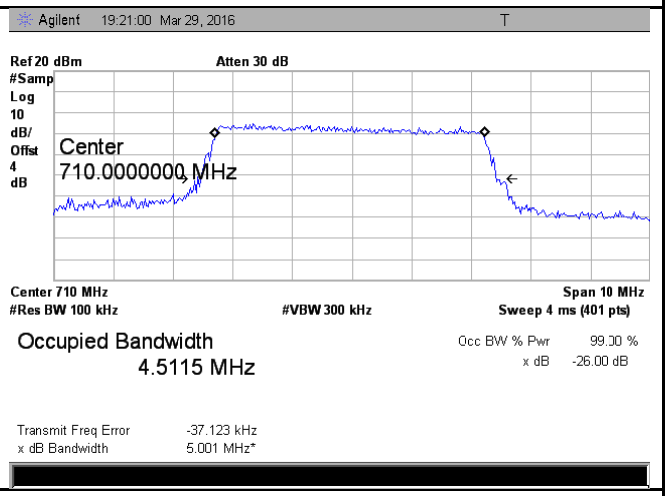

LTE band 17 - Low CH QPSK-5



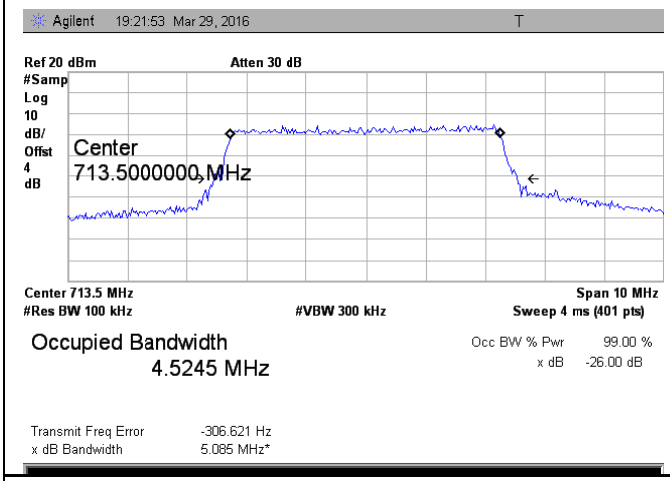

LTE band 17 - Low CH 16QAM-5



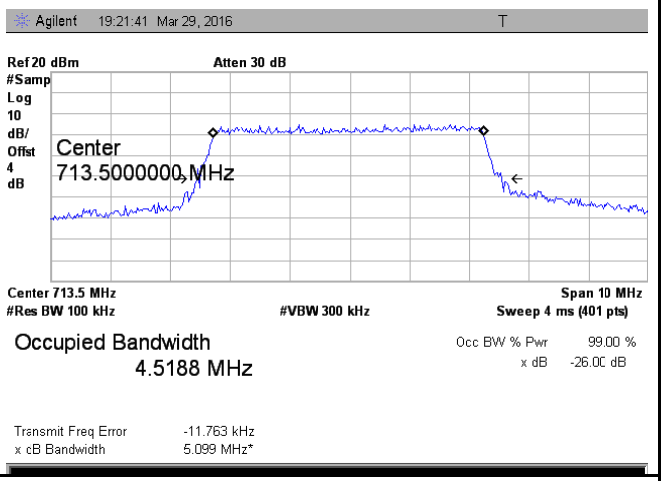

LTE band 17 - Middle CH QPSK-5



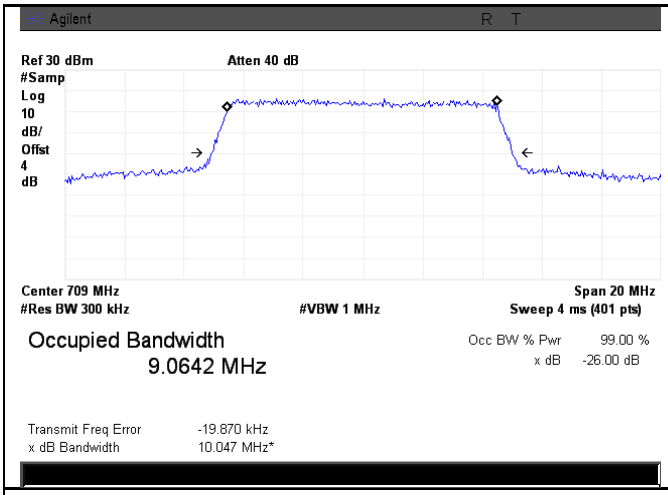

LTE band 17 - Middle CH 16QAM-5



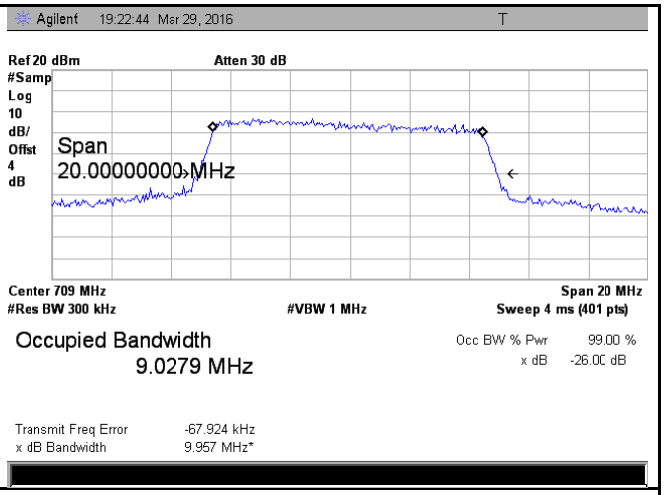

LTE band 17 - High CH QPSK-5



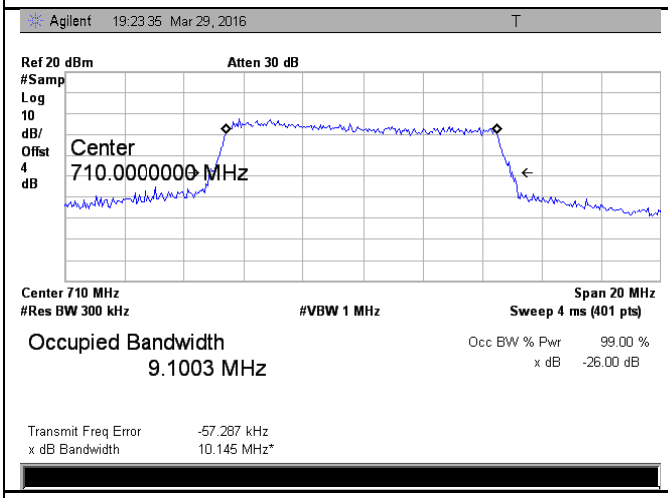

LTE band 17 - High CH 16QAM-5



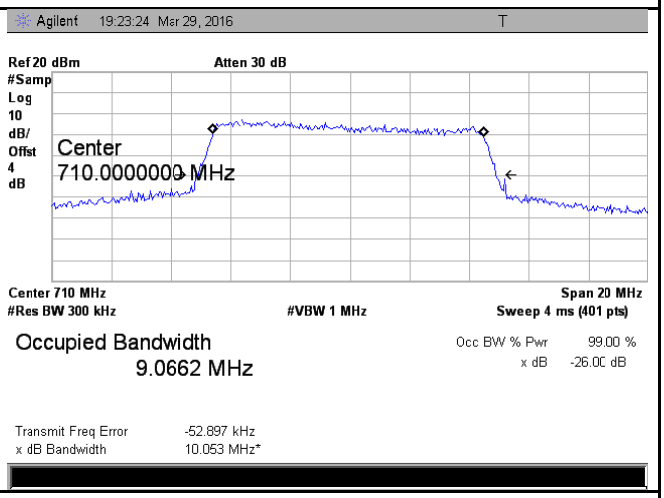

LTE band 17 - Low CH QPSK-10



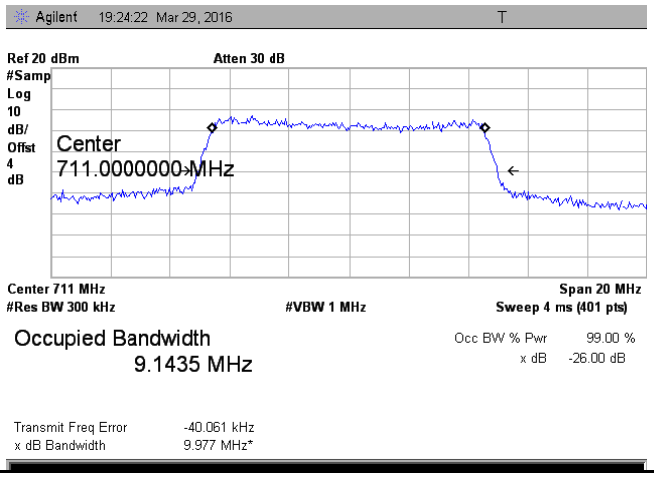

LTE band 17 - Low CH 16QAM-10



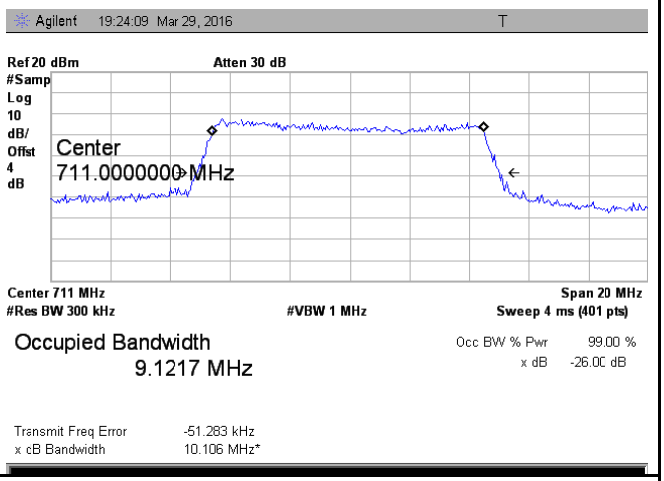

LTE band 17 - Middle CH QPSK-10




LTE band 17 - Middle CH 16QAM-10




LTE band 17 - High CH QPSK-10



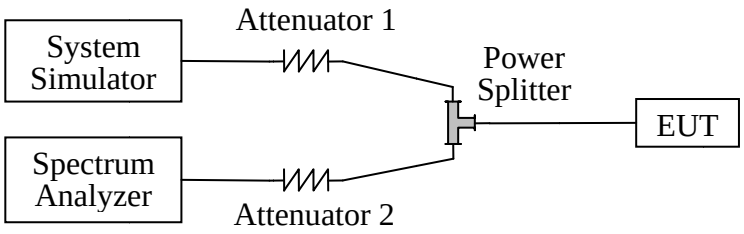

LTE band 17 - High CH 16QAM-10

## 1.10 Peak-to-Average Ratio

### 1.10.1 Requirement

According to FCC section 24.232(d) and 27.50(d)(5), the peak to average ratio (PAR) of the transmission maynot exceed 13dB.

### 1.10.2 Test Description




### 1.10.3 Test Result

LTE Band 2

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 1.4 | 1880 | RB 1/0 | QPSK | 25.43 | 21.97 | 2.30 |
| | | | 16QAM | 25.53 | 20.57 | 2.31 |
| 3 | 1880 | RB 1/0 | QPSK | 25.34 | 21.88 | 1.77 |
| | | | 16QAM | 25.24 | 20.6 | 3.03 |
| 5 | 1880 | RB 1/0 | QPSK | 25 | 21.64 | 2.01 |
| | | | 16QAM | 47 | 20.91 | 2.71 |
| 10 | 1880 | RB 1/0 | QPSK | 25.43 | 21.79 | 2.22 |
| | | | 16QAM | 25.36 | 20.58 | 3.52 |
| 15 | 1880 | RB 1/0 | QPSK | 25.36 | 21.64 | 2.37 |
| | | | 16QAM | 25.39 | 21.36 | 3.37 |
| 20 | 1880 | RB 1/0 | QPSK | 25.43 | 22.00 | 2.03 |
| | | | 16QAM | 25.46 | 21.46 | 3.17 |

LTE Band 4

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 1.4 | 1732.5 | RB 1/0 | QPSK | 25.63 | 22.21 | 2.96 |
| | | | 16QAM | 25.34 | 20.78 | 3.44 |
| 3 | 1732.5 | RB 1/0 | QPSK | 25.46 | 22.07 | 3.06 |
| | | | 16QAM | 25.42 | 20.74 | 3.37 |
| 5 | 1732.5 | RB 1/0 | QPSK | 25.39 | 21.72 | 3.23 |
| | | | 16QAM | 25.38 | 20.73 | 2.75 |
| 10 | 1732.5 | RB 1/0 | QPSK | 25.48 | 21.87 | 3.85 |
| | | | 16QAM | 25.47 | 20.57 | 3.22 |
| 15 | 1732.5 | RB 1/0 | QPSK | 25.41 | 21.68 | 2.9 |
| | | | 16QAM | 25.39 | 20.66 | 3.17 |
| 20 | 1732.5 | RB 1/0 | QPSK | 25.46 | 21.55 | 3.86 |
| | | | 16QAM | 25.43 | 20.88 | 3.98 |

LTE Band 5

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 1.4 | 836.5 | RB 1/0 | QPSK | 25.36 | 22.48 | 1.89 |
| | | | 16QAM | 25.46 | 21.12 | 2.78 |
| 3 | 836.5 | RB 1/0 | QPSK | 25.44 | 22.39 | 1.91 |
| | | | 16QAM | 25.42 | 21.09 | 2.97 |
| 5 | 836.5 | RB 1/0 | QPSK | 25.42 | 22.39 | 1.74 |
| | | | 16QAM | 25.48 | 21.59 | 2.32 |
| 10 | 836.5 | RB 1/0 | QPSK | 25.44 | 22.36 | 1.74 |
| | | | 16QAM | 25.35 | 21.02 | 2.39 |

LTE Band 12

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 1.4 | 707.5 | RB 1/0 | QPSK | 25.63 | 22.1 | 1.89 |
| | | | 16QAM | 25.46 | 20.79 | 2.78 |
| 3 | 707.5 | RB 1/0 | QPSK | 25.62 | 22.19 | 1.91 |
| | | | 16QAM | 25.53 | 20.87 | 2.97 |
| 5 | 707.5 | RB 1/0 | QPSK | 25.13 | 22.21 | 1.74 |
| | | | 16QAM | 25.47 | 21.39 | 2.32 |
| 10 | 707.5 | RB 1/0 | QPSK | 25.64 | 22.29 | 1.74 |
| | | | 16QAM | 25.39 | 20.93 | 2.39 |

LTE Band 17

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 5 | 710 | RB 1/0 | QPSK | 25.45 | 22.11 | 1.63 |
| | | | 16QAM | 25.48 | 21.76 | 2.85 |
| 10 | 710 | RB 1/0 | QPSK | 25.35 | 22.05 | 2.14 |
| | | | 16QAM | 25.47 | 20.64 | 2.95 |

## 1.11 Frequency Stability

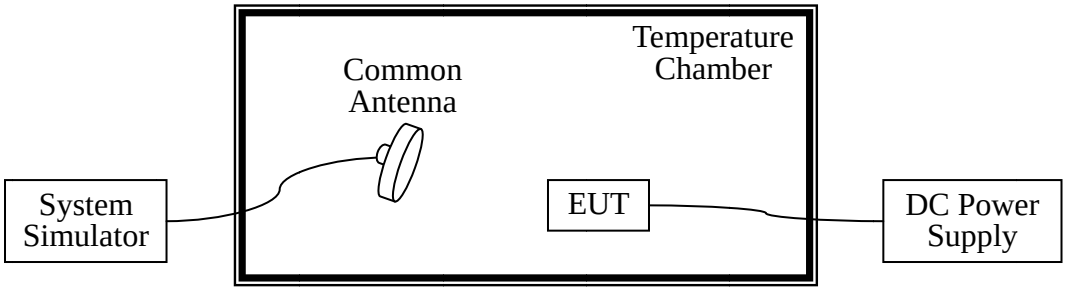
### 1.11.1 Requirement

According to FCC section 2.1055, 22.355, 24.235 and27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.

(b) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

### 1.11.2 Test Description




### 1.11.3 Test Setup

The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

## 1.11.4 Test Results

For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer; the normal temperature here used is 20°C. The frequency deviation limit is ±2.5ppm.

LTE Band 2

| Middle Channel, $f_o$ = 1880 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | -6 | 0.0027 | 2.5 |
| 0 | | -12 | 0.0059 | 2.5 |
| 10 | | -8 | 0.0037 | 2.5 |
| 20 | | -11 | 0.0053 | 2.5 |
| 30 | | -11 | 0.0064 | 2.5 |
| 40 | | -10 | 0.0048 | 2.5 |
| 50 | | -11 | 0.0064 | 2.5 |
| 55 | | -7 | 0.0032 | 2.5 |
| 25 | 4.2 | -10 | 0.0059 | 2.5 |
| | 3.5 | -9 | 0.0053 | 2.5 |

LTE Band 4

| Middle Channel, $f_o$ = 1732.5 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | -13 | 0.0087 | 2.5 |
| 0 | | -14 | 0.0092 | 2.5 |
| 10 | | -10 | 0.0063 | 2.5 |
| 20 | | -10 | 0.0063 | 2.5 |
| 30 | | -11 | 0.0058 | 2.5 |
| 40 | | -11 | 0.0069 | 2.5 |
| 50 | | -12 | 0.0075 | 2.5 |
| 55 | | -12 | 0.0069 | 2.5 |
| 25 | 4.2 | -14 | 0.0087 | 2.5 |
| | 3.5 | -15 | 0.0092 | 2.5 |

LTE Band 5

| Middle Channel, $f_o$ = 836.5 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 8 | 0.0084 | 2.5 |
| 0 | | 7 | 0.0072 | 2.5 |
| 10 | | 6 | 0.0084 | 2.5 |
| 20 | | 8 | 0.0108 | 2.5 |
| 30 | | 11 | 0.0120 | 2.5 |
| 40 | | 12 | 0.0155 | 2.5 |
| 50 | | 10 | 0.0108 | 2.5 |
| 55 | | 11 | 0.0120 | 2.5 |
| 25 | 4.2 | 9 | 0.0096 | 2.5 |
| | 3.5 | 12 | 0.0132 | 2.5 |

LTE Band 12

| Middle Channel, $f_o$ = 1880MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | -8 | 0.0027 | 2.5 |
| 0 | | -11 | 0.0059 | 2.5 |
| 10 | | -10 | 0.0037 | 2.5 |
| 20 | | -12 | 0.0053 | 2.5 |
| 30 | | -10 | 0.0064 | 2.5 |
| 40 | | -9 | 0.0048 | 2.5 |
| 50 | | -10 | 0.0064 | 2.5 |
| 55 | | -8 | 0.0032 | 2.5 |
| 25 | 4.2 | -11 | 0.0059 | 2.5 |
| | 3.5 | -10 | 0.0053 | 2.5 |

LTE Band 17

| Middle Channel, $f_o$ = 710 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 8 | 0.0099 | 2.5 |
| 0 | | 8 | 0.0099 | 2.5 |
| 10 | | 4 | 0.0042 | 2.5 |
| 20 | | 5 | 0.0085 | 2.5 |
| 30 | | 5 | 0.0056 | 2.5 |
| 40 | | 6 | 0.0070 | 2.5 |
| 50 | | 10 | 0.0155 | 2.5 |
| 55 | | 9 | 0.0113 | 2.5 |
| 25 | 4.2 | 9 | 0.0127 | 2.5 |
| | 3.5 | 12 | 0.0155 | 2.5 |

*NOTE:*

*(1) The EUT stops transmitting at temperatures -10°C, 55°C*

*(2) The manufacturer declared that the EUT could work properly between temperatures -20°C~60°C.*

*(3) Normal Voltage = 3.7V; Max Voltage= 4.2V; Min Voltage=3.5V.*

*(4) The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.*

## 1.12 Conducted Out of Band Emissions

### 1.12.1 Requirement

According to FCC section 2.1051, 22.917(a), 24.238(a), 27.53(h), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

### 1.12.2 Test Description

See section 4.2.1 of this report.

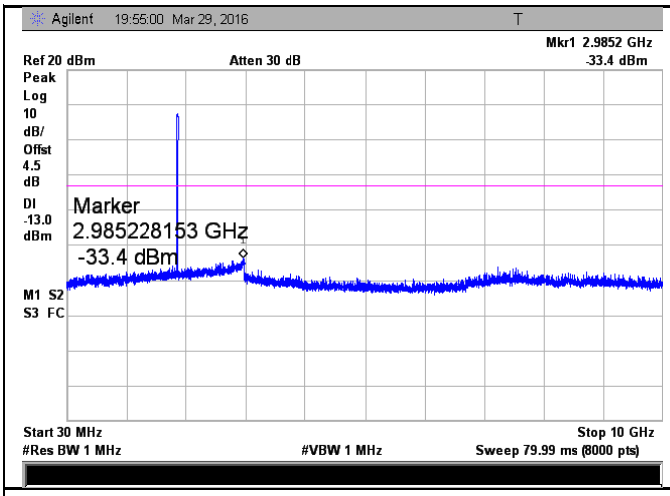
### 1.12.3 Test Results

The measurement frequency range is from 30MHz to the 10$^{th}$harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions. Only the worst RB size/offset presented.

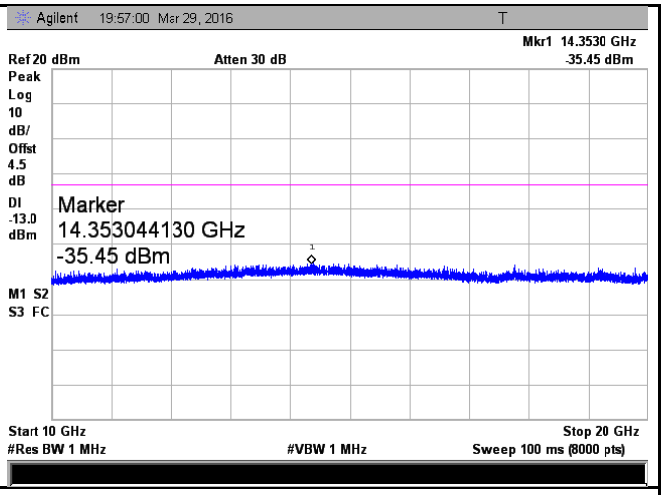
Compliant. See attached pots.

Test Plots:

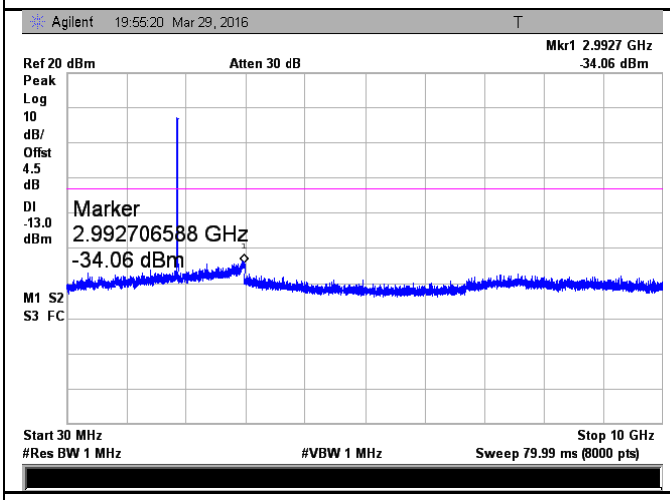
LTE Band 2



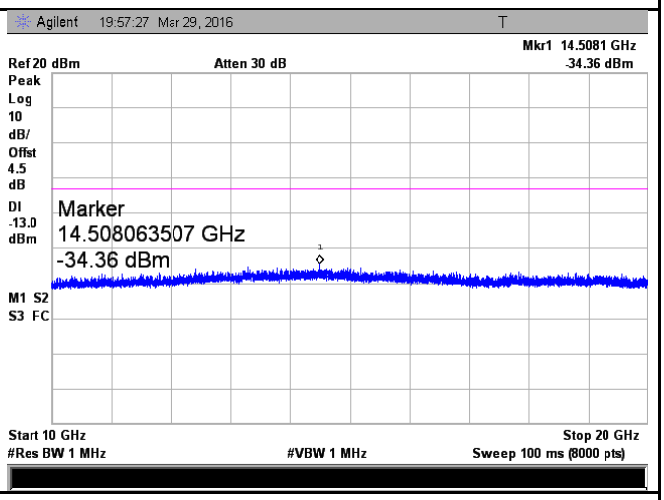

LTE Band 2 - Low Channel-1



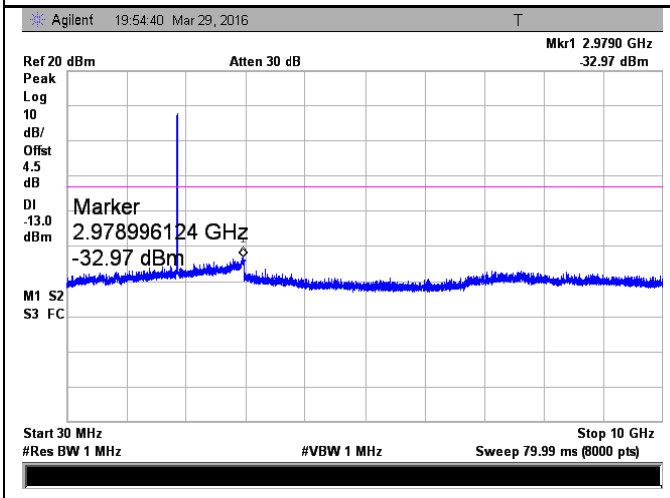

LTE Band 2 - Low Channel-2



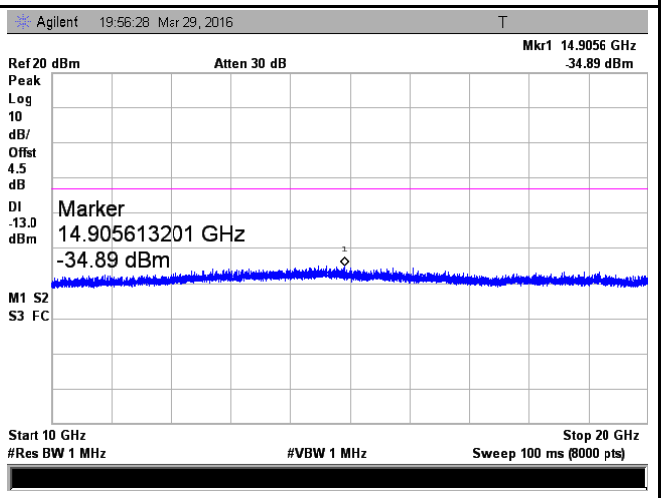

LTE Band 2 Middle Channel-1




LTE Band 2 Middle Channel-2

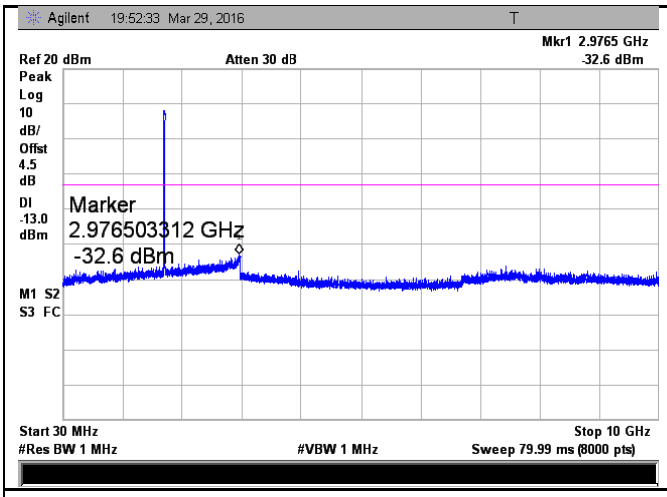



LTE Band 2 - High Channel-1

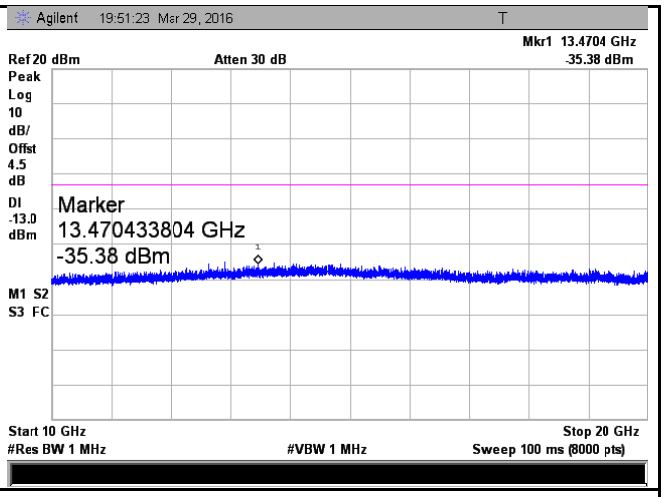



LTE Band 2 - High Channel-2

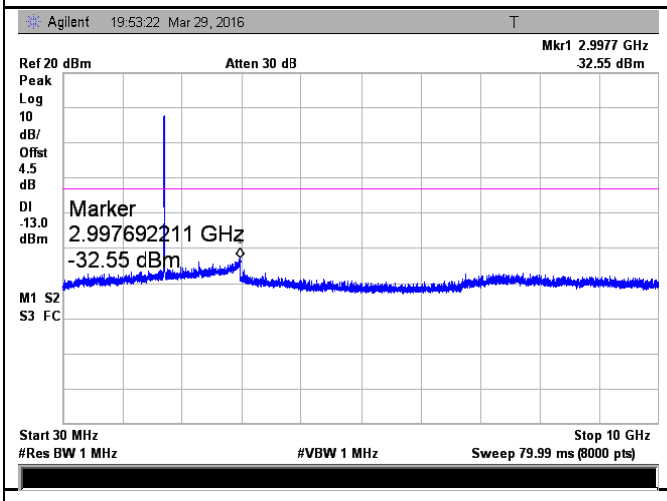
LTE Band 4



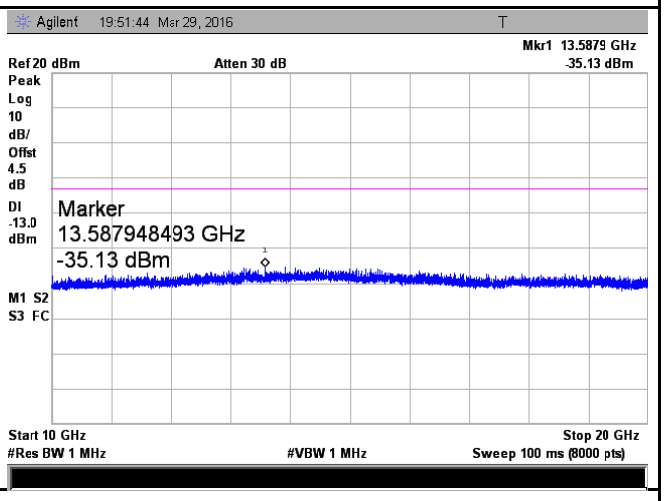

LTE Band 4 - Low Channel-1



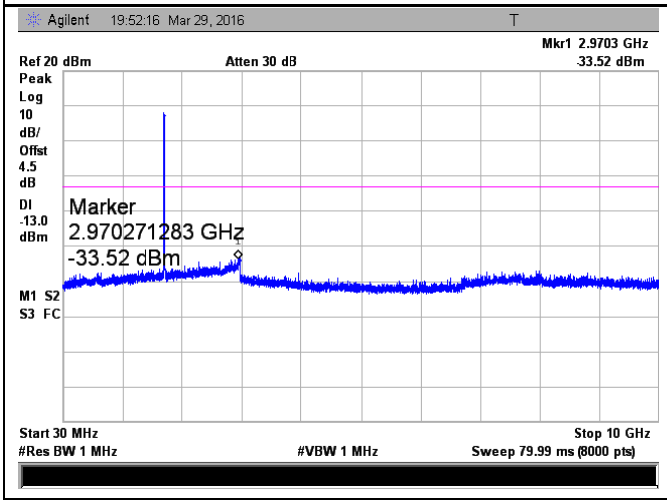

LTE Band 4 - Low Channel-2



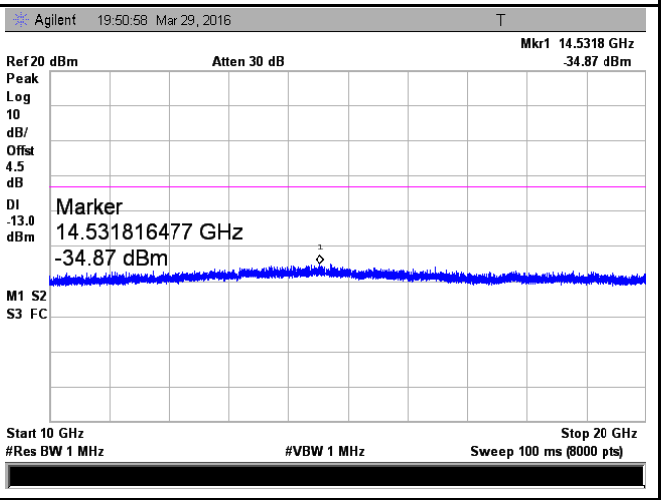

LTE Band 4 - Middle Channel-1




LTE Band 4 - Middle Channel-2

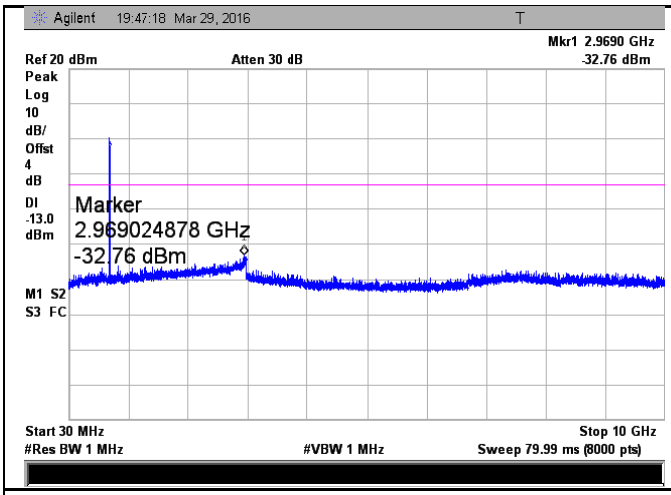



LTE Band 4 - High Channel-1

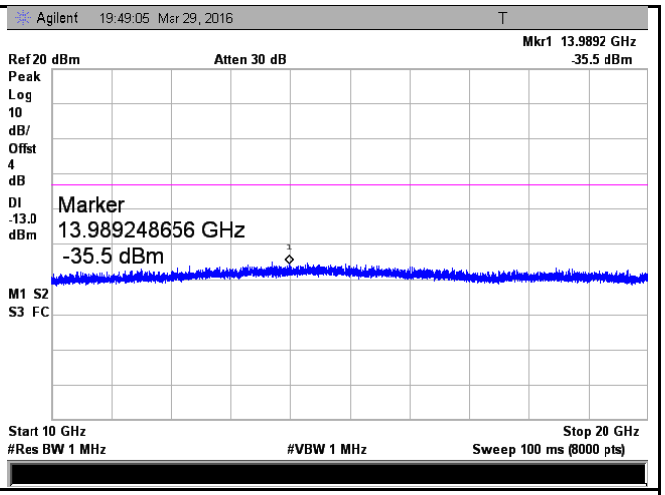



LTE Band 4 - High Channel-2

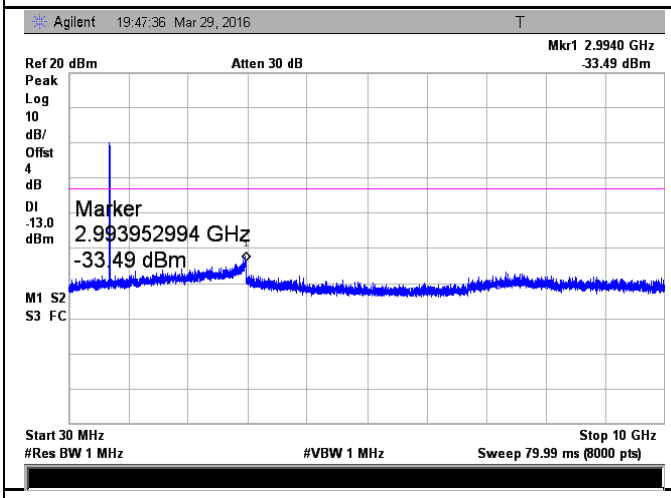
LTE Band 5



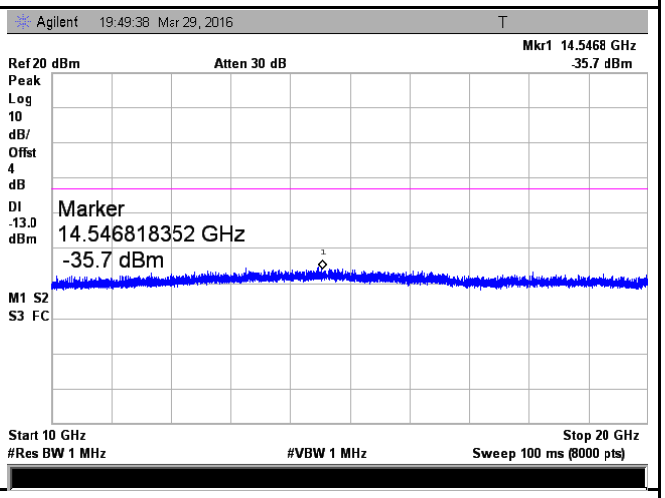

LTE Band 5 - Low Channel-1



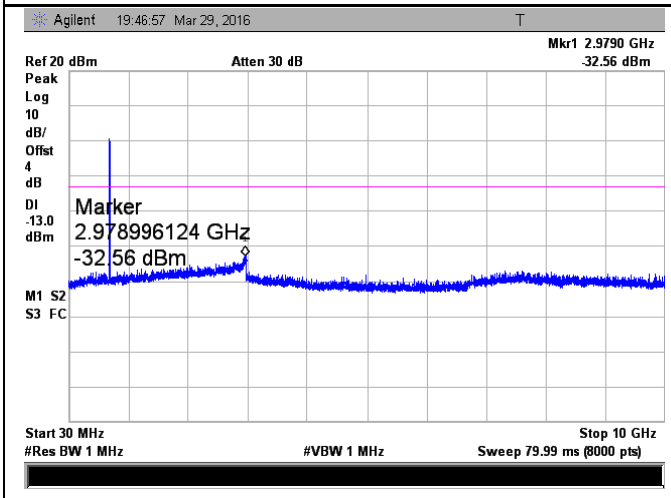

LTE Band 5 - Low Channel-2



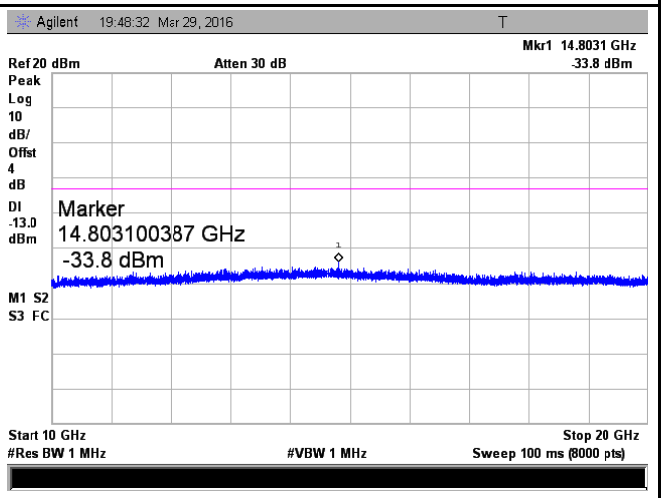

LTE Band 5- Middle Channel-1




LTE Band 5 - Middle Channel-2

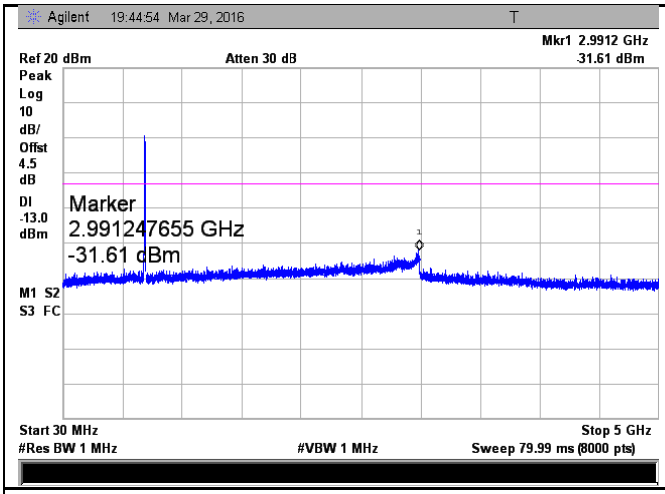



LTE Band 5 - High Channel-1

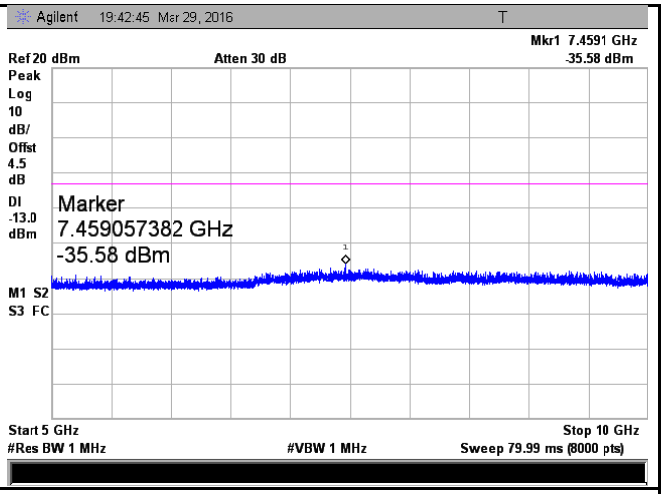



LTE Band 5 - High Channel-2

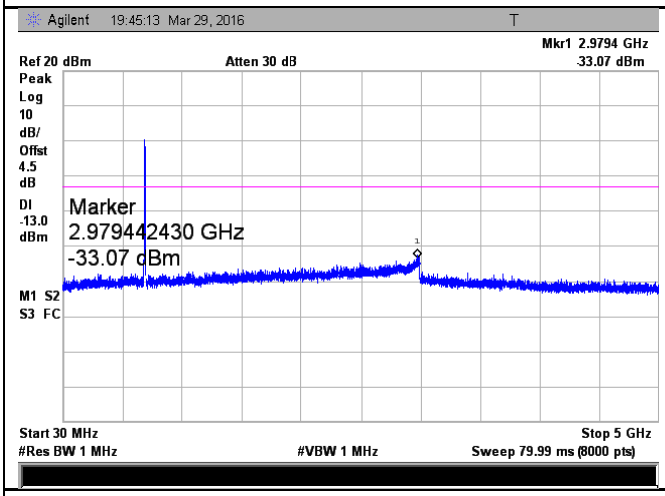
LTE Band 12



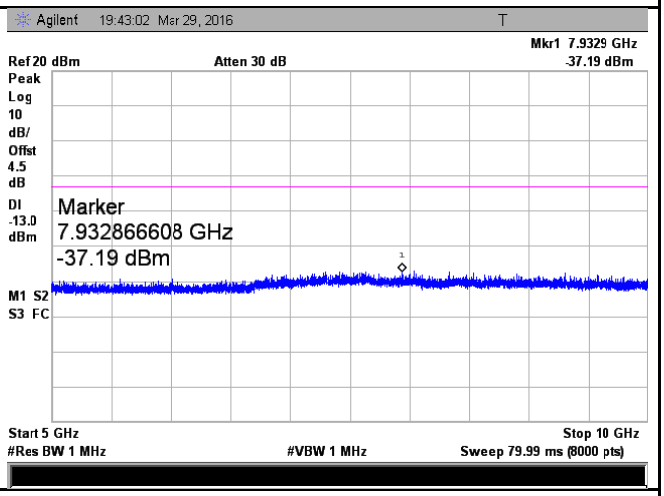

LTE Band 12 - Low Channel-1



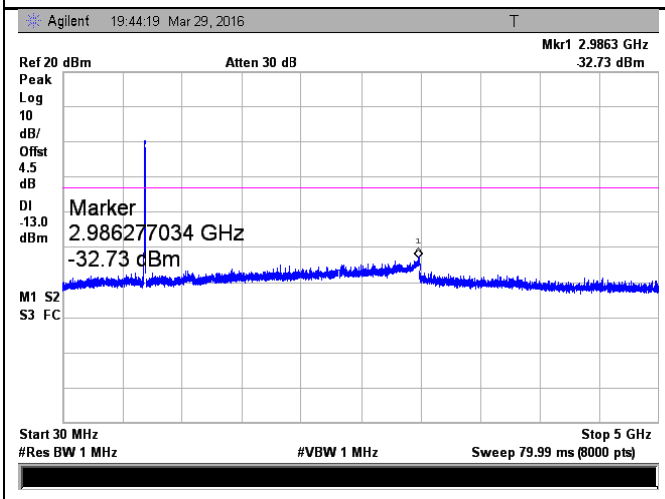

LTE Band 12 - Low Channel-2



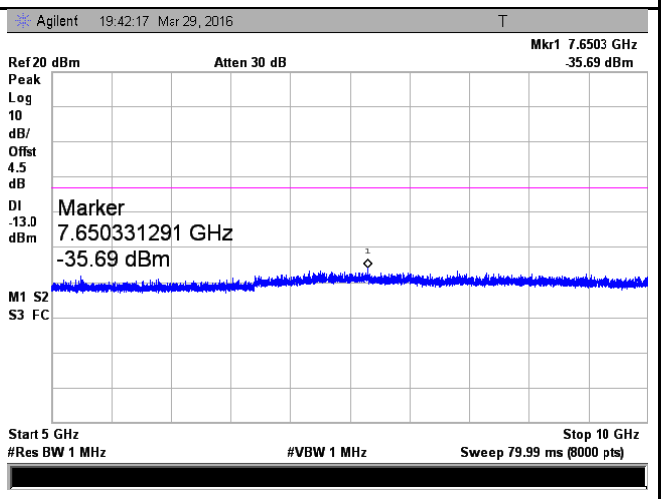

LTE Band 12- Middle Channel-1




LTE Band 12 - Middle Channel-2

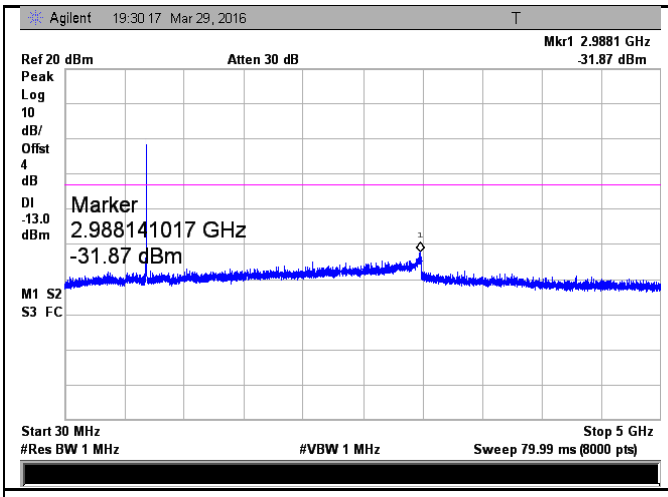



LTE Band 12 - High Channel-1

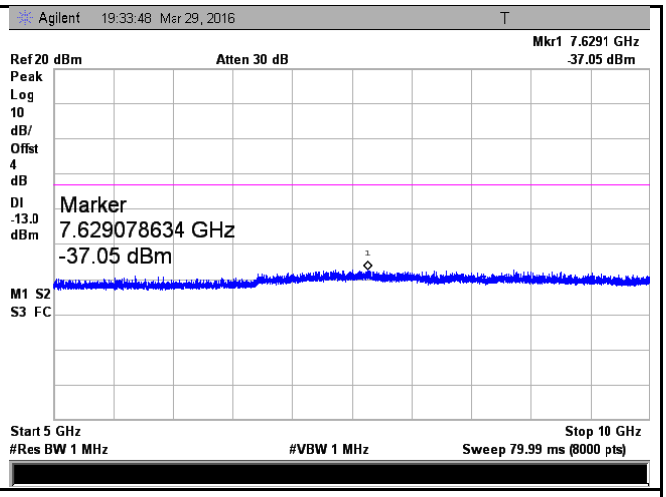



LTE Band 12 - High Channel-2

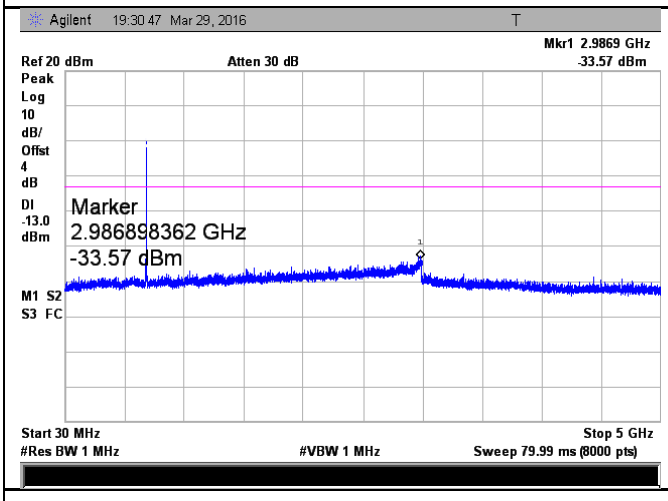
LTE Band 17



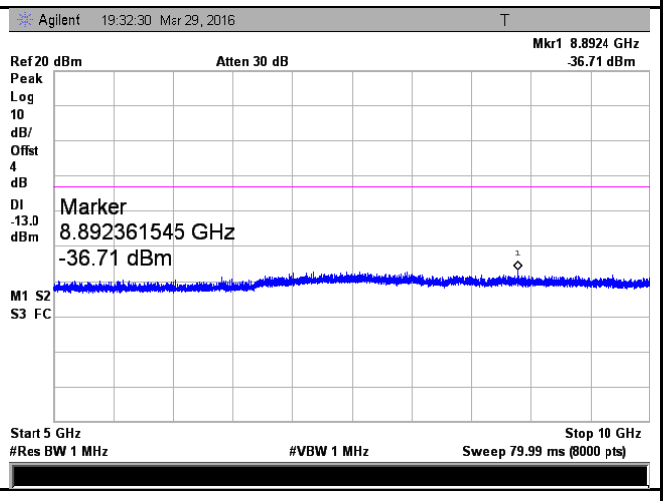

LTE Band 17 - Low Channel-1



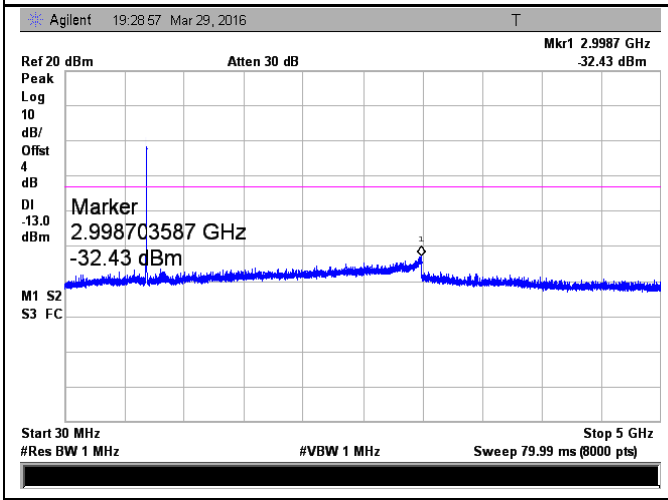

LTE Band 17 - Low Channel-2



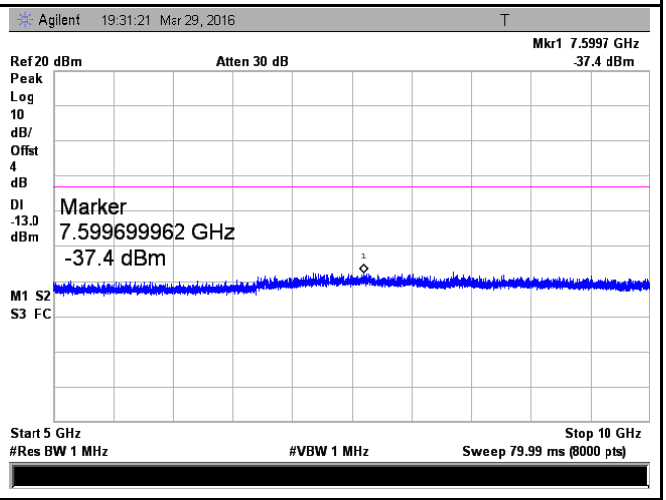

LTE Band 17- Middle Channel-1




LTE Band 17 - Middle Channel-2




LTE Band 17 - High Channel-1




LTE Band 17 - High Channel-2

*NOTE：*

*The power of the EUT transmitting frequency should be ignored.*

## 1.13 Band Edge

### 1.13.1 Requirement

22.917(a)
For operations in the 824 – 849 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

24.238 (a)
For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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

27.53 (h)
For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 1.13.2 Test Description

See section 4.2.1 of this report.

### 1.13.3 Test Results

The lowest and highest channels are tested to verify the band edge emissions.

LTE Band 2

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 1.4 | 18607 | 1850.7 | QPSK | -20.00 | -13 |
| | | | 16QAM | -27.13 | -13 |
| 1.4 | 18900 | 1909.3 | QPSK | -19.92 | -13 |
| | | | 16QAM | -20.19 | -13 |
| 3 | 18615 | 1851.5 | QPSK | -15.60 | -13 |
| | | | 16QAM | -14.42 | -13 |
| 3 | 19185 | 1908.5 | QPSK | -14.41 | -13 |
| | | | 16QAM | -16.92 | -13 |
| 5 | 18625 | 1852.5 | QPSK | -15.69 | -13 |
| | | | 16QAM | -16.40 | -13 |
| 5 | 19175 | 1907.5 | QPSK | -18.29 | -13 |
| | | | 16QAM | -18.62 | -13 |
| 10 | 18650 | 1855 | QPSK | -30.08 | -13 |
| | | | 16QAM | -29.00 | -13 |
| 10 | 19150 | 1905 | QPSK | -31.28 | -13 |
| | | | 16QAM | -28.75 | -13 |
| 15 | 18675 | 1857.5 | QPSK | -22.06 | -13 |
| | | | 16QAM | -22.43 | -13 |
| 15 | 19125 | 1902.5 | QPSK | -22.59 | -13 |
| | | | 16QAM | -21.91 | -13 |
| 20 | 18700 | 1860 | QPSK | -23.14 | -13 |
| | | | 16QAM | -23.89 | -13 |
| 20 | 19100 | 1900 | QPSK | -23.81 | -13 |
| | | | 16QAM | -24.52 | -13 |

LTE Band 4

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 1.4 | 19957 | 1710.7 | QPSK | -24.99 | -13 |
| | | | 16QAM | -26.45 | -13 |
| 1.4 | 20393 | 1754.3 | QPSK | -20.90 | -13 |
| | | | 16QAM | -21.69 | -13 |
| 3 | 19965 | 1711.5 | QPSK | -16.30 | -13 |
| | | | 16QAM | -20.11 | -13 |
| 3 | 20385 | 1753.5 | QPSK | -16.97 | -13 |
| | | | 16QAM | -16.52 | -13 |
| 5 | 19975 | 1712.5 | QPSK | -17.87 | -13 |
| | | | 16QAM | -18.52 | -13 |
| 5 | 20375 | 1752.5 | QPSK | -18.38 | -13 |
| | | | 16QAM | -18.63 | -13 |
| 10 | 20000 | 1715 | QPSK | -20.71 | -13 |
| | | | 16QAM | -18.00 | -13 |
| 10 | 20350 | 1750 | QPSK | -20.62 | -13 |
| | | | 16QAM | -20.62 | -13 |
| 15 | 20025 | 1717.5 | QPSK | -18.34 | -13 |
| | | | 16QAM | -22.03 | -13 |
| 15 | 20325 | 1747.5 | QPSK | -25.30 | -13 |
| | | | 16QAM | -24.41 | -13 |
| 20 | 20050 | 1720 | QPSK | -24.50 | -13 |
| | | | 16QAM | -19.58 | -13 |
| 20 | 20300 | 1745 | QPSK | -29.67 | -13 |
| | | | 16QAM | -26.46 | -13 |

LTE Band 5

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 1.4 | 20407 | 824.7 | QPSK | -19.95 | -13 |
| | | | 16QAM | -20.37 | -13 |
| 1.4 | 20643 | 848.3 | QPSK | -21.75 | -13 |
| | | | 16QAM | -25.33 | -13 |
| 3 | 20415 | 825.5 | QPSK | -13.77 | -13 |
| | | | 16QAM | -14.85 | -13 |
| 3 | 20635 | 847.5 | QPSK | -16.83 | -13 |
| | | | 16QAM | -15.16 | -13 |
| 5 | 20425 | 826.5 | QPSK | -16.68 | -13 |
| | | | 16QAM | -15.76 | -13 |
| 5 | 20625 | 846.5 | QPSK | -22.74 | -13 |
| | | | 16QAM | -21.02 | -13 |
| 10 | 20450 | 829 | QPSK | -14.48 | -13 |
| | | | 16QAM | -17.00 | -13 |
| 10 | 20800 | 844 | QPSK | -21.74 | -13 |
| | | | 16QAM | -21.68 | -13 |

LTE Band 12

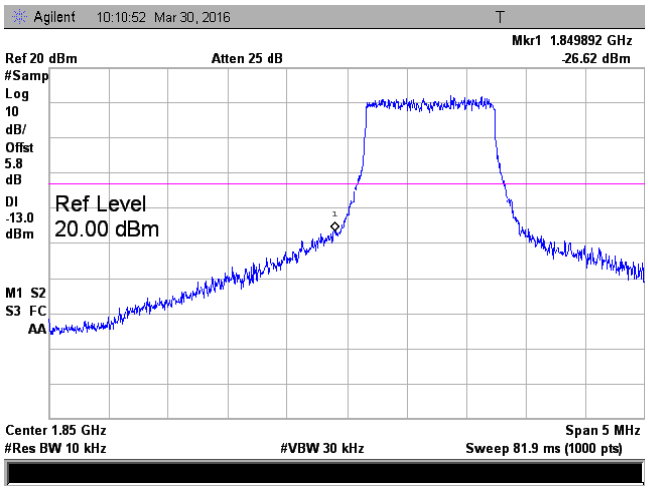
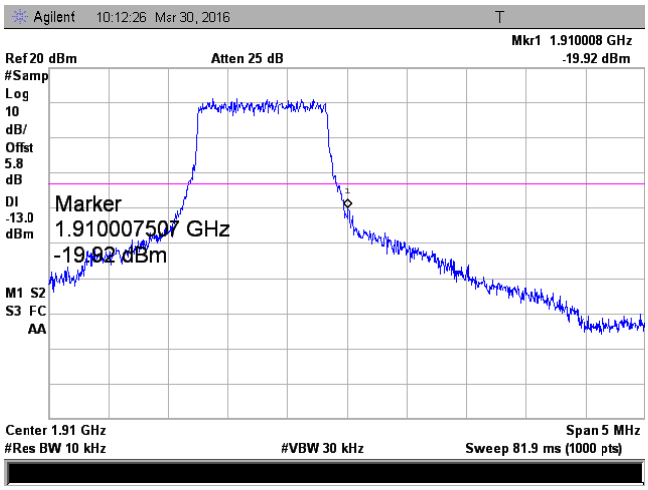
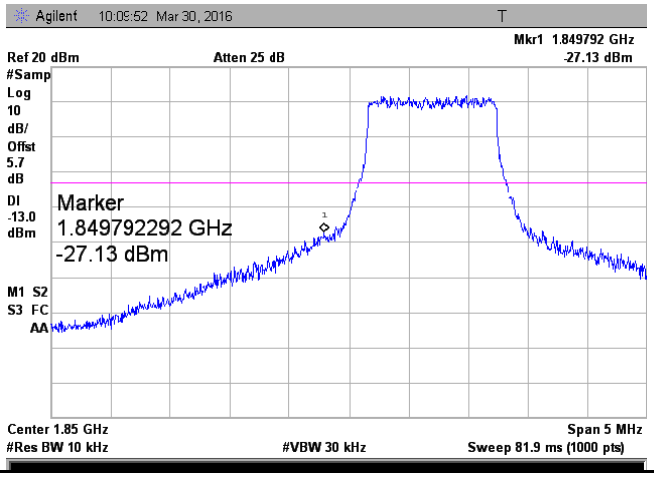
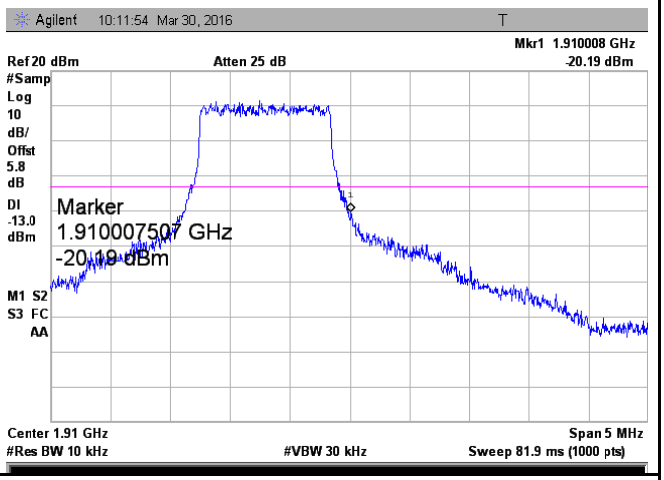
| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 1.4 | 23017 | 699.7 | QPSK | -22.16 | -13 |
| | | | 16QAM | -22.44 | -13 |
| 1.4 | 23173 | 715.3 | QPSK | -24.39 | -13 |
| | | | 16QAM | -24.85 | -13 |
| 3 | 23025 | 700.5 | QPSK | -13.79 | -13 |
| | | | 16QAM | -14.23 | -13 |
| 3 | 23165 | 714.5 | QPSK | -16.62 | -13 |
| | | | 16QAM | -16.50 | -13 |
| 5 | 23035 | 701.5 | QPSK | -16.35 | -13 |
| | | | 16QAM | -18.03 | -13 |
| 5 | 23155 | 713.5 | QPSK | -17.19 | -13 |
| | | | 16QAM | -16.77 | -13 |
| 10 | 23060 | 704 | QPSK | -17.62 | -13 |
| | | | 16QAM | -19.09 | -13 |
| 10 | 23130 | 711 | QPSK | -21.19 | -13 |
| | | | 16QAM | -21.05 | -13 |

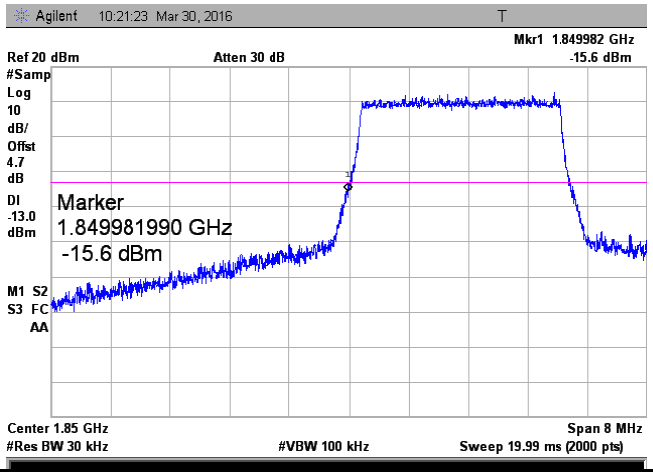
LTE Band 17

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 5 | 23755 | 706.5 | QPSK | -17.65 | -13 |
| | | | 16QAM | -19.35 | -13 |
| 5 | 23825 | 713.5 | QPSK | -18.86 | -13 |
| | | | 16QAM | -18.03 | -13 |
| 10 | 23780 | 709 | QPSK | -19.04 | -13 |
| | | | 16QAM | -18.89 | -13 |
| 10 | 23800 | 711 | QPSK | -20.00 | -13 |
| | | | 16QAM | -19.66 | -13 |

Test Plots:

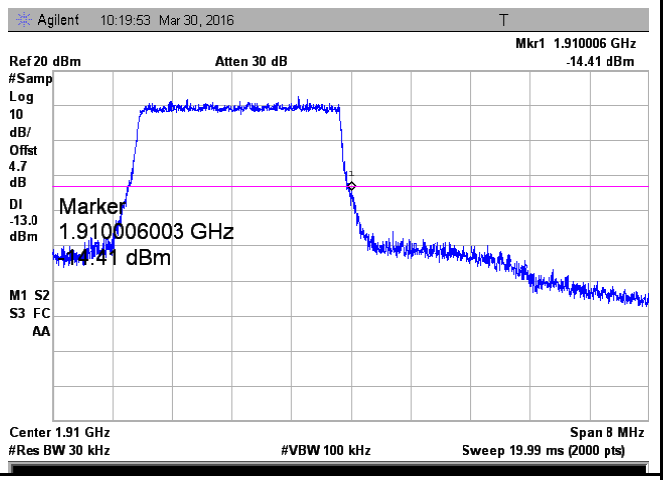
LTE Band 2

| | |
|---|---|
|  |  |
| LTE Band 2 - Low Channel QPSK-1.4 | LTE Band 2 - High Channel QPSK-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (13.35/10)=4.5+1.3=5.8dB | Note: Offset=Cable loss (4.5) + 10log (13.53/10)=4.5+1.3=5.8dB |
|  |  |
| LTE Band 2 - Low Channel 16QAM-1.4 | LTE Band 2 - High Channel 16QAM-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (13.27/10)=4.5+1.2=5.7 dB | Note: Offset=Cable loss (4.5) + 10log (13.42/10)=4.5+1.3=5.8 dB |



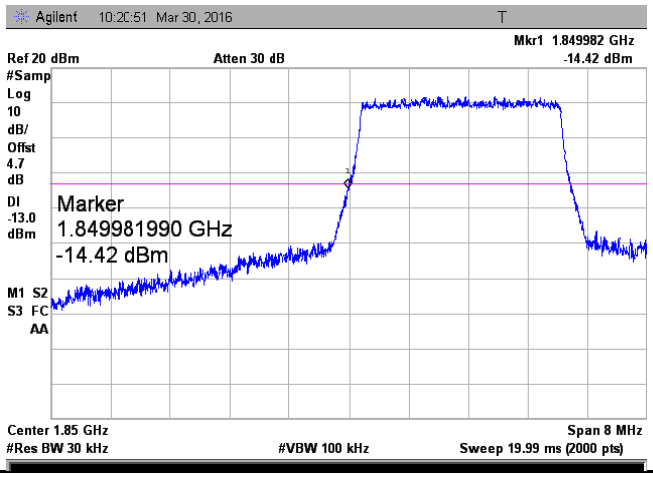

LTE Band 2 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.14/30)=4.5+0.2=4.7 dB



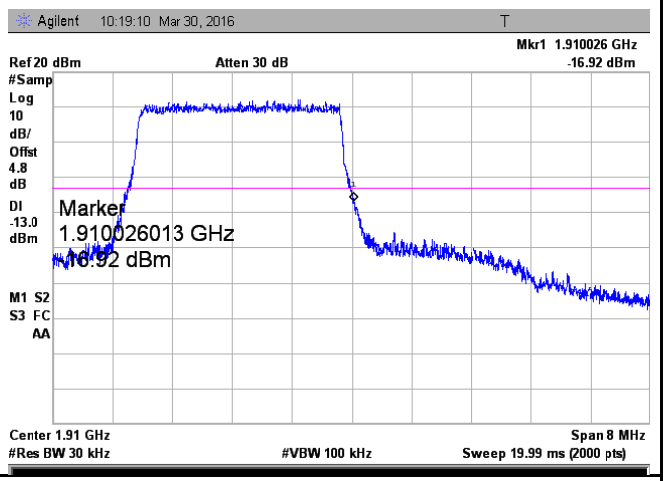

LTE Band 2 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.40/30)=4.5+0.2=4.7 dB



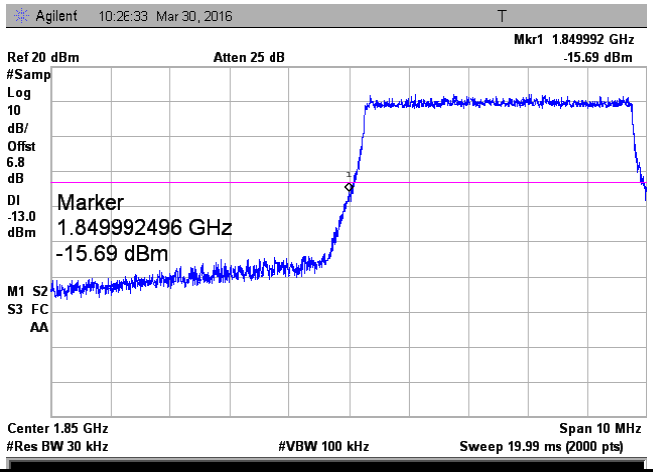

LTE Band 2 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.41/30)=4.5+0.2=4.7 dB



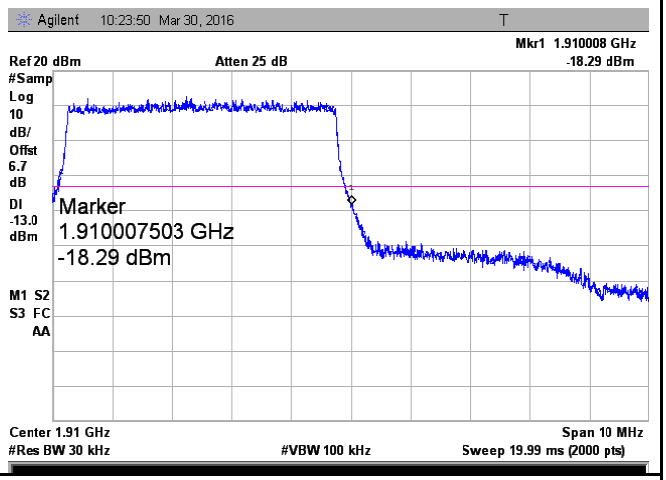

LTE Band 2 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.83/30)=4.5+0.3=4.8 dB



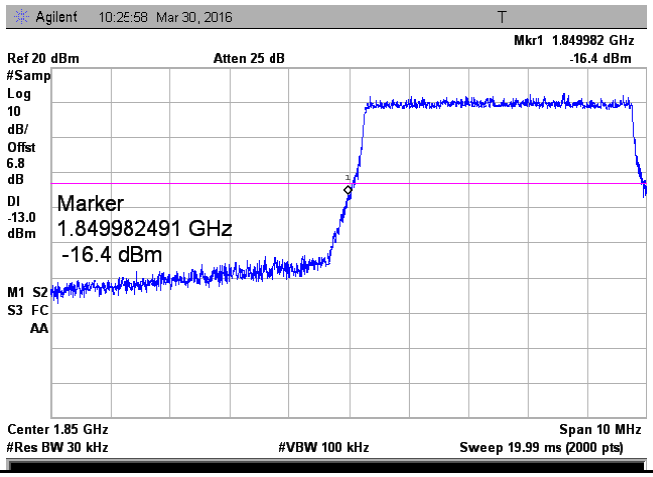

LTE Band 2 - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.56/30)=4.5+2.3=6.8 dB



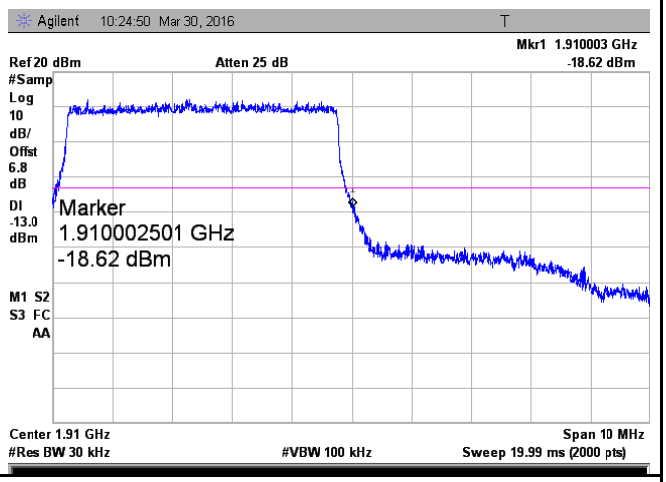

LTE Band 2 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.23/30)=4.5+2.2=6.7dB



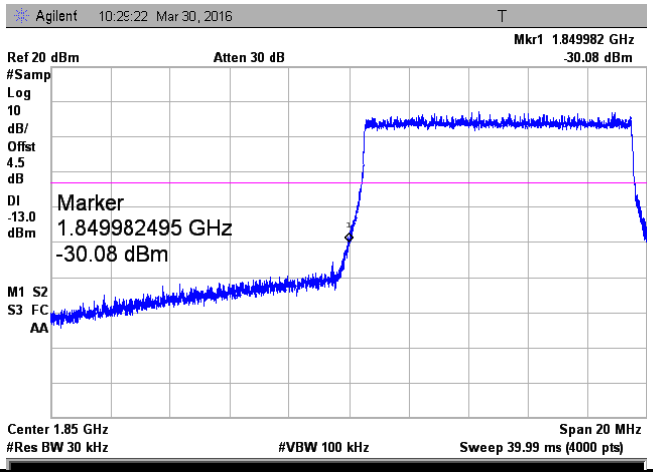

LTE Band 2 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.73/30)=4.5+2.3=6.8 dB

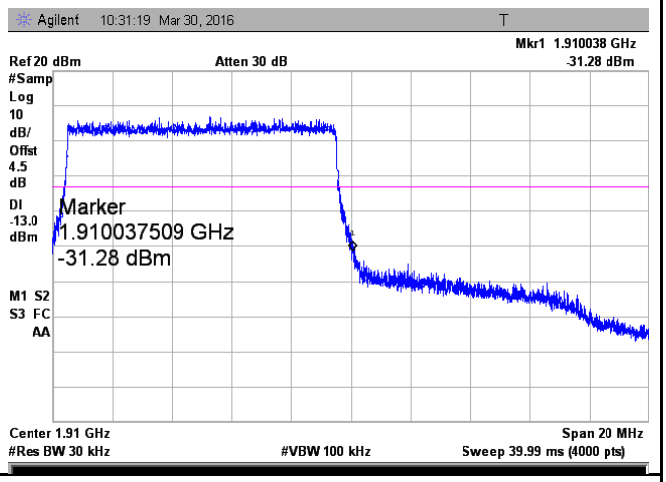



LTE Band 2 - High Channel 16QAM-5

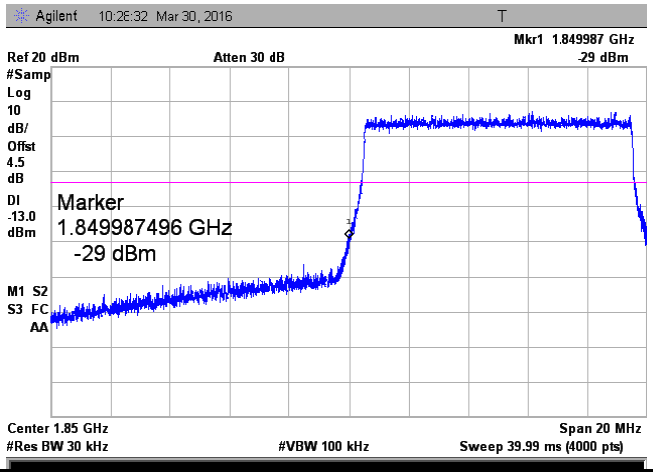
Note: Offset=Cable loss (4.5) + 10log (50.81/30)=4.5+2.3=6.8 dB




LTE Band 2 - Low Channel QPSK-10

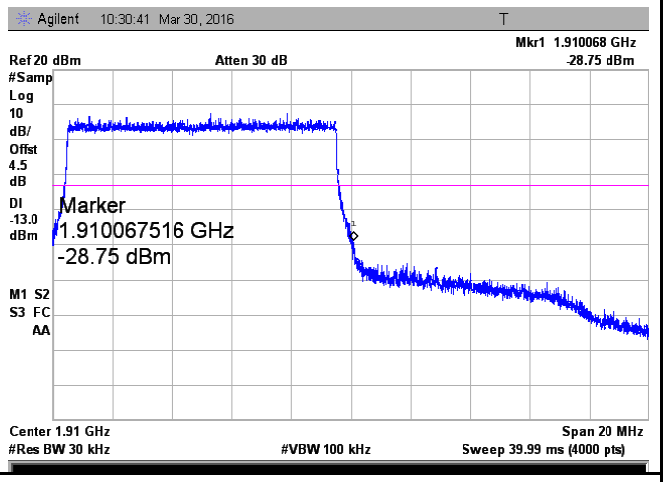



LTE Band 2 - High Channel QPSK-10



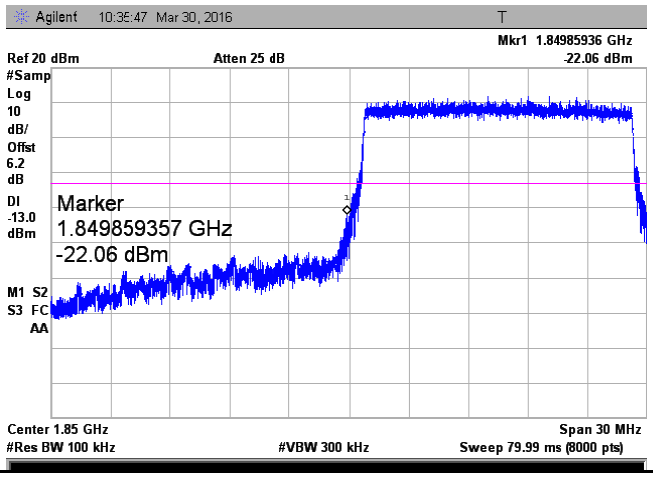

LTE Band 2 - Low Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log (100.8/100)=4.5+0.0=4.5 dB



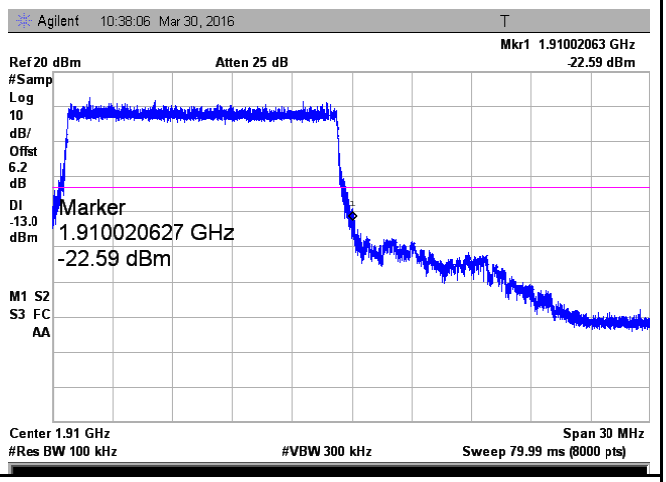

LTE Band 2 - High Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log (102.4/100)=4.5+0.0=4.5 dB



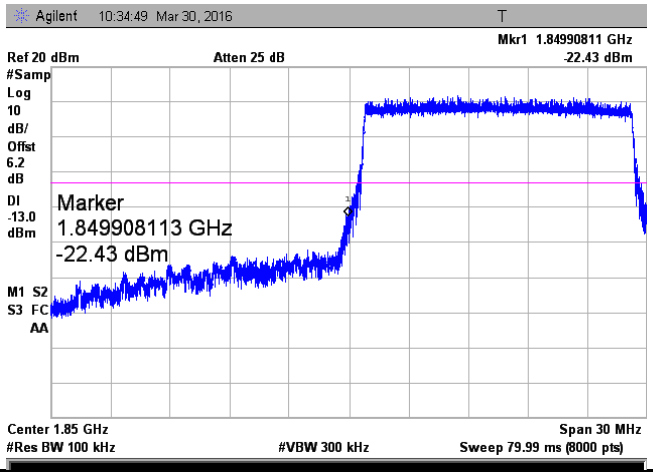

LTE Band 2 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (148.52/100)=4.5+1.7=6.2dB



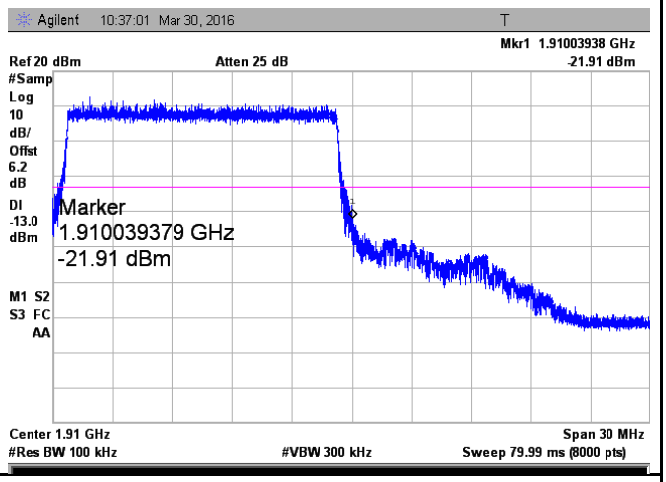

LTE Band 2 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (149.04/100)=4.5+1.7=6.2 dB



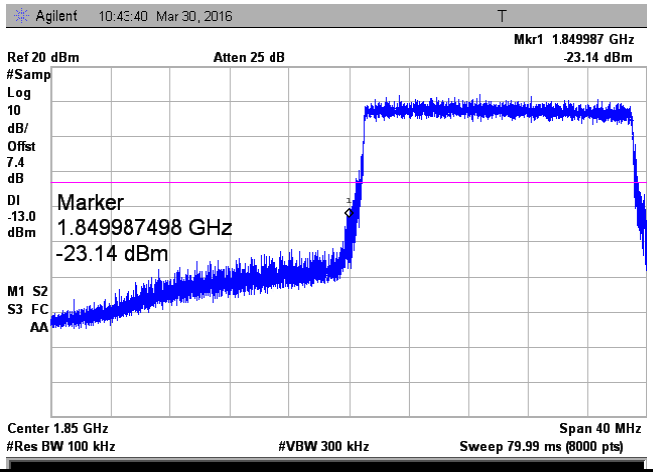

LTE Band 2 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (148.3/100)=4.5+1.7=6.2 dB



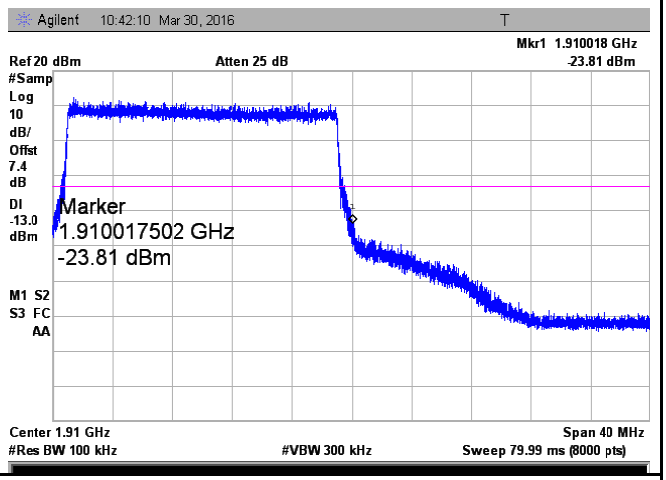

LTE Band 2 - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (149.14/100)=4.5+1.7=6.2 dB



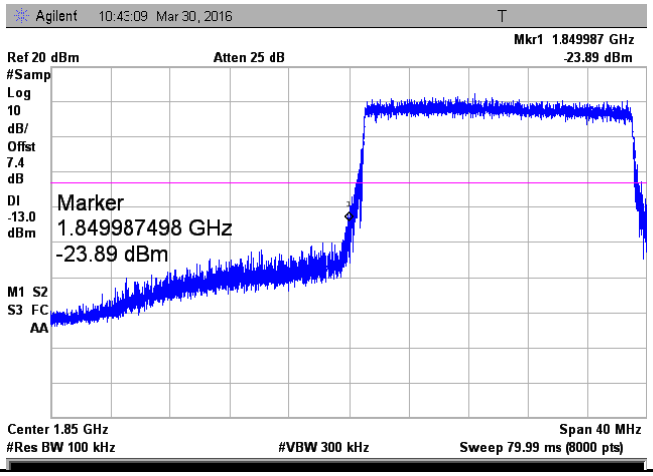

LTE Band 2 - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (193.5/100)=4.5+2.9=7.4 dB



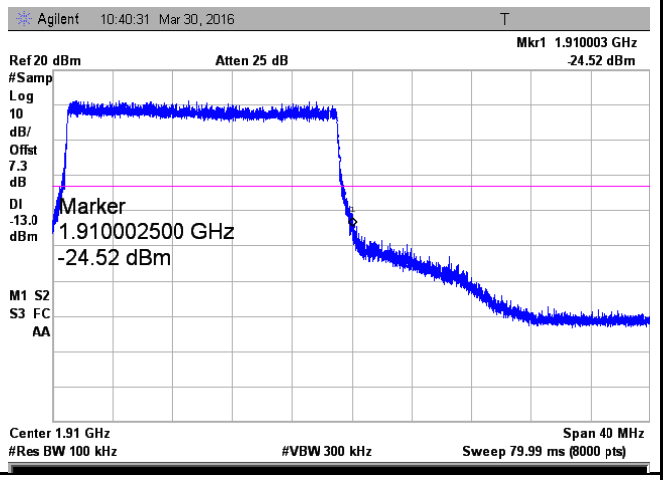

LTE Band 2 - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (193.7/100)=4.5+2.9=7.4 dB




LTE Band 2 - Low Channel 16QAM-20

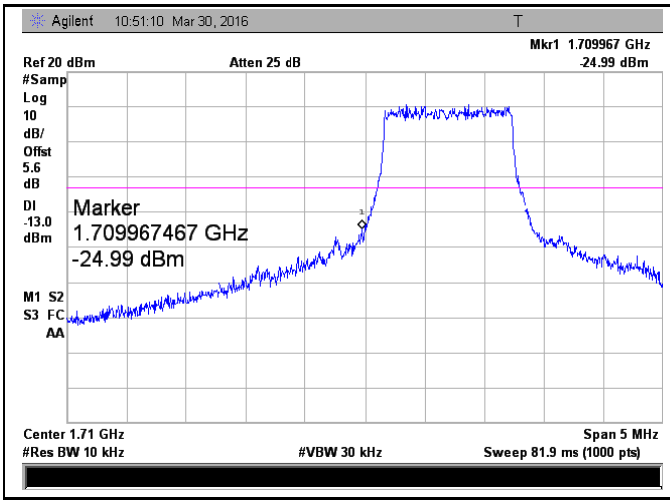
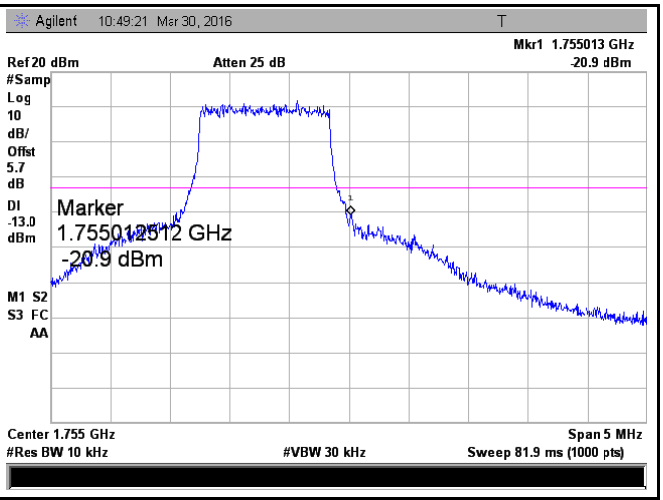
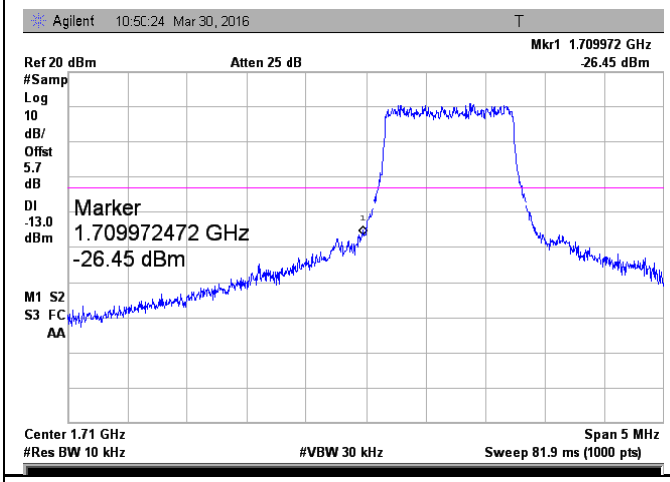
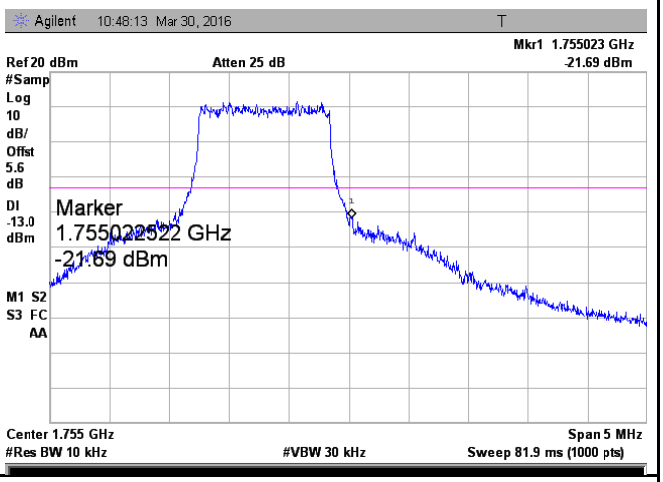
Note: Offset=Cable loss (4.5) + 10log (195.05/100)=4.5+2.9=7.4 dB

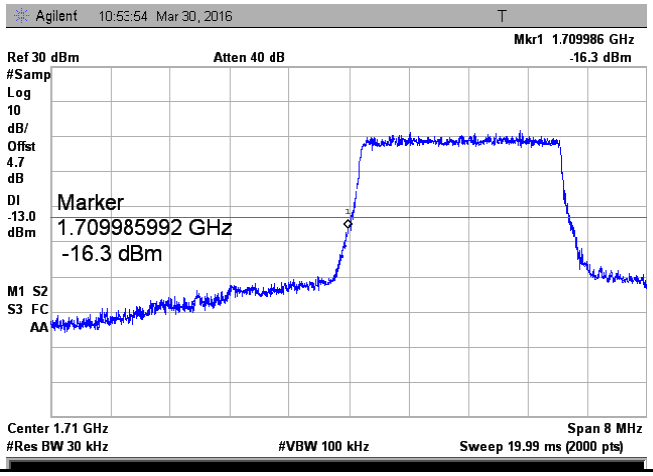



LTE Band 2 - High Channel 16QAM-20

Note: Offset=Cable loss (4.5) + 10log (192.71/100)=4.5+2.8=7.3 dB

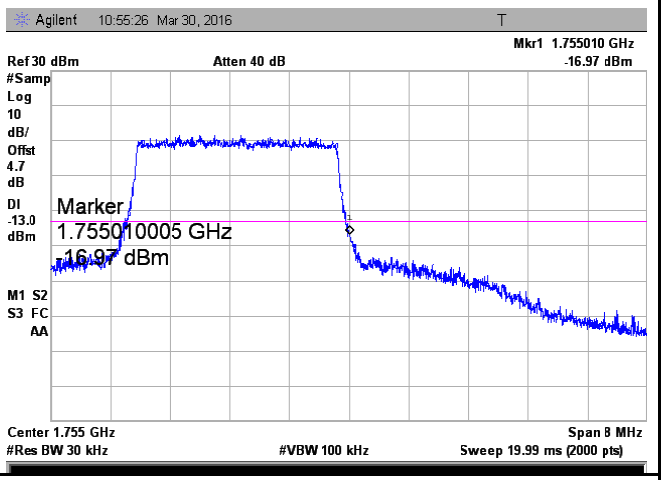
LTE Band 4

| | |
|---|---|
|  |  |
| LTE Band 4 - Low Channel QPSK-1.4 | LTE Band 4 - High Channel QPSK-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (12.96/10)=4.5+1.1=5.6dB | Note: Offset=Cable loss (4.5) + 10log (13.13/10)=4.5+1.2=5.7dB |
|  |  |
| LTE Band 4 - Low Channel 16QAM-1.4 | LTE Band 4 - High Channel 16QAM-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (13.15/10)=4.5+1.2=5.7dB | Note: Offset=Cable loss (4.5) + 10log (13.01/10)=4.5+1.1=5.6 dB |



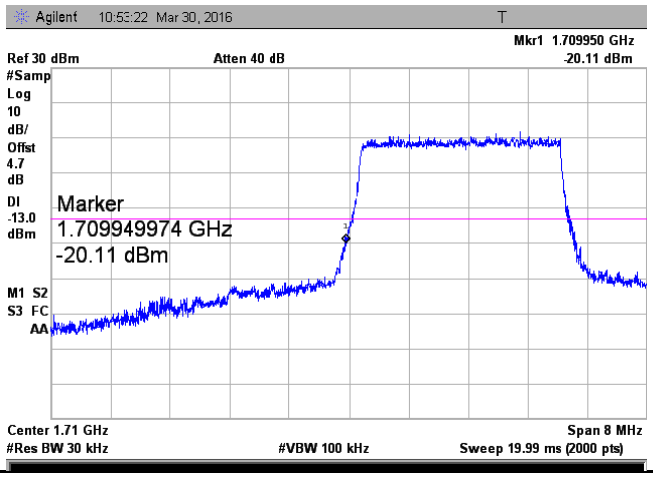

LTE Band 4 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.54/30)=4.5+0.2=4.7 dB



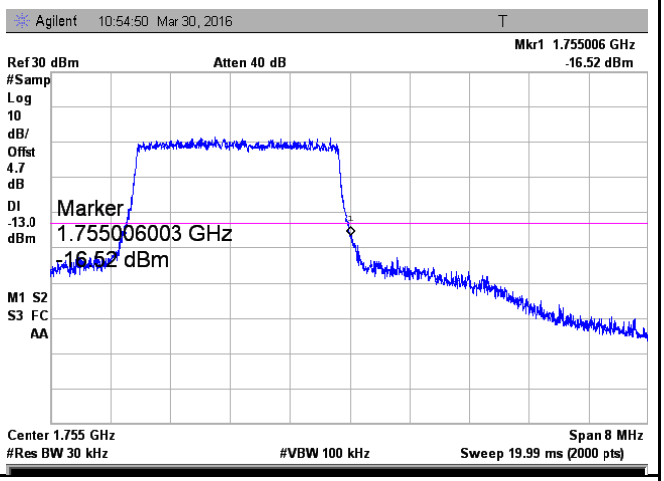

LTE Band 4 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.44/30)=4.5+0.2=4.7 dB



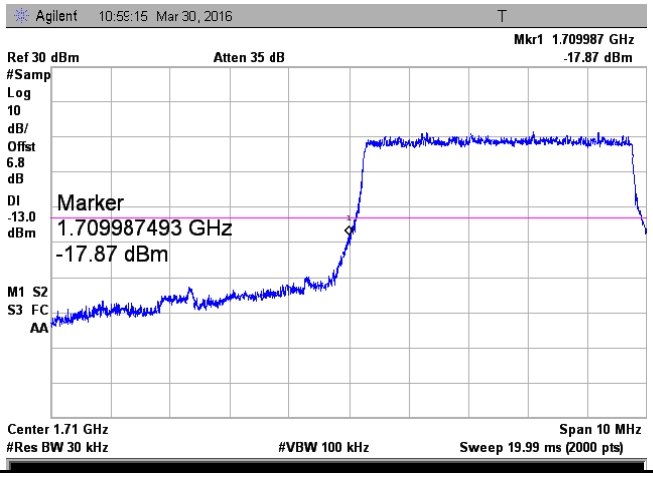

LTE Band 4 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.27/30)=4.5+0.2=4.7 dB



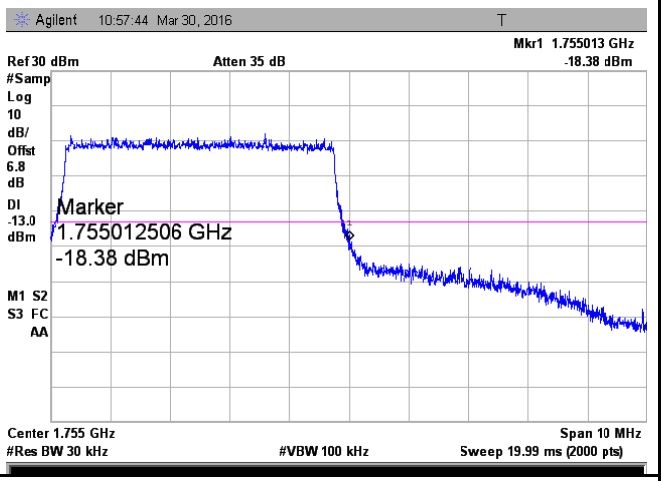

LTE Band 4 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.4/30)=4.5+0.2=4.7 dB



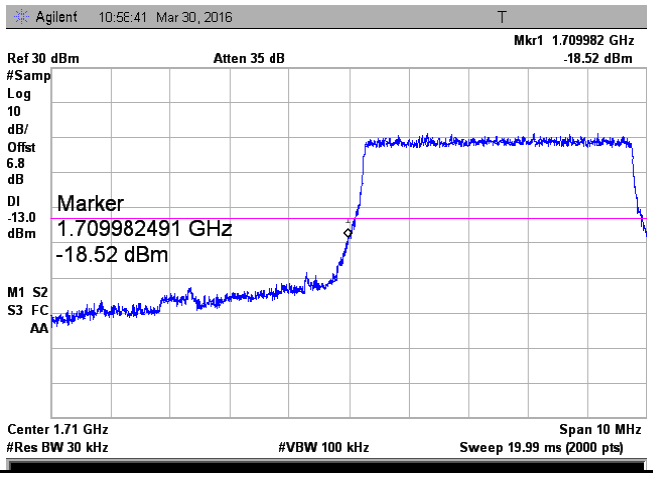

LTE Band 4 - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.63/30)=4.5+2.3=6.8dB

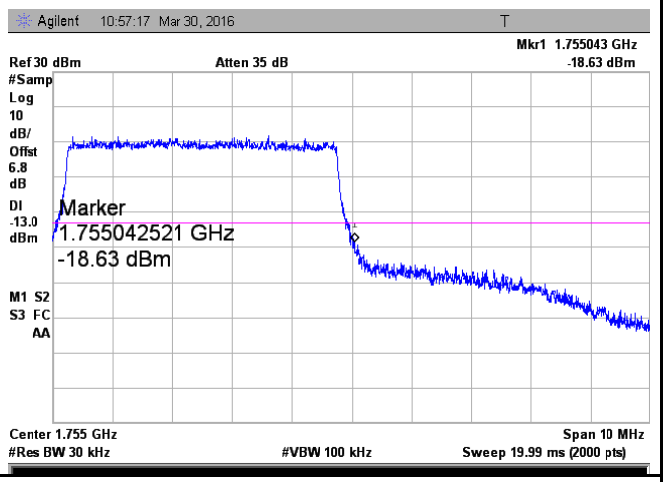



LTE Band 4 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.61/30)=4.5+2.3=6.8 dB



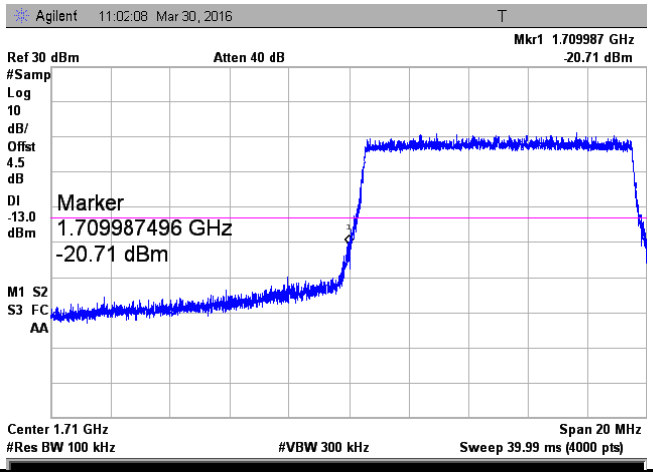

LTE Band 4 - Low Channel 16QAM-5



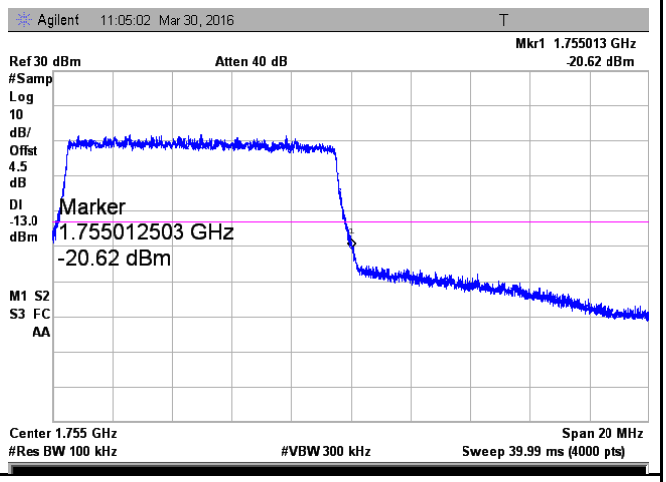

LTE Band 4 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (51.05/30)=4.5+2.3=6.8 dB

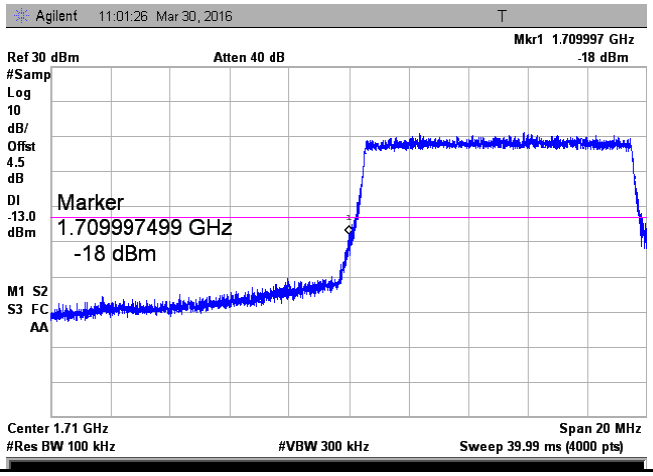
Note: Offset=Cable loss (4.5) + 10log (50.77/30)=4.5+2.3=6.8dB



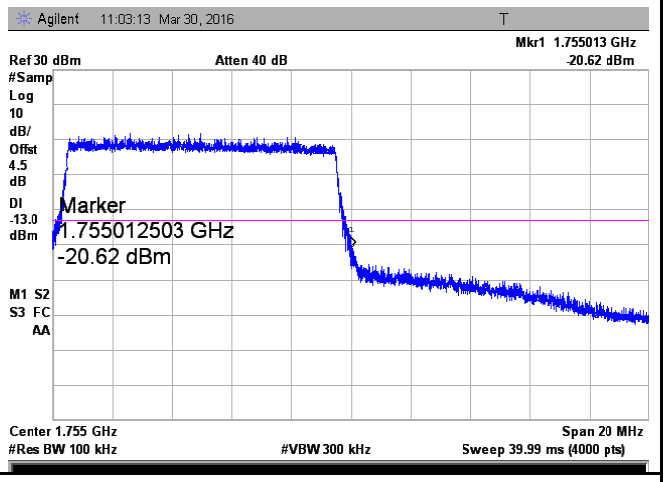

LTE Band 4 - Low Channel QPSK-10



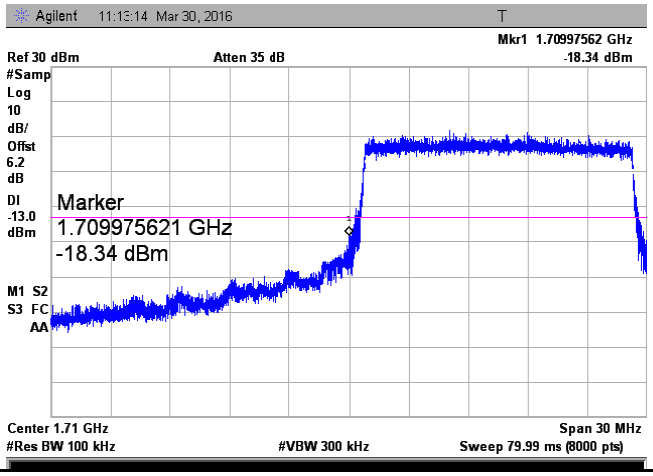

LTE Band 4 - High Channel QPSK-10




LTE Band 4 - Low Channel 16QAM-10

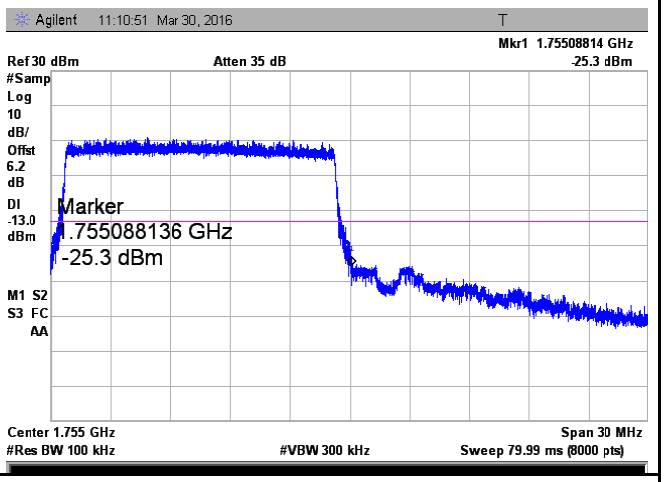



LTE Band 4 - High Channel 16QAM-10



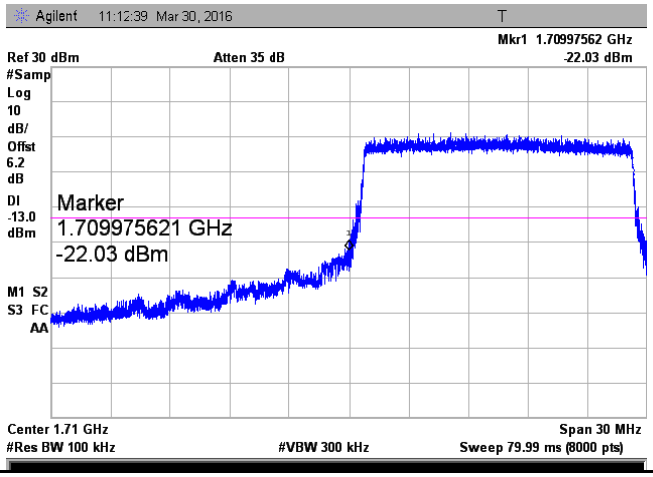

LTE Band 4 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (148.37/100)=4.5+1.7=6.2 dB



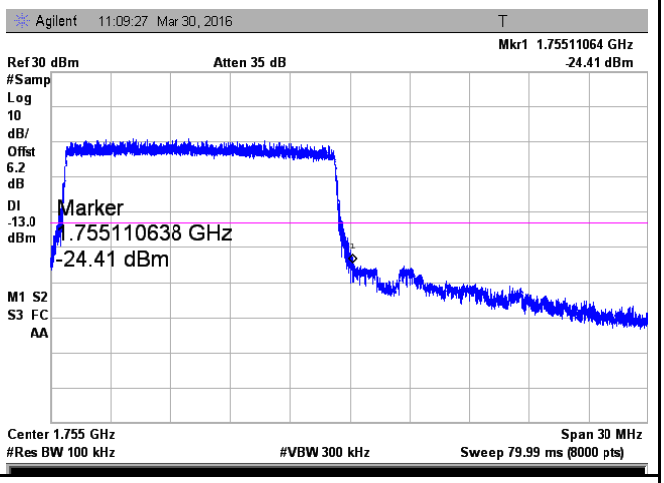

LTE Band 4 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (146.31/100)=4.5+1.7=6.2 dB



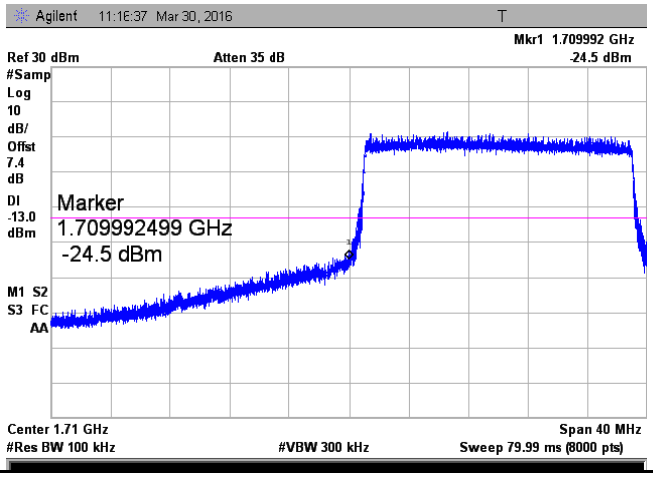

LTE Band 4 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (147.57/100)=4.5+1.7=6.2 dB



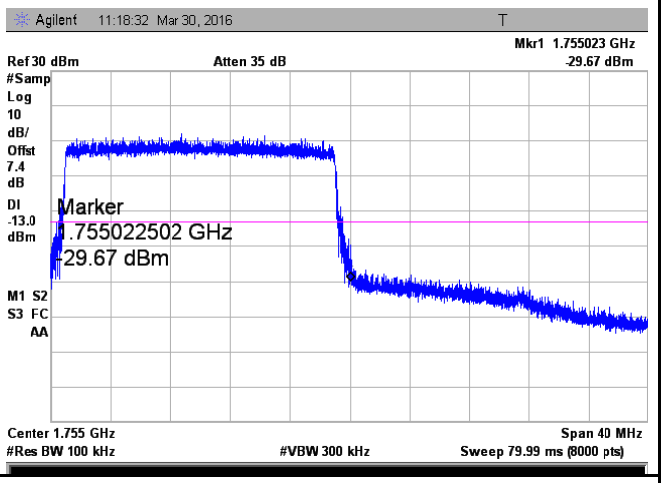

LTE Band 4 - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (148.86/100)=4.5+1.7=6.2 dB



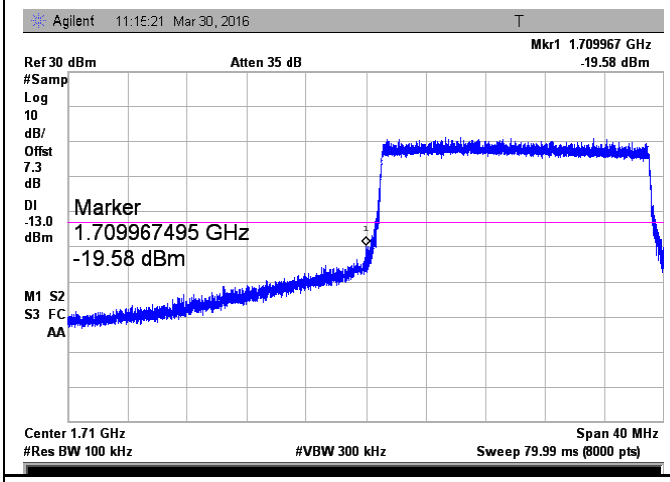
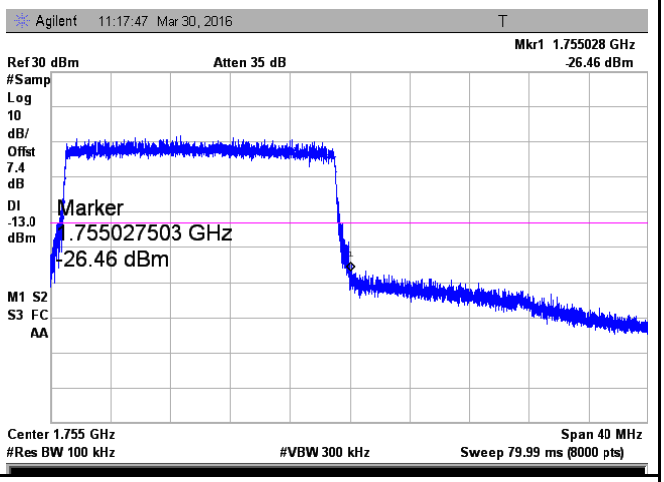

LTE Band 4 - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (193.89/100)=4.5+2.9=7.4 dB

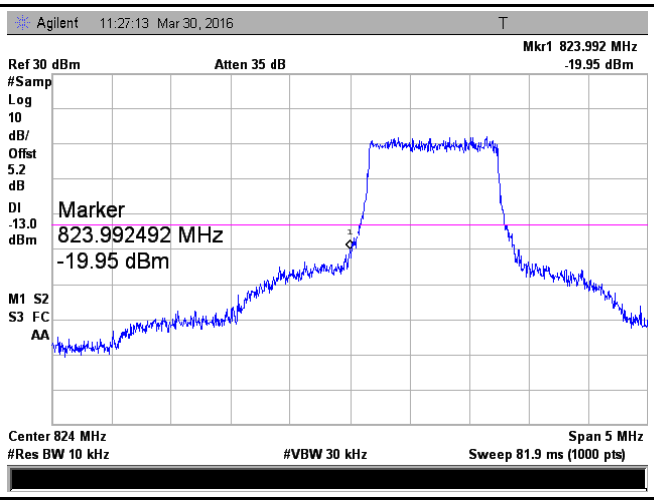
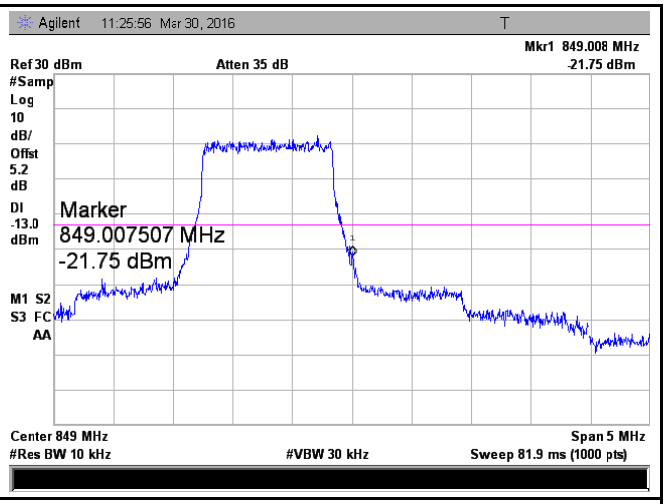
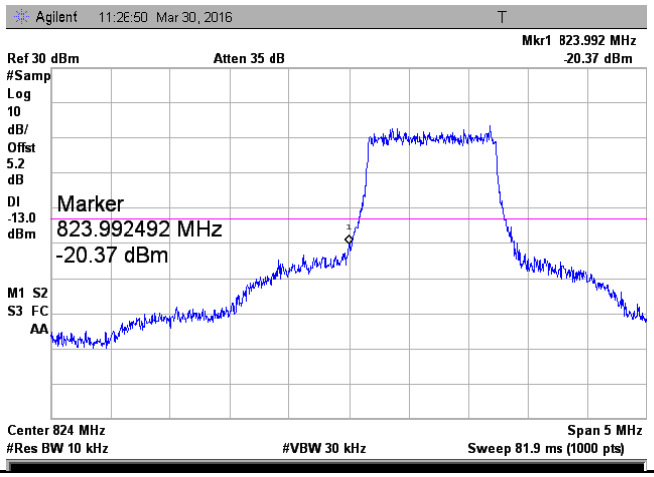
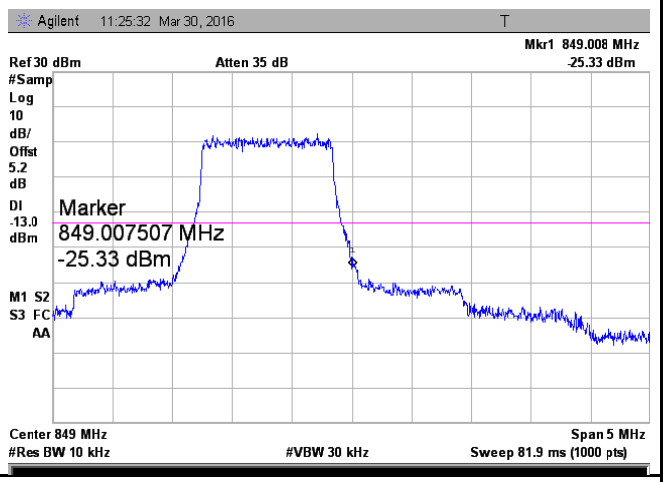


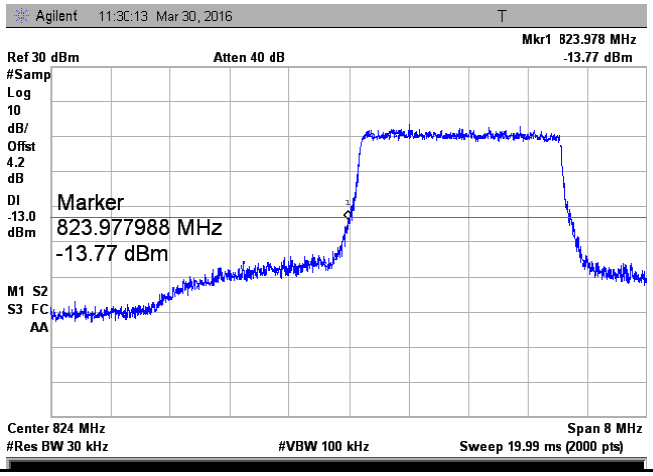

LTE Band 4 - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (192.09/100)=4.5+2.9=7.4dB

| | |
|---|---|
|  |  |
| LTE Band 4 - Low Channel 16QAM-20 | LTE Band 4 - High Channel 16QAM-20 |
| Note: Offset=Cable loss (4.5) + 10log (192.73/100)=4.5+2.8=7.3dB | Note: Offset=Cable loss (4.5) + 10log (192.19/100)=4.5+2.9=7.4 dB |

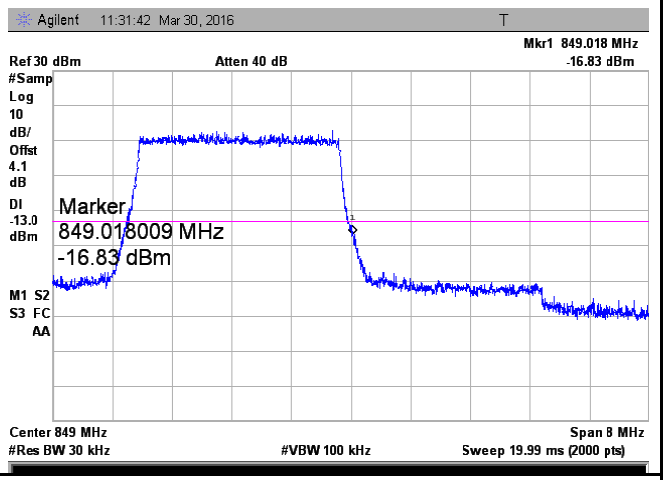
LTE Band 5

| | |
|---|---|
|  |  |
| LTE Band 5 - Low Channel QPSK-1.4 | LTE Band 5 - High Channel QPSK-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (13.22/10)=4.0+1.2=5.2dB | Note: Offset=Cable loss (4.5) + 10log (13.20/10)=4.0+1.2=5.2 dB |
|  |  |
| LTE Band 5 - Low Channel 16QAM-1.4 | LTE Band 5 - High Channel 16QAM-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (13.12/10)=4.0+1.2=5.2 dB | Note: Offset=Cable loss (4.5) + 10log (13.11/10)=4.0+1.2=5.2 dB |



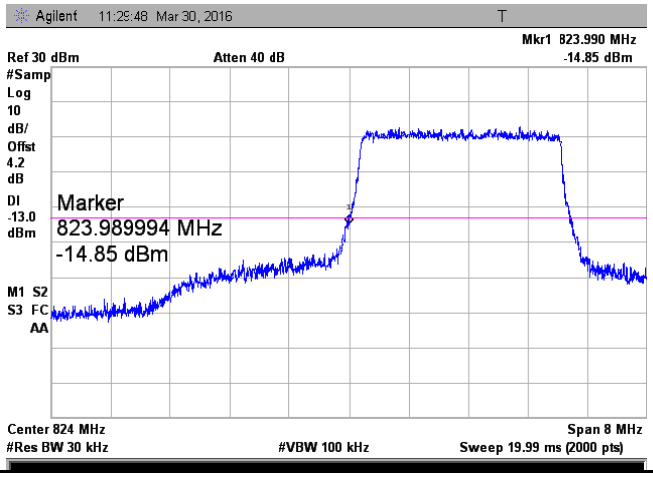

LTE Band 5 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.28/30)=4.0+0.2=4.2dB



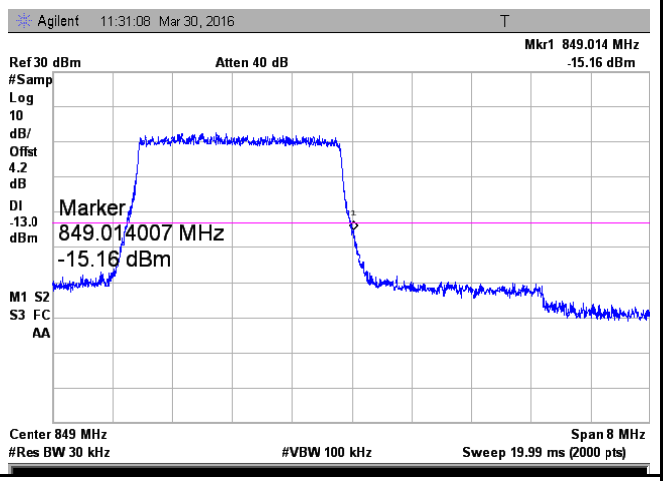

LTE Band 5 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.04/30)=4.0+0.1=4.1dB



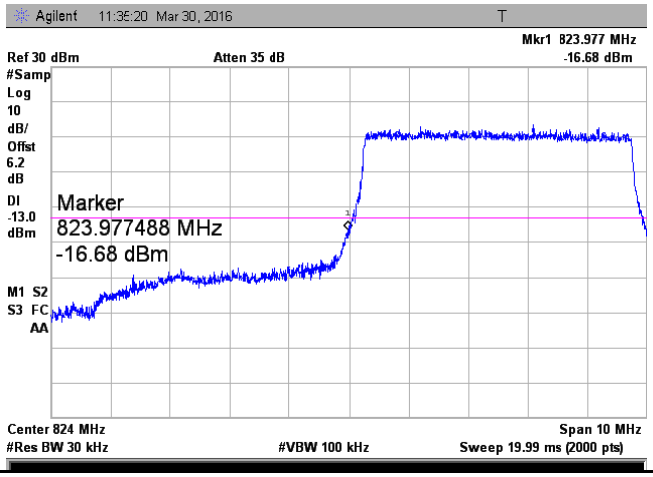

LTE Band 5 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.7/30)=4.0+0.2=4.2 dB



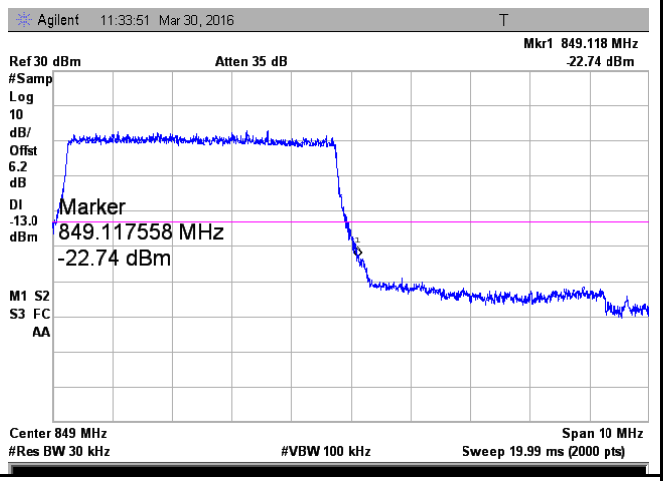

LTE Band 5 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.52/30)=4.0+0.2=4.2 dB



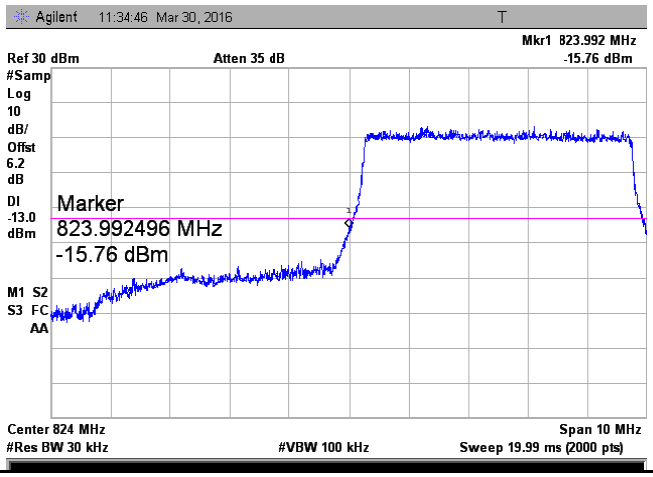

LTE Band 5 - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.32/30)=4.0+2.2=6.2 dB

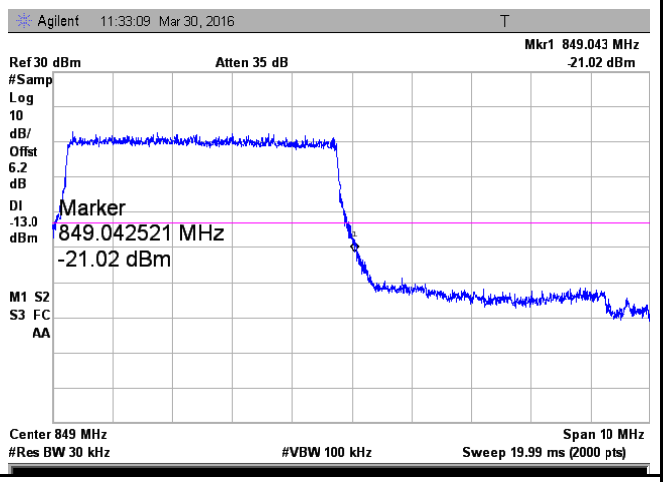



LTE Band 5 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (49.87/30)=4.0+2.2=6.2 dB



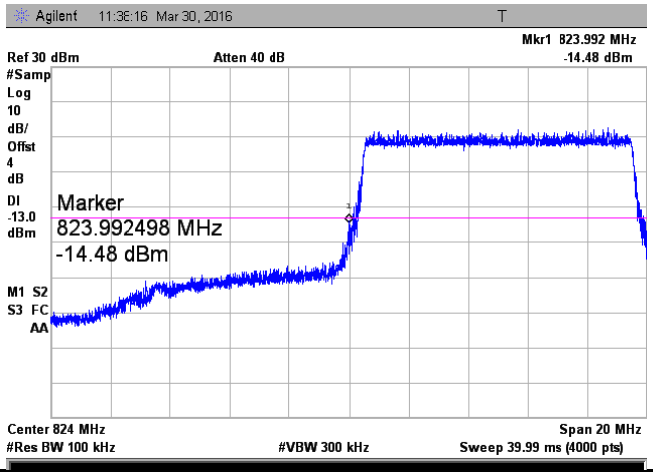

LTE Band 5 - Low Channel 16QAM-5



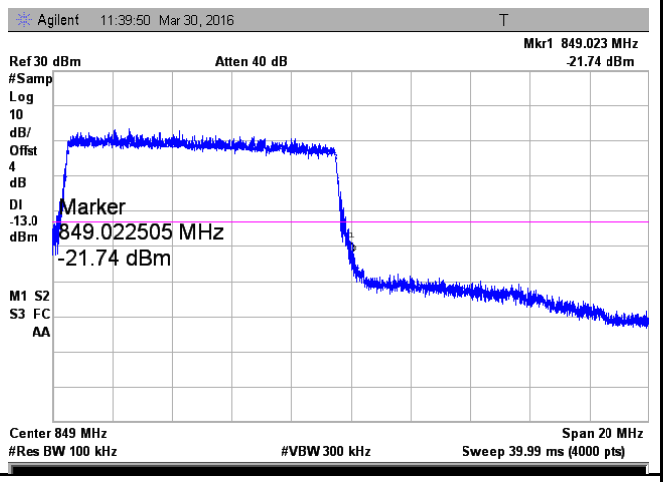

LTE Band 5 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.19/30)=4.0+2.2=6.2 dB

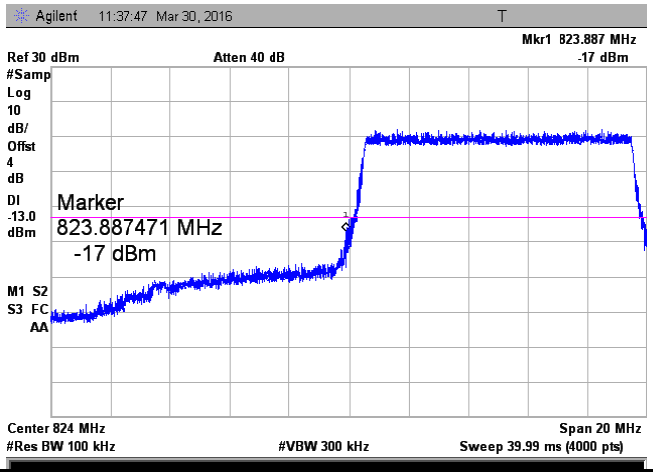
Note: Offset=Cable loss (4.5) + 10log (50.34/30)=4.0+2.2=6.2dB



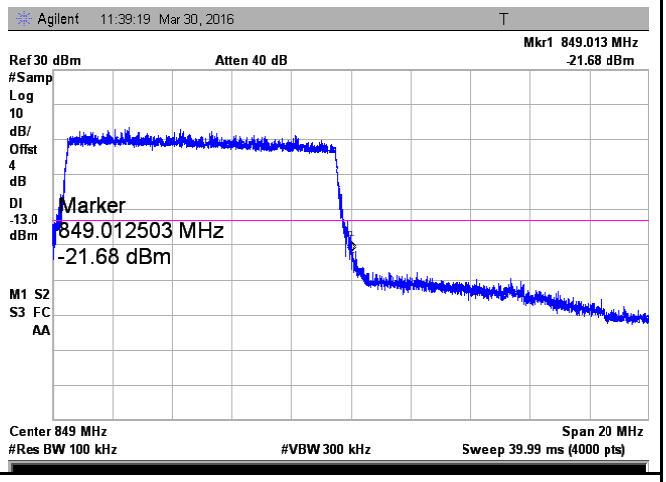

LTE Band 5 - Low Channel QPSK-10




LTE Band 5 - High Channel QPSK-10

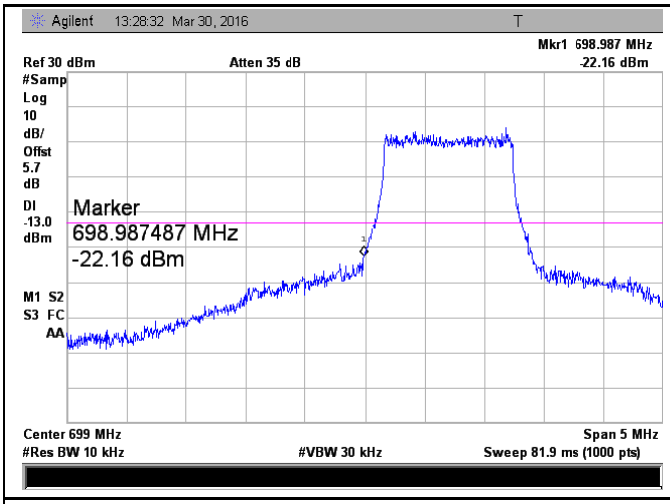
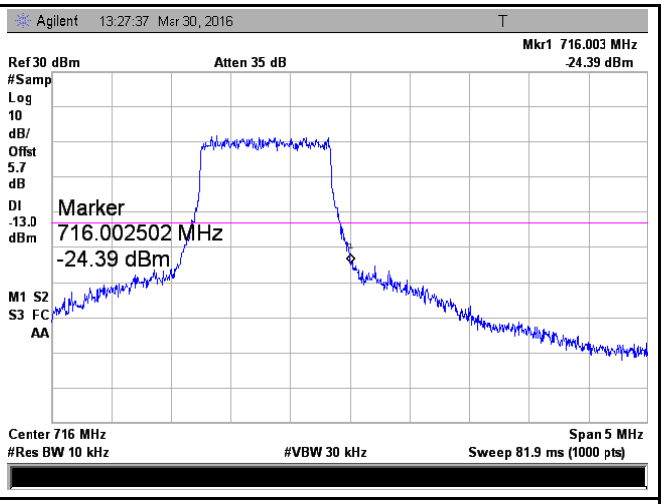
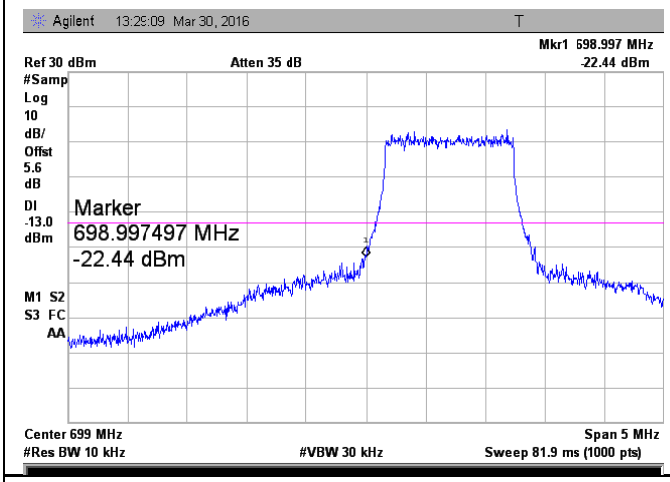
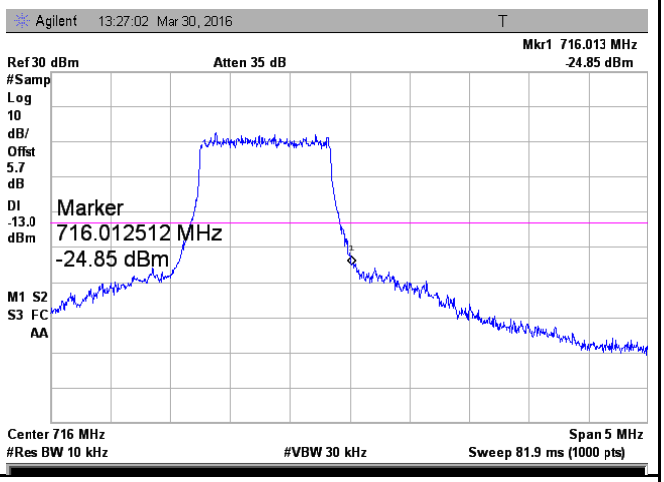


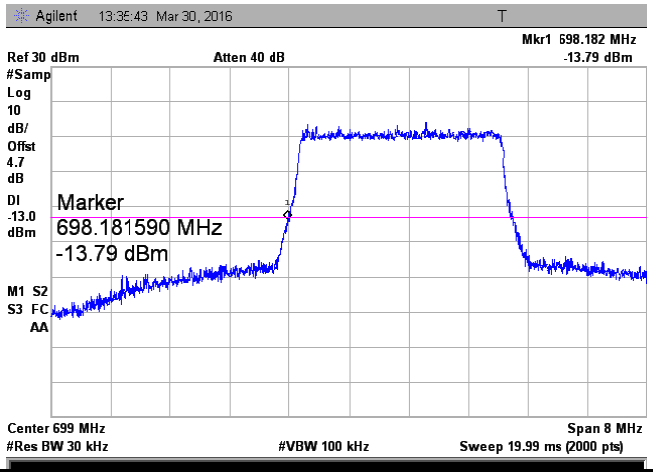

LTE Band 5 - Low Channel 16QAM-10




LTE Band 5 - High Channel 16QAM-10

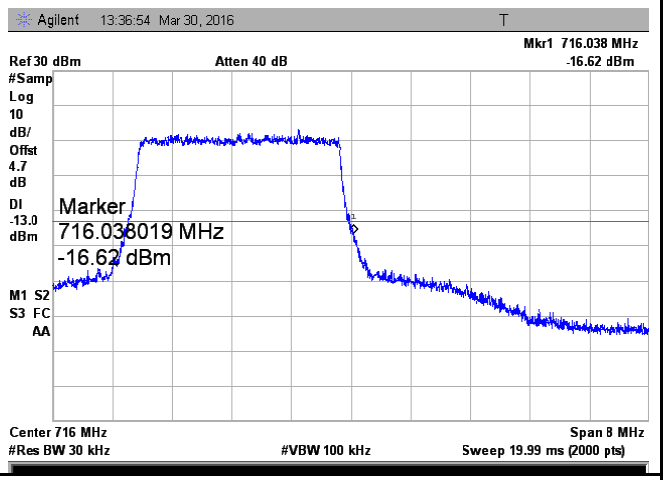
LTE Band 12

| | |
|---|---|
|  |  |
| LTE Band 12 - Low Channel QPSK-1.4 | LTE Band 12 - High Channel QPSK-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (13.18/10)=4.5+1.2=5.7 dB | Note: Offset=Cable loss (4.5) + 10log (13.11/10)=4.5+1.2=5.7 dB |
|  |  |
| LTE Band 12 - Low Channel 16QAM-1.4 | LTE Band 12 - High Channel 16QAM-1.4 |
| Note: Offset=Cable loss (4.5) + 10log (12.96/10)=4.5+1.1=5.6 dB | Note: Offset=Cable loss (4.5) + 10log (13.16/10)=4.5+1.2=5.7dB |



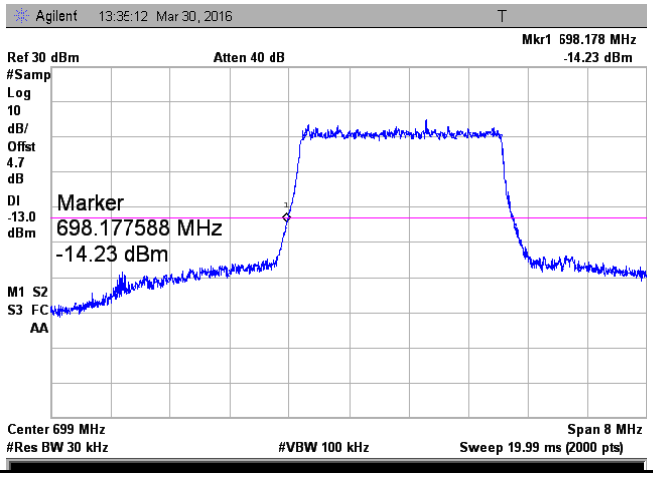

LTE Band 12 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.54/30)=4.5+0.2=4.7 dB



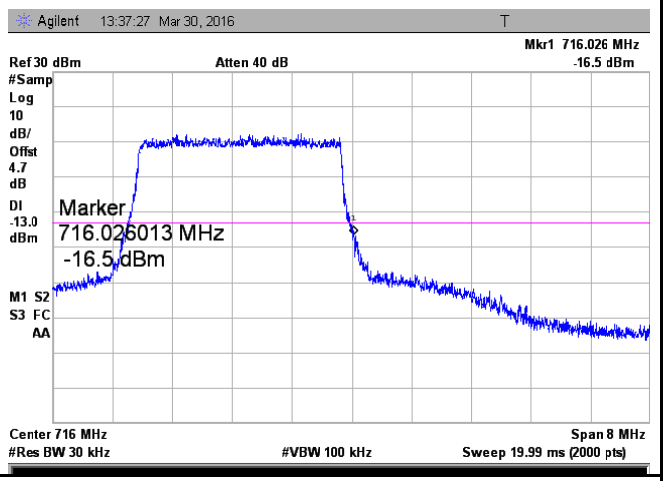

LTE Band 12 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.26/30)=4.5+0.2=4.7 dB



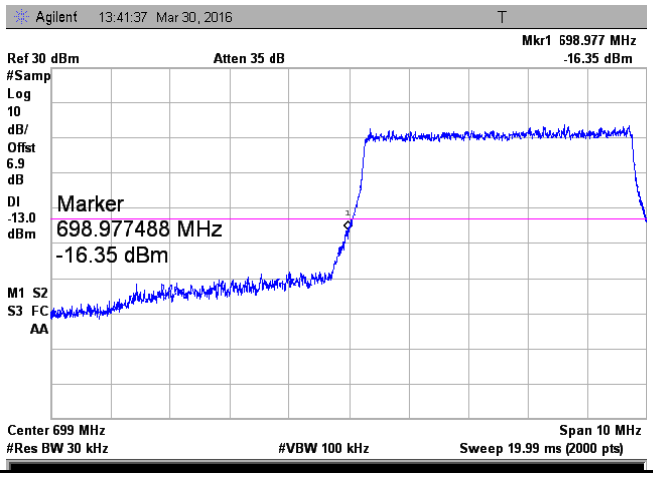

LTE Band 12 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.55/30)=4.5+0.2=4.7 dB



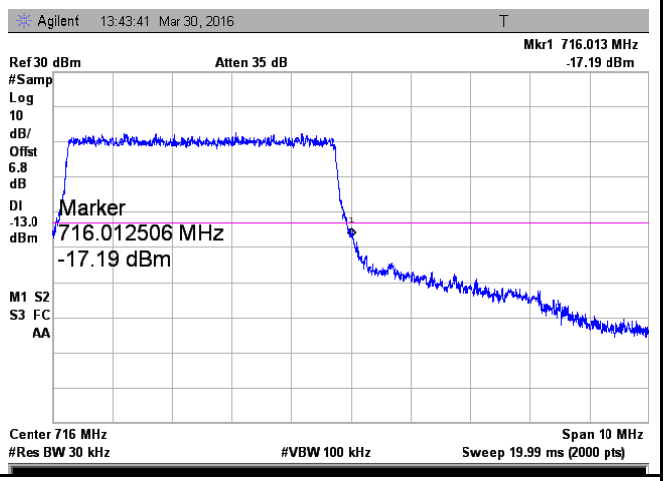

LTE Band 12 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.44/30)=4.5+0.2=4.7 dB



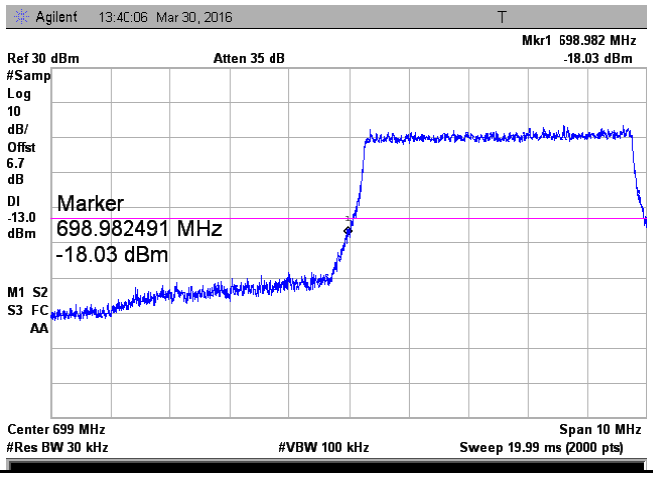

LTE Band 12 - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (51.57/30)=4.5+2.4=6.9dB

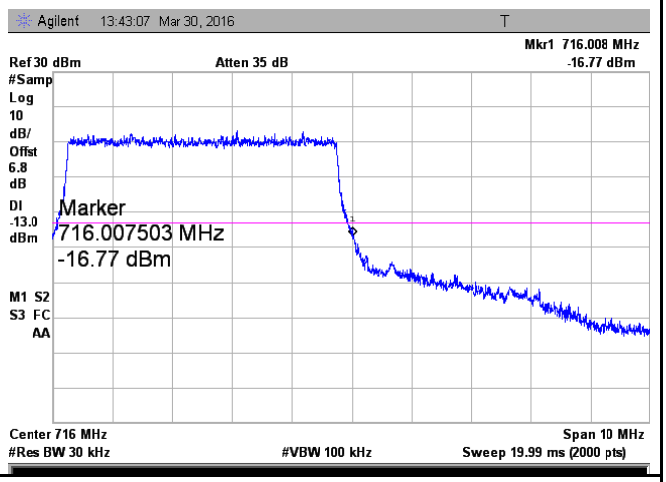



LTE Band 12 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.48/30)=4.5+2.3=6.8 dB



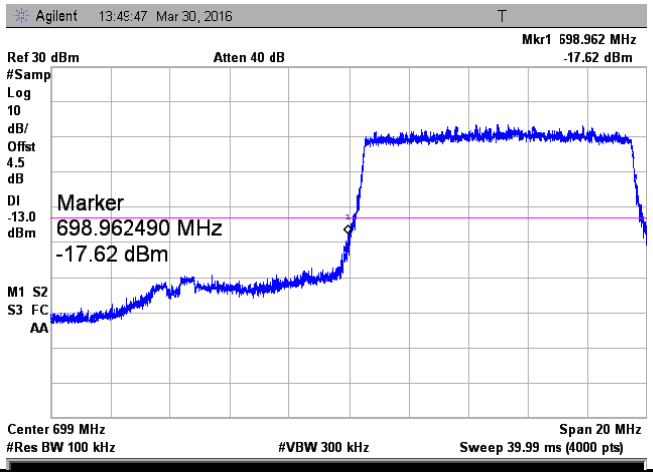

LTE Band 12 - Low Channel 16QAM-5



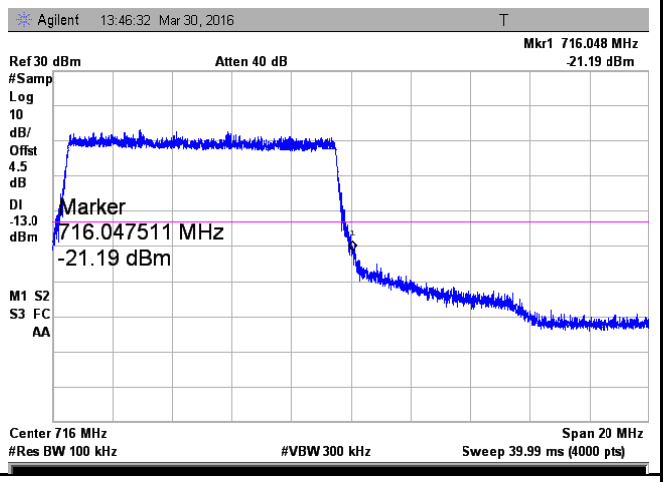

LTE Band 12 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (49.92/30)=4.5+2.2=6.7 dB

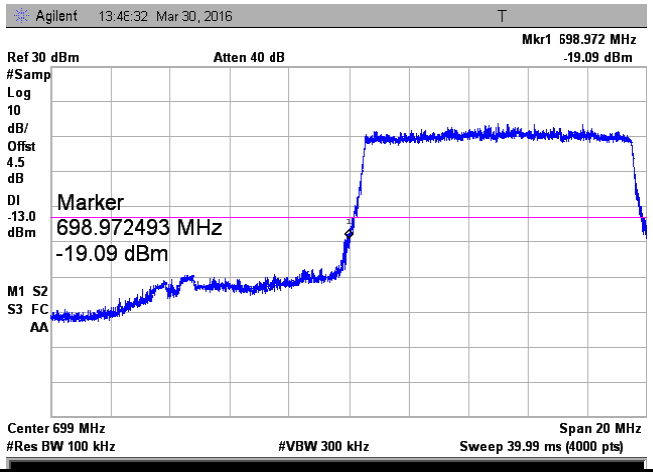
Note: Offset=Cable loss (4.5) + 10log (50.71/30)=4.5+2.3=6.8dB



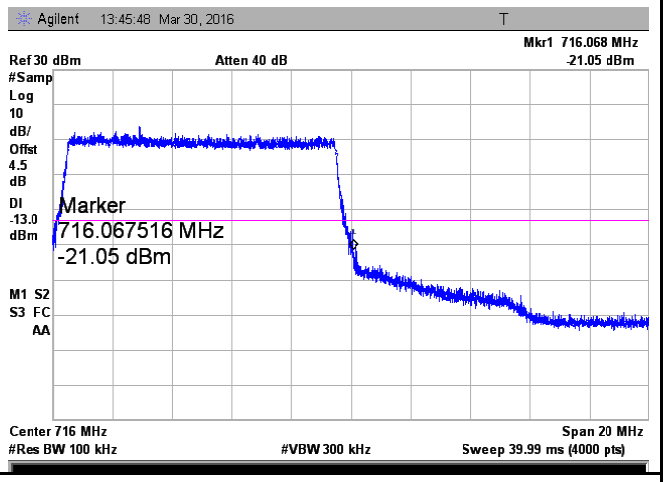

LTE Band 12 - Low Channel QPSK-10




LTE Band 12 - High Channel QPSK-10

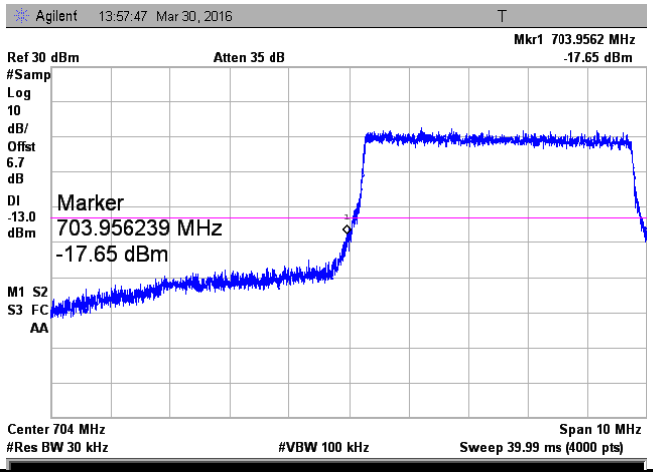
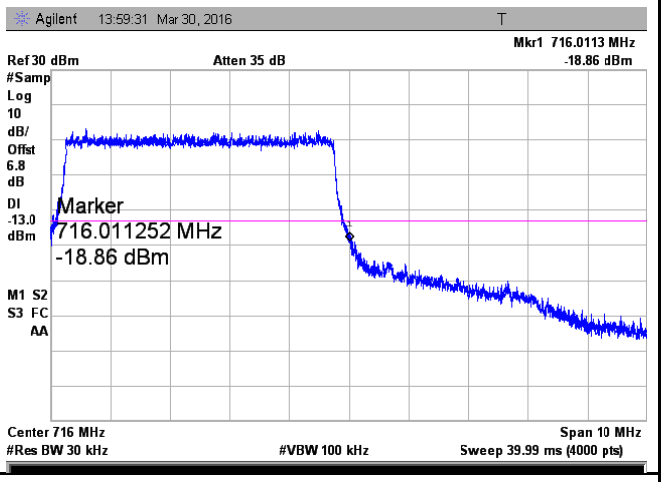
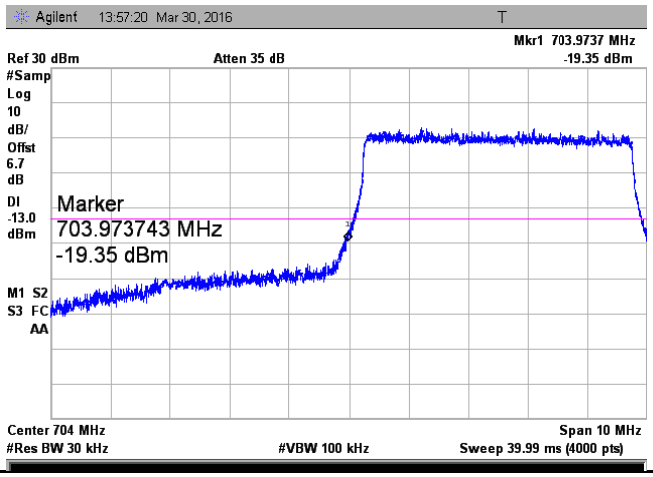
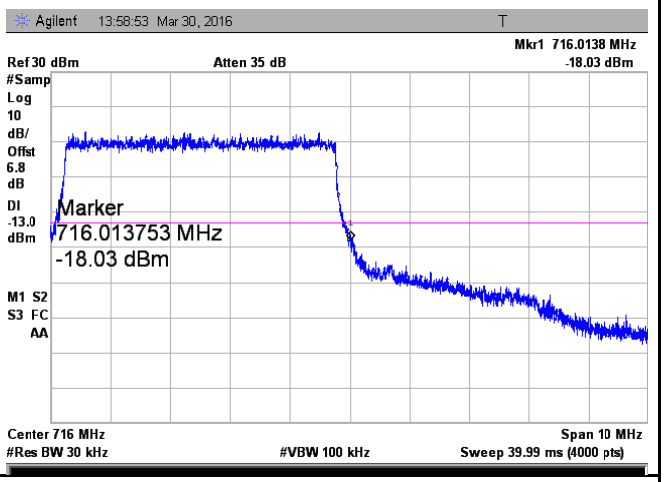


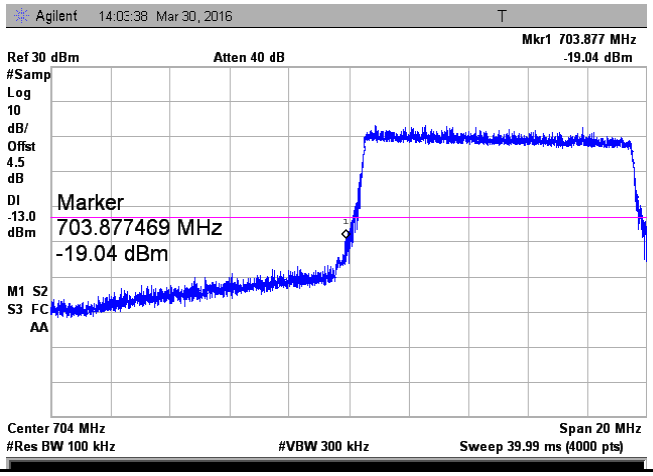

LTE Band 12 - Low Channel 16QAM-10



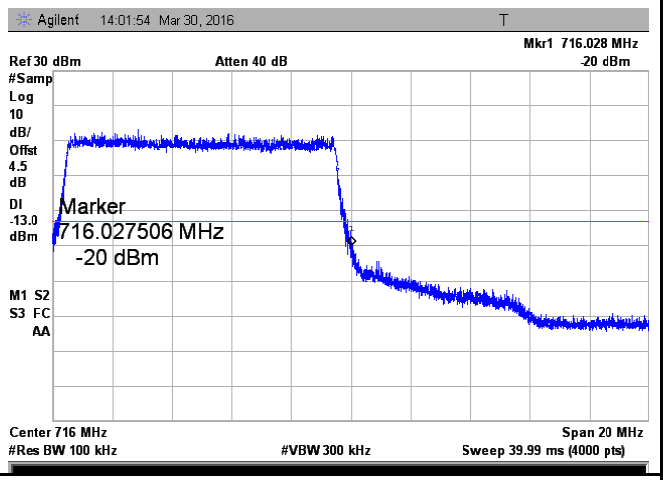

LTE Band 12 - High Channel 16QAM-10

LTE Band 17

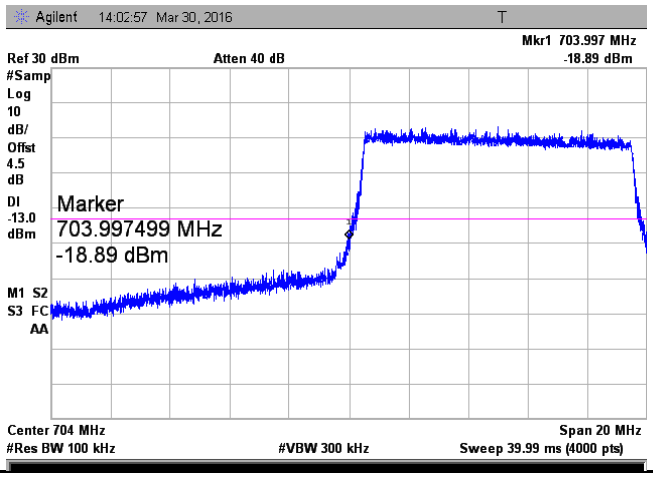
| | |
|---|---|
|  |  |
| LTE Band 17 - Low Channel QPSK-5 | LTE Band 17 - High Channel QPSK-5 |
| Note: Offset=Cable loss (4.0) + 10log (49.8/30)=4.5+2.2=6.7 dB | Note: Offset=Cable loss (4.0) + 10log (50.85/30)=4.5+2.3=6.8 dB |
|  |  |
| LTE Band 17 - Low Channel 16QAM-5 | LTE Band 17 - High Channel 16QAM-5 |
| Note: Offset=Cable loss (4.0) + 10log (50.34/30)=4.5+2.2=6.7 dB | Note: Offset=Cable loss (4.0) + 10log (50.99/30)=4.5+2.3=6.8 dB |



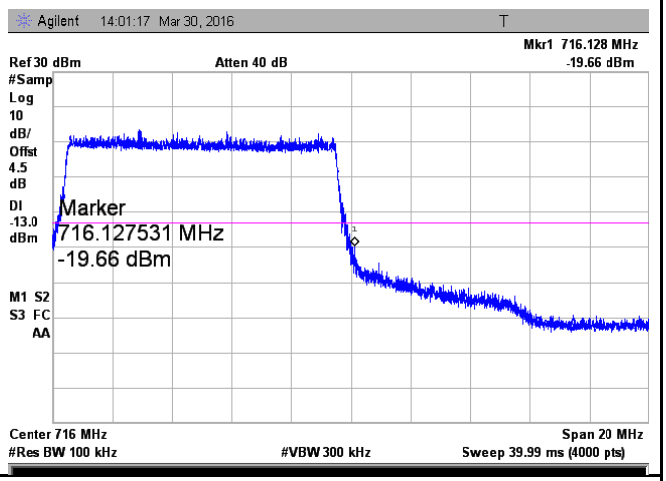

LTE Band 17 - Low Channel QPSK-10




LTE Band 17 - High Channel QPSK-10




LTE Band 17 - Low Channel 16QAM-10




LTE Band 17 - High Channel 16QAM-10

*NOTE：*

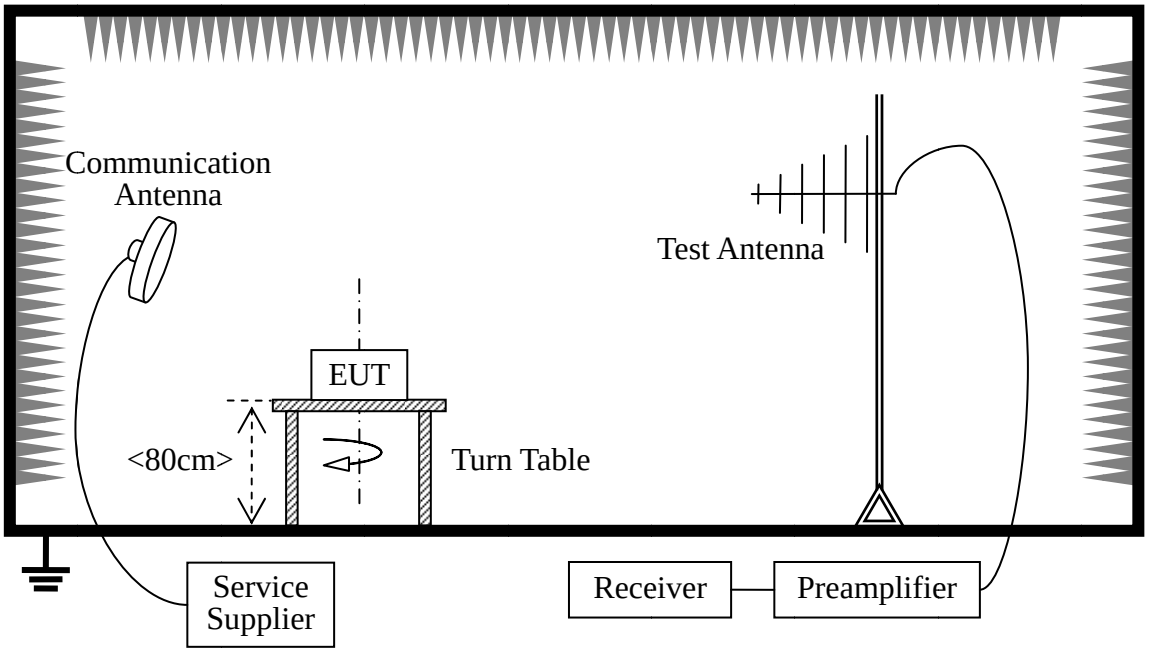
*The power of the EUT transmitting frequency should be ignored.*

## 1.14 Transmitter Radiated Power (EIRP/ERP)

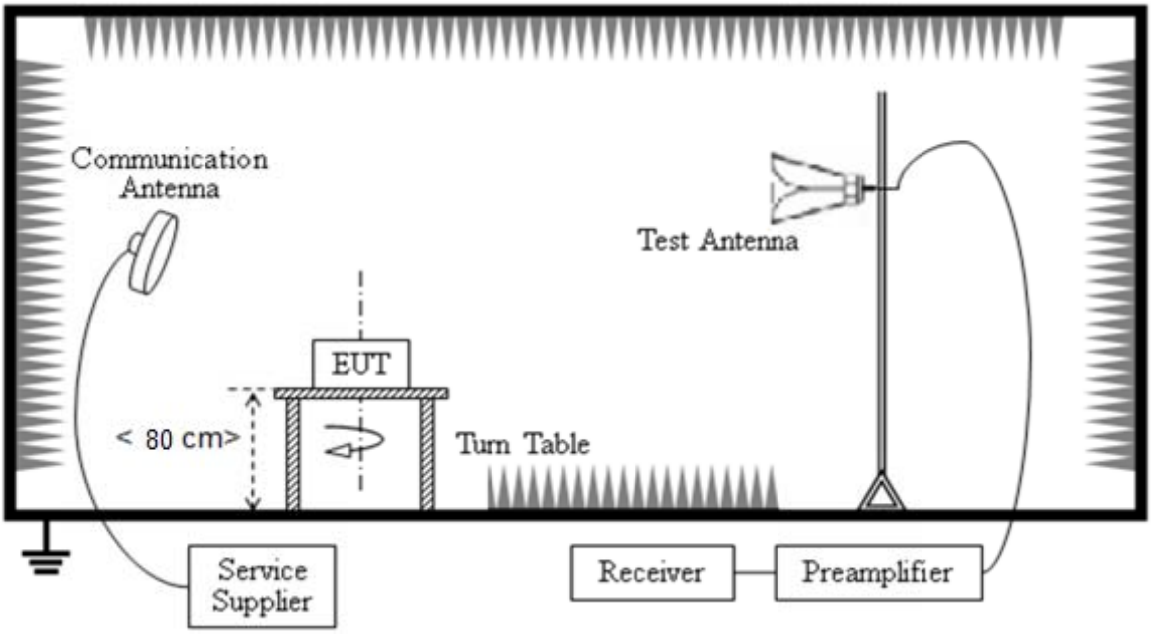
### 1.14.1 Requirement

According to FCC section 2.1046, 22.913(a)(2), 24.232(c), 27.50(c)(10) and 27.50(d)(4)
Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts with LTE band 5 and 3 watts with LTE band 12 / 17.
Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 2 and 1 watt with LTE band 4.

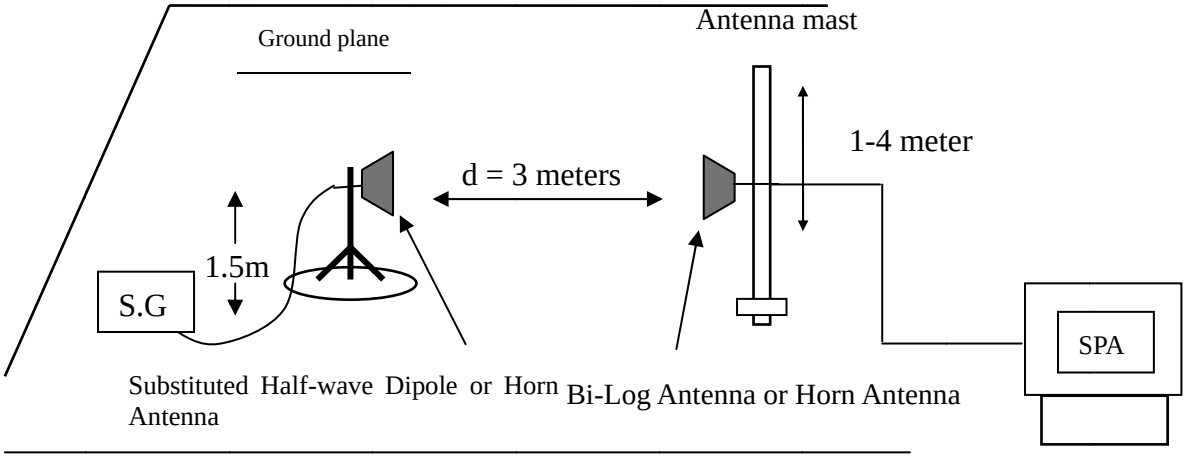
### 1.14.2 Test Description




Radiated Emissions 30-1000MHz



Radiated Emissions above 1000MHz




Substituted method

## 1.14.3 Test Procedure

The measurements procedures in TIA-603C-2004 are used.

1. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1-4m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.

2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as ($P_r$).
3. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ($P_{Mea}$) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded ($P_r$). The power of signal source ($P_{Mea}$) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
4. The cable loss ($P_{cl}$) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain ($G_a$) should be recorded after test. The measurement results are obtained as described below:
   Power(EIRP)=$P_{Mea}$+ $P_{cl}$ + $G_a$
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

### 1.14.4 Test Results

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested. All modes are tested.

LTE Band 2:

| LTE Band 2 / 1.4MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 20.49 | 0.1119 | 19.04 | 0.0802 |
| Middle | | 1 | 0 | 19.89 | 0.0975 | 18.32 | 0.0679 |
| Highest | | 1 | 0 | 19.10 | 0.0813 | 17.60 | 0.0575 |
| Lowest | 16QAM | 1 | 0 | 19.90 | 0.0977 | 18.40 | 0.0692 |
| Middle | | 1 | 0 | 18.53 | 0.0713 | 18.10 | 0.0646 |
| Highest | | 1 | 0 | 18.65 | 0.0733 | 17.42 | 0.0552 |
| Limit | EIRP < 2W | | | Result | | Pass | |

| LTE Band 2 / 3MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 20.45 | 0.1109 | 19.03 | 0.0800 |
| Middle | | 1 | 0 | 19.93 | 0.0984 | 18.30 | 0.0676 |
| Highest | | 1 | 0 | 19.18 | 0.0828 | 17.72 | 0.0592 |
| Lowest | 16QAM | 1 | 0 | 19.55 | 0.0902 | 18.10 | 0.0646 |
| Middle | | 1 | 0 | 18.50 | 0.0708 | 18.06 | 0.0640 |
| Highest | | 1 | 0 | 18.73 | 0.0746 | 17.51 | 0.0564 |
| Limit | EIRP < 2W | | | Result | | Pass | |

| LTE Band 2 / 5MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 20.16 | 0.1038 | 18.84 | 0.0766 |
| Middle | | 1 | 0 | 20.10 | 0.1023 | 18.42 | 0.0695 |
| Highest | | 1 | 0 | 19.23 | 0.0838 | 17.75 | 0.0596 |
| Lowest | 16QAM | 1 | 0 | 19.29 | 0.0849 | 17.91 | 0.0618 |
| Middle | | 1 | 0 | 18.54 | 0.0714 | 18.16 | 0.0655 |
| Highest | | 1 | 0 | 18.74 | 0.0748 | 17.55 | 0.0569 |
| Limit | EIRP < 2W | | | Result | | Pass | |

| LTE Band 2 / 10MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 20.46 | 0.1112 | 18.63 | 0.0729 |
| Middle | | 1 | 0 | 20.28 | 0.1067 | 18.79 | 0.0757 |
| Highest | | 1 | 0 | 19.48 | 0.0887 | 17.86 | 0.0611 |
| Lowest | 16QAM | 1 | 0 | 19.41 | 0.0873 | 17.61 | 0.0577 |
| Middle | | 1 | 0 | 19.39 | 0.0869 | 17.83 | 0.0607 |
| Highest | | 1 | 0 | 18.73 | 0.0746 | 17.10 | 0.0513 |
| Limit | EIRP < 2W | | | Result | | Pass | |

| LTE Band 2 / 15MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 20.04 | 0.1009 | 18.45 | 0.0700 |
| Middle | | 1 | 0 | 20.39 | 0.1094 | 18.72 | 0.0745 |
| Highest | | 1 | 0 | 19.71 | 0.0935 | 18.21 | 0.0662 |
| Lowest | 16QAM | 1 | 0 | 19.35 | 0.0861 | 17.73 | 0.0593 |
| Middle | | 1 | 0 | 18.79 | 0.0757 | 18.41 | 0.0693 |
| Highest | | 1 | 0 | 18.97 | 0.0789 | 17.45 | 0.0556 |
| Limit | EIRP < 2W | | | Result | | Pass | |

| LTE Band 2 / 20MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 20.72 | 0.1180 | 18.82 | 0.0762 |
| Middle | | 1 | 0 | 20.64 | 0.1159 | 18.81 | 0.0760 |
| Highest | | 1 | 0 | 19.52 | 0.0895 | 18.15 | 0.0653 |
| Lowest | 16QAM | 1 | 0 | 19.25 | 0.0841 | 17.69 | 0.0587 |
| Middle | | 1 | 0 | 18.48 | 0.0705 | 17.92 | 0.0619 |
| Highest | | 1 | 0 | 18.75 | 0.0750 | 17.36 | 0.0545 |
| Limit | EIRP < 2W | | | Result | | Pass | |

LTE Band4

| LTE Band 4 / 1.4MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 22.77 | 0.189 | 19.89 | 0.097 |
| Middle | | 1 | 0 | 22.84 | 0.192 | 20.04 | 0.101 |
| Highest | | 1 | 0 | 22.41 | 0.174 | 19.50 | 0.089 |
| Lowest | 16QAM | 1 | 0 | 22.61 | 0.182 | 20.28 | 0.107 |
| Middle | | 1 | 0 | 21.87 | 0.154 | 19.33 | 0.086 |
| Highest | | 1 | 0 | 22.77 | 0.189 | 20.18 | 0.104 |
| Limit | EIRP < 1W | | | Result | | Pass | |

| LTE Band 4 / 3MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 22.59 | 0.182 | 20.01 | 0.100 |
| Middle | | 1 | 0 | 22.38 | 0.173 | 20.00 | 0.100 |
| Highest | | 1 | 0 | 22.30 | 0.170 | 19.77 | 0.095 |
| Lowest | 16QAM | 1 | 0 | 22.00 | 0.158 | 19.88 | 0.097 |
| Middle | | 1 | 0 | 22.27 | 0.169 | 20.19 | 0.104 |
| Highest | | 1 | 0 | 22.53 | 0.179 | 19.95 | 0.099 |
| Limit | EIRP < 1W | | | Result | | Pass | |

| LTE Band 4 / 5MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 22.75 | 0.188 | 20.27 | 0.106 |
| Middle | | 1 | 0 | 22.73 | 0.187 | 19.75 | 0.094 |
| Highest | | 1 | 0 | 21.79 | 0.151 | 20.39 | 0.109 |
| Lowest | 16QAM | 1 | 0 | 22.70 | 0.186 | 20.27 | 0.106 |
| Middle | | 1 | 0 | 22.19 | 0.166 | 19.62 | 0.092 |
| Highest | | 1 | 0 | 21.79 | 0.151 | 19.47 | 0.089 |
| Limit | EIRP < 1W | | | Result | | Pass | |

| LTE Band 4 / 10MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 21.98 | 0.158 | 20.22 | 0.105 |
| Middle | | 1 | 0 | 22.38 | 0.173 | 20.19 | 0.104 |
| Highest | | 1 | 0 | 22.31 | 0.170 | 19.60 | 0.091 |
| Lowest | 16QAM | 1 | 0 | 22.13 | 0.163 | 19.34 | 0.086 |
| Middle | | 1 | 0 | 22.88 | 0.194 | 19.86 | 0.097 |
| Highest | | 1 | 0 | 22.78 | 0.190 | 19.59 | 0.091 |
| Limit | EIRP < 1W | | | Result | | Pass | |

| LTE Band 4 / 15MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 22.35 | 0.172 | 19.29 | 0.085 |
| Middle | | 1 | 0 | 21.61 | 0.145 | 20.45 | 0.111 |
| Highest | | 1 | 0 | 22.68 | 0.185 | 20.07 | 0.102 |
| Lowest | 16QAM | 1 | 0 | 21.94 | 0.156 | 20.46 | 0.111 |
| Middle | | 1 | 0 | 21.97 | 0.157 | 19.54 | 0.090 |
| Highest | | 1 | 0 | 22.00 | 0.158 | 19.23 | 0.084 |
| Limit | EIRP < 1W | | | Result | | Pass | |

| LTE Band 4 / 20MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | EIRP(dBm) | EIRP(W) | EIRP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 21.70 | 0.148 | 19.44 | 0.088 |
| Middle | | 1 | 0 | 22.65 | 0.184 | 19.29 | 0.085 |
| Highest | | 1 | 0 | 22.04 | 0.160 | 20.17 | 0.104 |
| Lowest | 16QAM | 1 | 0 | 22.43 | 0.175 | 20.44 | 0.111 |
| Middle | | 1 | 0 | 21.93 | 0.156 | 19.76 | 0.095 |
| Highest | | 1 | 0 | 22.88 | 0.194 | 19.22 | 0.084 |
| Limit | EIRP < 1W | | | Result | | Pass | |

LTE Band 5

| LTE Band 5 / 1.4MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 16.12 | 0.0409 | 7.14 | 0.0052 |
| Middle | | 1 | 0 | 16.25 | 0.0422 | 7.30 | 0.0054 |
| Highest | | 1 | 0 | 16.20 | 0.0417 | 7.46 | 0.0056 |
| Lowest | 16QAM | 1 | 0 | 15.23 | 0.0333 | 6.24 | 0.0042 |
| Middle | | 1 | 0 | 15.58 | 0.0361 | 6.63 | 0.0046 |
| Highest | | 1 | 0 | 15.53 | 0.0357 | 6.79 | 0.0048 |
| Limit | ERP < 7W | | | Result | | Pass | |

| LTE Band 5 / 3MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 15.81 | 0.0381 | 7.01 | 0.0050 |
| Middle | | 1 | 0 | 16.01 | 0.0399 | 7.28 | 0.0053 |
| Highest | | 1 | 0 | 16.03 | 0.0401 | 7.43 | 0.0055 |
| Lowest | 16QAM | 1 | 0 | 15.19 | 0.0330 | 6.22 | 0.0042 |
| Middle | | 1 | 0 | 15.08 | 0.0322 | 6.40 | 0.0044 |
| Highest | | 1 | 0 | 15.20 | 0.0331 | 6.59 | 0.0046 |
| Limit | ERP < 7W | | | Result | | Pass | |

| LTE Band 5 / 5MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 15.58 | 0.0361 | 6.65 | 0.0046 |
| Middle | | 1 | 0 | 16.20 | 0.0417 | 7.33 | 0.0054 |
| Highest | | 1 | 0 | 16.25 | 0.0422 | 7.47 | 0.0056 |
| Lowest | 16QAM | 1 | 0 | 15.16 | 0.0328 | 6.20 | 0.0042 |
| Middle | | 1 | 0 | 15.61 | 0.0364 | 6.61 | 0.0046 |
| Highest | | 1 | 0 | 15.61 | 0.0364 | 6.81 | 0.0048 |
| Limit | ERP < 7W | | | Result | | Pass | |

| LTE Band 5 / 10MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 15.77 | 0.0378 | 6.61 | 0.0046 |
| Middle | | 1 | 0 | 16.02 | 0.0400 | 6.91 | 0.0049 |
| Highest | | 1 | 0 | 15.94 | 0.0393 | 6.97 | 0.0050 |
| Lowest | 16QAM | 1 | 0 | 16.61 | 0.0458 | 5.44 | 0.0035 |
| Middle | | 1 | 0 | 15.37 | 0.0344 | 6.22 | 0.0042 |
| Highest | | 1 | 0 | 15.19 | 0.0330 | 6.19 | 0.0042 |
| Limit | ERP < 7W | | | Result | | Pass | |

LTE Band 12

| LTE Band 12 / 1.4MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 14.00 | 0.0251 | -2.71 | 0.0005 |
| Middle | | 1 | 0 | 13.57 | 0.0228 | -2.75 | 0.0005 |
| Highest | | 1 | 0 | 14.12 | 0.0258 | -2.46 | 0.0006 |
| Lowest | 16QAM | 1 | 0 | 13.54 | 0.0226 | -3.35 | 0.0005 |
| Middle | | 1 | 0 | 12.97 | 0.0198 | -3.40 | 0.0005 |
| Highest | | 1 | 0 | 13.27 | 0.0212 | -3.40 | 0.0005 |
| Limit | ERP < 3W | | | Result | | Pass | |

| LTE Band 12 / 3MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 14.06 | 0.0255 | -2.64 | 0.0005 |
| Middle | | 1 | 0 | 13.65 | 0.0232 | -2.99 | 0.0005 |
| Highest | | 1 | 0 | 13.92 | 0.0247 | -3.21 | 0.0005 |
| Lowest | 16QAM | 1 | 0 | 13.38 | 0.0218 | -3.36 | 0.0005 |
| Middle | | 1 | 0 | 12.87 | 0.0194 | -3.71 | 0.0004 |
| Highest | | 1 | 0 | 13.17 | 0.0207 | -3.95 | 0.0004 |
| Limit | ERP < 3W | | | Result | | Pass | |

| LTE Band 12 / 5MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 14.29 | 0.0269 | -2.60 | 0.0005 |
| Middle | | 1 | 0 | 13.83 | 0.0242 | -3.33 | 0.0005 |
| Highest | | 1 | 0 | 14.23 | 0.0265 | -3.19 | 0.0005 |
| Lowest | 16QAM | 1 | 0 | 13.59 | 0.0229 | -3.40 | 0.0005 |
| Middle | | 1 | 0 | 13.05 | 0.0202 | -4.10 | 0.0004 |
| Highest | | 1 | 0 | 13.56 | 0.0227 | -3.87 | 0.0004 |
| Limit | ERP < 3W | | | Result | | Pass | |

| LTE Band 12 / 10MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 14.34 | 0.0272 | -2.53 | 0.0006 |
| Middle | | 1 | 0 | 13.72 | 0.0236 | -3.18 | 0.0005 |
| Highest | | 1 | 0 | 13.99 | 0.0251 | -2.37 | 0.0006 |
| Lowest | 16QAM | 1 | 0 | 13.54 | 0.0226 | -3.40 | 0.0005 |
| Middle | | 1 | 0 | 12.95 | 0.0197 | -3.96 | 0.0004 |
| Highest | | 1 | 0 | 13.20 | 0.0209 | -3.16 | 0.0005 |
| Limit | ERP < 3W | | | Result | | Pass | |

LTE Band 17

| LTE Band 17 / 5MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 13.66 | 0.0232 | -3.60 | 0.0004 |
| Middle | | 1 | 0 | 13.76 | 0.0238 | -2.54 | 0.0006 |
| Highest | | 1 | 0 | 14.20 | 0.0263 | -3.56 | 0.0004 |
| Lowest | 16QAM | 1 | 0 | 12.89 | 0.0195 | -4.38 | 0.0004 |
| Middle | | 1 | 0 | 13.03 | 0.0201 | -3.28 | 0.0005 |
| Highest | | 1 | 0 | 13.53 | 0.0225 | -4.25 | 0.0004 |
| Limit | ERP < 3W | | | Result | | Pass | |

| LTE Band 17 / 10MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | RB | | Horizontal | | Vertical | |
| | | Size | Offset | ERP(dBm) | EIRP(W) | ERP(dBm) | EIRP(W) |
| Lowest | QPSK | 1 | 0 | 14.11 | 0.0258 | -2.63 | 0.0005 |
| Middle | | 1 | 0 | 14.14 | 0.0259 | -2.38 | 0.0006 |
| Highest | | 1 | 0 | 14.06 | 0.0255 | -2.33 | 0.0006 |
| Lowest | 16QAM | 1 | 0 | 13.37 | 0.0217 | -3.34 | 0.0005 |
| Middle | | 1 | 0 | 13.35 | 0.0216 | -3.17 | 0.0005 |
| Highest | | 1 | 0 | 13.29 | 0.0213 | -3.09 | 0.0005 |
| Limit | ERP < 3W | | | Result | | Pass | |

## 1.15 Radiated Out of Band Emissions

### 1.15.1 Requirement

According to FCC section 2.1053, 22.917(a), 24.238(a) and 27.53(h), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

### 1.15.2 Test Description

See section 4.7.2 of this report.

### 1.15.3 Test Procedure

1. The lowest, middle and the highest channel were selected to perform tests respectively.
2. The EUT was placed on a rotatable non-conductive 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 substituted antenna was 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 (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
    = P(W) - [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

## 1.15.4 Test Results

LTE Band 2

| LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3704 | -57.53 | -13 | Pass |
| | H | 5556 | -49.02 | -13 | Pass |
| | H | 7404 | -50.44 | -13 | Pass |
| | H | 9256 | -49.62 | -13 | Pass |
| | H | 12956 | -40.41 | -13 | Pass |
| | V | 3704 | -61.64 | -13 | Pass |
| | V | 5556 | -53.57 | -13 | Pass |
| | V | 7404 | -54.36 | -13 | Pass |
| | V | 9256 | -51.56 | -13 | Pass |
| | V | 12956 | -45.98 | -13 | Pass |
| Middle | H | 3764 | -58.64 | -13 | Pass |
| | H | 5644 | -49.43 | -13 | Pass |
| | H | 7524 | -53.76 | -13 | Pass |
| | H | 9400 | -50.54 | -13 | Pass |
| | H | 13160 | -41.02 | -13 | Pass |
| | V | 3764 | -61.47 | -13 | Pass |
| | V | 5644 | -54.97 | -13 | Pass |
| | V | 7524 | -55.26 | -13 | Pass |
| | V | 9400 | -53.65 | -13 | Pass |
| | V | 13160 | -45.09 | -13 | Pass |
| Highest | H | 3820 | -60.26 | -13 | Pass |
| | H | 5732 | -49.79 | -13 | Pass |
| | H | 7640 | -52.61 | -13 | Pass |
| | H | 9548 | -50.46 | -13 | Pass |
| | V | 3820 | -62.76 | -13 | Pass |
| | V | 5732 | -53.47 | -13 | Pass |
| | V | 7640 | -55.04 | -13 | Pass |
| | V | 9548 | -53.06 | -13 | Pass |

| LTE Band 2 / 3MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3704 | -57.02 | -13 | Pass |
| | H | 5556 | -49.11 | -13 | Pass |
| | H | 7404 | -50.58 | -13 | Pass |
| | H | 9256 | -49.26 | -13 | Pass |
| | V | 12956 | -39.69 | -13 | Pass |
| | V | 3704 | -61.67 | -13 | Pass |
| | V | 5556 | -53.70 | -13 | Pass |
| | V | 7404 | -54.24 | -13 | Pass |
| | V | 9256 | -52.11 | -13 | Pass |
| | V | 12956 | -46.13 | -13 | Pass |
| Middle | H | 3760 | -59.49 | -13 | Pass |
| | H | 5640 | -48.64 | -13 | Pass |
| | H | 7520 | -53.72 | -13 | Pass |
| | H | 9396 | -50.39 | -13 | Pass |
| | V | 13156 | -40.51 | -13 | Pass |
| | V | 3760 | -62.04 | -13 | Pass |
| | V | 5640 | -54.68 | -13 | Pass |
| | V | 7520 | -55.38 | -13 | Pass |
| | V | 9396 | -54.00 | -13 | Pass |
| | V | 13156 | -45.19 | -13 | Pass |
| Highest | H | 3820 | -59.44 | -13 | Pass |
| | H | 5724 | -51.45 | -13 | Pass |
| | H | 7632 | -39.52 | -13 | Pass |
| | H | 9540 | -50.73 | -13 | Pass |
| | V | 13356 | -41.69 | -13 | Pass |
| | V | 3820 | -62.75 | -13 | Pass |
| | V | 5724 | -55.53 | -13 | Pass |
| | V | 7632 | -55.58 | -13 | Pass |
| | V | 9540 | -53.72 | -13 | Pass |
| | V | 13356 | -44.56 | -13 | Pass |

| LTE Band 2 / 5MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3704 | -56.82 | -13 | Pass |
| | H | 5556 | -49.66 | -13 | Pass |
| | H | 7404 | -50.89 | -13 | Pass |
| | H | 9256 | -49.78 | -13 | Pass |
| | V | 12956 | -39.56 | -13 | Pass |
| | V | 3704 | -61.48 | -13 | Pass |
| | V | 5556 | -53.68 | -13 | Pass |
| | V | 7404 | -54.59 | -13 | Pass |
| | V | 9256 | -52.02 | -13 | Pass |
| | V | 12956 | -46.09 | -13 | Pass |
| Middle | H | 3760 | -58.89 | -13 | Pass |
| | H | 5636 | -50.01 | -13 | Pass |
| | H | 7516 | -53.68 | -13 | Pass |
| | H | 9392 | -50.23 | -13 | Pass |
| | V | 13148 | -40.98 | -13 | Pass |
| | V | 3760 | -62.26 | -13 | Pass |
| | V | 5636 | -55.37 | -13 | Pass |
| | V | 7516 | -55.64 | -13 | Pass |
| | V | 9392 | -53.98 | -13 | Pass |
| | V | 13148 | -45.41 | -13 | Pass |
| Highest | H | 3816 | -58.11 | -13 | Pass |
| | H | 5720 | -50.59 | -13 | Pass |
| | H | 7624 | -52.83 | -13 | Pass |
| | V | 3816 | -61.94 | -13 | Pass |
| | V | 5720 | -54.38 | -13 | Pass |
| | V | 7624 | -55.79 | -13 | Pass |

| LTE Band 2 / 10MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3704 | -56.60 | -13 | Pass |
| | H | 5556 | -49.48 | -13 | Pass |
| | H | 7408 | -51.01 | -13 | Pass |
| | H | 9256 | -49.32 | -13 | Pass |
| | H | 11108 | -50.26 | -13 | Pass |
| | H | 12960 | -41.01 | -13 | Pass |
| | V | 3704 | -48.27 | -13 | Pass |
| | V | 5556 | -54.43 | -13 | Pass |
| | V | 7408 | -54.61 | -13 | Pass |
| | V | 9256 | -52.04 | -13 | Pass |
| | V | 11108 | -51.02 | -13 | Pass |
| | V | 12960 | -46.29 | -13 | Pass |
| Middle | H | 3756 | -59.07 | -13 | Pass |
| | H | 5632 | -49.83 | -13 | Pass |
| | H | 13132 | -40.61 | -13 | Pass |
| | V | 3756 | -62.27 | -13 | Pass |
| | V | 5632 | -56.06 | -13 | Pass |
| | V | 13132 | -45.14 | -13 | Pass |
| Highest | H | 3804 | -56.18 | -13 | Pass |
| | H | 5704 | -52.41 | -13 | Pass |
| | H | 7608 | -52.04 | -13 | Pass |
| | H | 9508 | -50.94 | -13 | Pass |
| | H | 11412 | -50.02 | -13 | Pass |
| | H | 13308 | -41.21 | -13 | Pass |
| | V | 3804 | -60.17 | -13 | Pass |
| | V | 5704 | -56.89 | -13 | Pass |
| | V | 7608 | -55.49 | -13 | Pass |
| | V | 9508 | -53.54 | -13 | Pass |
| | V | 11412 | -51.21 | -13 | Pass |
| | V | 13308 | -44.63 | -13 | Pass |

| LTE Band 2 / 15MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3704 | -58.33 | -13 | Pass |
| | H | 5556 | -49.25 | -13 | Pass |
| | H | 7408 | -50.48 | -13 | Pass |
| | H | 9260 | -50.12 | -13 | Pass |
| | H | 12960 | -40.14 | -13 | Pass |
| | V | 3704 | -62.17 | -13 | Pass |
| | V | 5556 | -54.01 | -13 | Pass |
| | V | 7408 | -54.18 | -13 | Pass |
| | V | 9260 | -39.57 | -13 | Pass |
| | V | 12960 | -46.26 | -13 | Pass |
| Middle | H | 3752 | -59.24 | -13 | Pass |
| | H | 5624 | -50.17 | -13 | Pass |
| | H | 7496 | -53.22 | -13 | Pass |
| | H | 9372 | -50.18 | -13 | Pass |
| | V | 13116 | -41.17 | -13 | Pass |
| | V | 3752 | -62.43 | -13 | Pass |
| | V | 5624 | -55.97 | -13 | Pass |
| | V | 7496 | -55.27 | -13 | Pass |
| | V | 9372 | -53.69 | -13 | Pass |
| | V | 13116 | -45.68 | -13 | Pass |
| Highest | H | 3796 | -54.47 | -13 | Pass |
| | H | 5692 | -47.51 | -13 | Pass |
| | H | 7588 | -49.58 | -13 | Pass |
| | H | 9484 | -49.26 | -13 | Pass |
| | H | 13276 | -40.11 | -13 | Pass |
| | V | 3796 | -59.08 | -13 | Pass |
| | V | 5692 | -53.47 | -13 | Pass |
| | V | 7588 | -54.12 | -13 | Pass |
| | V | 9484 | -52.65 | -13 | Pass |
| | V | 13276 | -44.25 | -13 | Pass |

| LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3708 | -59.01 | -13 | Pass |
| | H | 5556 | -50.07 | -13 | Pass |
| | H | 7408 | -50.38 | -13 | Pass |
| | H | 9260 | -49.48 | -13 | Pass |
| | H | 12960 | -40.17 | -13 | Pass |
| | V | 3708 | -62.39 | -13 | Pass |
| | V | 5556 | -54.41 | -13 | Pass |
| | V | 7408 | -54.16 | -13 | Pass |
| | V | 9260 | -52.19 | -13 | Pass |
| | V | 12960 | -46.43 | -13 | Pass |
| Middle | H | 3748 | -59.52 | -13 | Pass |
| | H | 5616 | -51.01 | -13 | Pass |
| | H | 7488 | -39.27 | -13 | Pass |
| | H | 9360 | -50.18 | -13 | Pass |
| | H | 13100 | -40.77 | -13 | Pass |
| | V | 3748 | -62.57 | -13 | Pass |
| | V | 5616 | -56.01 | -13 | Pass |
| | V | 7488 | -55.02 | -13 | Pass |
| | V | 9360 | -53.86 | -13 | Pass |
| | V | 13100 | -45.54 | -13 | Pass |
| Highest | H | 3788 | -58.21 | -13 | Pass |
| | H | 5676 | -48.41 | -13 | Pass |
| | H | 7568 | -51.26 | -13 | Pass |
| | H | 9460 | -50.03 | -13 | Pass |
| | H | 13240 | -41.02 | -13 | Pass |
| | V | 3788 | -61.97 | -13 | Pass |
| | V | 5676 | -54.69 | -13 | Pass |
| | V | 7568 | -55.27 | -13 | Pass |
| | V | 9460 | -52.12 | -13 | Pass |
| | V | 13240 | -44.56 | -13 | Pass |

LTE Band 4

| LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3420 | -57.60 | -13 | Pass |
| | H | 5128 | -48.53 | -13 | Pass |
| | H | 6843 | -34.06 | -13 | Pass |
| | H | 8551 | -50.14 | -13 | Pass |
| | V | 3420 | -62.95 | -13 | Pass |
| | V | 5128 | -54.22 | -13 | Pass |
| | V | 6843 | -41.20 | -13 | Pass |
| | V | 8551 | -52.11 | -13 | Pass |
| Middle | H | 3462 | -57.04 | -13 | Pass |
| | H | 5198 | -43.82 | -13 | Pass |
| | H | 6927 | -36.44 | -13 | Pass |
| | H | 8663 | -46.11 | -13 | Pass |
| | V | 3462 | -61.79 | -13 | Pass |
| | V | 5198 | -50.73 | -13 | Pass |
| | V | 6927 | -41.06 | -13 | Pass |
| | V | 8663 | -49.68 | -13 | Pass |
| Highest | H | 3511 | -58.76 | -13 | Pass |
| | H | 5261 | -45.77 | -13 | Pass |
| | H | 7018 | -39.56 | -13 | Pass |
| | H | 8768 | -46.57 | -13 | Pass |
| | V | 3511 | -61.86 | -13 | Pass |
| | V | 5261 | -50.08 | -13 | Pass |
| | V | 7018 | -44.24 | -13 | Pass |
| | V | 8768 | -50.54 | -13 | Pass |

| LTE Band 4 / 3MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3420 | -57.82 | -13 | Pass |
| | H | 5128 | -47.67 | -13 | Pass |
| | H | 6843 | -33.60 | -13 | Pass |
| | H | 8551 | -44.84 | -13 | Pass |
| | V | 3420 | -62.70 | -13 | Pass |
| | V | 5128 | -54.19 | -13 | Pass |
| | V | 6843 | -40.95 | -13 | Pass |
| | V | 8551 | -48.16 | -13 | Pass |
| Middle | H | 3462 | -53.88 | -13 | Pass |
| | H | 5191 | -44.78 | -13 | Pass |
| | H | 6927 | -37.24 | -13 | Pass |
| | H | 8656 | -45.66 | -13 | Pass |
| | V | 3462 | -61.03 | -13 | Pass |
| | V | 5191 | -48.41 | -13 | Pass |
| | V | 6927 | -40.72 | -13 | Pass |
| | V | 8656 | -50.02 | -13 | Pass |
| Highest | H | 3504 | -59.02 | -13 | Pass |
| | H | 5254 | -45.49 | -13 | Pass |
| | H | 7011 | -40.52 | -13 | Pass |
| | H | 8761 | -47.52 | -13 | Pass |
| | V | 3504 | -62.43 | -13 | Pass |
| | V | 5254 | -49.66 | -13 | Pass |
| | V | 7011 | -44.67 | -13 | Pass |
| | V | 8761 | -51.42 | -13 | Pass |

| LTE Band 4 / 5MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3420 | -57.10 | -13 | Pass |
| | H | 5128 | -50.82 | -13 | Pass |
| | H | 6843 | -33.70 | -13 | Pass |
| | H | 8551 | -49.51 | -13 | Pass |
| | V | 3420 | -60.64 | -13 | Pass |
| | V | 5128 | -54.19 | -13 | Pass |
| | V | 6843 | -40.25 | -13 | Pass |
| | V | 8551 | -51.71 | -13 | Pass |
| Middle | H | 3462 | -55.87 | -13 | Pass |
| | H | 5191 | -45.96 | -13 | Pass |
| | H | 6920 | -35.78 | -13 | Pass |
| | H | 8649 | -45.83 | -13 | Pass |
| | V | 3462 | -60.47 | -13 | Pass |
| | V | 5191 | -49.64 | -13 | Pass |
| | V | 6920 | -38.94 | -13 | Pass |
| | V | 8649 | -48.61 | -13 | Pass |
| Highest | H | 3504 | -58.48 | -13 | Pass |
| | H | 5254 | -49.47 | -13 | Pass |
| | H | 7004 | -38.85 | -13 | Pass |
| | H | 8754 | -47.55 | -13 | Pass |
| | V | 3504 | -62.21 | -13 | Pass |
| | V | 5254 | -51.50 | -13 | Pass |
| | V | 7004 | -43.24 | -13 | Pass |
| | V | 8754 | -50.76 | -13 | Pass |

| LTE Band 4 / 10MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3420 | -57.05 | -13 | Pass |
| | H | 5132 | -48.93 | -13 | Pass |
| | H | 6843 | -34.06 | -13 | Pass |
| | V | 3420 | -61.82 | -13 | Pass |
| | V | 5132 | -53.63 | -13 | Pass |
| | V | 6843 | -40.14 | -13 | Pass |
| Middle | H | 3455 | -55.66 | -13 | Pass |
| | H | 5184 | -47.30 | -13 | Pass |
| | H | 6913 | -36.28 | -13 | Pass |
| | H | 8642 | -46.93 | -13 | Pass |
| | V | 3455 | -61.01 | -13 | Pass |
| | V | 5184 | -51.61 | -13 | Pass |
| | V | 6913 | -40.03 | -13 | Pass |
| | V | 8642 | -49.98 | -13 | Pass |
| Highest | H | 3490 | -58.01 | -13 | Pass |
| | H | 5240 | -49.36 | -13 | Pass |
| | H | 6983 | -38.14 | -13 | Pass |
| | H | 8726 | -48.09 | -13 | Pass |
| | V | 3490 | -61.87 | -13 | Pass |
| | V | 5240 | -51.25 | -13 | Pass |
| | V | 6983 | -41.01 | -13 | Pass |
| | V | 8726 | -50.86 | -13 | Pass |

| LTE Band 4 / 15MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3420 | -57.05 | -13 | Pass |
| | H | 5135 | -48.74 | -13 | Pass |
| | H | 6843 | -34.92 | -13 | Pass |
| | V | 3420 | -61.45 | -13 | Pass |
| | V | 5135 | -53.50 | -13 | Pass |
| | V | 6843 | -41.91 | -13 | Pass |
| Middle | H | 3455 | -55.10 | -13 | Pass |
| | H | 5177 | -48.01 | -13 | Pass |
| | H | 6906 | -35.58 | -13 | Pass |
| | H | 8628 | -47.03 | -13 | Pass |
| | V | 3455 | -60.95 | -13 | Pass |
| | V | 5177 | -51.63 | -13 | Pass |
| | V | 6906 | -40.06 | -13 | Pass |
| | V | 8628 | -48.99 | -13 | Pass |
| Highest | H | 3483 | -56.79 | -13 | Pass |
| | H | 5226 | -46.50 | -13 | Pass |
| | H | 6962 | -37.01 | -13 | Pass |
| | H | 8705 | -47.83 | -13 | Pass |
| | V | 3483 | -62.01 | -13 | Pass |
| | V | 5226 | -48.39 | -13 | Pass |
| | V | 6962 | -40.71 | -13 | Pass |
| | V | 8705 | -50.06 | -13 | Pass |

| LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 3420 | -58.82 | -13 | Pass |
| | H | 5135 | -49.60 | -13 | Pass |
| | H | 6843 | -35.10 | -13 | Pass |
| | H | 8558 | -50.62 | -13 | Pass |
| | V | 3420 | -61.67 | -13 | Pass |
| | V | 5135 | -53.17 | -13 | Pass |
| | V | 6843 | -40.94 | -13 | Pass |
| | V | 8558 | -51.79 | -13 | Pass |
| Middle | H | 3448 | -55.35 | -13 | Pass |
| | H | 5170 | -47.10 | -13 | Pass |
| | H | 6892 | -36.82 | -13 | Pass |
| | H | 8621 | -48.03 | -13 | Pass |
| | V | 3448 | -61.29 | -13 | Pass |
| | V | 5170 | -50.84 | -13 | Pass |
| | V | 6892 | -42.86 | -13 | Pass |
| | V | 8621 | -50.57 | -13 | Pass |
| Highest | H | 3476 | -55.44 | -13 | Pass |
| | H | 5212 | -46.03 | -13 | Pass |
| | H | 6948 | -33.84 | -13 | Pass |
| | H | 8684 | -46.53 | -13 | Pass |
| | V | 3476 | -61.04 | -13 | Pass |
| | V | 5212 | -48.22 | -13 | Pass |
| | V | 6948 | -38.65 | -13 | Pass |
| | V | 8684 | -48.56 | -13 | Pass |

LTE Band 5

| LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1651 | -61.72 | -13 | Pass |
| | H | 2476 | -64.92 | -13 | Pass |
| | H | 3302 | -65.30 | -13 | Pass |
| | V | 1651 | -66.83 | -13 | Pass |
| | V | 2476 | -65.03 | -13 | Pass |
| | V | 3302 | -66.07 | -13 | Pass |
| Middle | H | 1675 | -60.82 | -13 | Pass |
| | H | 2512 | -63.90 | -13 | Pass |
| | H | 3346 | -64.61 | -13 | Pass |
| | V | 1675 | -66.59 | -13 | Pass |
| | V | 2512 | -64.29 | -13 | Pass |
| | V | 3346 | -66.22 | -13 | Pass |
| Highest | H | 1699 | -61.50 | -13 | Pass |
| | H | 2545 | -66.15 | -13 | Pass |
| | H | 3394 | -63.87 | -13 | Pass |
| | V | 1699 | -65.79 | -13 | Pass |
| | V | 2545 | -65.30 | -13 | Pass |
| | V | 3394 | -65.60 | -13 | Pass |

| LTE Band 5 / 3MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1651 | -61.71 | -13 | Pass |
| | H | 2476 | -65.04 | -13 | Pass |
| | H | 3301 | -65.31 | -13 | Pass |
| | V | 1651 | -67.08 | -13 | Pass |
| | V | 2476 | -64.50 | -13 | Pass |
| | V | 3301 | -66.18 | -13 | Pass |
| Middle | H | 1672 | -65.66 | -13 | Pass |
| | H | 2509 | -63.73 | -13 | Pass |
| | H | 3343 | -64.32 | -13 | Pass |
| | V | 1672 | -69.80 | -13 | Pass |
| | V | 2509 | -64.15 | -13 | Pass |
| | V | 3343 | -66.21 | -13 | Pass |
| Highest | H | 1696 | -63.42 | -13 | Pass |
| | H | 2542 | -65.41 | -13 | Pass |
| | H | 3388 | -64.14 | -13 | Pass |
| | V | 1696 | -66.77 | -13 | Pass |
| | V | 2542 | -65.10 | -13 | Pass |
| | V | 3388 | -65.62 | -13 | Pass |

| LTE Band 5 / 5MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1651 | -61.96 | -13 | Pass |
| | H | 2476 | -65.07 | -13 | Pass |
| | H | 3302 | -65.29 | -13 | Pass |
| | V | 1651 | -67.01 | -13 | Pass |
| | V | 2476 | -64.49 | -13 | Pass |
| | V | 3302 | -66.18 | -13 | Pass |
| Middle | H | 1672 | -63.64 | -13 | Pass |
| | H | 2506 | -63.85 | -13 | Pass |
| | H | 3340 | -64.16 | -13 | Pass |
| | V | 1672 | -69.26 | -13 | Pass |
| | V | 2506 | -64.25 | -13 | Pass |
| | V | 3340 | -66.12 | -13 | Pass |
| Highest | H | 1693 | -67.13 | -13 | Pass |
| | H | 2536 | -65.28 | -13 | Pass |
| | H | 3385 | -65.40 | -13 | Pass |
| | V | 1693 | -68.10 | -13 | Pass |
| | V | 2536 | -64.04 | -13 | Pass |
| | V | 3385 | -65.90 | -13 | Pass |

| LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1651 | -63.71 | -13 | Pass |
| | H | 2476 | -63.30 | -13 | Pass |
| | H | 3301 | -65.11 | -13 | Pass |
| | V | 1651 | -68.37 | -13 | Pass |
| | V | 2476 | -63.42 | -13 | Pass |
| | V | 3301 | -66.43 | -13 | Pass |
| Middle | H | 1666 | -67.54 | -13 | Pass |
| | H | 2500 | -63.45 | -13 | Pass |
| | H | 3331 | -64.44 | -13 | Pass |
| | V | 1666 | -71.43 | -13 | Pass |
| | V | 2500 | -62.90 | -13 | Pass |
| | V | 3331 | -66.21 | -13 | Pass |
| Highest | H | 1688 | -62.75 | -13 | Pass |
| | H | 2532 | -64.85 | -13 | Pass |
| | H | 3376 | -65.07 | -13 | Pass |
| | V | 1688 | -67.26 | -13 | Pass |
| | V | 2532 | -63.25 | -13 | Pass |
| | V | 3376 | -66.04 | -13 | Pass |

LTE Band 12

| LTE Band 12 / 1.4MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1402 | -68.28 | -13 | Pass |
| | H | 2101 | -61.67 | -13 | Pass |
| | H | 2800 | -63.36 | -13 | Pass |
| | V | 1402 | -70.38 | -13 | Pass |
| | V | 2101 | -61.73 | -13 | Pass |
| | V | 2800 | -64.69 | -13 | Pass |
| Middle | H | 1417 | -68.07 | -13 | Pass |
| | H | 2125 | -64.42 | -13 | Pass |
| | H | 2830 | -65.63 | -13 | Pass |
| | V | 1417 | -70.52 | -13 | Pass |
| | V | 2125 | -64.79 | -13 | Pass |
| | V | 2830 | -65.39 | -13 | Pass |
| Highest | H | 1432 | -64.45 | -13 | Pass |
| | H | 2149 | -65.42 | -13 | Pass |
| | H | 2863 | -65.56 | -13 | Pass |
| | V | 1432 | -66.36 | -13 | Pass |
| | V | 2149 | -65.17 | -13 | Pass |
| | V | 2863 | -64.92 | -13 | Pass |

| LTE Band 12 / 3MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1398 | -65.87 | -13 | Pass |
| | H | 2097 | -59.08 | -13 | Pass |
| | H | 2796 | -61.37 | -13 | Pass |
| | V | 1398 | -69.97 | -13 | Pass |
| | V | 2097 | -59.61 | -13 | Pass |
| | V | 2796 | -64.37 | -13 | Pass |
| Middle | H | 1412 | -65.90 | -13 | Pass |
| | H | 2118 | -63.96 | -13 | Pass |
| | H | 2824 | -65.06 | -13 | Pass |
| | V | 1412 | -70.13 | -13 | Pass |
| | V | 2118 | -64.28 | -13 | Pass |
| | V | 2824 | -65.70 | -13 | Pass |
| Highest | H | 1424 | -62.72 | -13 | Pass |
| | H | 2144 | -60.42 | -13 | Pass |
| | H | 2856 | -63.14 | -13 | Pass |
| | V | 1424 | -69.72 | -13 | Pass |
| | V | 2144 | -61.97 | -13 | Pass |
| | V | 2856 | -63.39 | -13 | Pass |

| LTE Band 12 / 5MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1400 | -67.55 | -13 | Pass |
| | H | 2096 | -56.18 | -13 | Pass |
| | H | 2800 | -62.18 | -13 | Pass |
| | V | 1400 | -69.92 | -13 | Pass |
| | V | 2096 | -58.84 | -13 | Pass |
| | V | 2800 | -64.22 | -13 | Pass |
| Middle | H | 1408 | -63.87 | -13 | Pass |
| | H | 2120 | -62.65 | -13 | Pass |
| | H | 2820 | -66.14 | -13 | Pass |
| | V | 1408 | -69.98 | -13 | Pass |
| | V | 2120 | -64.13 | -13 | Pass |
| | V | 2820 | -64.97 | -13 | Pass |
| Highest | H | 1424 | -66.16 | -13 | Pass |
| | H | 2136 | -57.23 | -13 | Pass |
| | H | 2848 | -62.96 | -13 | Pass |
| | V | 1424 | -69.78 | -13 | Pass |
| | V | 2136 | -58.93 | -13 | Pass |
| | V | 2848 | -63.34 | -13 | Pass |

| LTE Band 12 / 10MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1400 | -66.16 | -13 | Pass |
| | H | 2096 | -57.25 | -13 | Pass |
| | H | 2800 | -61.98 | -13 | Pass |
| | V | 1400 | -69.77 | -13 | Pass |
| | V | 2096 | -58.06 | -13 | Pass |
| | V | 2800 | -63.47 | -13 | Pass |
| Middle | H | 1408 | -61.70 | -13 | Pass |
| | H | 2112 | -60.00 | -13 | Pass |
| | H | 2816 | -64.07 | -13 | Pass |
| | V | 1408 | -68.41 | -13 | Pass |
| | V | 2112 | -61.56 | -13 | Pass |
| | V | 2816 | -64.31 | -13 | Pass |
| Highest | H | 1416 | -65.54 | -13 | Pass |
| | H | 2120 | -63.31 | -13 | Pass |
| | H | 2824 | -65.73 | -13 | Pass |
| | V | 1416 | -70.61 | -13 | Pass |
| | V | 2120 | -62.64 | -13 | Pass |
| | V | 2824 | -65.24 | -13 | Pass |

LTE Band 17

| LTE Band 17 / 5MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1408 | -68.58 | -13 | Pass |
| | H | 2112 | -62.35 | -13 | Pass |
| | H | 2816 | -66.10 | -13 | Pass |
| | V | 1408 | -69.72 | -13 | Pass |
| | V | 2112 | -62.66 | -13 | Pass |
| | V | 2816 | -65.92 | -13 | Pass |
| Middle | H | 1416 | -67.57 | -13 | Pass |
| | H | 2122 | -62.27 | -13 | Pass |
| | H | 2830 | -65.28 | -13 | Pass |
| | V | 1416 | -70.74 | -13 | Pass |
| | V | 2122 | -61.63 | -13 | Pass |
| | V | 2830 | -65.16 | -13 | Pass |
| Highest | H | 1422 | -65.49 | -13 | Pass |
| | H | 2136 | -57.33 | -13 | Pass |
| | H | 2848 | -62.16 | -13 | Pass |
| | V | 1422 | -69.85 | -13 | Pass |
| | V | 2136 | -56.71 | -13 | Pass |
| | V | 2848 | -62.69 | -13 | Pass |

| LTE Band 17 / 10MHz / QPSK / RB Size 1 Offset 0<br>Measured Max. Spurious Emission(dBm) | | | | | |
|---|---|---|---|---|---|
| Channel | Polarization | Frequency | Level(dBm) | Limit(dBm) | Verdict |
| Lowest | H | 1408 | -63.57 | -13 | Pass |
| | H | 2112 | -61.27 | -13 | Pass |
| | H | 2816 | -65.18 | -13 | Pass |
| | V | 1408 | -69.11 | -13 | Pass |
| | V | 2112 | -61.82 | -13 | Pass |
| | V | 2816 | -65.08 | -13 | Pass |
| Middle | H | 1408 | -66.45 | -13 | Pass |
| | H | 2120 | -62.27 | -13 | Pass |
| | H | 2820 | -65.88 | -13 | Pass |
| | V | 1408 | -69.50 | -13 | Pass |
| | V | 2120 | -61.64 | -13 | Pass |
| | V | 2820 | -65.43 | -13 | Pass |
| Highest | H | 1416 | -66.46 | -13 | Pass |
| | H | 2118 | -62.35 | -13 | Pass |
| | H | 2824 | -66.35 | -13 | Pass |
| | V | 1416 | -69.49 | -13 | Pass |
| | V | 2118 | -63.28 | -13 | Pass |
| | V | 2824 | -64.96 | -13 | Pass |

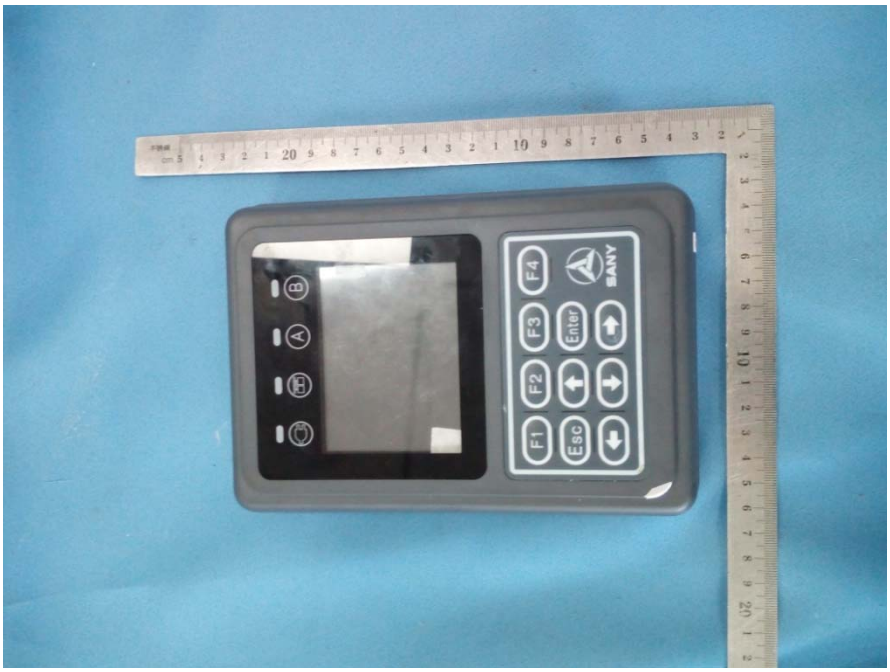
*NOTE:*

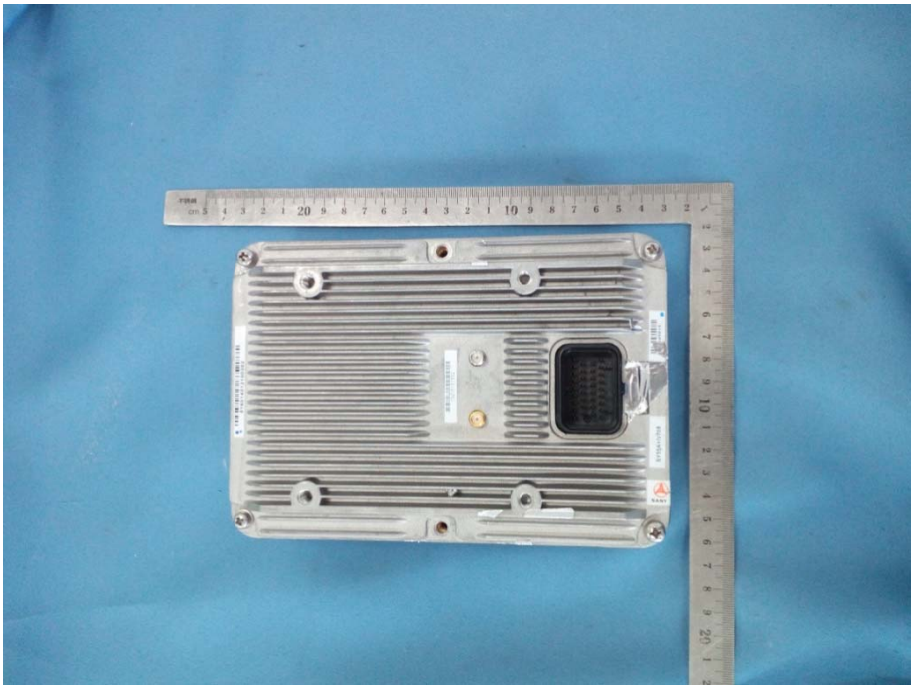
*1) The power of the EUT transmitting frequency should be ignored.*

*2) All spurious emission tests were performed in X,Y,Z axis direction. Only the worst axis test condition was recored in this test report.*

*3) The emission levels of below 1 GHz are very lower than the limit(<-40dBm) and not show in this report.*

# Annex Photos of the EUT



** END OF REPORT **