# RF TEST REPORT

SIEMIC
GLOBAL TESTING & CERTIFICATIONS
YOUR CHOICE FOR- TCB FCB CB NB CAB RCB

**Report No.:** 14070710-FCC-R5

**Supersede Report No.:** N/A

| | |
|---|---|
| **Applicant** | Verykool USA Inc |
| **Product Name** | Mobile Phone |
| **Model No.** | SL4500 |
| **Serial No.** | N/A |
| **Test Standard** | FCC Part 24(E), FCC Part 27: 2014; ANSI/TIA C603 D: 2010 |
| **Test Date** | February 02 to February 05, 2015 |
| **Issue Date** | February 05, 2015 |
| **Test Result** | ☑ Pass ☐ Fail |
| **Equipment complied with the specification** | ☑ |
| **Equipment did not comply with the specification** | ☐ |

| | | |
|---|---|---|
| Wiky Jam | Alex Liu | |
| **Wiky Jam**<br>**Test Engineer** | **Alex Liu**<br>**Checked By** | |

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**Test result presented in this test report is applicable to the tested sample only**

**Issued by:**


**SIEMIC (SHENZHEN-CHINA) LABORATORIES**

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park

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# Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.


In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

## Accreditations for Conformity Assessment

| Country/Region | Scope |
|---|---|
| USA | EMC, RF/Wireless, SAR, Telecom |
| Canada | EMC, RF/Wireless, SAR, Telecom |
| Taiwan | EMC, RF, Telecom, SAR, Safety |
| Hong Kong | RF/Wireless, SAR, Telecom |
| Australia | EMC, RF, Telecom, SAR, Safety |
| Korea | EMI, EMS, RF, SAR, Telecom, Safety |
| Japan | EMI, RF/Wireless, SAR, Telecom |
| Singapore | EMC, RF, SAR, Telecom |
| Europe | EMC, RF, SAR, Telecom, Safety |

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# 1. Report Revision History

| Report No. | Report Version | Description | Issue Date |
|---|---|---|---|
| 14070710-FCC-R5 | NONE | Original | February 05, 2015 |
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# 2. Customer information

| | |
|---|---|
| Applicant Name | Verykool USA Inc |
| Applicant Add | 3636 Nobel Drive, Suite 325, San Diego, CA 92122 USA |
| Manufacturer | Shenzhen BVC Technology Co.,LTD |
| Manufacturer Add | Rainbow Bldg., North, Hi-Tech Industrial Park, Nanshan District, Shenzhen |

# 3. Test site information

| | |
|---|---|
| Lab performing tests | SIEMIC (Shenzhen-China) LABORATORIES |
| Lab Address | Zone A, Floor 1, Building 2 Wan Ye Long Technology Park<br>South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong<br>China 518108 |
| FCC Test Site No. | 718246 |
| IC Test Site No. | 4842E-1 |
| Test Software | Radiated Emission Program-To Shenzhen v2.0 |

# 4. Equipment under Test (EUT) Information

| | |
|---|---|
| Description of EUT: | Mobile Phone |
| Main Model: | SL4500 |
| Serial Model: | N/A |
| Date EUT received: | January 05, 2015 |
| Test Date(s): | February 02 to February 05, 2015 |
| Equipment Category： | PCE |
| Antenna Gain: | GSM850/ PCS1900: -2.5 dBi<br>UMTS-FDD Band 5/ Band 2/ Band 4: -2.8 dBi<br>LTE Band 2/ Band 4/ Band 12/ Band 17: -2.5 dBi<br>Bluetooth/BLE: 1 dBi<br>WIFI: 0.5 dBi |
| Type of Modulation: | GSM / GPRS: GMSK<br>EGPRS: 8PSK<br>UMTS-FDD: QPSK<br>LTE Band: QPSK, 16QAM<br>802.11b/g/n: DSSS, OFDM<br>Bluetooth: GFSK, π /4DQPSK, 8DPSK<br>BLE: GFSK |
| RF Operating Frequency (ies): | GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz<br>PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz<br>UMTS-FDD Band 5 TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz<br>UMTS-FDD Band 2 TX:1852.4 ~ 1907.6 MHz;<br>RX: 1932.4 ~ 1987.6 MHz<br>UMTS-FDD Band 4 TX :1712.4 ~ 1752.6 MHz;<br>RX : 2112.4 ~ 2152.6 MHz<br>LTE Band 2 TX: 1852.5 ~ 1907.5 MHz; RX : 1932.5 ~ 1987.5 MHz<br>LTE Band 4 TX: 1712.5 ~ 1752.5 MHz; RX : 2112.5 ~ 2152.5 MHz<br>LTE Band 12 TX: 701.5 ~ 713.5 MHz; RX : 731.5 ~ 743.5 MHz |

| | |
| --- | --- |
| | LTE Band 17 TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz<br>WIFI:802.11b/g/n(20M): 2412-2462 MHz<br>Bluetooth& BLE: 2402-2480 MHz |
| Maximum Conducted AV Power to Antenna: | LTE Band 2: 23.43 dBm<br>LTE Band 4: 23.63 dBm<br>LTE Band 12: 23.47 dBm<br>LTE Band 17: 24.26 dBm |
| ERP/EIRP: | LTE Band 2: 17.16 dBm / EIRP<br>LTE Band 4: 17.23 dBm / EIRP<br>LTE Band 12: 16.63dBm / ERP<br>LTE Band 17: 16.22 dBm / ERP |
| Port: | Power Port, Earphone Port, USB Port |
| Input Power: | Battery:<br>Model: SL4500<br>Spec: 3.7V 1700mAh<br>Limited charger voltage: 4.2V<br>Adapter:<br>Model: DSA-5PFK-05 FUS 050100a<br>Input: AC 100-240V; 50/60Hz 0.2A<br>Output: DC 5.0V; 1.0A |
| Trade Name : | verykool |
| GPRS/EGPRS Multi-slot class | 8/10/12 |
| FCC ID: | WA6SL4500 |

# 5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

| FCC Rules | Description of Test | Result |
|---|---|---|
| § 1.1307; § 2.1093 | RF Exposure (SAR) | Compliance |
| §2.1046; § 24.232(c);<br>§ 27.50(c.10); § 27.50(d.4) | RF Output Power | Compliance |
| § 24.232 (d); § 27.50(d) | Peak-Average Ratio | Compliance |
| § 2.1047 | Modulation Characteristics | Compliance |
| § 2.1049; § 24.238; § 27.53(a.5) | 99% & -26 dB Occupied Bandwidth | Compliance |
| § 2.1051; § 24.238(a);<br>§ 27.53(h) | Spurious Emissions at Antenna Terminal | Compliance |
| § 2.1053; § 24.238(a);<br>§ 27.53(h) | Field Strength of Spurious Radiation | Compliance |
| § 24.238(a); § 27.53(h) | Out of band emission, Band Edge | Compliance |
| § 2.1055; § 24.235;<br>§ 27.5(h); § 27.54 | Frequency stability vs. temperature<br>Frequency stability vs. voltage | Compliance |

Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different

**Measurement Uncertainty**

| Emissions | | |
|---|---|---|
| **Test Item** | **Description** | **Uncertainty** |
| Band Edge and Radiated Spurious Emissions | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +5.6dB/-4.5dB |
| - | - | - |

# 6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

## 6.1 RF Exposure (SAR)

Test Result: Pass

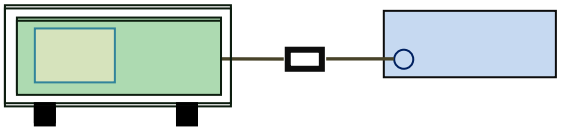
The EUT is a portable device, thus requires SAR evaluation;

Please refer to RF Exposure Evaluation Report: 14070710-FCC-H.

## 6.2 RF Output Power

| | |
|---|---|
| Temperature | 22°C |
| Relative Humidity | 59% |
| Atmospheric Pressure | 1011mbar |
| Test date : | February 02, 2015 |
| Tested By : | Wiky Jam |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §24.232 (c) | b) | EIRP:33dBm | ☑ |
| §27.50 (c) | c) | EIRP: 30dBm | ☑ |
| Test Setup |  | | |
| Test Procedure | For Conducted Power:<br>- The transmitter output port was connected to base station.<br>- Set EUT at maximum power through base station.<br>- Select lowest, middle, and highest channels for each band and different test mode.<br>For ERP/EIRP:<br>- The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.<br>- The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.<br>- The frequency range up to tenth harmonic of the fundamental frequency was investigated.<br>- Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non- | | |

| | |
|---|---|
| | radiating cable. The absolute levels of the spurious emissions were measured by the substitution.<br>- Spurious emissions in dB = 10 log (TX power in Watts/0.001) – the absolute level<br>- Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts. |
| Remark | |
| Result | ☑ Pass ☐ Fail |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☐ Yes (See below) ☑ N/A

## Conducted Power

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 | 23.12 | 22.5±1 |
| | | | | 1 | 49 | 0 | 23.22 | 22.5±1 |
| | | | | 1 | 99 | 0 | 23.18 | 22.5±1 |
| | | | | 50 | 0 | 1 | 23.01 | 22.5±1 |
| | | | | 50 | 24 | 1 | 23.08 | 22.5±1 |
| | | | | 50 | 49 | 1 | 23.05 | 22.5±1 |
| | | | | 100 | 0 | 1 | 22.79 | 22.5±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.91 | 22.5±1 |
| | | | | 1 | 49 | 1 | 22.83 | 22.5±1 |
| | | | | 1 | 99 | 1 | 22.86 | 22.5±1 |
| | | | | 50 | 0 | 2 | 22.68 | 22.5±1 |
| | | | | 50 | 24 | 2 | 22.76 | 22.5±1 |
| | | | | 50 | 49 | 2 | 22.89 | 22.5±1 |
| | | | | 100 | 0 | 2 | 22.69 | 22.5±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 23.14 | 22.5±1 |
| | | | | 1 | 49 | 0 | **23.43** | 22.5±1 |
| | | | | 1 | 99 | 0 | 23.36 | 22.5±1 |
| | | | | 50 | 0 | 1 | 23.23 | 22.5±1 |
| | | | | 50 | 24 | 1 | **23.38** | 22.5±1 |
| | | | | 50 | 49 | 1 | 23.25 | 22.5±1 |
| | | | | 100 | 0 | 1 | 23.37 | 22.5±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.24 | 22.5±1 |
| | | | | 1 | 49 | 1 | 23.37 | 22.5±1 |
| | | | | 1 | 99 | 1 | 23.30 | 22.5±1 |
| | | | | 50 | 0 | 2 | 23.24 | 22.5±1 |
| | | | | 50 | 24 | 2 | 23.15 | 22.5±1 |
| | | | | 50 | 49 | 2 | 23.01 | 22.5±1 |
| | | | | 100 | 0 | 2 | 22.90 | 22.5±1 |
| | 19100 | 1900.0 | QPSK | 1 | 0 | 0 | 23.05 | 22.5±1 |
| | | | | 1 | 49 | 0 | 23.11 | 22.5±1 |
| | | | | 1 | 99 | 0 | 22.96 | 22.5±1 |
| | | | | 50 | 0 | 1 | 22.86 | 22.5±1 |
| | | | | 50 | 24 | 1 | 23.03 | 22.5±1 |
| | | | | 50 | 49 | 1 | 22.85 | 22.5±1 |
| | | | | 100 | 0 | 1 | 22.67 | 22.5±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.82 | 22.5±1 |
| | | | | 1 | 49 | 1 | 22.84 | 22.5±1 |
| | | | | 1 | 99 | 1 | 22.77 | 22.5±1 |
| | | | | 50 | 0 | 2 | 22.65 | 22.5±1 |
| | | | | 50 | 24 | 2 | 22.79 | 22.5±1 |
| | | | | 50 | 49 | 2 | 22.51 | 22.5±1 |
| | | | | 100 | 0 | 2 | 22.40 | 22.5±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 | 22.42 | 22±1 |
| | | | | 1 | 37 | 0 | 22.49 | 22±1 |
| | | | | 1 | 74 | 0 | 22.39 | 22±1 |
| | | | | 36 | 0 | 1 | 22.23 | 22±1 |
| | | | | 36 | 16 | 1 | 22.17 | 22±1 |
| | | | | 36 | 35 | 1 | 22.30 | 22±1 |
| | | | | 75 | 0 | 1 | 22.07 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.36 | 22±1 |
| | | | | 1 | 37 | 1 | 22.17 | 22±1 |
| | | | | 1 | 74 | 1 | 22.15 | 22±1 |
| | | | | 36 | 0 | 2 | 22.06 | 22±1 |
| | | | | 36 | 16 | 2 | 22.04 | 22±1 |
| | | | | 36 | 35 | 2 | 22.13 | 22±1 |
| | | | | 75 | 0 | 2 | 22.02 | 22±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 22.47 | 22±1 |
| | | | | 1 | 37 | 0 | 22.54 | 22±1 |
| | | | | 1 | 74 | 0 | 22.57 | 22±1 |
| | | | | 36 | 0 | 1 | 22.30 | 22±1 |
| | | | | 36 | 16 | 1 | 22.33 | 22±1 |
| | | | | 36 | 35 | 1 | 22.26 | 22±1 |
| | | | | 75 | 0 | 1 | 22.15 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.35 | 22±1 |
| | | | | 1 | 37 | 1 | 22.34 | 22±1 |
| | | | | 1 | 74 | 1 | 22.36 | 22±1 |
| | | | | 36 | 0 | 2 | 22.16 | 22±1 |
| | | | | 36 | 16 | 2 | 22.19 | 22±1 |
| | | | | 36 | 35 | 2 | 22.10 | 22±1 |
| | | | | 75 | 0 | 2 | 22.09 | 22±1 |
| | 19125 | 1902.5 | QPSK | 1 | 0 | 0 | 22.14 | 22±1 |
| | | | | 1 | 37 | 0 | 22.08 | 22±1 |
| | | | | 1 | 74 | 0 | 21.96 | 22±1 |
| | | | | 36 | 0 | 1 | 21.90 | 22±1 |
| | | | | 36 | 16 | 1 | 21.93 | 22±1 |
| | | | | 36 | 35 | 1 | 21.89 | 22±1 |
| | | | | 75 | 0 | 1 | 21.72 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.84 | 22±1 |
| | | | | 1 | 37 | 1 | 21.77 | 22±1 |
| | | | | 1 | 74 | 1 | 21.76 | 22±1 |
| | | | | 36 | 0 | 2 | 21.84 | 22±1 |
| | | | | 36 | 16 | 2 | 21.72 | 22±1 |
| | | | | 36 | 35 | 2 | 21.63 | 22±1 |
| | | | | 75 | 0 | 2 | 21.34 | 22±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 | 22.23 | 22±1 |
| | | | | 1 | 24 | 0 | 22.42 | 22±1 |
| | | | | 1 | 49 | 0 | 22.16 | 22±1 |
| | | | | 25 | 0 | 1 | 22.31 | 22±1 |
| | | | | 25 | 12 | 1 | 22.20 | 22±1 |
| | | | | 25 | 24 | 1 | 22.11 | 22±1 |
| | | | | 50 | 0 | 1 | 22.24 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.05 | 22±1 |
| | | | | 1 | 24 | 1 | 22.11 | 22±1 |
| | | | | 1 | 49 | 1 | 22.08 | 22±1 |
| | | | | 25 | 0 | 2 | 22.01 | 22±1 |
| | | | | 25 | 12 | 2 | 21.86 | 22±1 |
| | | | | 25 | 24 | 2 | 21.89 | 22±1 |
| | | | | 50 | 0 | 2 | 21.78 | 22±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 22.33 | 22±1 |
| | | | | 1 | 24 | 0 | 22.57 | 22±1 |
| | | | | 1 | 49 | 0 | 22.53 | 22±1 |
| | | | | 25 | 0 | 1 | 22.38 | 22±1 |
| | | | | 25 | 12 | 1 | 22.31 | 22±1 |
| | | | | 25 | 24 | 1 | 22.26 | 22±1 |
| | | | | 50 | 0 | 1 | 22.29 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.03 | 22±1 |
| | | | | 1 | 24 | 1 | 22.01 | 22±1 |
| | | | | 1 | 49 | 1 | 21.89 | 22±1 |
| | | | | 25 | 0 | 2 | 22.03 | 22±1 |
| | | | | 25 | 12 | 2 | 21.87 | 22±1 |
| | | | | 25 | 24 | 2 | 21.95 | 22±1 |
| | | | | 50 | 0 | 2 | 21.73 | 22±1 |
| | 19150 | 1905 | QPSK | 1 | 0 | 0 | 21.92 | 22±1 |
| | | | | 1 | 24 | 0 | 21.88 | 22±1 |
| | | | | 1 | 49 | 0 | 21.97 | 22±1 |
| | | | | 25 | 0 | 1 | 21.72 | 22±1 |
| | | | | 25 | 12 | 1 | 21.67 | 22±1 |
| | | | | 25 | 24 | 1 | 21.61 | 22±1 |
| | | | | 50 | 0 | 1 | 21.48 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.62 | 22±1 |
| | | | | 1 | 24 | 1 | 21.93 | 22±1 |
| | | | | 1 | 49 | 1 | 21.51 | 22±1 |
| | | | | 25 | 0 | 2 | 21.41 | 22±1 |
| | | | | 25 | 12 | 2 | 21.61 | 22±1 |
| | | | | 25 | 24 | 2 | 21.56 | 22±1 |
| | | | | 50 | 0 | 2 | 21.48 | 22±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 | 21.63 | 21±1 |
| | | | | 1 | 12 | 0 | 21.72 | 21±1 |
| | | | | 1 | 24 | 0 | 21.65 | 21±1 |
| | | | | 12 | 0 | 1 | 21.48 | 21±1 |
| | | | | 12 | 6 | 1 | 21.41 | 21±1 |
| | | | | 12 | 11 | 1 | 21.56 | 21±1 |
| | | | | 25 | 0 | 1 | 21.27 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.41 | 21±1 |
| | | | | 1 | 12 | 1 | 21.50 | 21±1 |
| | | | | 1 | 24 | 1 | 21.61 | 21±1 |
| | | | | 12 | 0 | 2 | 21.35 | 21±1 |
| | | | | 12 | 6 | 2 | 21.47 | 21±1 |
| | | | | 12 | 11 | 2 | 21.38 | 21±1 |
| | | | | 25 | 0 | 2 | 21.21 | 21±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.68 | 21±1 |
| | | | | 1 | 12 | 0 | 21.77 | 21±1 |
| | | | | 1 | 24 | 0 | 21.59 | 21±1 |
| | | | | 12 | 0 | 1 | 21.53 | 21±1 |
| | | | | 12 | 6 | 1 | 21.45 | 21±1 |
| | | | | 12 | 11 | 1 | 21.52 | 21±1 |
| | | | | 25 | 0 | 1 | 21.34 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.45 | 21±1 |
| | | | | 1 | 12 | 1 | 21.36 | 21±1 |
| | | | | 1 | 24 | 1 | 21.29 | 21±1 |
| | | | | 12 | 0 | 2 | 21.36 | 21±1 |
| | | | | 12 | 6 | 2 | 21.35 | 21±1 |
| | | | | 12 | 11 | 2 | 21.41 | 21±1 |
| | | | | 25 | 0 | 2 | 21.31 | 21±1 |
| | 19175 | 1907.5 | QPSK | 1 | 0 | 0 | 21.20 | 21±1 |
| | | | | 1 | 12 | 0 | 21.21 | 21±1 |
| | | | | 1 | 24 | 0 | 21.14 | 21±1 |
| | | | | 12 | 0 | 1 | 21.17 | 21±1 |
| | | | | 12 | 6 | 1 | 21.20 | 21±1 |
| | | | | 12 | 11 | 1 | 21.18 | 21±1 |
| | | | | 25 | 0 | 1 | 21.05 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.17 | 21±1 |
| | | | | 1 | 12 | 1 | 21.11 | 21±1 |
| | | | | 1 | 24 | 1 | 21.05 | 21±1 |
| | | | | 12 | 0 | 2 | 20.94 | 21±1 |
| | | | | 12 | 6 | 2 | 21.05 | 21±1 |
| | | | | 12 | 11 | 2 | 20.91 | 21±1 |
| | | | | 25 | 0 | 2 | 20.89 | 21±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 | 21.81 | 21±1 |
| | | | | 1 | 7 | 0 | 21.89 | 21±1 |
| | | | | 1 | 14 | 0 | 21.89 | 21±1 |
| | | | | 8 | 0 | 1 | 21.78 | 21±1 |
| | | | | 8 | 4 | 1 | 21.76 | 21±1 |
| | | | | 8 | 7 | 1 | 21.81 | 21±1 |
| | | | | 15 | 0 | 1 | 21.63 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.72 | 21±1 |
| | | | | 1 | 7 | 1 | 21.54 | 21±1 |
| | | | | 1 | 14 | 1 | 21.72 | 21±1 |
| | | | | 8 | 0 | 2 | 21.66 | 21±1 |
| | | | | 8 | 4 | 2 | 21.61 | 21±1 |
| | | | | 8 | 7 | 2 | 21.69 | 21±1 |
| | | | | 15 | 0 | 2 | 21.50 | 21±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.93 | 21±1 |
| | | | | 1 | 7 | 0 | 21.98 | 21±1 |
| | | | | 1 | 14 | 0 | 21.95 | 21±1 |
| | | | | 8 | 0 | 1 | 21.88 | 21±1 |
| | | | | 8 | 4 | 1 | 21.96 | 21±1 |
| | | | | 8 | 7 | 1 | 21.84 | 21±1 |
| | | | | 15 | 0 | 1 | 21.61 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.59 | 21±1 |
| | | | | 1 | 7 | 1 | 21.73 | 21±1 |
| | | | | 1 | 14 | 1 | 21.78 | 21±1 |
| | | | | 8 | 0 | 2 | 21.65 | 21±1 |
| | | | | 8 | 4 | 2 | 21.97 | 21±1 |
| | | | | 8 | 7 | 2 | 21.84 | 21±1 |
| | | | | 15 | 0 | 2 | 21.61 | 21±1 |
| | 19175 | 1907.5 | QPSK | 1 | 0 | 0 | 21.72 | 21±1 |
| | | | | 1 | 7 | 0 | 21.83 | 21±1 |
| | | | | 1 | 14 | 0 | 21.80 | 21±1 |
| | | | | 8 | 0 | 1 | 21.26 | 21±1 |
| | | | | 8 | 4 | 1 | 21.43 | 21±1 |
| | | | | 8 | 7 | 1 | 21.67 | 21±1 |
| | | | | 15 | 0 | 1 | 21.35 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.57 | 21±1 |
| | | | | 1 | 7 | 1 | 21.60 | 21±1 |
| | | | | 1 | 14 | 1 | 21.62 | 21±1 |
| | | | | 8 | 0 | 2 | 21.48 | 21±1 |
| | | | | 8 | 4 | 2 | 21.40 | 21±1 |
| | | | | 8 | 7 | 2 | 21.34 | 21±1 |
| | | | | 15 | 0 | 2 | 21.29 | 21±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 | 21.69 | 21±1 |
| | | | | 1 | 2 | 0 | 21.74 | 21±1 |
| | | | | 1 | 5 | 0 | 21.71 | 21±1 |
| | | | | 3 | 0 | 0 | 21.72 | 21±1 |
| | | | | 3 | 1 | 0 | 21.69 | 21±1 |
| | | | | 3 | 2 | 0 | 21.59 | 21±1 |
| | | | | 6 | 0 | 1 | 21.42 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.55 | 21±1 |
| | | | | 1 | 2 | 1 | 21.45 | 21±1 |
| | | | | 1 | 5 | 1 | 21.41 | 21±1 |
| | | | | 3 | 0 | 1 | 21.54 | 21±1 |
| | | | | 3 | 1 | 1 | 21.49 | 21±1 |
| | | | | 3 | 2 | 1 | 21.42 | 21±1 |
| | | | | 6 | 0 | 2 | 21.36 | 21±1 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0 | 21.75 | 21±1 |
| | | | | 1 | 2 | 0 | 21.74 | 21±1 |
| | | | | 1 | 5 | 0 | 21.76 | 21±1 |
| | | | | 3 | 0 | 0 | 21.38 | 21±1 |
| | | | | 3 | 1 | 0 | 21.44 | 21±1 |
| | | | | 3 | 2 | 0 | 21.36 | 21±1 |
| | | | | 6 | 0 | 1 | 21.24 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.55 | 21±1 |
| | | | | 1 | 2 | 1 | 21.51 | 21±1 |
| | | | | 1 | 5 | 1 | 21.47 | 21±1 |
| | | | | 3 | 0 | 1 | 21.34 | 21±1 |
| | | | | 3 | 1 | 1 | 21.36 | 21±1 |
| | | | | 3 | 2 | 1 | 21.43 | 21±1 |
| | | | | 6 | 0 | 2 | 21.10 | 21±1 |
| | 19193 | 1909.3 | QPSK | 1 | 0 | 0 | 21.33 | 21±1 |
| | | | | 1 | 2 | 0 | 21.26 | 21±1 |
| | | | | 1 | 5 | 0 | 21.41 | 21±1 |
| | | | | 3 | 0 | 0 | 21.25 | 21±1 |
| | | | | 3 | 1 | 0 | 21.24 | 21±1 |
| | | | | 3 | 2 | 0 | 21.27 | 21±1 |
| | | | | 6 | 0 | 1 | 21.24 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.11 | 21±1 |
| | | | | 1 | 2 | 1 | 21.08 | 21±1 |
| | | | | 1 | 5 | 1 | 21.05 | 21±1 |
| | | | | 3 | 0 | 1 | 20.96 | 21±1 |
| | | | | 3 | 1 | 1 | 20.91 | 21±1 |
| | | | | 3 | 2 | 1 | 20.94 | 21±1 |
| | | | | 6 | 0 | 2 | 20.91 | 21±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 | 23.05 | 23±1 |
| | | | | 1 | 49 | 0 | 23.17 | 23±1 |
| | | | | 1 | 99 | 0 | 23.24 | 23±1 |
| | | | | 50 | 0 | 1 | 23.05 | 23±1 |
| | | | | 50 | 24 | 1 | 23.09 | 23±1 |
| | | | | 50 | 49 | 1 | 23.11 | 23±1 |
| | | | | 100 | 0 | 1 | 22.97 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.11 | 23±1 |
| | | | | 1 | 49 | 1 | 22.90 | 23±1 |
| | | | | 1 | 99 | 1 | 22.98 | 23±1 |
| | | | | 50 | 0 | 2 | 22.93 | 23±1 |
| | | | | 50 | 24 | 2 | 22.96 | 23±1 |
| | | | | 50 | 49 | 2 | 21.94 | 23±1 |
| | | | | 100 | 0 | 2 | 22.57 | 23±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 23.35 | 23±1 |
| | | | | 1 | 49 | 0 | **23.63** | 23±1 |
| | | | | 1 | 99 | 0 | 23.40 | 23±1 |
| | | | | 50 | 0 | 1 | 23.44 | 23±1 |
| | | | | 50 | 24 | 1 | **23.49** | 23±1 |
| | | | | 50 | 49 | 1 | 23.22 | 23±1 |
| | | | | 100 | 0 | 1 | 23.17 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.23 | 23±1 |
| | | | | 1 | 49 | 1 | 23.31 | 23±1 |
| | | | | 1 | 99 | 1 | 23.29 | 23±1 |
| | | | | 50 | 0 | 2 | 23.19 | 23±1 |
| | | | | 50 | 24 | 2 | 23.24 | 23±1 |
| | | | | 50 | 49 | 2 | 23.21 | 23±1 |
| | | | | 100 | 0 | 2 | 22.88 | 23±1 |
| | 20300 | 1745.0 | QPSK | 1 | 0 | 0 | 23.18 | 23±1 |
| | | | | 1 | 49 | 0 | 23.11 | 23±1 |
| | | | | 1 | 99 | 0 | 23.06 | 23±1 |
| | | | | 50 | 0 | 1 | 22.95 | 23±1 |
| | | | | 50 | 24 | 1 | 22.96 | 23±1 |
| | | | | 50 | 49 | 1 | 23.02 | 23±1 |
| | | | | 100 | 0 | 1 | 22.84 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.98 | 23±1 |
| | | | | 1 | 49 | 1 | 22.94 | 23±1 |
| | | | | 1 | 99 | 1 | 22.97 | 23±1 |
| | | | | 50 | 0 | 2 | 22.91 | 23±1 |
| | | | | 50 | 24 | 2 | 22.87 | 23±1 |
| | | | | 50 | 49 | 2 | 22.88 | 23±1 |
| | | | | 100 | 0 | 2 | 22.64 | 23±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 | 22.87 | 22±1 |
| | | | | 1 | 37 | 0 | 22.90 | 22±1 |
| | | | | 1 | 74 | 0 | 22.90 | 22±1 |
| | | | | 36 | 0 | 1 | 22.82 | 22±1 |
| | | | | 36 | 16 | 1 | 22.86 | 22±1 |
| | | | | 36 | 35 | 1 | 22.74 | 22±1 |
| | | | | 75 | 0 | 1 | 22.58 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.72 | 22±1 |
| | | | | 1 | 37 | 1 | 22.79 | 22±1 |
| | | | | 1 | 74 | 1 | 22.84 | 22±1 |
| | | | | 36 | 0 | 2 | 22.71 | 22±1 |
| | | | | 36 | 16 | 2 | 22.69 | 22±1 |
| | | | | 36 | 35 | 2 | 22.78 | 22±1 |
| | | | | 75 | 0 | 2 | 22.40 | 22±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 22.89 | 22±1 |
| | | | | 1 | 37 | 0 | 22.92 | 22±1 |
| | | | | 1 | 74 | 0 | 22.86 | 22±1 |
| | | | | 36 | 0 | 1 | 22.75 | 22±1 |
| | | | | 36 | 16 | 1 | 22.81 | 22±1 |
| | | | | 36 | 35 | 1 | 22.79 | 22±1 |
| | | | | 75 | 0 | 1 | 22.65 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.66 | 22±1 |
| | | | | 1 | 37 | 1 | 22.61 | 22±1 |
| | | | | 1 | 74 | 1 | 22.76 | 22±1 |
| | | | | 36 | 0 | 2 | 22.61 | 22±1 |
| | | | | 36 | 16 | 2 | 22.56 | 22±1 |
| | | | | 36 | 35 | 2 | 22.59 | 22±1 |
| | | | | 75 | 0 | 2 | 22.27 | 22±1 |
| | 20325 | 1747.5 | QPSK | 1 | 0 | 0 | 22.40 | 22±1 |
| | | | | 1 | 37 | 0 | 22.45 | 22±1 |
| | | | | 1 | 74 | 0 | 22.63 | 22±1 |
| | | | | 36 | 0 | 1 | 22.37 | 22±1 |
| | | | | 36 | 16 | 1 | 22.41 | 22±1 |
| | | | | 36 | 35 | 1 | 22.31 | 22±1 |
| | | | | 75 | 0 | 1 | 22.29 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.32 | 22±1 |
| | | | | 1 | 37 | 1 | 22.37 | 22±1 |
| | | | | 1 | 74 | 1 | 22.46 | 22±1 |
| | | | | 36 | 0 | 2 | 22.28 | 22±1 |
| | | | | 36 | 16 | 2 | 22.32 | 22±1 |
| | | | | 36 | 35 | 2 | 22.34 | 22±1 |
| | | | | 75 | 0 | 2 | 22.11 | 22±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 | 22.55 | 22±1 |
| | | | | 1 | 24 | 0 | 22.54 | 22±1 |
| | | | | 1 | 49 | 0 | 22.60 | 22±1 |
| | | | | 25 | 0 | 1 | 22.43 | 22±1 |
| | | | | 25 | 12 | 1 | 22.49 | 22±1 |
| | | | | 25 | 24 | 1 | 22.50 | 22±1 |
| | | | | 50 | 0 | 1 | 22.31 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.42 | 22±1 |
| | | | | 1 | 24 | 1 | 22.43 | 22±1 |
| | | | | 1 | 49 | 1 | 22.41 | 22±1 |
| | | | | 25 | 0 | 2 | 22.37 | 22±1 |
| | | | | 25 | 12 | 2 | 22.39 | 22±1 |
| | | | | 25 | 24 | 2 | 22.44 | 22±1 |
| | | | | 50 | 0 | 2 | 22.17 | 22±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 22.67 | 22±1 |
| | | | | 1 | 24 | 0 | 22.65 | 22±1 |
| | | | | 1 | 49 | 0 | 22.63 | 22±1 |
| | | | | 25 | 0 | 1 | 22.61 | 22±1 |
| | | | | 25 | 12 | 1 | 22.55 | 22±1 |
| | | | | 25 | 24 | 1 | 22.57 | 22±1 |
| | | | | 50 | 0 | 1 | 22.31 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.46 | 22±1 |
| | | | | 1 | 24 | 1 | 22.47 | 22±1 |
| | | | | 1 | 49 | 1 | 22.44 | 22±1 |
| | | | | 25 | 0 | 2 | 22.44 | 22±1 |
| | | | | 25 | 12 | 2 | 22.37 | 22±1 |
| | | | | 25 | 24 | 2 | 22.35 | 22±1 |
| | | | | 50 | 0 | 2 | 22.25 | 22±1 |
| | 20350 | 1750.0 | QPSK | 1 | 0 | 0 | 22.35 | 22±1 |
| | | | | 1 | 24 | 0 | 22.43 | 22±1 |
| | | | | 1 | 49 | 0 | 22.47 | 22±1 |
| | | | | 25 | 0 | 1 | 22.24 | 22±1 |
| | | | | 25 | 12 | 1 | 22.27 | 22±1 |
| | | | | 25 | 24 | 1 | 22.26 | 22±1 |
| | | | | 50 | 0 | 1 | 22.14 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.25 | 22±1 |
| | | | | 1 | 24 | 1 | 22.27 | 22±1 |
| | | | | 1 | 49 | 1 | 22.31 | 22±1 |
| | | | | 25 | 0 | 2 | 22.25 | 22±1 |
| | | | | 25 | 12 | 2 | 22.21 | 22±1 |
| | | | | 25 | 24 | 2 | 22.25 | 22±1 |
| | | | | 50 | 0 | 2 | 22.02 | 22±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 | 22.24 | 22±1 |
| | | | | 1 | 12 | 0 | 22.18 | 22±1 |
| | | | | 1 | 24 | 0 | 22.12 | 22±1 |
| | | | | 12 | 0 | 1 | 22.13 | 22±1 |
| | | | | 12 | 6 | 1 | 22.06 | 22±1 |
| | | | | 12 | 11 | 1 | 22.12 | 22±1 |
| | | | | 25 | 0 | 1 | 21.98 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.11 | 22±1 |
| | | | | 1 | 12 | 1 | 22.14 | 22±1 |
| | | | | 1 | 24 | 1 | 21.99 | 22±1 |
| | | | | 12 | 0 | 2 | 21.98 | 22±1 |
| | | | | 12 | 6 | 2 | 21.82 | 22±1 |
| | | | | 12 | 11 | 2 | 21.86 | 22±1 |
| | | | | 25 | 0 | 2 | 21.67 | 22±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 22.35 | 22±1 |
| | | | | 1 | 12 | 0 | 22.38 | 22±1 |
| | | | | 1 | 24 | 0 | 22.31 | 22±1 |
| | | | | 12 | 0 | 1 | 22.24 | 22±1 |
| | | | | 12 | 6 | 1 | 22.16 | 22±1 |
| | | | | 12 | 11 | 1 | 22.19 | 22±1 |
| | | | | 25 | 0 | 1 | 22.08 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.07 | 22±1 |
| | | | | 1 | 12 | 1 | 22.04 | 22±1 |
| | | | | 1 | 24 | 1 | 21.96 | 22±1 |
| | | | | 12 | 0 | 2 | 21.92 | 22±1 |
| | | | | 12 | 6 | 2 | 21.96 | 22±1 |
| | | | | 12 | 11 | 2 | 21.94 | 22±1 |
| | | | | 25 | 0 | 2 | 21.71 | 22±1 |
| | 20350 | 1750.0 | QPSK | 1 | 0 | 0 | 22.07 | 22±1 |
| | | | | 1 | 12 | 0 | 21.91 | 22±1 |
| | | | | 1 | 24 | 0 | 21.88 | 22±1 |
| | | | | 12 | 0 | 1 | 21.87 | 22±1 |
| | | | | 12 | 6 | 1 | 21.69 | 22±1 |
| | | | | 12 | 11 | 1 | 21.67 | 22±1 |
| | | | | 25 | 0 | 1 | 21.35 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.55 | 22±1 |
| | | | | 1 | 12 | 1 | 21.53 | 22±1 |
| | | | | 1 | 24 | 1 | 21.42 | 22±1 |
| | | | | 12 | 0 | 2 | 21.42 | 22±1 |
| | | | | 12 | 6 | 2 | 21.52 | 22±1 |
| | | | | 12 | 11 | 2 | 21.49 | 22±1 |
| | | | | 25 | 0 | 2 | 21.35 | 22±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 | 21.37 | 21±1 |
| | | | | 1 | 7 | 0 | 21.31 | 21±1 |
| | | | | 1 | 14 | 0 | 21.47 | 21±1 |
| | | | | 8 | 0 | 1 | 21.12 | 21±1 |
| | | | | 8 | 4 | 1 | 21.16 | 21±1 |
| | | | | 8 | 7 | 1 | 21.17 | 21±1 |
| | | | | 15 | 0 | 1 | 20.91 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.29 | 21±1 |
| | | | | 1 | 7 | 1 | 21.22 | 21±1 |
| | | | | 1 | 14 | 1 | 21.16 | 21±1 |
| | | | | 8 | 0 | 2 | 21.11 | 21±1 |
| | | | | 8 | 4 | 2 | 21.06 | 21±1 |
| | | | | 8 | 7 | 2 | 21.09 | 21±1 |
| | | | | 15 | 0 | 2 | 20.90 | 21±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 21.49 | 21±1 |
| | | | | 1 | 7 | 0 | 21.47 | 21±1 |
| | | | | 1 | 14 | 0 | 21.48 | 21±1 |
| | | | | 8 | 0 | 1 | 21.32 | 21±1 |
| | | | | 8 | 4 | 1 | 21.36 | 21±1 |
| | | | | 8 | 7 | 1 | 21.37 | 21±1 |
| | | | | 15 | 0 | 1 | 21.17 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.29 | 21±1 |
| | | | | 1 | 7 | 1 | 21.31 | 21±1 |
| | | | | 1 | 14 | 1 | 21.28 | 21±1 |
| | | | | 8 | 0 | 2 | 21.18 | 21±1 |
| | | | | 8 | 4 | 2 | 21.19 | 21±1 |
| | | | | 8 | 7 | 2 | 21.15 | 21±1 |
| | | | | 15 | 0 | 2 | 20.97 | 21±1 |
| | 20385 | 1753.5 | QPSK | 1 | 0 | 0 | 21.27 | 21±1 |
| | | | | 1 | 7 | 0 | 21.33 | 21±1 |
| | | | | 1 | 14 | 0 | 21.26 | 21±1 |
| | | | | 8 | 0 | 1 | 21.21 | 21±1 |
| | | | | 8 | 4 | 1 | 21.17 | 21±1 |
| | | | | 8 | 7 | 1 | 21.17 | 21±1 |
| | | | | 15 | 0 | 1 | 20.84 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.18 | 21±1 |
| | | | | 1 | 7 | 1 | 21.14 | 21±1 |
| | | | | 1 | 14 | 1 | 21.19 | 21±1 |
| | | | | 8 | 0 | 2 | 20.91 | 21±1 |
| | | | | 8 | 4 | 2 | 21.06 | 21±1 |
| | | | | 8 | 7 | 2 | 20.92 | 21±1 |
| | | | | 15 | 0 | 2 | 20.64 | 21±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 | 21.23 | 21±1 |
| | | | | 1 | 2 | 0 | 21.26 | 21±1 |
| | | | | 1 | 5 | 0 | 21.31 | 21±1 |
| | | | | 3 | 0 | 0 | 21.23 | 21±1 |
| | | | | 3 | 1 | 0 | 21.12 | 21±1 |
| | | | | 3 | 2 | 0 | 21.15 | 21±1 |
| | | | | 6 | 0 | 1 | 21.05 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.03 | 21±1 |
| | | | | 1 | 2 | 1 | 21.01 | 21±1 |
| | | | | 1 | 5 | 1 | 20.95 | 21±1 |
| | | | | 3 | 0 | 1 | 20.97 | 21±1 |
| | | | | 3 | 1 | 1 | 20.89 | 21±1 |
| | | | | 3 | 2 | 1 | 20.91 | 21±1 |
| | | | | 6 | 0 | 2 | 20.65 | 21±1 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | 21.49 | 21±1 |
| | | | | 1 | 2 | 0 | 21.52 | 21±1 |
| | | | | 1 | 5 | 0 | 21.51 | 21±1 |
| | | | | 3 | 0 | 0 | 21.31 | 21±1 |
| | | | | 3 | 1 | 0 | 21.39 | 21±1 |
| | | | | 3 | 2 | 0 | 21.38 | 21±1 |
| | | | | 6 | 0 | 1 | 21.15 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.27 | 21±1 |
| | | | | 1 | 2 | 1 | 21.32 | 21±1 |
| | | | | 1 | 5 | 1 | 21.29 | 21±1 |
| | | | | 3 | 0 | 1 | 21.07 | 21±1 |
| | | | | 3 | 1 | 1 | 21.19 | 21±1 |
| | | | | 3 | 2 | 1 | 21.08 | 21±1 |
| | | | | 6 | 0 | 2 | 20.82 | 21±1 |
| | 20393 | 1754.3 | QPSK | 1 | 0 | 0 | 21.13 | 21±1 |
| | | | | 1 | 2 | 0 | 21.16 | 21±1 |
| | | | | 1 | 5 | 0 | 21.09 | 21±1 |
| | | | | 3 | 0 | 0 | 20.86 | 21±1 |
| | | | | 3 | 1 | 0 | 20.95 | 21±1 |
| | | | | 3 | 2 | 0 | 20.91 | 21±1 |
| | | | | 6 | 0 | 1 | 20.71 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 20.93 | 21±1 |
| | | | | 1 | 2 | 1 | 20.96 | 21±1 |
| | | | | 1 | 5 | 1 | 20.99 | 21±1 |
| | | | | 3 | 0 | 1 | 20.64 | 21±1 |
| | | | | 3 | 1 | 1 | 20.86 | 21±1 |
| | | | | 3 | 2 | 1 | 20.87 | 21±1 |
| | | | | 6 | 0 | 2 | 20.47 | 21±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 | 24.17 | 24±1 |
| | | | | 1 | 24 | 0 | 24.14 | 24±1 |
| | | | | 1 | 49 | 0 | 24.18 | 24±1 |
| | | | | 25 | 0 | 1 | 24.12 | 24±1 |
| | | | | 25 | 12 | 1 | 24.16 | 24±1 |
| | | | | 25 | 24 | 1 | 24.04 | 24±1 |
| | | | | 50 | 0 | 1 | 24.00 | 24±1 |
| | | | 16QAM | 1 | 0 | 1 | 24.05 | 24±1 |
| | | | | 1 | 24 | 1 | 24.02 | 24±1 |
| | | | | 1 | 49 | 1 | 24.07 | 24±1 |
| | | | | 25 | 0 | 2 | 23.96 | 24±1 |
| | | | | 25 | 12 | 2 | 23.97 | 24±1 |
| | | | | 25 | 24 | 2 | 23.89 | 24±1 |
| | | | | 50 | 0 | 2 | 23.51 | 24±1 |
| | 23790 | 701.0 | QPSK | 1 | 0 | 0 | 24.18 | 24±1 |
| | | | | 1 | 24 | 0 | 24.26 | 24±1 |
| | | | | 1 | 49 | 0 | 24.20 | 24±1 |
| | | | | 25 | 0 | 1 | 24.03 | 24±1 |
| | | | | 25 | 12 | 1 | 24.06 | 24±1 |
| | | | | 25 | 24 | 1 | 23.97 | 24±1 |
| | | | | 50 | 0 | 1 | 23.92 | 24±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.85 | 24±1 |
| | | | | 1 | 24 | 1 | 23.89 | 24±1 |
| | | | | 1 | 49 | 1 | 23.86 | 24±1 |
| | | | | 25 | 0 | 2 | 23.64 | 24±1 |
| | | | | 25 | 12 | 2 | 23.59 | 24±1 |
| | | | | 25 | 24 | 2 | 23.57 | 24±1 |
| | | | | 50 | 0 | 2 | 23.07 | 24±1 |
| | 23800 | 711.0 | QPSK | 1 | 0 | 0 | 23.77 | 24±1 |
| | | | | 1 | 24 | 0 | 23.86 | 24±1 |
| | | | | 1 | 49 | 0 | 23.84 | 24±1 |
| | | | | 25 | 0 | 1 | 23.61 | 24±1 |
| | | | | 25 | 12 | 1 | 23.57 | 24±1 |
| | | | | 25 | 24 | 1 | 23.55 | 24±1 |
| | | | | 50 | 0 | 1 | 23.23 | 24±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.61 | 24±1 |
| | | | | 1 | 24 | 1 | 23.48 | 24±1 |
| | | | | 1 | 49 | 1 | 23.56 | 24±1 |
| | | | | 25 | 0 | 2 | 23.50 | 24±1 |
| | | | | 25 | 12 | 2 | 23.53 | 24±1 |
| | | | | 25 | 24 | 2 | 23.47 | 24±1 |
| | | | | 50 | 0 | 2 | 23.12 | 24±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 | 23.81 | 23±1 |
| | | | | 1 | 12 | 0 | 23.86 | 23±1 |
| | | | | 1 | 24 | 0 | 23.80 | 23±1 |
| | | | | 12 | 0 | 1 | 23.58 | 23±1 |
| | | | | 12 | 6 | 1 | 23.53 | 23±1 |
| | | | | 12 | 11 | 1 | 23.61 | 23±1 |
| | | | | 25 | 0 | 1 | 23.20 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.55 | 23±1 |
| | | | | 1 | 12 | 1 | 23.64 | 23±1 |
| | | | | 1 | 24 | 1 | 23.58 | 23±1 |
| | | | | 12 | 0 | 2 | 23.32 | 23±1 |
| | | | | 12 | 6 | 2 | 23.36 | 23±1 |
| | | | | 12 | 11 | 2 | 23.43 | 23±1 |
| | | | | 25 | 0 | 2 | 23.01 | 23±1 |
| | 23790 | 710.0 | QPSK | 1 | 0 | 0 | 23.88 | 23±1 |
| | | | | 1 | 12 | 0 | 23.87 | 23±1 |
| | | | | 1 | 24 | 0 | 23.85 | 23±1 |
| | | | | 12 | 0 | 1 | 23.68 | 23±1 |
| | | | | 12 | 6 | 1 | 23.64 | 23±1 |
| | | | | 12 | 11 | 1 | 23.59 | 23±1 |
| | | | | 25 | 0 | 1 | 23.22 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.61 | 23±1 |
| | | | | 1 | 12 | 1 | 23.63 | 23±1 |
| | | | | 1 | 24 | 1 | 23.62 | 23±1 |
| | | | | 12 | 0 | 2 | 23.56 | 23±1 |
| | | | | 12 | 6 | 2 | 23.47 | 23±1 |
| | | | | 12 | 11 | 2 | 23.48 | 23±1 |
| | | | | 25 | 0 | 2 | 23.07 | 23±1 |
| | 23825 | 713.5 | QPSK | 1 | 0 | 0 | 23.55 | 23±1 |
| | | | | 1 | 12 | 0 | 23.57 | 23±1 |
| | | | | 1 | 24 | 0 | 23.62 | 23±1 |
| | | | | 12 | 0 | 1 | 23.38 | 23±1 |
| | | | | 12 | 6 | 1 | 23.41 | 23±1 |
| | | | | 12 | 11 | 1 | 23.35 | 23±1 |
| | | | | 25 | 0 | 1 | 23.15 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.31 | 23±1 |
| | | | | 1 | 12 | 1 | 23.21 | 23±1 |
| | | | | 1 | 24 | 1 | 23.26 | 23±1 |
| | | | | 12 | 0 | 2 | 23.08 | 23±1 |
| | | | | 12 | 6 | 2 | 23.03 | 23±1 |
| | | | | 12 | 11 | 2 | 23.05 | 23±1 |
| | | | | 25 | 0 | 2 | 22.91 | 23±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 | 23010 | 699.0 | QPSK | 1 | 0 | 0 | 23.38 | 23±1 |
| | | | | 1 | 24 | 0 | 23.43 | 23±1 |
| | | | | 1 | 49 | 0 | 23.30 | 23±1 |
| | | | | 25 | 0 | 1 | 23.18 | 23±1 |
| | | | | 25 | 12 | 1 | 23.16 | 23±1 |
| | | | | 25 | 24 | 1 | 23.12 | 23±1 |
| | | | | 50 | 0 | 1 | 23.00 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.21 | 23±1 |
| | | | | 1 | 24 | 1 | 23.31 | 23±1 |
| | | | | 1 | 49 | 1 | 23.29 | 23±1 |
| | | | | 25 | 0 | 2 | 23.10 | 23±1 |
| | | | | 25 | 12 | 2 | 23.07 | 23±1 |
| | | | | 25 | 24 | 2 | 23.01 | 23±1 |
| | | | | 50 | 0 | 2 | 22.80 | 23±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 23.41 | 23±1 |
| | | | | 1 | 24 | 0 | **23.47** | 23±1 |
| | | | | 1 | 49 | 0 | 23.44 | 23±1 |
| | | | | 25 | 0 | 1 | 23.35 | 23±1 |
| | | | | 25 | 12 | 1 | **23.37** | 23±1 |
| | | | | 25 | 24 | 1 | 23.25 | 23±1 |
| | | | | 50 | 0 | 1 | 23.04 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.38 | 23±1 |
| | | | | 1 | 24 | 1 | 23.31 | 23±1 |
| | | | | 1 | 49 | 1 | 23.34 | 23±1 |
| | | | | 25 | 0 | 2 | 23.19 | 23±1 |
| | | | | 25 | 12 | 2 | 23.23 | 23±1 |
| | | | | 25 | 24 | 2 | 23.21 | 23±1 |
| | | | | 50 | 0 | 2 | 23.01 | 23±1 |
| | 23179 | 715.9 | QPSK | 1 | 0 | 0 | 23.22 | 23±1 |
| | | | | 1 | 24 | 0 | 23.18 | 23±1 |
| | | | | 1 | 49 | 0 | 23.12 | 23±1 |
| | | | | 25 | 0 | 1 | 22.95 | 23±1 |
| | | | | 25 | 12 | 1 | 22.85 | 23±1 |
| | | | | 25 | 24 | 1 | 22.70 | 23±1 |
| | | | | 50 | 0 | 1 | 22.66 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.09 | 23±1 |
| | | | | 1 | 24 | 1 | 23.02 | 23±1 |
| | | | | 1 | 49 | 1 | 22.91 | 23±1 |
| | | | | 25 | 0 | 2 | 22.79 | 23±1 |
| | | | | 25 | 12 | 2 | 22.77 | 23±1 |
| | | | | 25 | 24 | 2 | 22.76 | 23±1 |
| | | | | 50 | 0 | 2 | 22.53 | 23±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 | 23.16 | 23±1 |
| | | | | 1 | 12 | 0 | 23.18 | 23±1 |
| | | | | 1 | 24 | 0 | 23.20 | 23±1 |
| | | | | 12 | 0 | 1 | 23.03 | 23±1 |
| | | | | 12 | 6 | 1 | 23.09 | 23±1 |
| | | | | 12 | 11 | 1 | 22.98 | 23±1 |
| | | | | 25 | 0 | 1 | 22.77 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.02 | 23±1 |
| | | | | 1 | 12 | 1 | 22.98 | 23±1 |
| | | | | 1 | 24 | 1 | 22.96 | 23±1 |
| | | | | 12 | 0 | 2 | 22.81 | 23±1 |
| | | | | 12 | 6 | 2 | 22.78 | 23±1 |
| | | | | 12 | 11 | 2 | 22.75 | 23±1 |
| | | | | 25 | 0 | 2 | 22.55 | 23±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 23.20 | 23±1 |
| | | | | 1 | 12 | 0 | 23.18 | 23±1 |
| | | | | 1 | 24 | 0 | 23.29 | 23±1 |
| | | | | 12 | 0 | 1 | 23.05 | 23±1 |
| | | | | 12 | 6 | 1 | 23.07 | 23±1 |
| | | | | 12 | 11 | 1 | 23.03 | 23±1 |
| | | | | 25 | 0 | 1 | 22.81 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 23.03 | 23±1 |
| | | | | 1 | 12 | 1 | 23.09 | 23±1 |
| | | | | 1 | 24 | 1 | 23.05 | 23±1 |
| | | | | 12 | 0 | 2 | 22.85 | 23±1 |
| | | | | 12 | 6 | 2 | 22.86 | 23±1 |
| | | | | 12 | 11 | 2 | 22.93 | 23±1 |
| | | | | 25 | 0 | 2 | 22.66 | 23±1 |
| | 23155 | 713.5 | QPSK | 1 | 0 | 0 | 22.86 | 23±1 |
| | | | | 1 | 12 | 0 | 22.88 | 23±1 |
| | | | | 1 | 24 | 0 | 22.76 | 23±1 |
| | | | | 12 | 0 | 1 | 22.81 | 23±1 |
| | | | | 12 | 6 | 1 | 22.70 | 23±1 |
| | | | | 12 | 11 | 1 | 22.71 | 23±1 |
| | | | | 25 | 0 | 1 | 22.56 | 23±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.52 | 23±1 |
| | | | | 1 | 12 | 1 | 22.59 | 23±1 |
| | | | | 1 | 24 | 1 | 22.61 | 23±1 |
| | | | | 12 | 0 | 2 | 22.45 | 23±1 |
| | | | | 12 | 6 | 2 | 22.41 | 23±1 |
| | | | | 12 | 11 | 2 | 22.55 | 23±1 |
| | | | | 25 | 0 | 2 | 22.19 | 23±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 | 22.85 | 22±1 |
| | | | | 1 | 7 | 0 | 22.81 | 22±1 |
| | | | | 1 | 14 | 0 | 22.86 | 22±1 |
| | | | | 8 | 0 | 1 | 22.75 | 22±1 |
| | | | | 8 | 4 | 1 | 22.78 | 22±1 |
| | | | | 8 | 7 | 1 | 22.69 | 22±1 |
| | | | | 15 | 0 | 1 | 22.56 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.66 | 22±1 |
| | | | | 1 | 7 | 1 | 22.71 | 22±1 |
| | | | | 1 | 14 | 1 | 22.67 | 22±1 |
| | | | | 8 | 0 | 2 | 22.32 | 22±1 |
| | | | | 8 | 4 | 2 | 22.24 | 22±1 |
| | | | | 8 | 7 | 2 | 22.25 | 22±1 |
| | | | | 15 | 0 | 2 | 22.03 | 22±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 22.83 | 22±1 |
| | | | | 1 | 7 | 0 | 22.85 | 22±1 |
| | | | | 1 | 14 | 0 | 22.89 | 22±1 |
| | | | | 8 | 0 | 1 | 22.76 | 22±1 |
| | | | | 8 | 4 | 1 | 22.77 | 22±1 |
| | | | | 8 | 7 | 1 | 22.80 | 22±1 |
| | | | | 15 | 0 | 1 | 22.61 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.67 | 22±1 |
| | | | | 1 | 7 | 1 | 22.65 | 22±1 |
| | | | | 1 | 14 | 1 | 22.55 | 22±1 |
| | | | | 8 | 0 | 2 | 22.31 | 22±1 |
| | | | | 8 | 4 | 2 | 22.35 | 22±1 |
| | | | | 8 | 7 | 2 | 22.29 | 22±1 |
| | | | | 15 | 0 | 2 | 22.01 | 22±1 |
| | 23165 | 714.5 | QPSK | 1 | 0 | 0 | 22.53 | 22±1 |
| | | | | 1 | 7 | 0 | 22.51 | 22±1 |
| | | | | 1 | 14 | 0 | 22.47 | 22±1 |
| | | | | 8 | 0 | 1 | 22.20 | 22±1 |
| | | | | 8 | 4 | 1 | 22.16 | 22±1 |
| | | | | 8 | 7 | 1 | 22.15 | 22±1 |
| | | | | 15 | 0 | 1 | 22.01 | 22±1 |
| | | | 16QAM | 1 | 0 | 1 | 22.24 | 22±1 |
| | | | | 1 | 7 | 1 | 22.21 | 22±1 |
| | | | | 1 | 14 | 1 | 22.17 | 22±1 |
| | | | | 8 | 0 | 2 | 22.01 | 22±1 |
| | | | | 8 | 4 | 2 | 22.07 | 22±1 |
| | | | | 8 | 7 | 2 | 21.91 | 22±1 |
| | | | | 15 | 0 | 2 | 21.67 | 22±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 | 21.82 | 21±1 |
| | | | | 1 | 2 | 0 | 21.87 | 21±1 |
| | | | | 1 | 5 | 0 | 21.77 | 21±1 |
| | | | | 3 | 0 | 0 | 21.59 | 21±1 |
| | | | | 3 | 1 | 0 | 21.61 | 21±1 |
| | | | | 3 | 2 | 0 | 21.73 | 21±1 |
| | | | | 6 | 0 | 1 | 21.23 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.69 | 21±1 |
| | | | | 1 | 2 | 1 | 21.74 | 21±1 |
| | | | | 1 | 5 | 1 | 21.80 | 21±1 |
| | | | | 3 | 0 | 1 | 21.54 | 21±1 |
| | | | | 3 | 1 | 1 | 21.63 | 21±1 |
| | | | | 3 | 2 | 1 | 21.51 | 21±1 |
| | | | | 6 | 0 | 2 | 21.16 | 21±1 |
| | 23095 | 707.5 | QPSK | 1 | 0 | 0 | 21.87 | 21±1 |
| | | | | 1 | 2 | 0 | 21.93 | 21±1 |
| | | | | 1 | 5 | 0 | 21.84 | 21±1 |
| | | | | 3 | 0 | 0 | 21.63 | 21±1 |
| | | | | 3 | 1 | 0 | 21.66 | 21±1 |
| | | | | 3 | 2 | 0 | 21.81 | 21±1 |
| | | | | 6 | 0 | 1 | 21.44 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.74 | 21±1 |
| | | | | 1 | 2 | 1 | 21.69 | 21±1 |
| | | | | 1 | 5 | 1 | 21.67 | 21±1 |
| | | | | 3 | 0 | 1 | 21.77 | 21±1 |
| | | | | 3 | 1 | 1 | 21.52 | 21±1 |
| | | | | 3 | 2 | 1 | 21.44 | 21±1 |
| | | | | 6 | 0 | 2 | 21.15 | 21±1 |
| | 23173 | 715.3 | QPSK | 1 | 0 | 0 | 21.47 | 21±1 |
| | | | | 1 | 2 | 0 | 21.38 | 21±1 |
| | | | | 1 | 5 | 0 | 21.59 | 21±1 |
| | | | | 3 | 0 | 0 | 21.27 | 21±1 |
| | | | | 3 | 1 | 0 | 21.19 | 21±1 |
| | | | | 3 | 2 | 0 | 21.34 | 21±1 |
| | | | | 6 | 0 | 1 | 21.10 | 21±1 |
| | | | 16QAM | 1 | 0 | 1 | 21.13 | 21±1 |
| | | | | 1 | 2 | 1 | 21.10 | 21±1 |
| | | | | 1 | 5 | 1 | 21.23 | 21±1 |
| | | | | 3 | 0 | 1 | 21.15 | 21±1 |
| | | | | 3 | 1 | 1 | 21.22 | 21±1 |
| | | | | 3 | 2 | 1 | 21.16 | 21±1 |
| | | | | 6 | 0 | 2 | 21.02 | 21±1 |

## ERP & EIRP

### EIRP for LTE Band 2 (Part 24E)

| Frequency (MHz) | BW (MHz) | Modulation | RB Size/Offset | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| 1850.7 | 1.4 | QPSK | 1/0 | 10.05 | V | 7.88 | 0.85 | 17.08 | 33.01 |
| 1880 | 1.4 | QPSK | 1/0 | 9.83 | V | 7.88 | 0.85 | 16.86 | 33.01 |
| 1909.3 | 1.4 | QPSK | 1/0 | 9.94 | V | 7.88 | 0.85 | 16.97 | 33.01 |
| 1850.7 | 1.4 | QPSK | 1/0 | 9.79 | H | 7.88 | 0.85 | 16.82 | 33.01 |
| 1880 | 1.4 | QPSK | 1/0 | 9.61 | H | 7.88 | 0.85 | 16.64 | 33.01 |
| 1909.3 | 1.4 | QPSK | 1/0 | 9.84 | H | 7.88 | 0.85 | 16.87 | 33.01 |
| 1850.7 | 1.4 | 16-QAM | 1/0 | 9.96 | V | 7.88 | 0.85 | 16.99 | 33.01 |
| 1880 | 1.4 | 16-QAM | 1/0 | 9.83 | V | 7.88 | 0.85 | 16.86 | 33.01 |
| 1909.3 | 1.4 | 16-QAM | 1/0 | 9.43 | V | 7.88 | 0.85 | 16.46 | 33.01 |
| 1850.7 | 1.4 | 16-QAM | 1/0 | 9.49 | H | 7.88 | 0.85 | 16.52 | 33.01 |
| 1880 | 1.4 | 16-QAM | 1/0 | 10.01 | H | 7.88 | 0.85 | 17.04 | 33.01 |
| 1909.3 | 1.4 | 16-QAM | 1/0 | 9.49 | H | 7.88 | 0.85 | 16.52 | 33.01 |
| 1851.5 | 3 | QPSK | 1/0 | 9.86 | V | 7.88 | 0.85 | 16.89 | 33.01 |
| 1880 | 3 | QPSK | 1/0 | 9.39 | V | 7.88 | 0.85 | 16.42 | 33.01 |
| 1908.5 | 3 | QPSK | 1/0 | 9.44 | V | 7.88 | 0.85 | 16.47 | 33.01 |
| 1851.5 | 3 | QPSK | 1/0 | 9.74 | H | 7.88 | 0.85 | 16.77 | 33.01 |
| 1880 | 3 | QPSK | 1/0 | 9.95 | H | 7.88 | 0.85 | 16.98 | 33.01 |
| 1908.5 | 3 | QPSK | 1/0 | 9.44 | H | 7.88 | 0.85 | 16.47 | 33.01 |
| 1851.5 | 3 | 16-QAM | 1/0 | 10.13 | V | 7.88 | 0.85 | **17.16** | 33.01 |
| 1880 | 3 | 16-QAM | 1/0 | 9.71 | V | 7.88 | 0.85 | 16.74 | 33.01 |
| 1908.5 | 3 | 16-QAM | 1/0 | 9.61 | V | 7.88 | 0.85 | 16.64 | 33.01 |
| 1851.5 | 3 | 16-QAM | 1/0 | 9.89 | H | 7.88 | 0.85 | 16.92 | 33.01 |
| 1880 | 3 | 16-QAM | 1/0 | 9.65 | H | 7.88 | 0.85 | 16.68 | 33.01 |
| 1908.5 | 3 | 16-QAM | 1/0 | 9.97 | H | 7.88 | 0.85 | 17 | 33.01 |
| 1852.5 | 5 | QPSK | 1/24 | 10.06 | V | 7.88 | 0.85 | 17.09 | 33.01 |
| 1880 | 5 | QPSK | 1/0 | 9.82 | V | 7.88 | 0.85 | 16.85 | 33.01 |
| 1907.5 | 5 | QPSK | 1/24 | 9.61 | V | 7.88 | 0.85 | 16.64 | 33.01 |
| 1852.5 | 5 | QPSK | 1/24 | 10.03 | H | 7.88 | 0.85 | 17.06 | 33.01 |
| 1880 | 5 | QPSK | 1/0 | 9.86 | H | 7.88 | 0.85 | 16.89 | 33.01 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1907.5 | 5 | QPSK | 1/24 | 9.94 | H | 7.88 | 0.85 | 16.97 | 33.01 |
| 1852.5 | 5 | 16-QAM | 1/24 | 9.58 | V | 7.88 | 0.85 | 16.61 | 33.01 |
| 1880 | 5 | 16-QAM | 1/0 | 10.02 | V | 7.88 | 0.85 | 17.05 | 33.01 |
| 1907.5 | 5 | 16-QAM | 1/24 | 9.96 | V | 7.88 | 0.85 | 16.99 | 33.01 |
| 1852.5 | 5 | 16-QAM | 1/24 | 9.89 | H | 7.88 | 0.85 | 16.92 | 33.01 |
| 1880 | 5 | 16-QAM | 1/0 | 9.74 | H | 7.88 | 0.85 | 16.77 | 33.01 |
| 1907.5 | 5 | 16-QAM | 1/24 | 9.62 | H | 7.88 | 0.85 | 16.65 | 33.01 |
| 1855 | 10 | QPSK | 1/0 | 9.98 | V | 7.88 | 0.85 | 17.01 | 33.01 |
| 1880 | 10 | QPSK | 1/0 | 10.03 | V | 7.88 | 0.85 | 17.06 | 33.01 |
| 1905 | 10 | QPSK | 1/49 | 9.76 | V | 7.88 | 0.85 | 16.79 | 33.01 |
| 1855 | 10 | QPSK | 1/0 | 9.84 | H | 7.88 | 0.85 | 16.87 | 33.01 |
| 1880 | 10 | QPSK | 1/0 | 9.69 | H | 7.88 | 0.85 | 16.72 | 33.01 |
| 1905 | 10 | QPSK | 1/49 | 9.52 | H | 7.88 | 0.85 | 16.55 | 33.01 |
| 1855 | 10 | 16-QAM | 1/0 | 9.62 | V | 7.88 | 0.85 | 16.65 | 33.01 |
| 1880 | 10 | 16-QAM | 1/0 | 9.77 | V | 7.88 | 0.85 | 16.8 | 33.01 |
| 1905 | 10 | 16-QAM | 1/49 | 9.43 | V | 7.88 | 0.85 | 16.46 | 33.01 |
| 1855 | 10 | 16-QAM | 1/0 | 10.03 | H | 7.88 | 0.85 | 17.06 | 33.01 |
| 1880 | 10 | 16-QAM | 1/0 | 9.71 | H | 7.88 | 0.85 | 16.74 | 33.01 |
| 1905 | 10 | 16-QAM | 1/49 | 9.41 | H | 7.88 | 0.85 | 16.44 | 33.01 |
| 1857.5 | 15 | QPSK | 1/0 | 9.66 | V | 7.88 | 0.85 | 16.69 | 33.01 |
| 1880 | 15 | QPSK | 1/0 | 9.43 | V | 7.88 | 0.85 | 16.46 | 33.01 |
| 1902.5 | 15 | QPSK | 1/0 | 9.24 | V | 7.88 | 0.85 | 16.27 | 33.01 |
| 1857.5 | 15 | QPSK | 1/0 | 9.83 | H | 7.88 | 0.85 | 16.86 | 33.01 |
| 1880 | 15 | QPSK | 1/0 | 9.46 | H | 7.88 | 0.85 | 16.49 | 33.01 |
| 1902.5 | 15 | QPSK | 1/0 | 9.25 | H | 7.88 | 0.85 | 16.28 | 33.01 |
| 1857.5 | 15 | 16-QAM | 1/0 | 9.37 | V | 7.88 | 0.85 | 16.4 | 33.01 |
| 1880 | 15 | 16-QAM | 1/0 | 9.68 | V | 7.88 | 0.85 | 16.71 | 33.01 |
| 1902.5 | 15 | 16-QAM | 1/0 | 9.72 | V | 7.88 | 0.85 | 16.75 | 33.01 |
| 1857.5 | 15 | 16-QAM | 1/0 | 9.84 | H | 7.88 | 0.85 | 16.87 | 33.01 |
| 1880 | 15 | 16-QAM | 1/0 | 9.63 | H | 7.88 | 0.85 | 16.66 | 33.01 |
| 1902.5 | 15 | 16-QAM | 1/0 | 9.78 | H | 7.88 | 0.85 | 16.81 | 33.01 |
| 1860 | 20 | QPSK | 1/0 | 9.81 | V | 7.88 | 0.85 | 16.84 | 33.01 |
| 1880 | 20 | QPSK | 1/0 | 10.06 | V | 7.88 | 0.85 | 17.09 | 33.01 |
| 1900 | 20 | QPSK | 1/0 | 9.26 | V | 7.88 | 0.85 | 16.29 | 33.01 |
| 1860 | 20 | QPSK | 1/0 | 9.43 | H | 7.88 | 0.85 | 16.46 | 33.01 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1880 | 20 | QPSK | 1/0 | 9.71 | H | 7.88 | 0.85 | 16.74 | 33.01 |
| 1900 | 20 | QPSK | 1/0 | 9.59 | H | 7.88 | 0.85 | 16.62 | 33.01 |
| 1860 | 20 | 16-QAM | 1/0 | 9.84 | V | 7.88 | 0.85 | 16.87 | 33.01 |
| 1880 | 20 | 16-QAM | 1/0 | 9.69 | V | 7.88 | 0.85 | 16.72 | 33.01 |
| 1900 | 20 | 16-QAM | 1/0 | 9.76 | V | 7.88 | 0.85 | 16.79 | 33.01 |
| 1860 | 20 | 16-QAM | 1/0 | 9.42 | H | 7.88 | 0.85 | 16.45 | 33.01 |
| 1880 | 20 | 16-QAM | 1/0 | 9.38 | H | 7.88 | 0.85 | 16.41 | 33.01 |
| 1900 | 20 | 16-QAM | 1/0 | 9.52 | H | 7.88 | 0.85 | 16.55 | 33.01 |

## EIRP for LTE Band 4 (Part 27)

| Frequency (MHz) | BW (MHz) | Modulation | RB Size/Offset | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| 1710.7 | 1.4 | QPSK | 1/0 | 9.92 | V | 7.95 | 0.79 | 17.08 | 30 |
| 1732.5 | 1.4 | QPSK | 1/0 | 9.83 | V | 7.95 | 0.79 | 16.99 | 30 |
| 1754.3 | 1.4 | QPSK | 1/0 | 10.01 | V | 7.95 | 0.79 | 17.17 | 30 |
| 1710.7 | 1.4 | QPSK | 1/0 | 9.94 | H | 7.95 | 0.79 | 17.1 | 30 |
| 1732.5 | 1.4 | QPSK | 1/0 | 9.85 | H | 7.95 | 0.79 | 17.01 | 30 |
| 1754.3 | 1.4 | QPSK | 1/0 | 9.63 | H | 7.95 | 0.79 | 16.79 | 30 |
| 1710.7 | 1.4 | 16-QAM | 1/5 | 9.64 | V | 7.95 | 0.79 | 16.8 | 30 |
| 1732.5 | 1.4 | 16-QAM | 1/0 | 10.07 | V | 7.95 | 0.79 | **17.23** | 30 |
| 1754.3 | 1.4 | 16-QAM | 1/0 | 9.94 | V | 7.95 | 0.79 | 17.1 | 30 |
| 1710.7 | 1.4 | 16-QAM | 1/5 | 9.88 | H | 7.95 | 0.79 | 17.04 | 30 |
| 1732.5 | 1.4 | 16-QAM | 1/0 | 9.79 | H | 7.95 | 0.79 | 16.95 | 30 |
| 1754.3 | 1.4 | 16-QAM | 1/0 | 9.84 | H | 7.95 | 0.79 | 17 | 30 |
| 1711.5 | 3 | QPSK | 1/0 | 9.46 | V | 7.95 | 0.79 | 16.62 | 30 |
| 1732.5 | 3 | QPSK | 1/0 | 9.58 | V | 7.95 | 0.79 | 16.74 | 30 |
| 1753.5 | 3 | QPSK | 1/0 | 9.73 | V | 7.95 | 0.79 | 16.89 | 30 |
| 1711.5 | 3 | QPSK | 1/0 | 9.81 | H | 7.95 | 0.79 | 16.97 | 30 |
| 1732.5 | 3 | QPSK | 1/0 | 9.66 | H | 7.95 | 0.79 | 16.82 | 30 |
| 1753.5 | 3 | QPSK | 1/0 | 9.73 | H | 7.95 | 0.79 | 16.89 | 30 |
| 1711.5 | 3 | 16-QAM | 1/0 | 9.79 | V | 7.95 | 0.79 | 16.95 | 30 |
| 1732.5 | 3 | 16-QAM | 1/0 | 9.84 | V | 7.95 | 0.79 | 17 | 30 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1753.5 | 3 | 16-QAM | 1/0 | 9.63 | V | 7.95 | 0.79 | 16.79 | 30 |
| 1711.5 | 3 | 16-QAM | 1/0 | 9.55 | H | 7.95 | 0.79 | 16.71 | 30 |
| 1732.5 | 3 | 16-QAM | 1/0 | 9.77 | H | 7.95 | 0.79 | 16.93 | 30 |
| 1753.5 | 3 | 16-QAM | 1/0 | 9.84 | H | 7.95 | 0.79 | 17 | 30 |
| 1712.5 | 5 | QPSK | 1/0 | 9.39 | V | 7.95 | 0.79 | 16.55 | 30 |
| 1732.5 | 5 | QPSK | 1/0 | 9.42 | V | 7.95 | 0.79 | 16.58 | 30 |
| 1752.5 | 5 | QPSK | 1/24 | 9.81 | V | 7.95 | 0.79 | 16.97 | 30 |
| 1712.5 | 5 | QPSK | 1/0 | 9.67 | H | 7.95 | 0.79 | 16.83 | 30 |
| 1732.5 | 5 | QPSK | 1/0 | 9.56 | H | 7.95 | 0.79 | 16.72 | 30 |
| 1752.5 | 5 | QPSK | 1/24 | 9.44 | H | 7.95 | 0.79 | 16.6 | 30 |
| 1712.5 | 5 | 16-QAM | 1/0 | 9.94 | V | 7.95 | 0.79 | 17.1 | 30 |
| 1732.5 | 5 | 16-QAM | 1/0 | 10.02 | V | 7.95 | 0.79 | 17.18 | 30 |
| 1752.5 | 5 | 16-QAM | 1/24 | 9.76 | V | 7.95 | 0.79 | 16.92 | 30 |
| 1712.5 | 5 | 16-QAM | 1/0 | 9.65 | H | 7.95 | 0.79 | 16.81 | 30 |
| 1732.5 | 5 | 16-QAM | 1/0 | 9.38 | H | 7.95 | 0.79 | 16.54 | 30 |
| 1752.5 | 5 | 16-QAM | 1/24 | 9.83 | H | 7.95 | 0.79 | 16.99 | 30 |
| 1715 | 10 | QPSK | 1/0 | 9.77 | V | 7.95 | 0.79 | 16.93 | 30 |
| 1732.5 | 10 | QPSK | 1/49 | 9.81 | V | 7.95 | 0.79 | 16.97 | 30 |
| 1750 | 10 | QPSK | 1/0 | 9.39 | V | 7.95 | 0.79 | 16.55 | 30 |
| 1715 | 10 | QPSK | 1/0 | 9.52 | H | 7.95 | 0.79 | 16.68 | 30 |
| 1732.5 | 10 | QPSK | 1/49 | 9.94 | H | 7.95 | 0.79 | 17.1 | 30 |
| 1750 | 10 | QPSK | 1/0 | 9.67 | H | 7.95 | 0.79 | 16.83 | 30 |
| 1715 | 10 | 16-QAM | 1/0 | 9.87 | V | 7.95 | 0.79 | 17.03 | 30 |
| 1732.5 | 10 | 16-QAM | 1/49 | 9.62 | V | 7.95 | 0.79 | 16.78 | 30 |
| 1750 | 10 | 16-QAM | 1/0 | 9.73 | V | 7.95 | 0.79 | 16.89 | 30 |
| 1715 | 10 | 16-QAM | 1/0 | 9.89 | H | 7.95 | 0.79 | 17.05 | 30 |
| 1732.5 | 10 | 16-QAM | 1/49 | 9.43 | H | 7.95 | 0.79 | 16.59 | 30 |
| 1750 | 10 | 16-QAM | 1/0 | 9.66 | H | 7.95 | 0.79 | 16.82 | 30 |
| 1717.5 | 15 | QPSK | 1/0 | 9.77 | V | 7.95 | 0.79 | 16.93 | 30 |
| 1732.5 | 15 | QPSK | 1/74 | 9.53 | V | 7.95 | 0.79 | 16.69 | 30 |
| 1747.5 | 15 | QPSK | 1/0 | 9.44 | V | 7.95 | 0.79 | 16.6 | 30 |
| 1717.5 | 15 | QPSK | 1/0 | 9.73 | H | 7.95 | 0.79 | 16.89 | 30 |
| 1732.5 | 15 | QPSK | 1/74 | 9.66 | H | 7.95 | 0.79 | 16.82 | 30 |
| 1747.5 | 15 | QPSK | 1/0 | 9.24 | H | 7.95 | 0.79 | 16.4 | 30 |
| 1717.5 | 15 | 16-QAM | 1/0 | 9.51 | V | 7.95 | 0.79 | 16.67 | 30 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1732.5 | 15 | 16-QAM | 1/74 | 9.73 | V | 7.95 | 0.79 | 16.89 | 30 |
| 1747.5 | 15 | 16-QAM | 1/0 | 9.54 | V | 7.95 | 0.79 | 16.7 | 30 |
| 1717.5 | 15 | 16-QAM | 1/0 | 9.61 | H | 7.95 | 0.79 | 16.77 | 30 |
| 1732.5 | 15 | 16-QAM | 1/74 | 9.46 | H | 7.95 | 0.79 | 16.62 | 30 |
| 1747.5 | 15 | 16-QAM | 1/0 | 9.73 | H | 7.95 | 0.79 | 16.89 | 30 |
| 1720 | 20 | QPSK | 1/99 | 9.71 | V | 7.95 | 0.79 | 16.87 | 30 |
| 1732.5 | 20 | QPSK | 1/99 | 9.56 | V | 7.95 | 0.79 | 16.72 | 30 |
| 1745 | 20 | QPSK | 1/0 | 9.34 | V | 7.95 | 0.79 | 16.5 | 30 |
| 1720 | 20 | QPSK | 1/99 | 9.86 | H | 7.95 | 0.79 | 17.02 | 30 |
| 1732.5 | 20 | QPSK | 1/99 | 9.44 | H | 7.95 | 0.79 | 16.6 | 30 |
| 1745 | 20 | QPSK | 1/0 | 9.39 | H | 7.95 | 0.79 | 16.55 | 30 |
| 1720 | 20 | 16-QAM | 1/99 | 9.64 | V | 7.95 | 0.79 | 16.8 | 30 |
| 1732.5 | 20 | 16-QAM | 1/99 | 9.72 | V | 7.95 | 0.79 | 16.88 | 30 |
| 1745 | 20 | 16-QAM | 1/0 | 9.68 | V | 7.95 | 0.79 | 16.84 | 30 |
| 1720 | 20 | 16-QAM | 1/99 | 9.92 | H | 7.95 | 0.79 | 17.08 | 30 |
| 1732.5 | 20 | 16-QAM | 1/99 | 9.69 | H | 7.95 | 0.79 | 16.85 | 30 |
| 1745 | 20 | 16-QAM | 1/0 | 9.47 | H | 7.95 | 0.79 | 16.63 | 30 |

## ERP for LTE Band 12 (Part 27)

| Frequency (MHz) | BW (MHz) | Modulation | RB Size/Offset | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| 699.7 | 1.4 | QPSK | 1/5 | 10.15 | V | 6.9 | 0.42 | **16.63** | 34.77 |
| 707.5 | 1.4 | QPSK | 1/5 | 9.96 | V | 6.8 | 0.42 | 16.34 | 34.77 |
| 715.3 | 1.4 | QPSK | 1/5 | 9.87 | V | 6.8 | 0.42 | 16.25 | 34.77 |
| 699.7 | 1.4 | QPSK | 1/5 | 9.93 | H | 6.9 | 0.42 | 16.41 | 34.77 |
| 707.5 | 1.4 | QPSK | 1/5 | 10.09 | H | 6.8 | 0.42 | 16.47 | 34.77 |
| 715.3 | 1.4 | QPSK | 1/5 | 9.46 | H | 6.8 | 0.42 | 15.84 | 34.77 |
| 699.7 | 1.4 | 16-QAM | 1/5 | 9.84 | V | 6.9 | 0.42 | 16.32 | 34.77 |
| 707.5 | 1.4 | 16-QAM | 1/5 | 9.92 | V | 6.8 | 0.42 | 16.3 | 34.77 |
| 715.3 | 1.4 | 16-QAM | 1/5 | 9.77 | V | 6.8 | 0.42 | 16.15 | 34.77 |
| 699.7 | 1.4 | 16-QAM | 1/5 | 9.63 | H | 6.9 | 0.42 | 16.11 | 34.77 |
| 707.5 | 1.4 | 16-QAM | 1/5 | 9.81 | H | 6.8 | 0.42 | 16.19 | 34.77 |
| 715.3 | 1.4 | 16-QAM | 1/5 | 9.95 | H | 6.8 | 0.42 | 16.33 | 34.77 |
| 700.5 | 3 | QPSK | 1/14 | 10 | V | 6.9 | 0.42 | 16.48 | 34.77 |
| 707.5 | 3 | QPSK | 1/0 | 9.86 | V | 6.8 | 0.42 | 16.24 | 34.77 |
| 714.5 | 3 | QPSK | 1/14 | 9.53 | V | 6.8 | 0.42 | 15.91 | 34.77 |
| 700.5 | 3 | QPSK | 1/14 | 9.71 | H | 6.9 | 0.42 | 16.19 | 34.77 |
| 707.5 | 3 | QPSK | 1/0 | 9.49 | H | 6.8 | 0.42 | 15.87 | 34.77 |
| 714.5 | 3 | QPSK | 1/14 | 9.84 | H | 6.8 | 0.42 | 16.22 | 34.77 |
| 700.5 | 3 | 16-QAM | 1/14 | 9.65 | V | 6.9 | 0.42 | 16.13 | 34.77 |
| 707.5 | 3 | 16-QAM | 1/0 | 9.77 | V | 6.8 | 0.42 | 16.15 | 34.77 |
| 714.5 | 3 | 16-QAM | 1/14 | 9.83 | V | 6.8 | 0.42 | 16.21 | 34.77 |
| 700.5 | 3 | 16-QAM | 1/14 | 10.01 | H | 6.9 | 0.42 | 16.49 | 34.77 |
| 707.5 | 3 | 16-QAM | 1/0 | 9.82 | H | 6.8 | 0.42 | 16.2 | 34.77 |
| 714.5 | 3 | 16-QAM | 1/14 | 10.09 | H | 6.8 | 0.42 | 16.47 | 34.77 |
| 701.5 | 5 | QPSK | 1/24 | 9.73 | V | 6.9 | 0.42 | 16.21 | 34.77 |
| 707.5 | 5 | QPSK | 1/24 | 9.84 | V | 6.8 | 0.42 | 16.22 | 34.77 |
| 713.5 | 5 | QPSK | 1/24 | 9.66 | V | 6.8 | 0.42 | 16.04 | 34.77 |
| 701.5 | 5 | QPSK | 1/24 | 9.73 | H | 6.9 | 0.42 | 16.21 | 34.77 |
| 707.5 | 5 | QPSK | 1/24 | 9.43 | H | 6.8 | 0.42 | 15.81 | 34.77 |
| 713.5 | 5 | QPSK | 1/24 | 9.57 | H | 6.8 | 0.42 | 15.95 | 34.77 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 701.5 | 5 | 16-QAM | 1/24 | 9.61 | V | 6.9 | 0.42 | 16.09 | 34.77 |
| 707.5 | 5 | 16-QAM | 1/24 | 9.49 | V | 6.8 | 0.42 | 15.87 | 34.77 |
| 713.5 | 5 | 16-QAM | 1/24 | 9.61 | V | 6.8 | 0.42 | 15.99 | 34.77 |
| 701.5 | 5 | 16-QAM | 1/24 | 9.37 | H | 6.9 | 0.42 | 15.85 | 34.77 |
| 707.5 | 5 | 16-QAM | 1/24 | 9.58 | H | 6.8 | 0.42 | 15.96 | 34.77 |
| 713.5 | 5 | 16-QAM | 1/24 | 9.62 | H | 6.8 | 0.42 | 16 | 34.77 |
| 704 | 10 | QPSK | 1/49 | 9.73 | V | 6.8 | 0.42 | 16.11 | 34.77 |
| 707.5 | 10 | QPSK | 1/49 | 9.59 | V | 6.8 | 0.42 | 15.97 | 34.77 |
| 711 | 10 | QPSK | 1/49 | 9.64 | V | 6.8 | 0.42 | 16.02 | 34.77 |
| 704 | 10 | QPSK | 1/49 | 9.35 | H | 6.8 | 0.42 | 15.73 | 34.77 |
| 707.5 | 10 | QPSK | 1/49 | 9.67 | H | 6.8 | 0.42 | 16.05 | 34.77 |
| 711 | 10 | QPSK | 1/49 | 9.59 | H | 6.8 | 0.42 | 15.97 | 34.77 |
| 704 | 10 | 16-QAM | 1/49 | 9.34 | V | 6.8 | 0.42 | 15.72 | 34.77 |
| 707.5 | 10 | 16-QAM | 1/49 | 9.61 | V | 6.8 | 0.42 | 15.99 | 34.77 |
| 711 | 10 | 16-QAM | 1/49 | 9.56 | V | 6.8 | 0.42 | 15.94 | 34.77 |
| 704 | 10 | 16-QAM | 1/49 | 9.73 | H | 6.8 | 0.42 | 16.11 | 34.77 |
| 707.5 | 10 | 16-QAM | 1/49 | 9.84 | H | 6.8 | 0.42 | 16.22 | 34.77 |
| 711 | 10 | 16-QAM | 1/49 | 9.59 | H | 6.8 | 0.42 | 15.97 | 34.77 |

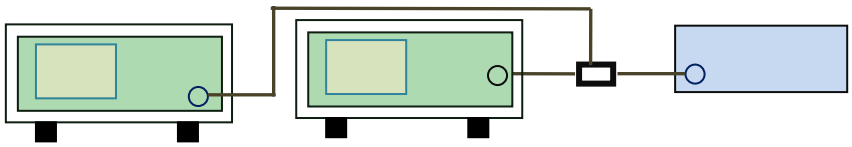
## ERP for LTE Band 17 (Part 27)

| Frequency (MHz) | BW (MHz) | Modulation | RB Size/Offset | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| 706.5 | 5 | QPSK | 1/0 | 9.44 | V | 6.8 | 0.42 | 15.82 | 34.77 |
| 710 | 5 | QPSK | 1/0 | 9.63 | V | 6.8 | 0.42 | 16.01 | 34.77 |
| 713.5 | 5 | QPSK | 1/0 | 9.42 | V | 6.8 | 0.42 | 15.8 | 34.77 |
| 706.5 | 5 | QPSK | 1/0 | 9.28 | H | 6.8 | 0.42 | 15.66 | 34.77 |
| 710 | 5 | QPSK | 1/0 | 9.31 | H | 6.8 | 0.42 | 15.69 | 34.77 |
| 713.5 | 5 | QPSK | 1/0 | 9.46 | H | 6.8 | 0.42 | 15.84 | 34.77 |
| 706.5 | 5 | 16-QAM | 1/0 | 9.47 | V | 6.8 | 0.42 | 15.85 | 34.77 |
| 710 | 5 | 16-QAM | 1/0 | 9.66 | V | 6.8 | 0.42 | 16.04 | 34.77 |
| 713.5 | 5 | 16-QAM | 1/0 | 9.38 | V | 6.8 | 0.42 | 15.76 | 34.77 |
| 706.5 | 5 | 16-QAM | 1/0 | 9.42 | H | 6.8 | 0.42 | 15.8 | 34.77 |
| 710 | 5 | 16-QAM | 1/0 | 9.31 | H | 6.8 | 0.42 | 15.69 | 34.77 |
| 713.5 | 5 | 16-QAM | 1/0 | 9.47 | H | 6.8 | 0.42 | 15.85 | 34.77 |
| 709 | 10 | QPSK | 1/0 | 9.39 | V | 6.8 | 0.42 | 15.77 | 34.77 |
| 710 | 10 | QPSK | 1/0 | 9.51 | V | 6.8 | 0.42 | 15.89 | 34.77 |
| 711 | 10 | QPSK | 1/0 | 9.64 | V | 6.8 | 0.42 | 16.02 | 34.77 |
| 709 | 10 | QPSK | 1/0 | 9.35 | H | 6.8 | 0.42 | 15.73 | 34.77 |
| 710 | 10 | QPSK | 1/0 | 9.44 | H | 6.8 | 0.42 | 15.82 | 34.77 |
| 711 | 10 | QPSK | 1/0 | 9.18 | H | 6.8 | 0.42 | 15.56 | 34.77 |
| 709 | 10 | 16-QAM | 1/0 | 9.84 | V | 6.8 | 0.42 | **16.22** | 34.77 |
| 710 | 10 | 16-QAM | 1/0 | 9.65 | V | 6.8 | 0.42 | 16.03 | 34.77 |
| 711 | 10 | 16-QAM | 1/0 | 9.37 | V | 6.8 | 0.42 | 15.75 | 34.77 |
| 709 | 10 | 16-QAM | 1/0 | 9.55 | H | 6.8 | 0.42 | 15.93 | 34.77 |
| 710 | 10 | 16-QAM | 1/0 | 9.64 | H | 6.8 | 0.42 | 16.02 | 34.77 |
| 711 | 10 | 16-QAM | 1/0 | 9.59 | H | 6.8 | 0.42 | 15.97 | 34.77 |

## 6.3 Peak-Average Ratio

| | |
|---|---|
| Temperature | 22°C |
| Relative Humidity | 59% |
| Atmospheric Pressure | 1011mbar |
| Test date : | February 02, 2015 |
| Tested By : | Wiky Jam |

Requirement(s):

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §24.232(d)<br>§ 27.50(d) | a) | The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB. | ☑ |
| Test Setup |  | | |
| Test Procedure | **According with KDB 971168**<br>1. The signal analyzer' s CCDF measurement profile is enabled<br>2. Frequency = carrier center frequency<br>3. Measurement BW > Emission bandwidth of signal<br>4. The signal analyzer was set to collect one million samples to generate the CCDF curve<br>5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal " RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the " on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power | | |
| Remark | | | |
| Result | ☑ Pass ☐ Fail | | |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☐ Yes (See below) ☑ N/A

## LTE Band 2 (part 24E)

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 20 | 1880 | RB 1/0 | QPSK | 26.32 | 23.14 | 3.18 |
| | | | 16QAM | 26.49 | 23.24 | 3.25 |
| 15 | 1880 | RB 1/0 | QPSK | 26.15 | 22.47 | 3.68 |
| | | | 16QAM | 26.11 | 22.35 | 3.76 |
| 10 | 1880 | RB 1/0 | QPSK | 25.87 | 22.33 | 3.54 |
| | | | 16QAM | 25.73 | 22.03 | 3.70 |
| 5 | 1880 | RB 1/0 | QPSK | 25.17 | 21.68 | 3.49 |
| | | | 16QAM | 25.05 | 21.45 | 3.60 |
| 3 | 1880 | RB 1/0 | QPSK | 25.21 | 21.92 | 3.29 |
| | | | 16QAM | 25.00 | 21.59 | 3.41 |
| 1.4 | 1880 | RB 1/0 | QPSK | 24.76 | 21.75 | 3.01 |
| | | | 16QAM | 24.53 | 21.55 | 2.98 |

## LTE Band 4 (part 27)

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 20 | 1732.5 | RB 1/0 | QPSK | 26.45 | 23.35 | 3.10 |
| | | | 16QAM | 26.37 | 23.23 | 3.14 |
| 15 | 1732.5 | RB 1/0 | QPSK | 26.02 | 22.89 | 3.13 |
| | | | 16QAM | 25.82 | 22.66 | 3.16 |
| 10 | 1732.5 | RB 1/0 | QPSK | 25.92 | 22.67 | 3.25 |
| | | | 16QAM | 25.81 | 22.46 | 3.35 |
| 5 | 1732.5 | RB 1/0 | QPSK | 25.59 | 22.35 | 3.24 |
| | | | 16QAM | 25.42 | 22.35 | 3.07 |
| 3 | 1732.5 | RB 1/0 | QPSK | 25.33 | 21.49 | 3.84 |
| | | | 16QAM | 25.29 | 21.29 | 4.0 |
| 1.4 | 1732.5 | RB 1/0 | QPSK | 25.30 | 21.49 | 3.81 |
| | | | 16QAM | 25.14 | 21.27 | 3.87 |

## LTE Band 12 (part 27)

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 10 | 707.5 | RB 1/0 | QPSK | 26.17 | 23.41 | 2.76 |
| | | | 16QAM | 26.19 | 23.38 | 2.81 |
| 5 | 707.5 | RB 1/0 | QPSK | 26.00 | 23.20 | 2.80 |
| | | | 16QAM | 25.89 | 23.03 | 2.86 |
| 3 | 707.5 | RB 1/0 | QPSK | 24.95 | 22.83 | 2.12 |
| | | | 16QAM | 24.87 | 22.67 | 2.20 |
| 14 | 707.5 | RB 1/0 | QPSK | 24.12 | 21.87 | 2.25 |
| | | | 16QAM | 24.01 | 21.74 | 2.27 |

## LTE Band 17 (part 27)

| BW(MHz) | Frequency (MHz) | Mode | Modulation | Conducted Power (dBm) | | Peak-Average Ratio (PAR) |
|---|---|---|---|---|---|---|
| | | | | Peak | Average | |
| 10 | 710 | RB 1/0 | QPSK | 26.66 | 24.18 | 2.48 |
| | | | 16QAM | 26.41 | 23.85 | 2.56 |
| 5 | 710 | RB 1/0 | QPSK | 26.49 | 23.88 | 2.61 |
| | | | 16QAM | 26.12 | 23.61 | 2.51 |

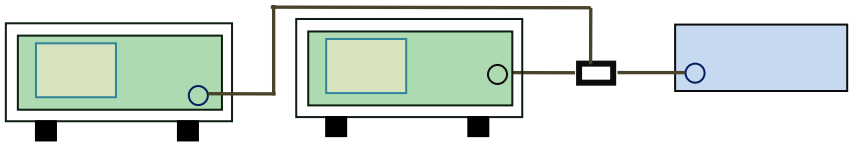
## 6.4 Modulation Characteristic

According to FCC § 2.1047(d), Part 24E& Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

## 6.5 Occupied Bandwidth

| | |
|---|---|
| Temperature | 19°C |
| Relative Humidity | 59% |
| Atmospheric Pressure | 1011mbar |
| Test date : | February 03, 2015 |
| Tested By : | Wiky Jam |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §2.1049, §24.238 §27.53(a) | a) | 99% Occupied Bandwidth(kHz) | ☑ |
| | b) | 26 dB Bandwidth(kHz) | ☑ |
| Test Setup |  | | |
| Test Procedure | - The EUT was connected to Spectrum Analyzer and Base Station via power divider.<br>- The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers. | | |
| Remark | | | |
| Result | ☑ Pass ☐ Fail | | |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☑ Yes (See below) ☐ N/A

## LTE Band 2 (Part 24E) result

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 18607 | 1850.7 | QPSK | 1.0968 | 1.334 |
| | | | 16QAM | 1.1034 | 1.312 |
| 1.4 | 18900 | 1880 | QPSK | 1.1131 | 1.299 |
| | | | 16QAM | 1.1018 | 1.317 |
| 1.4 | 18900 | 1909.3 | QPSK | 1.1035 | 1.319 |
| | | | 16QAM | 1.1077 | 1.325 |
| 3 | 18615 | 1851.5 | QPSK | 2.7432 | 3.093 |
| | | | 16QAM | 2.7531 | 3.105 |
| 3 | 18900 | 1880 | QPSK | 2.7409 | 3.057 |
| | | | 16QAM | 2.7479 | 3.098 |
| 3 | 19185 | 1908.5 | QPSK | 2.7449 | 3.118 |
| | | | 16QAM | 2.7538 | 3.079 |
| 5 | 18625 | 1852.5 | QPSK | 4.5051 | 4.991 |
| | | | 16QAM | 4.4998 | 5.006 |
| 5 | 18900 | 1880 | QPSK | 4.5037 | 5.042 |
| | | | 16QAM | 4.4917 | 4.988 |
| 5 | 19175 | 1907.5 | QPSK | 4.4931 | 4.975 |
| | | | 16QAM | 4.4950 | 4.991 |
| 10 | 18650 | 1855 | QPSK | 9.0222 | 10.001 |
| | | | 16QAM | 9.0198 | 10.095 |
| 10 | 18900 | 1880 | QPSK | 9.0395 | 10.076 |
| | | | 16QAM | 9.0558 | 10.628 |
| 10 | 19150 | 1905 | QPSK | 9.0267 | 10.137 |
| | | | 16QAM | 9.0002 | 10.037 |
| 15 | 18675 | 1857.5 | QPSK | 13.4454 | 14.706 |
| | | | 16QAM | 13.4408 | 14.749 |
| 15 | 18900 | 1880 | QPSK | 13.4527 | 14.653 |
| | | | 16QAM | 13.4093 | 14.692 |
| 15 | 19125 | 1902.5 | QPSK | 13.4596 | 14.721 |
| | | | 16QAM | 13.4213 | 14.664 |

| | | | | | |
|---|---|---|---|---|---|
| 20 | 18700 | 1860 | QPSK | 17.8786 | 19.269 |
| | | | 16QAM | 17.8940 | 19.296 |
| 20 | 18900 | 1880 | QPSK | 17.7911 | 19.102 |
| | | | 16QAM | 17.7974 | 19.088 |
| 20 | 19100 | 1900 | QPSK | 17.8520 | 19.212 |
| | | | 16QAM | 17.8493 | 19.192 |

## LTE Band 4 (Part 27) result

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 19957 | 1710.7 | QPSK | 1.1060 | 1.337 |
| | | | 16QAM | 1.1212 | 1.334 |
| 1.4 | 20175 | 1732.5 | QPSK | 1.1175 | 1.323 |
| | | | 16QAM | 1.1166 | 1.312 |
| 1.4 | 20393 | 1754.3 | QPSK | 1.1073 | 1.324 |
| | | | 16QAM | 1.1075 | 1.330 |
| 3 | 19965 | 1711.5 | QPSK | 2.7441 | 3.089 |
| | | | 16QAM | 2.7639 | 3.087 |
| 3 | 20175 | 1732.5 | QPSK | 2.7466 | 3.113 |
| | | | 16QAM | 2.7520 | 3.070 |
| 3 | 20385 | 1753.5 | QPSK | 2.7471 | 3.184 |
| | | | 16QAM | 2.7531 | 3.111 |
| 5 | 19975 | 1712.5 | QPSK | 4.5143 | 5.033 |
| | | | 16QAM | 4.5146 | 5.027 |
| 5 | 20175 | 1732.5 | QPSK | 4.5169 | 5.012 |
| | | | 16QAM | 4.519 | 5.012 |
| 5 | 20375 | 1752.5 | QPSK | 4.5004 | 5.015 |
| | | | 16QAM | 4.4938 | 5.004 |
| 10 | 20000 | 1715 | QPSK | 9.0188 | 10.066 |
| | | | 16QAM | 9.0520 | 10.225 |
| 10 | 20175 | 1732.5 | QPSK | 9.0282 | 10.142 |
| | | | 16QAM | 9.0466 | 10.155 |
| 10 | 20350 | 1750 | QPSK | 9.0446 | 10.118 |
| | | | 16QAM | 9.0399 | 10.006 |

| | | | | | |
|---|---|---|---|---|---|
| 15 | 20025 | 1717.5 | QPSK | 13.4667 | 14.847 |
| | | | 16QAM | 13.4651 | 14.977 |
| 15 | 20175 | 1732.5 | QPSK | 13.3968 | 14.608 |
| | | | 16QAM | 13.3871 | 14.730 |
| 15 | 20325 | 1747.5 | QPSK | 13.4488 | 14.719 |
| | | | 16QAM | 13.4308 | 14.763 |
| 20 | 20050 | 1720 | QPSK | 17.8737 | 19.139 |
| | | | 16QAM | 17.8890 | 19.439 |
| 20 | 20175 | 1732.5 | QPSK | 17.8302 | 19.177 |
| | | | 16QAM | 17.8148 | 19.172 |
| 20 | 20300 | 1745 | QPSK | 17.8340 | 19.242 |
| | | | 16QAM | 17.8332 | 19.183 |

## LTE Band 12 (Part 27) result

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 23017 | 699.7 | QPSK | 1.0948 | 1.305 |
| | | | 16QAM | 1.0964 | 1.309 |
| 1.4 | 23095 | 707.5 | QPSK | 1.0927 | 1.283 |
| | | | 16QAM | 1.0993 | 1.316 |
| 1.4 | 23173 | 715.3 | QPSK | 1.0994 | 1.312 |
| | | | 16QAM | 1.0984 | 1.308 |
| 3 | 23025 | 700.5 | QPSK | 2.7474 | 3.080 |
| | | | 16QAM | 2.7474 | 3.110 |
| 3 | 23095 | 707.5 | QPSK | 2.7416 | 3.129 |
| | | | 16QAM | 2.7469 | 3.121 |
| 3 | 23165 | 714.5 | QPSK | 2.7514 | 3.081 |
| | | | 16QAM | 2.7508 | 3.120 |
| 5 | 23035 | 701.5 | QPSK | 4.0524 | 5.047 |
| | | | 16QAM | 4.5126 | 5.036 |
| 5 | 23095 | 707.5 | QPSK | 4.5114 | 5.025 |
| | | | 16QAM | 4.4882 | 5.016 |
| 5 | 23155 | 713.5 | QPSK | 4.5038 | 5.024 |
| | | | 16QAM | 4.4976 | 5.020 |

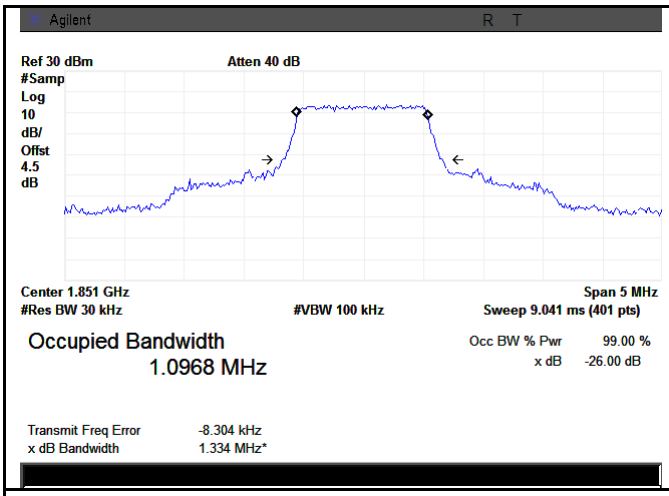
| | | | | | |
|---|---|---|---|---|---|
| 10 | 23060 | 704 | QPSK | 9.0580 | 10.160 |
| | | | 16QAM | 9.0458 | 10.094 |
| 10 | 23095 | 707.5 | QPSK | 9.0365 | 10.041 |
| | | | 16QAM | 9.0116 | 10.056 |
| 10 | 23130 | 711 | QPSK | 9.1270 | 10.160 |
| | | | 16QAM | 9.1287 | 10.126 |

LTE Band 17 (Part 27) result

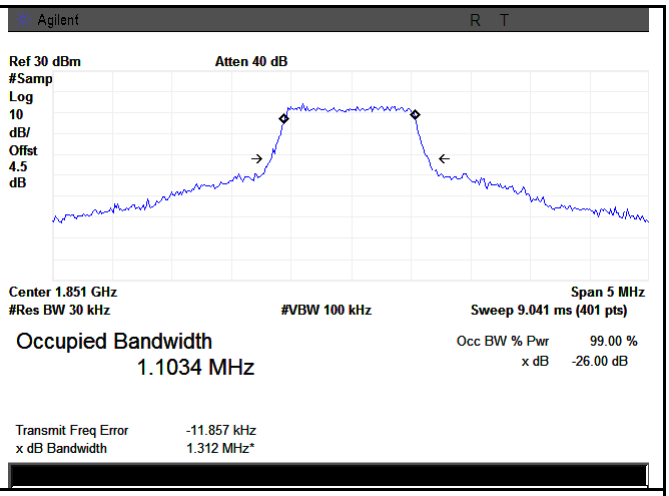
| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 5 | 23755 | 706.5 | QPSK | 4.5015 | 5.011 |
| | | | 16QAM | 4.4980 | 5.019 |
| 5 | 23790 | 710 | QPSK | 4.5105 | 5.034 |
| | | | 16QAM | 4.5149 | 5.029 |
| 5 | 23825 | 713.5 | QPSK | 4.5000 | 5.017 |
| | | | 16QAM | 4.5145 | 5.058 |
| 10 | 23780 | 709 | QPSK | 9.0493 | 10.098 |
| | | | 16QAM | 9.0260 | 10.088 |
| 10 | 23790 | 710 | QPSK | 9.0971 | 10.149 |
| | | | 16QAM | 9.0862 | 10.072 |
| 10 | 23800 | 711 | QPSK | 9.1034 | 10.154 |
| | | | 16QAM | 9.1031 | 10.042 |

## Test Plots

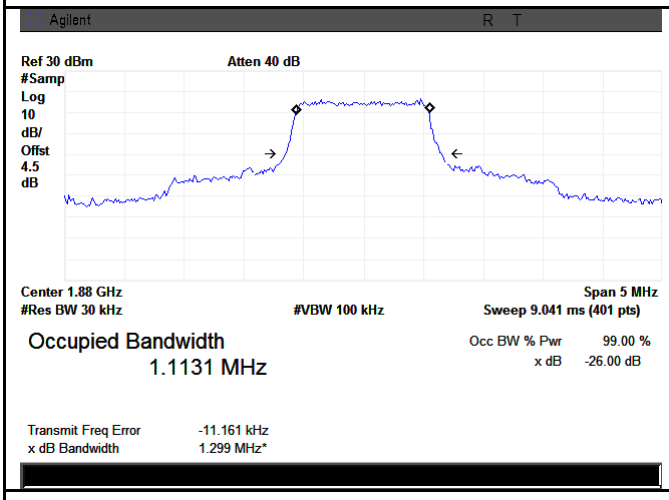
### LTE Band 2 (Part 24E)



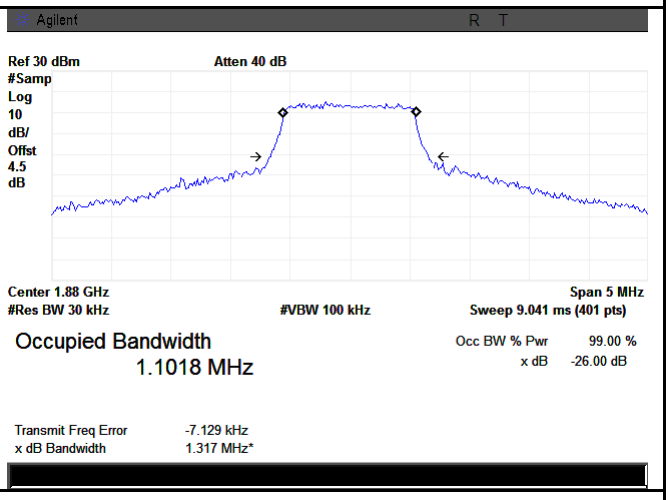

LTE band 2 - Low CH QPSK-1.4



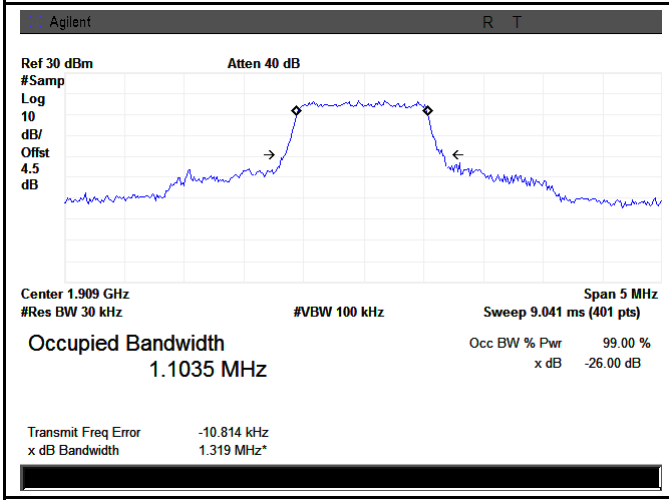

LTE band 2 - Low CH 16QAM-1.4



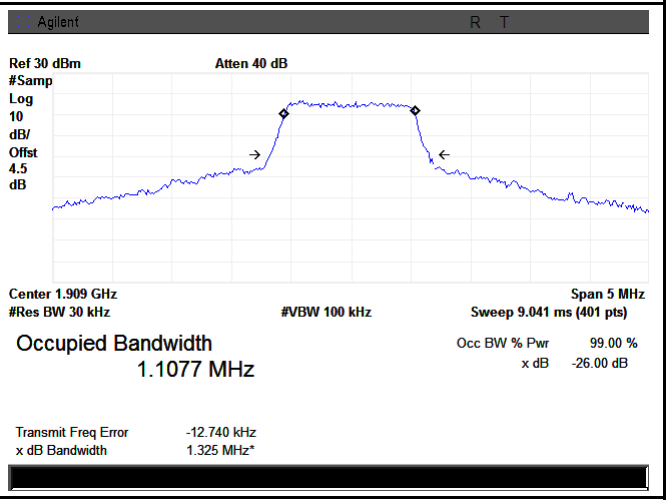

LTE band 2 - Middle CH QPSK-1.4



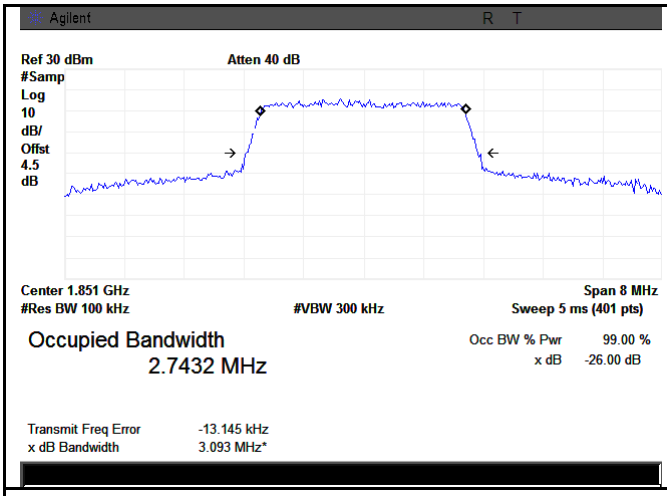

LTE band 2 - Middle CH 16QAM-1.4



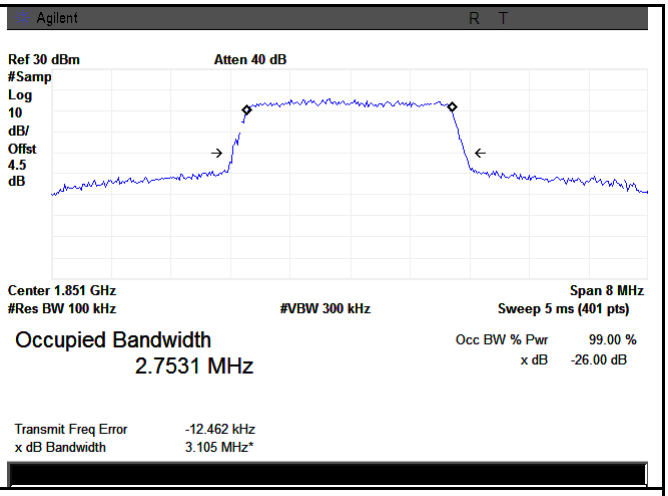

LTE band 2 - High CH QPSK-1.4



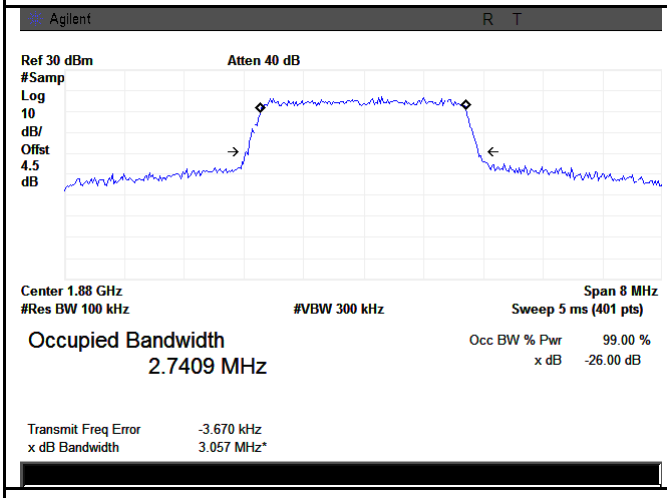

LTE band 2 - High CH 16QAM-1.4



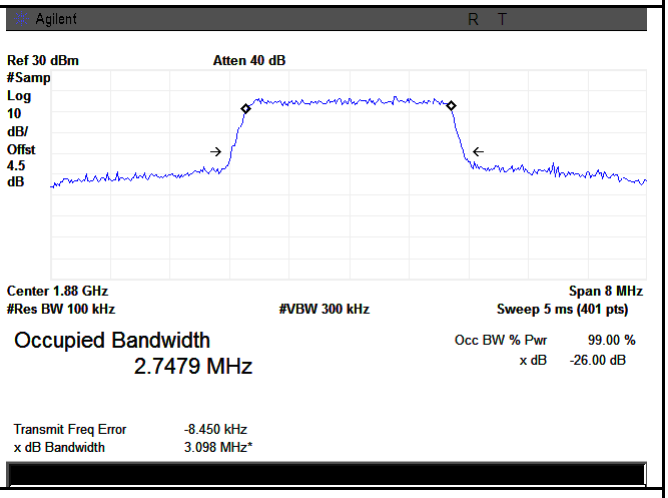

LTE band 2 - Low CH QPSK-3



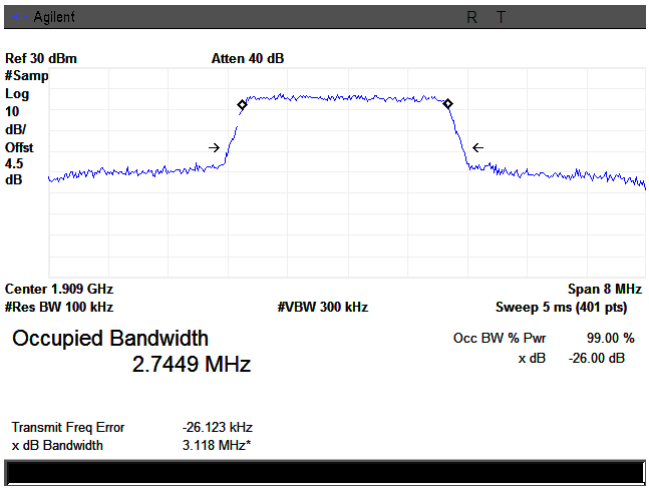

LTE band 2 - Low CH 16QAM-3



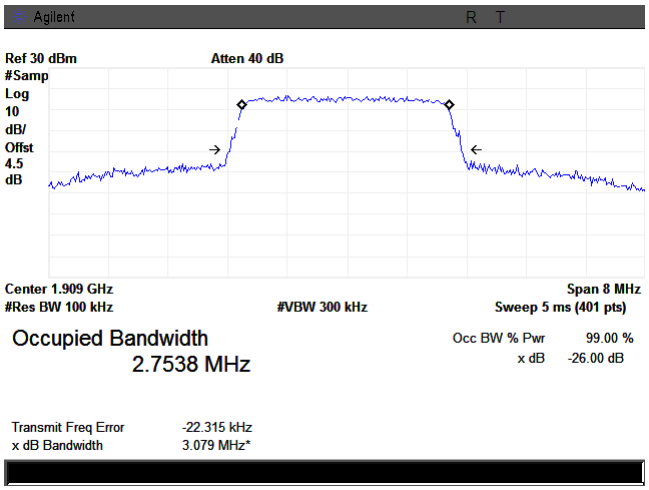

LTE band 2 - Middle CH QPSK-3



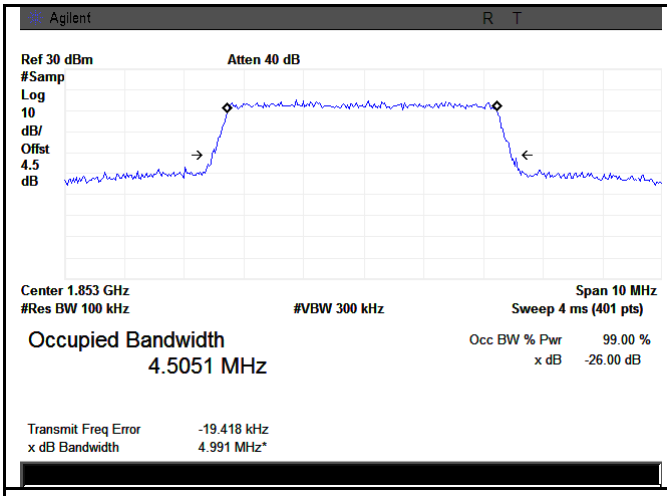

LTE band 2 - Middle CH 16QAM-3



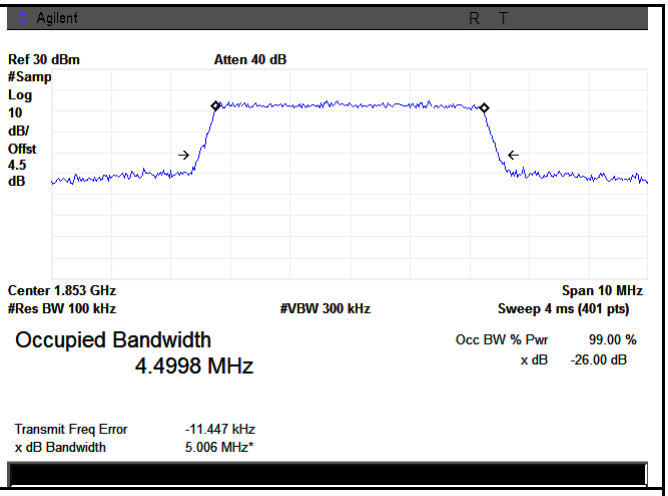

LTE band 2 - High CH QPSK-3



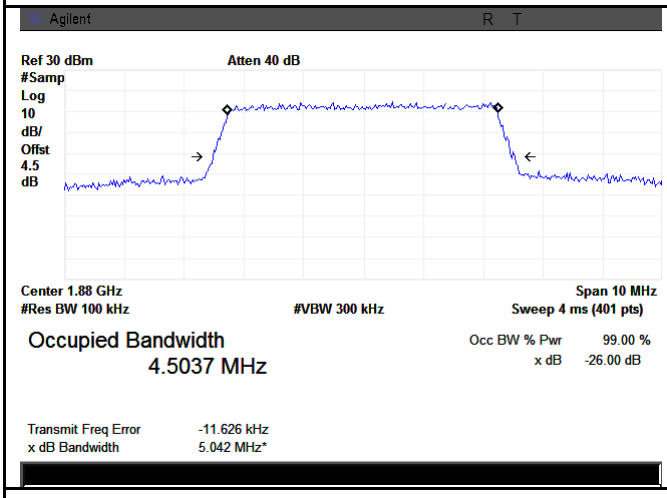

LTE band 2 - High CH 16QAM-3



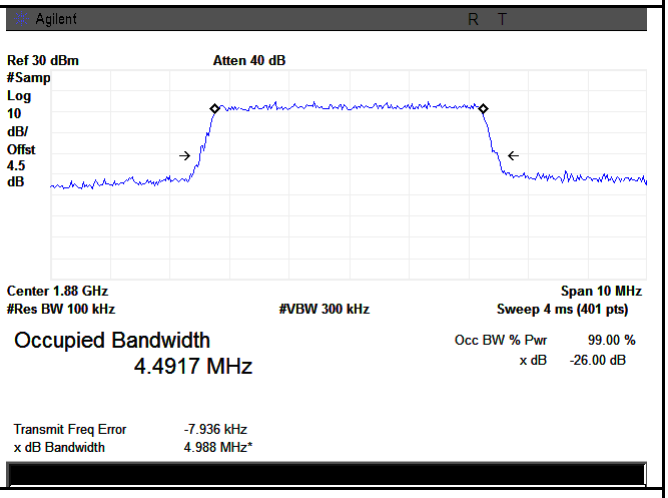

LTE band 2 - Low CH QPSK-5



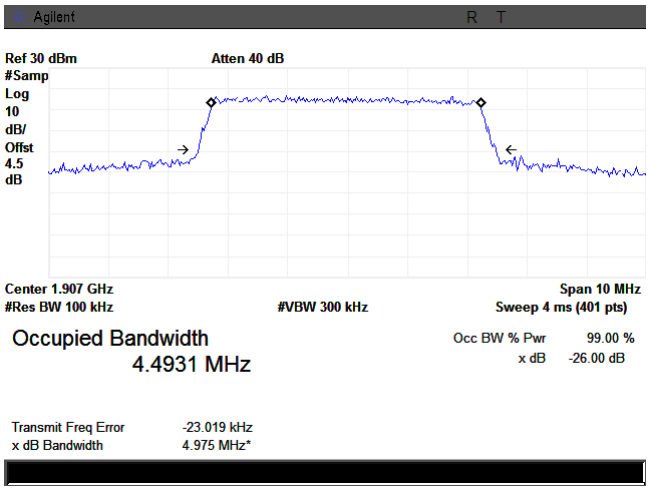

LTE band 2 - Low CH 16QAM-5



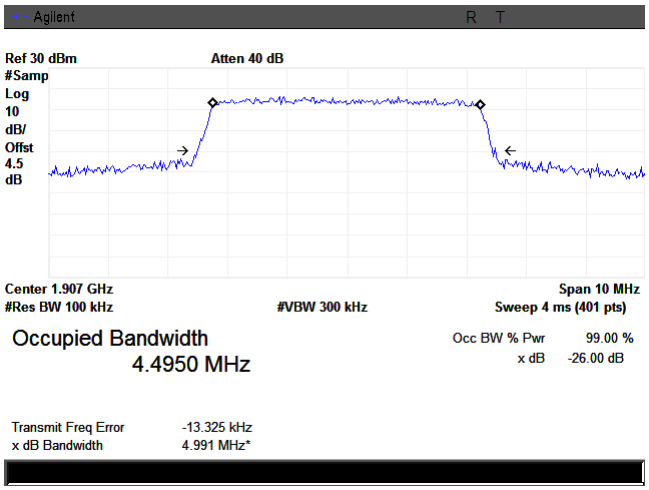

LTE band 2 - Middle CH QPSK-5



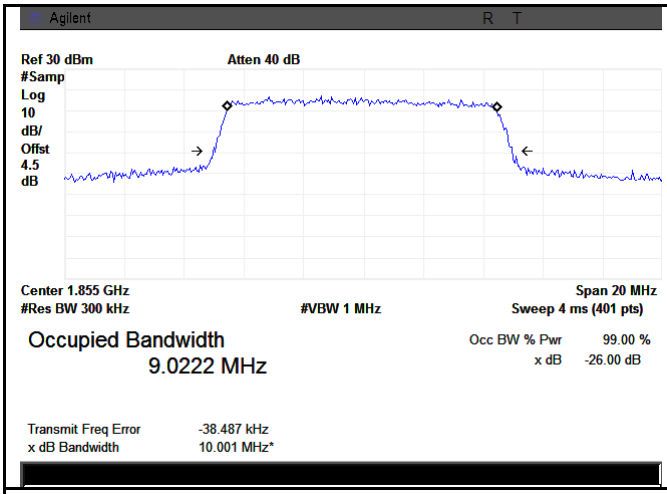

LTE band 2 - Middle CH 16QAM-5



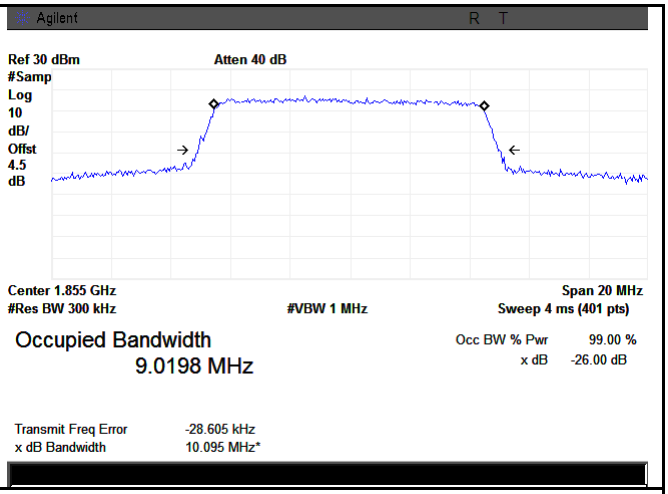

LTE band 2 - High CH QPSK-5



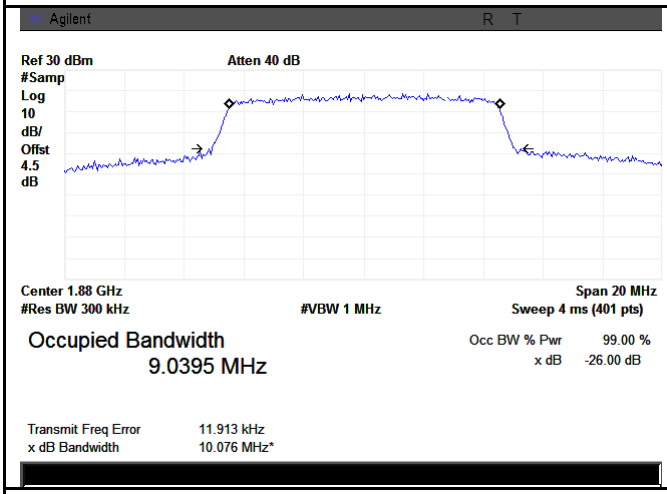

LTE band 2 - High CH 16QAM-5



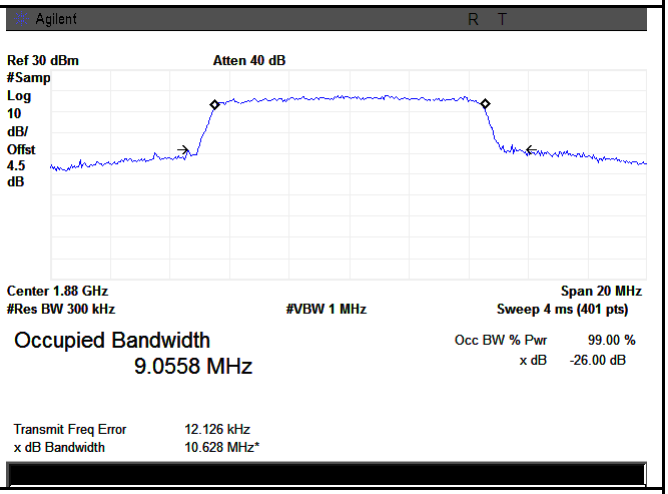

LTE band 2 - Low CH QPSK-10



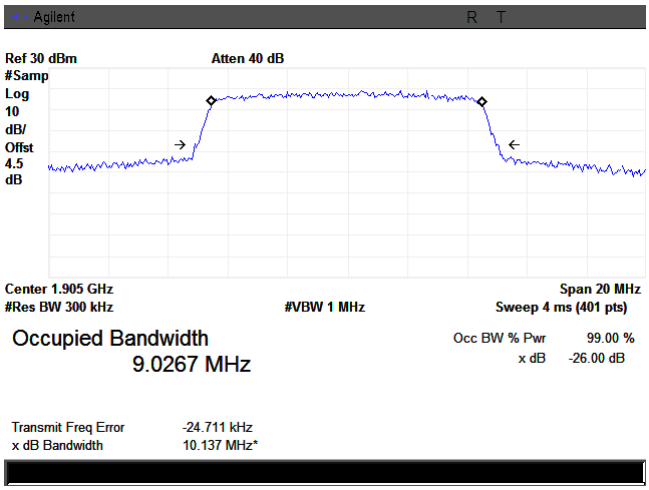

LTE band 2 - Low CH 16QAM-10



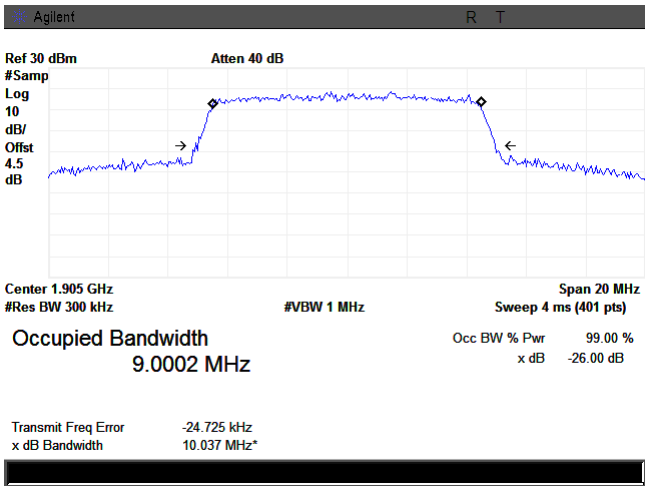

LTE band 2 - Middle CH QPSK-10



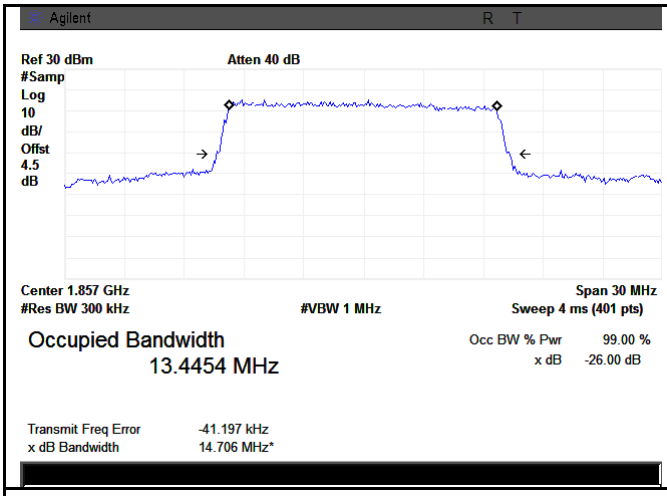

LTE band 2 - Middle CH 16QAM-10



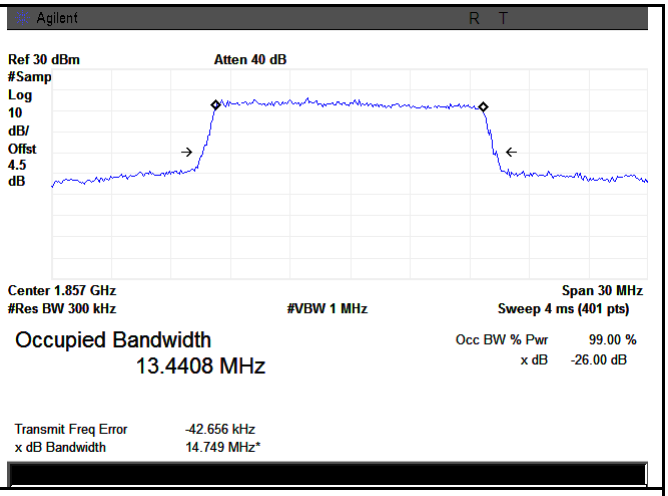

LTE band 2 - High CH QPSK-10



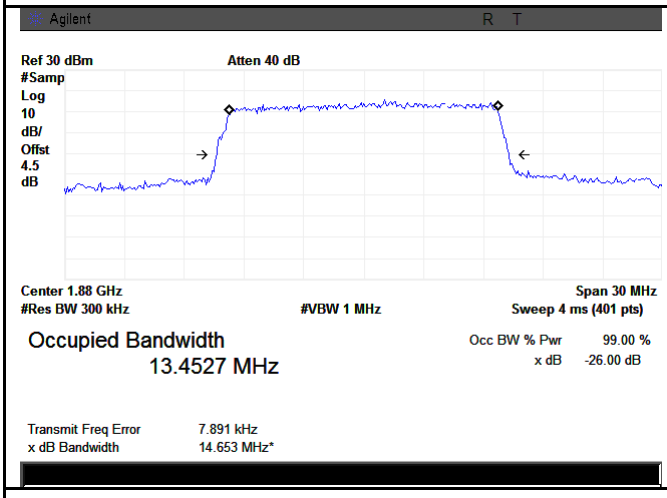

LTE band 2 - High CH 16QAM-10



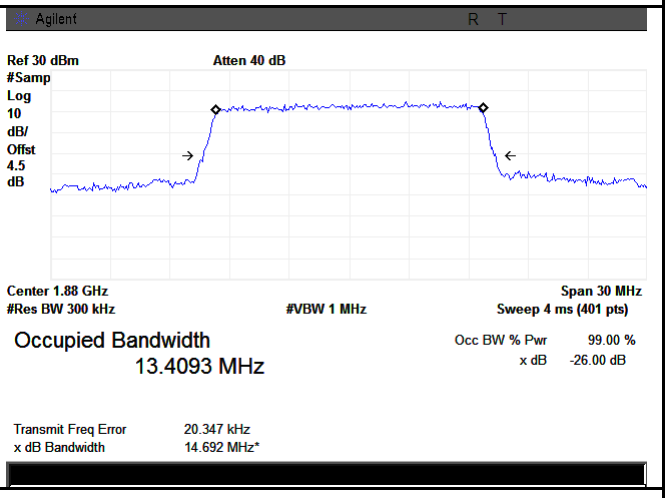

LTE band 2 - Low CH QPSK-15



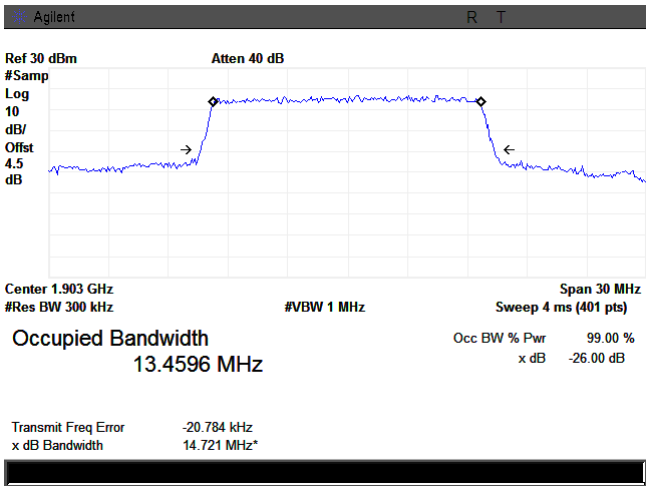

LTE band 2 - Low CH 16QAM-15



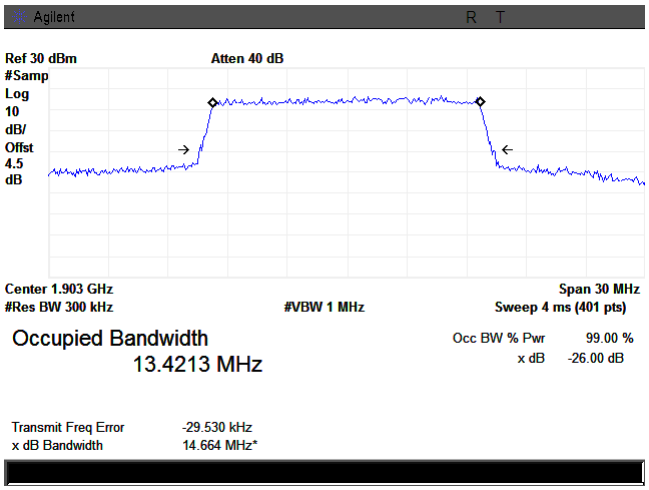

LTE band 2 - Middle CH QPSK-15



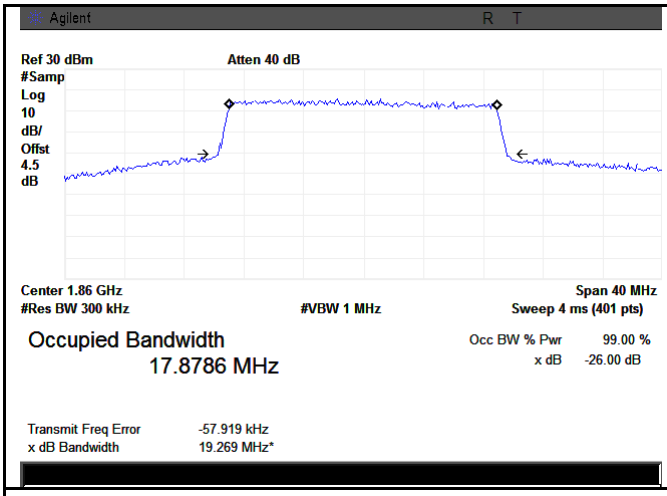

LTE band 2 - Middle CH 16QAM-15



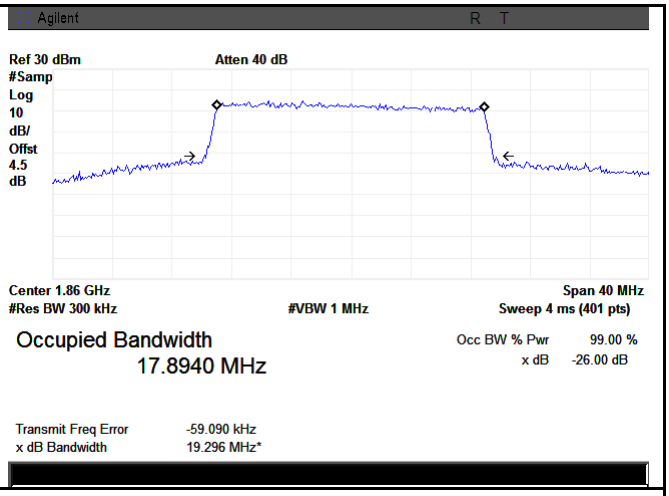

LTE band 2 - High CH QPSK-15



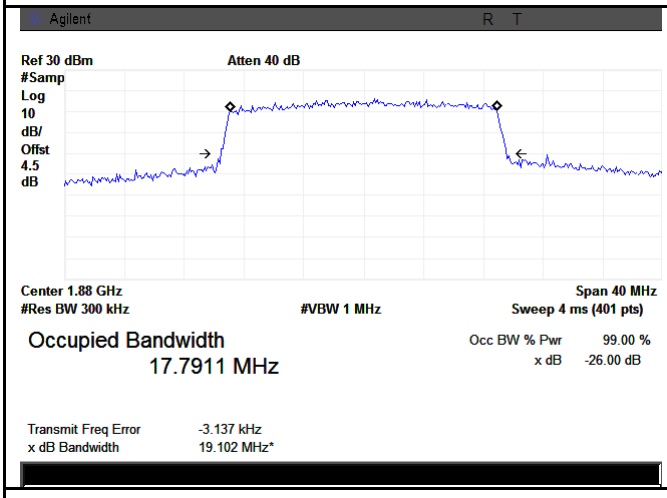

LTE band 2 - High CH 16QAM-15



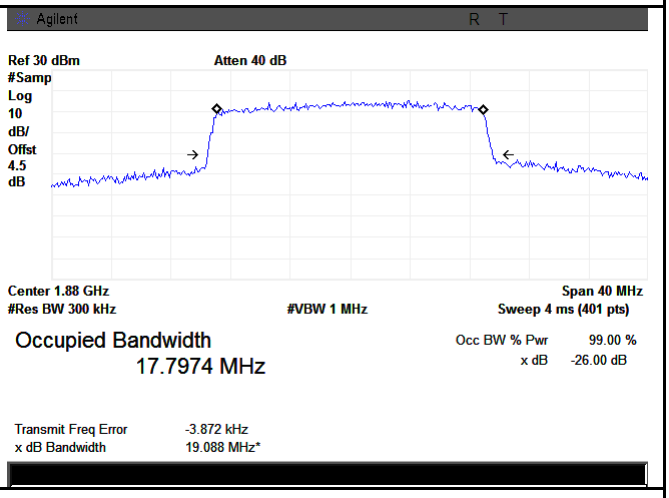

LTE band 2 - Low CH QPSK-20



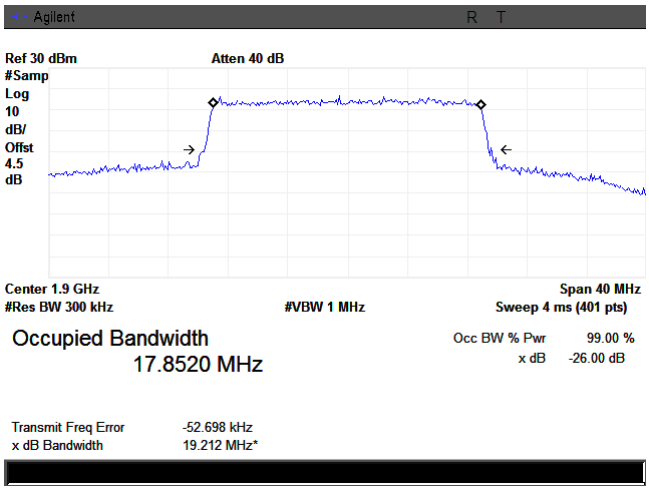

LTE band 2 - Low CH 16QAM-20



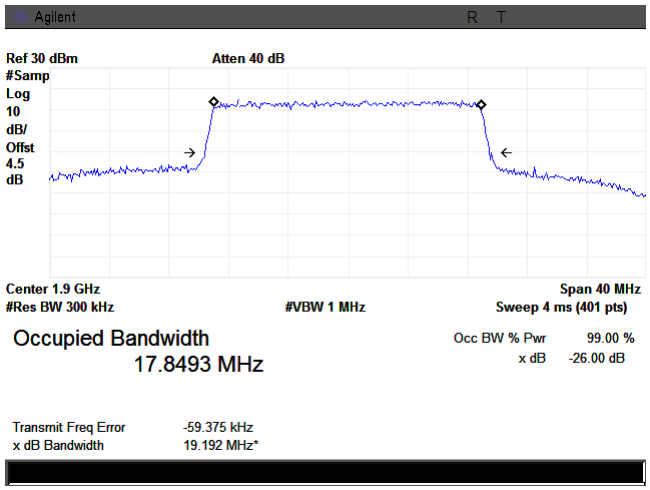

LTE band 2 - Middle CH QPSK-20




LTE band 2 - Middle CH 16QAM-20

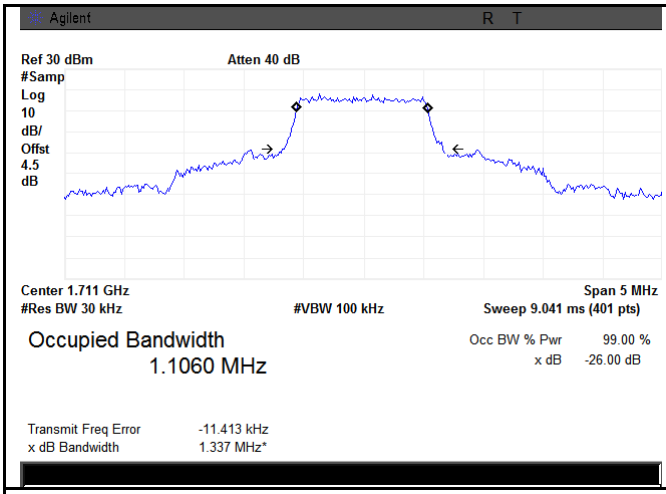



LTE band 2 - High CH QPSK-20

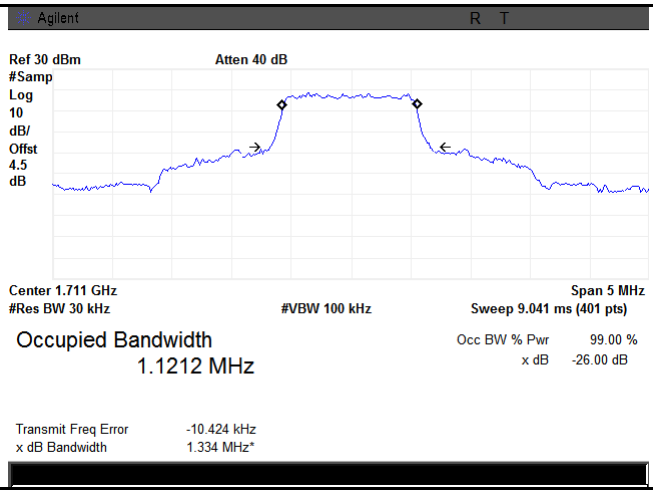



LTE band 2 - High CH 16QAM-20

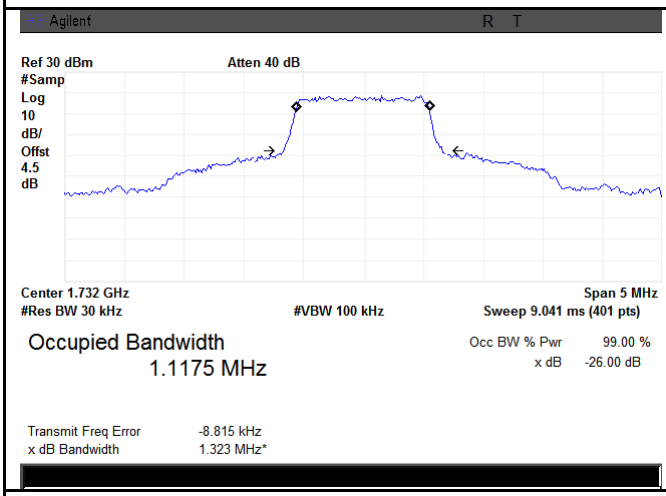
## LTE Band 4 (Part 27)



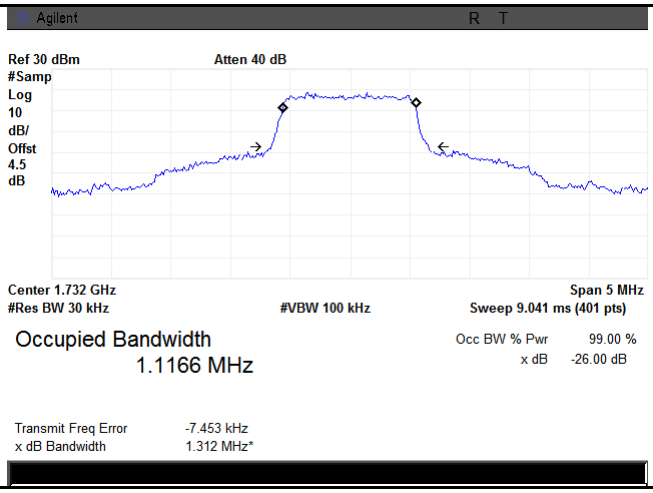

LTE band 4 - Low CH QPSK-1.4



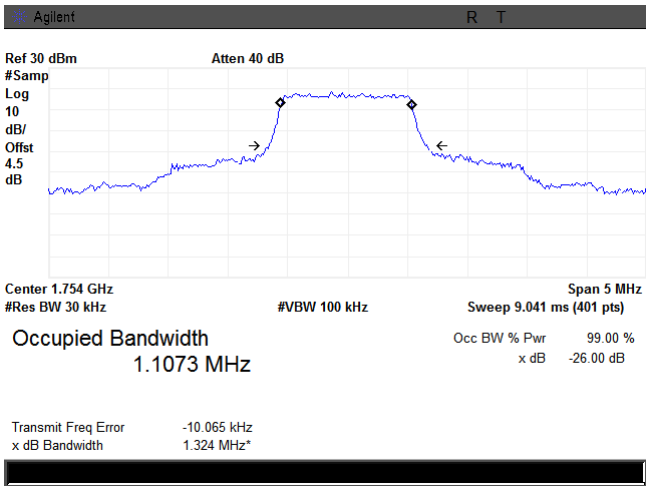

LTE band 4 - Low CH 16QAM-1.4



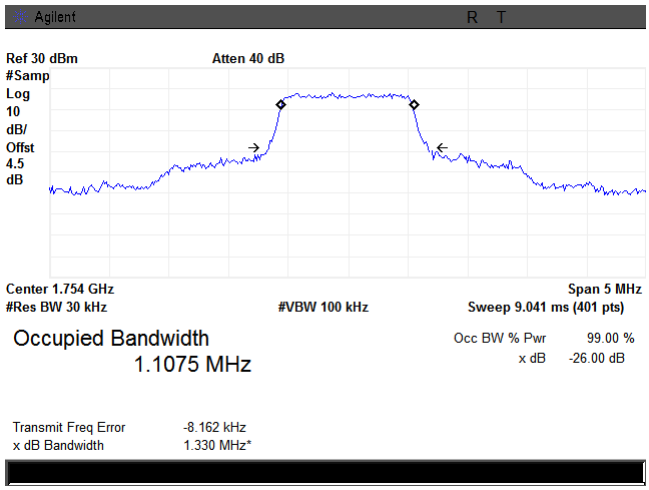

LTE band 4 - Middle CH QPSK-1.4



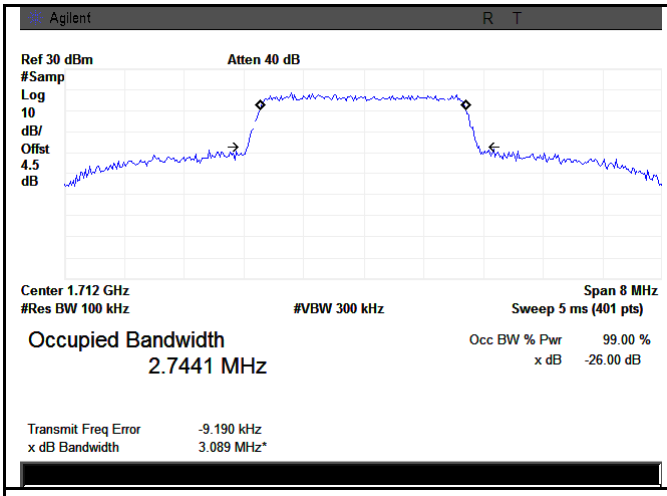

LTE band 4 - Middle CH 16QAM-1.4



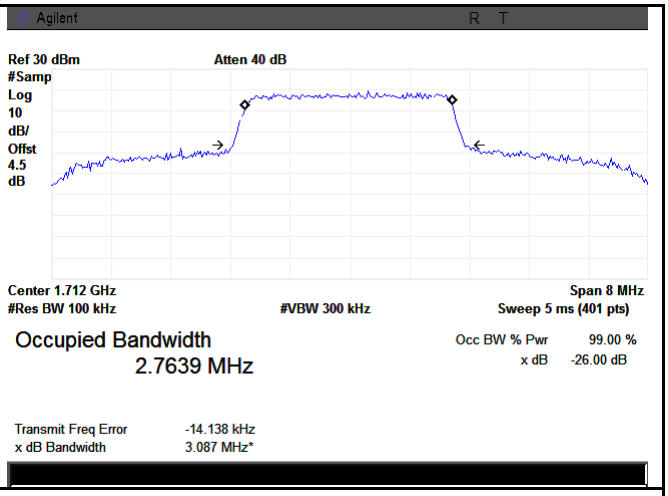

LTE band 4 - High CH QPSK-1.4



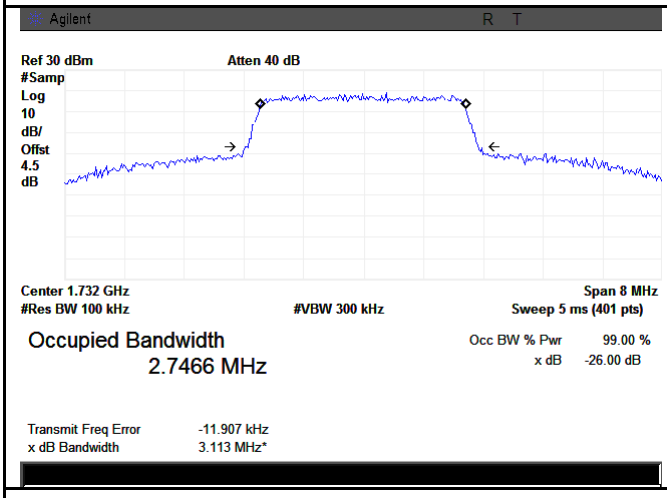

LTE band 4 - High CH 16QAM-1.4



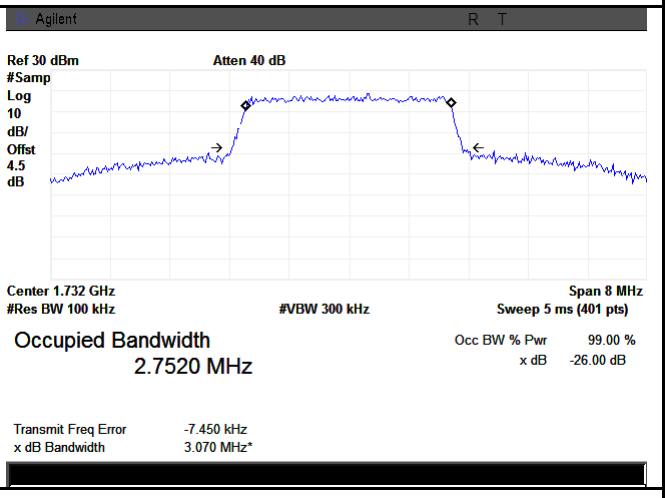

LTE band 4 - Low CH QPSK-3



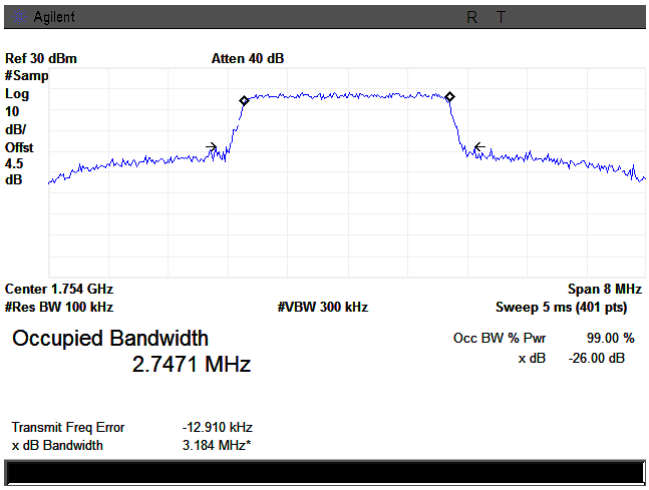

LTE band 4 - Low CH 16QAM-3



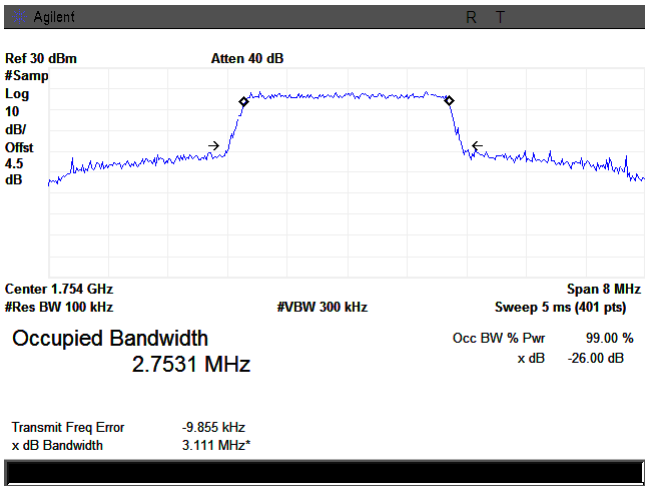

LTE band 4 - Middle CH QPSK-3



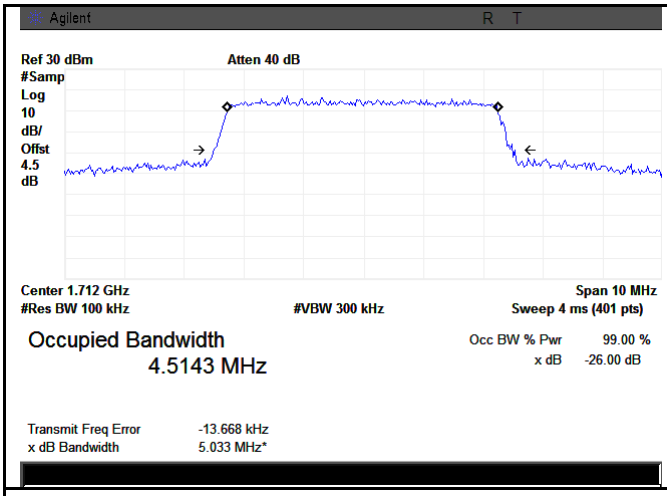

LTE band 4 - Middle CH 16QAM-3



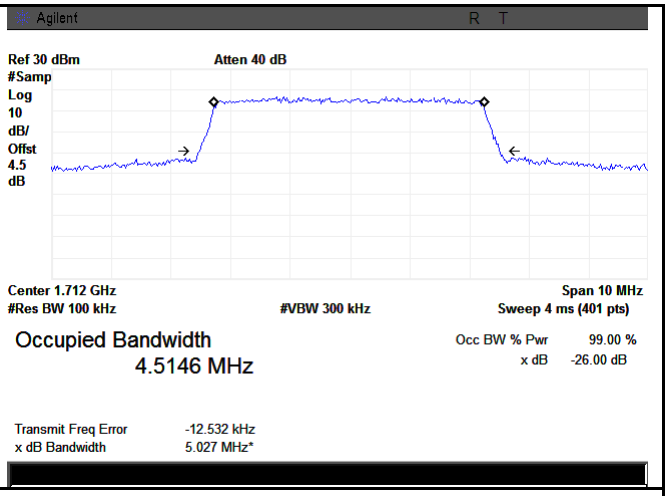

LTE band 4 - High CH QPSK-3



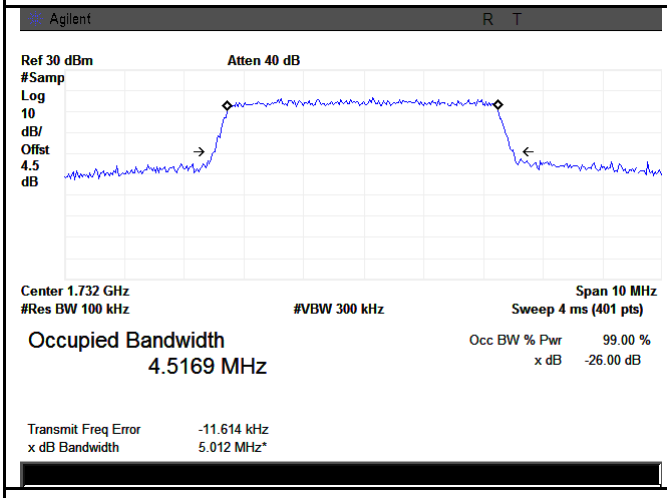

LTE band 4 - High CH 16QAM-3



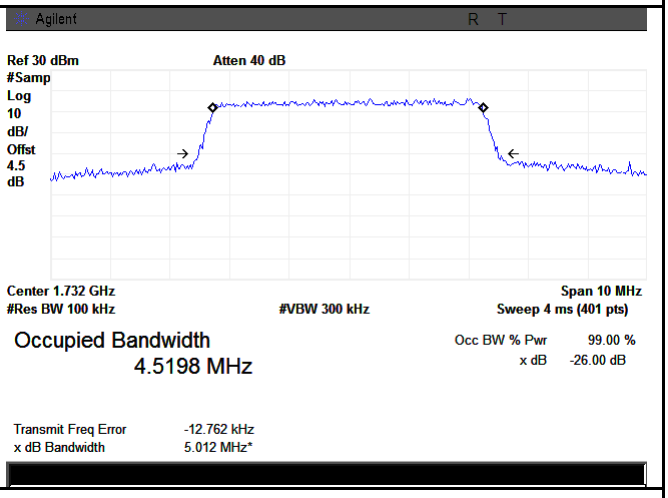

LTE band 4 - Low CH QPSK-5



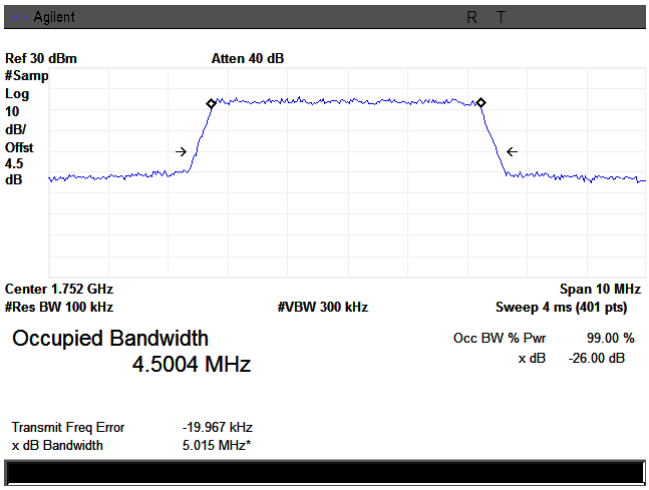

LTE band 4 - Low CH 16QAM-5



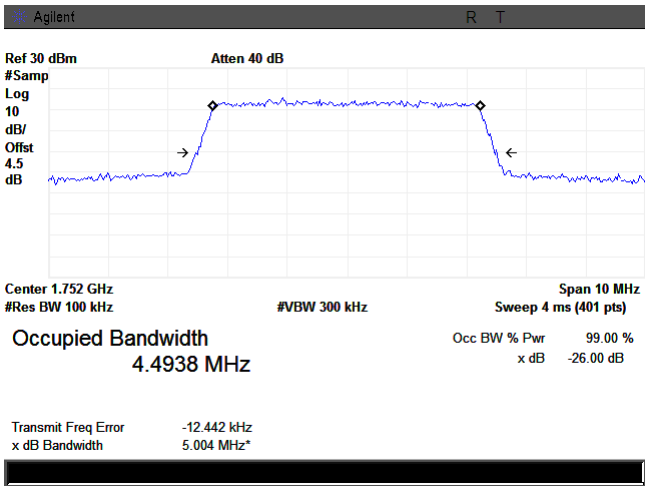

LTE band 4 - Middle CH QPSK-5



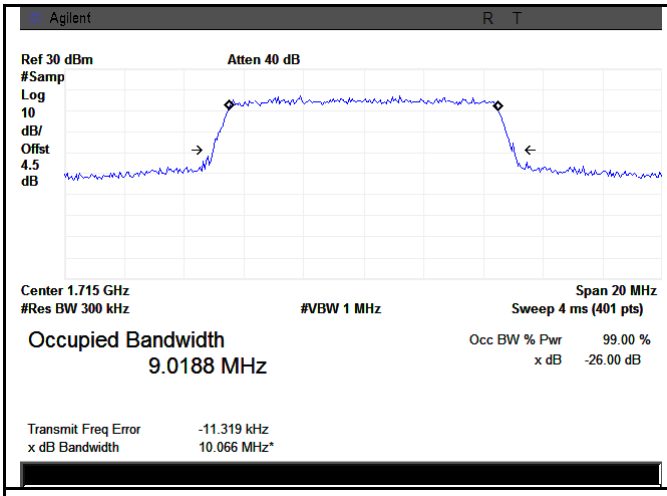

LTE band 4 - Middle CH 16QAM-5



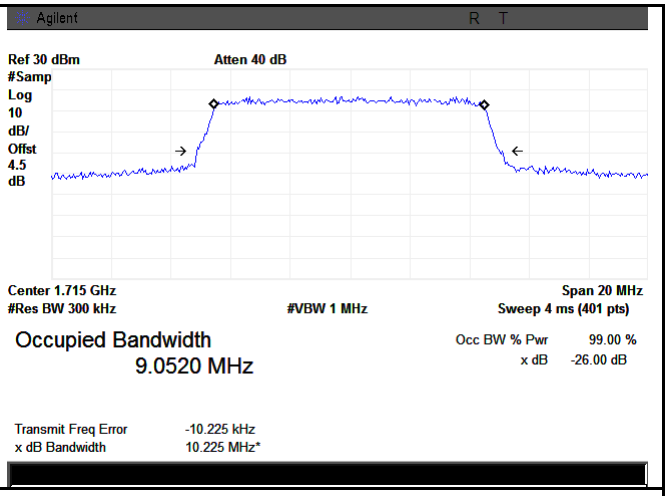

LTE band 4 - High CH QPSK-5



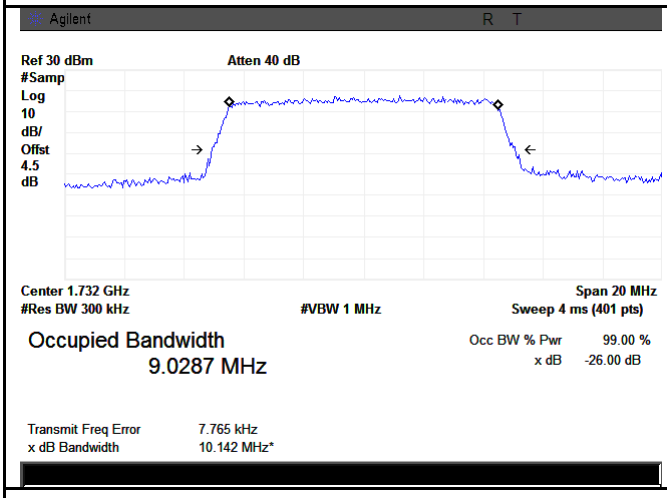

LTE band 4 - High CH 16QAM-5



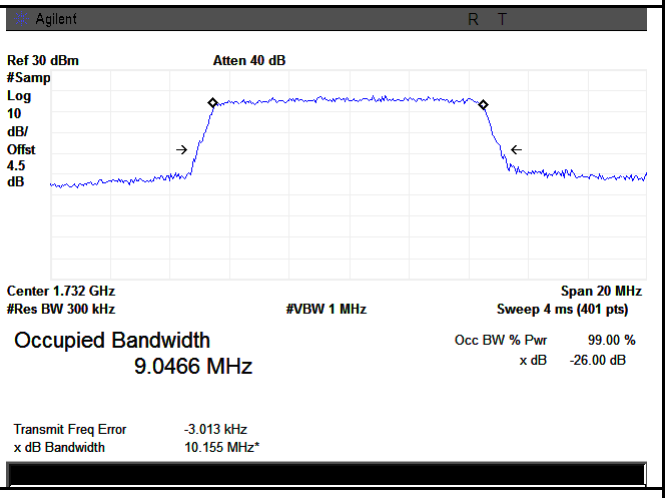

LTE band 4 - Low CH QPSK-10



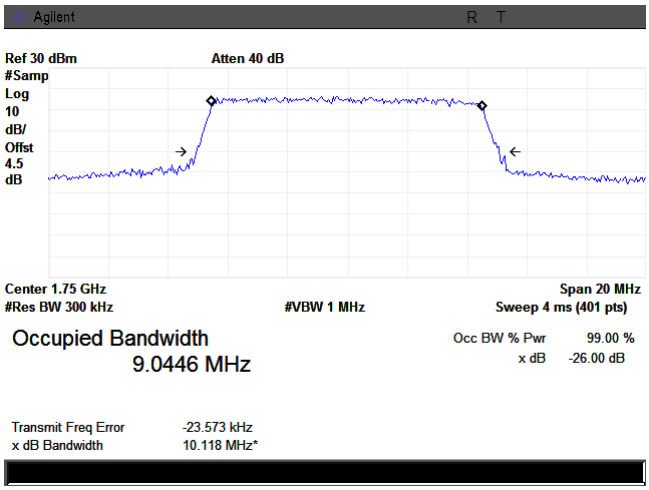

LTE band 4 - Low CH 16QAM-10



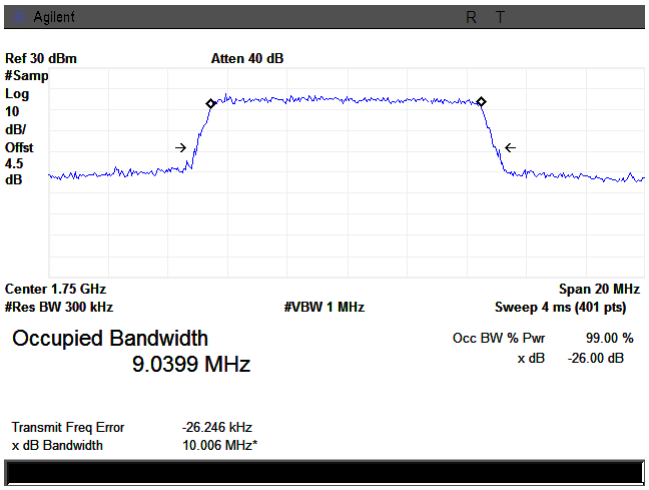

LTE band 4 - Middle CH QPSK-10



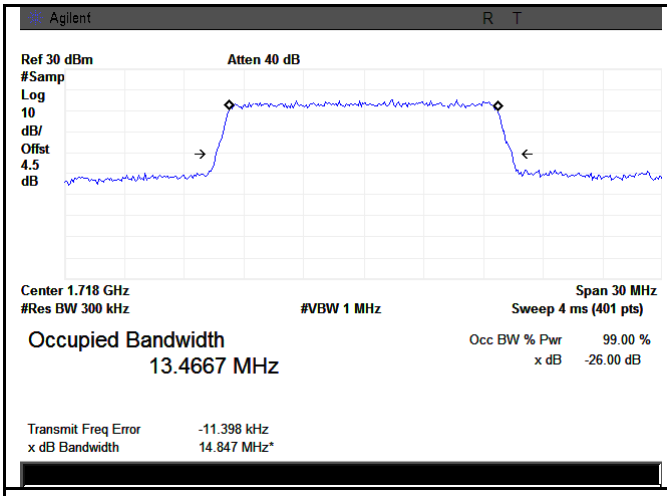

LTE band 4 - Middle CH 16QAM-10



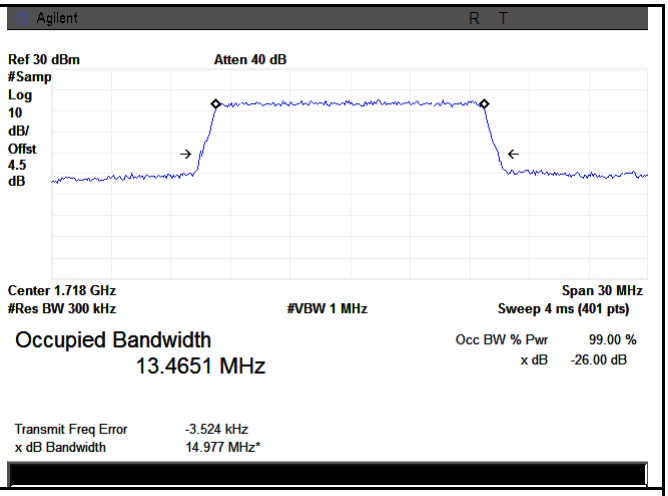

LTE band 4 - High CH QPSK-10



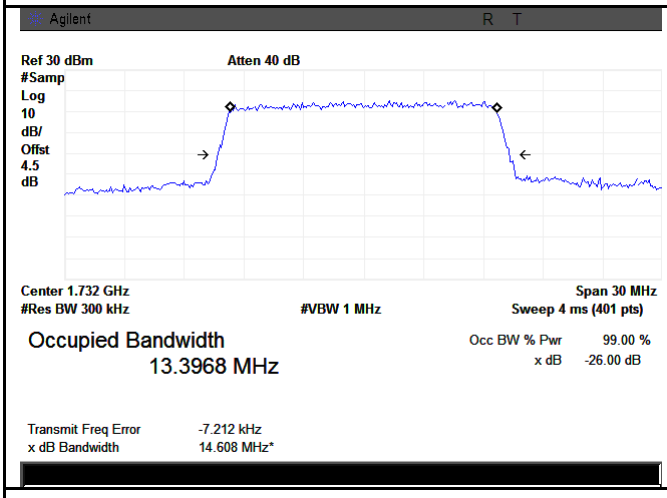

LTE band 4 - High CH 16QAM-10



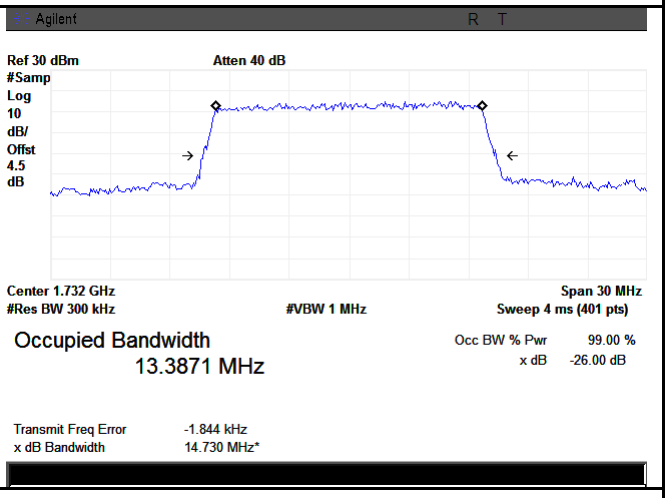

LTE band 4 - Low CH QPSK-15



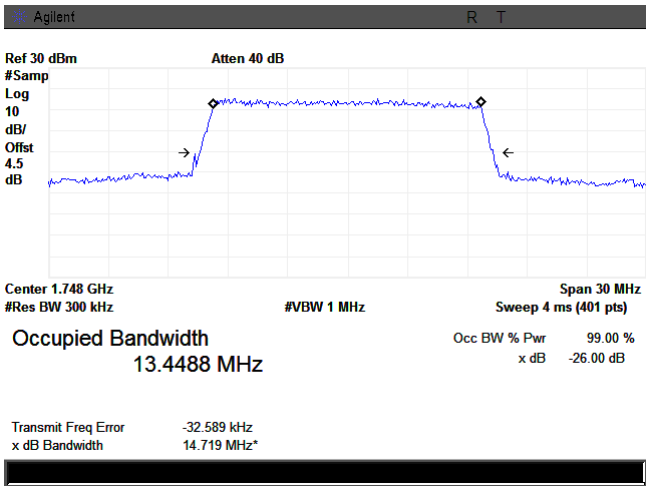

LTE band 4 - Low CH 16QAM-15



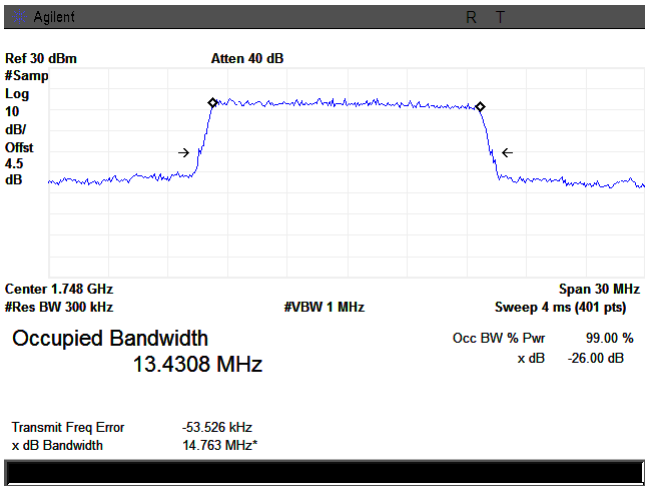

LTE band 4 - Middle CH QPSK-15



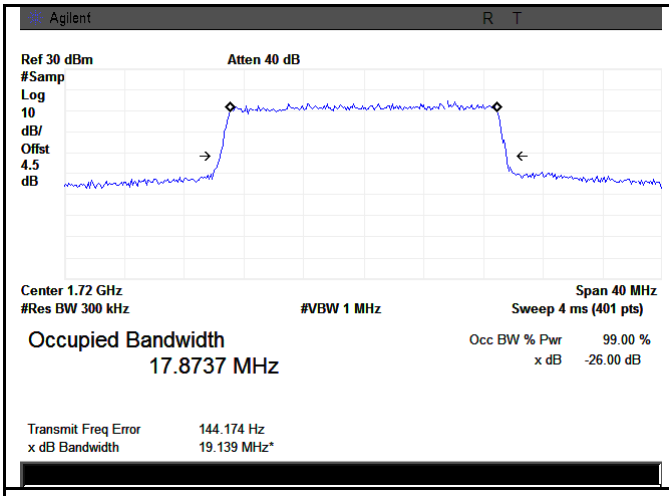

LTE band 4 - Middle CH 16QAM-15



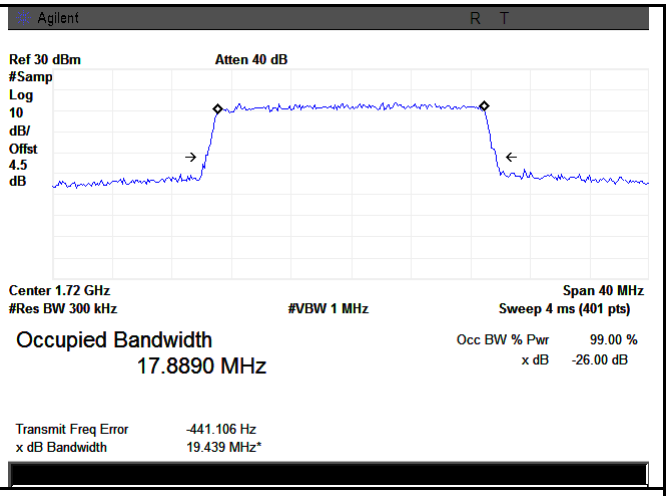

LTE band 4 - High CH QPSK-15



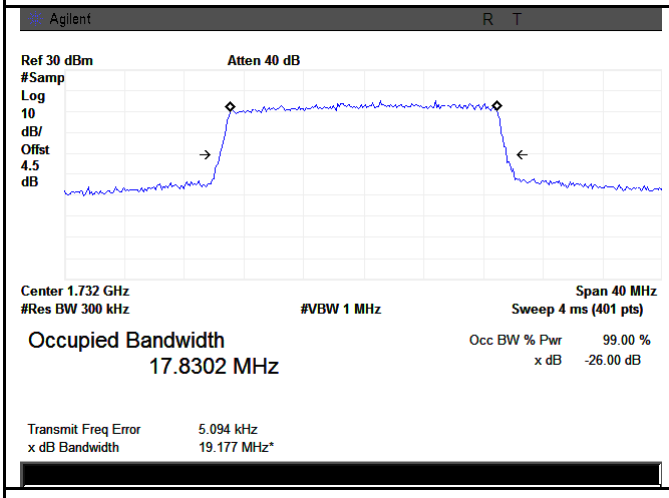

LTE band 4 - High CH 16QAM-15



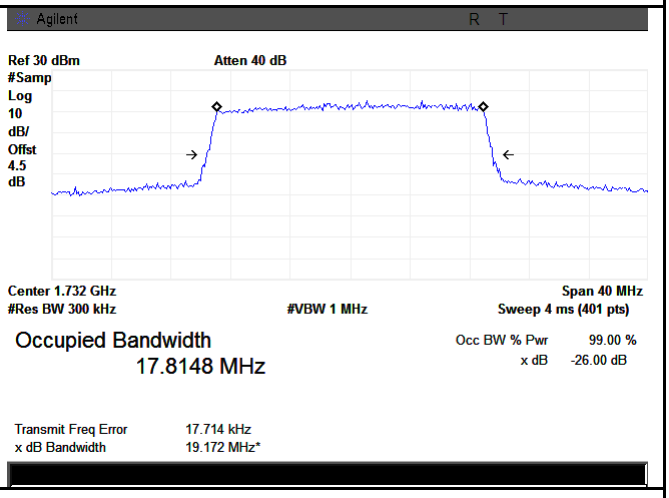

LTE band 4 - Low CH QPSK-20



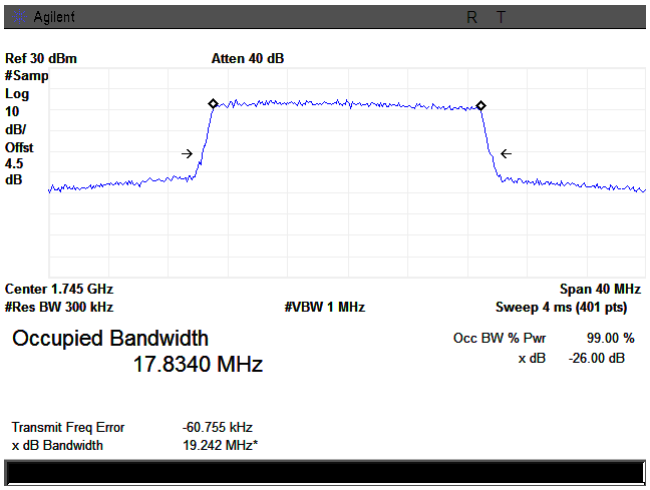

LTE band 4 - Low CH 16QAM-20



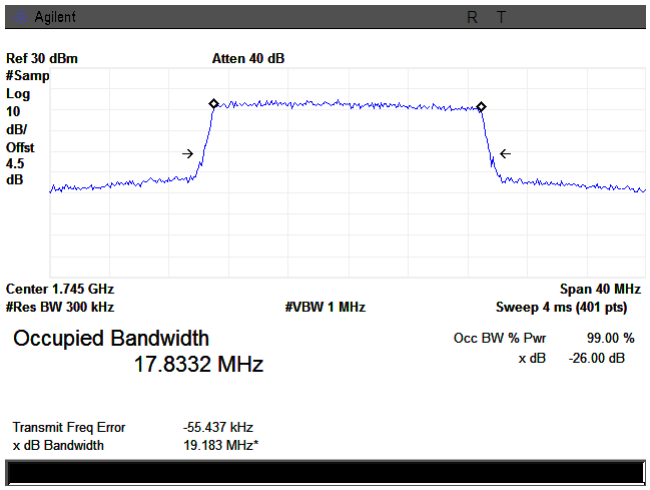

LTE band 4 - Middle CH QPSK-20




LTE band 4 - Middle CH 16QAM-20

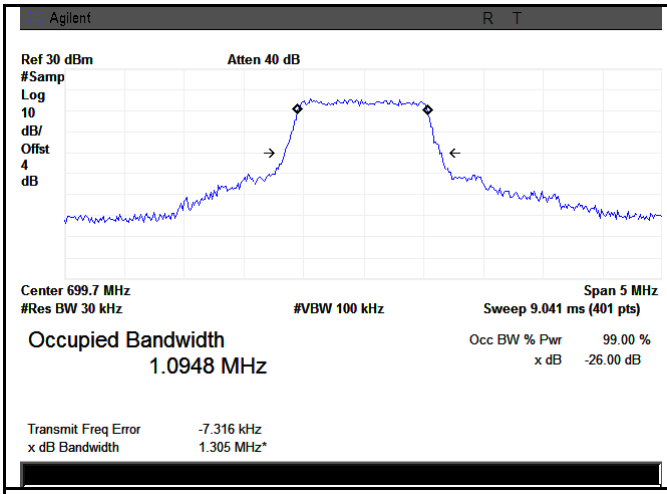



LTE band 4 - High CH QPSK-20

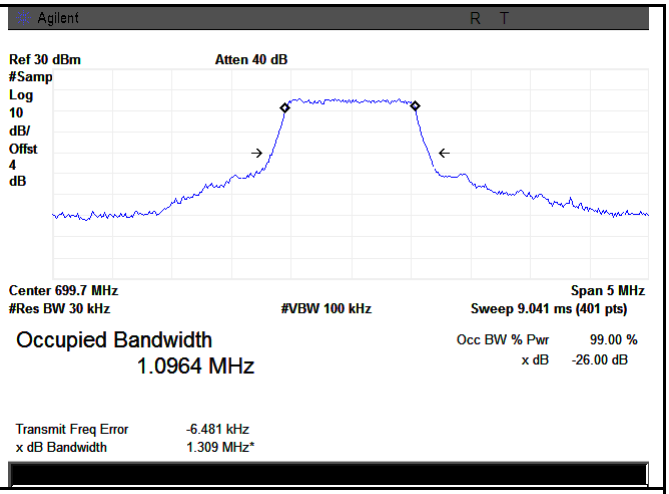



LTE band 4 - High CH 16QAM-20

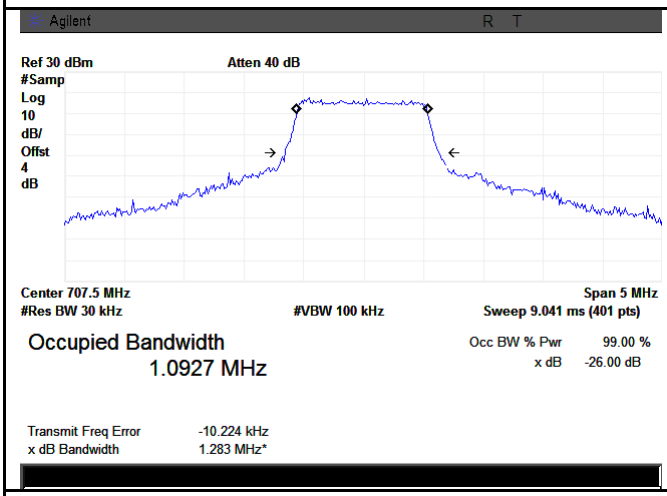
## LTE Band 12 (Part 27)



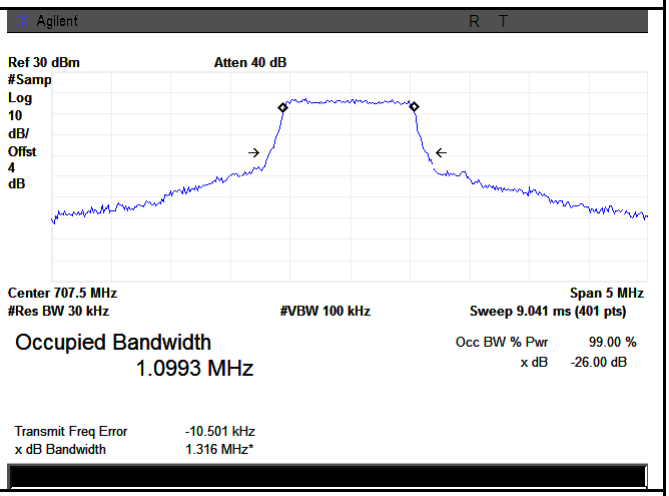

LTE band 12 - Low CH QPSK-1.4



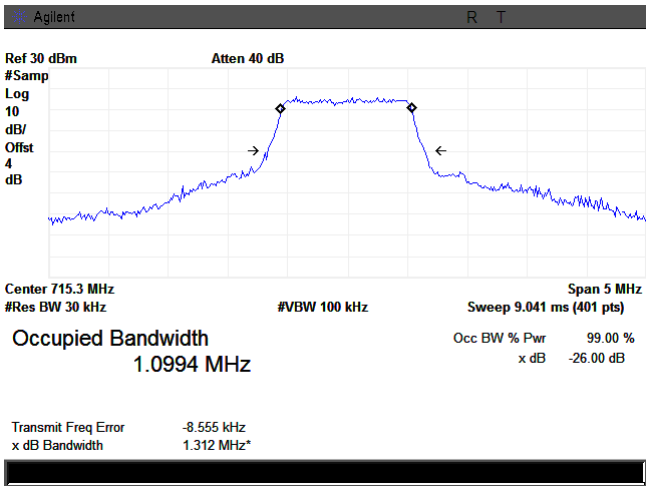

LTE band 12 - Low CH 16QAM-1.4



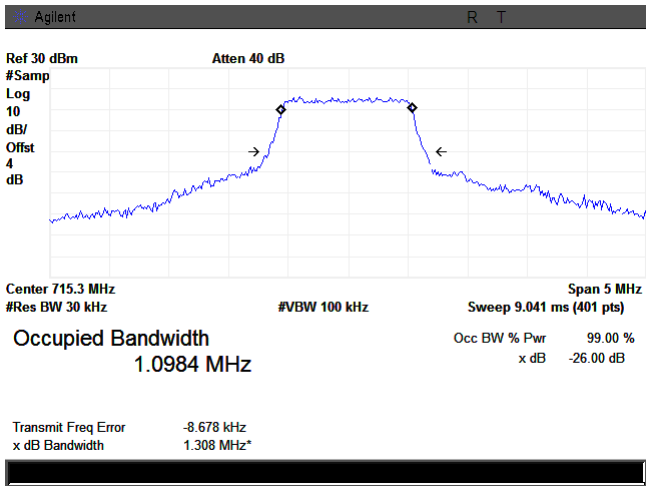

LTE band 12 - Middle CH QPSK-1.4



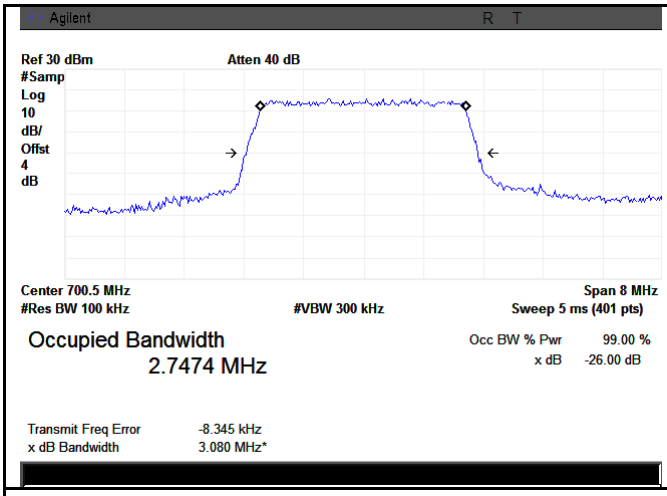

LTE band 12 - Middle CH 16QAM-1.4



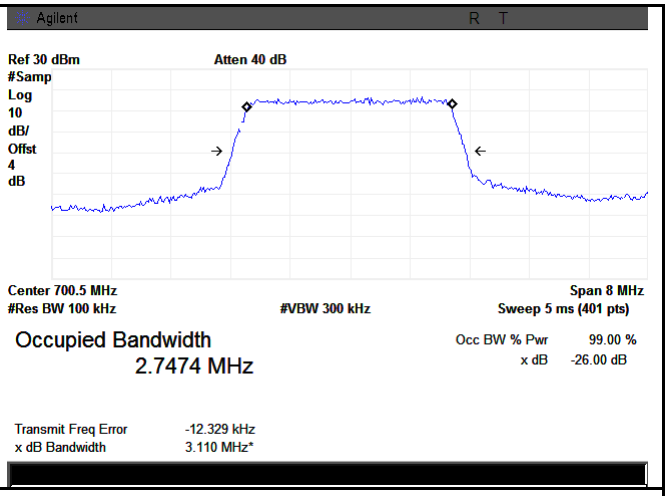

LTE band 12 - High CH QPSK-1.4



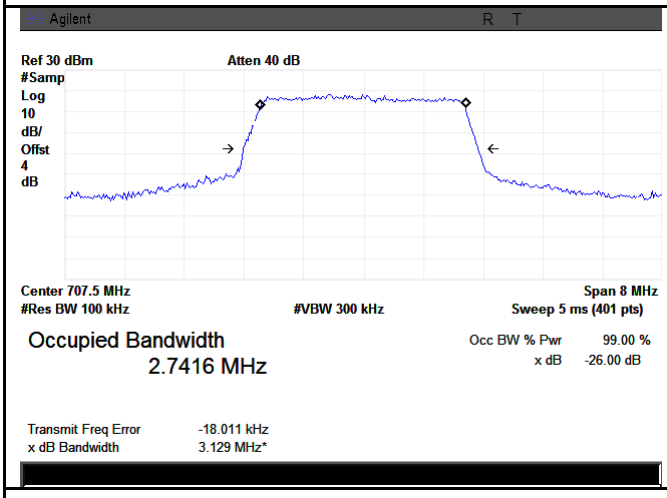

LTE band 12 - High CH 16QAM-1.4



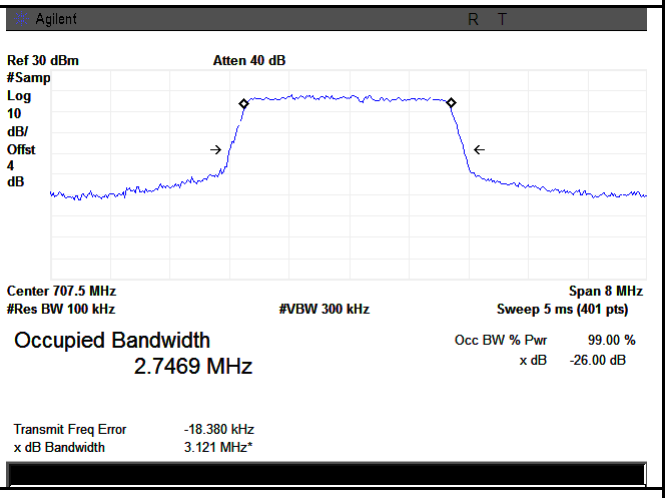

LTE band 12 - Low CH QPSK-3



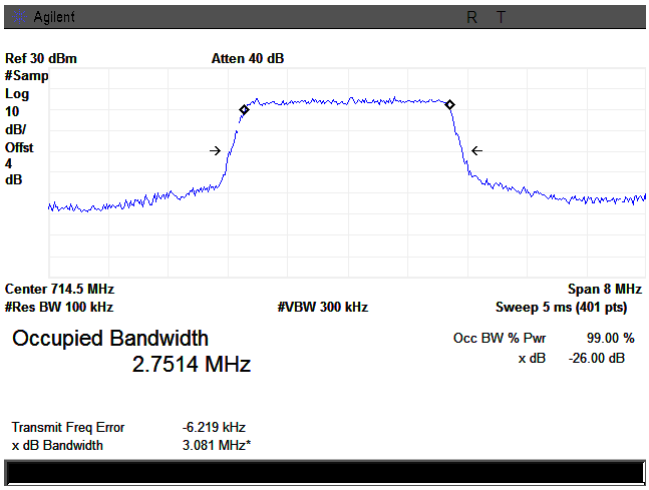

LTE band 12 - Low CH 16QAM-3



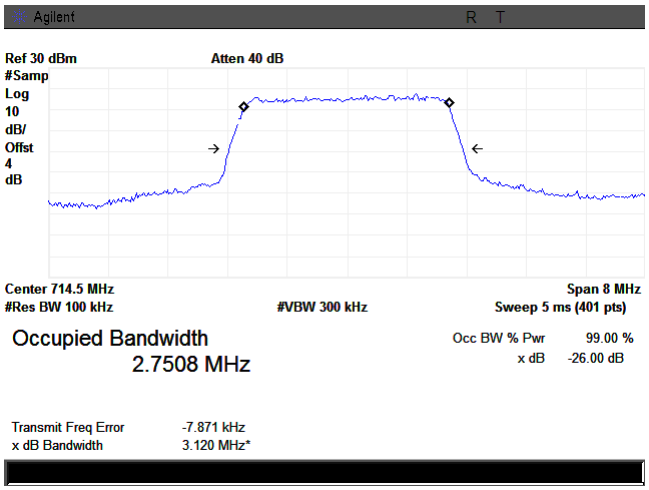

LTE band 12 - Middle CH QPSK-3



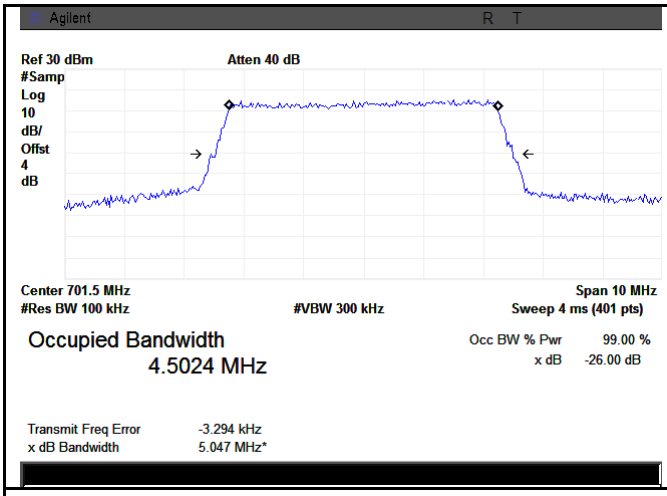

LTE band 12 - Middle CH 16QAM-3



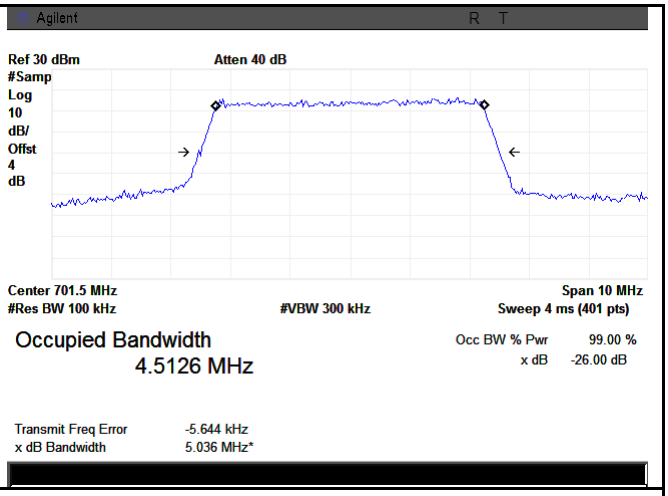

LTE band 12 - High CH QPSK-3



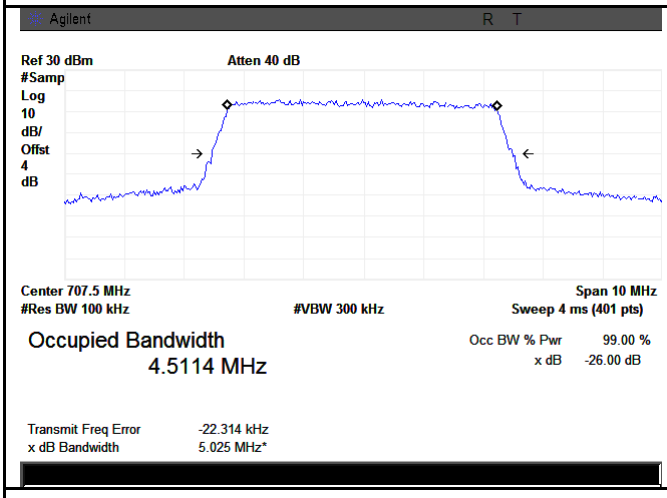

LTE band 12 - High CH 16QAM-3



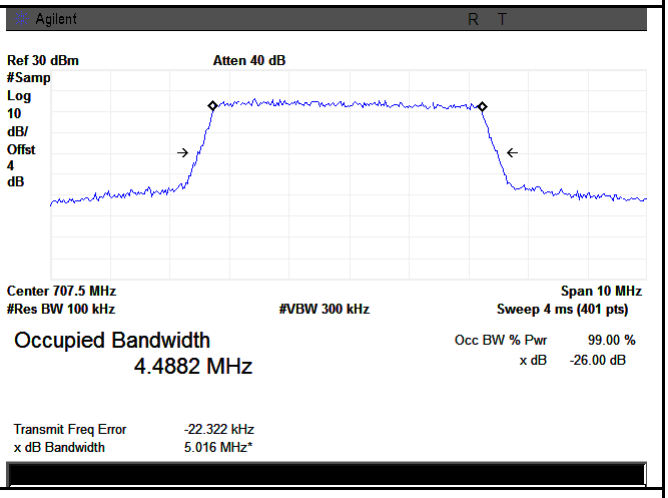

LTE band 12 - Low CH QPSK-5



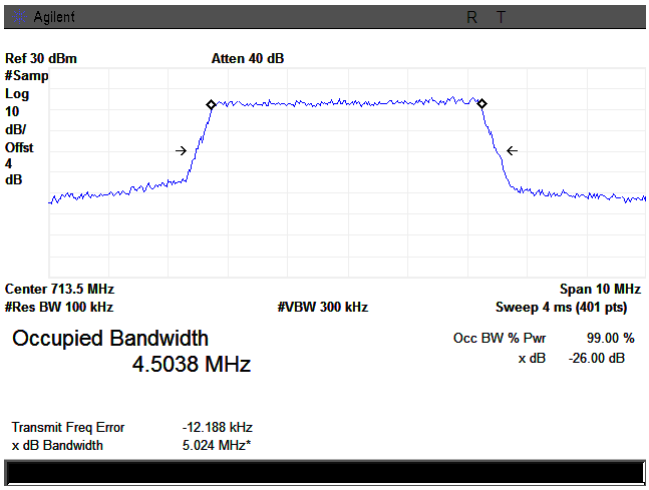

LTE band 12 - Low CH 16QAM-5



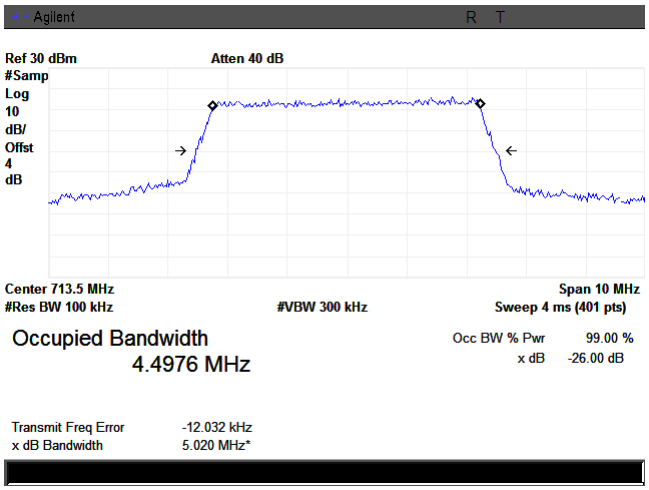

LTE band 12 - Middle CH QPSK-5



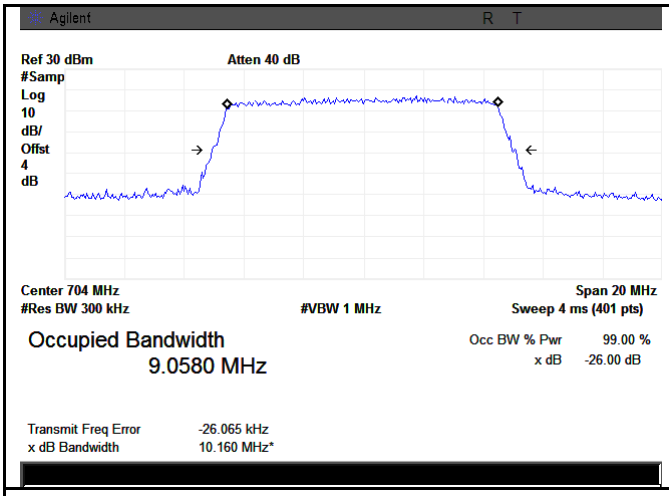

LTE band 12 - Middle CH 16QAM-5



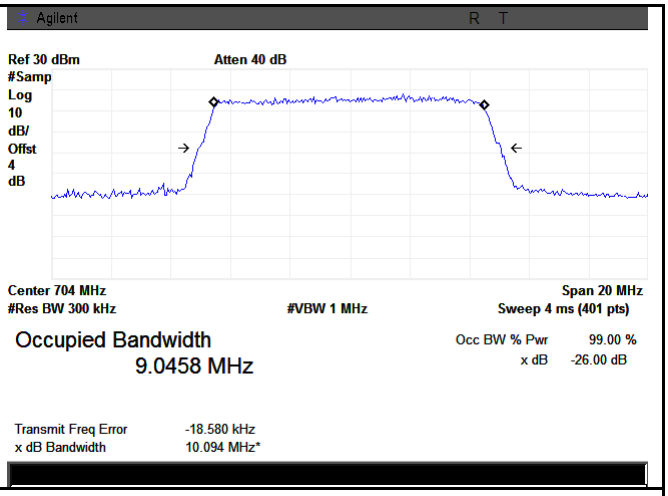

LTE band 12 - High CH QPSK-5



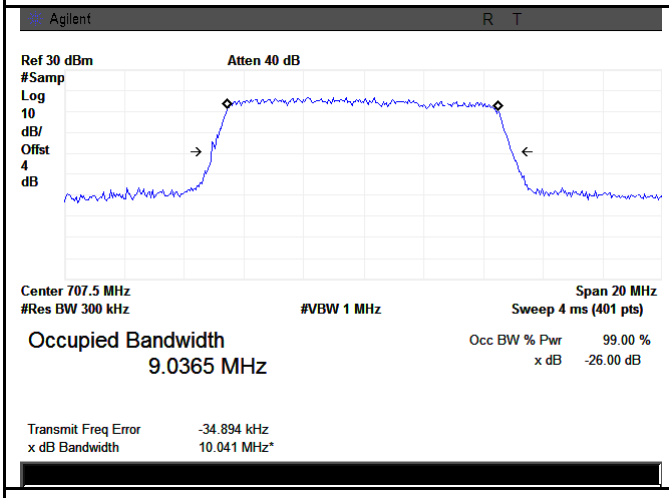

LTE band 12 - High CH 16QAM-5



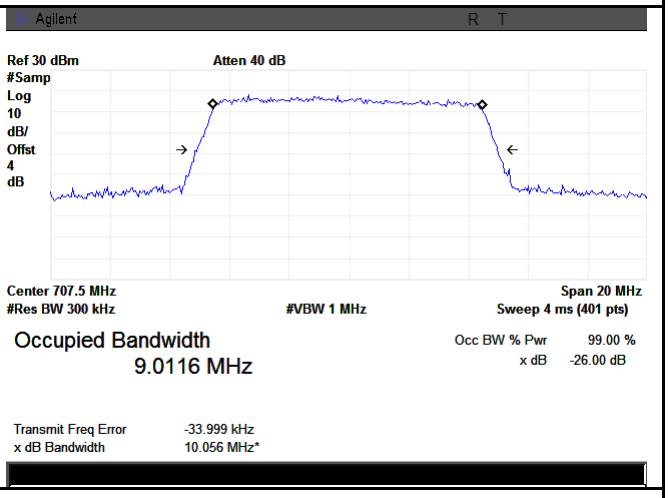

LTE band 12 - Low CH QPSK-10



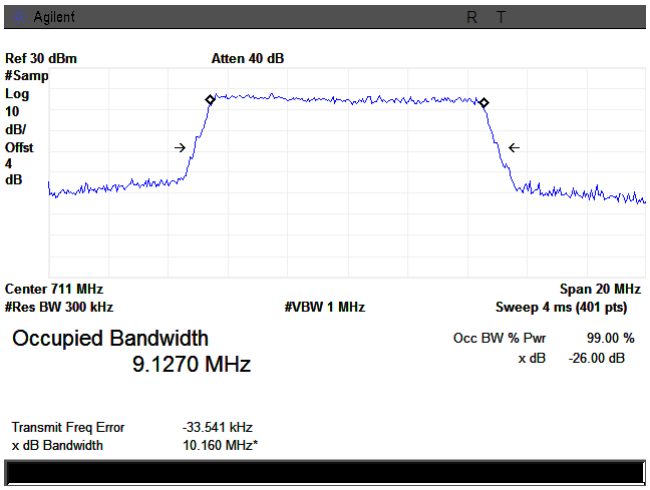

LTE band 12 - Low CH 16QAM-10



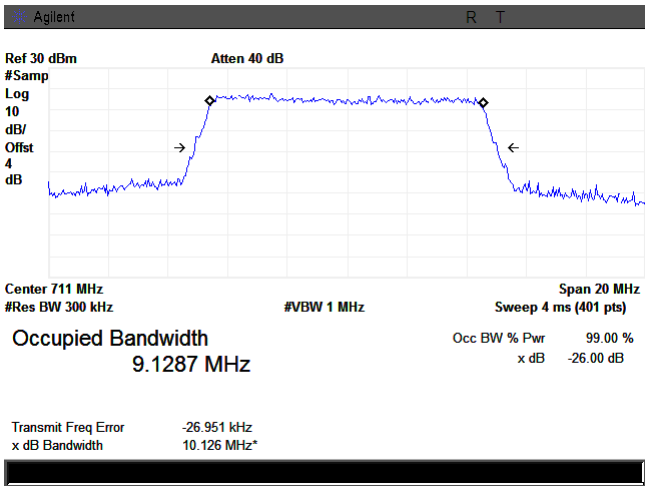

LTE band 12 - Middle CH QPSK-10




LTE band 12 - Middle CH 16QAM-10

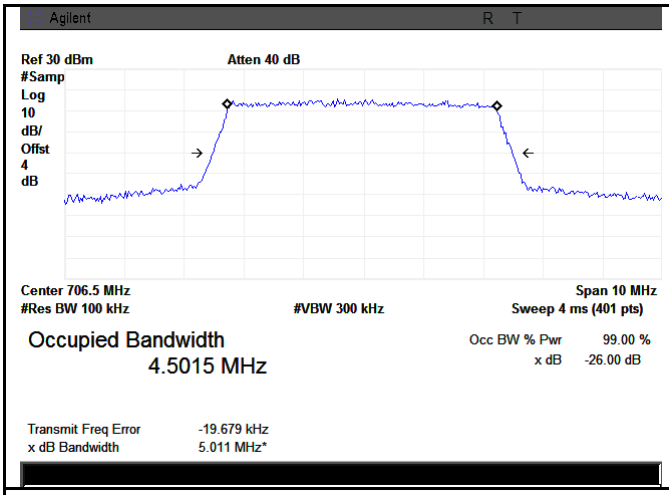



LTE band 12 - High CH QPSK-10

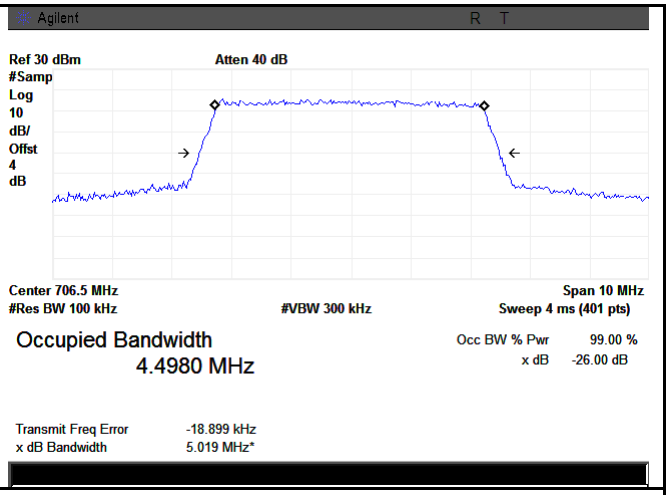



LTE band 12 - High CH 16QAM-10

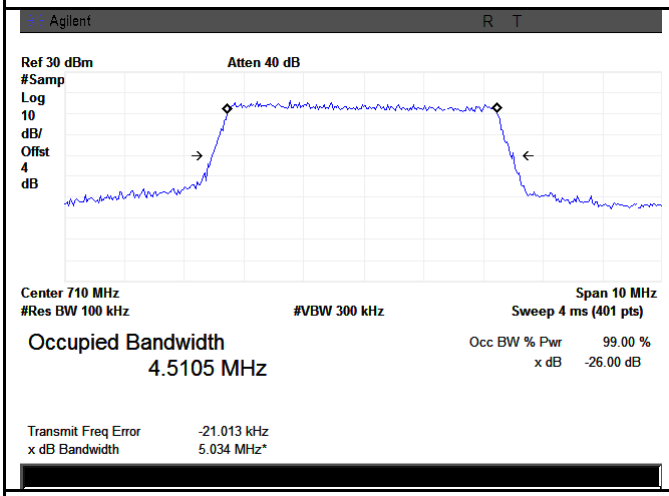
## LTE Band 17 (Part 27)



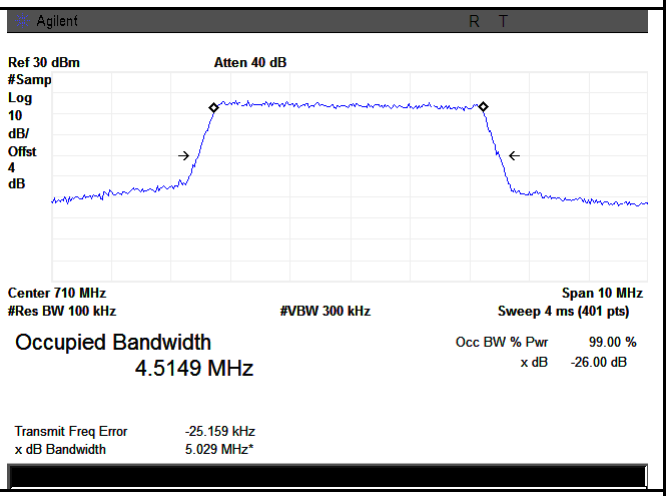

LTE band 17 - Low CH QPSK-5



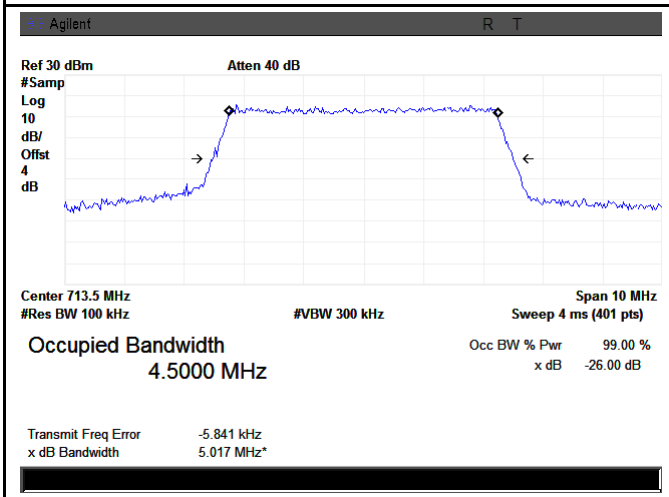

LTE band 17 - Low CH 16QAM-5



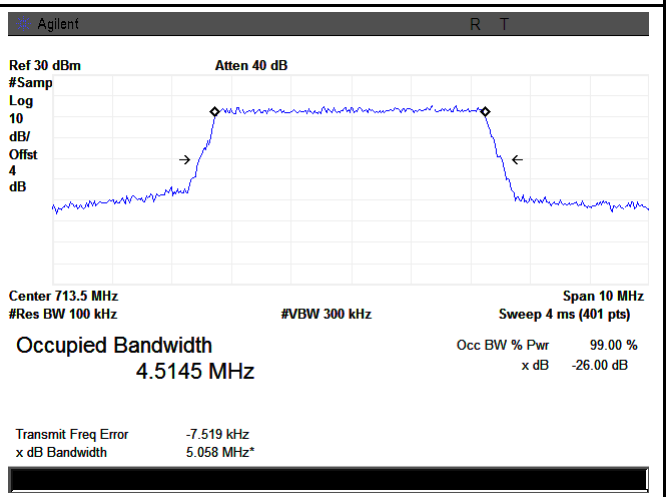

LTE band 17 - Middle CH QPSK-5



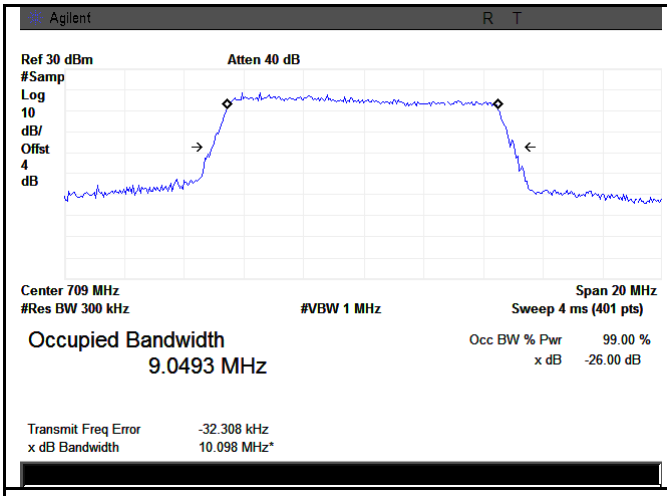

LTE band 17 - Middle CH 16QAM-5



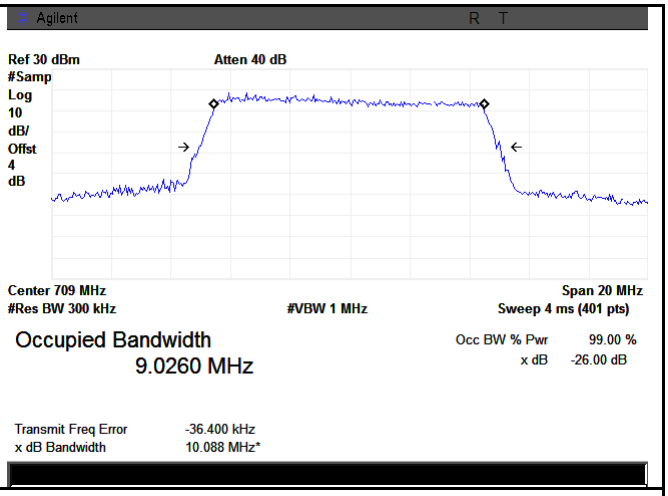

LTE band 17 - High CH QPSK-5



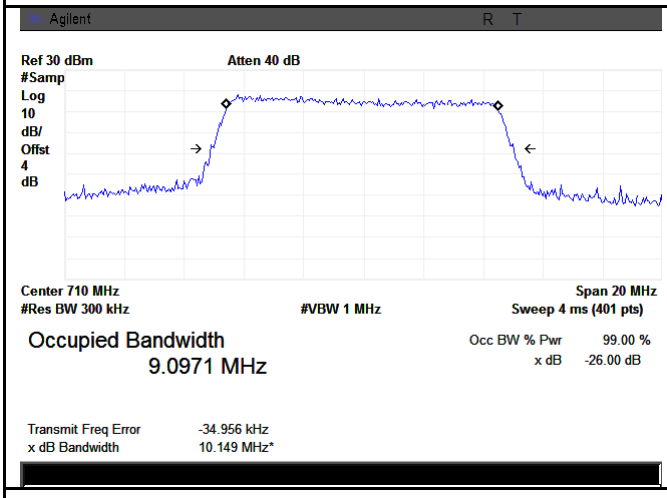

LTE band 17 - High CH 16QAM-5



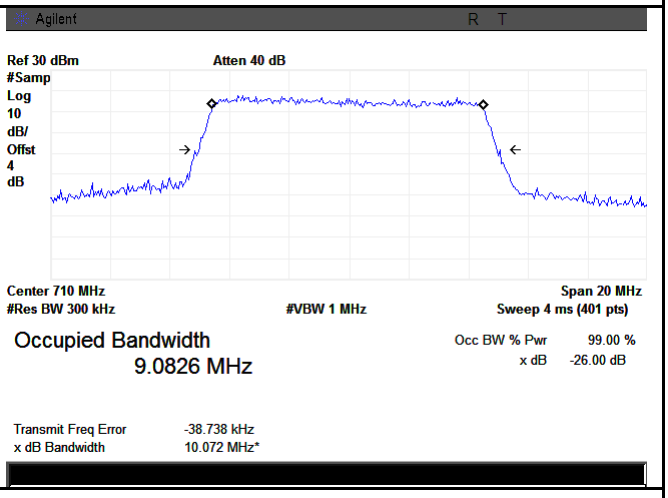

LTE band 17 - Low CH QPSK-10



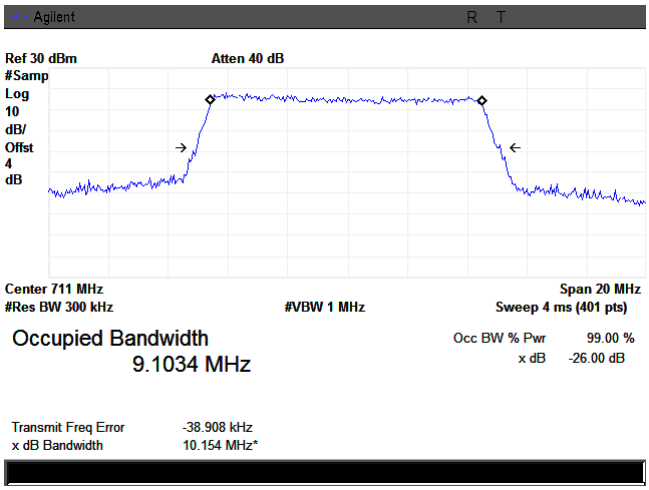

LTE band 17 - Low CH 16QAM-10



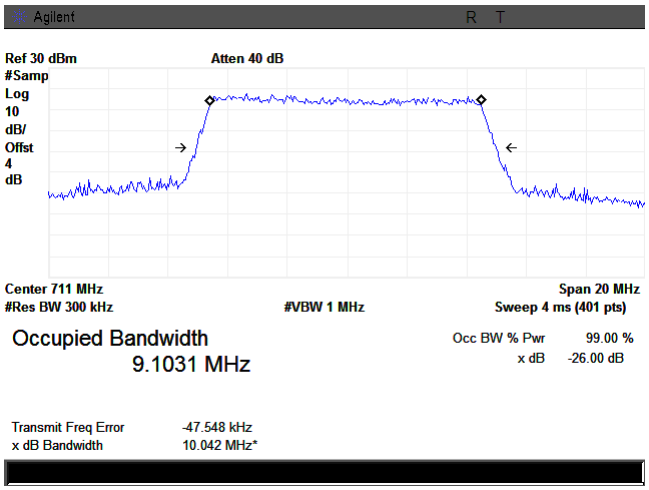

LTE band 17 - Middle CH QPSK-10




LTE band 17 - Middle CH 16QAM-10




LTE band 17 - High CH QPSK-10

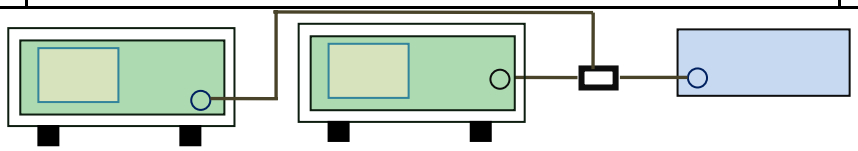



LTE band 17 - High CH 16QAM-10

## 6.6 Spurious Emissions at Antenna Terminals

| | |
|---|---|
| Temperature | 19°C |
| Relative Humidity | 58% |
| Atmospheric Pressure | 1008mbar |
| Test date : | February 04, 2015 |
| Tested By : | Wiky Jam |

**Requirement(s):**

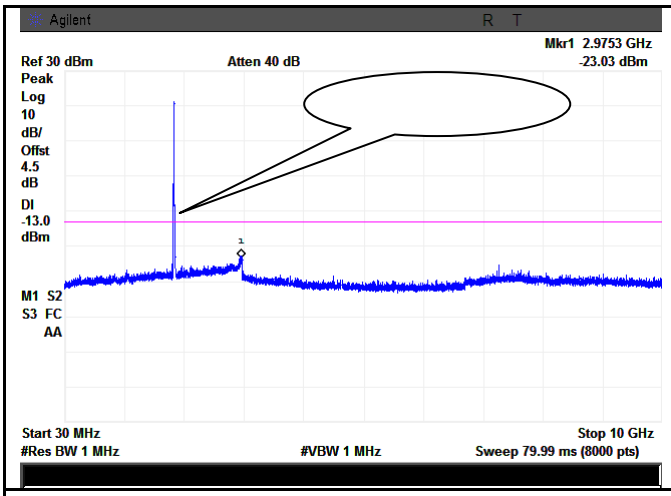
| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §2.1051, §24.238(a) § 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB | ☑ |
| Test Setup |  | | |
| Test Procedure | - The EUT was connected to Spectrum Analyzer and Base Station via power divider.<br>- The Band Edges of low and high channels for the highest RF powers were measured.<br>- Setting RBW as roughly BW/100. | | |
| Remark | | | |
| Result | ☑ Pass ☐ Fail | | |

**Test Data** ☑ Yes ☐ N/A

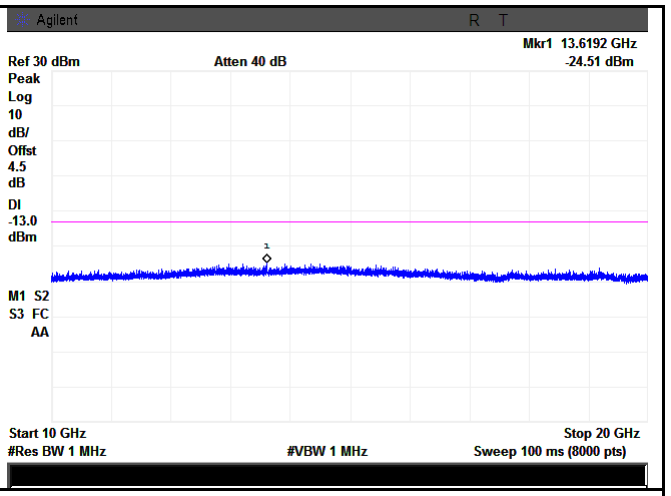
**Test Plot** ☑ Yes (See below) ☐ N/A

## Test Plots 30MHz-5GHz

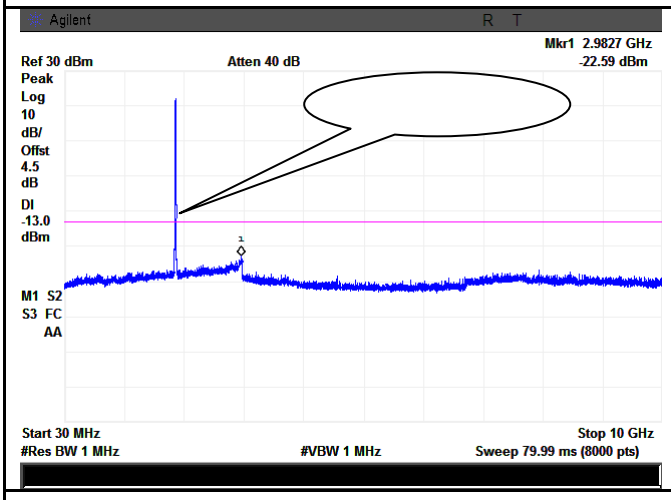
### LTE Band 2 (Part 24E) result



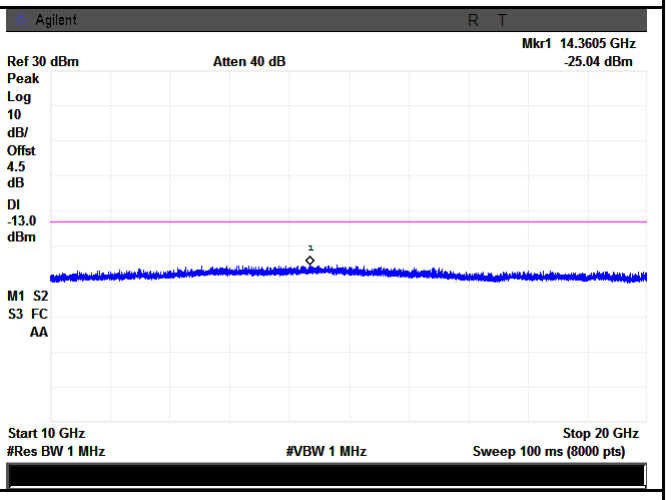

LTE Band 2 - Low Channel-1



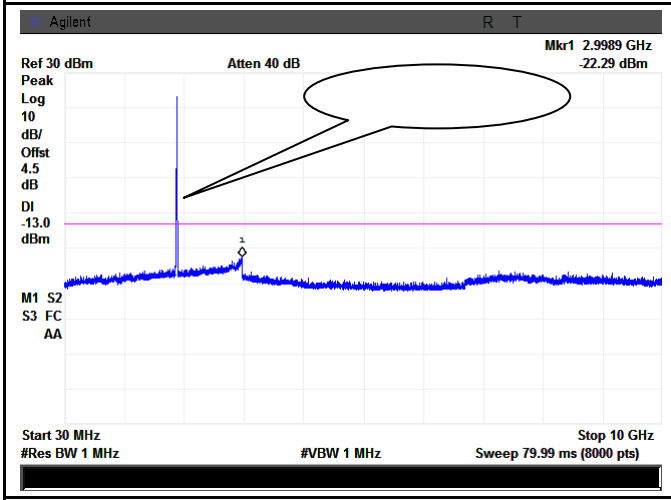

LTE Band 2 - Low Channel-2



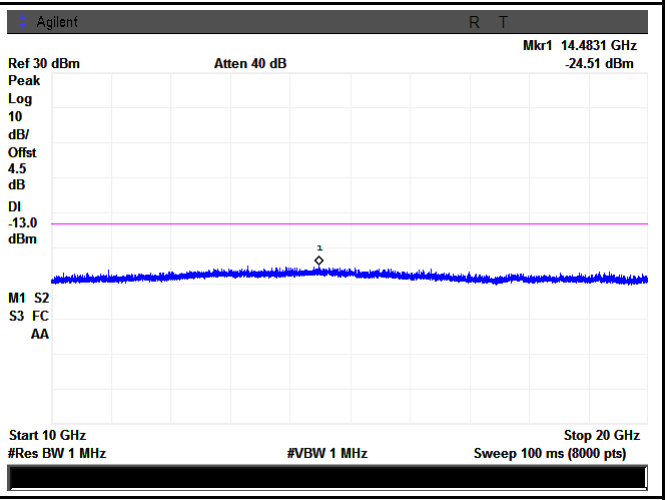

LTE Band 2 Middle Channel-1




LTE Band 2 Middle Channel-2

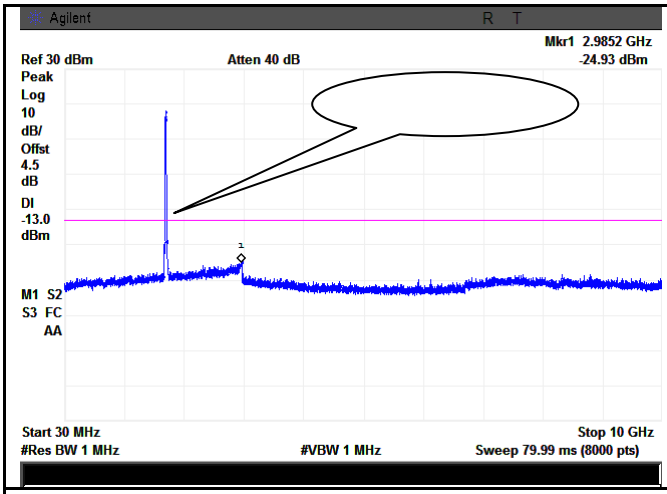



LTE Band 2 - High Channel-1

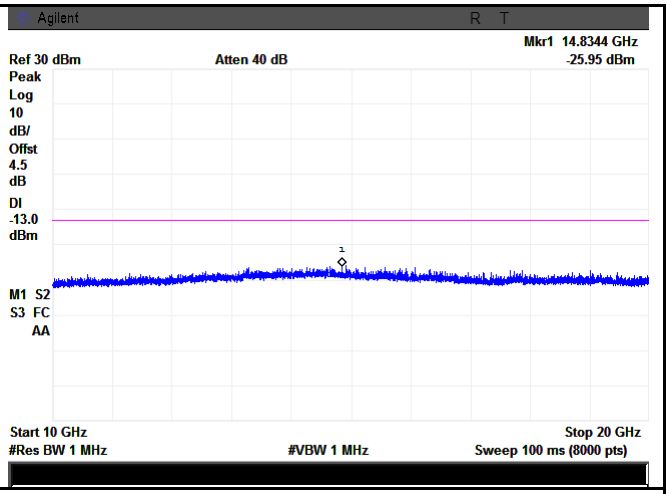



LTE Band 2 - High Channel-2

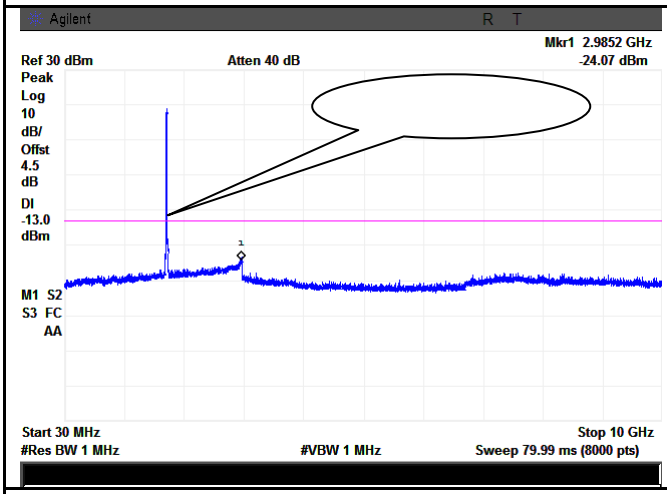
## LTE Band 4 (Part27) result



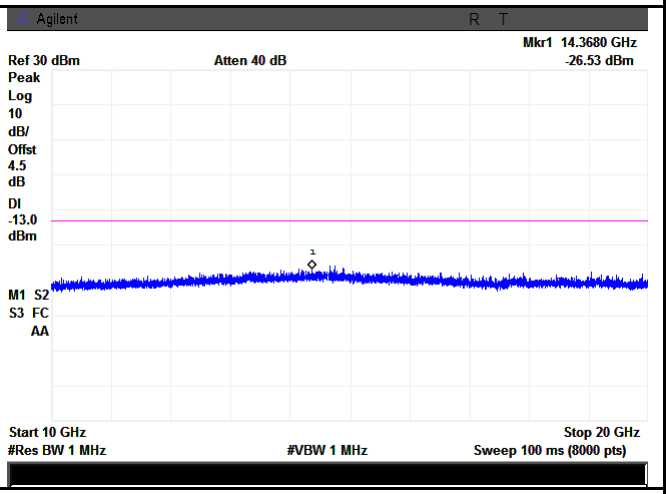

LTE Band 4 - Low Channel-1



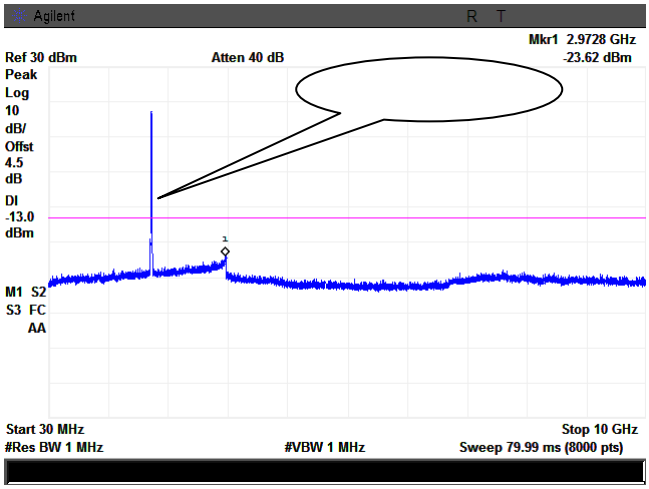

LTE Band 4 - Low Channel-2



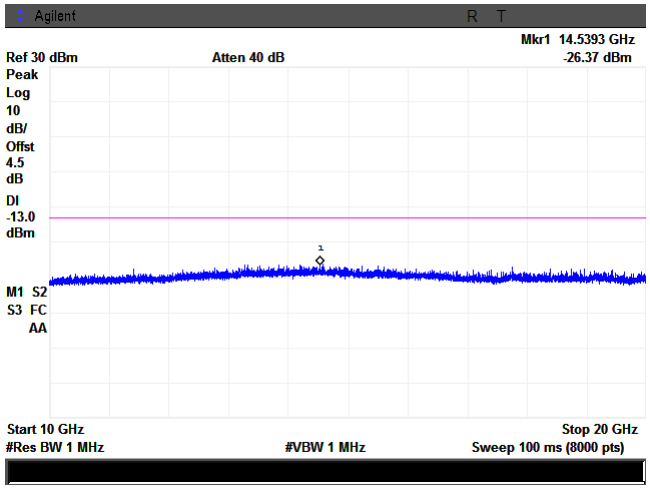

LTE Band 4 - Middle Channel-1




LTE Band 4 - Middle Channel-2

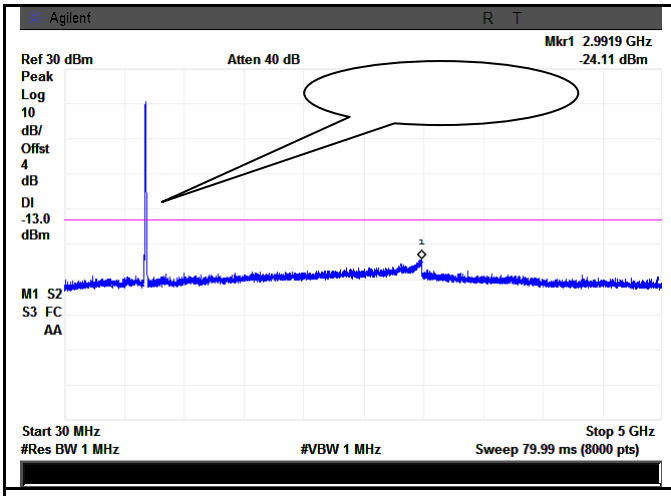



LTE Band 4 - High Channel-1

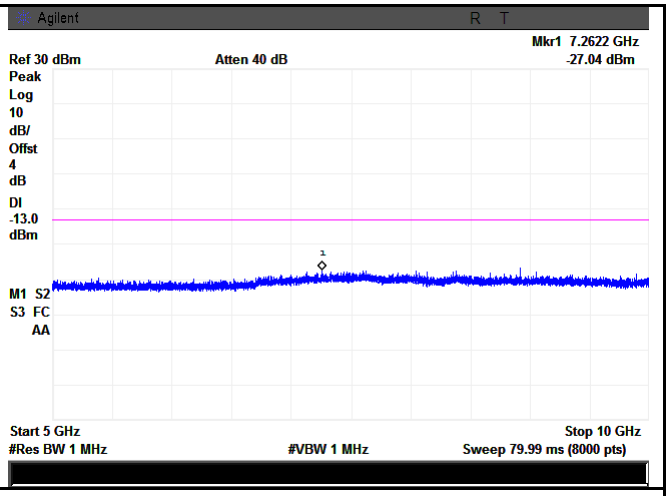



LTE Band 4 - High Channel-2

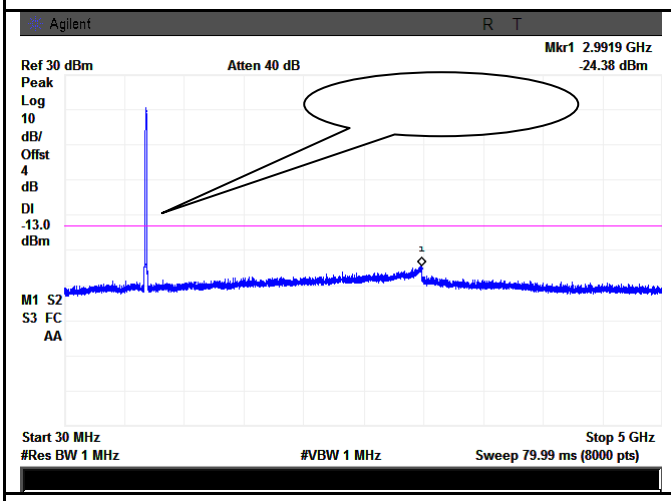
## LTE Band 12 (Part 27)



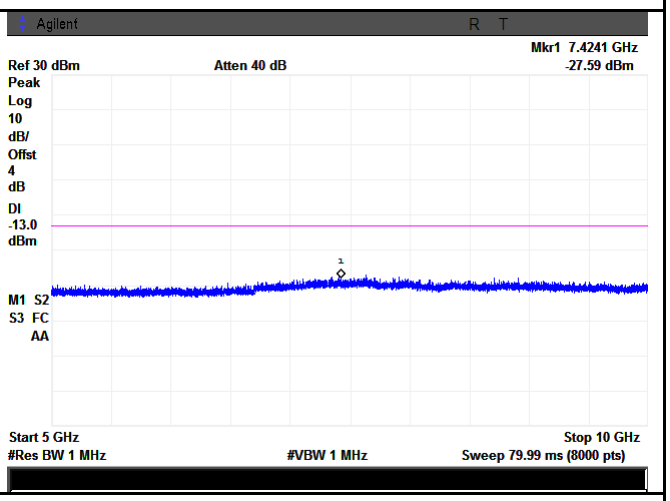

LTE Band 12 - Low Channel-1



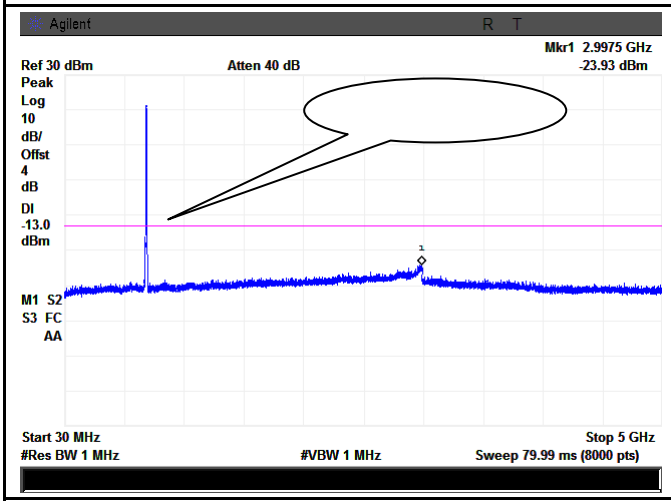

LTE Band 12 - Low Channel-2



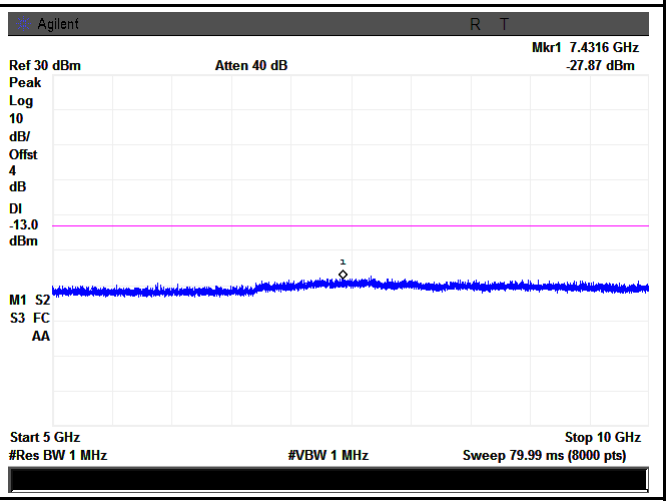

LTE Band 12 - Middle Channel-1




LTE Band 12 - Middle Channel-2

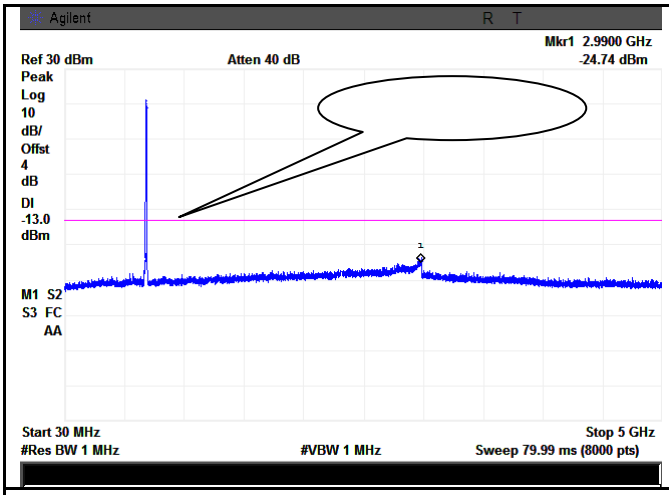



LTE Band 12 - High Channel-1

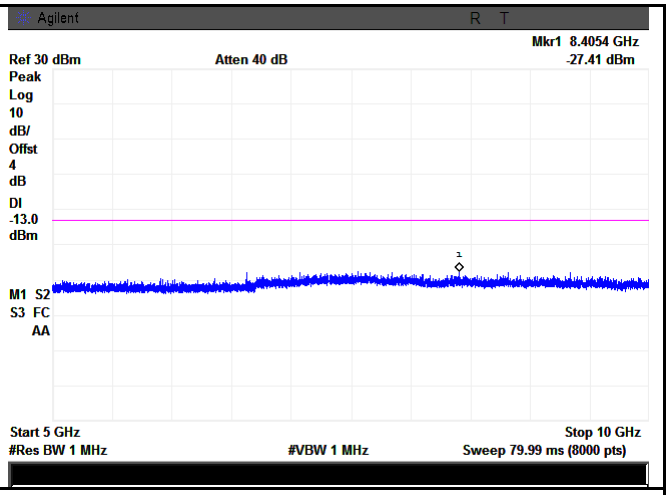



LTE Band 12 - High Channel-2

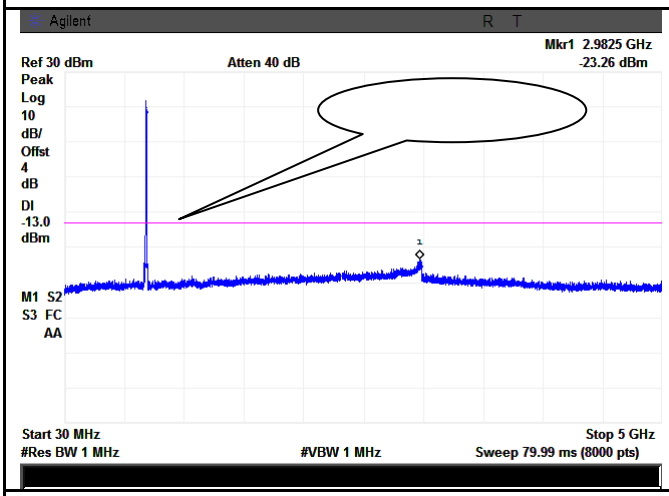
## LTE Band 17 (Part 27)



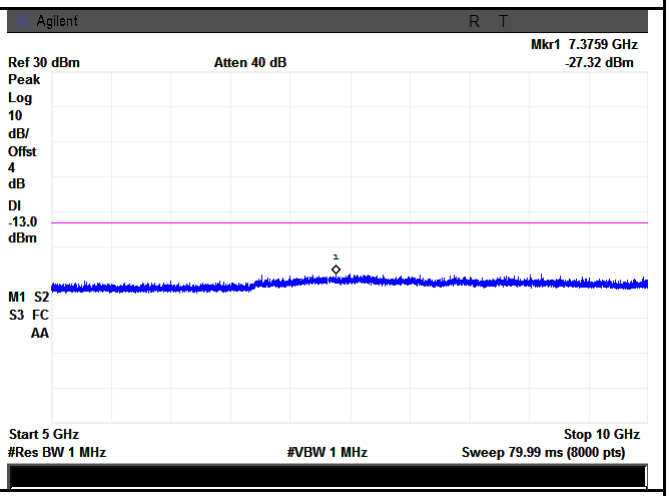

LTE Band 17 - Low Channel-1



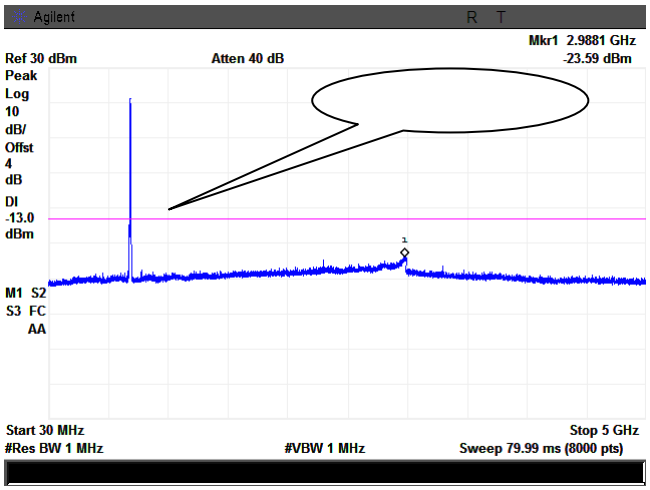

LTE Band 17 - Low Channel-2



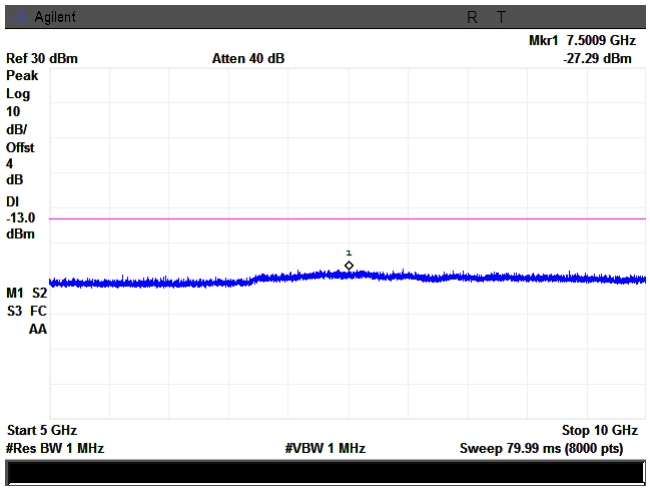

LTE Band 17- Middle Channel-1




LTE Band 17 - Middle Channel-2




LTE Band 17 - High Channel-1

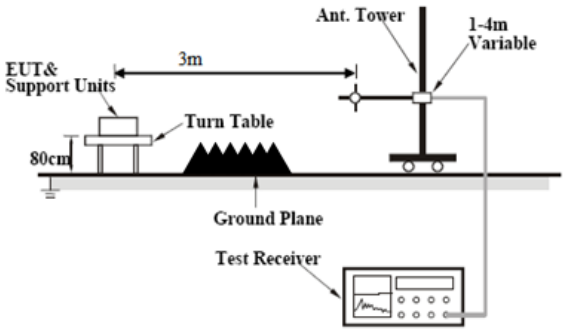



LTE Band 17 - High Channel-2

## 6.7 Spurious Radiated Emissions

| | |
|---|---|
| Temperature | 19°C |
| Relative Humidity | 58% |
| Atmospheric Pressure | 1008mbar |
| Test date : | February 04, 2015 |
| Tested By : | Wiky Jam |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §2.1053, §24.238 § 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic. | ☑ |
| Test setup |  | | |
| Test Procedure | 1. The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.<br>2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.<br>3. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.<br>Sample Calculation:<br>EUT Field Strength = Raw Amplitude (dBμV/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used) | |
| Remark | | | |
| Result | ☑ Pass ☐ Fail | | |

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

## LTE Band 2 (Part 24E) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 3720 | -45.26 | V | 10.25 | 2.73 | -37.74 | -13 | -24.74 |
| 3720 | -44.89 | H | 10.25 | 2.73 | -37.37 | -13 | -24.37 |
| 571.9 | -56.27 | V | 6.5 | 0.36 | -50.13 | -13 | -37.13 |
| 844.6 | -50.61 | H | 6.8 | 0.44 | -44.25 | -13 | -31.25 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 3760 | -46.59 | V | 10.25 | 2.73 | -39.07 | -13 | -26.07 |
| 3760 | -43.77 | H | 10.25 | 2.73 | -36.25 | -13 | -23.25 |
| 572.6 | -56.46 | V | 6.5 | 0.36 | -50.32 | -13 | -37.32 |
| 843.5 | -49.81 | H | 6.8 | 0.44 | -43.45 | -13 | -30.45 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 3800 | -47.06 | V | 10.36 | 2.73 | -39.43 | -13 | -26.43 |
| 3800 | -45.79 | H | 10.36 | 2.73 | -38.16 | -13 | -25.16 |
| 570.6 | -55.84 | V | 6.5 | 0.36 | -49.7 | -13 | -36.7 |
| 846.3 | -50.32 | H | 6.8 | 0.44 | -43.96 | -13 | -30.96 |

## LTE Band 4(Part27) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 3440 | -46.85 | V | 10.06 | 2.52 | -39.31 | -13 | -26.31 |
| 3440 | -47.26 | H | 10.06 | 2.52 | -39.72 | -13 | -26.72 |
| 572.8 | -56.02 | V | 6.5 | 0.36 | -49.88 | -13 | -36.88 |
| 843.1 | -49.89 | H | 6.8 | 0.44 | -43.53 | -13 | -30.53 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 3465 | -47.11 | V | 10.09 | 2.52 | -39.54 | -13 | -26.54 |
| 3465 | -47.65 | H | 10.09 | 2.52 | -40.08 | -13 | -27.08 |
| 570.6 | -57.09 | V | 6.5 | 0.36 | -50.95 | -13 | -37.95 |
| 843.5 | -50.33 | H | 6.8 | 0.44 | -43.97 | -13 | -30.97 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 3490 | -46.91 | V | 10.09 | 2.52 | -39.34 | -13 | -26.34 |
| 3490 | -46.82 | H | 10.09 | 2.52 | -39.25 | -13 | -26.25 |
| 572.2 | -57.16 | V | 6.5 | 0.36 | -51.02 | -13 | -38.02 |
| 843.7 | -50.31 | H | 6.8 | 0.44 | -43.95 | -13 | -30.95 |

## LTE Band 12(Part27) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1408 | -48.09 | V | 7.65 | 0.75 | -41.19 | -13 | -28.19 |
| 1408 | -46.72 | H | 7.65 | 0.75 | -39.82 | -13 | -26.82 |
| 572.8 | -56.12 | V | 6.5 | 0.36 | -49.98 | -13 | -36.98 |
| 845.2 | -50.44 | H | 6.8 | 0.44 | -44.08 | -13 | -31.08 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1415 | -47.59 | V | 7.65 | 0.75 | -40.69 | -13 | -27.69 |
| 1415 | -47.12 | H | 7.65 | 0.75 | -40.22 | -13 | -27.22 |
| 569.3 | -55.94 | V | 6.5 | 0.36 | -49.8 | -13 | -36.8 |
| 846.7 | -50.26 | H | 6.8 | 0.44 | -43.9 | -13 | -30.9 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1422 | -46.88 | V | 7.65 | 0.75 | -39.98 | -13 | -26.98 |
| 1422 | -47.81 | H | 7.65 | 0.75 | -40.91 | -13 | -27.91 |
| 569.9 | -57.14 | V | 6.5 | 0.36 | -51 | -13 | -38 |
| 846.5 | -49.92 | H | 6.8 | 0.44 | -43.56 | -13 | -30.56 |

## LTE Band 17(Part27) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1418 | -47.99 | V | 7.65 | 0.75 | -41.09 | -13 | -28.09 |
| 1418 | -48.15 | H | 7.65 | 0.75 | -41.25 | -13 | -28.25 |
| 568.9 | -56.74 | V | 6.5 | 0.36 | -50.6 | -13 | -37.6 |
| 846.3 | -50.82 | H | 6.8 | 0.44 | -44.46 | -13 | -31.46 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1420 | -46.73 | V | 7.65 | 0.75 | -39.83 | -13 | -26.83 |
| 1420 | -47.61 | H | 7.65 | 0.75 | -40.71 | -13 | -27.71 |
| 570.4 | -57.16 | V | 6.5 | 0.36 | -51.02 | -13 | -38.02 |
| 842.5 | -49.94 | H | 6.8 | 0.44 | -43.58 | -13 | -30.58 |

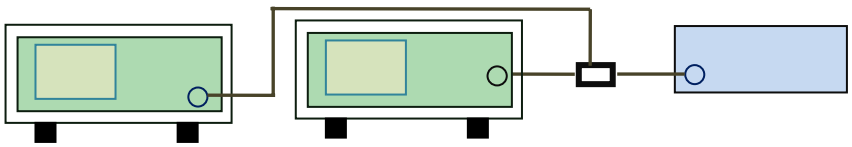
### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1422 | -48.22 | V | 7.65 | 0.75 | -41.32 | -13 | -28.32 |
| 1422 | -47.19 | H | 7.65 | 0.75 | -40.29 | -13 | -27.29 |
| 573.3 | -56.98 | V | 6.5 | 0.36 | -50.84 | -13 | -37.84 |
| 843.6 | -50.22 | H | 6.8 | 0.44 | -43.86 | -13 | -30.86 |

## 6.8 Band Edge

| | |
|---|---|
| Temperature | 19°C |
| Relative Humidity | 59% |
| Atmospheric Pressure | 1011mbar |
| Test date : | February 03, 2015 |
| Tested By : | Wiky Jam |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §24.238(a)<br>§ 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. | ☑ |
| Test setup |  | | |
| Procedure | - The EUT was connected to Spectrum Analyzer and Base Station via power divider.<br>- The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100. | | |
| Remark | | | |
| Result | ☑ Pass ☐ Fail | | |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☑ Yes (See below) ☐ N/A

## LTE Band 2 (Part 24E) result

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 1.4 | 18607 | 1850.7 | QPSK | -16.89 | -13 |
| | | | 16QAM | -18.19 | -13 |
| 1.4 | 18900 | 1909.3 | QPSK | -21.05 | -13 |
| | | | 16QAM | -20.08 | -13 |
| 3 | 18615 | 1851.5 | QPSK | -13.23 | -13 |
| | | | 16QAM | -14.12 | -13 |
| 3 | 19185 | 1908.5 | QPSK | -18.17 | -13 |
| | | | 16QAM | -17.48 | -13 |
| 5 | 18625 | 1852.5 | QPSK | -17.19 | -13 |
| | | | 16QAM | -13.60 | -13 |
| 5 | 19175 | 1907.5 | QPSK | -16.21 | -13 |
| | | | 16QAM | -15.43 | -13 |
| 10 | 18650 | 1855 | QPSK | -17.37 | -13 |
| | | | 16QAM | -16.37 | -13 |
| 10 | 19150 | 1905 | QPSK | -16.23 | -13 |
| | | | 16QAM | -15.98 | -13 |
| 15 | 18675 | 1857.5 | QPSK | -18.57 | -13 |
| | | | 16QAM | -21.11 | -13 |
| 15 | 19125 | 1902.5 | QPSK | -21.86 | -13 |
| | | | 16QAM | -22.91 | -13 |
| 20 | 18700 | 1860 | QPSK | -20.66 | -13 |
| | | | 16QAM | -20.0 | -13 |
| 20 | 19100 | 1900 | QPSK | -22.09 | -13 |
| | | | 16QAM | -22.81 | -13 |

## LTE Band 4 (Part 27) result

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 1.4 | 19957 | 1710.7 | QPSK | -16.9 | -13 |
| | | | 16QAM | -19.07 | -13 |
| 1.4 | 20393 | 1754.3 | QPSK | -19.08 | -13 |
| | | | 16QAM | -20.8 | -13 |
| 3 | 19965 | 1711.5 | QPSK | -16.51 | -13 |
| | | | 16QAM | -17.23 | -13 |
| 3 | 20385 | 1753.5 | QPSK | -18.34 | -13 |
| | | | 16QAM | -15.14 | -13 |
| 5 | 19975 | 1712.5 | QPSK | -17.69 | -13 |
| | | | 16QAM | -18.55 | -13 |
| 5 | 20375 | 1752.5 | QPSK | -19.86 | -13 |
| | | | 16QAM | -18.33 | -13 |
| 10 | 20000 | 1715 | QPSK | -17.88 | -13 |
| | | | 16QAM | -17.61 | -13 |
| 10 | 20350 | 1750 | QPSK | -19.49 | -13 |
| | | | 16QAM | -20.54 | -13 |
| 15 | 20025 | 1717.5 | QPSK | -20.78 | -13 |
| | | | 16QAM | -20.94 | -13 |
| 15 | 20325 | 1747.5 | QPSK | -22.64 | -13 |
| | | | 16QAM | -23.50 | -13 |
| 20 | 20050 | 1720 | QPSK | -23.12 | -13 |
| | | | 16QAM | -21.34 | -13 |
| 20 | 20300 | 1745 | QPSK | -23.08 | -13 |
| | | | 16QAM | -24.03 | -13 |

## LTE Band 12 (Part 27) result

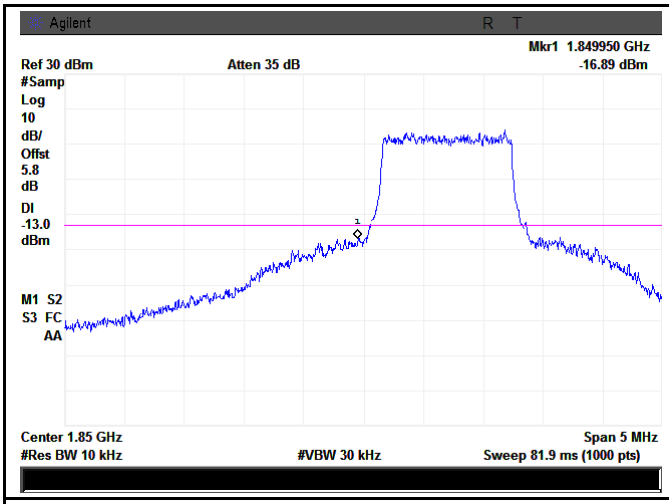
| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 1.4 | 23017 | 699.7 | QPSK | -21.09 | -13 |
| | | | 16QAM | -18.30 | -13 |
| 1.4 | 23173 | 715.3 | QPSK | -22.55 | -13 |
| | | | 16QAM | -21.65 | -13 |
| 3 | 23025 | 700.5 | QPSK | -17.68 | -13 |
| | | | 16QAM | -18.37 | -13 |
| 3 | 23165 | 714.5 | QPSK | -21.11 | -13 |
| | | | 16QAM | -20.04 | -13 |
| 5 | 23035 | 701.5 | QPSK | -18.56 | -13 |
| | | | 16QAM | -19.31 | -13 |
| 5 | 23155 | 713.5 | QPSK | -20.64 | -13 |
| | | | 16QAM | -22.02 | -13 |
| 10 | 23060 | 704 | QPSK | -17.31 | -13 |
| | | | 16QAM | -22.94 | -13 |
| 10 | 23130 | 711 | QPSK | -21.36 | -13 |
| | | | 16QAM | -22.15 | -13 |

## LTE Band 17 (Part 27) result

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
|---|---|---|---|---|---|
| 5 | 23755 | 706.5 | QPSK | -19.43 | -13 |
| | | | 16QAM | -19.03 | -13 |
| 5 | 23825 | 713.5 | QPSK | -18.23 | -13 |
| | | | 16QAM | -19.56 | -13 |
| 10 | 23780 | 709 | QPSK | -16.97 | -13 |
| | | | 16QAM | -18.68 | -13 |
| 10 | 23800 | 711 | QPSK | -16.18 | -13 |
| | | | 16QAM | -22.29 | -13 |

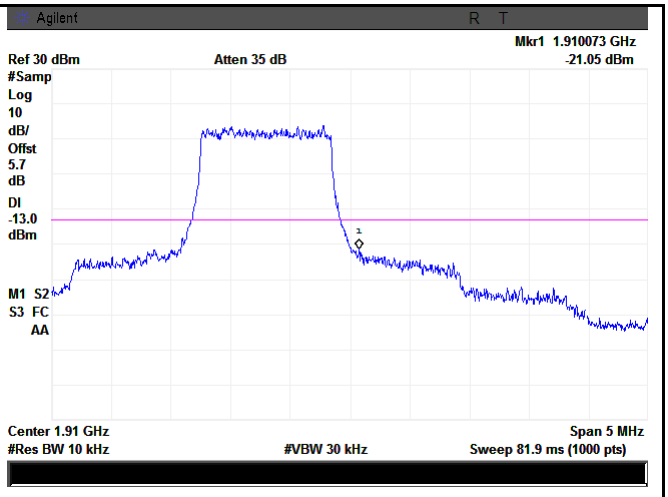
## Test Plots

### LTE Band 2 (Part 24E)



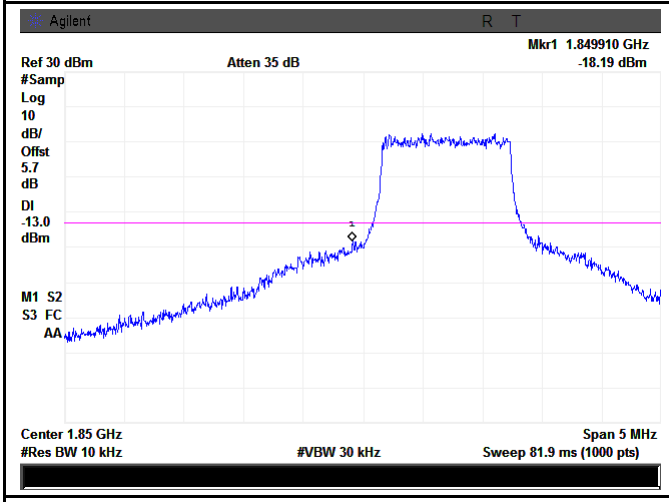

LTE Band 2 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (13.34/10)=4.5+1.3=5.8 dB



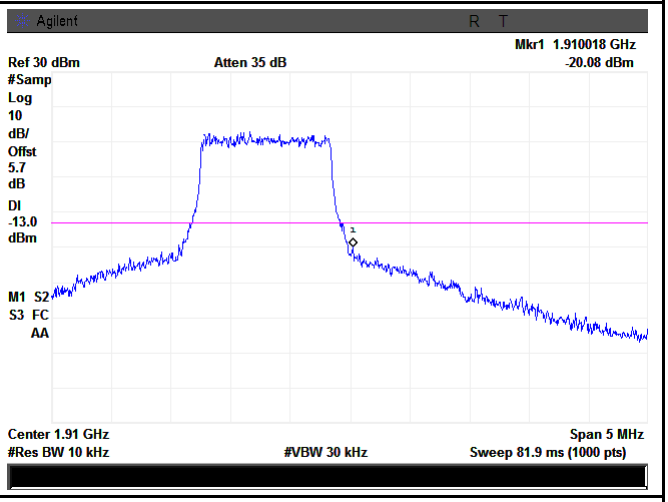

LTE Band 2 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (13.19/10)=4.5+1.2=5.7 dB



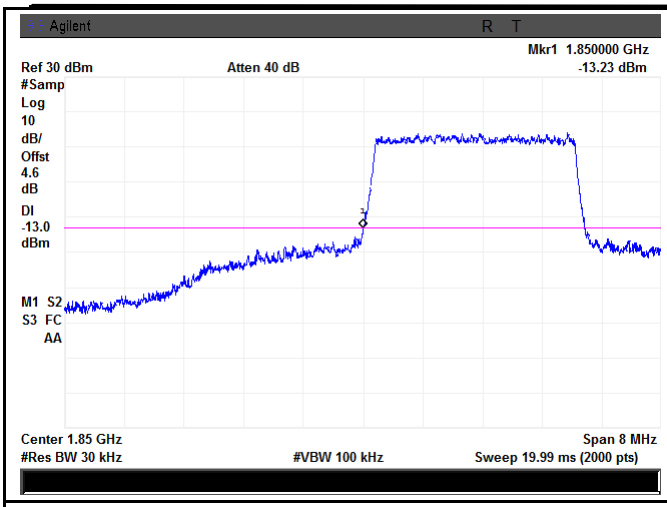

LTE Band 2 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (13.12/10)=4.5+1.2=5.7 dB



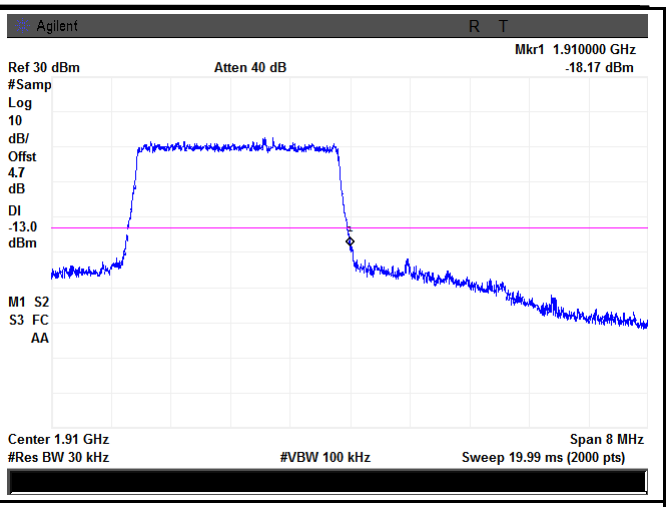

LTE Band 2 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (13.25/10)=4.5+1.2=5.7 dB



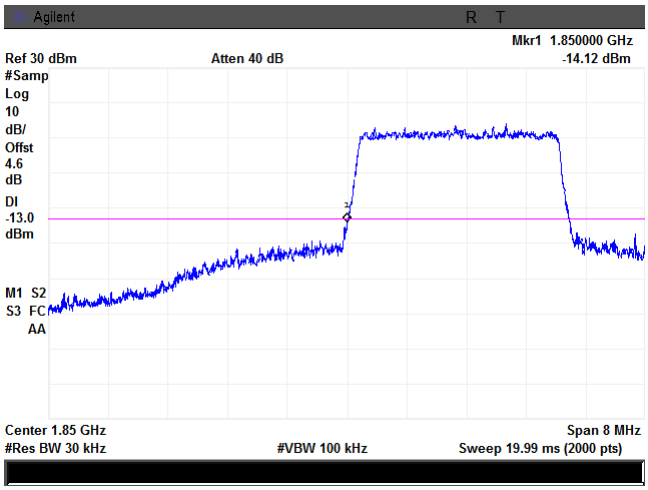

LTE Band 2 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.93/30)=4.5+0.1=4.6 dB



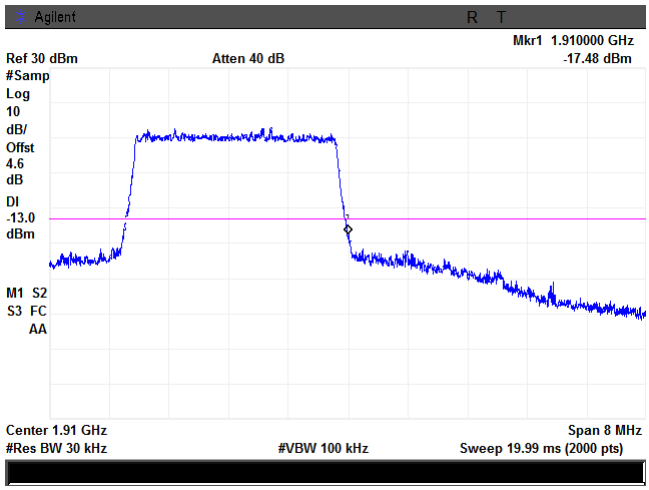

LTE Band 2 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.18/30)=4.5+0.2=4.7 dB



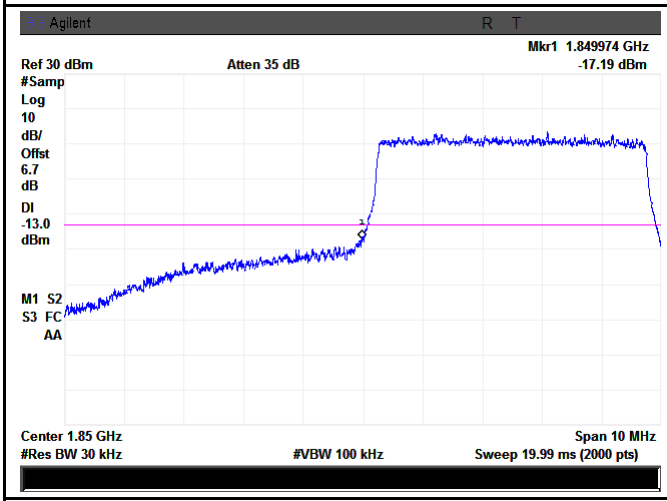

LTE Band 2 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.05/30)=4.5+0.1=4.6 dB

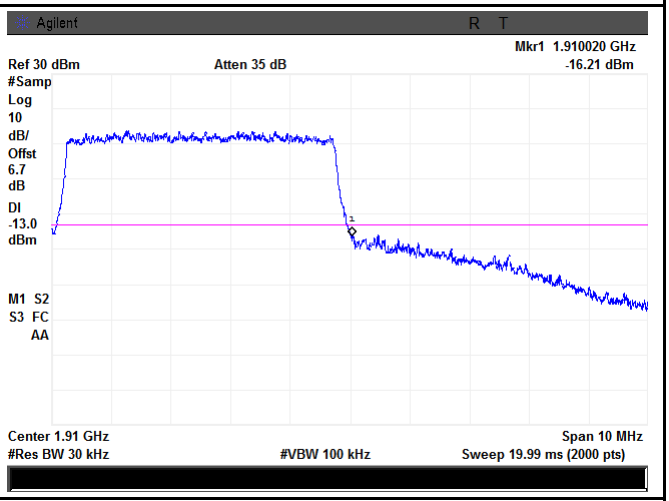



LTE Band 2 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.79/30)=4.5+0.1=4.6 dB

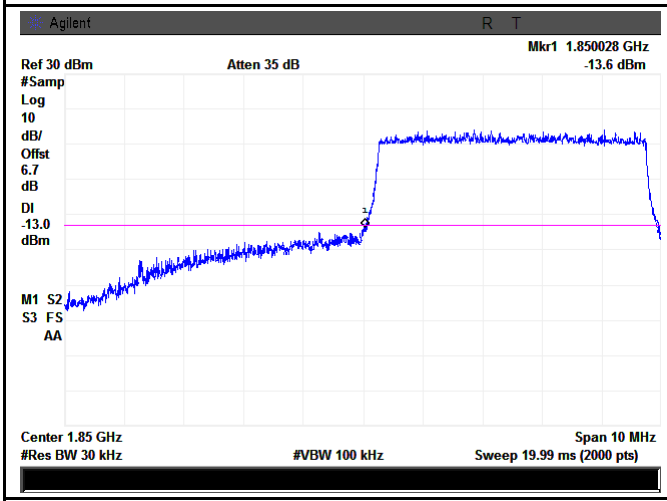



LTE Band 2 - Low Channel QPSK-5



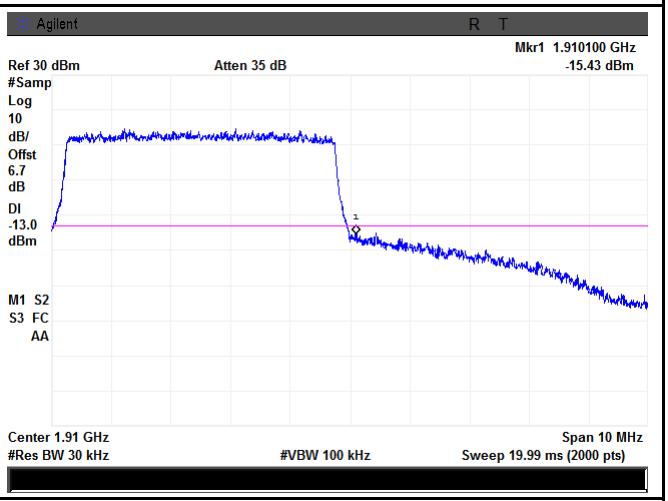

LTE Band 2 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (49.91/30)=4.5+2.2=6.7 dB



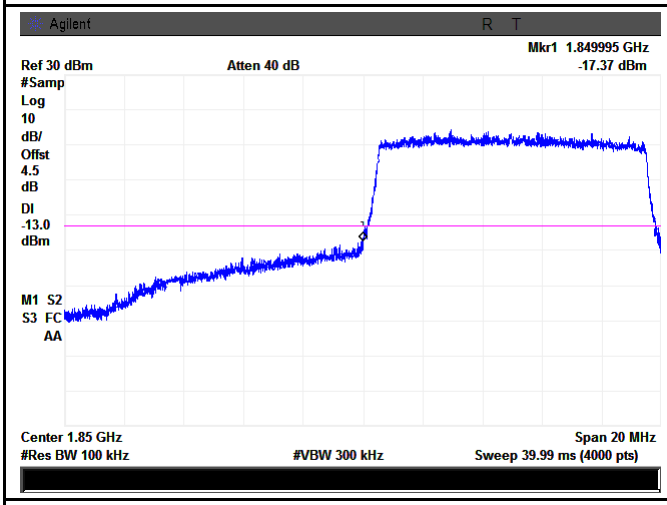

LTE Band 2 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (49.75/30)=4.5+2.2=6.7 dB



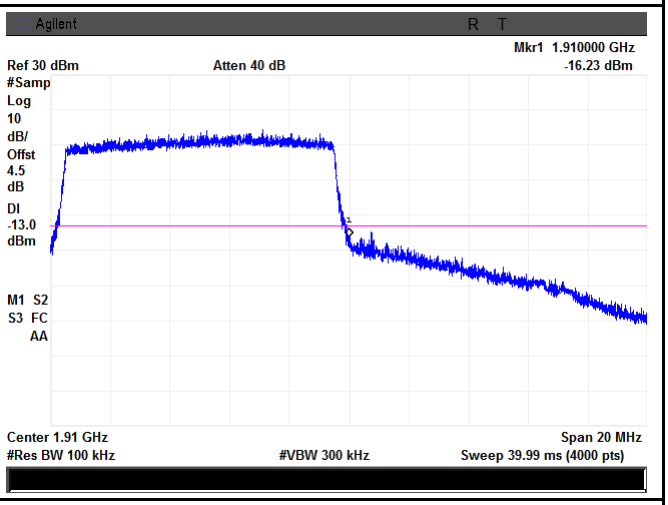

LTE Band 2 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.06/30)=4.5+2.2=6.7 dB

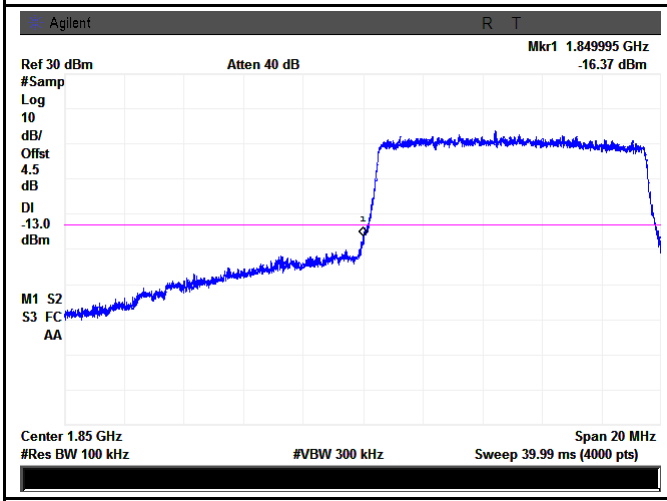



LTE Band 2 - Low Channel QPSK-10

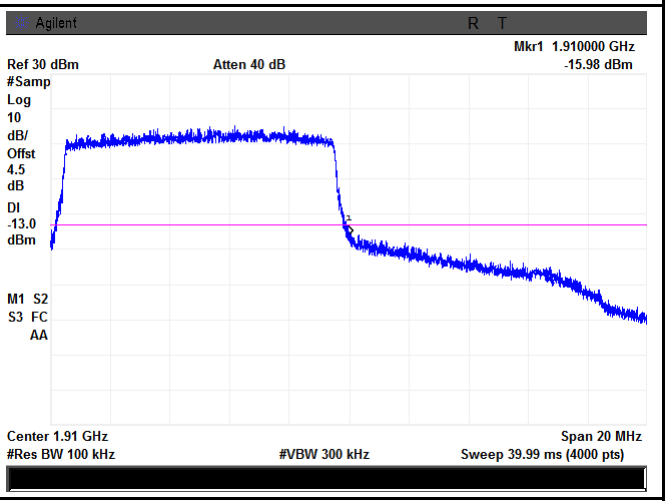
Note: Offset=Cable loss (4.5) + 10log (49.91/30)=4.5+2.2=6.7 dB



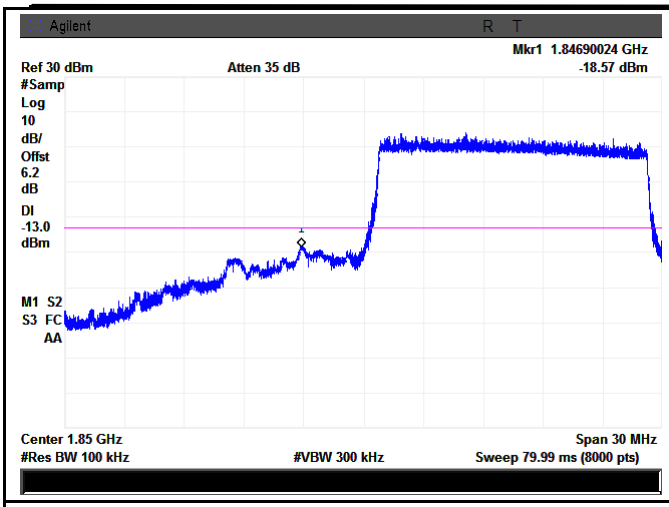

LTE Band 2 - High Channel QPSK-10




LTE Band 2 - Low Channel 16QAM-10

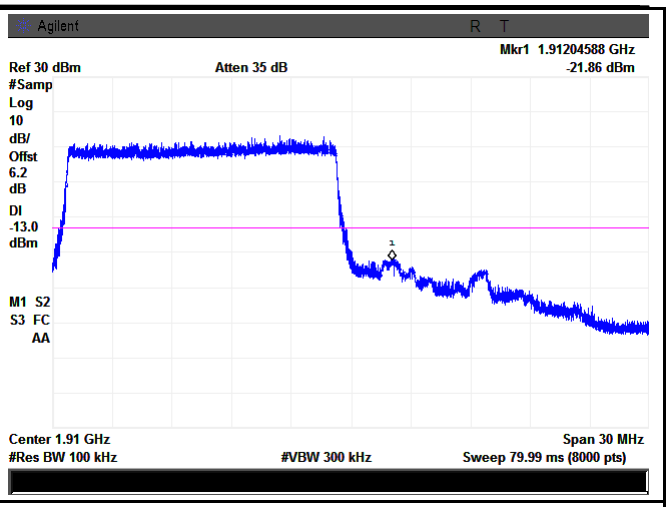



LTE Band 2 - High Channel 16QAM-10



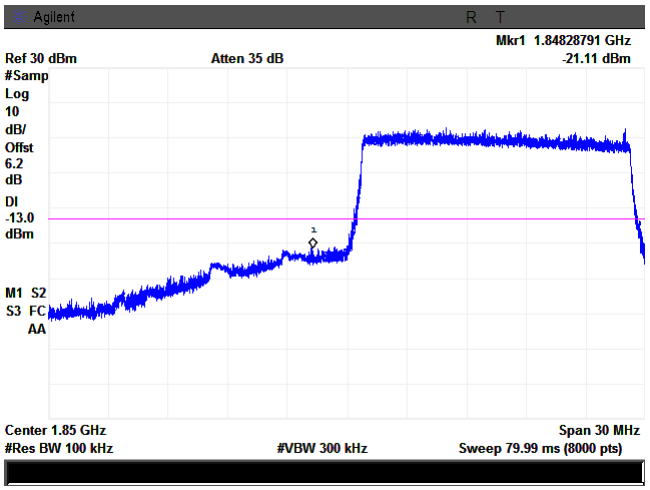

LTE Band 2 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (147.06/100)=4.5+1.7=6.2 dB



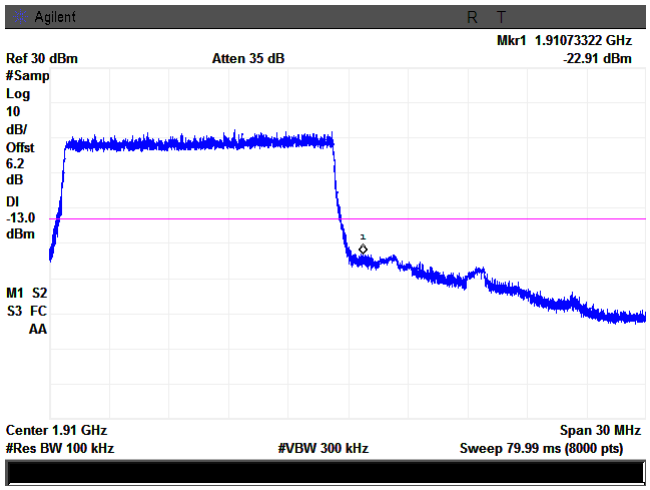

LTE Band 2 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (147.21/100)=4.5+1.7=6.2 dB



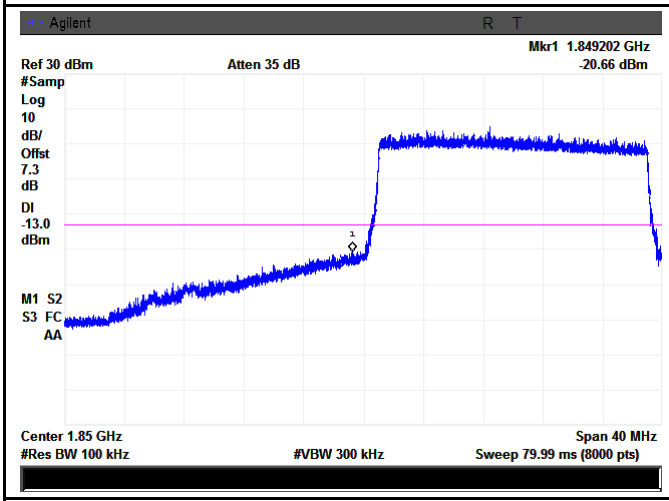

LTE Band 2 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (147.49/100)=4.5+1.7=6.2 dB

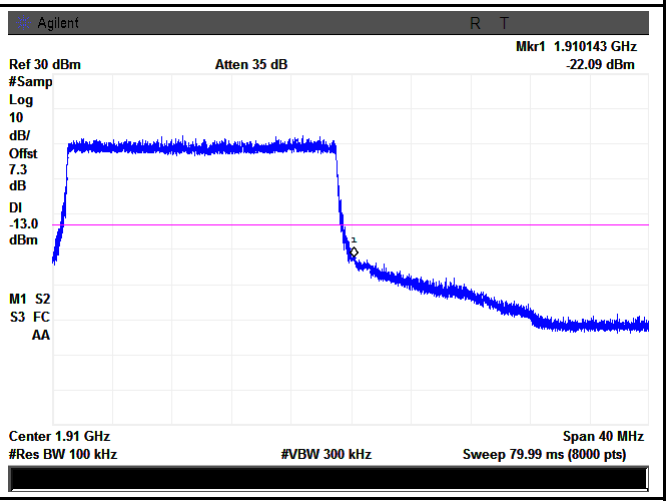



LTE Band 2 - High Channel 16QAM-15

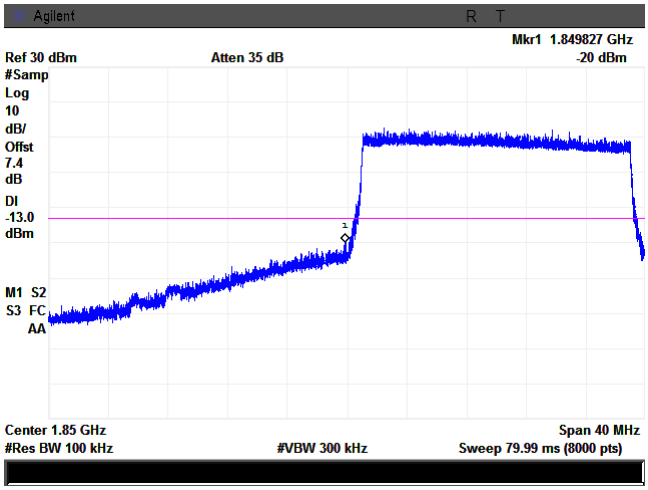
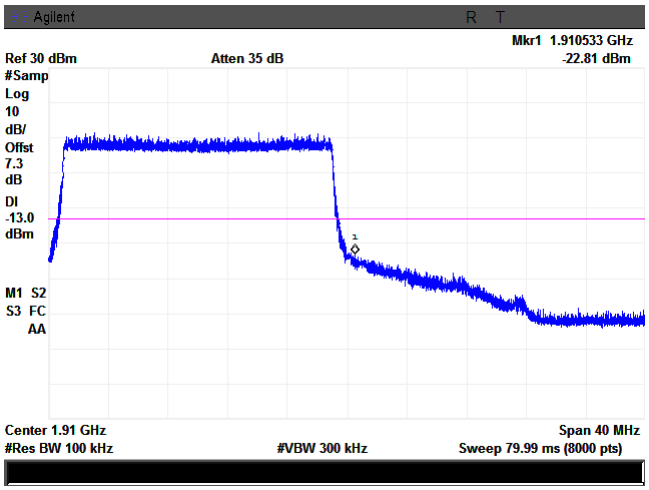
Note: Offset=Cable loss (4.5) + 10log (146.64/100)=4.5+1.7=6.2 dB



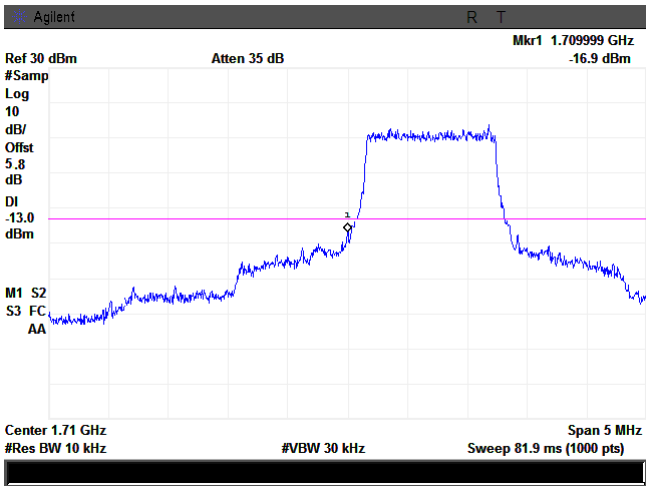

LTE Band 2 - Low Channel QPSK-20




LTE Band 2 - High Channel QPSK-20

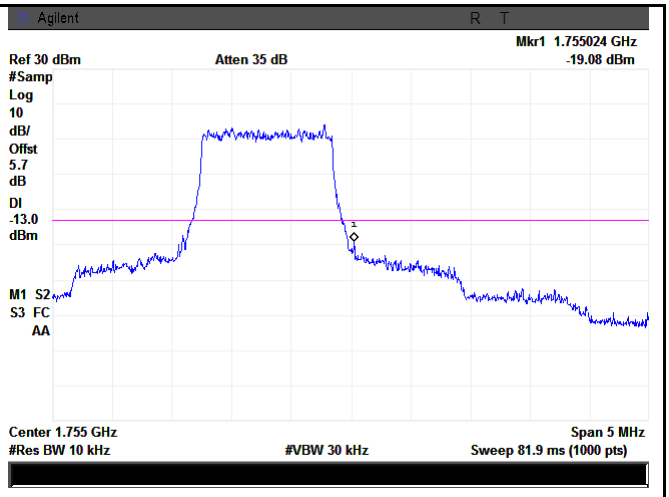
| | |
|---|---|
| Note: Offset=Cable loss (4.5) + 10log (192.69/100)=4.5+2.8=7.3 dB | Note: Offset=Cable loss (4.5) + 10log (192.12/100)=4.5+2.8=7.3 dB |
|  |  |
| LTE Band 2 - Low Channel 16QAM-20 | LTE Band 2 - High Channel 16QAM-20 |
| Note: Offset=Cable loss (4.5) + 10log (192.96/100)=4.5+2.9=7.4 dB | Note: Offset=Cable loss (4.5) + 10log (191.92/100)=4.5+2.8=7.3 dB |

## LTE Band 4 (Part 27)



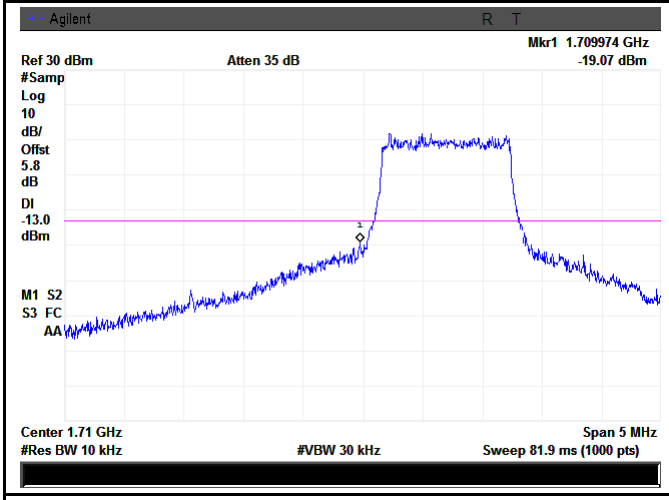

LTE Band 4 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (13.37/10)=4.5+1.3=5.8 dB



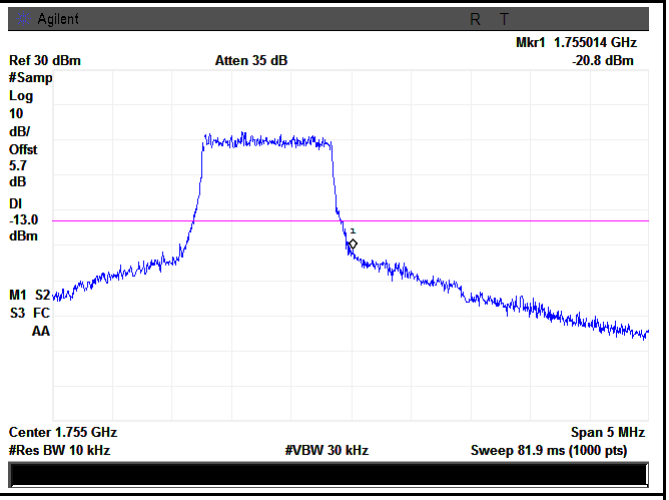

LTE Band 4 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (13.24/10)=4.5+1.2=5.7 dB



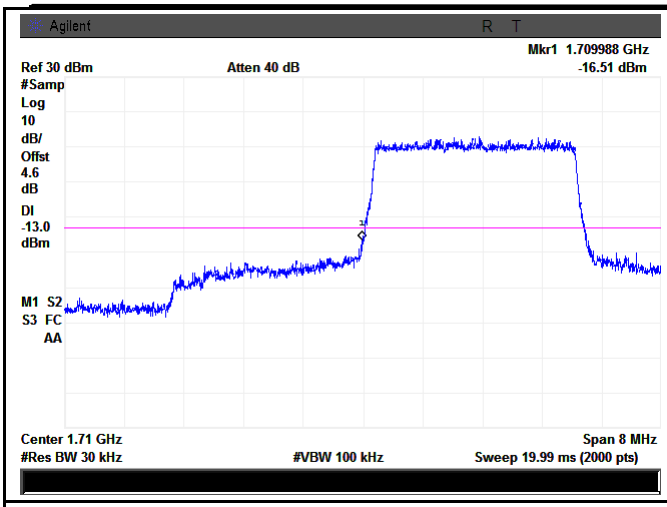

LTE Band 4 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (13.34/10)=4.5+1.3=5.8 dB



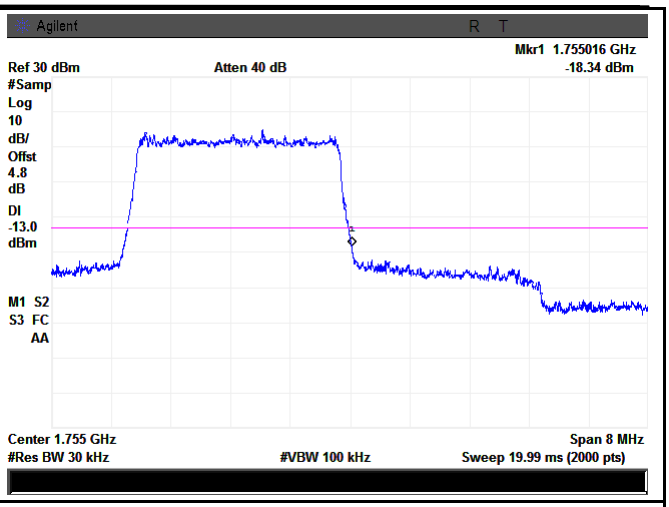

LTE Band 4 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (13.30/10)=4.5+1.2=5.7 dB



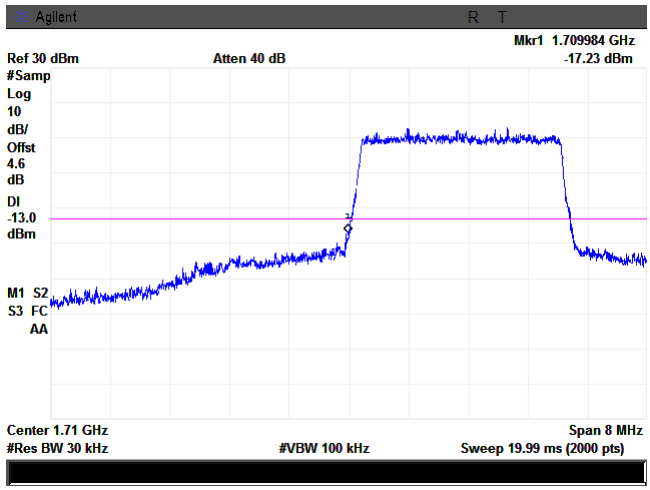

LTE Band 4 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.89/30)=4.5+0.1=4.6 dB



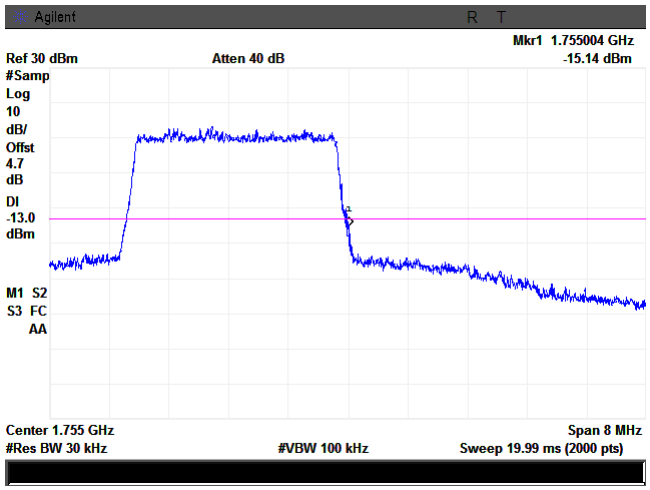

LTE Band 4 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.84/30)=4.5+0.3=4.8 dB



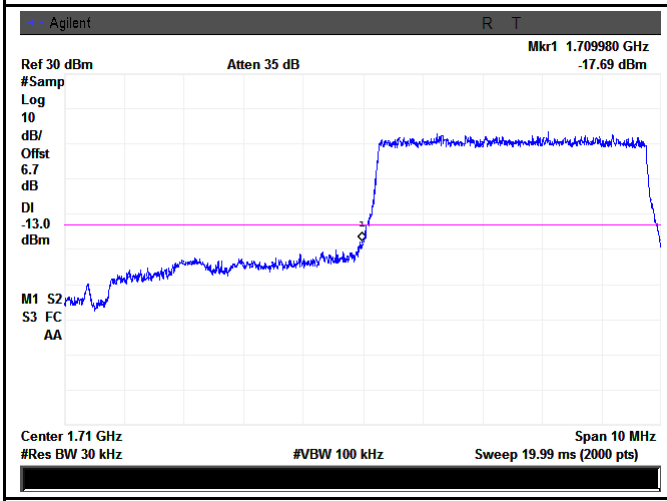

LTE Band 4 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.87/30)=4.5+0.1=4.6 dB

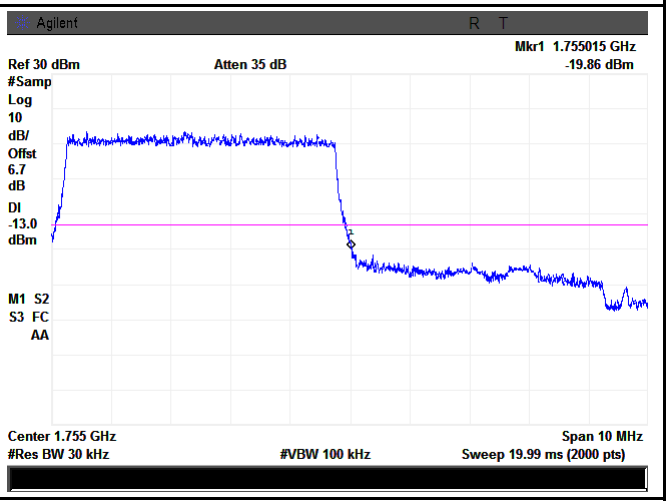



LTE Band 4 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.11/30)=4.5+0.2=4.7 dB

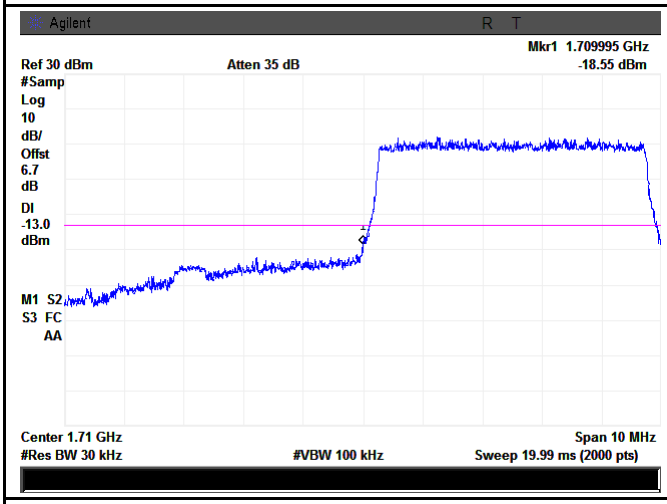



LTE Band 4 - Low Channel QPSK-5



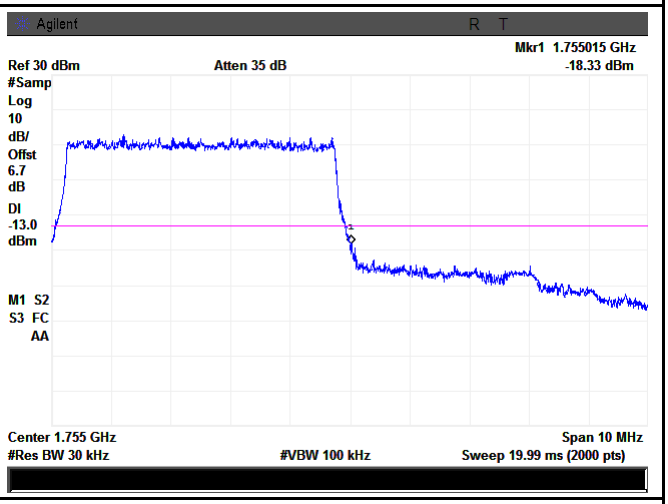

LTE Band 4 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.33/30)=4.5+2.2=6.7 dB



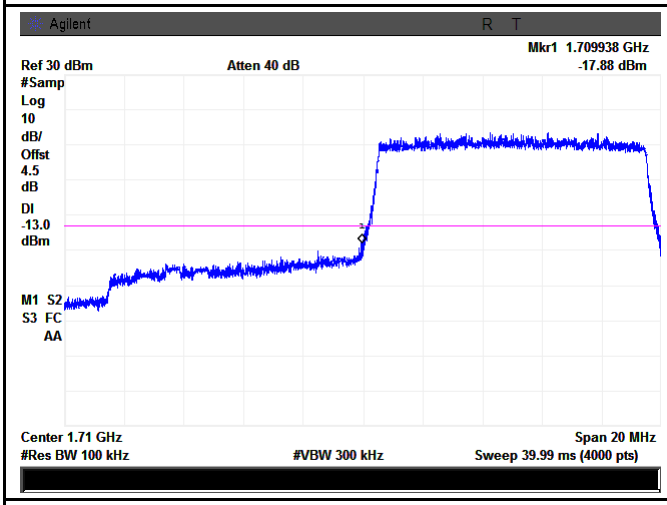

LTE Band 4 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.15/30)=4.5+2.2=6.7 dB



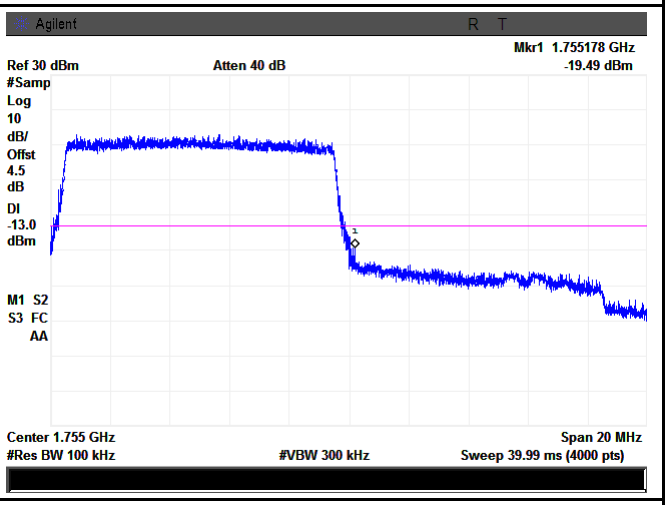

LTE Band 4 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.27/30)=4.5+2.2=6.7 dB

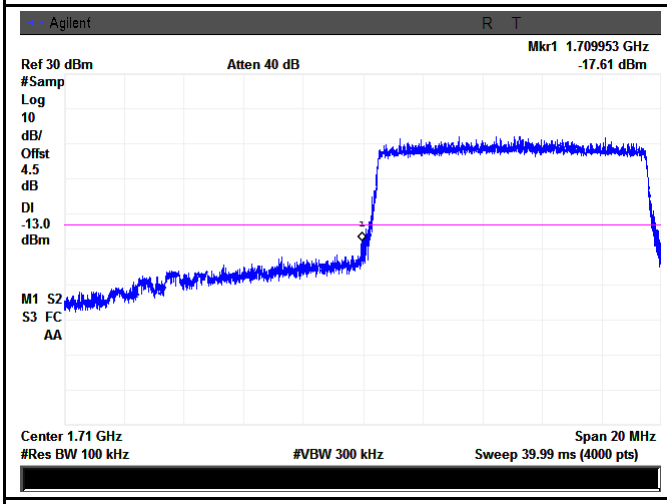



LTE Band 4 - Low Channel QPSK-10

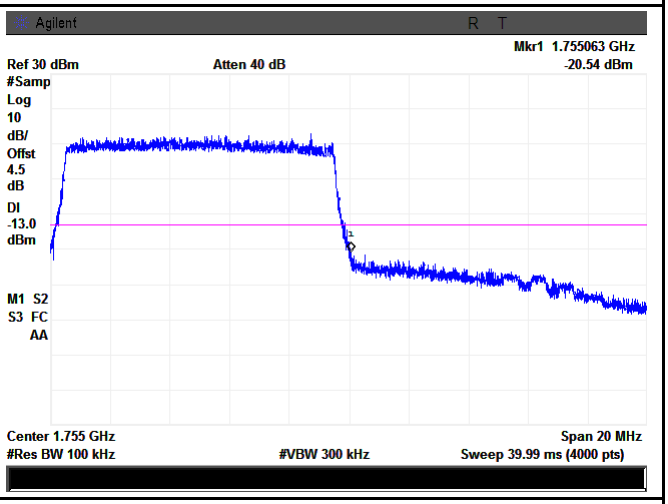
Note: Offset=Cable loss (4.5) + 10log (50.04/30)=4.5+2.2=6.7 dB



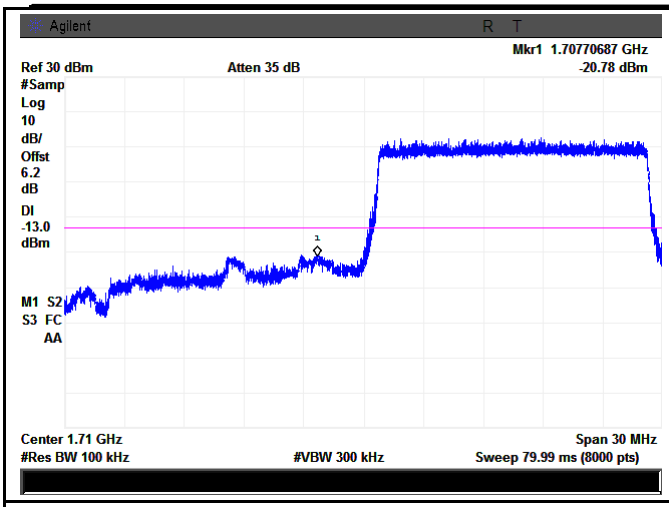

LTE Band 4 - High Channel QPSK-10




LTE Band 4 - Low Channel 16QAM-10

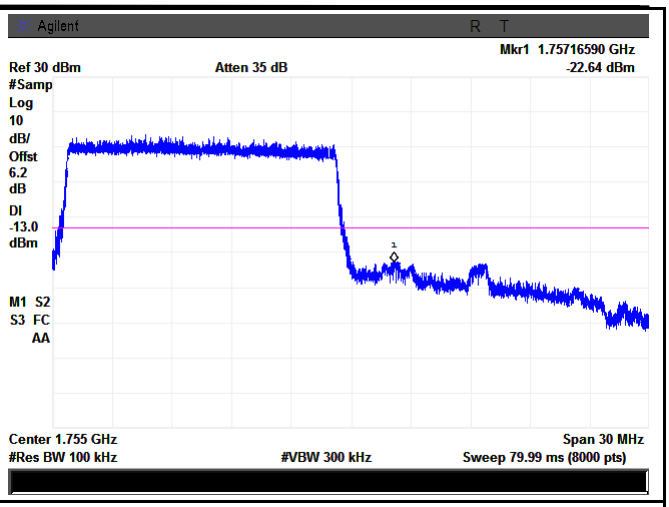



LTE Band 4 - High Channel 16QAM-10



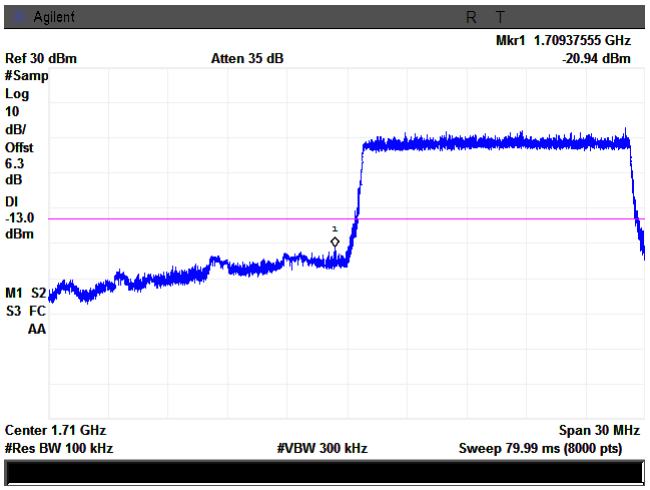

LTE Band 4 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (148.47/100)=4.5+1.7=6.2 dB



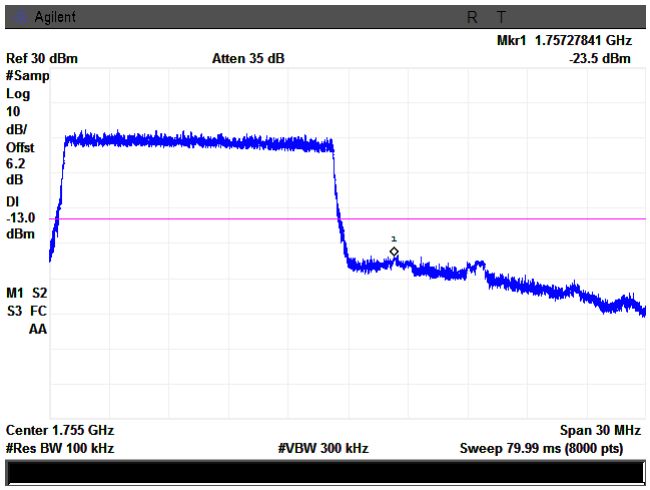

LTE Band 4 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (147.19/100)=4.5+1.7=6.2 dB



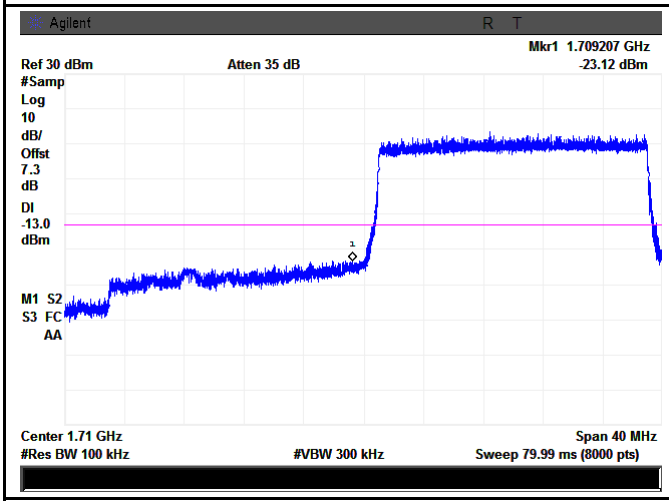

LTE Band 4 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (149.77/100)=4.5+1.8=6.3 dB

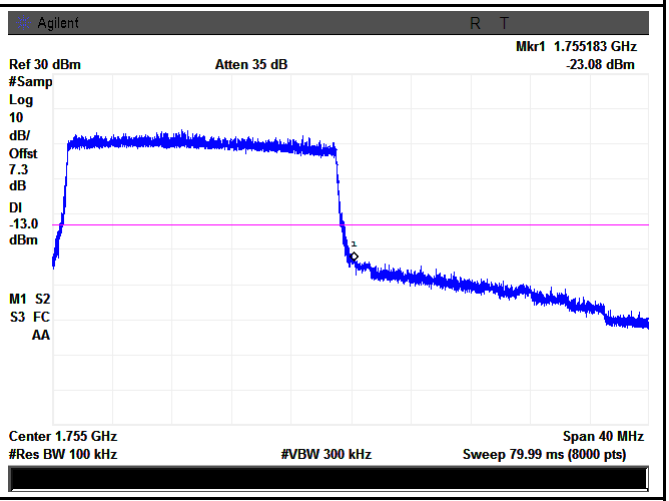



LTE Band 4 - High Channel 16QAM-15

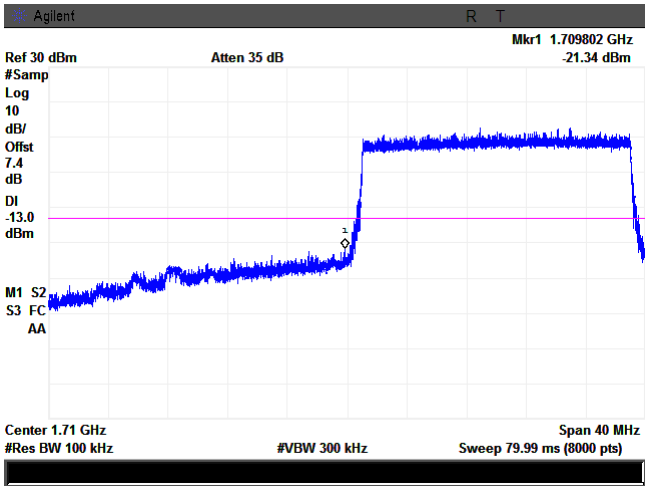
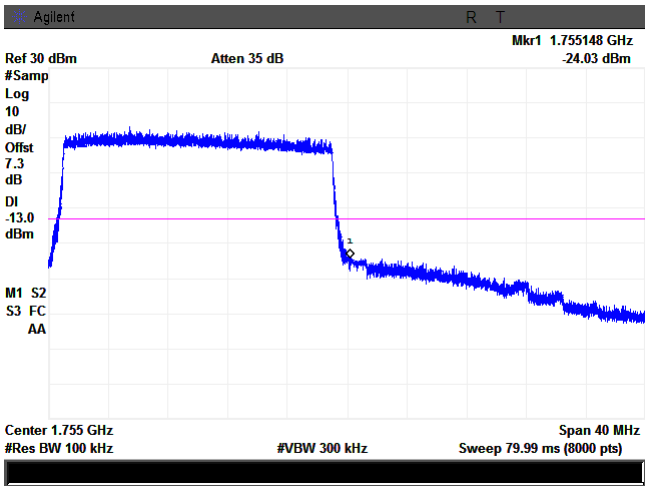
Note: Offset=Cable loss (4.5) + 10log (147.63/100)=4.5+1.7=6.2 dB



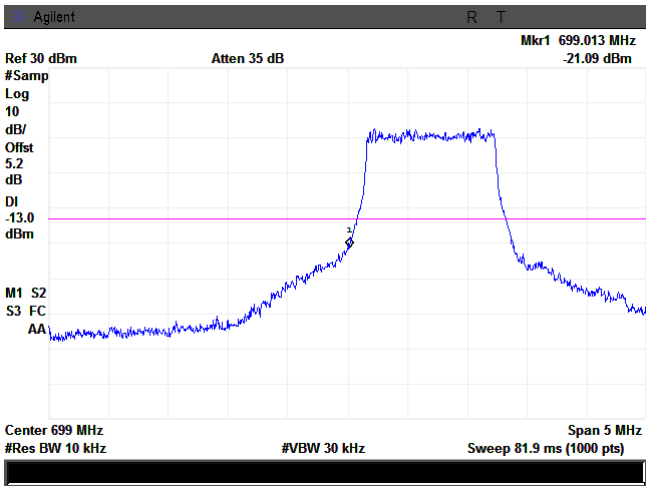

LTE Band 4 - Low Channel QPSK-20




LTE Band 4 - High Channel QPSK-20

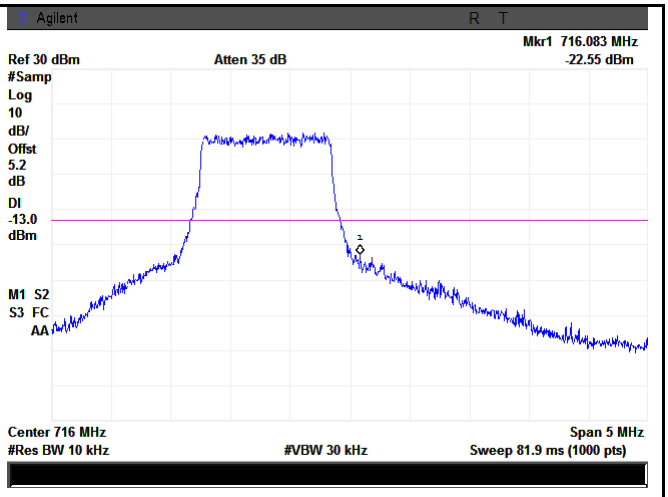
| | |
|---|---|
| Note: Offset=Cable loss (4.5) + 10log (191.39/100)=4.5+2.8=7.3 dB | Note: Offset=Cable loss (4.5) + 10log (192.42/100)=4.5+2.8=7.3 dB |
|  |  |
| LTE Band 4 - Low Channel 16QAM-20 | LTE Band 4 - High Channel 16QAM-20 |
| Note: Offset=Cable loss (4.5) + 10log (194.38/100)=4.5+2.9=7.4 dB | Note: Offset=Cable loss (4.5) + 10log (191.83/100)=4.5+2.8=7.3 dB |

## LTE Band 12 (Part 27)



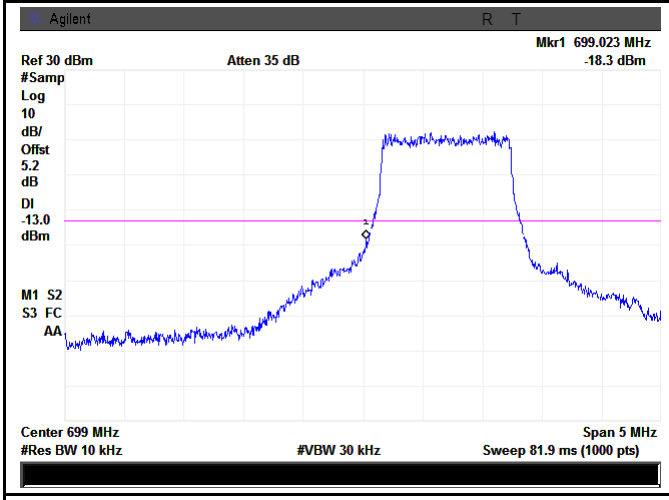

LTE Band 12 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.0) + 10log (13.05/10)=4.0+1.2=5.2 dB



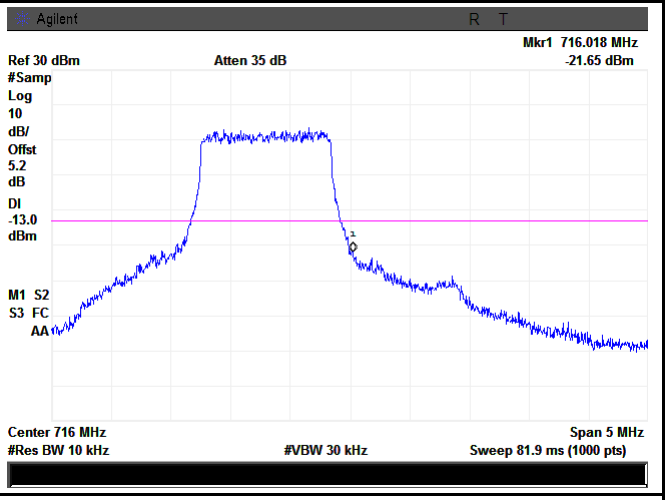

LTE Band 12 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.0) + 10log (13.12/10)=4.0+1.2=5.2 dB



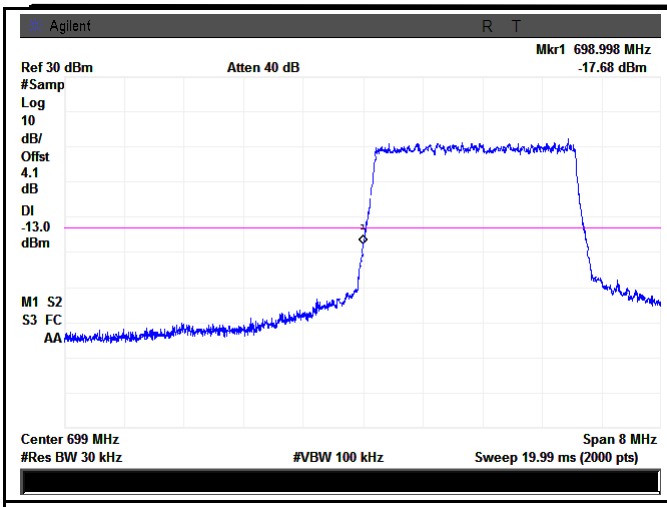

LTE Band 12 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.0) + 10log (13.09/10)=4.0+1.2=5.2 dB



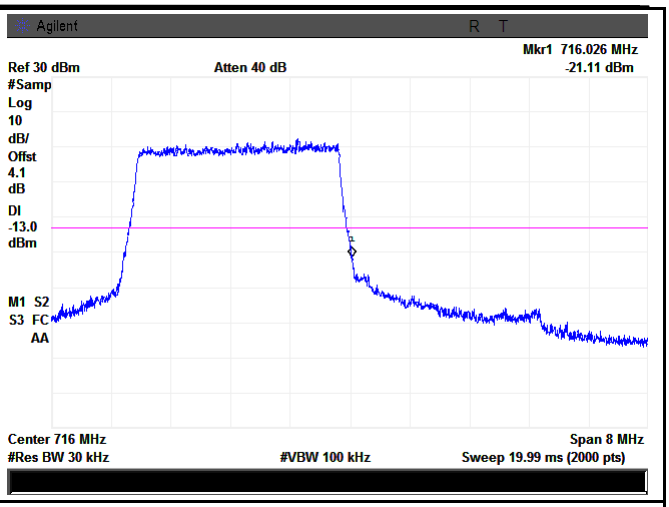

LTE Band 12 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.0) + 10log (13.08/10)=4.0+1.2=5.2 dB



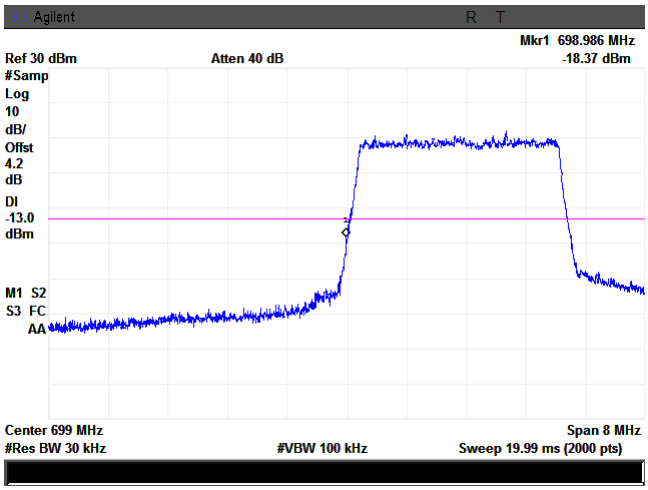

LTE Band 12 - Low Channel QPSK-3

Note: Offset=Cable loss (4.0) + 10log (30.8/30)=4.0+0.1=4.1 dB



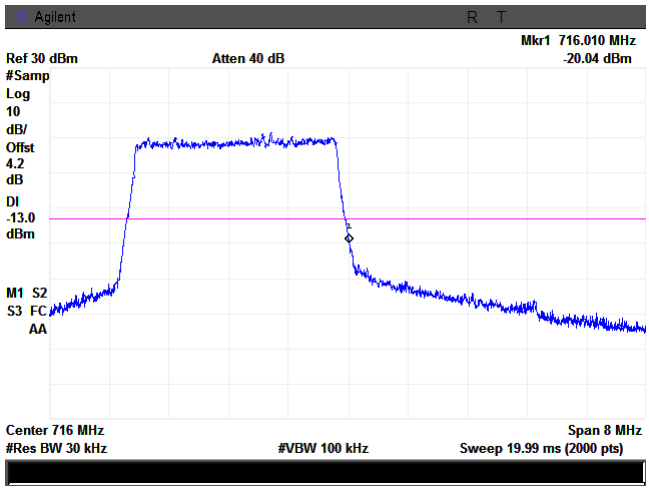

LTE Band 12 - High Channel QPSK-3

Note: Offset=Cable loss (4.0) + 10log (30.81/30)=4.0+0.1=4.1 dB



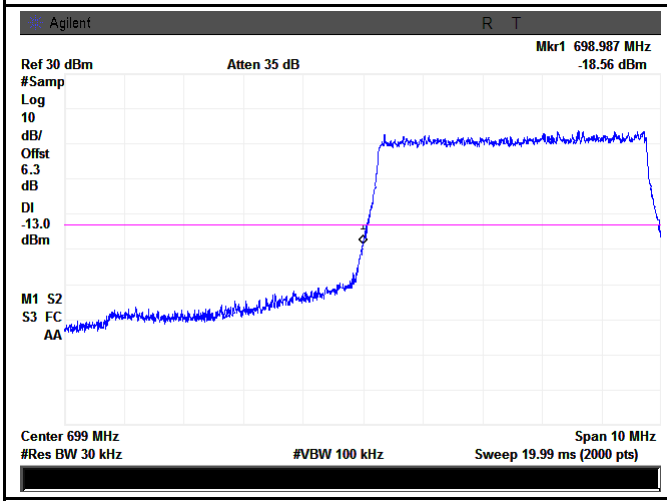

LTE Band 12 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.0) + 10log (31.1/30)=4.0+0.2=4.2 dB

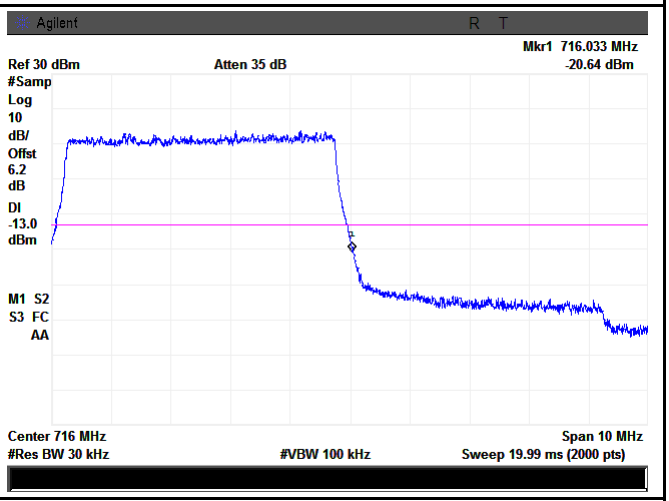



LTE Band 12 - High Channel 16QAM-3

Note: Offset=Cable loss (4.0) + 10log (31.2/30)=4.0+0.2=4.2 dB

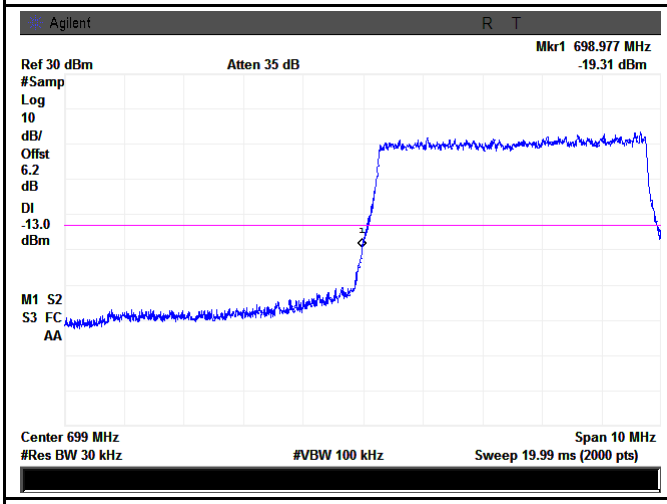



LTE Band 12 - Low Channel QPSK-5



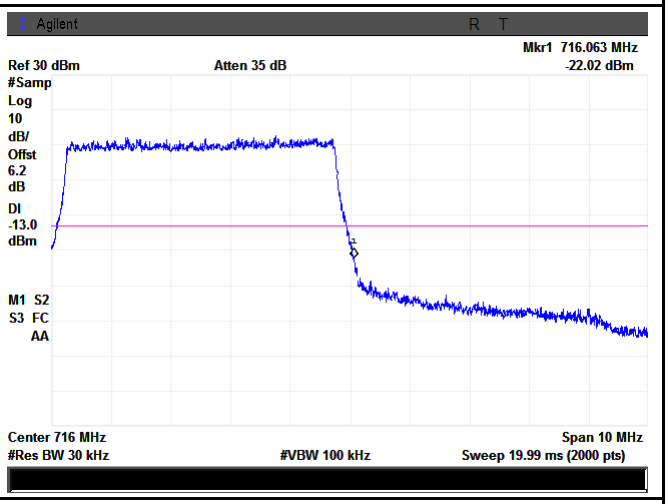

LTE Band 12 - High Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.47/30)=4.0+2.3=6.3 dB



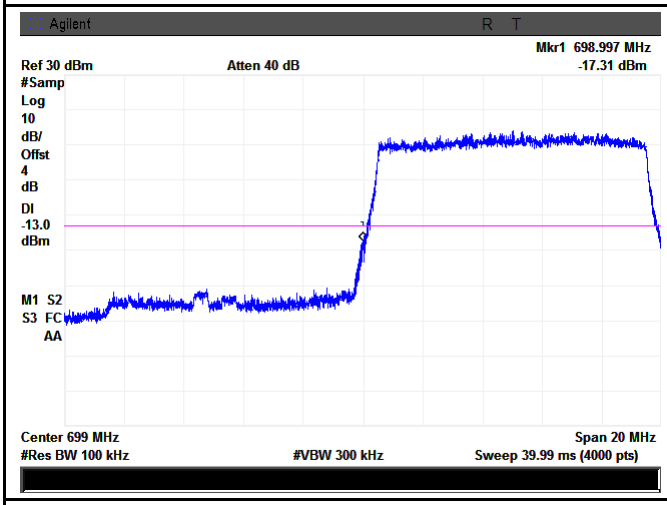

LTE Band 12 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log (50.24/30)=4.0+2.2=6.2 dB



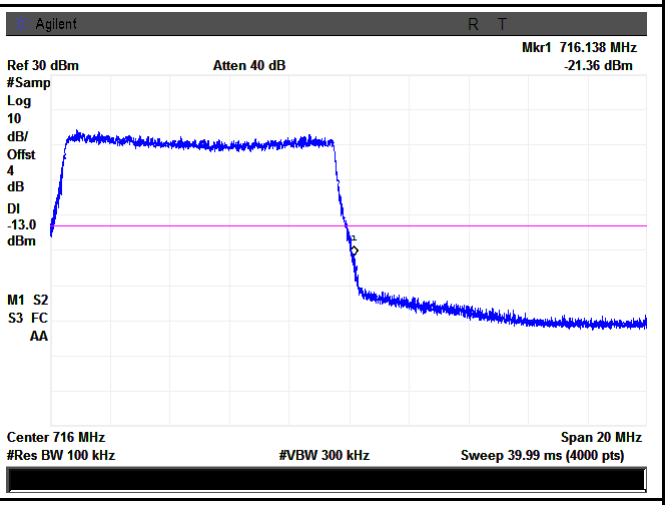

LTE Band 12 - High Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log (50.36/30)=4.0+2.2=6.2 dB

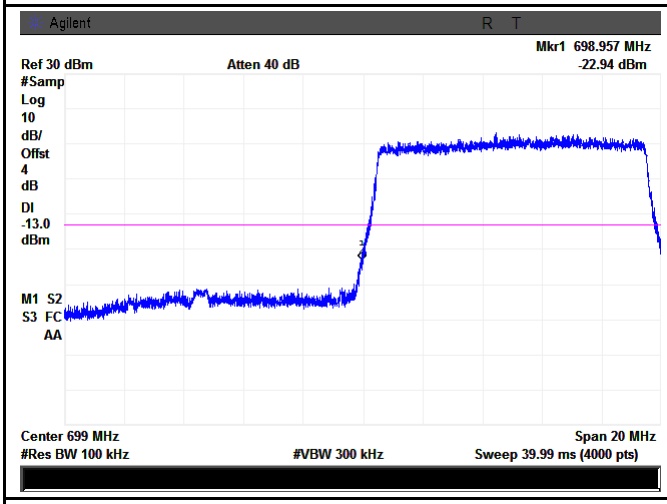



LTE Band 12 - Low Channel QPSK-10

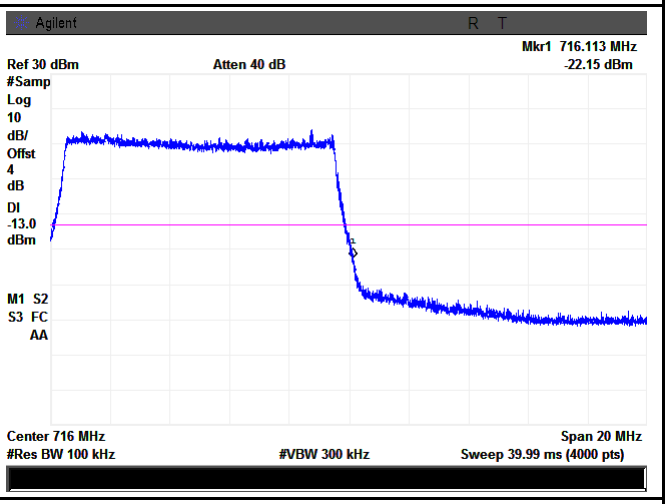
Note: Offset=Cable loss (4.0) + 10log (50.20/30)=4.0+2.2=6.2 dB




LTE Band 12 - High Channel QPSK-10

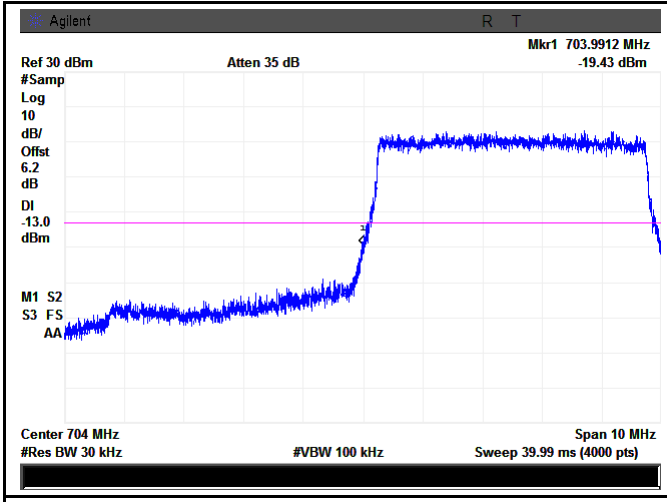



LTE Band 12 - Low Channel 16QAM-10



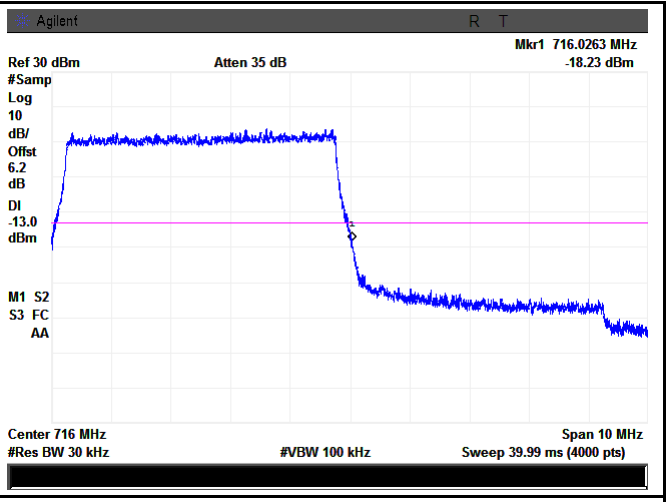

LTE Band 12 - High Channel 16QAM-10

## LTE Band 17 (Part 27)



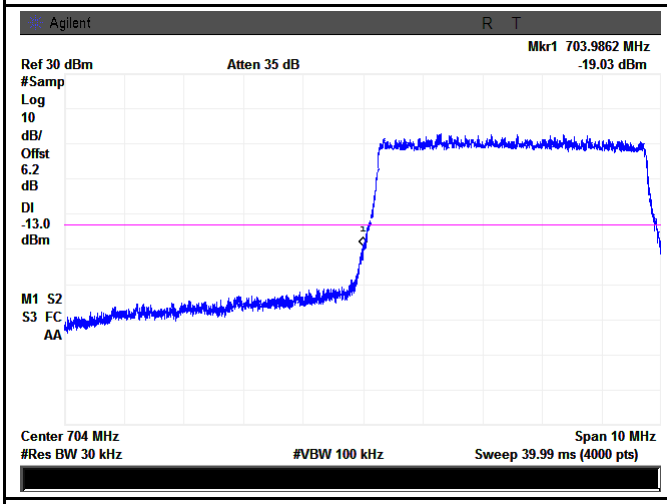

LTE Band 17 - Low Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.11/30)=4.0+2.2=6.2 dB



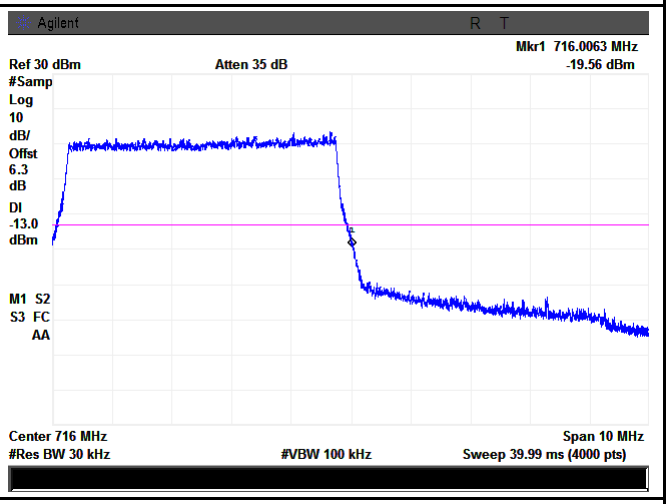

LTE Band 17 - High Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.17/30)=4.0+2.2=6.2 dB



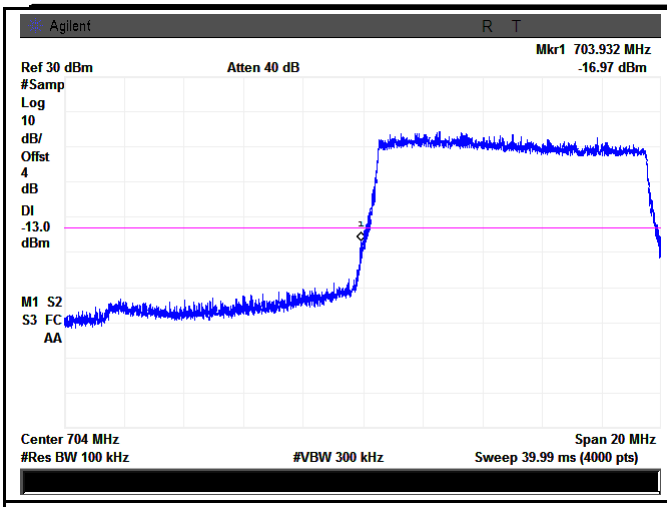

LTE Band 17 - Low Channel 16QAM-5

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

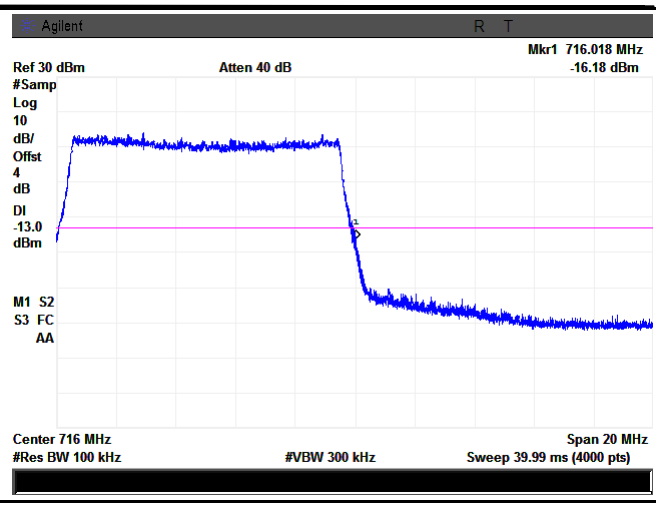



LTE Band 17 - High Channel 16QAM-5

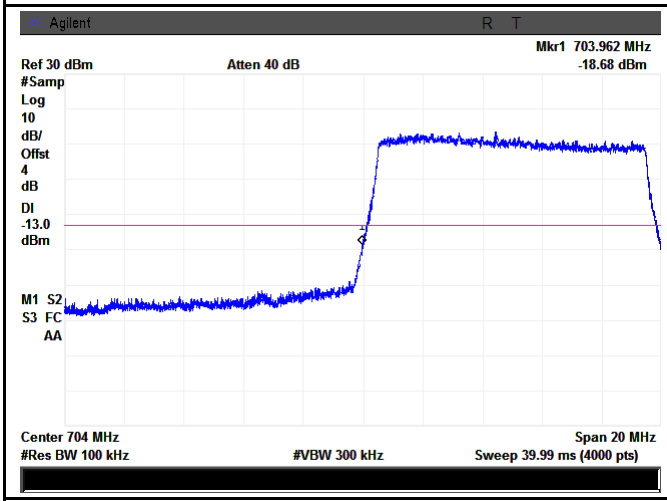
Note: Offset=Cable loss (4.0) + 10log (50.58/30)=4.0+2.3=6.3 dB



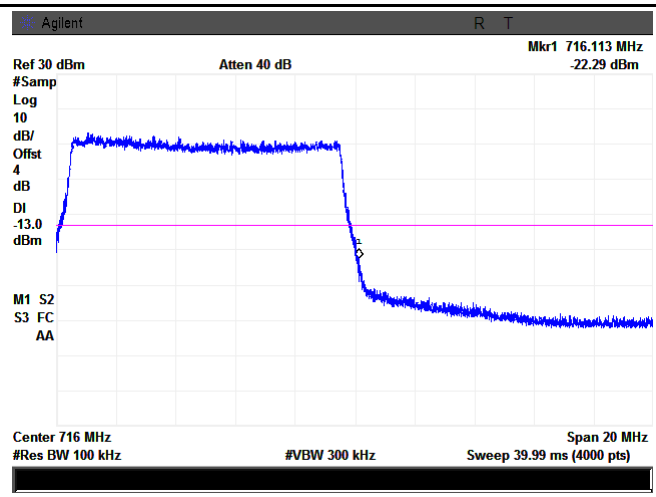

LTE Band 17 - Low Channel QPSK-10




LTE Band 17 - High Channel QPSK-10




LTE Band 17 - Low Channel 16QAM-10



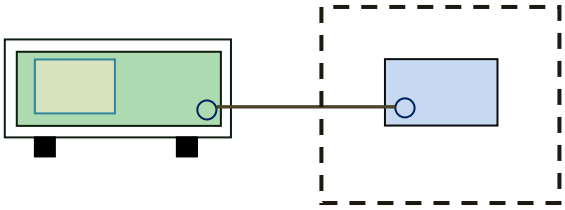

LTE Band 17 - High Channel 16QAM-10

## 6.9 Frequency Stability

| | |
|---|---|
| Temperature | 18°C |
| Relative Humidity | 59% |
| Atmospheric Pressure | 1011mbar |
| Test date : | February 05, 2015 |
| Tested By : | Wiky Jam |

**Requirement(s):**

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>§2.1055,<br>§24.235<br>§ 27.5(h);<br>§ 27.54</td><td>a)</td><td>According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:<br>Frequency Tolerance for Transmitters in the Public Mobile Services
<table>
<tr><th>Frequency Range (MHz)</th><th>Base, fixed (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th></tr>
<tr><td>25 to 50</td><td>20.0</td><td>20.0</td><td>50.0</td></tr>
<tr><td>50 to 450</td><td>5.0</td><td>5.0</td><td>50.0</td></tr>
<tr><td>450 to 512</td><td>2.5</td><td>5.0</td><td>5 0</td></tr>
<tr><td>821 to 896</td><td>1.5</td><td>2.5</td><td>2.5</td></tr>
<tr><td>928 to 929.</td><td>5.0</td><td>N/A</td><td>N/A</td></tr>
<tr><td>929 to 960.</td><td>1.5</td><td>N/A</td><td>N/A</td></tr>
<tr><td>2110 to 2220</td><td>10.0</td><td>N/A</td><td>N/A</td></tr>
</table>
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.<br>According to §27.54, The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.</td><td>☑</td></tr>
</table>

| | |
|---|---|
| Test setup |  |
| Procedure | A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage.<br>Limit: The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency. |
| Remark | Frequency Stability versus Temperature: The Frequency tolerance of the carrier signal shall be maintained within 2.5ppm of the operating frequency over a temperature variation of -10ºC to +55ºC at normal supply voltage. |
| Result | ☑ Pass ☐ Fail |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☐ Yes (See below) ☑ N/A

## LTE Band 2 (Part 24E) result

| Middle Channel, $f_o$ = 1880 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | -8 | 0.0043 | 2.5 |
| 0 | | -11 | 0.0059 | 2.5 |
| 10 | | -5 | 0.0027 | 2.5 |
| 20 | | -9 | 0.0048 | 2.5 |
| 30 | | -12 | 0.0064 | 2.5 |
| 40 | | -6 | 0.0032 | 2.5 |
| 50 | | -9 | 0.0048 | 2.5 |
| 55 | | -8 | 0.0043 | 2.5 |
| 25 | 4.2 | -11 | 0.0059 | 2.5 |
| | 3.5 | -13 | 0.0069 | 2.5 |

## LTE Band 4 (Part 27) result

| Middle Channel, $f_o$ = 1732.5 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | -20 | 0.0115 | 2.5 |
| 0 | | -15 | 0.0087 | 2.5 |
| 10 | | -14 | 0.0081 | 2.5 |
| 20 | | -12 | 0.0069 | 2.5 |
| 30 | | -15 | 0.0087 | 2.5 |
| 40 | | -14 | 0.0081 | 2.5 |
| 50 | | -17 | 0.0098 | 2.5 |
| 55 | | -15 | 0.0087 | 2.5 |
| 25 | 4.2 | -18 | 0.0104 | 2.5 |
| | 3.5 | -20 | 0.0115 | 2.5 |

## LTE Band 12 (Part 27) result

| Middle Channel, $f_o$ = 705.5 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 6 | 0.0085 | 2.5 |
| 0 | | 4 | 0.0057 | 2.5 |
| 10 | | 5 | 0.0071 | 2.5 |
| 20 | | 8 | 0.0113 | 2.5 |
| 30 | | 9 | 0.0127 | 2.5 |
| 40 | | 11 | 0.0155 | 2.5 |
| 50 | | 12 | 0.0170 | 2.5 |
| 55 | | 7 | 0.0099 | 2.5 |
| 25 | 4.2 | 5 | 0.0071 | 2.5 |
| | 3.5 | 6 | 0.0085 | 2.5 |

## LTE Band 17 (Part 27) result

| Middle Channel, $f_o$ = 710 MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supplied ($V_{DC}$) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 6 | 0.0085 | 2.5 |
| 0 | | 8 | 0.0113 | 2.5 |
| 10 | | 7 | 0.0141 | 2.5 |
| 20 | | 4 | 0.0056 | 2.5 |
| 30 | | 5 | 0.0028 | 2.5 |
| 40 | | 11 | 0.0155 | 2.5 |
| 50 | | 14 | 0.0197 | 2.5 |
| 55 | | 2 | 0.0028 | 2.5 |
| 25 | 4.2 | 10 | 0.0127 | 2.5 |
| | 3.5 | 13 | 0.0183 | 2.5 |

# Annex A. TEST INSTRUMENT

| Instrument | Model | Serial # | Cal Date | Cal Due | In use |
|---|---|---|---|---|---|
| **RF Conducted Test** | | | | | |
| Agilent ESA-E SERIES SPECTRUM ANALYZER | E4407B | MY45108319 | 09/17/2014 | 09/16/2015 | ☑ |
| Power Splitter | 1# | 1# | 09/02/2014 | 09/01/2015 | ☑ |
| Universal Radio Communication Tester | CMU200 | 121393 | 09/26/2014 | 09/25/2015 | ☑ |
| Wideband Radio Communication Tester | CMW500 | 120906 | 03/29/2014 | 03/28/2015 | ☑ |
| Temperature/Humidity Chamber | UHL-270 | 001 | 10/10/2014 | 10/09/2015 | ☑ |
| DC Power Supply | E3640A | MY40004013 | 09/18/2014 | 09/17/2015 | ☑ |
| **Radiated Emissions** | | | | | |
| EMI test receiver | ESL6 | 100262 | 09/18/2014 | 09/17/2015 | ☑ |
| OPT 010 AMPLIFIER (0.1-1300MHz) | 8447E | 2727A02430 | 09/02/2014 | 09/01/2015 | ☑ |
| Microwave Preamplifier (0.5 ~ 18GHz) | PAM-118 | 443008 | 09/02/2014 | 09/01/2015 | ☑ |
| Bilog Antenna (30MHz~6GHz) | JB6 | A110712 | 09/22/2014 | 09/21/2015 | ☑ |
| Bilog Antenna (30MHz~2GHz) | JB1 | A112017 | 09/22/2014 | 09/21/2015 | ☑ |
| Double Ridge Horn Antenna (1 ~18GHz) | AH-118 | 71259 | 09/25/2014 | 09/24/2015 | ☑ |
| Double Ridge Horn Antenna (1 ~18GHz) | AH-118 | 71283 | 09/25/2014 | 09/24/2015 | ☑ |
| SYNTHESIZED SIGNAL GENERATOR | 8665B | 3744A01293 | 09/18/2014 | 09/17/2015 | ☑ |
| Tunable Notch Filter | 3NF-800/1000-S | AA4 | 09/02/2014 | 09/01/2015 | ☑ |
| Tunable Notch Filter | 3NF-1000/2000-S | AM 4 | 09/02/2014 | 09/01/2015 | ☑ |

# Annex B. EUT And Test Setup Photographs

## Annex B.i. Photograph: EUT External Photo

| | |
|---|---|
|  |  |
| Whole Package - Top View | Adapter - Front View |
|  |  |
| EUT - Front View | EUT - Rear View |

EUT - Top View

EUT - Bottom View

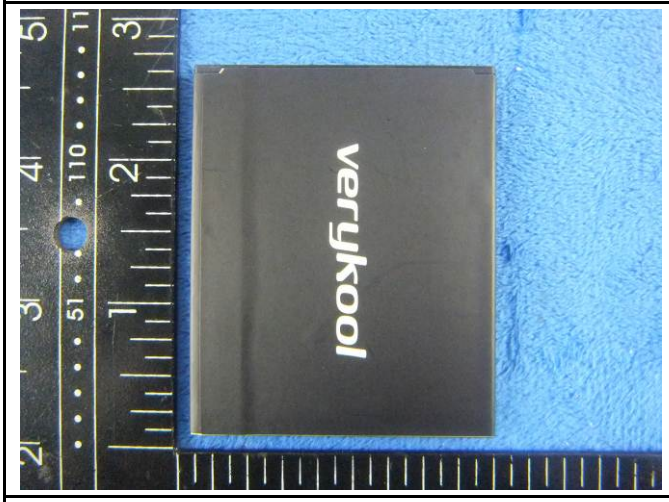
EUT - Left View

EUT - Right View

## Annex B.ii. Photograph: EUT Internal Photo

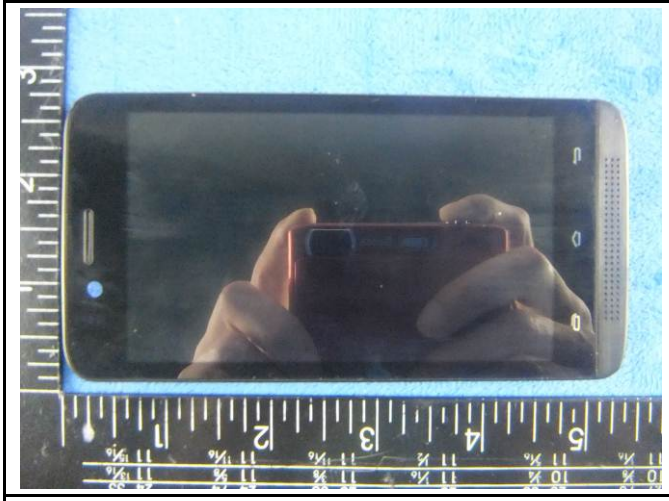

Cover Off - Top View 1

Cover Off - Top View 2

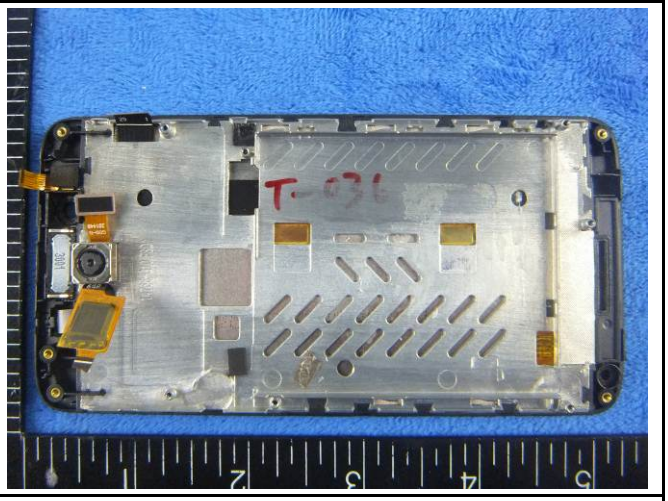



Battery - Top View

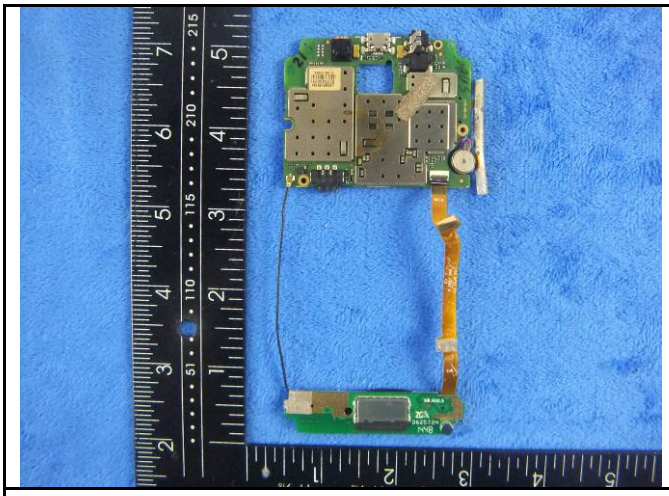

Battery - Bottom View



LCD - Front View

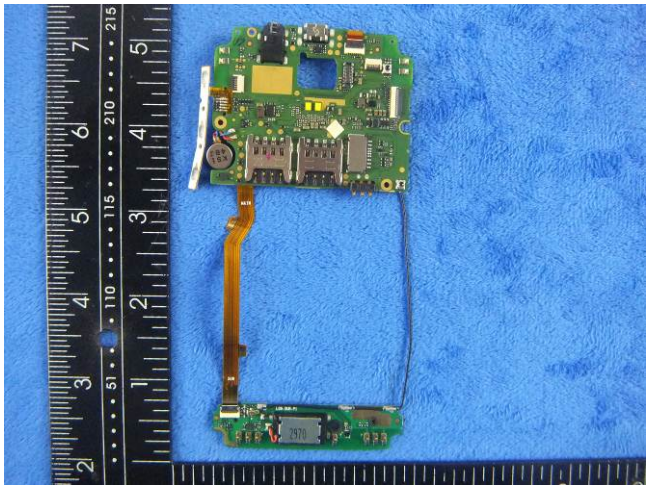


LCD - Rear View



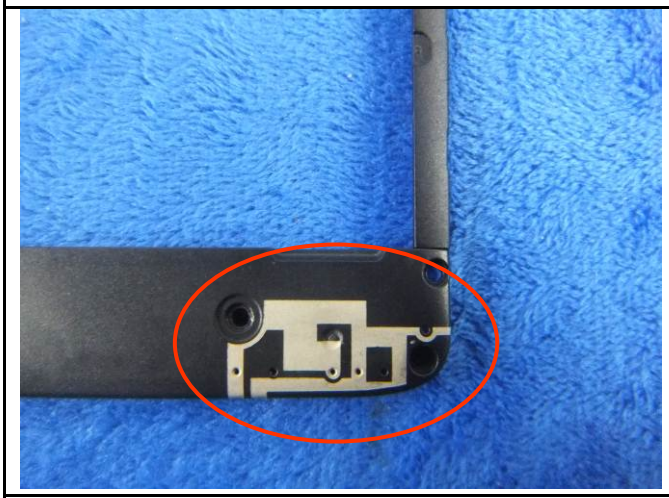
Mainborad With Shielding - Front View

Mainborad Without Shielding - Front View



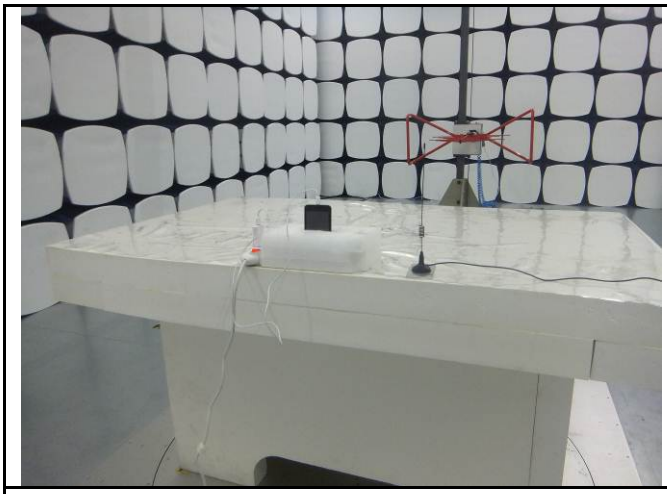
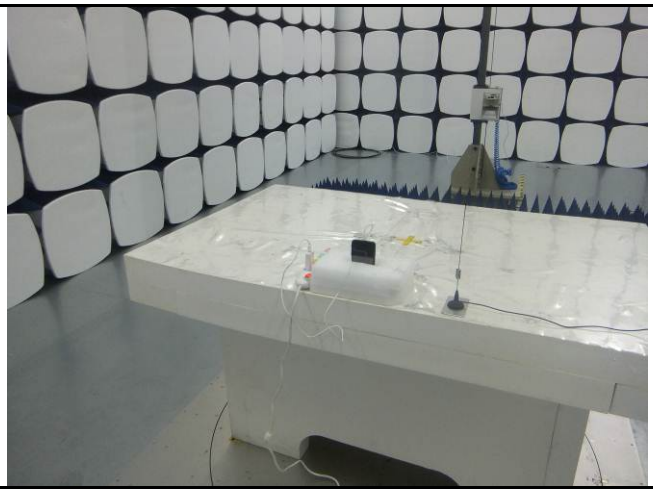
Mainborad - Rear View

BT/BLE/WIFI Antenna View



GSM/PCS/UMTS-FDD/LTE Antenna View

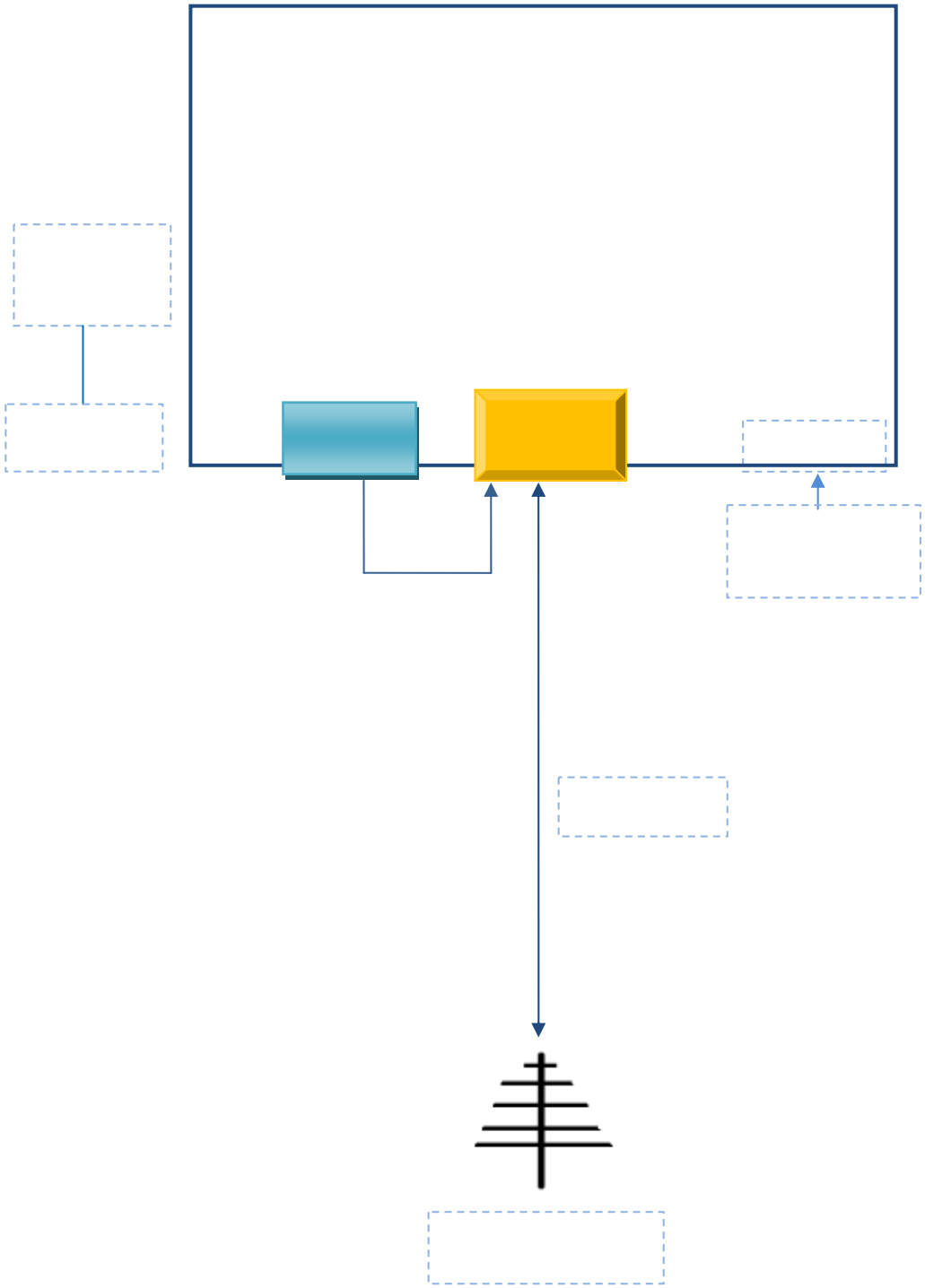
## Annex B.iii. Photograph: Test Setup Photo

| | |
|---|---|
|  |  |
| Radiated Spurious Emissions Test Setup Below 1GHz | Radiated Spurious Emissions Test Setup Above 1GHz |

# Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

## Annex C.ii. TEST SET UP BLOCK

### Block Configuration Diagram for Radiated Emissions



## Annex C. il. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

| Manufacturer | Equipment Description | Model | Calibration Date | Calibration Due Date |
| --- | --- | --- | --- | --- |
| N/A | N/A | N/A | N/A | N/A |

# Annex C.ii. EUT OPERATING CONKITIONS

The following is the description of how the EUT is exercised during testing.

| Test | Description Of Operation |
| --- | --- |
| **Emissions Testing** | The EUT was communicating with base station and set to work at maximum output power. |
| **Others Testing** | The EUT was communicating with base station and set to work at maximum output power. |

# Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see attachment

# Annex E. DECLARATION OF SIMILARITY

N/A