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MEASUREMENT REPORT

FCC Part 22, 24 & 27 / IC RSS-132/RSS-133/RSS-139 LTE

Applicant Name:
LG Electronics MobileComm U.S.A
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
August 20-29, 2012
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1208081134.ZNF

FCC ID : ZNFE973
APPLICANT: LG ELECTRONICS MOBILECOMM U.S.A

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §2; §22; §24; §27
EUT Type: Portable Handset
Model(s): E973, LGE973, LG-E973
IC Specification(s): RSS-132 Issue 2; RSS-133 Issue 5; RSS-139 Issue 2
Test Device Serial No.: identical prototype [S/N: EMC E-973-1]

| Mode | Tx Frequency (MHz) | Emission Designator | Modulation | ERP/EIRP | |
|-------------|--------------------|---------------------|------------|----------------|------------------|
| | | | | Max. Power (W) | Max. Power (dBm) |
| LTE Band 17 | 706.5 - 713.5 | 4M46G7D | QPSK | 0.175 | 22.44 |
| LTE Band 17 | 706.5 - 713.5 | 4M44W7D | 16QAM | 0.131 | 21.16 |
| LTE Band 17 | 709 - 711 | 8M99G7D | QPSK | 0.169 | 22.27 |
| LTE Band 17 | 709 - 711 | 9M00W7D | 16QAM | 0.132 | 21.22 |
| LTE Band 5 | 826.5 - 846.5 | 4M53G7D | QPSK | 0.155 | 21.90 |
| LTE Band 5 | 826.5 - 846.5 | 4M53W7D | 16QAM | 0.122 | 20.87 |
| LTE Band 5 | 829 - 844 | 8M93G7D | QPSK | 0.131 | 21.16 |
| LTE Band 5 | 829 - 844 | 8M88W7D | 16QAM | 0.114 | 20.56 |
| LTE Band 4 | 1712.5 - 1752.5 | 4M48G7D | QPSK | 0.220 | 23.42 |
| LTE Band 4 | 1712.5 - 1752.5 | 4M46W7D | 16QAM | 0.218 | 23.39 |
| LTE Band 4 | 1715 - 1750 | 9M03G7D | QPSK | 0.230 | 23.61 |
| LTE Band 4 | 1715 - 1750 | 9M05W7D | 16QAM | 0.181 | 22.58 |
| LTE Band 4 | 1717.5 - 1747.5 | 13M3G7D | QPSK | 0.166 | 22.21 |
| LTE Band 4 | 1717.5 - 1747.5 | 13M3W7D | 16QAM | 0.162 | 22.11 |
| LTE Band 4 | 1720 - 1745 | 17M9G7D | QPSK | 0.181 | 22.588 |
| LTE Band 4 | 1720 - 1745 | 17M9W7D | 16QAM | 0.116 | 20.658 |
| LTE Band 2 | 1852.5 - 1907.5 | 4M45G7D | QPSK | 0.167 | 22.23 |
| LTE Band 2 | 1852.5 - 1907.5 | 4M44W7D | 16QAM | 0.151 | 21.80 |
| LTE Band 2 | 1855 - 1905 | 8M92G7D | QPSK | 0.166 | 22.19 |
| LTE Band 2 | 1855 - 1905 | 8M97W7D | 16QAM | 0.113 | 20.53 |

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested. I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.


Safety Officer
President

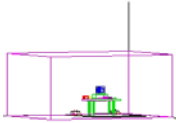


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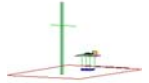
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MEASUREMENT REPORT

FCC Part 22, 24 & 27

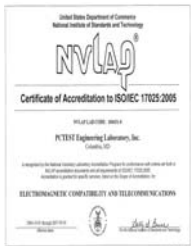
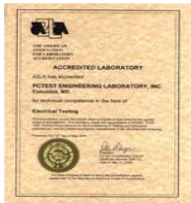


§2.1033 General Information

APPLICANT: LG Electronics MobileComm U.S.A
APPLICANT ADDRESS: 1000 Sylvan Avenue
 Englewood Cliffs, NJ 07632, United States
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 7185 Oakland Mills Road, Columbia, MD 21045 USA
FCC RULE PART(S): §2; §22; §24; §27
BASE MODEL: E973, LGE973, LG-E973
FCC ID: ZNFE973
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: ±0.00025 % (2.5 ppm)
Test Device Serial No.: EMC E-973-1 Production Pre-Production Engineering
DATE(S) OF TEST: August 20-29, 2012
TEST REPORT S/N: 0Y1208081134.ZNF

Test Facility / Accreditations

Measurements were performed at **PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.**



- PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Internt'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on February 15, 2012.

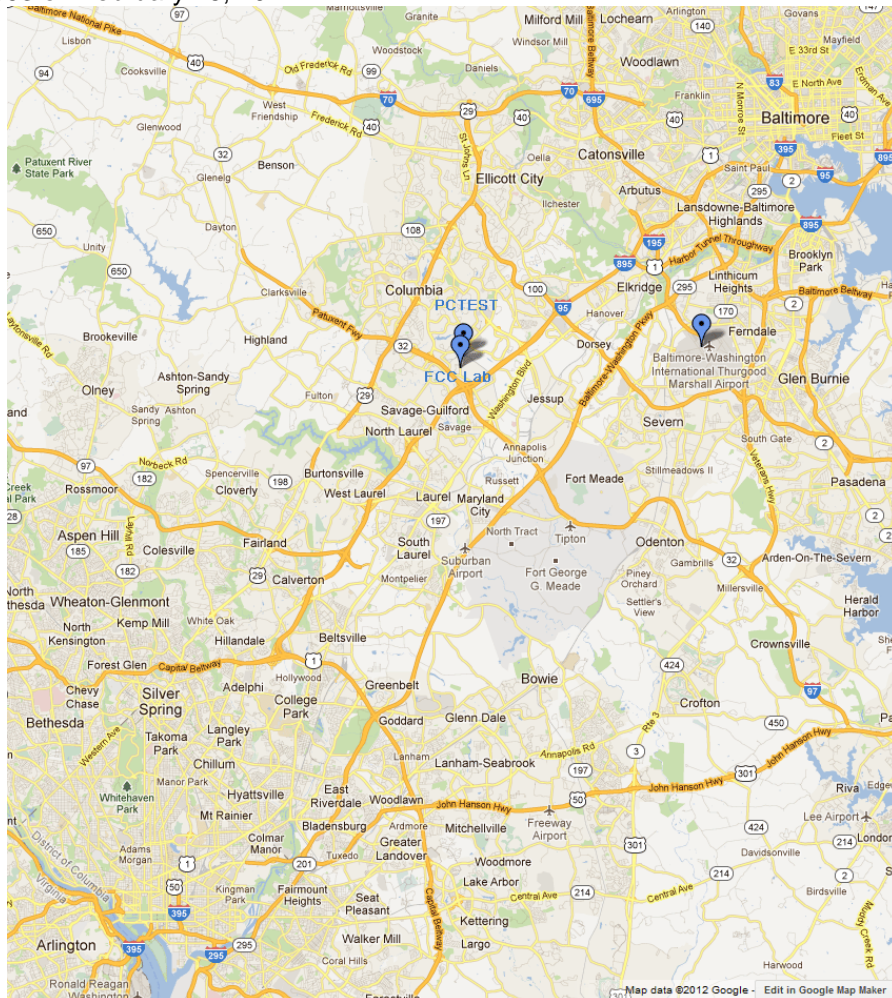


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Electronics MobileComm U.S.A Portable Handset FCC ID: ZNFE973**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA, Band 2, 4, 5, 17 LTE, 802.11a/b/g/n WLAN (DTS/NII), Bluetooth (1x,EDR), NFC

2.3 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

2.4 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase..

Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI/TIA-603-C-2004) was used in the measurement of the **LG Electronics MobileComm U.S.A Portable Handset FCC ID: ZNFE973**.

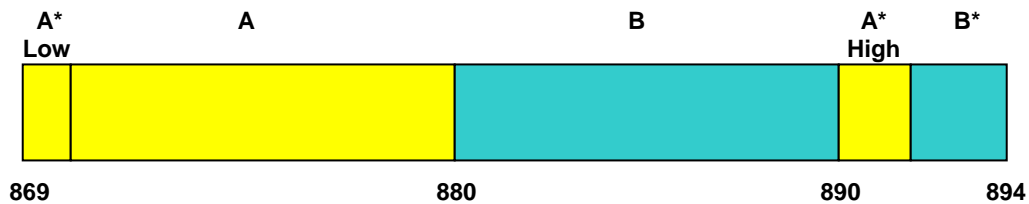
3.2 Block A Frequency Range

§27.5(c)

698-746 MHz band. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

Block A: 698-704 MHz and 728-734 MHz;
 Block B: 704-710 MHz and 734-740 MHz; and
 Block C: 710-716 MHz and 740-746 MHz.

3.3 Cellular - Base Frequency Blocks



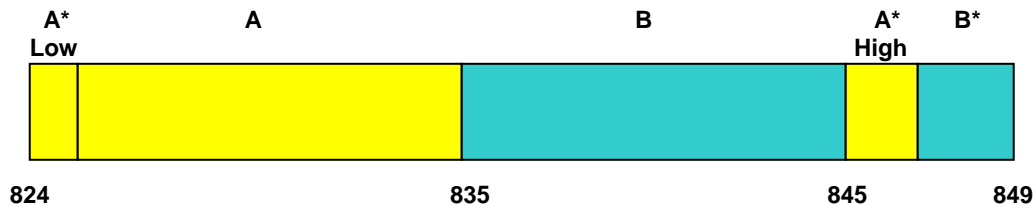
BLOCK 1: 869 – 880 MHz (A* Low + A)

BLOCK 3: 890 – 891.5 MHz (A* High)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 4: 891.5 – 894 MHz (B*)

3.4 Cellular - Mobile Frequency Blocks



BLOCK 1: 824 – 835 MHz (A* Low + A)

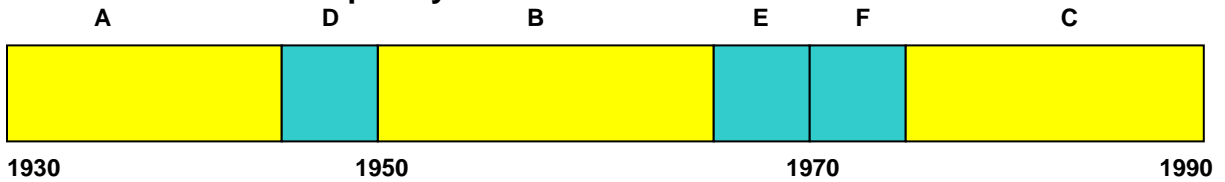
BLOCK 3: 845 – 846.5 MHz (A* High)

BLOCK 2: 835 – 845 MHz (B)

BLOCK 4: 846.5 – 849 MHz (B*)

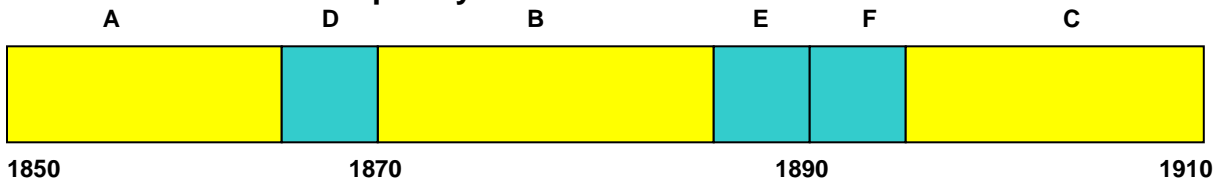
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3.5 PCS - Base Frequency Blocks



- BLOCK 1: 1930 – 1945 MHz (A)
- BLOCK 2: 1945 – 1950 MHz (D)
- BLOCK 3: 1950 – 1965 MHz (B)
- BLOCK 4: 1965 – 1970 MHz (E)
- BLOCK 5: 1970 – 1975 MHz (F)
- BLOCK 6: 1975 – 1990 MHz (C)

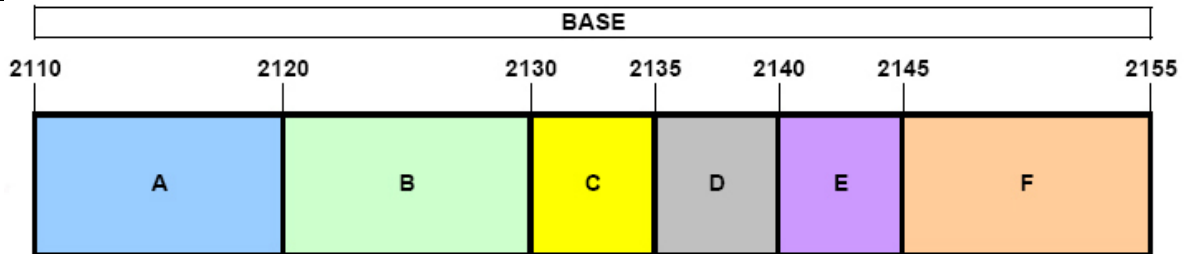
3.6 PCS - Mobile Frequency Blocks



- BLOCK 1: 1850 – 1865 MHz (A)
- BLOCK 2: 1865 – 1870 MHz (D)
- BLOCK 3: 1870 – 1885 MHz (B)
- BLOCK 4: 1885 – 1890 MHz (E)
- BLOCK 5: 1890 – 1895 MHz (F)
- BLOCK 6: 1895 – 1910 MHz (C)

3.7 AWS - Base Frequency Blocks

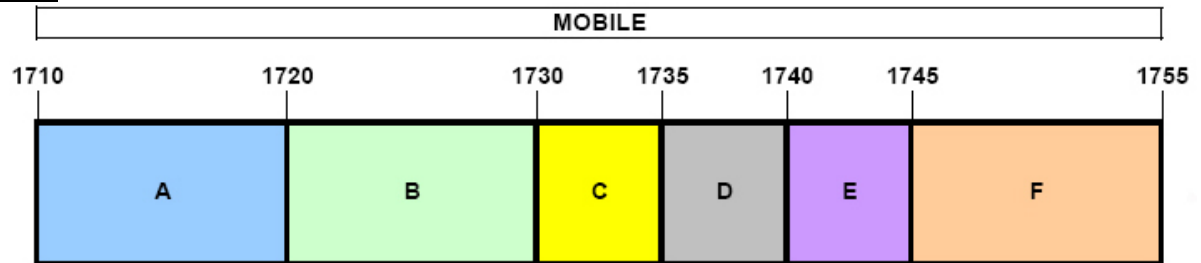
§27.5(h)



- BLOCK 1: 2110 – 2120 MHz (A)
- BLOCK 2: 2120 – 2130 MHz (B)
- BLOCK 3: 2130 – 2135 MHz (C)
- BLOCK 4: 2135 – 2140 MHz (D)
- BLOCK 5: 2140 – 2145 MHz (E)
- BLOCK 6: 2145 – 2155 MHz (F)

3.8 AWS - Mobile Frequency Blocks

§27.5(h)



- BLOCK 1: 1710 – 1720 MHz (A)
- BLOCK 2: 1720 – 1730 MHz (B)
- BLOCK 3: 1730 – 1735 MHz (C)
- BLOCK 4: 1735 – 1740 MHz (D)
- BLOCK 5: 1740 – 1745 MHz (E)
- BLOCK 6: 1745 – 1755 MHz (F)

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3.9 Occupied Bandwidth

§2.1049, RSS-Gen (4.6.1)

The implementation of this test is performed by the spectrum analyzer's occupied bandwidth function. The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

3.10 Spurious and Harmonic Emissions at Antenna Terminal


§2.1051, 22.917(a), 24.238(a)(b); RSS-132 (4.5.1), RSS-133 (6.5.1), §27.53(g)(h)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

3.11 Peak-Average Ratio

§24.232(d), §27.50(d)(5), RSS-133 (6.4)

A peak to average ratio measurement is performed at the conducted port of the EUT. For LTE signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

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3.12 Radiated Power and Radiated Spurious Emissions

§2.1053, §22.913(a)(2), 22.917(a), 24.232(c), 24.238(a), §27.53(g)(h), 27.50(d)(4), 27.50(c)(10), RSS-132(4.5.1.2), RSS-133 (6.5.1)

Radiated spurious emissions are investigated indoors in a semi-anechoic chamber to determine the frequencies producing the worst case emissions. Final measurements for radiated power and radiated spurious emissions are performed on the 3 meter OATS per the guidelines of ANSI/TIA-603-C-2004. The measurement area is situated on an 18 meter x 20 meter galvanized 1/2" hardware cloth as the conducting ground plane. This material is sewn together in sections 4 feet wide and 60 feet long. A total of eighteen sections are required to cover the entire measurement area. Sections are laid across the width of the pad, overlapped 1" and sewn and soldered together at intervals of 3" (7.6 cm.) The terrain of the test site is reasonably flat and level. Power and cable to the test site are buried 18" deep into the ground outside the perimeter of the site. An all-weather non-metallic housing is situated on a 2 x 3 meter area adjacent to the measurement area to house the test equipment. The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Emissions are also investigated with the receive antenna horizontally and vertically polarized. The level of the maximized emission is recorded with the spectrum analyzer using a peak detector with RBW = 1MHz, VBW = 3MHz for emissions greater than 1GHz. For emissions below 1GHz, the spectrum analyzer is set to RBW = 100kHz and VBW = 300kHz.

A half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_d \text{ [dBm]} = P_g \text{ [dBm]} - \text{cable loss [dB]} + \text{antenna gain [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_g \text{ [dBm]} - \text{cable loss [dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of $43 + 10\log_{10}(\text{Power}_{\text{[Watts]}})$ specified in 22.917(a), 24.238(a), and 27.53(g)(h).

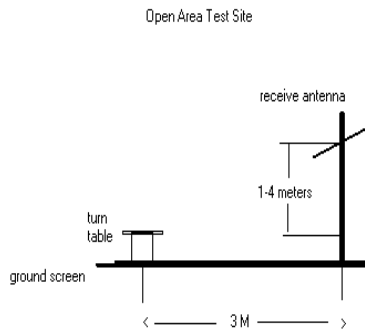


Figure 3-1. Diagram of 3-meter outdoor test range

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3.13 Frequency Stability / Temperature Variation

§2.1055, 22.355, 24.235, §27.54, RSS-132 (4.3), RSS-133 (6.3)

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block for Part 24 and 27. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency for Part 22.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A sufficient stabilization period at each temperature shall be used prior to each frequency requirement.

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4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

| Manufacturer | Model | Description | Cal Date | Cal Interval | Cal Due | Serial Number |
|-----------------|-------------|--|------------|--------------|------------|---------------|
| - | LTX1 | Licensed Transmitter Cable Set | 1/25/2012 | Annual | 1/25/2013 | N/A |
| - | RE1 | Radiated Emissions Cable Set (UHF/EHF) | 6/7/2012 | Annual | 6/7/2013 | N/A |
| - | RE2 | Radiated Emissions Cable Set (VHF/UHF) | 2/13/2012 | Annual | 2/13/2013 | N/A |
| - | LTX2 | Licensed Transmitter Cable Set | 2/17/2012 | Annual | 2/17/2013 | N/A |
| Agilent | 8447D | Broadband Amplifier | 5/8/2012 | Annual | 5/8/2013 | 1937A03348 |
| Agilent | 8449B | (1-26.5GHz) Pre-Amplifier | 2/15/2012 | Annual | 2/15/2013 | 3008A00985 |
| Agilent | 8648D | (9kHz-4GHz) Signal Generator | 10/10/2011 | Annual | 10/10/2012 | 3613A00315 |
| Agilent | E4448A | PSA (3Hz-50GHz) Spectrum Analyzer | 2/15/2012 | Annual | 2/15/2013 | US42510244 |
| Agilent | N9020A | MXA Signal Analyzer | 10/10/2011 | Annual | 10/10/2012 | US46470561 |
| Agilent | N9038A | MXE EMI Receiver | 10/5/2011 | Annual | 10/5/2012 | MY51210133 |
| Agilent | N9030A | PXA Signal Analyzer | 2/23/2012 | Annual | 2/23/2013 | MY49432391 |
| Anritsu | MA2411B | Power Sensor | 3/5/2012 | Annual | 3/5/2013 | 846215 |
| Anritsu | ML2495A | Power Meter | 10/13/2011 | Annual | 10/13/2012 | 1039008 |
| Emco | 3115 | Horn Antenna (1-18GHz) | 1/12/2012 | Biennial | 1/12/2014 | 9704-5182 |
| Espec | ESX-2CA | Environmental Chamber | 5/21/2013 | Annual | 5/21/2013 | 17620 |
| Mini-Circuits | VHF-1300+ | High Pass Filter | 2/7/2012 | Annual | 2/7/2013 | 30716 |
| Mini-Circuits | VHF-3100+ | High Pass Filter | 1/15/2012 | Annual | 1/15/2013 | 30841 |
| Mini-Circuits | VHF-3100+ | High Pass Filter | 2/7/2012 | Annual | 2/7/2013 | 31144 |
| Pasternack | PE2208-6 | Bidirectional Coupler | 6/3/2012 | Annual | 6/3/2013 | N/A |
| Rohde & Schwarz | CMU200 | Base Station Simulator | N/A | | N/A | 836536/0005 |
| Rohde & Schwarz | CMW500 | LTE Radio Communication Tester | N/A | | N/A | 102060 |
| Schwarzbeck | UHA 9105 | Dipole Antenna (400 - 1GHz) Rx | 11/14/2011 | Biennial | 11/14/2013 | 9105-2404 |
| Schwarzbeck | UHA 9105 | Dipole Antenna (400 - 1GHz) Tx | 11/14/2011 | Biennial | 11/14/2013 | 9105-2403 |
| Schwarzbeck | VULB-9161SE | Trilog Super Broadband Test Antenna | 11/8/2011 | Biennial | 11/8/2013 | 9161-4075 |
| Schwarzbeck | UHA 9105 | Dipole Antenna (400 - 1GHz) Tx | 10/3/2011 | Biennial | 10/3/2013 | 91052522TX |
| Schwarzbeck | UHA 9105 | Dipole Antenna (400 - 1GHz) Rx | 10/3/2011 | Biennial | 10/3/2013 | 91052523RX |
| Seekonk | NC-100 | Torque Wrench (8" lb) | 3/5/2012 | Triennial | 3/5/2015 | N/A |
| Sunol | DRH-118 | Horn Antenna (1 - 18GHz) | 7/5/2011 | Biennial | 7/5/2013 | A050307 |
| Sunol | DRH-118 | Horn Antenna (1-18 GHz) | 6/17/2011 | Biennial | 6/17/2013 | A042511 |

Table 4-1. Test Equipment

Note: For equipment that has "N/A" for Cal Dates, these are used only for setting up a connection between the call box and EUT. Measurements were not taken using this equipment.

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
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5.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz
 G = Phase Modulation
 7 = Quantized/Digital Info
 D = Amplitude/Angle Modulated

16QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz
 W = Amplitude/Angle Modulated
 7 = Quantized/Digital Info
 D = Combination (Audio/Data)

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm - (-24.80).

| | | | | |
|---|--|--------------------------------------|---|--|
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6.0 TEST RESULTS

6.1 Summary

Company Name: LG Electronics MobileComm U.S.A
 FCC ID: ZNFE973
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): LTE

| FCC Part Section(s) | RSS Section(s) | Test Description | Test Limit | Test Condition | Result | Reference |
|---|-------------------------------------|--|--|----------------|--------|------------------------------|
| TRANSMITTER MODE (TX) | | | | | | |
| 2.1049 | RSS-Gen (4.6.1) RSS-133 (2.3) | Occupied Bandwidth | N/A | CONDUCTED | PASS | Section 7.0, 8.0, 9.0, 10.0 |
| 2.1051, 22.917(a), 24.238(a), 27.53(g)(h) | RSS-133 (6.5.1) | Band Edge / Conducted Spurious Emissions | < 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions | | PASS | Section 7.0, 8.0, 9.0, 10.0 |
| 24.232(d), 27.50(d)(5) | RSS-133 (6.4) | Peak-Average Ratio | < 13 dB | | PASS | Section 9.0, 10.0 |
| 2.1046 | RSS-132 (4.4) RSS-133 (4.1) | Transmitter Conducted Output Power | N/A | | PASS | See RF Exposure Report |
| 22.913(a)(2) | RSS-132 (4.4) [SRSP-503(5.1.3)] | Effective Radiated Power (Band 5) | < 7 Watts max. ERP | RADIATED | PASS | Section 6.2 |
| 27.50(c)(10) | N/A | Effective Radiated Power (Band 17) | < 3 Watts max. ERP | | PASS | Section 6.2 |
| 24.232(c) | RSS-133 (6.4) [SRSP-510 (5.1.2)] | Equivalent Isotropic Radiated Power (Band 2) | < 2 Watts max. EIRP | | PASS | Section 6.3 |
| 27.50(d)(4) | N/A | Equivalent Isotropic Radiated Power (Band 4) | < 1 Watts max. EIRP | | PASS | Section 6.3 |
| 2.1053, 27.53(g)(h), 22.917(a), 24.238(a) | RSS-132 (4.5.1) RSS-133 (6.5.1) | Undesirable Emissions | < 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions | | PASS | Section 6.4, 6.5, 6.6, 6.7 |
| 2.1055, 27.54, 22.355, 24.235 | RSS-132 (4.3) RSS-133 (6.3) | Frequency Stability | < 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27) | | PASS | Section 6.8, 6.9, 6.10, 6.11 |

Table 6-1. Summary of Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in Sections 7.0, 8.0, 9.0, and 10.0 were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
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6.2 Effective Radiated Power (ERP)

§22.913(a)(2), §27.50(c)(10)

| Freq [MHz] | BW [MHz] | Mod. | Battery | RB Size/Offset | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBd] | Pol [H/V] | ERP [dBm] | ERP [Watts] | Margin [dB] |
|------------|----------|--------|----------|----------------|----------------------|------------------------|--------------------|-----------|-----------|-------------|-------------|
| 706.5 | 5 | QPSK | Standard | 1 / 24 | -17.40 | 19.87 | 2.15 | V | 22.02 | 0.159 | -12.75 |
| 710.0 | 5 | QPSK | Standard | 1 / 24 | -16.98 | 20.29 | 2.15 | V | 22.44 | 0.175 | -12.33 |
| 713.5 | 5 | QPSK | Standard | 1 / 24 | -17.61 | 19.66 | 2.15 | V | 21.81 | 0.152 | -12.96 |
| 706.5 | 5 | 16-QAM | Standard | 1 / 24 | -18.26 | 19.01 | 2.15 | V | 21.16 | 0.131 | -13.61 |
| 710.0 | 5 | 16-QAM | Standard | 1 / 24 | -18.50 | 18.77 | 2.15 | V | 20.92 | 0.124 | -13.85 |
| 713.5 | 5 | 16-QAM | Standard | 1 / 24 | -18.67 | 18.60 | 2.15 | V | 20.75 | 0.119 | -14.02 |
| 709.0 | 10 | QPSK | Standard | 1 / 49 | -17.15 | 20.12 | 2.15 | V | 22.27 | 0.169 | -12.50 |
| 710.0 | 10 | QPSK | Standard | 1 / 0 | -18.01 | 19.26 | 2.15 | V | 21.41 | 0.138 | -13.36 |
| 711.0 | 10 | QPSK | Standard | 1 / 0 | -17.86 | 19.41 | 2.15 | V | 21.56 | 0.143 | -13.21 |
| 709.0 | 10 | 16-QAM | Standard | 1 / 49 | -18.45 | 18.82 | 2.15 | V | 20.97 | 0.125 | -13.80 |
| 710.0 | 10 | 16-QAM | Standard | 1 / 49 | -18.20 | 19.07 | 2.15 | V | 21.22 | 0.132 | -13.55 |
| 711.0 | 10 | 16-QAM | Standard | 1 / 0 | -18.57 | 18.70 | 2.15 | V | 20.85 | 0.122 | -13.92 |

Table 6-2. ERP Data (Band 17)

| Freq [MHz] | BW [MHz] | Mod. | Battery | RB Size/Offset | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBd] | Pol [H/V] | ERP [dBm] | ERP [Watts] | Margin [dB] |
|------------|----------|--------|----------|----------------|----------------------|------------------------|--------------------|-----------|-----------|-------------|-------------|
| 826.5 | 5 | QPSK | Standard | 1 / 0 | -18.76 | 17.95 | 2.15 | V | 20.10 | 0.102 | -18.35 |
| 836.5 | 5 | QPSK | Standard | 1 / 0 | -16.96 | 19.75 | 2.15 | V | 21.90 | 0.155 | -16.55 |
| 846.5 | 5 | QPSK | Standard | 1 / 24 | -18.88 | 17.83 | 2.15 | V | 19.98 | 0.100 | -18.47 |
| 826.5 | 5 | 16-QAM | Standard | 1 / 24 | -19.43 | 17.28 | 2.15 | V | 19.43 | 0.088 | -19.02 |
| 836.5 | 5 | 16-QAM | Standard | 1 / 24 | -17.99 | 18.72 | 2.15 | V | 20.87 | 0.122 | -17.58 |
| 846.5 | 5 | 16-QAM | Standard | 1 / 0 | -19.34 | 17.37 | 2.15 | V | 19.52 | 0.090 | -18.93 |
| 829.0 | 10 | QPSK | Standard | 1 / 49 | -17.70 | 19.01 | 2.15 | V | 21.16 | 0.131 | -17.29 |
| 836.5 | 10 | QPSK | Standard | 1 / 49 | -17.71 | 19.00 | 2.15 | V | 21.15 | 0.130 | -17.30 |
| 844.0 | 10 | QPSK | Standard | 1 / 0 | -18.32 | 18.39 | 2.15 | V | 20.54 | 0.113 | -17.91 |
| 829.0 | 10 | 16-QAM | Standard | 1 / 49 | -18.63 | 18.08 | 2.15 | V | 20.23 | 0.105 | -18.22 |
| 836.5 | 10 | 16-QAM | Standard | 1 / 49 | -18.30 | 18.41 | 2.15 | V | 20.56 | 0.114 | -17.89 |
| 844.0 | 10 | 16-QAM | Standard | 1 / 0 | -19.51 | 17.20 | 2.15 | V | 19.35 | 0.086 | -19.10 |

Table 6-3. ERP Data (Band 5)

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations.
2. The worst case test configuration was found in the Vertical setup.

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
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6.3 Equivalent Isotropic Radiated Power (EIRP)

§27.50(d)(4), §24.232(c)

| Freq [MHz] | BW [MHz] | Mod. | Battery | RB Size/Offset | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBi] | Pol [H/V] | EIRP [dBm] | EIRP [Watts] | Margin [dB] |
|------------|----------|--------|----------|----------------|----------------------|------------------------|--------------------|-----------|------------|--------------|-------------|
| 1712.5 | 5 | QPSK | Standard | 1 / 24 | -18.94 | 13.86 | 8.47 | H | 22.33 | 0.171 | -7.67 |
| 1732.5 | 5 | QPSK | Standard | 1 / 0 | -19.74 | 13.06 | 8.54 | H | 21.60 | 0.145 | -8.40 |
| 1752.5 | 5 | QPSK | Standard | 1 / 0 | -17.98 | 14.82 | 8.60 | H | 23.42 | 0.220 | -6.58 |
| 1712.5 | 5 | 16-QAM | Standard | 1 / 0 | -19.42 | 13.38 | 8.47 | H | 21.85 | 0.153 | -8.15 |
| 1732.5 | 5 | 16-QAM | Standard | 1 / 24 | -20.94 | 11.86 | 8.54 | H | 20.40 | 0.110 | -9.60 |
| 1752.5 | 5 | 16-QAM | Standard | 1 / 24 | -18.01 | 14.79 | 8.60 | H | 23.39 | 0.218 | -6.61 |
| 1715.0 | 10 | QPSK | Standard | 1/0 | -17.71 | 15.09 | 8.47 | H | 23.56 | 0.227 | -6.44 |
| 1732.5 | 10 | QPSK | Standard | 1/49 | -18.52 | 14.28 | 8.54 | H | 22.82 | 0.191 | -7.18 |
| 1750.0 | 10 | QPSK | Standard | 1/49 | -17.79 | 15.01 | 8.60 | H | 23.61 | 0.230 | -6.39 |
| 1715.0 | 10 | 16-QAM | Standard | 1 / 49 | -19.95 | 12.85 | 8.47 | H | 21.32 | 0.135 | -8.68 |
| 1732.5 | 10 | 16-QAM | Standard | 1/0 | -19.62 | 13.18 | 8.54 | H | 21.72 | 0.149 | -8.28 |
| 1750.0 | 10 | 16-QAM | Standard | 1/49 | -18.82 | 13.98 | 8.60 | H | 22.58 | 0.181 | -7.42 |
| 1717.5 | 15 | QPSK | Standard | 1/49 | -20.77 | 12.03 | 8.47 | H | 20.50 | 0.112 | -9.50 |
| 1732.5 | 15 | QPSK | Standard | 1/49 | -19.18 | 13.62 | 8.54 | H | 22.16 | 0.164 | -7.84 |
| 1747.5 | 15 | QPSK | Standard | 1/49 | -19.19 | 13.61 | 8.60 | H | 22.21 | 0.166 | -7.79 |
| 1717.5 | 15 | 16-QAM | Standard | 1/49 | -21.86 | 10.94 | 8.47 | H | 19.41 | 0.087 | -10.59 |
| 1732.5 | 15 | 16-QAM | Standard | 1/49 | -20.74 | 12.06 | 8.54 | H | 20.60 | 0.115 | -9.40 |
| 1747.5 | 15 | 16-QAM | Standard | 1/49 | -19.29 | 13.51 | 8.60 | H | 22.11 | 0.162 | -7.89 |
| 1720.0 | 20 | QPSK | Standard | 1 / 0 | -21.06 | 11.74 | 8.47 | H | 20.21 | 0.105 | -9.79 |
| 1732.5 | 20 | QPSK | Standard | 1/99 | -20.05 | 12.75 | 8.54 | H | 21.29 | 0.135 | -8.71 |
| 1745.0 | 20 | QPSK | Standard | 1 / 0 | -18.81 | 13.99 | 8.60 | H | 22.59 | 0.181 | -7.41 |
| 1720.0 | 20 | 16-QAM | Standard | 1 / 0 | -21.89 | 10.91 | 8.47 | H | 19.38 | 0.087 | -10.62 |
| 1732.5 | 20 | 16-QAM | Standard | 1/99 | -21.03 | 11.77 | 8.54 | H | 20.31 | 0.107 | -9.69 |
| 1745.0 | 20 | 16-QAM | Standard | 1 / 0 | -20.74 | 12.06 | 8.60 | H | 20.66 | 0.116 | -9.34 |

Table 6-4. EIRP Data (Band 4)

| Freq [MHz] | BW [MHz] | Mod. | Battery | RB Size/Offset | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBi] | Pol [H/V] | EIRP [dBm] | EIRP [Watts] | Margin [dB] |
|------------|----------|--------|----------|----------------|----------------------|------------------------|--------------------|-----------|------------|--------------|-------------|
| 1852.5 | 5 | QPSK | Standard | 1/24 | -19.30 | 13.10 | 7.76 | H | 20.86 | 0.122 | -12.15 |
| 1880.0 | 5 | QPSK | Standard | 1 / 0 | -18.22 | 14.18 | 7.83 | H | 22.01 | 0.159 | -11.00 |
| 1907.5 | 5 | QPSK | Standard | 1 / 0 | -18.08 | 14.32 | 7.91 | H | 22.23 | 0.167 | -10.78 |
| 1852.5 | 5 | 16-QAM | Standard | 1 / 0 | -19.49 | 12.91 | 7.76 | H | 20.67 | 0.117 | -12.34 |
| 1880.0 | 5 | 16-QAM | Standard | 1 / 0 | -19.62 | 12.78 | 7.83 | H | 20.61 | 0.115 | -12.40 |
| 1907.5 | 5 | 16-QAM | Standard | 1 / 0 | -18.51 | 13.89 | 7.91 | H | 21.80 | 0.151 | -11.21 |
| 1855.0 | 10 | QPSK | Standard | 1 / 0 | -19.03 | 13.37 | 7.76 | H | 21.13 | 0.130 | -11.88 |
| 1880.0 | 10 | QPSK | Standard | 1 / 0 | -18.27 | 14.13 | 7.83 | H | 21.96 | 0.157 | -11.05 |
| 1905.0 | 10 | QPSK | Standard | 1 / 0 | -18.12 | 14.28 | 7.91 | H | 22.19 | 0.166 | -10.82 |
| 1855.0 | 10 | 16-QAM | Standard | 1 / 0 | -20.99 | 11.41 | 7.76 | H | 19.17 | 0.083 | -13.84 |
| 1880.0 | 10 | 16-QAM | Standard | 1 / 0 | -19.70 | 12.70 | 7.83 | H | 20.53 | 0.113 | -12.48 |
| 1905.0 | 10 | 16-QAM | Standard | 1 / 0 | -19.80 | 12.60 | 7.91 | H | 20.51 | 0.112 | -12.50 |

Table 6-5. EIRP Data (Band 2)

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations.
2. The worst case test configuration was found in the Horizontal setup.

| | | | | |
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6.4 Band 17 Radiated Spurious Emissions

§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation


OPERATING FREQUENCY: 706.50 MHz
 MEASURED OUTPUT POWER: 22.02 dBm = 0.159 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 35.02 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|--------|
| 1413.00 | -52.02 | 3.59 | -48.43 | V | 70.45 |
| 2119.50 | -92.06 | 3.88 | -88.18 | V | 110.20 |
| 2826.00 | -91.46 | 5.00 | -86.46 | V | 108.48 |
| 3532.50 | -89.83 | 6.25 | -83.58 | V | 105.60 |
| 4239.00 | -88.74 | 7.21 | -81.53 | V | 103.55 |
| 4945.50 | -87.37 | 7.84 | -79.53 | V | 101.55 |

Table 6-6. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Vertical setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
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Band 17 Radiated Spurious Measurements (continued)
§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 710.00 MHz
 MEASURED OUTPUT POWER: 22.44 dBm = 0.175 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 35.44 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|--------|
| 1420.00 | -51.46 | 3.64 | -47.82 | V | 70.26 |
| 2130.00 | -92.03 | 3.90 | -88.13 | V | 110.57 |
| 2840.00 | -91.41 | 5.02 | -86.39 | V | 108.83 |
| 3550.00 | -89.79 | 6.25 | -83.54 | V | 105.98 |
| 4260.00 | -88.78 | 7.24 | -81.54 | V | 103.98 |
| 4970.00 | -87.29 | 7.88 | -79.41 | V | 101.85 |

Table 6-7. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Vertical setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
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Band 17 Radiated Spurious Measurements (continued)
§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation


OPERATING FREQUENCY: 713.50 MHz
 MEASURED OUTPUT POWER: 21.81 dBm = 0.152 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.81 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|--------|
| 1427.00 | -52.47 | 3.69 | -48.78 | V | 70.59 |
| 2140.50 | -91.99 | 3.92 | -88.07 | V | 109.88 |
| 2854.00 | -91.36 | 5.03 | -86.33 | V | 108.14 |
| 3567.50 | -89.76 | 6.25 | -83.51 | V | 105.32 |
| 4281.00 | -88.79 | 7.25 | -81.54 | V | 103.35 |
| 4994.50 | -87.21 | 7.91 | -79.30 | V | 101.11 |

Table 6-8. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Vertical setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
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6.5 Band 5 Radiated Spurious Emissions

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation


OPERATING FREQUENCY: 829.00 MHz
 MEASURED OUTPUT POWER: 21.16 dBm = 0.131 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 34.16 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|--------|
| 1658.00 | -50.44 | 2.50 | -47.94 | V | 69.10 |
| 2487.00 | -89.20 | 2.82 | -86.38 | V | 107.54 |
| 3316.00 | -89.19 | 5.52 | -83.66 | V | 104.82 |
| 4145.00 | -88.36 | 7.08 | -81.27 | V | 102.43 |
| 4974.00 | -87.30 | 7.91 | -79.39 | V | 100.55 |
| 5803.00 | -85.04 | 8.51 | -76.53 | V | 97.69 |

Table 6-9. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Vertical setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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Band 5 Radiated Spurious Measurements (continued)
§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 836.50 MHz
 MEASURED OUTPUT POWER: 21.15 dBm = 0.130 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 34.15 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|--------|
| 1673.00 | -48.82 | 2.34 | -46.48 | V | 67.63 |
| 2509.50 | -89.16 | 2.84 | -86.32 | V | 107.47 |
| 3346.00 | -89.31 | 5.64 | -83.67 | V | 104.82 |
| 4182.50 | -88.53 | 7.14 | -81.38 | V | 102.53 |
| 5019.00 | -87.16 | 7.97 | -79.19 | V | 100.34 |
| 5855.50 | -84.87 | 8.46 | -76.41 | V | 97.56 |

Table 6-10. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Vertical setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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Band 5 Radiated Spurious Measurements (continued)
§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation


OPERATING FREQUENCY: 844.00 MHz
 MEASURED OUTPUT POWER: 20.54 dBm = 0.113 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.54 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|--------|
| 1688.00 | -50.23 | 2.18 | -48.05 | V | 68.59 |
| 2532.00 | -89.34 | 3.04 | -86.29 | V | 106.83 |
| 3376.00 | -89.44 | 5.76 | -83.67 | V | 104.21 |
| 4220.00 | -88.65 | 7.20 | -81.45 | V | 101.99 |
| 5064.00 | -86.99 | 8.00 | -78.99 | V | 99.53 |
| 5908.00 | -84.70 | 8.42 | -76.28 | V | 96.82 |

Table 6-11. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Vertical setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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6.6 Band 4 Radiated Spurious Emissions §2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1712.50 MHz
 MEASURED OUTPUT POWER: 22.33 dBm = 0.171 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 35.33 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3425.00 | -45.88 | 8.09 | -37.78 | H | 60.11 |
| 5137.50 | -49.23 | 10.21 | -39.03 | H | 61.36 |
| 6850.00 | -86.65 | 11.31 | -75.34 | H | 97.67 |
| 8562.50 | -85.08 | 13.02 | -72.06 | H | 94.39 |
| 10275.00 | -82.55 | 13.01 | -69.53 | H | 91.86 |
| 11987.50 | -78.25 | 13.21 | -65.04 | H | 87.37 |

Table 6-12. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Horizontal setup.

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | Page 22 of 90 | |

Band 4 Radiated Spurious Measurements (continued)
§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.50 MHz
 MEASURED OUTPUT POWER: 21.60 dBm = 0.145 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 34.60 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3465.00 | -45.23 | 8.26 | -36.97 | H | 58.57 |
| 5197.50 | -55.73 | 10.26 | -45.47 | H | 67.07 |
| 6930.00 | -86.68 | 11.42 | -75.26 | H | 96.86 |
| 8662.50 | -84.78 | 13.07 | -71.72 | H | 93.32 |
| 10395.00 | -82.25 | 13.12 | -69.14 | H | 90.74 |
| 12127.50 | -77.60 | 13.25 | -64.35 | H | 85.95 |

Table 6-13. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Horizontal setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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Band 4 Radiated Spurious Measurements (continued)
§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation


OPERATING FREQUENCY: 1752.50 MHz
 MEASURED OUTPUT POWER: 23.42 dBm = 0.220 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 36.42 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3505.00 | -49.89 | 8.40 | -41.49 | H | 64.91 |
| 5257.50 | -53.51 | 10.32 | -43.19 | H | 66.61 |
| 7010.00 | -86.72 | 11.51 | -75.20 | H | 98.62 |
| 8762.50 | -84.67 | 13.11 | -71.57 | H | 94.99 |
| 10515.00 | -81.97 | 13.20 | -68.77 | H | 92.19 |
| 12267.50 | -77.35 | 13.31 | -64.03 | H | 87.45 |

Table 6-14. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Horizontal setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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6.7 Band 2 Radiated Spurious Emissions

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1852.50 MHz
 MEASURED OUTPUT POWER: 20.86 dBm = 0.122 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 33.86 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3705.00 | -27.06 | 8.40 | -18.66 | H | 39.52 |
| 5557.50 | -51.18 | 10.63 | -40.55 | H | 61.41 |
| 7410.00 | -86.22 | 11.84 | -74.38 | H | 95.24 |
| 9262.50 | -84.99 | 13.29 | -71.70 | H | 92.56 |
| 11115.00 | -81.12 | 13.50 | -67.62 | H | 88.48 |
| 12967.50 | -76.64 | 13.68 | -62.97 | H | 83.83 |

Table 6-15. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Horizontal setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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Band 2 Radiated Spurious Measurements (continued)
§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
 MEASURED OUTPUT POWER: 22.01 dBm = 0.159 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 35.01 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3760.00 | -24.95 | 8.42 | -16.52 | H | 38.53 |
| 5640.00 | -51.12 | 10.66 | -40.46 | H | 62.47 |
| 7520.00 | -86.11 | 11.92 | -74.19 | H | 96.20 |
| 9400.00 | -84.75 | 13.24 | -71.51 | H | 93.52 |
| 11280.00 | -81.04 | 13.49 | -67.55 | H | 89.56 |
| 13160.00 | -76.69 | 13.83 | -62.86 | H | 84.87 |

Table 6-16. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Horizontal setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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Band 2 Radiated Spurious Measurements (continued)
§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation


OPERATING FREQUENCY: 1907.50 MHz
 MEASURED OUTPUT POWER: 22.23 dBm = 0.167 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 35.23 dBc

| FREQ (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3815.00 | -25.36 | 8.55 | -16.81 | H | 39.04 |
| 5722.50 | -51.02 | 10.69 | -40.34 | H | 62.57 |
| 7630.00 | -86.26 | 12.05 | -74.21 | H | 96.44 |
| 9537.50 | -84.68 | 13.20 | -71.48 | H | 93.71 |
| 11445.00 | -80.59 | 13.43 | -67.17 | H | 89.40 |
| 13352.50 | -76.85 | 14.00 | -62.84 | H | 85.07 |

Table 6-17. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. Please see ERP and EIRP tables in sections 6.2 and 6.3 for the RB offsets that produced highest power and worst case emissions.
2. The worst case test configuration was found in the Horizontal setup.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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6.8 Band 17 Frequency Stability Measurements



§2.1055, 27.54

OPERATING FREQUENCY: 710,000,000 Hz

REFERENCE VOLTAGE: 3.7 VDC

| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|-------------|-------------|------------|----------------|-----------------|---------------|
| 100 % | 3.70 | + 20 (Ref) | 709,999,997 | -3 | -0.0000004 |
| 100 % | | - 30 | 709,999,985 | -15 | -0.0000021 |
| 100 % | | - 20 | 709,999,985 | -15 | -0.0000022 |
| 100 % | | - 10 | 710,000,000 | 0 | 0.0000000 |
| 100 % | | 0 | 709,999,999 | -1 | -0.0000001 |
| 100 % | | + 10 | 710,000,000 | 0 | -0.0000001 |
| 100 % | | + 20 | 709,999,999 | -1 | -0.0000002 |
| 100 % | | + 30 | 709,999,994 | -6 | -0.0000008 |
| 100 % | | + 40 | 709,999,992 | -8 | -0.0000011 |
| 100 % | | + 50 | 709,999,988 | -12 | -0.0000017 |
| 115 % | 4.26 | + 20 | 710,000,000 | 0 | -0.0000001 |
| 85 % | 3.40 | + 20 | 709,999,998 | -2 | -0.0000002 |

Table 6-18. Frequency Stability Data (Band 17)

| | | | | | |
|--------------------------------------|---|--|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | |  | Reviewed by: Quality Manager |
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Band 17 Frequency Stability Measurements (Cont'd)
§2.1055, 27.54

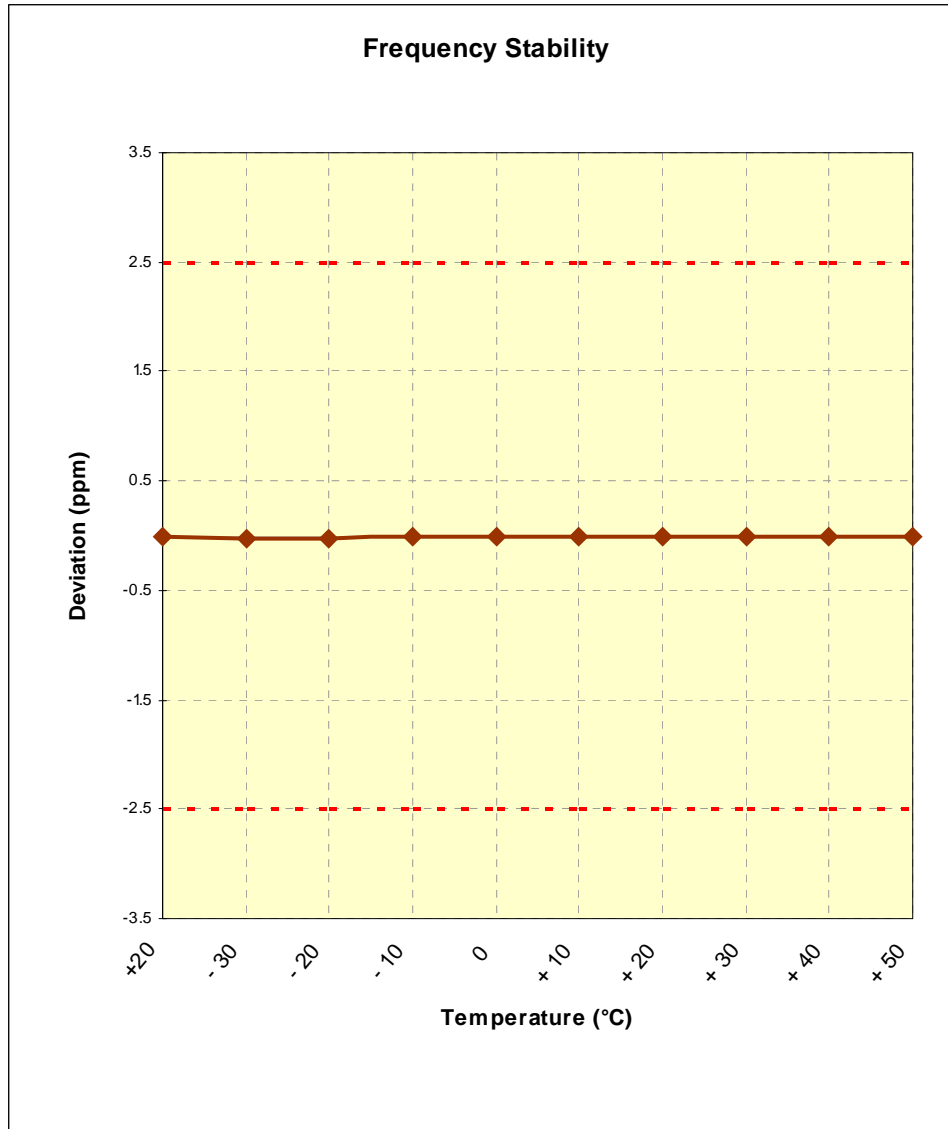


Figure 6-1. Frequency Stability Graph (Band 17)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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6.9 Band 5 Frequency Stability Measurements

§2.1055, 22.355; RSS-132 (4.3)

OPERATING FREQUENCY: 836,500,000 Hz
 REFERENCE VOLTAGE: 3.7 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|-------------|-------------|------------|----------------|-----------------|---------------|
| 100 % | 3.70 | + 20 (Ref) | 836,499,991 | -9 | -0.0000011 |
| 100 % | | - 30 | 836,499,991 | -9 | -0.0000011 |
| 100 % | | - 20 | 836,499,988 | -12 | -0.0000015 |
| 100 % | | - 10 | 836,499,990 | -10 | -0.0000012 |
| 100 % | | 0 | 836,499,994 | -6 | -0.0000007 |
| 100 % | | + 10 | 836,499,989 | -11 | -0.0000013 |
| 100 % | | + 20 | 836,499,993 | -7 | -0.0000008 |
| 100 % | | + 30 | 836,499,982 | -18 | -0.0000021 |
| 100 % | | + 40 | 836,499,981 | -19 | -0.0000022 |
| 100 % | | + 50 | 836,499,985 | -15 | -0.0000018 |
| 115 % | 4.26 | + 20 | 836,499,995 | -5 | -0.0000006 |
| 85 % | 3.40 | + 20 | 836,499,998 | -2 | -0.0000002 |

Table 6-19. Frequency Stability Data (Band 5)

Band 5 Frequency Stability Measurements (Cont'd)
§2.1055, 22.355; RSS-132 (4.3)

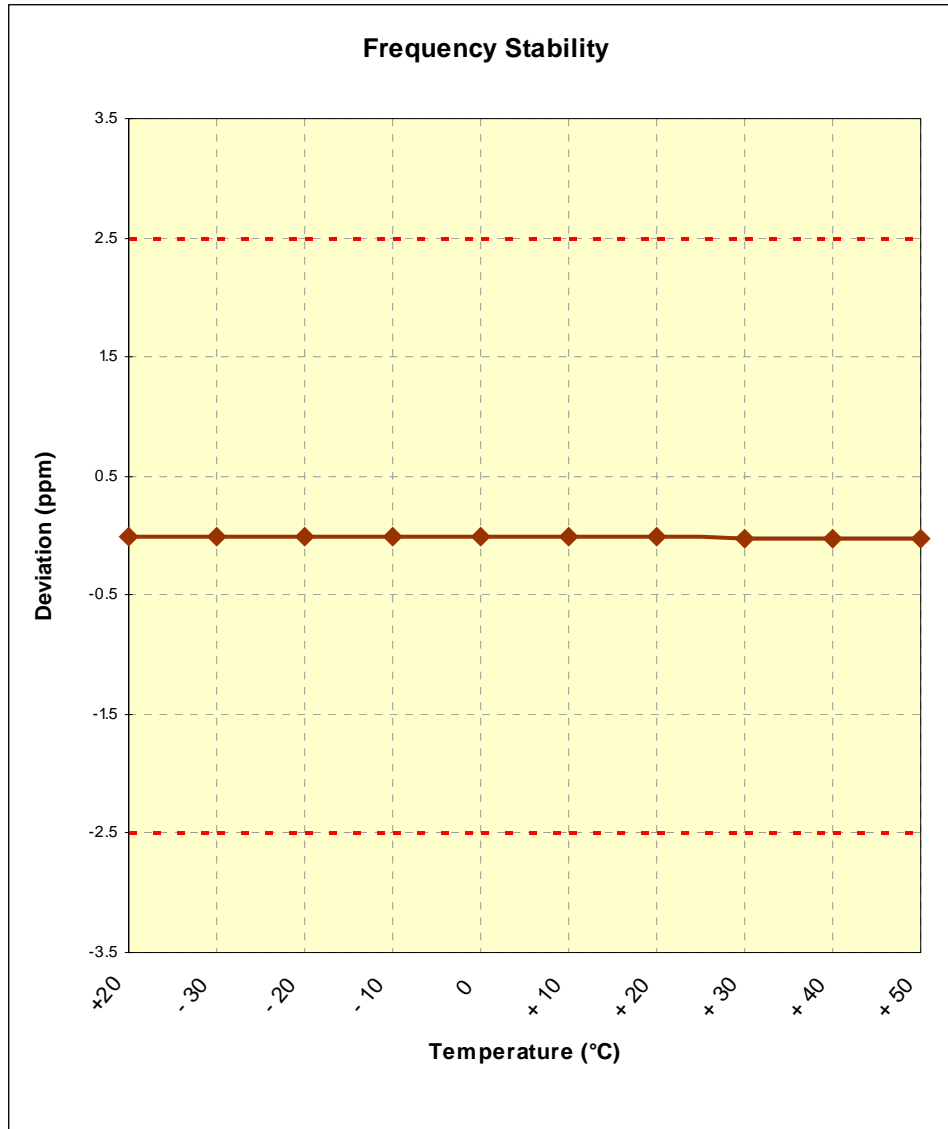



Figure 6-2. Frequency Stability Graph (Band 5)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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6.10 Band 4 Frequency Stability Measurements


§2.1055, 27.54

OPERATING FREQUENCY: 1,732,500,000 Hz

REFERENCE VOLTAGE: 3.7 VDC

| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|-------------|-------------|------------|----------------|-----------------|---------------|
| 100 % | 3.70 | + 20 (Ref) | 1,732,499,998 | -2 | -0.0000001 |
| 100 % | | - 30 | 1,732,499,988 | -12 | -0.0000007 |
| 100 % | | - 20 | 1,732,499,995 | -5 | -0.0000003 |
| 100 % | | - 10 | 1,732,499,995 | -5 | -0.0000003 |
| 100 % | | 0 | 1,732,499,984 | -16 | -0.0000009 |
| 100 % | | + 10 | 1,732,499,993 | -7 | -0.0000004 |
| 100 % | | + 20 | 1,732,499,997 | -3 | -0.0000002 |
| 100 % | | + 30 | 1,732,499,989 | -11 | -0.0000006 |
| 100 % | | + 40 | 1,732,499,999 | -1 | -0.0000001 |
| 100 % | | + 50 | 1,732,499,993 | -7 | -0.0000004 |
| 115 % | 4.26 | + 20 | 1,732,499,987 | -13 | -0.0000008 |
| 85 % | 3.40 | + 20 | 1,732,499,980 | -20 | -0.0000011 |

Table 6-20. Frequency Stability Data (Band 4)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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Band 4 Frequency Stability Measurements (Cont'd)
§2.1055, 27.54

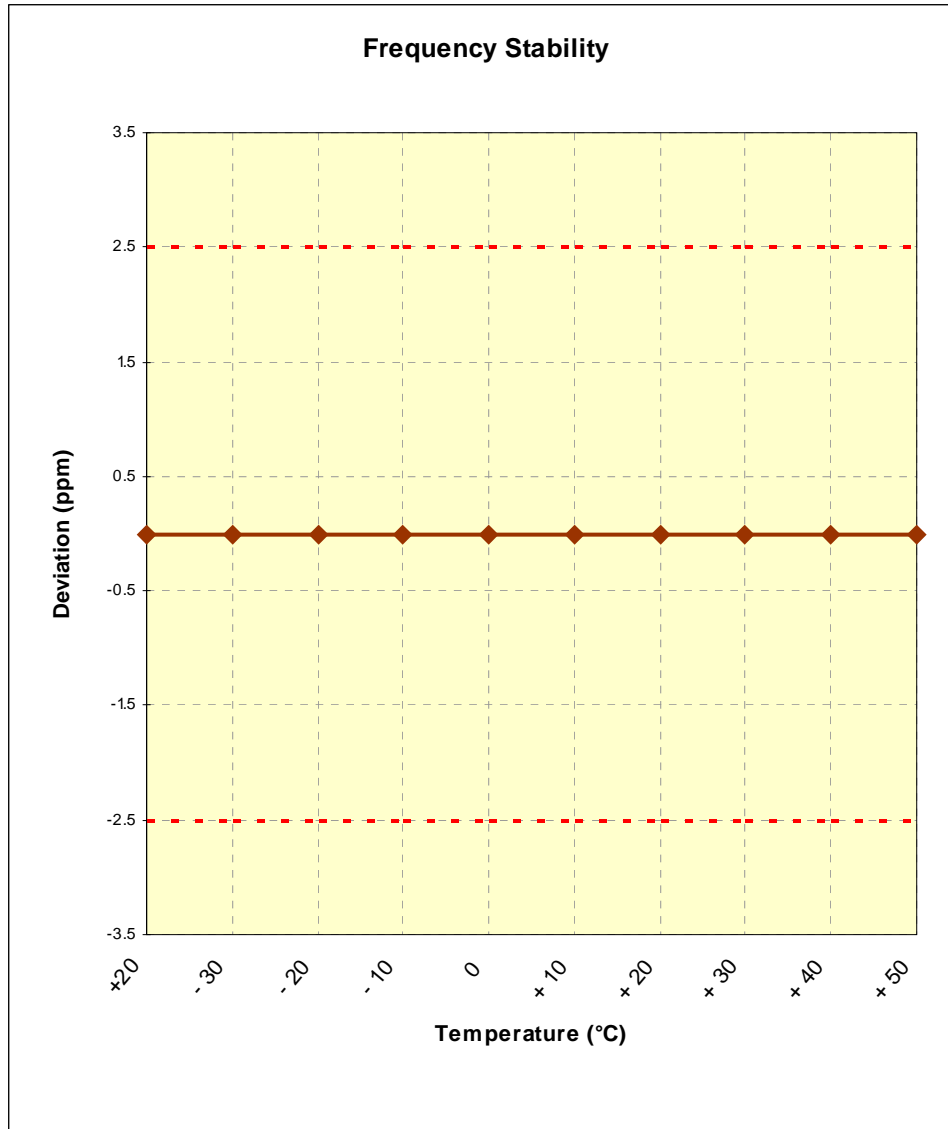



Figure 6-3. Frequency Stability Graph (Band 4)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
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6.11 Band 2 Frequency Stability Measurements

§2.1055, 24.235, RSS-133 (6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

REFERENCE VOLTAGE: 3.7 VDC

| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|-------------|-------------|------------|----------------|-----------------|---------------|
| 100 % | 3.70 | + 20 (Ref) | 1,879,999,993 | -7 | -0.0000004 |
| 100 % | | - 30 | 1,879,999,998 | -2 | -0.0000001 |
| 100 % | | - 20 | 1,879,999,982 | -18 | -0.0000010 |
| 100 % | | - 10 | 1,879,999,997 | -3 | -0.0000002 |
| 100 % | | 0 | 1,879,999,993 | -7 | -0.0000004 |
| 100 % | | + 10 | 1,879,999,989 | -11 | -0.0000006 |
| 100 % | | + 20 | 1,879,999,990 | -10 | -0.0000005 |
| 100 % | | + 30 | 1,879,999,981 | -19 | -0.0000010 |
| 100 % | | + 40 | 1,879,999,994 | -6 | -0.0000003 |
| 100 % | | + 50 | 1,879,999,982 | -18 | -0.0000009 |
| 115 % | 4.26 | + 20 | 1,879,999,986 | -14 | -0.0000008 |
| 85 % | 3.40 | + 20 | 1,879,999,994 | -6 | -0.0000003 |

Table 6-21. Frequency Stability Data (Band 2)

Band 2 Frequency Stability Measurements (Cont'd)
§2.1055, 24.235, RSS-133 (6.3)

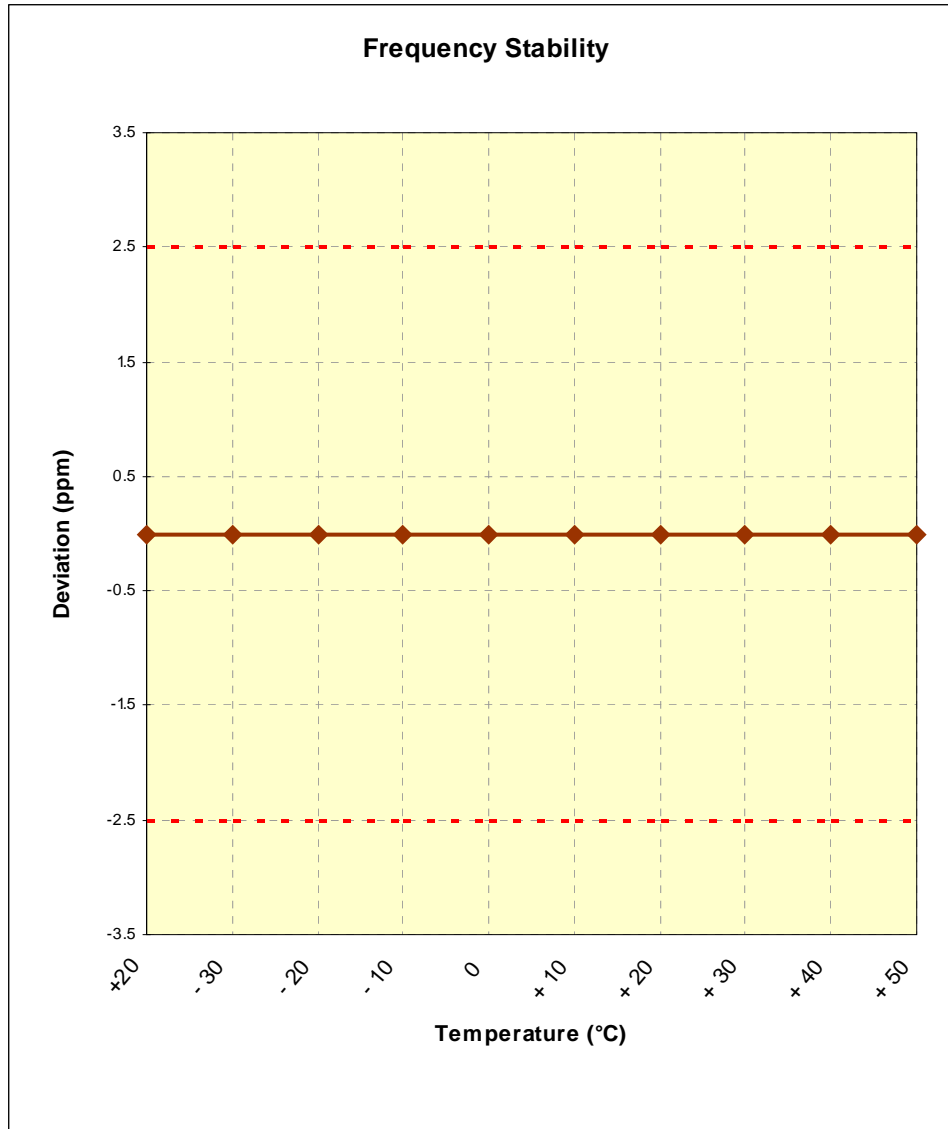

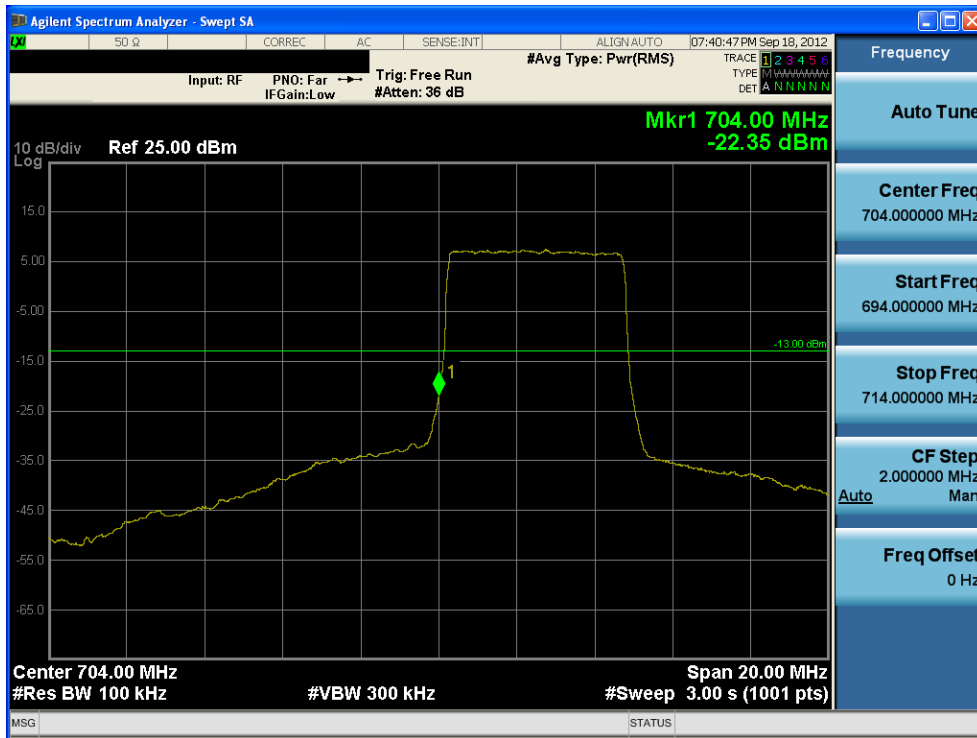


Figure 6-4. Frequency Stability Graph (Band 2)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 35 of 90 |

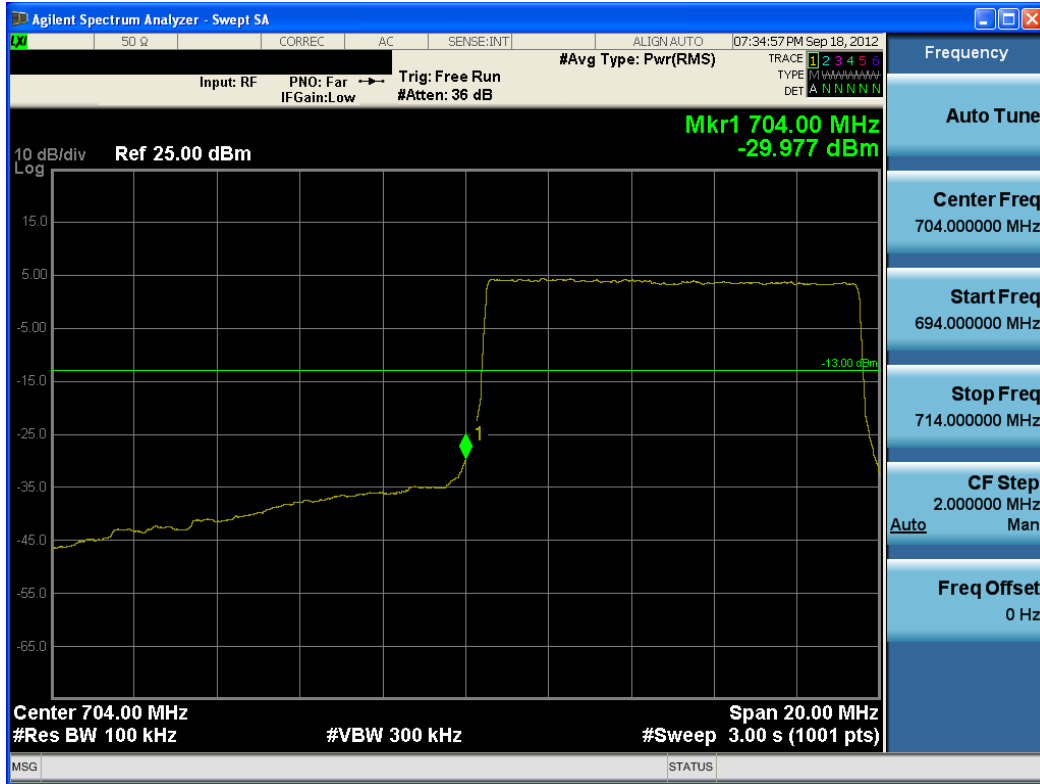
7.0 BAND 17 PLOTS OF EMISSIONS

Note: All bandwidths, RB configurations, and modulations were investigated. The worst case test results are reported below.

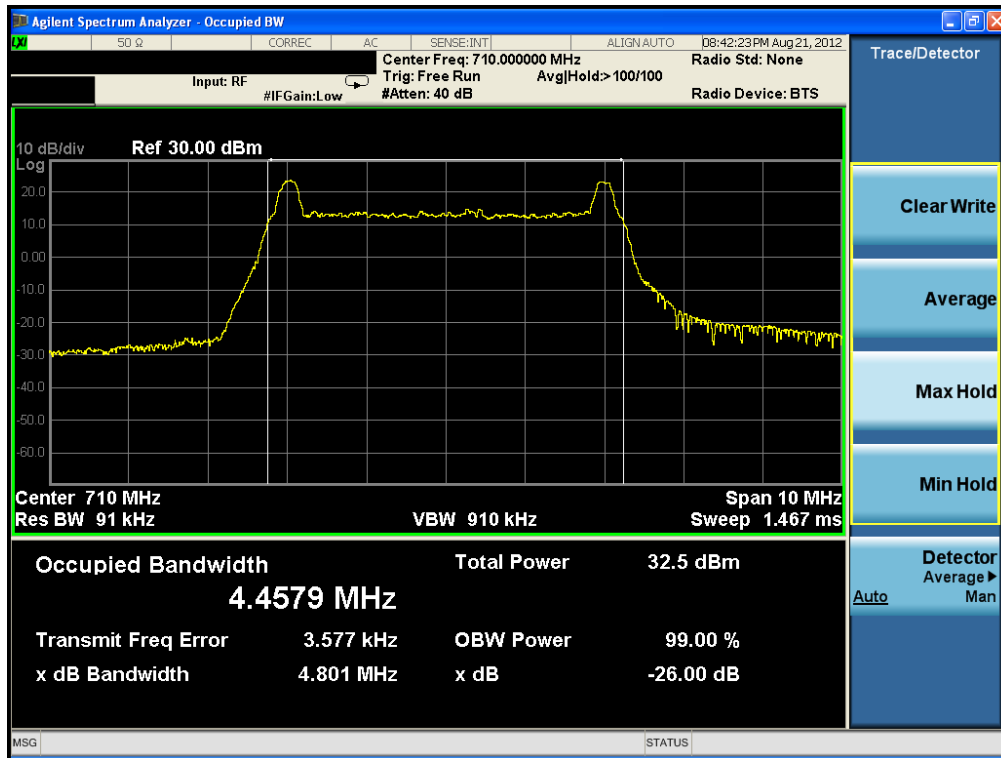


Plot 7-1. Lower Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 36 of 90 |

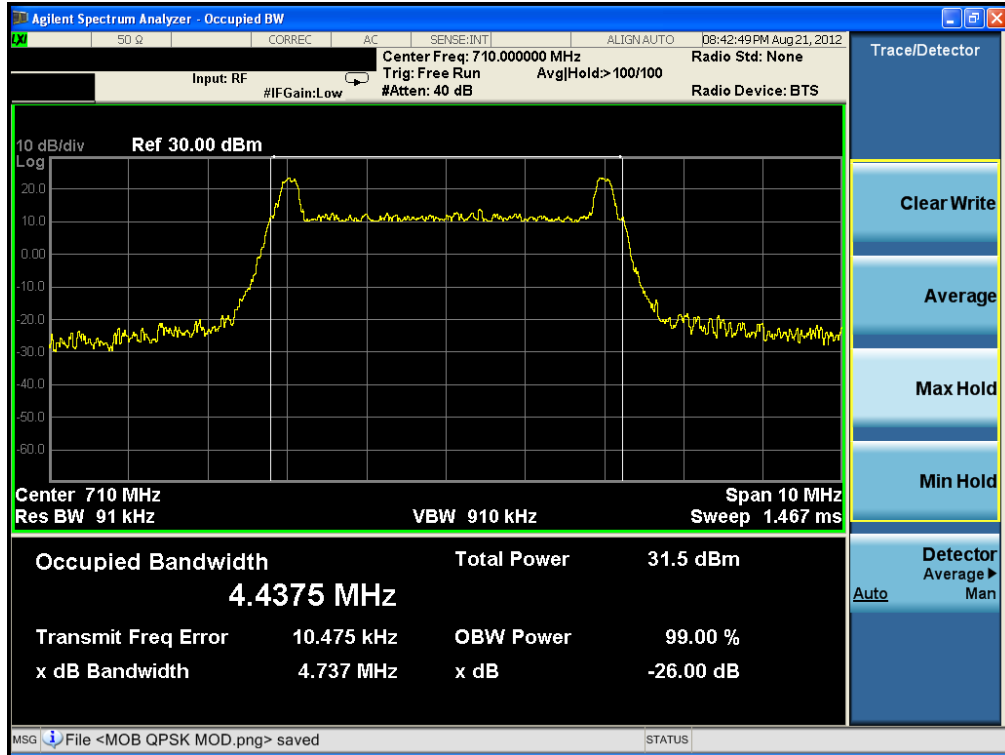


Plot 7-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

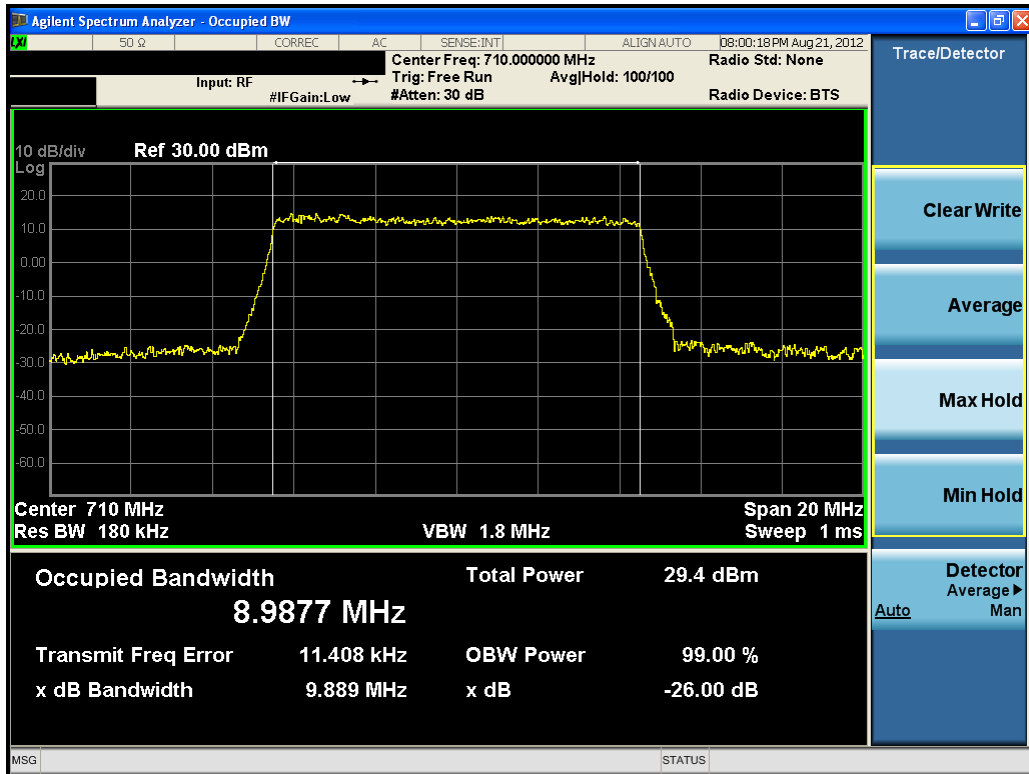


Plot 7-3. Occupied Bandwidth Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 37 of 90 |

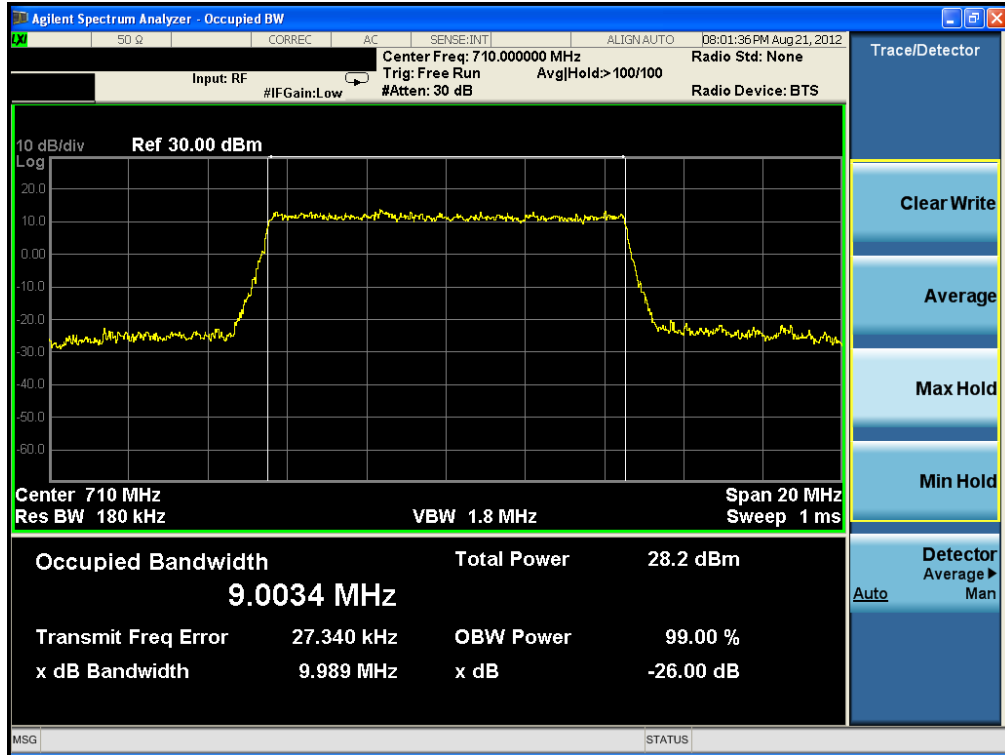


Plot 7-4. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

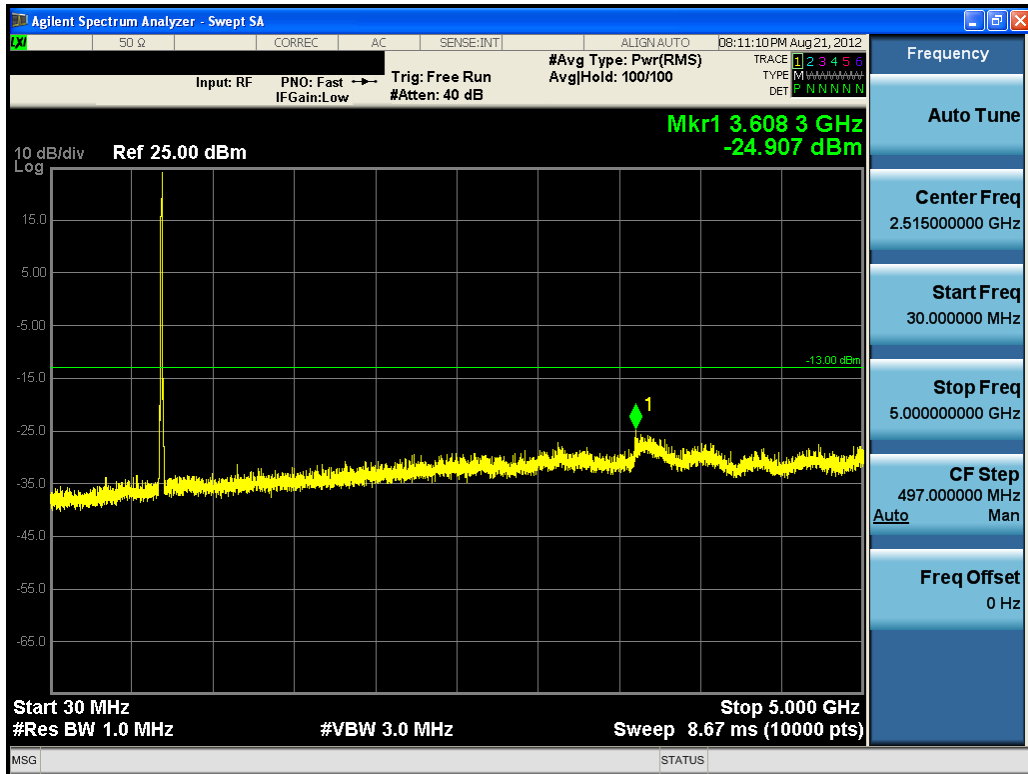


Plot 7-5. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 38 of 90 |

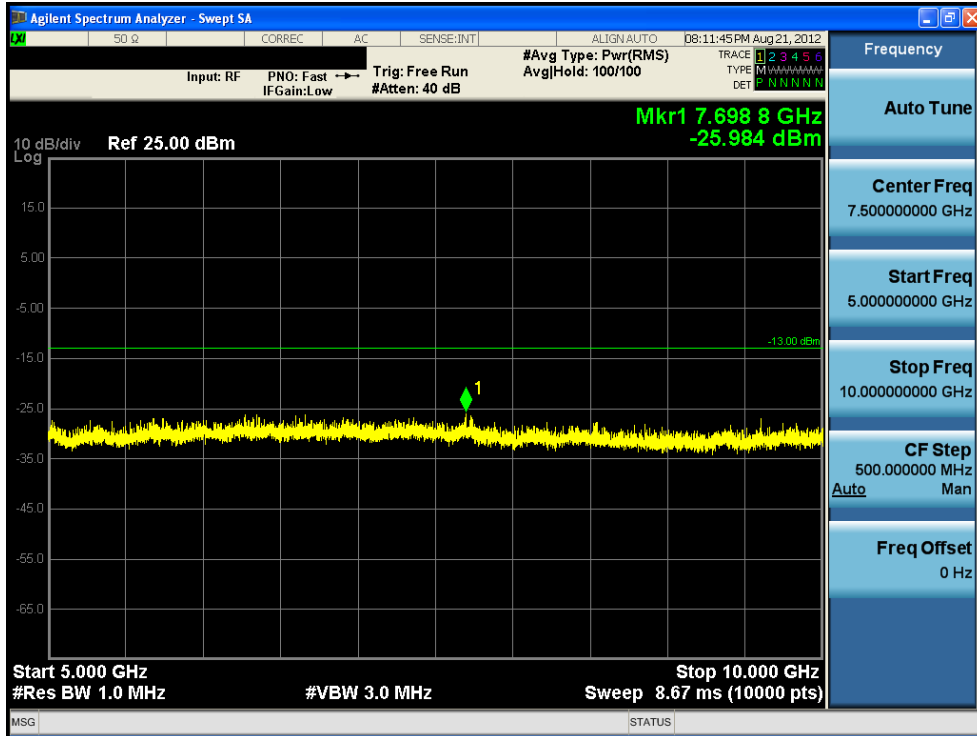


Plot 7-6. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

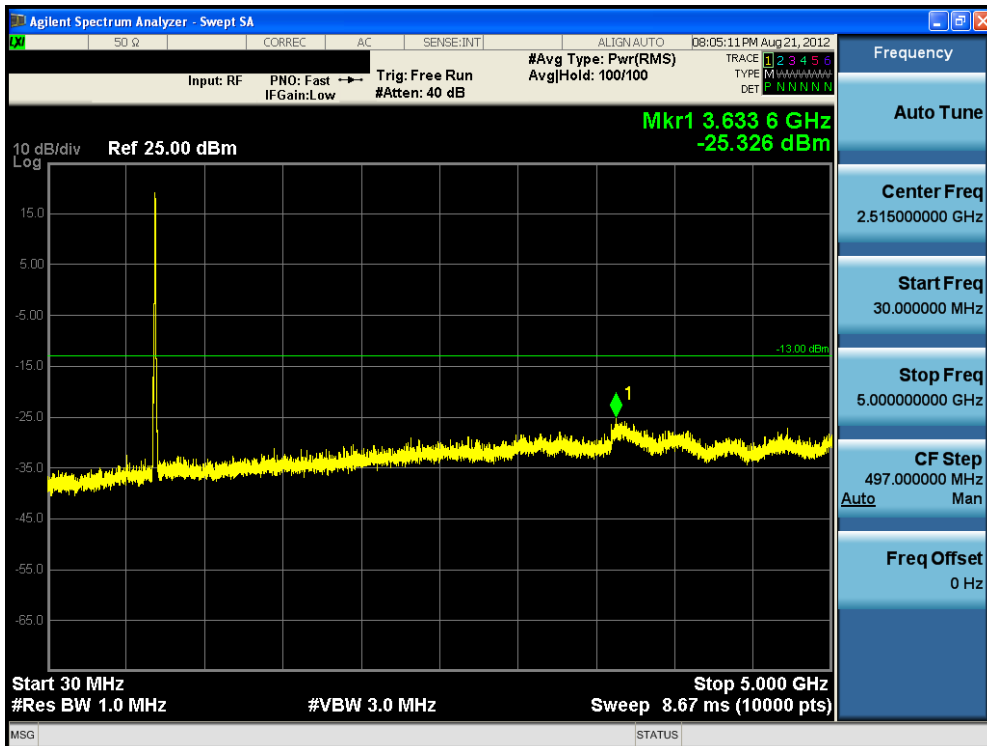


Plot 7-7. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 39 of 90 |

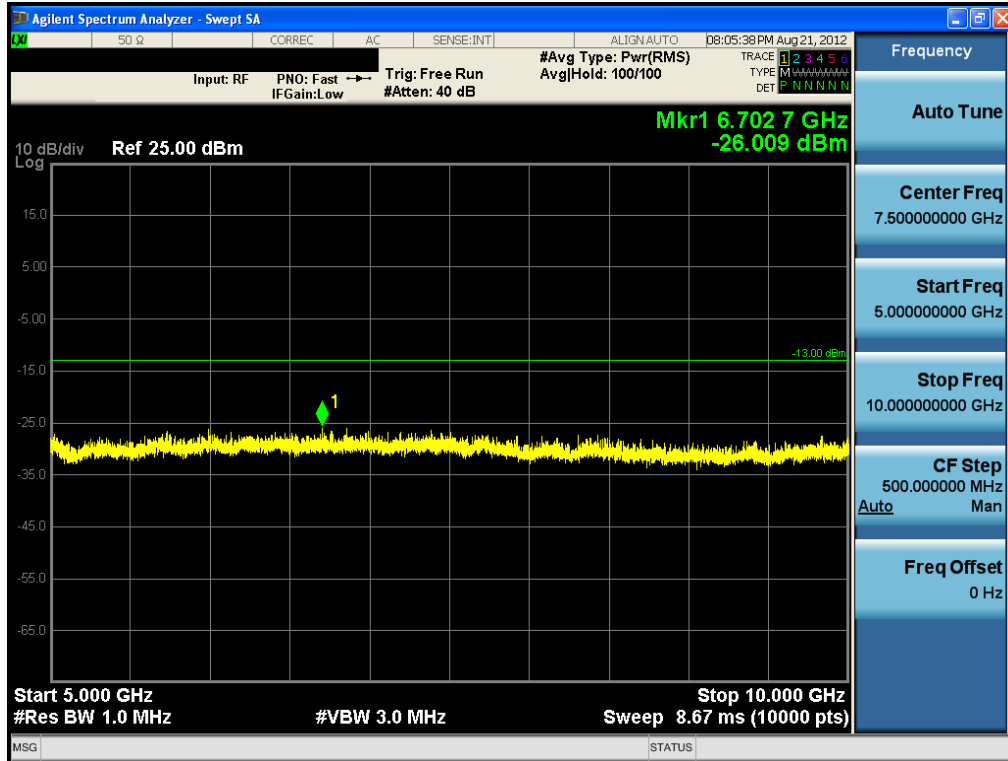


Plot 7-8. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

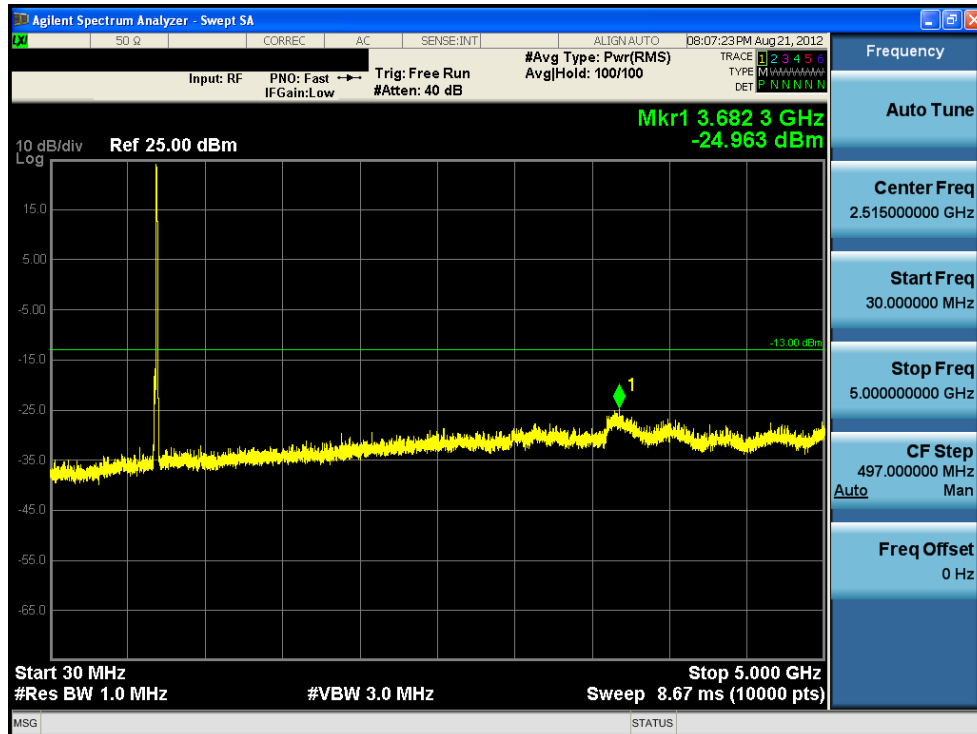


Plot 7-9. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

| | | | | |
|--------------------------------------|-----------------------------------|---|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 40 of 90 |

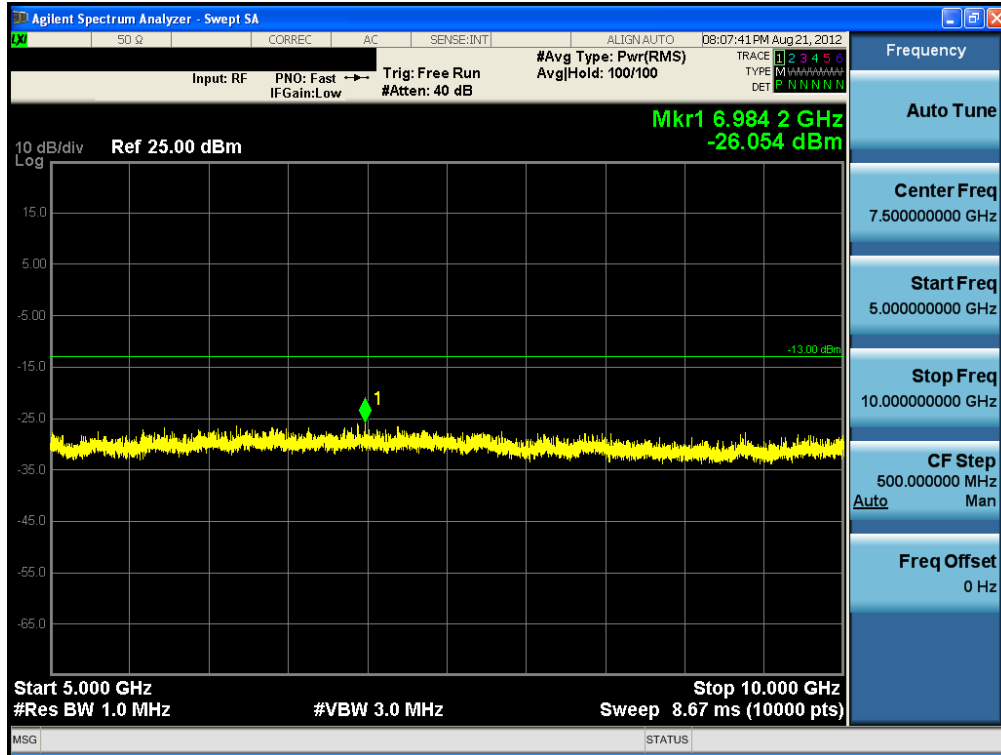


Plot 7-10. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

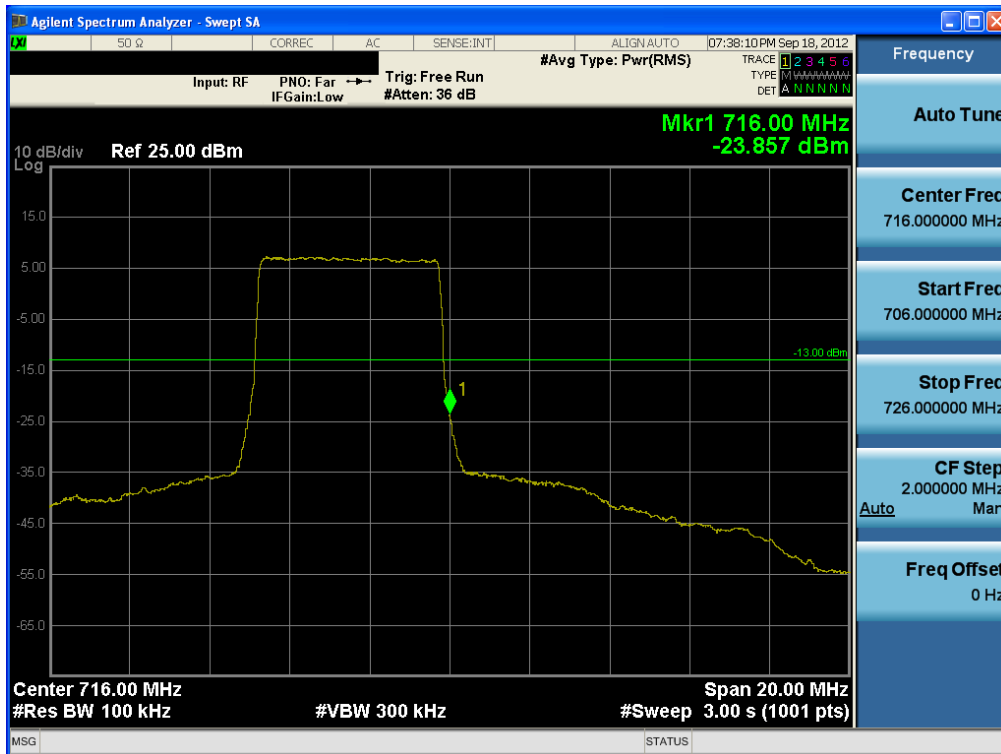


Plot 7-11. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 41 of 90 |

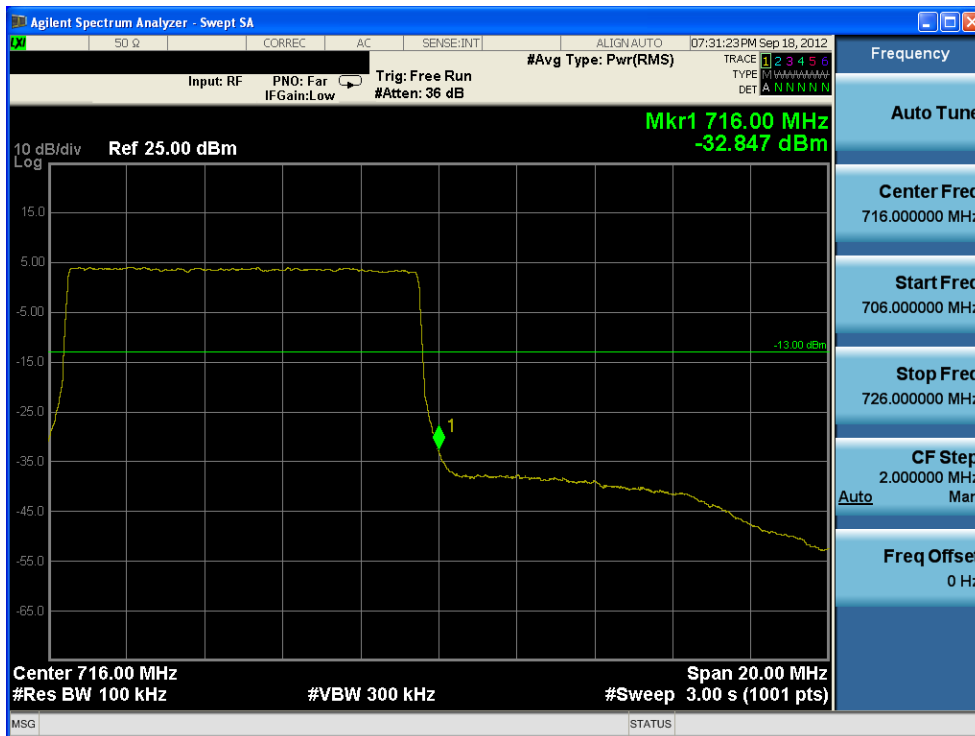


Plot 7-12. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-13. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|-----------------------------------|--------------------------------|---|--|------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 42 of 90 |

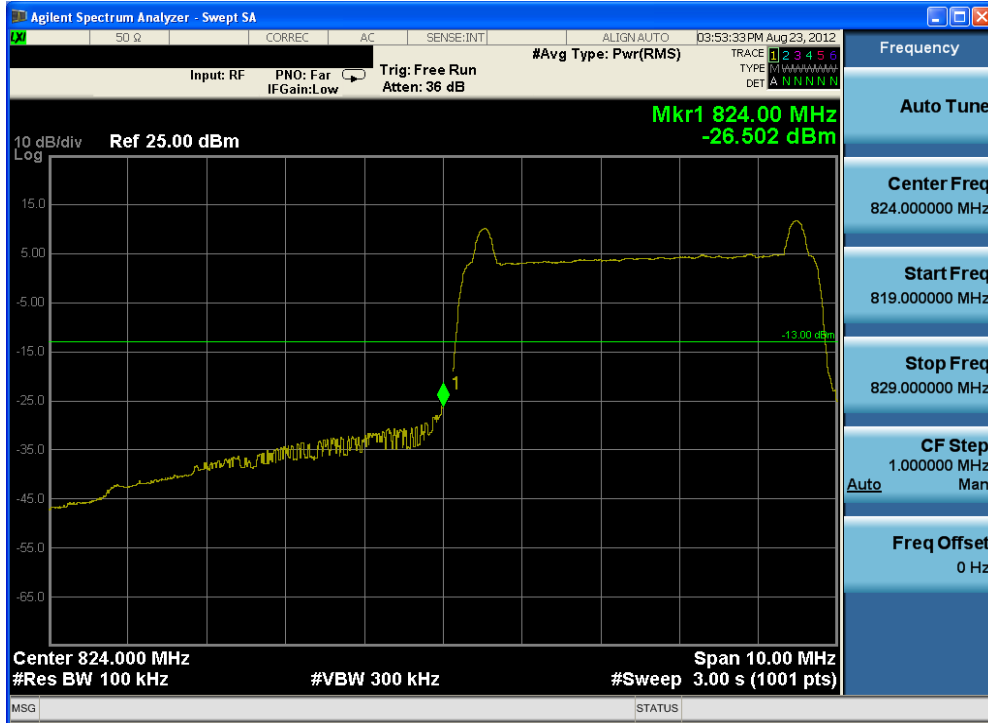


Plot 7-14. Upper Band Edge Plot (10MHz QPSK – RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|--|---------------|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | Page 43 of 90 | |

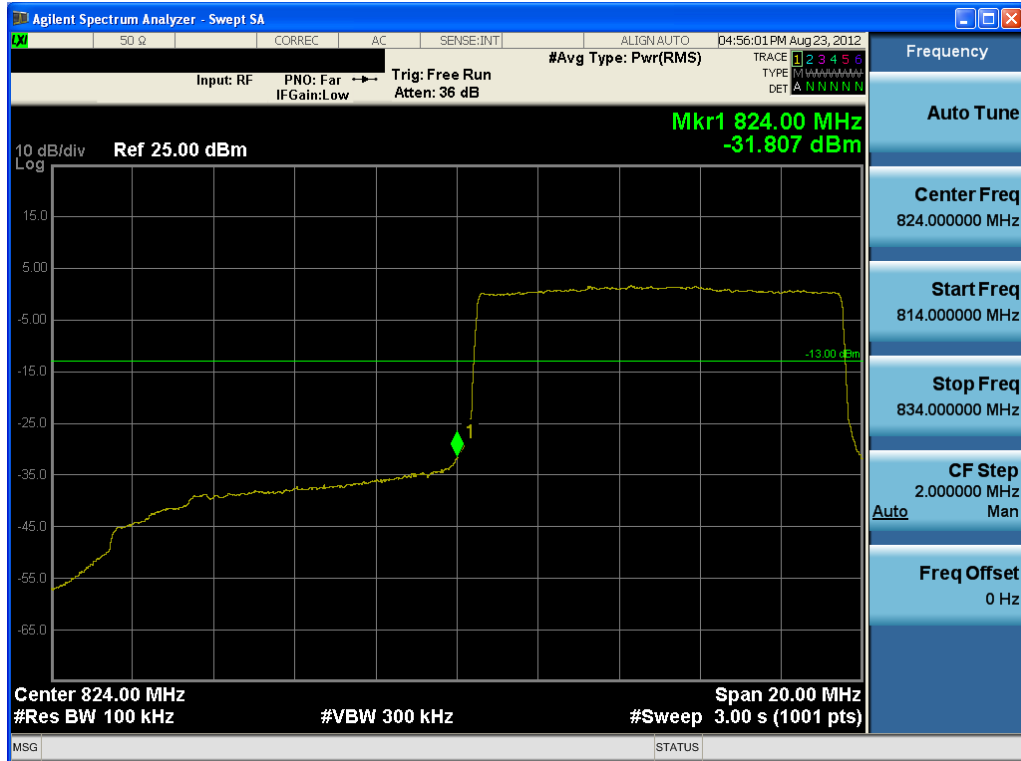
8.0 BAND 5 PLOTS OF EMISSIONS

Note: All bandwidths, RB configurations, and modulations were investigated. The worst case test results are reported below.

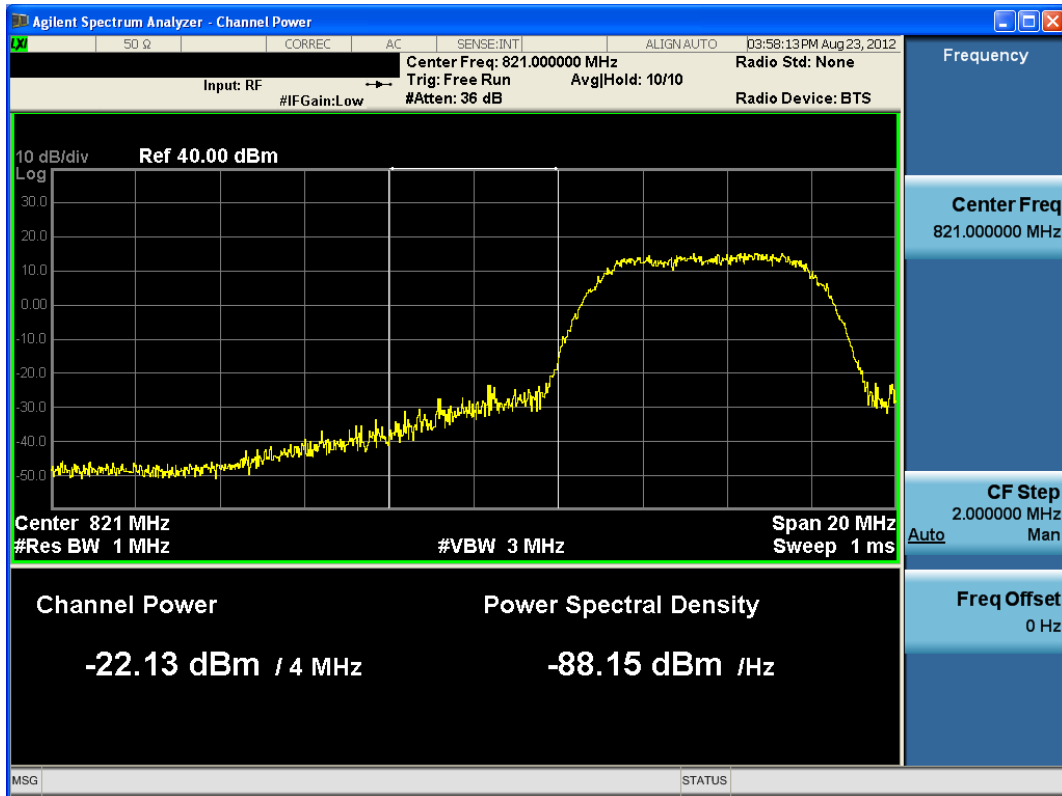


Plot 8-1. Lower Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 44 of 90 |

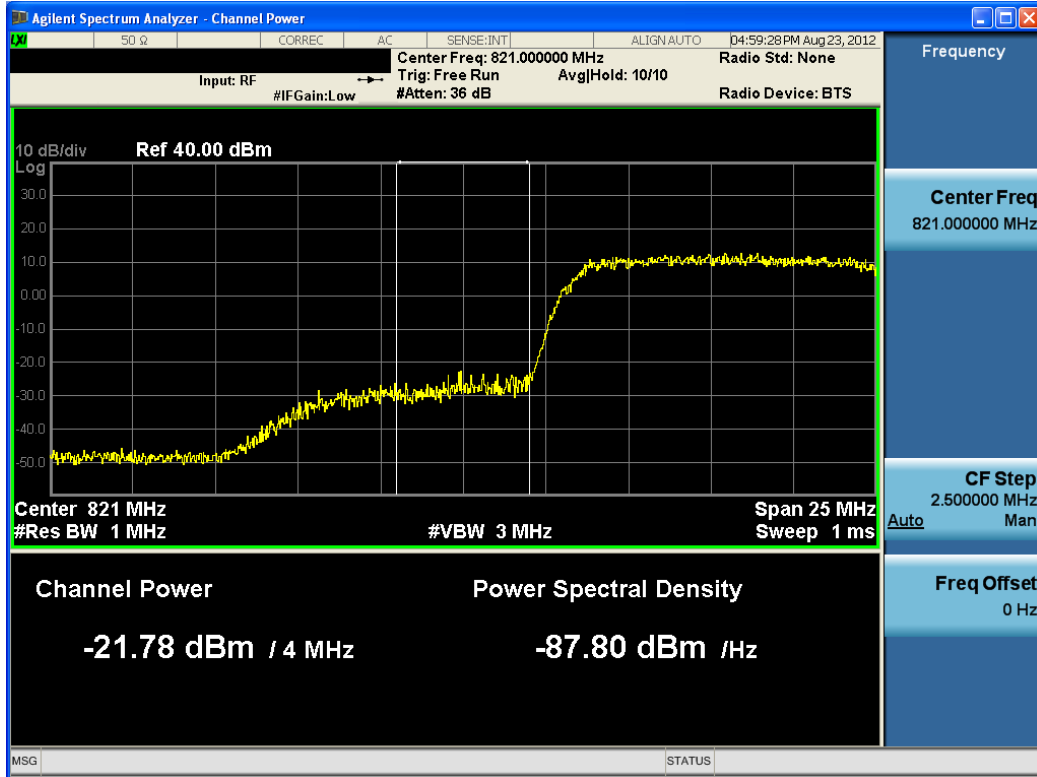


Plot 8-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

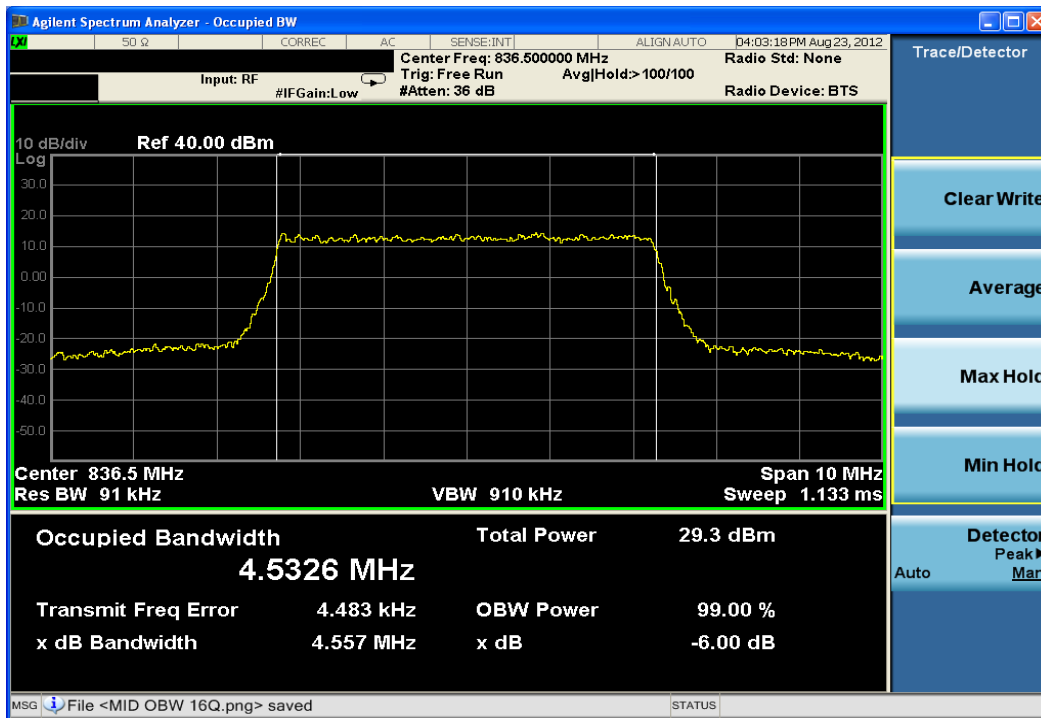


Plot 8-3. Lower Extended Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|---|--|--|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 45 of 90 |

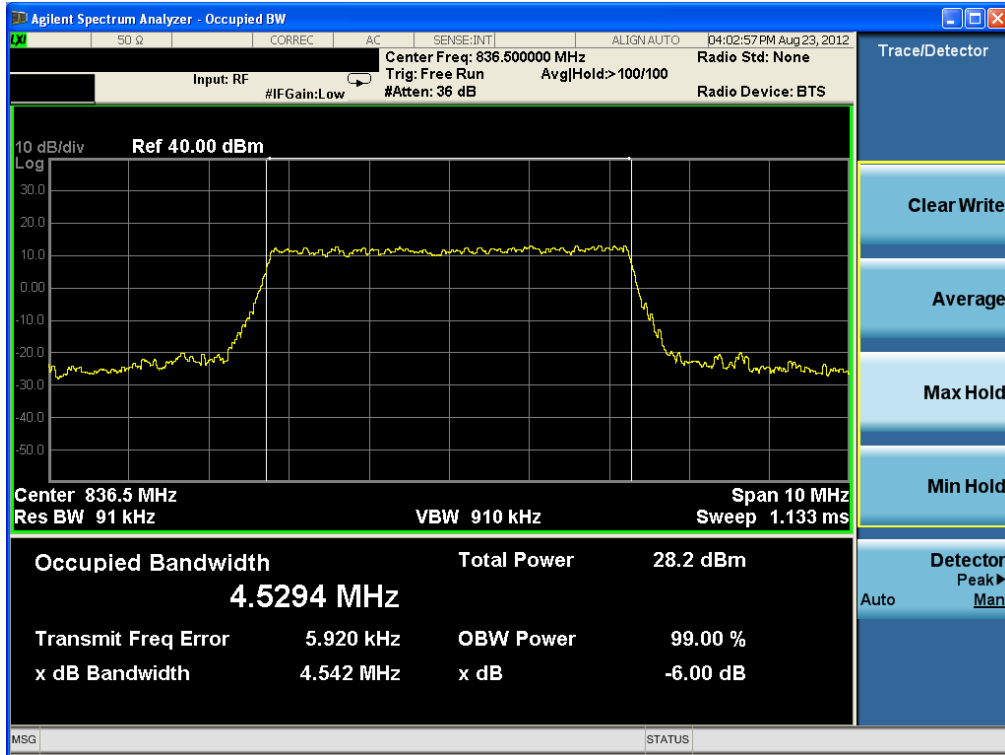


Plot 8-4. Lower Extended Band Edge Plot (10MHz QPSK – RB Size 50)

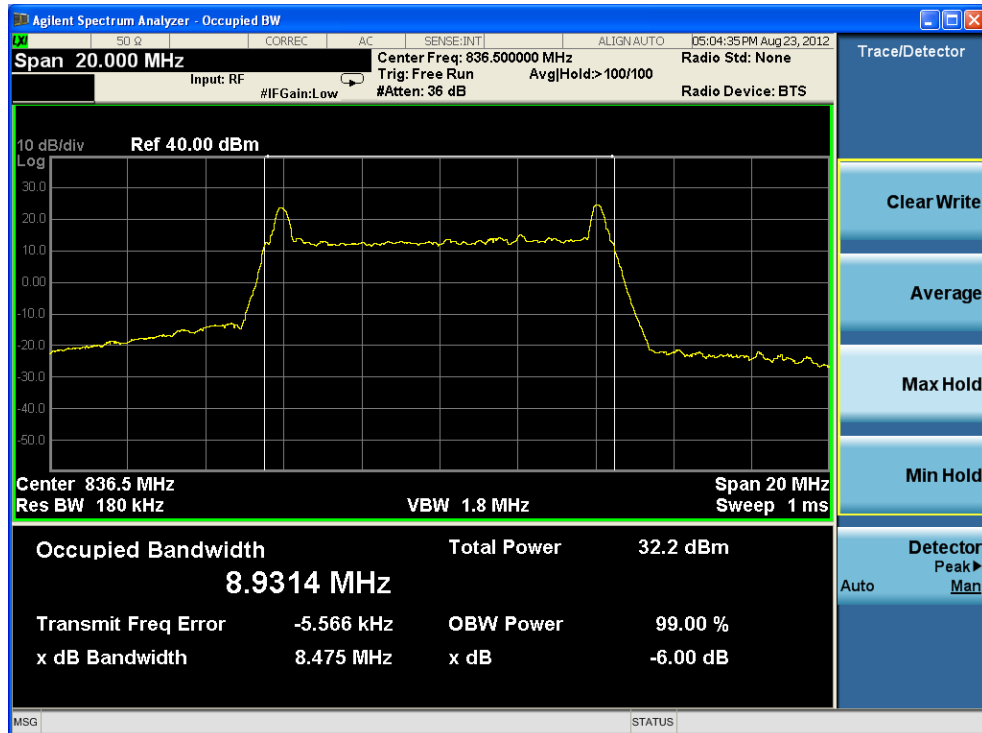


Plot 8-5. Occupied Bandwidth Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 46 of 90 |

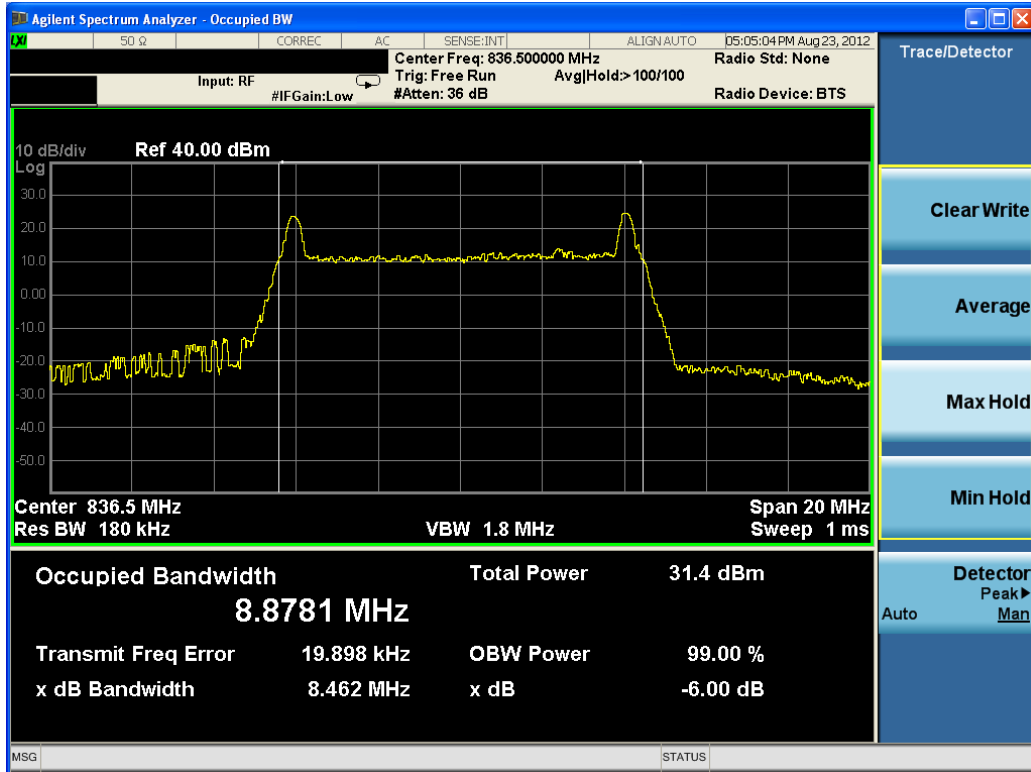


Plot 8-6. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

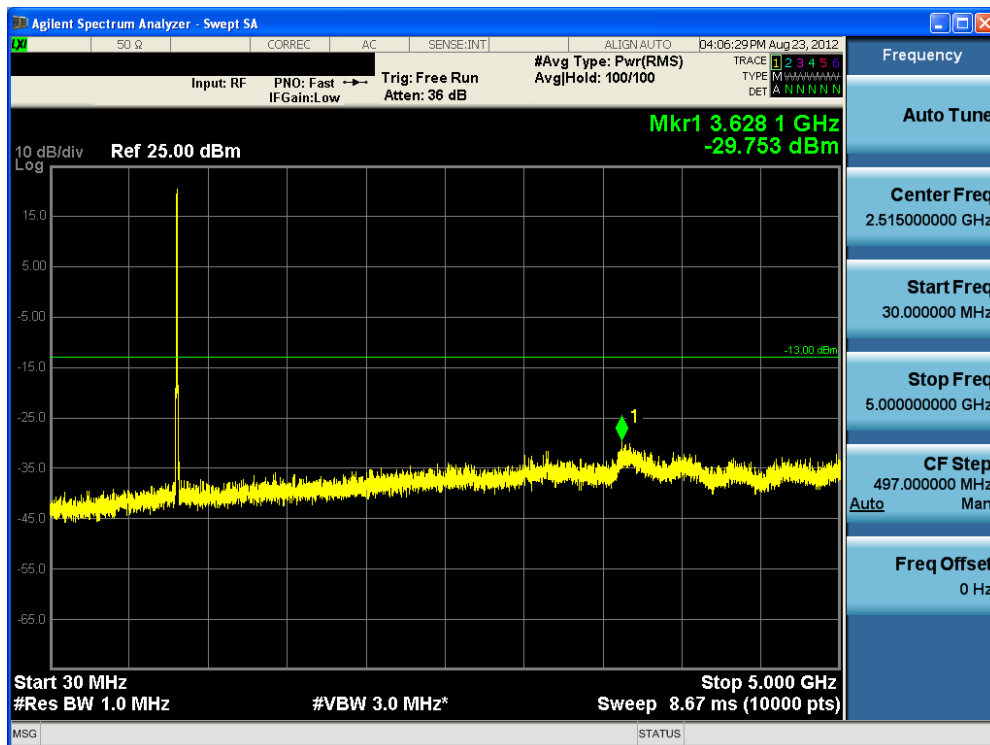


Plot 8-7. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 47 of 90 |

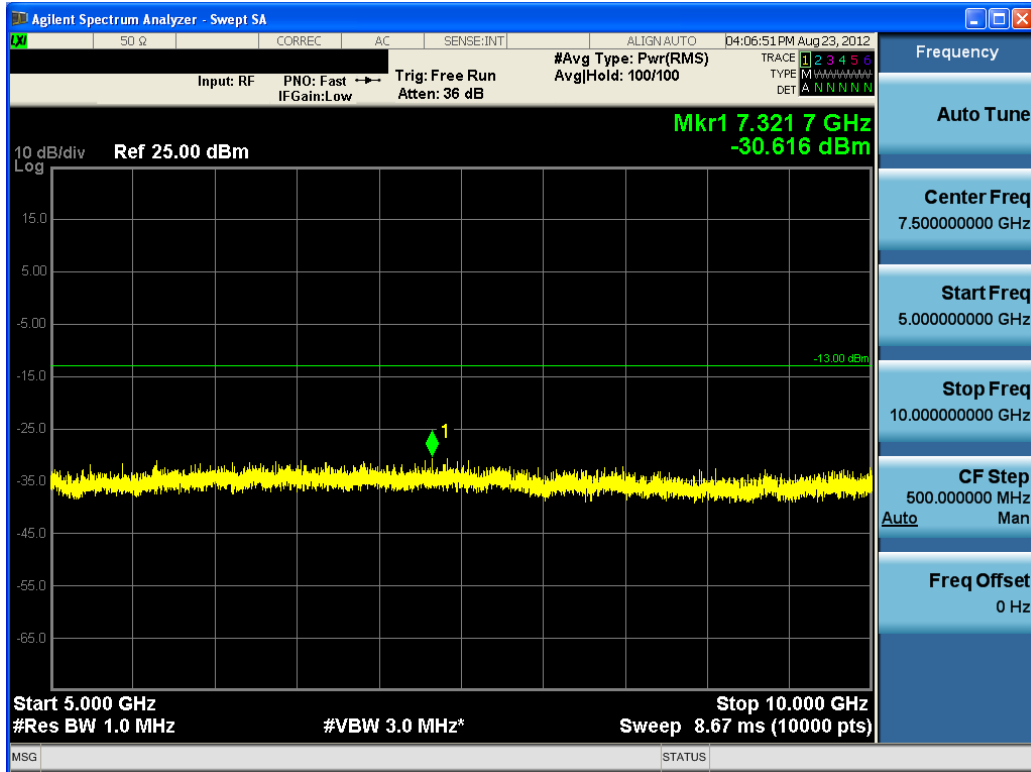


Plot 8-8. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

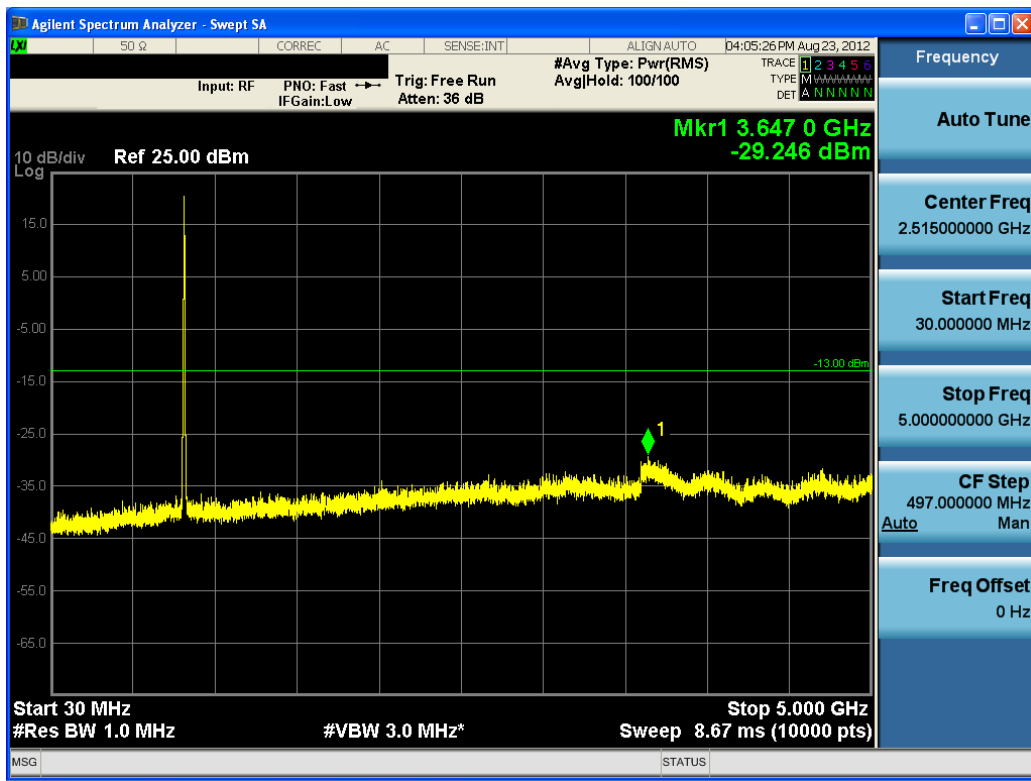


Plot 8-9. Conducted Spurious Plot (5MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)



| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 48 of 90 |

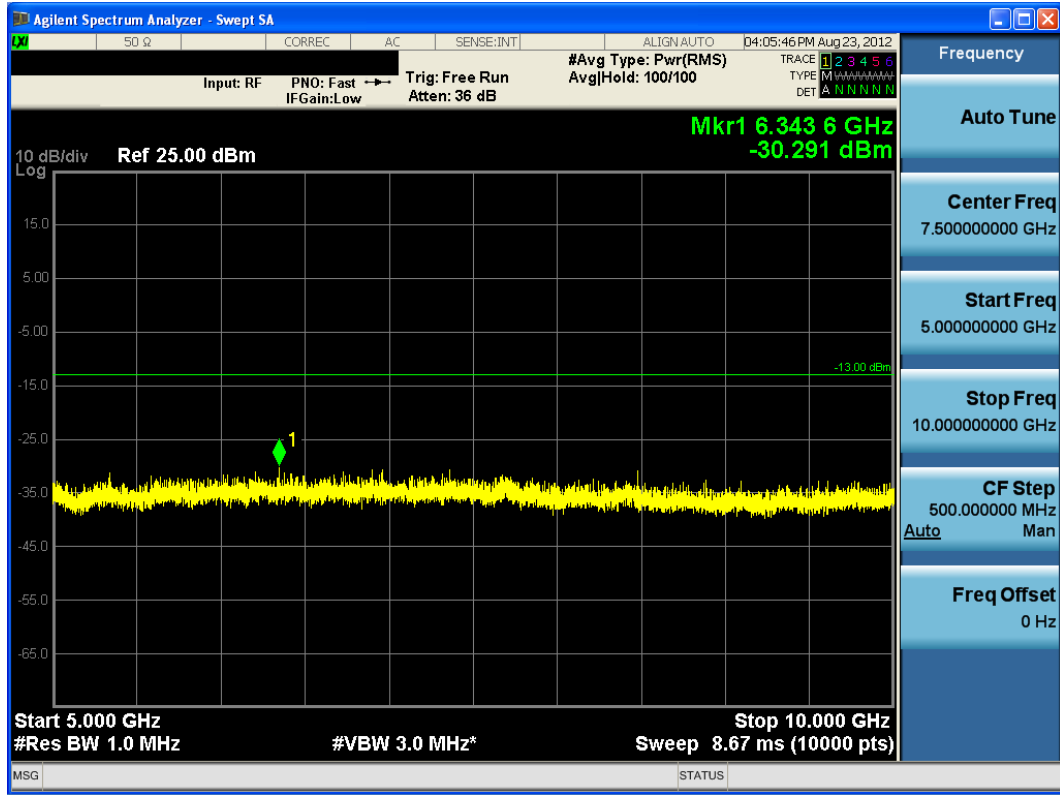


Plot 8-10. Conducted Spurious Plot (5MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

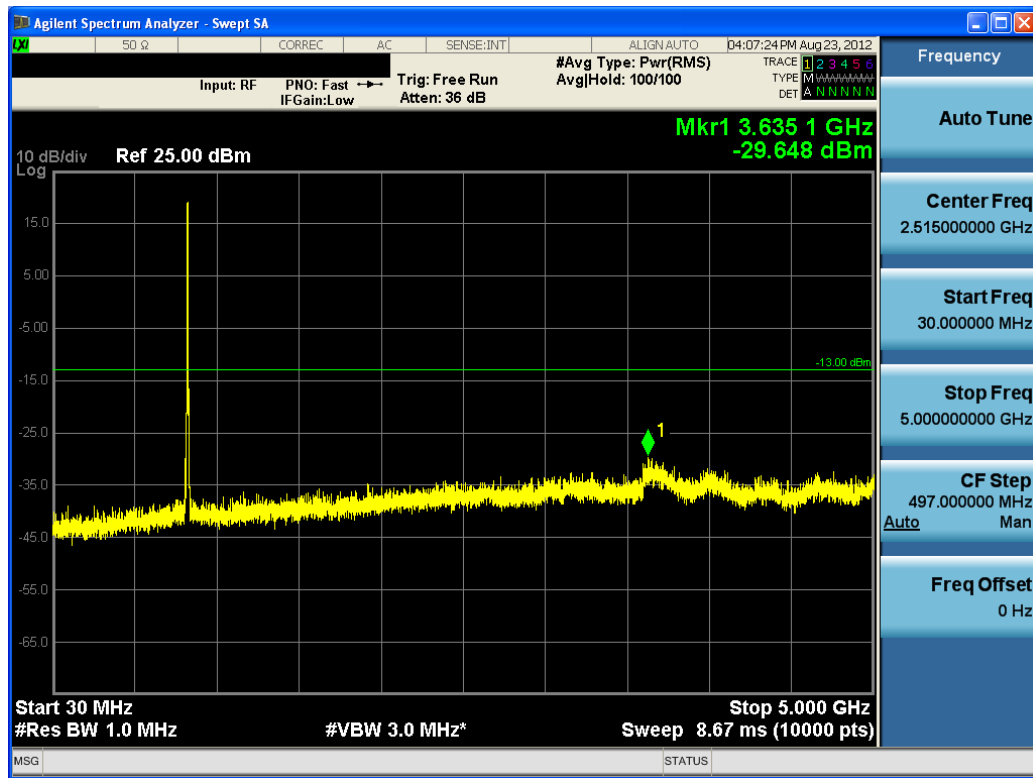


Plot 8-11. Conducted Spurious Plot (5MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 49 of 90 |

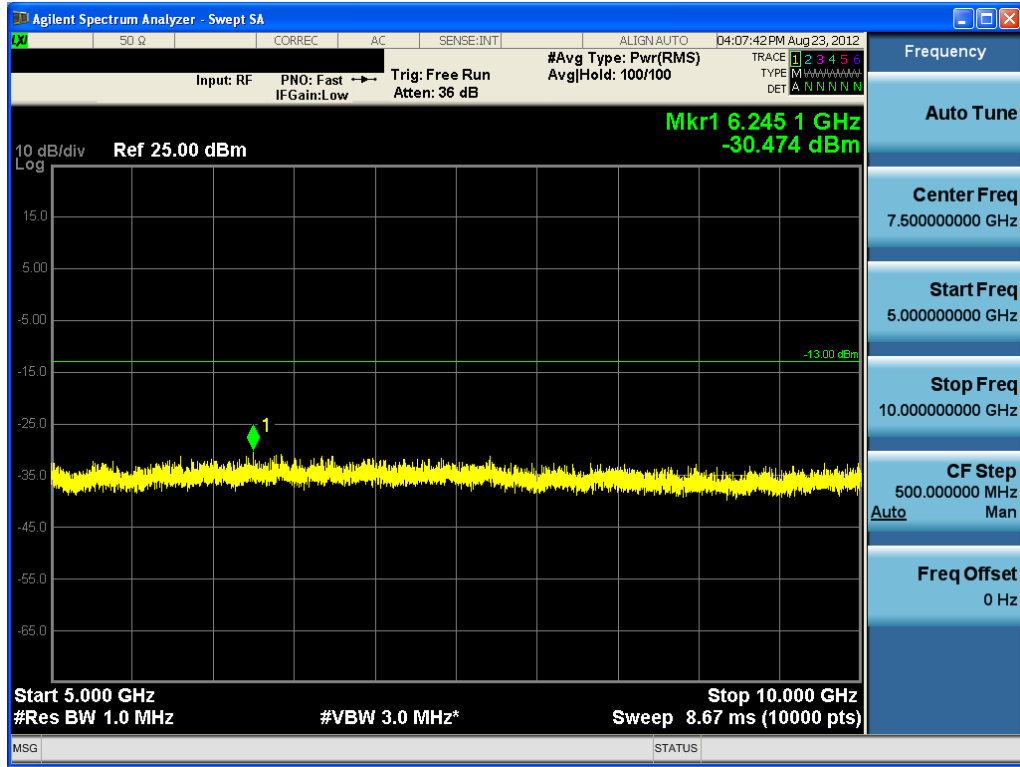


Plot 8-12. Conducted Spurious Plot (5MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

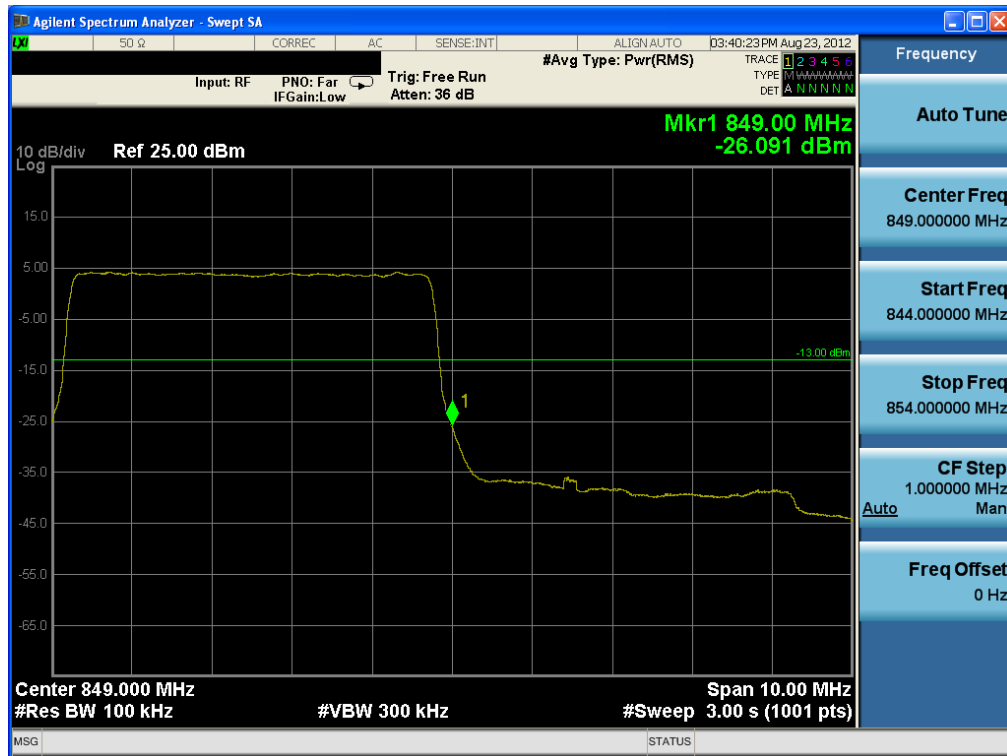


Plot 8-13. Conducted Spurious Plot (5MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 50 of 90 |

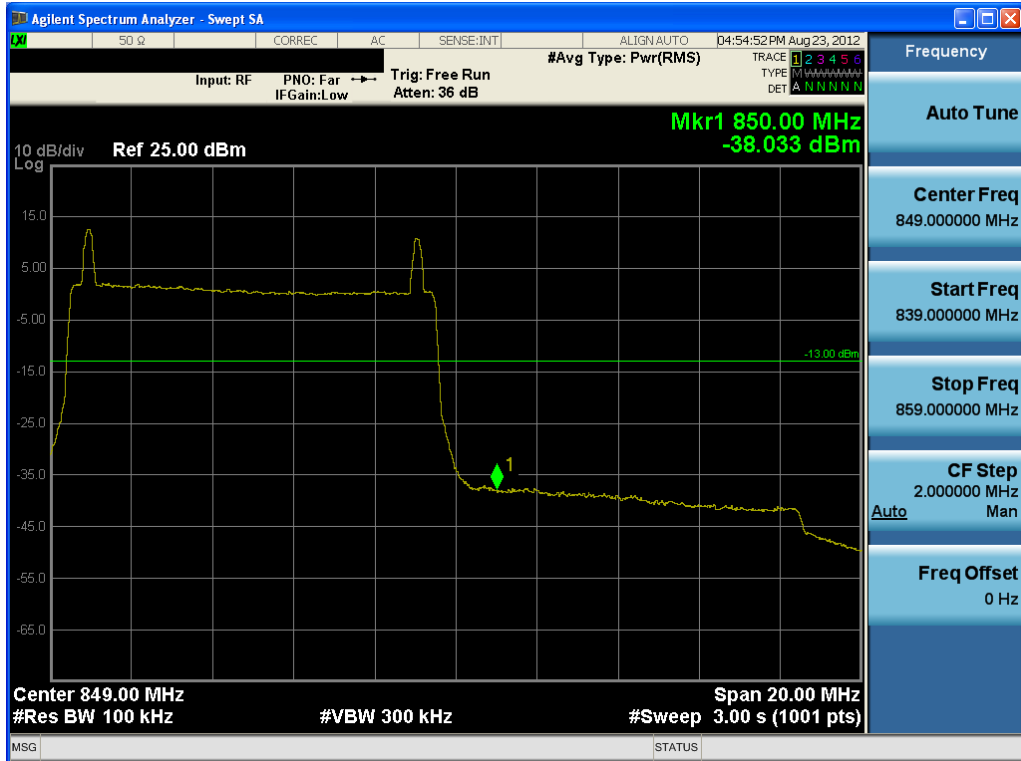


Plot 8-14. Conducted Spurious Plot (50MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

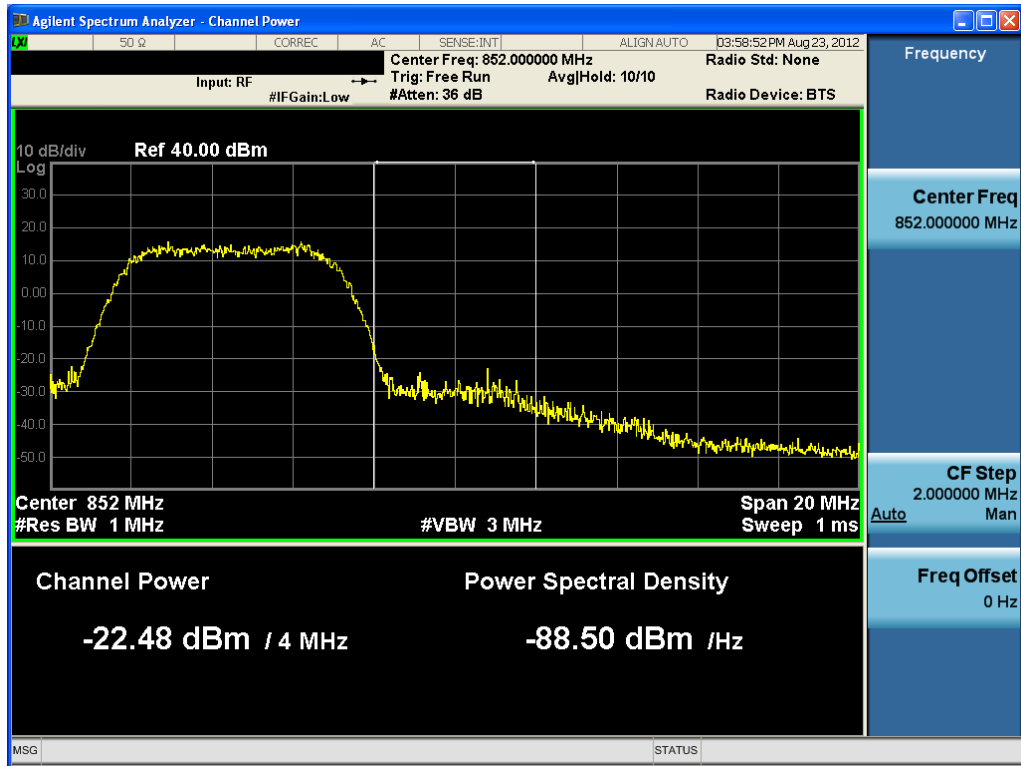


Plot 8-15. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|-----------------------------------|--------------------------------|---|--|------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 51 of 90 |



Plot 8-16. Upper Band Edge Plot (10MHz QPSK – RB Size 50)



Plot 8-17. Upper Extended Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 52 of 90 |



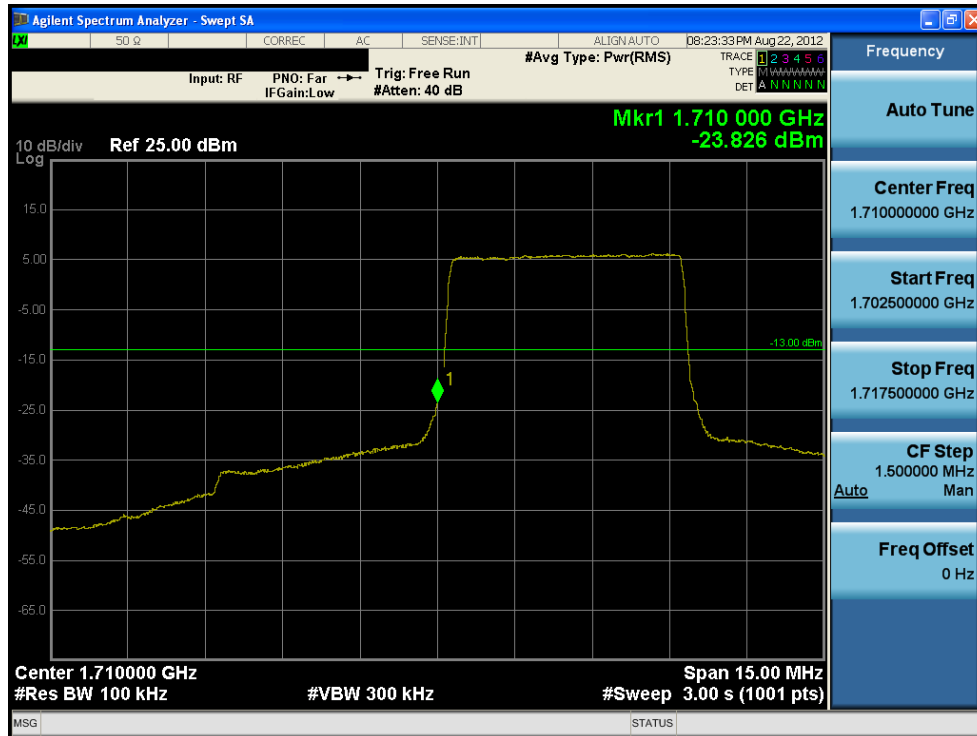
Plot 8-18. Upper Extended Band Edge Plot (10MHz QPSK – RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|---|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 53 of 90 |

9.0 BAND 4 PLOTS OF EMISSIONS

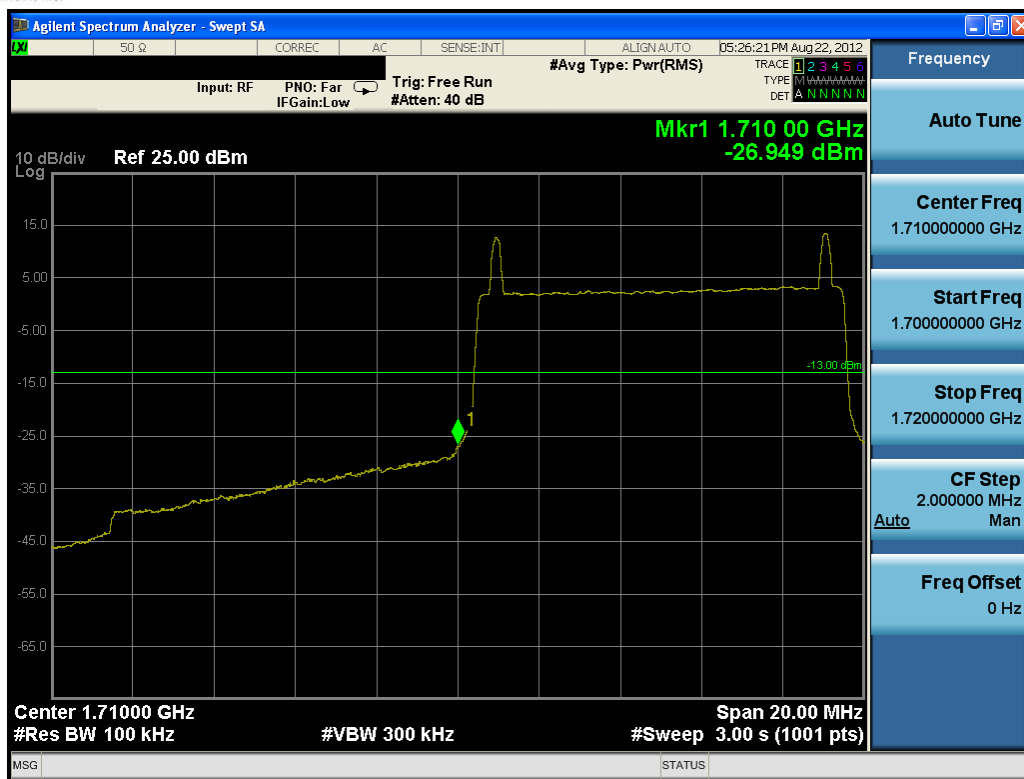
5MHz, 10MHz, and 15MHz Band:

Note: All bandwidths, RB configurations, and modulations were investigated. The worst case test results are reported below.



Plot 9-1. Lower Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 54 of 90 |

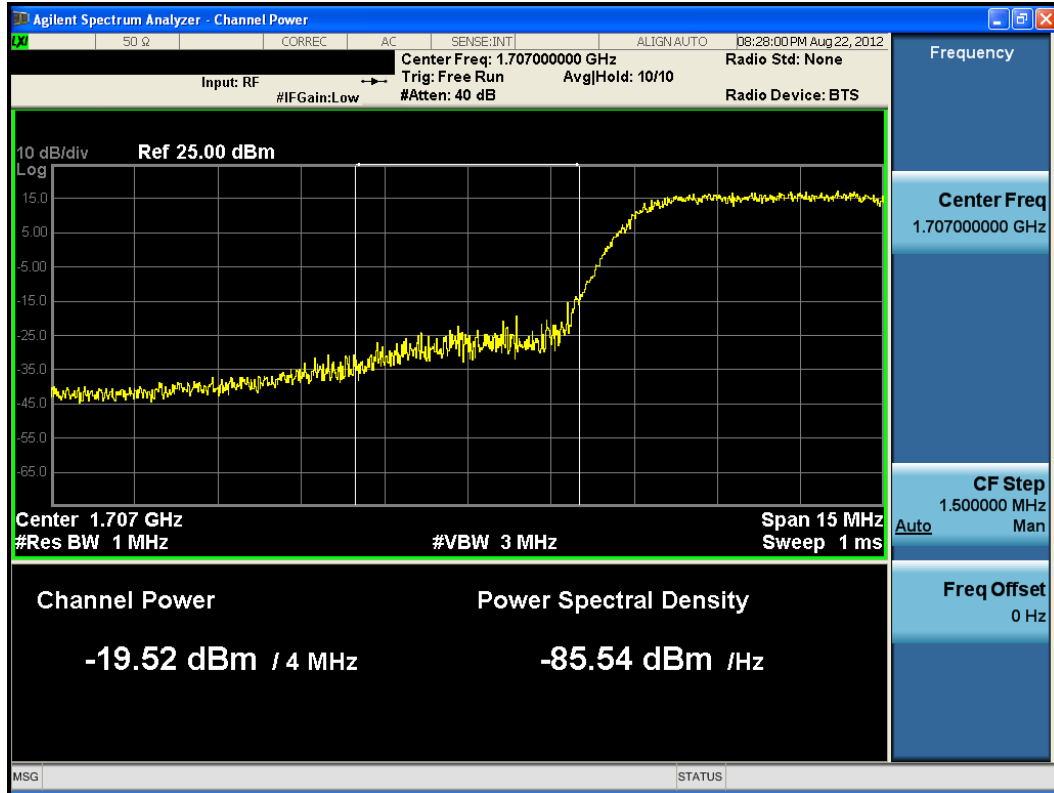


Plot 9-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

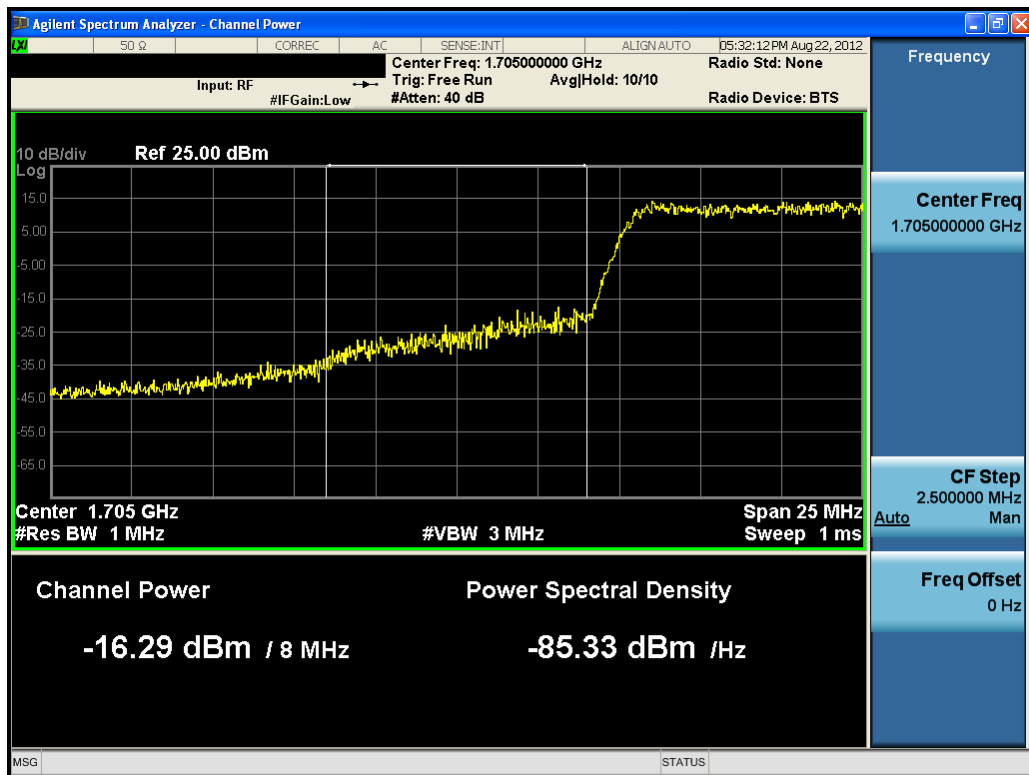


Plot 9-3. Lower Band Edge Plot (15MHz QPSK – RB Size 75)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 55 of 90 |

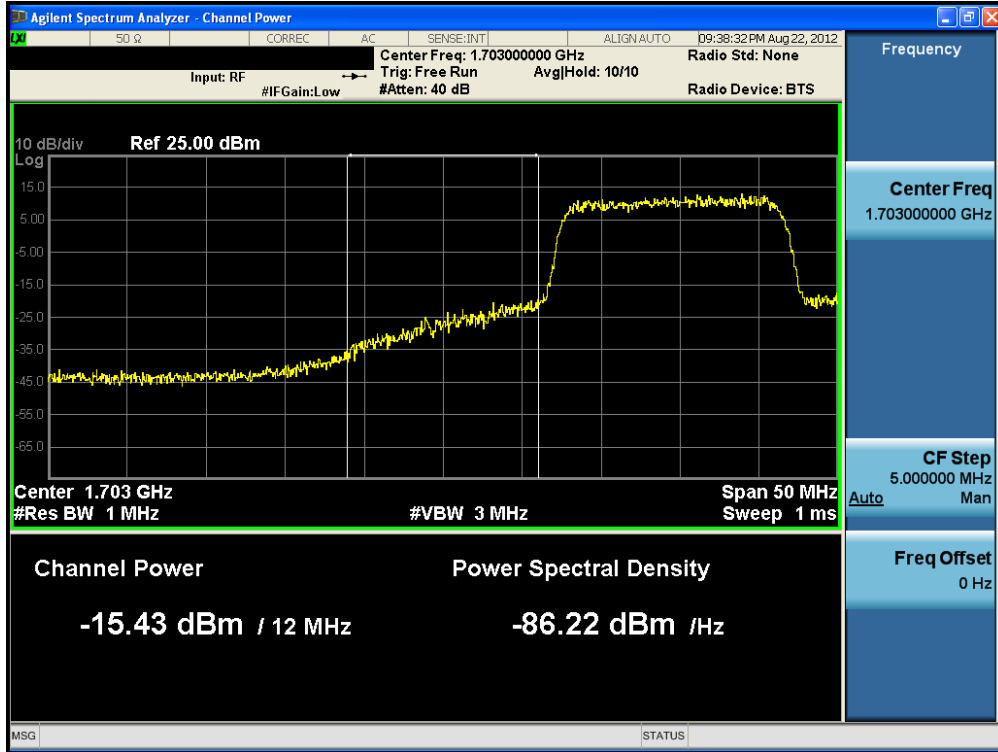


Plot 9-4. Lower Extended Band Edge Plot (5MHz QPSK– RB Size 25)

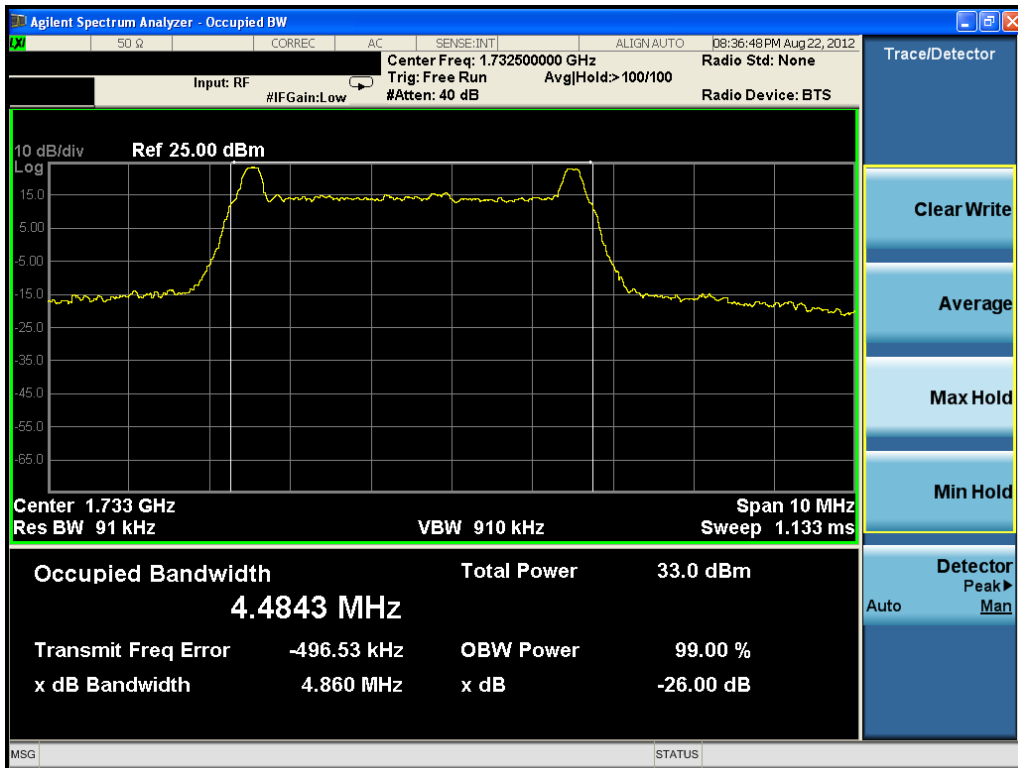


Plot 9-5. Lower Extended Band Edge Plot (10MHz QPSK– RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 56 of 90 |

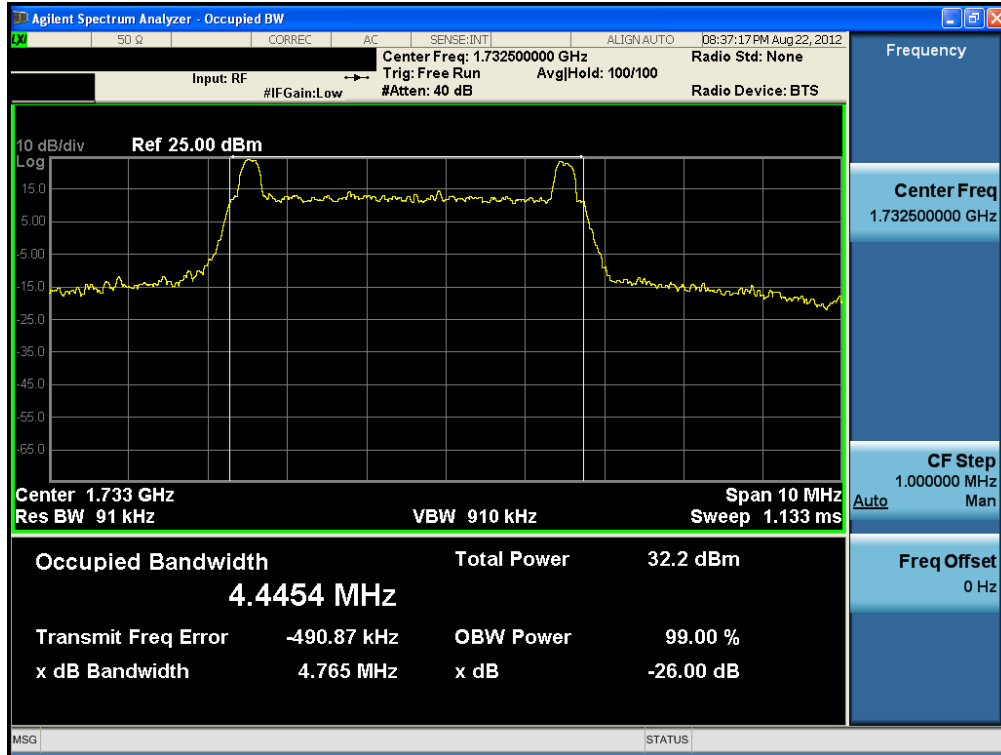


Plot 9-6. Lower Extended Band Edge Plot (15MHz QPSK- RB Size 75)

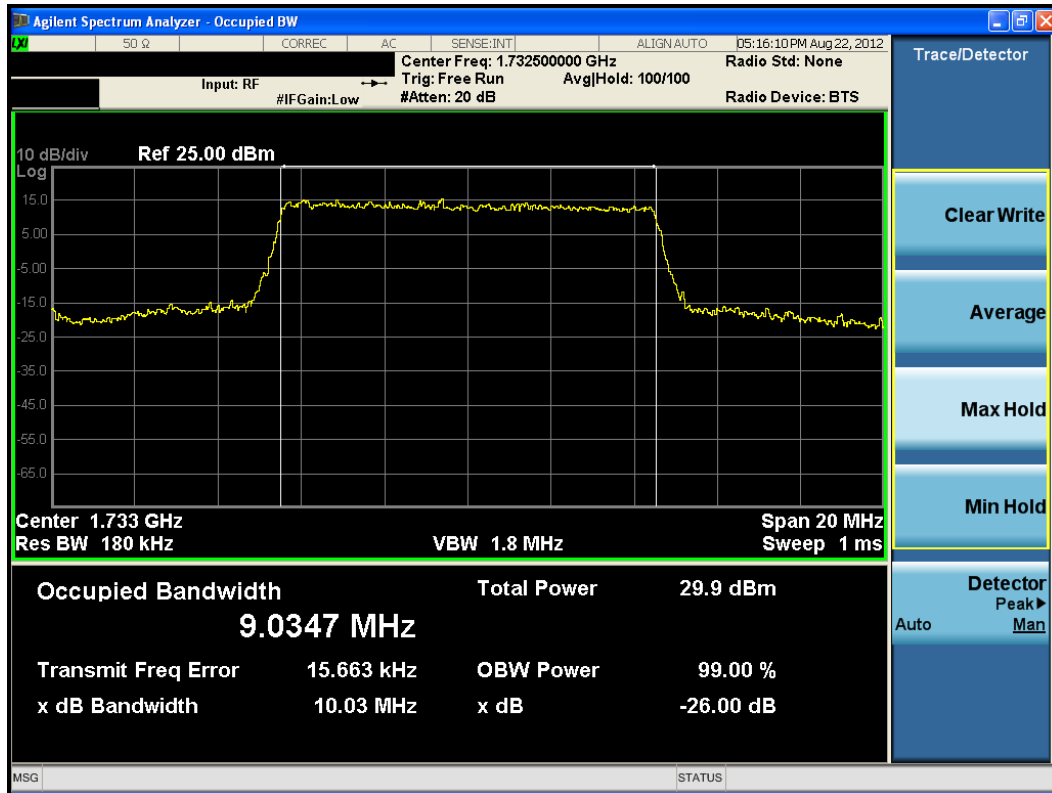


Plot 9-7. Occupied Bandwidth Plot (5MHz QPSK - RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 57 of 90 |

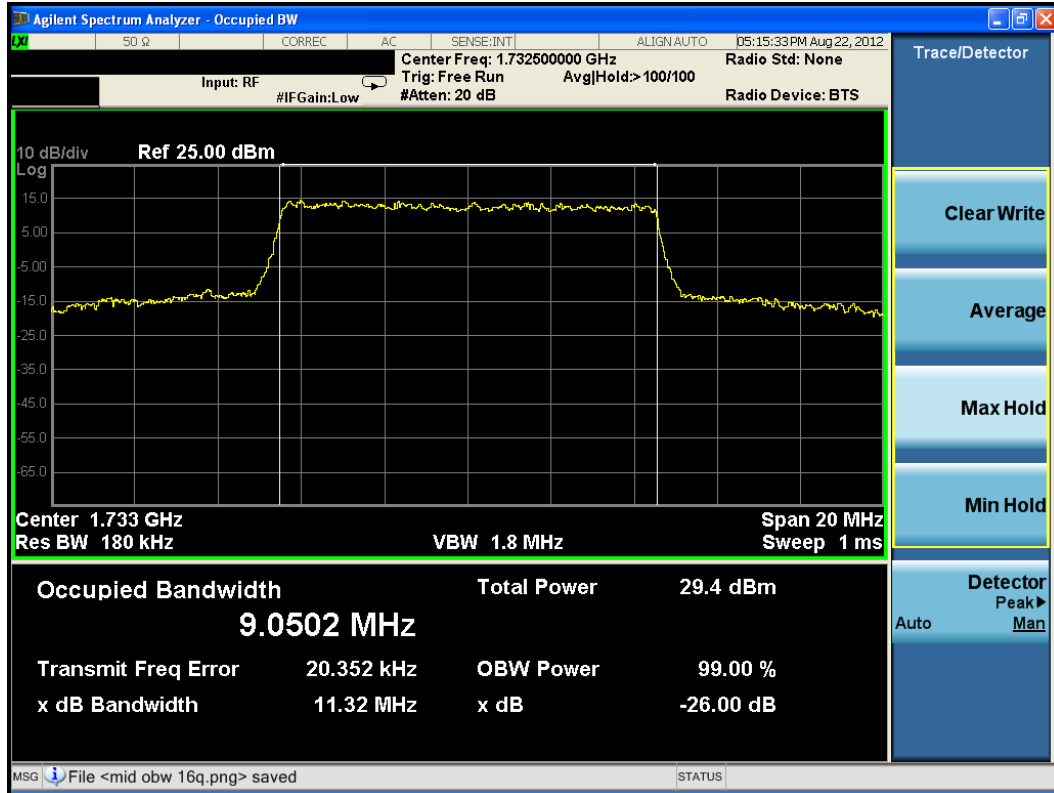


Plot 9-8. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

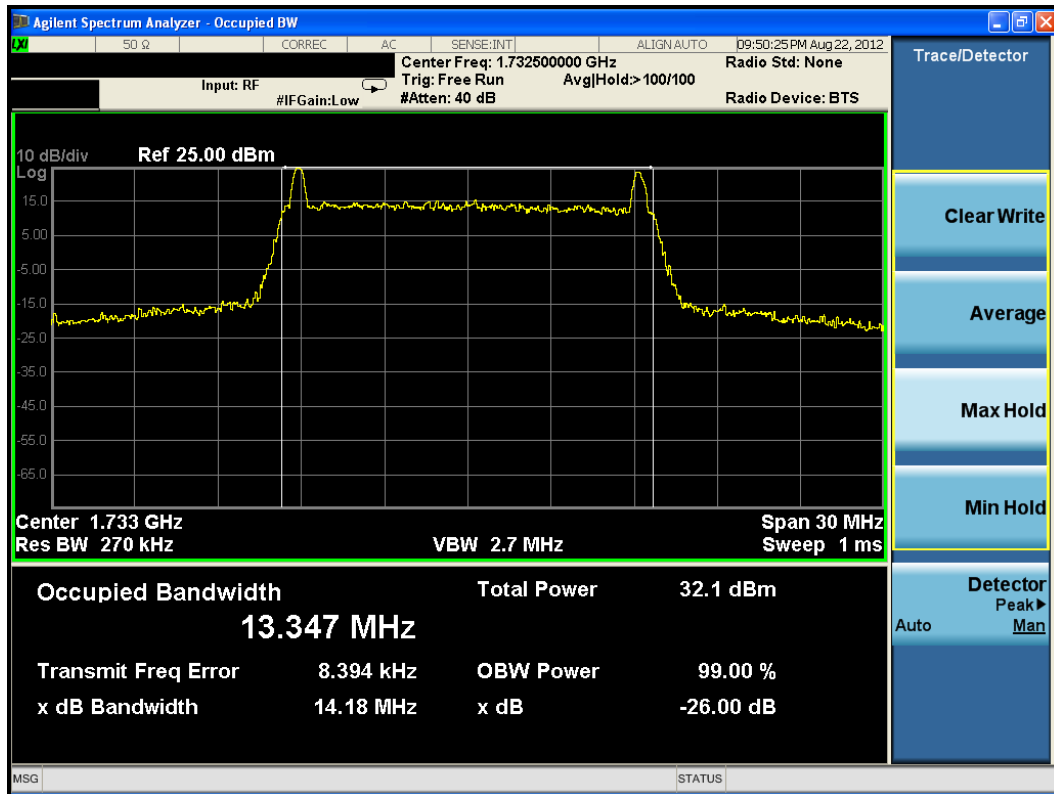


Plot 9-9. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

| | | | | |
|-----------------------------------|--------------------------------|---|--|------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 58 of 90 |

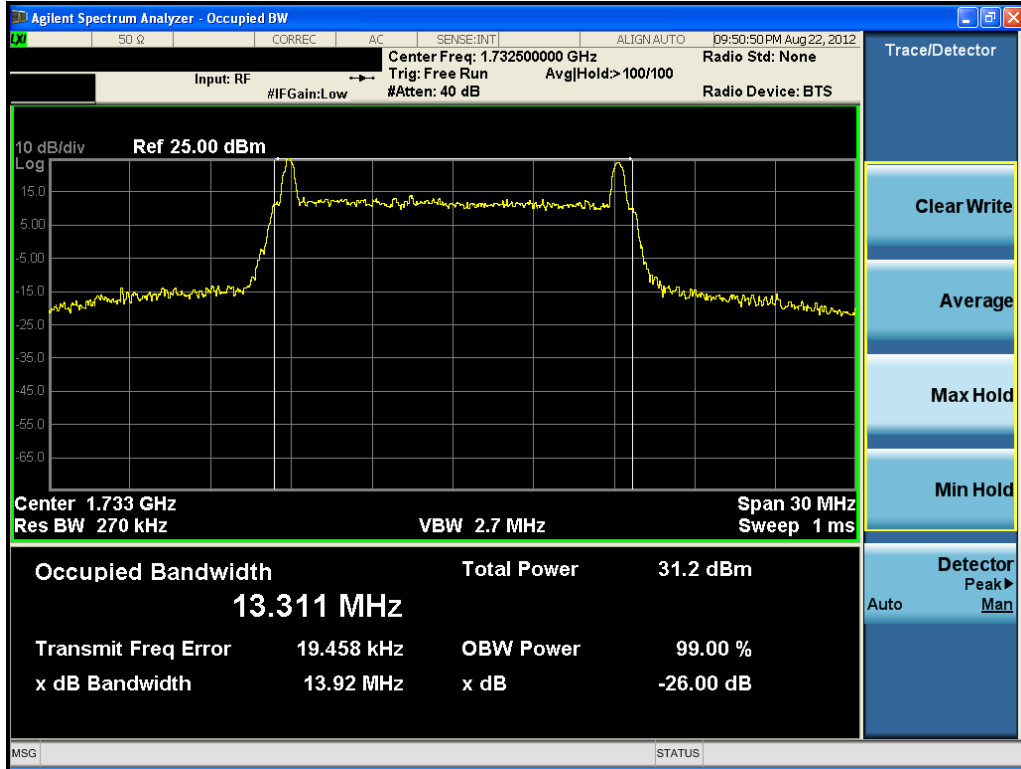


Plot 9-10. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

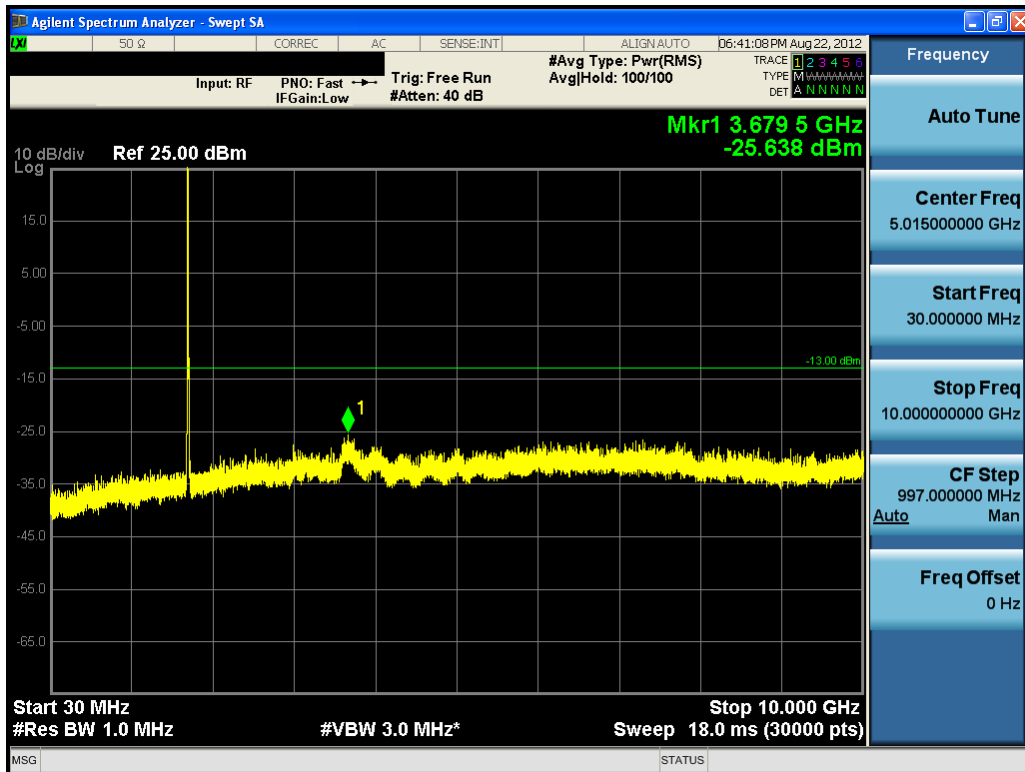


Plot 9-11. Occupied Bandwidth Plot (15MHz QPSK – RB Size 75)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 59 of 90 |

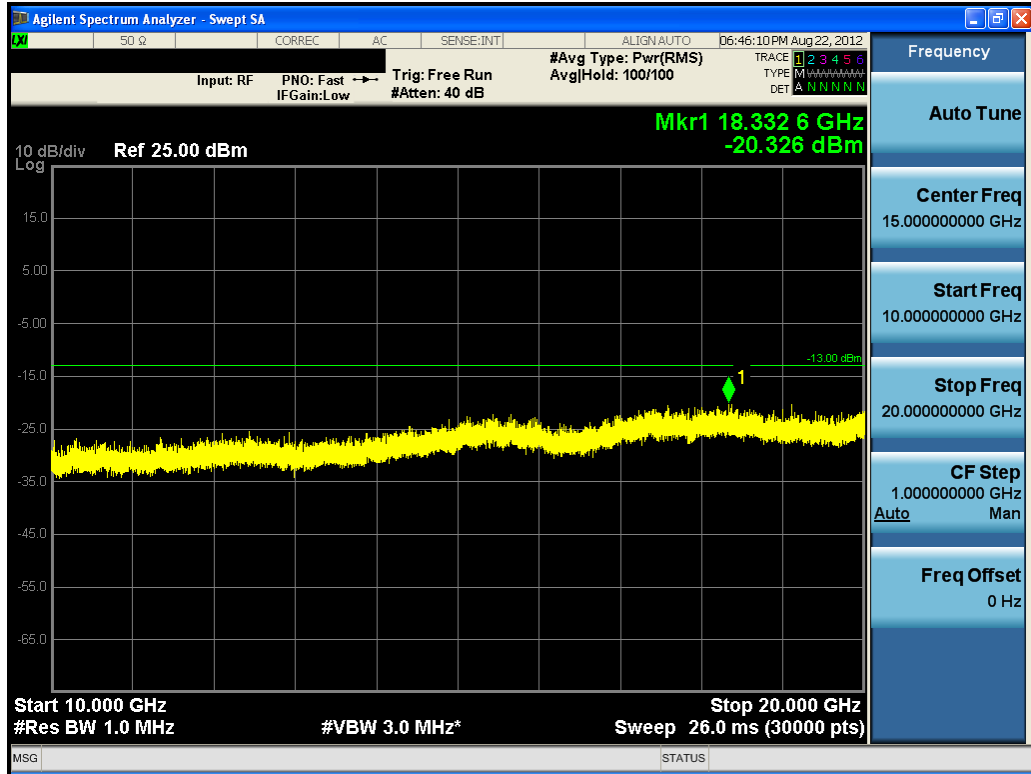


Plot 9-12. Occupied Bandwidth Plot (15MHz 16-QAM – RB Size 75)

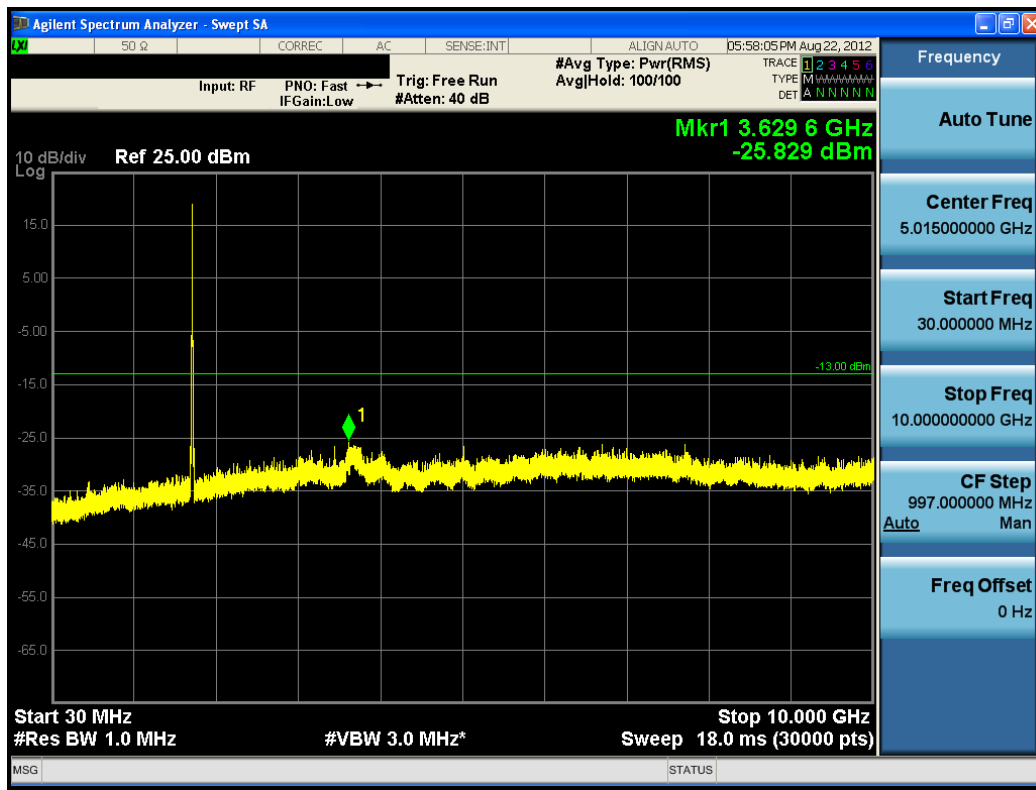


Plot 9-13. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 60 of 90 |

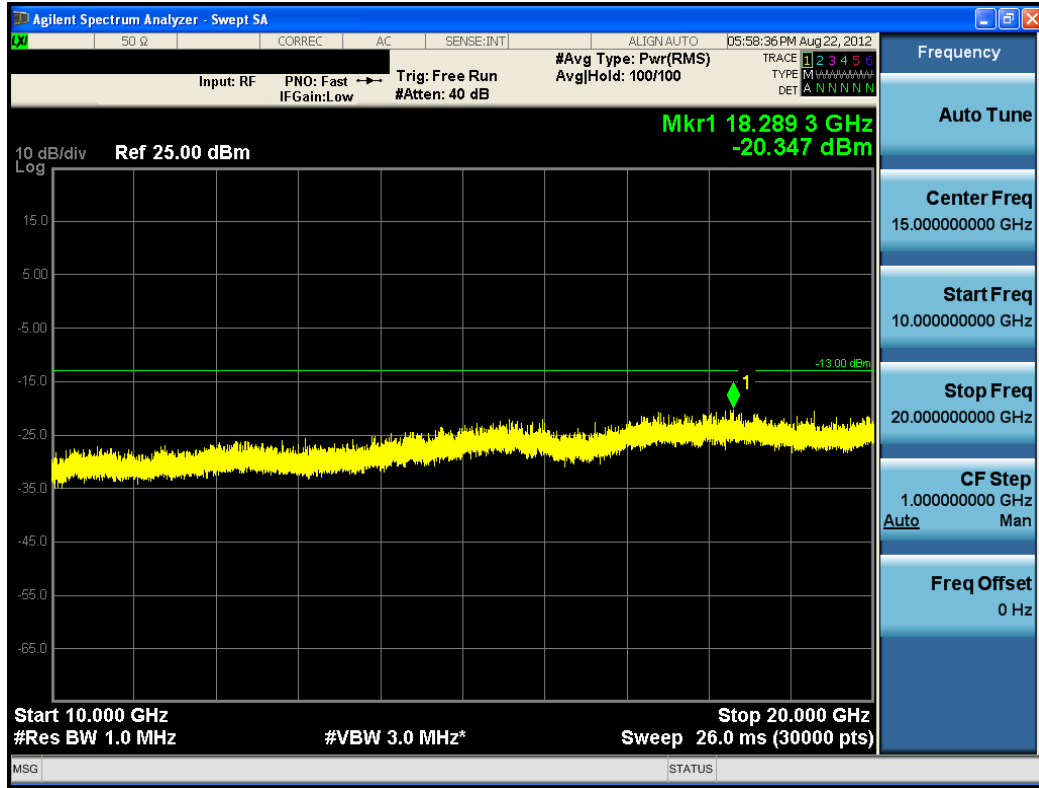


Plot 9-14. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

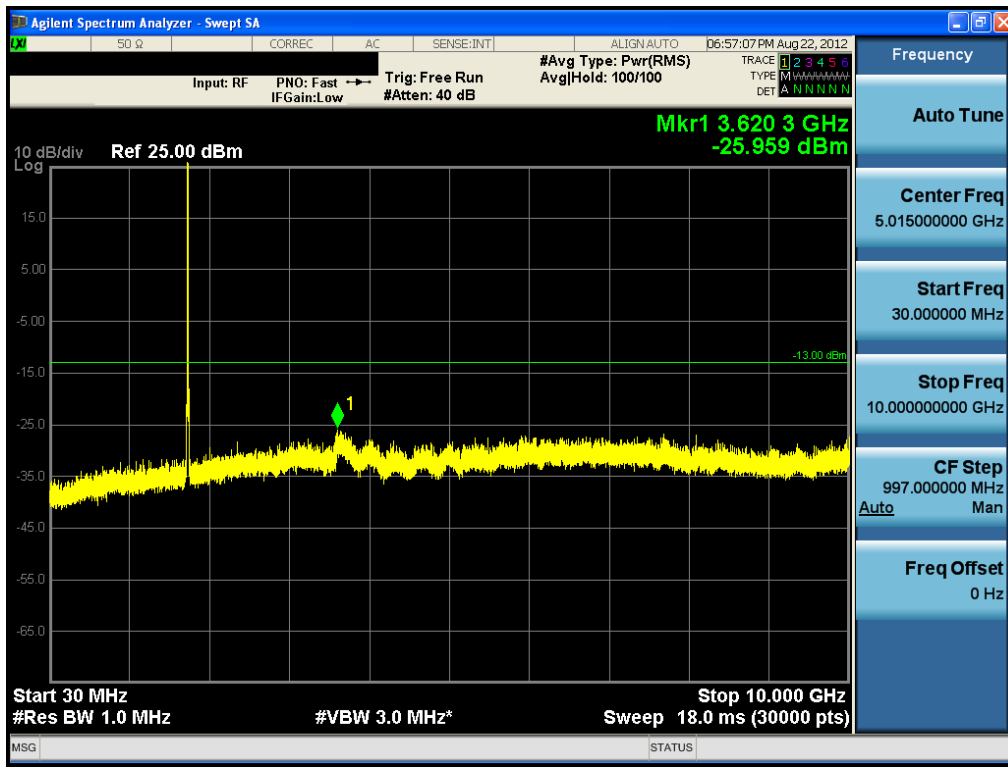


Plot 9-15. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 61 of 90 |

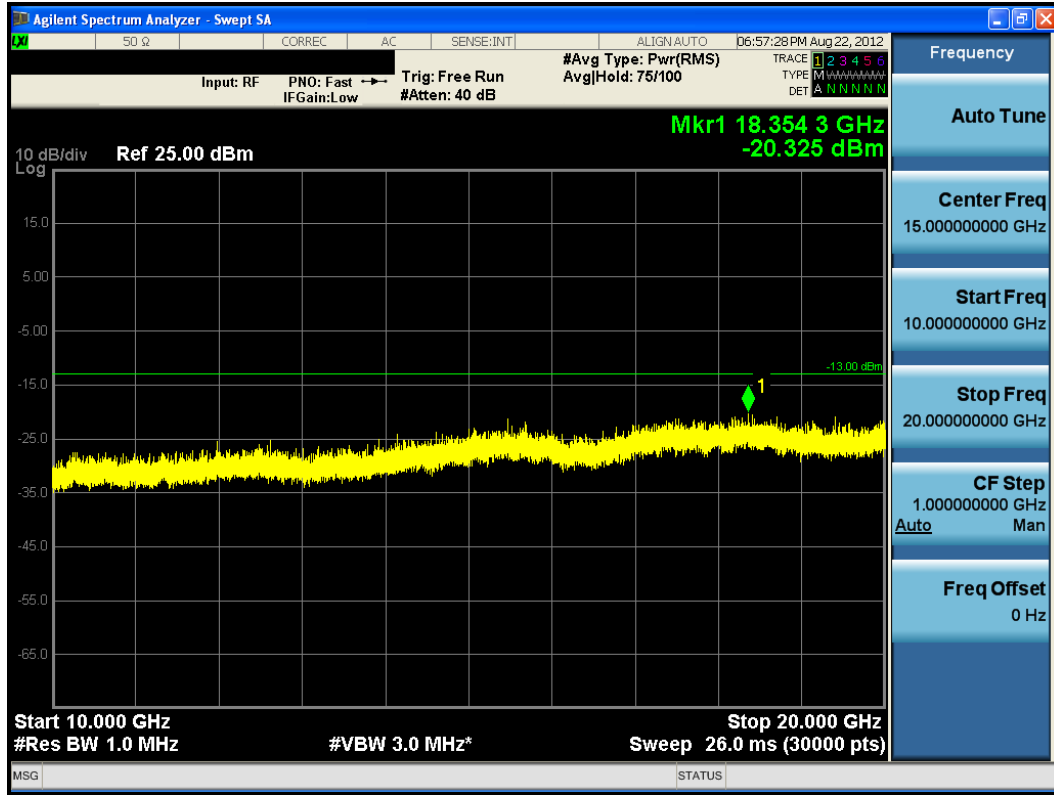


Plot 9-16. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

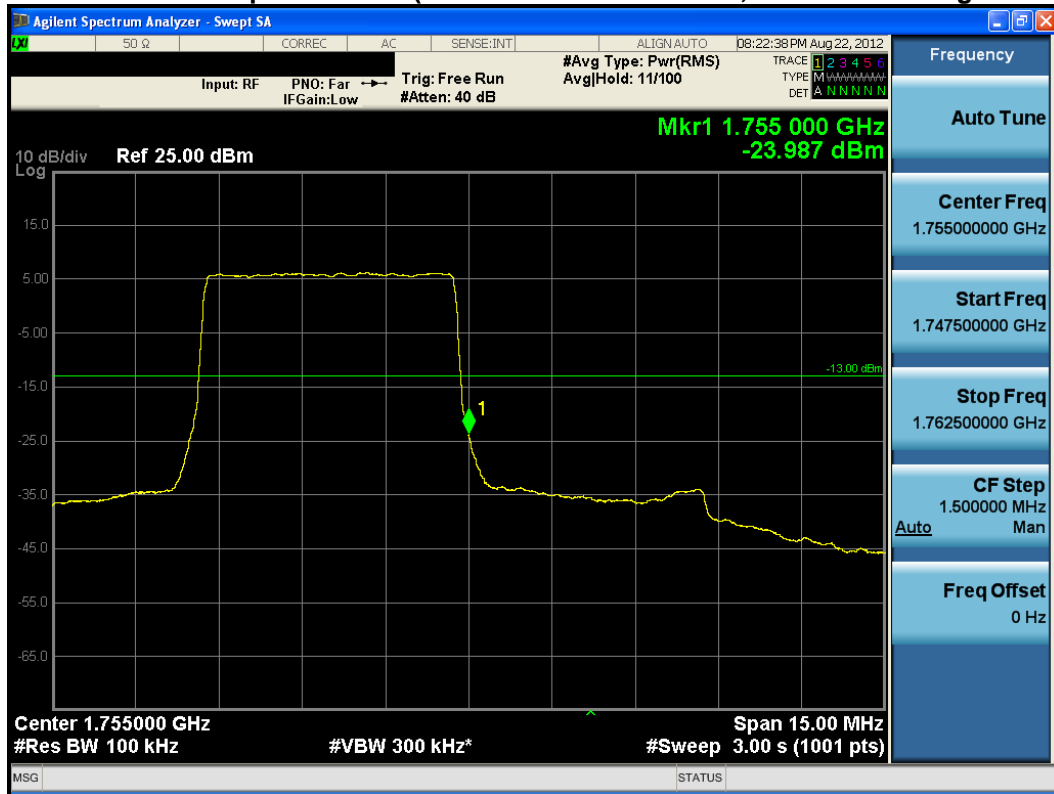


Plot 9-17. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)


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|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 62 of 90 |



Plot 9-18. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

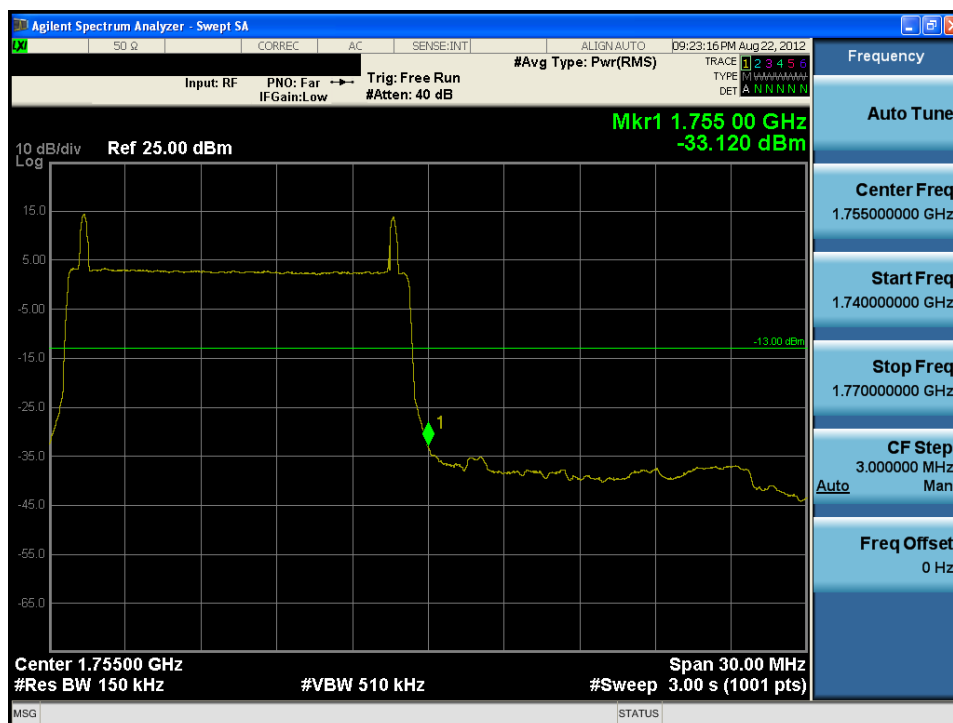


Plot 9-19. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 63 of 90 |

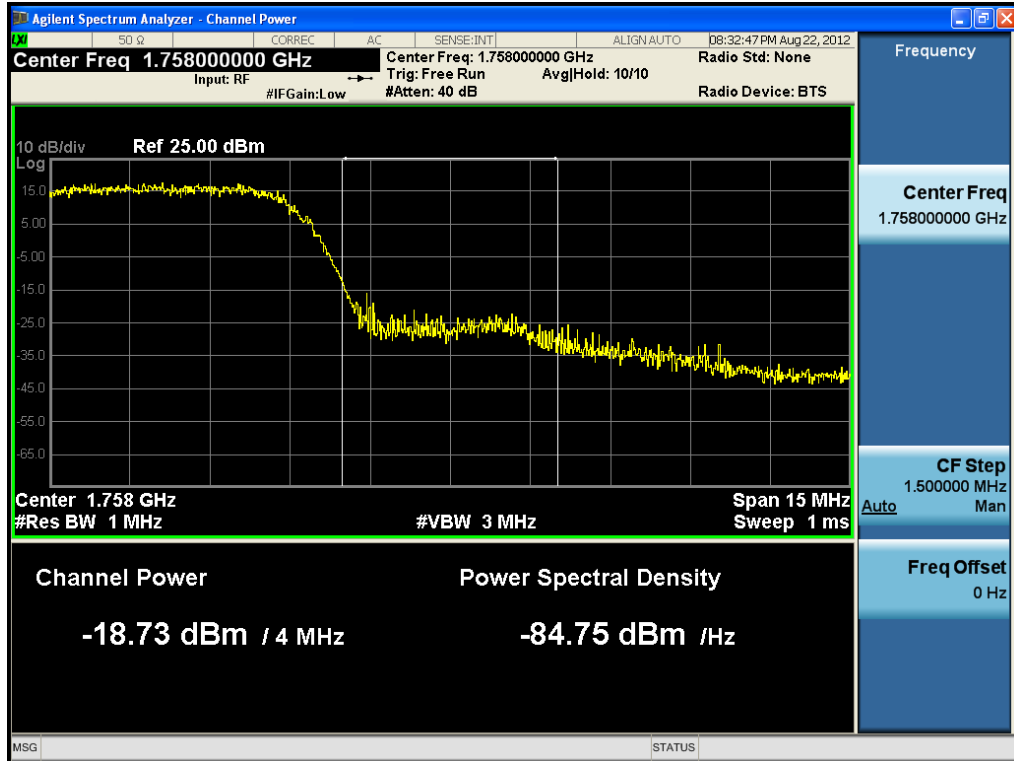


Plot 9-20. Upper Band Edge Plot (10MHz QPSK – RB Size 50)

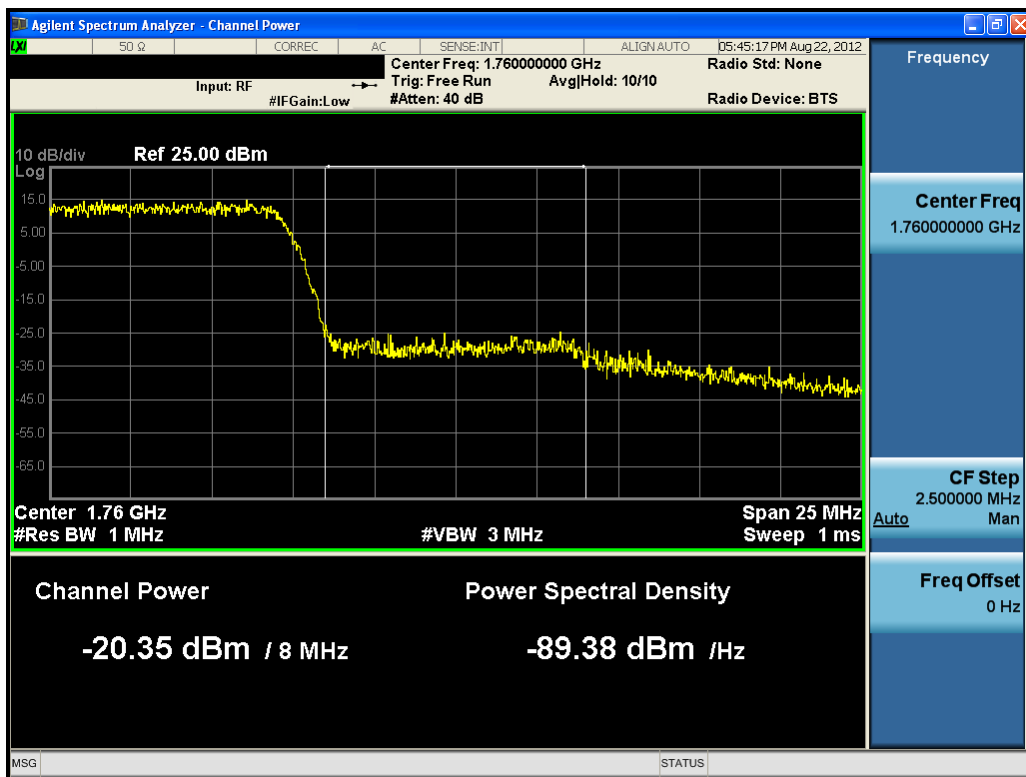


Plot 9-21. Upper Band Edge Plot (15MHz QPSK – RB Size 75)

| | | | | |
|--------------------------------------|--|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | | Test Dates: August 20-29, 2012 | | EUT Type: Portable Handset |

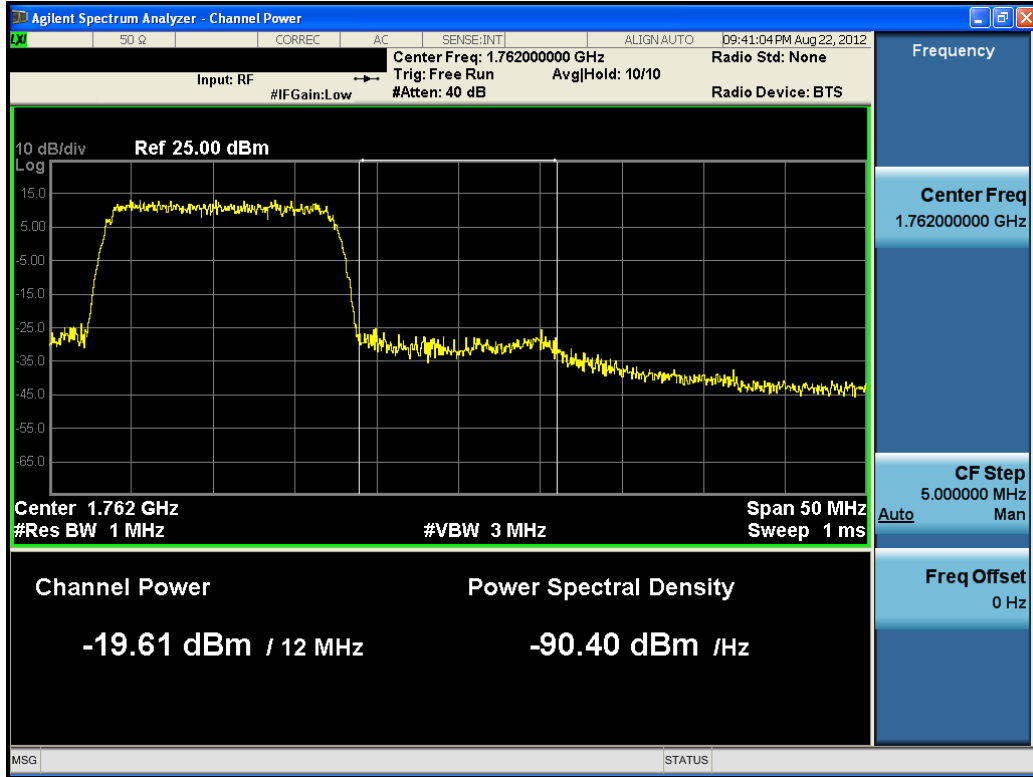


Plot 9-22. Upper Extended Band Edge Plot (5MHz QPSK– RB Size 25)

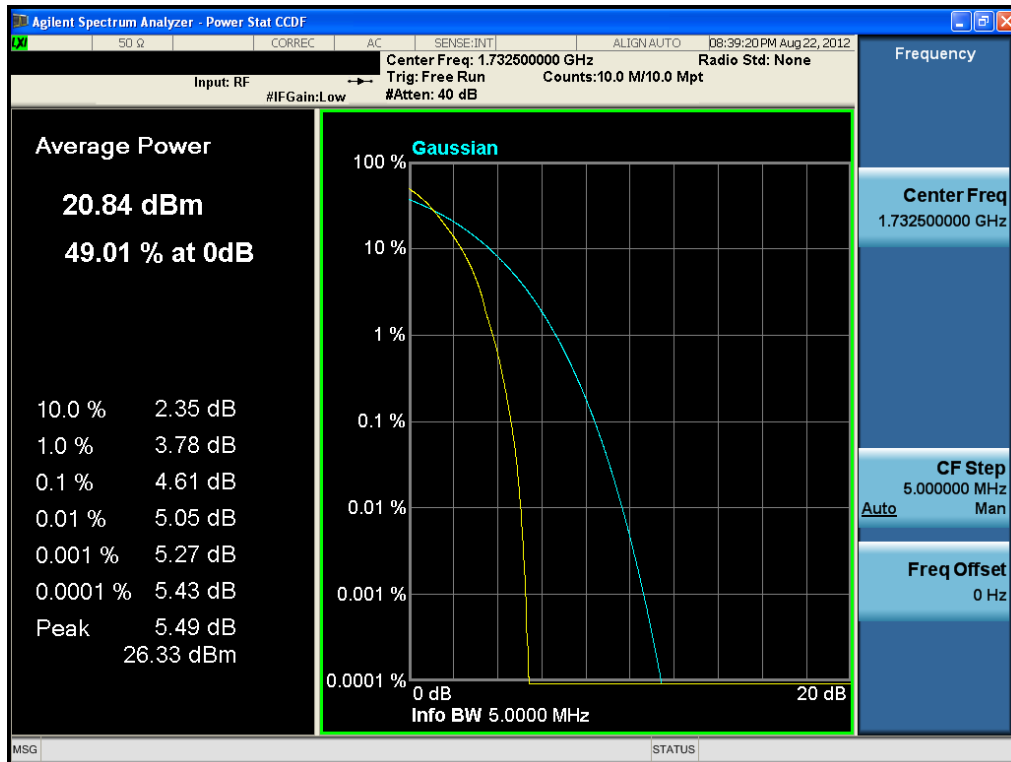


Plot 9-23. Upper Extended Band Edge Plot (10MHz QPSK– RB Size 50)

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|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 65 of 90 |

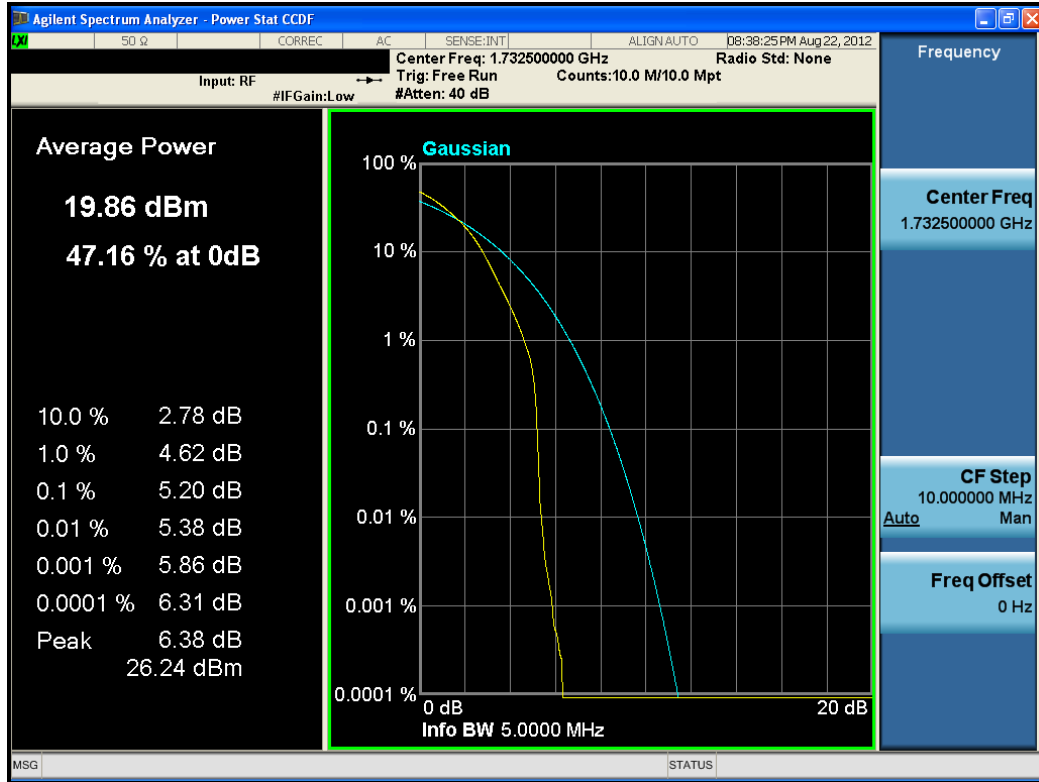


Plot 9-24. Upper Extended Band Edge Plot (15MHz QPSK– RB Size 75, Offset 0)

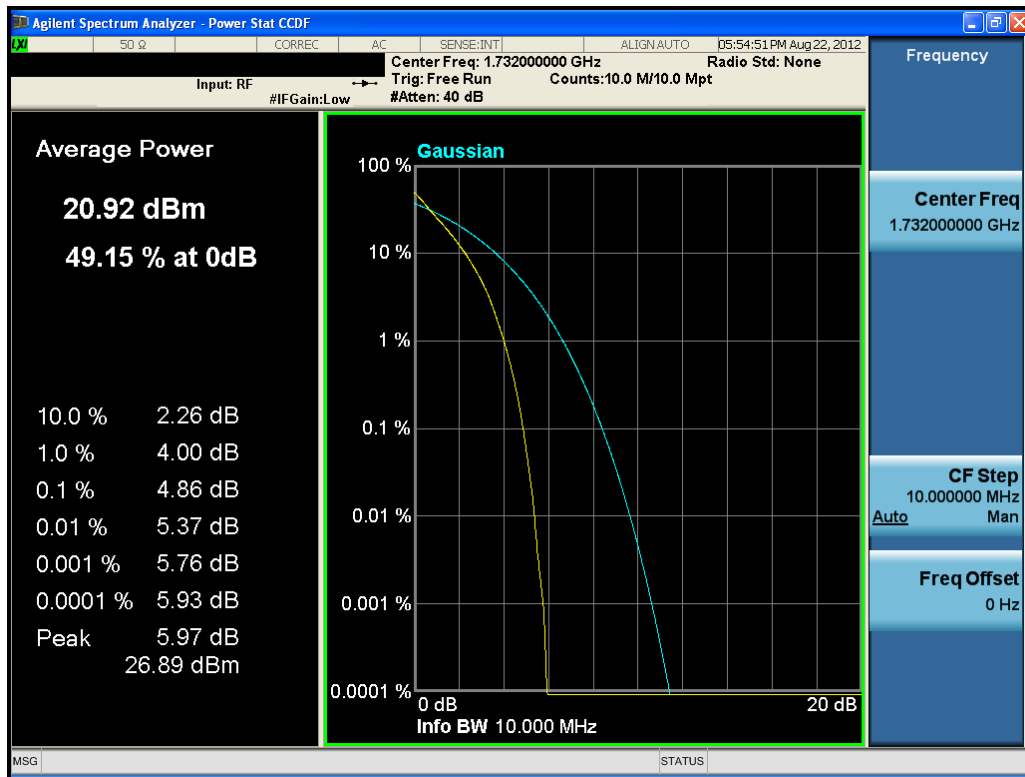


Plot 9-25. PAR Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 66 of 90 |

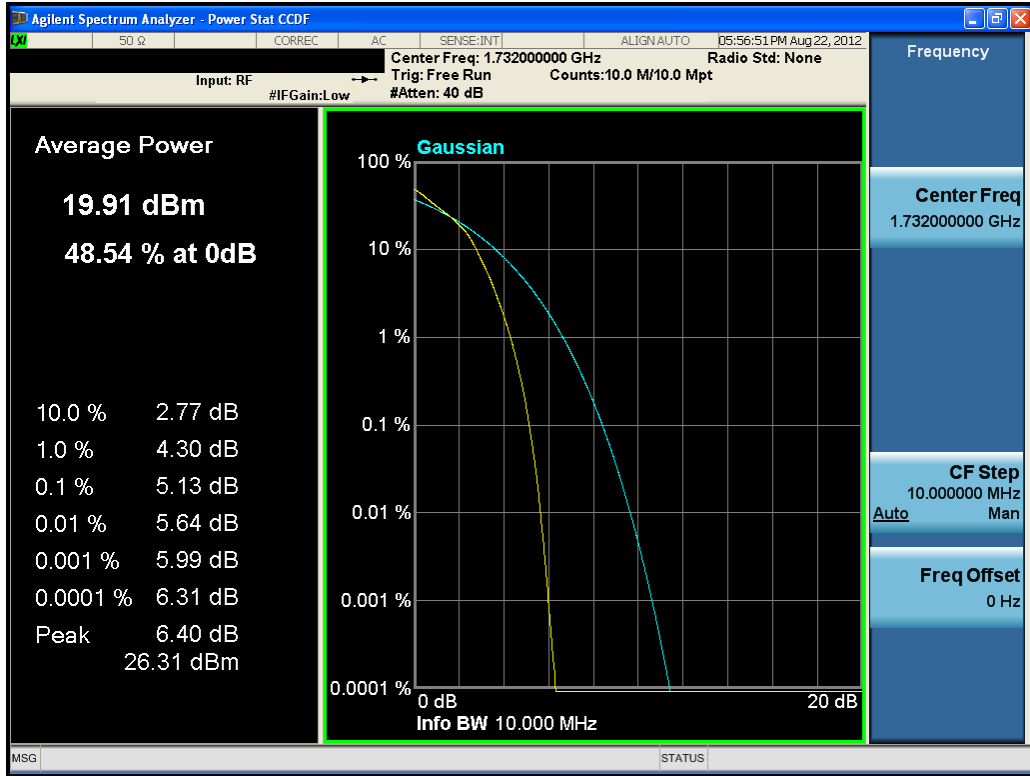


Plot 9-26. PAR Plot (5MHz 16QAM – RB Size 25)

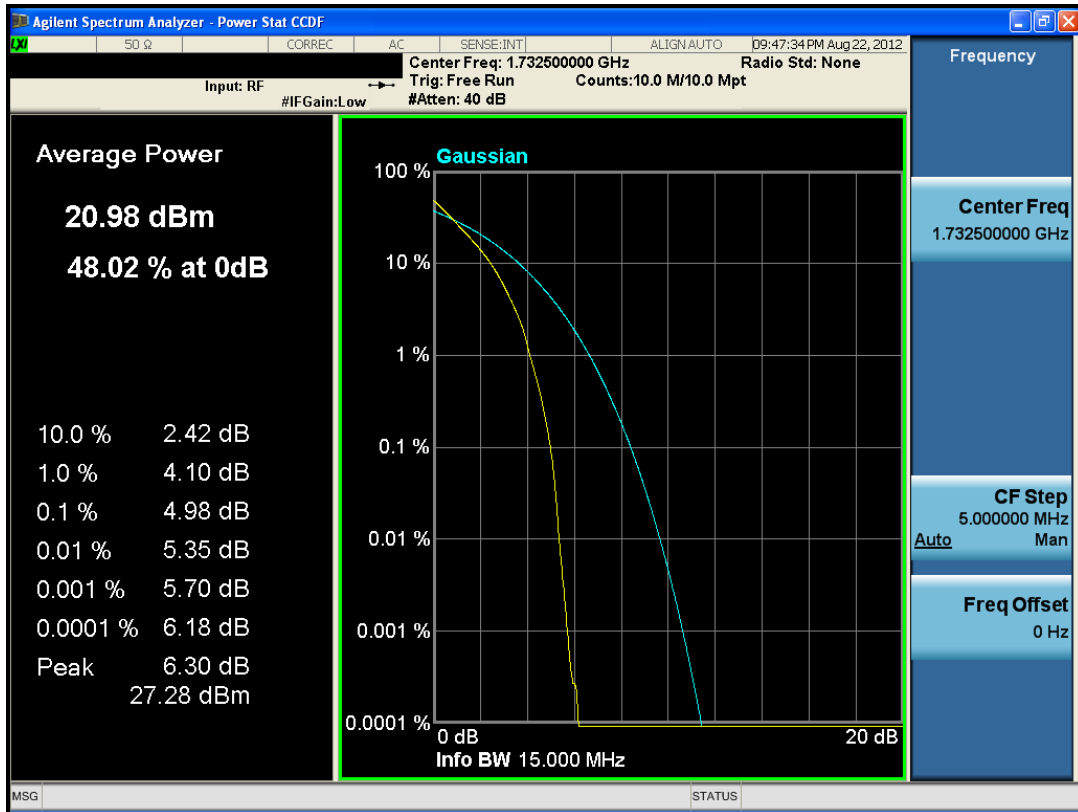


Plot 9-27. PAR Plot (10MHz QPSK – RB Size 50)

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|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 67 of 90 |

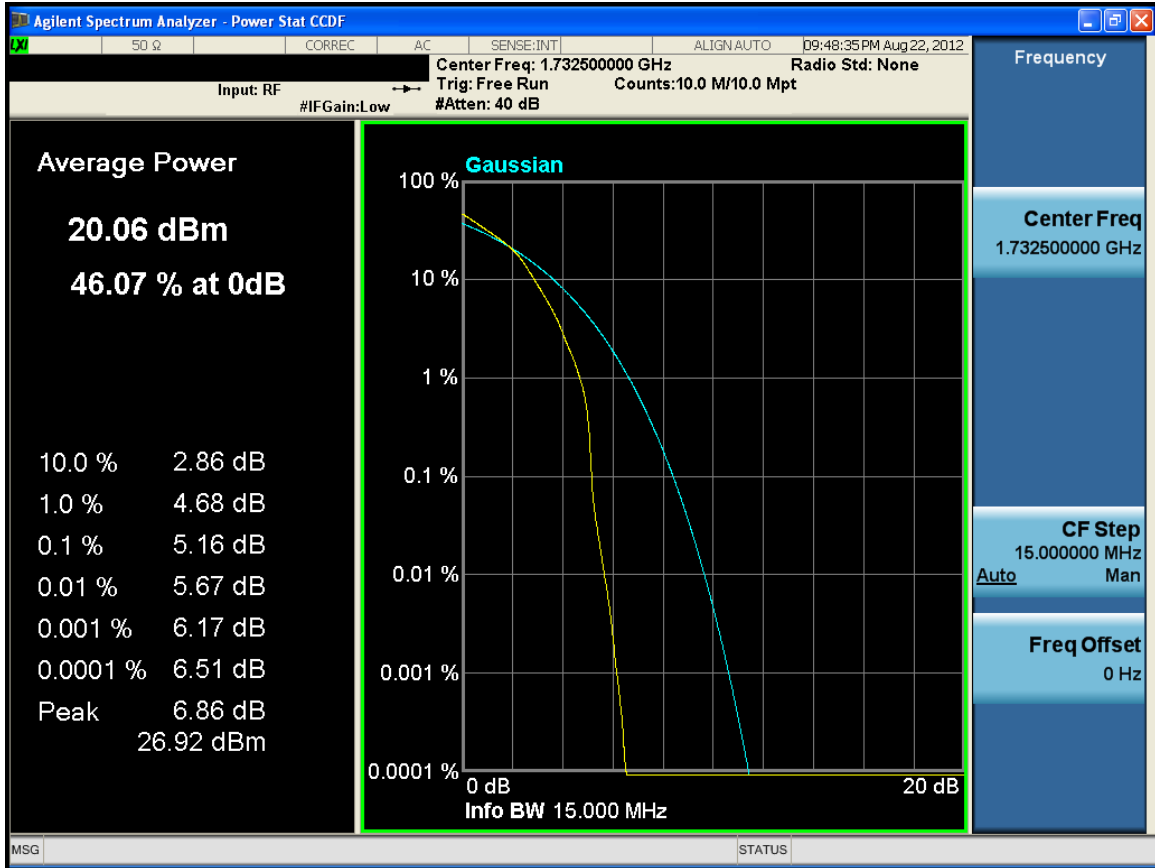


Plot 9-28. PAR Plot (10MHz 16QAM – RB Size 50)



Plot 9-29. PAR Plot (15MHz 16QAM – RB Size 75)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 68 of 90 |



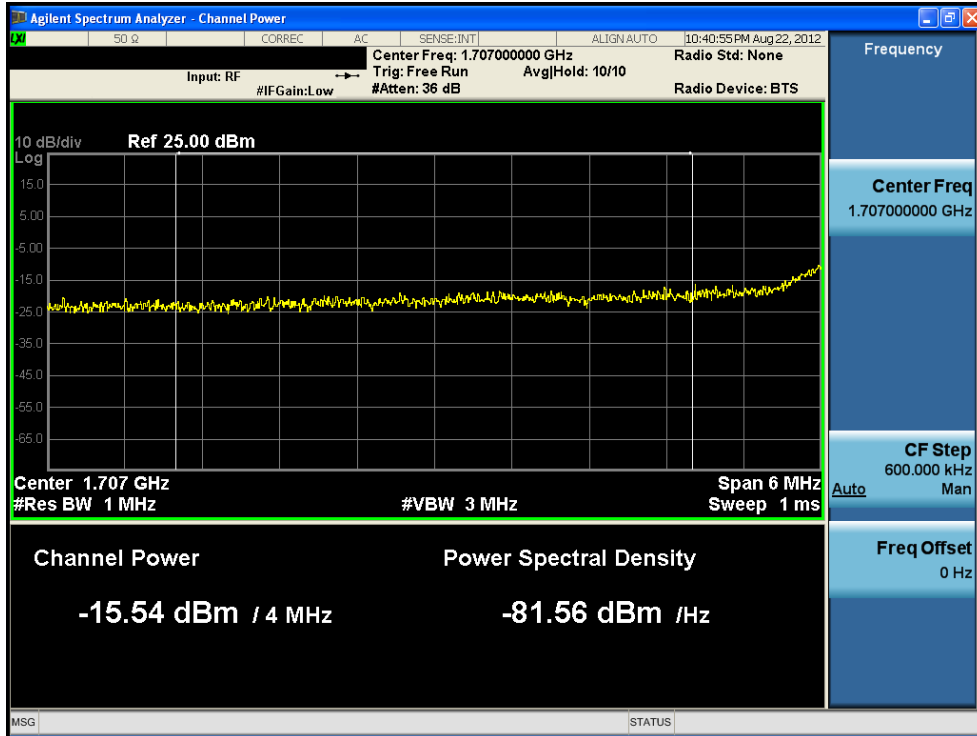
Plot 9-30. PAR Plot (15MHz 16QAM – RB Size 75)

Note: Info BW for 15MHz Bandwidth LTE was 25MHz because this is the only available option on the spectrum analyzer after 10MHz Info BW. The entire 15MHz LTE signal with RB Size = 75 was analyzed and the PAR is determined by the CCDF function of the spectrum analyzer.

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| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 69 of 90 |

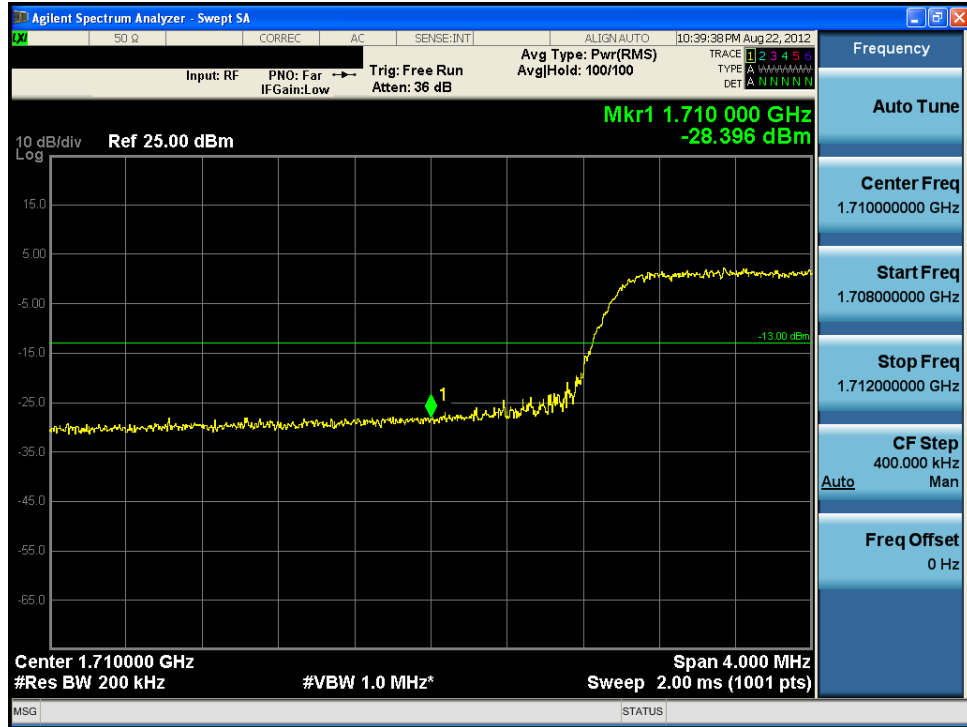
20MHz Band:

Note: All bandwidths, RB configurations, and modulations were investigated. The worst case test results are reported below.

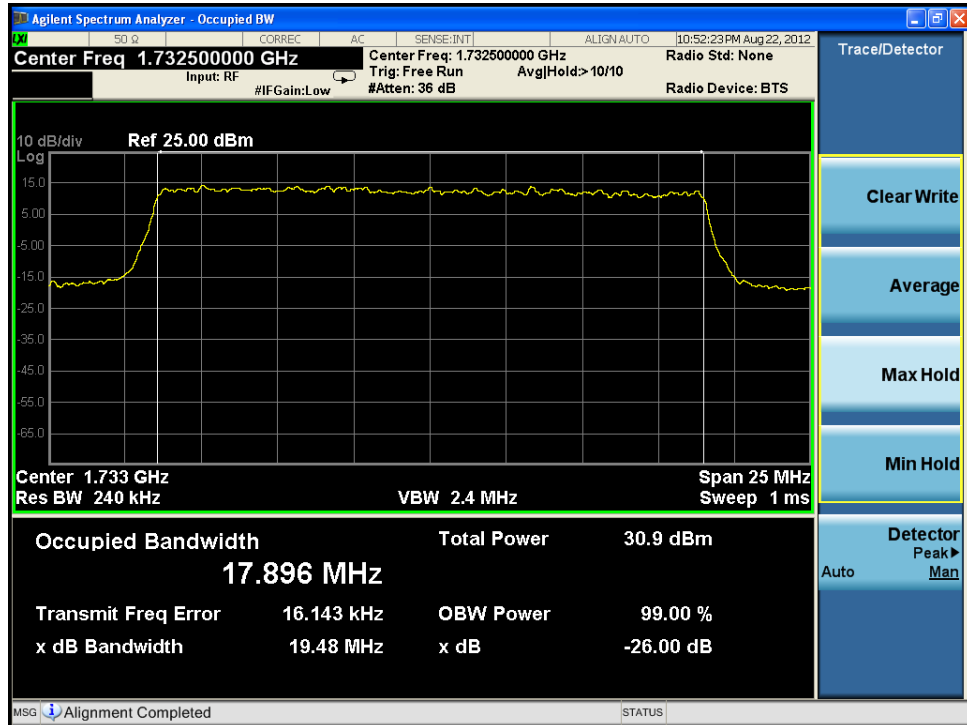


Plot 9-32. Lower Ext. Band Edge Plot (QPSK – RB Size 100)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 70 of 90 |

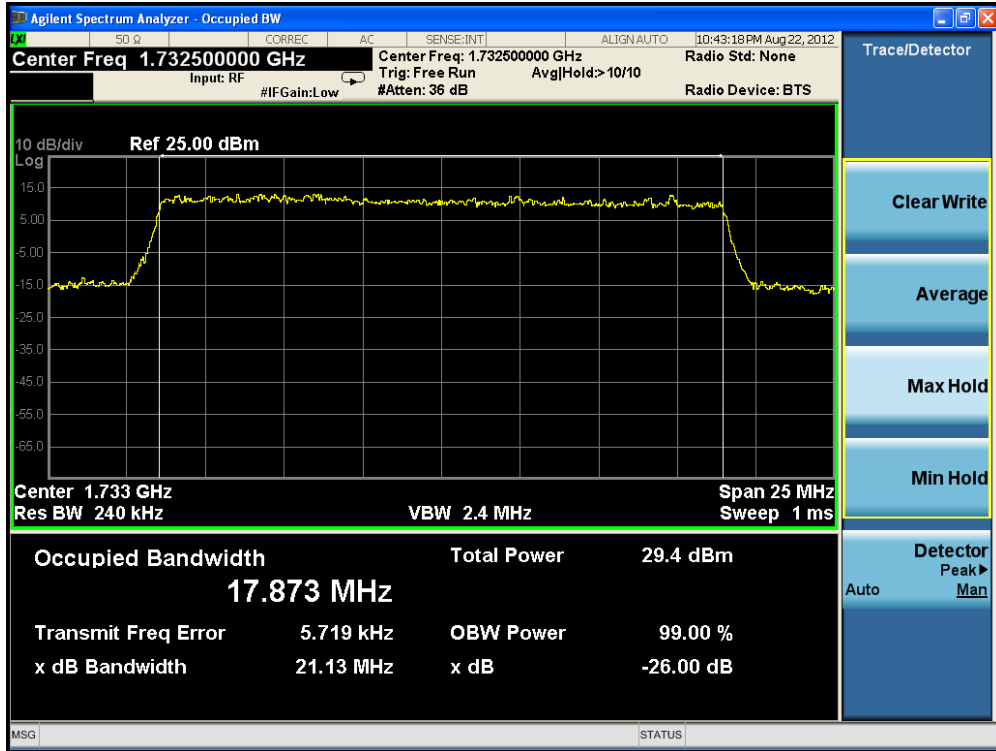


Plot 9-33. Lower Band Edge Plot (QPSK – RB Size 100)

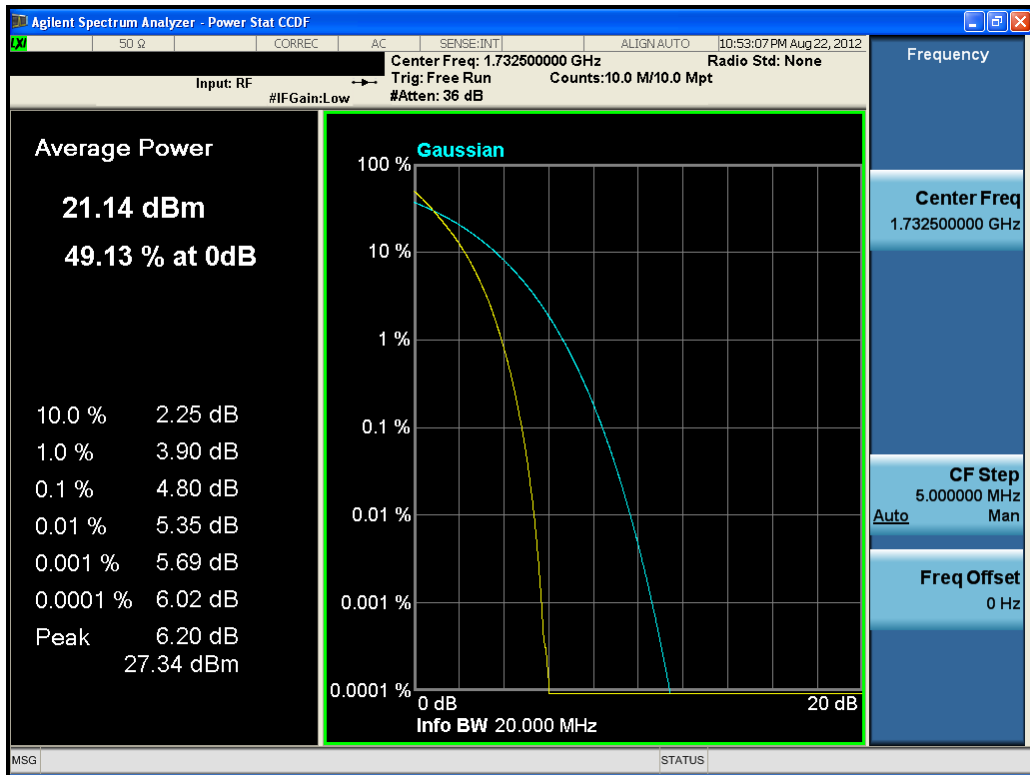


Plot 9-34. Occupied Bandwidth Plot (QPSK – RB Size 100)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 71 of 90 |

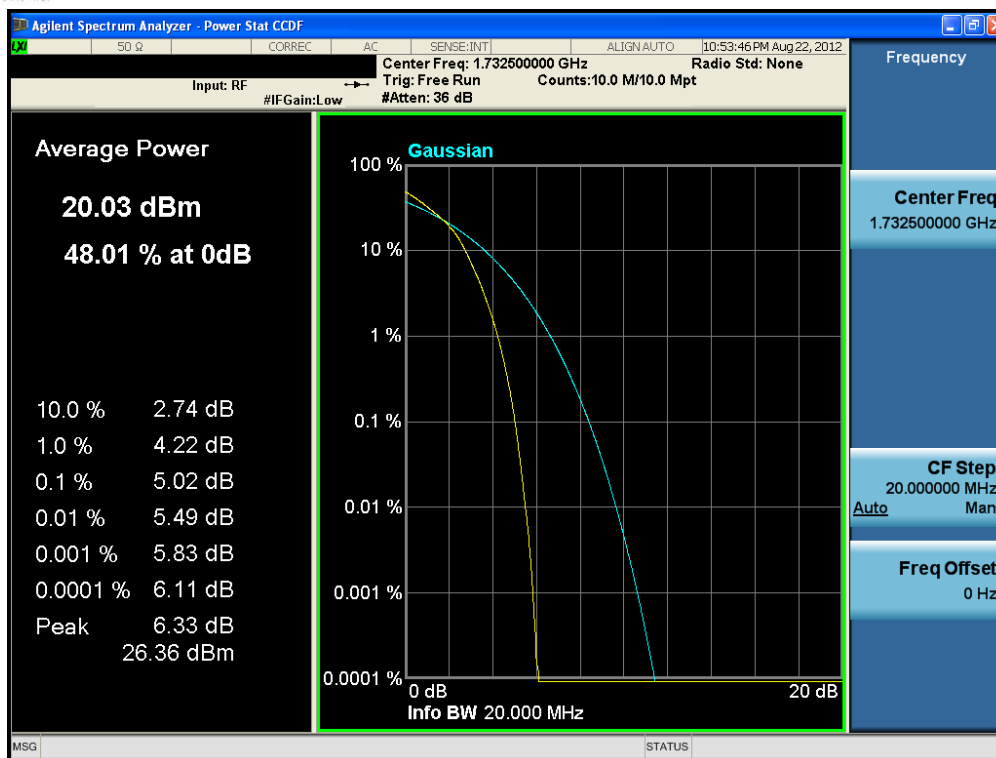


Plot 9-35. Occupied Bandwidth Plot (16-QAM – RB Size 100)

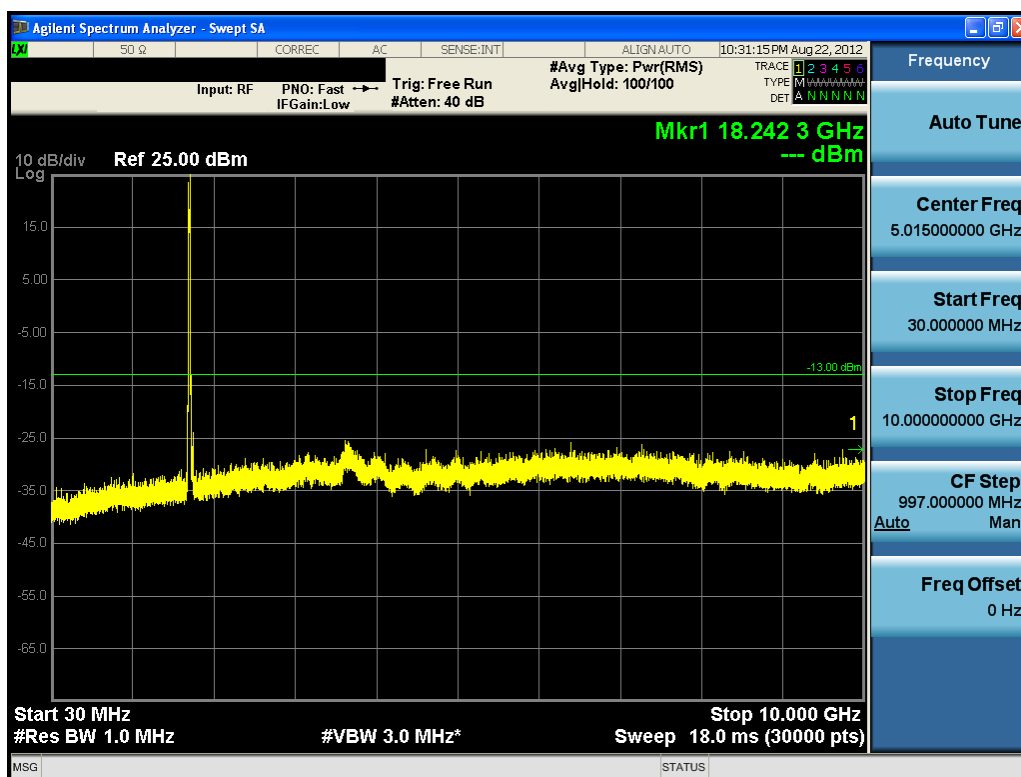


Plot 9-36. Peak to Average Ratio Plot (QPSK – RB Size 100)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 72 of 90 |

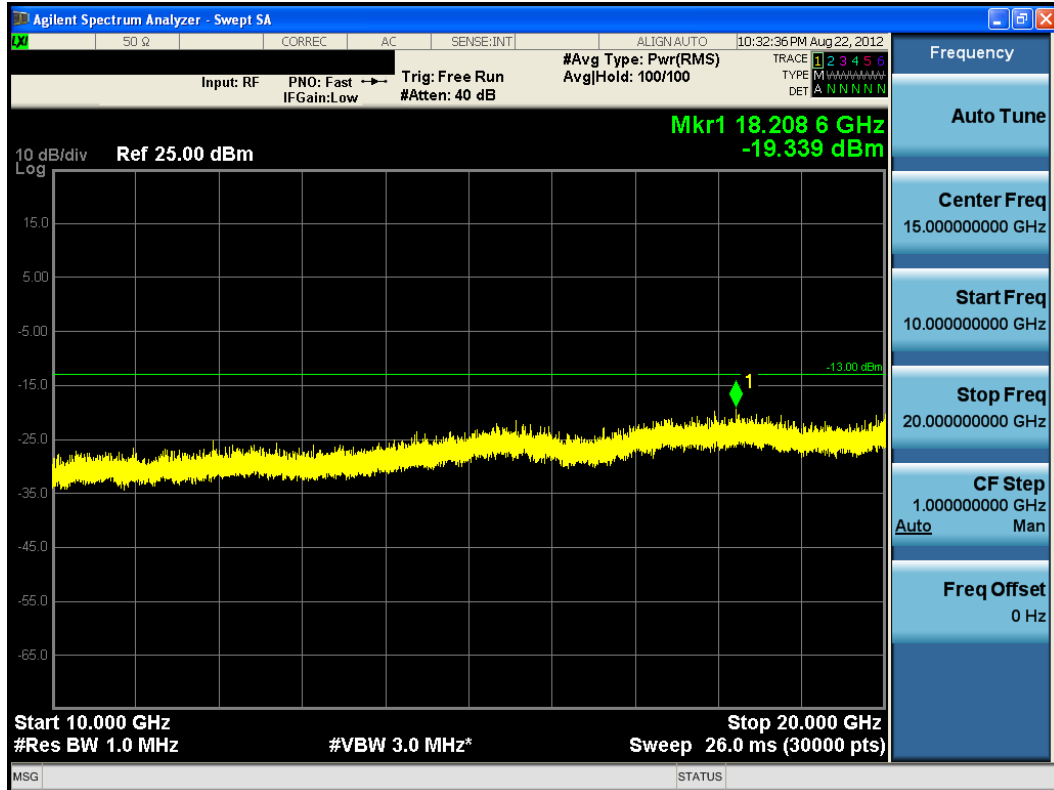


Plot 9-37. Peak to Average Ratio Plot (16QAM – RB Size 100)

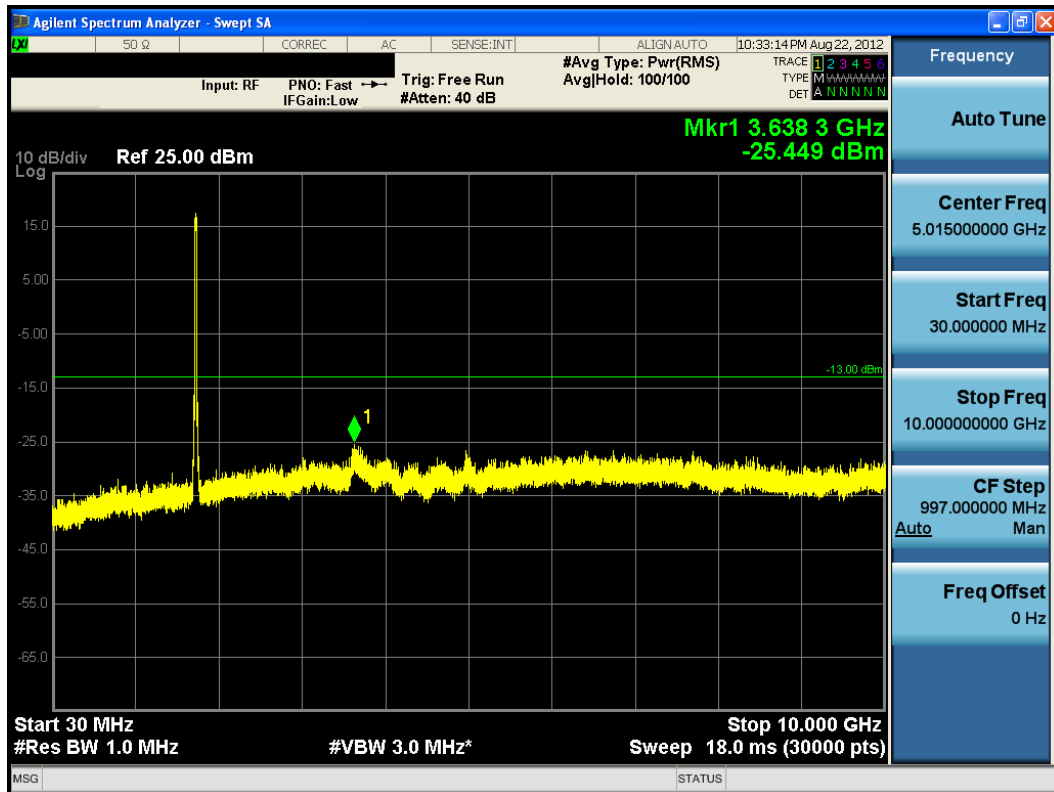


Plot 9-38. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)



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|--------------------------------------|---|--|--|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 73 of 90 |

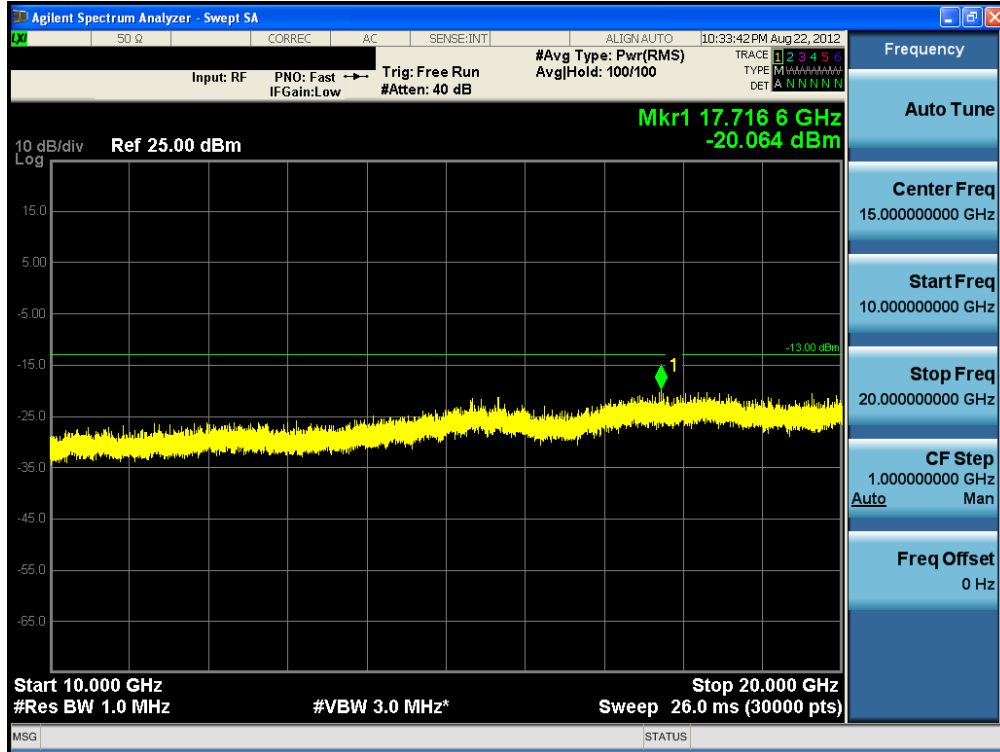


Plot 9-39. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

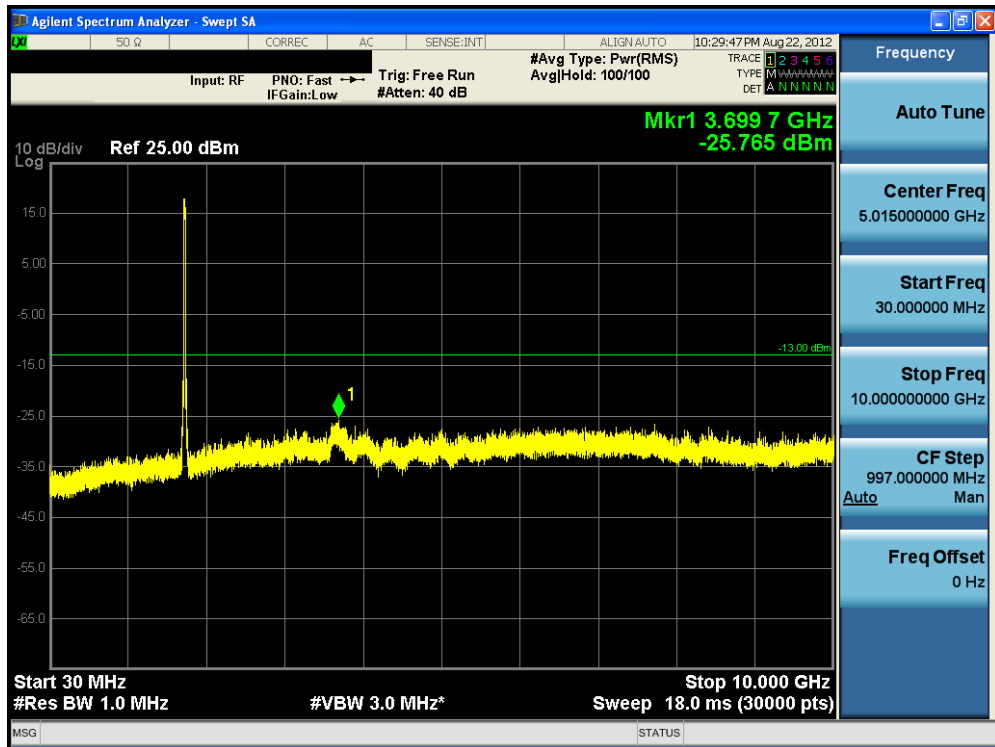


Plot 9-40. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)



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|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 74 of 90 |

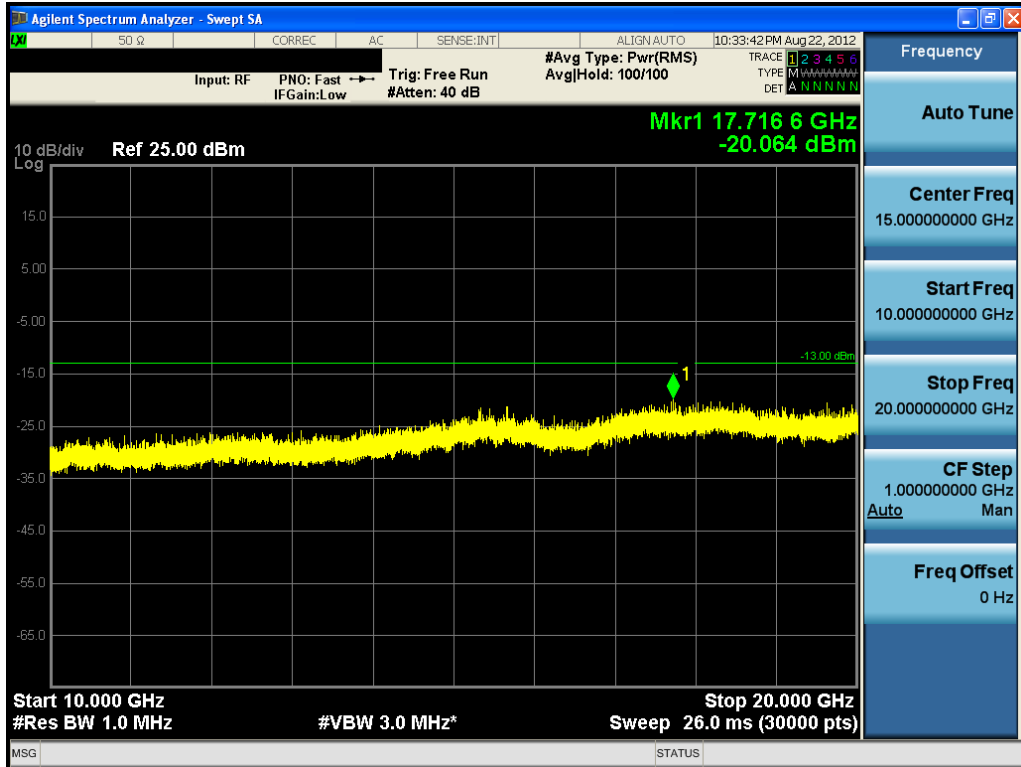


Plot 9-41. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)



Plot 9-42. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 75 of 90 |

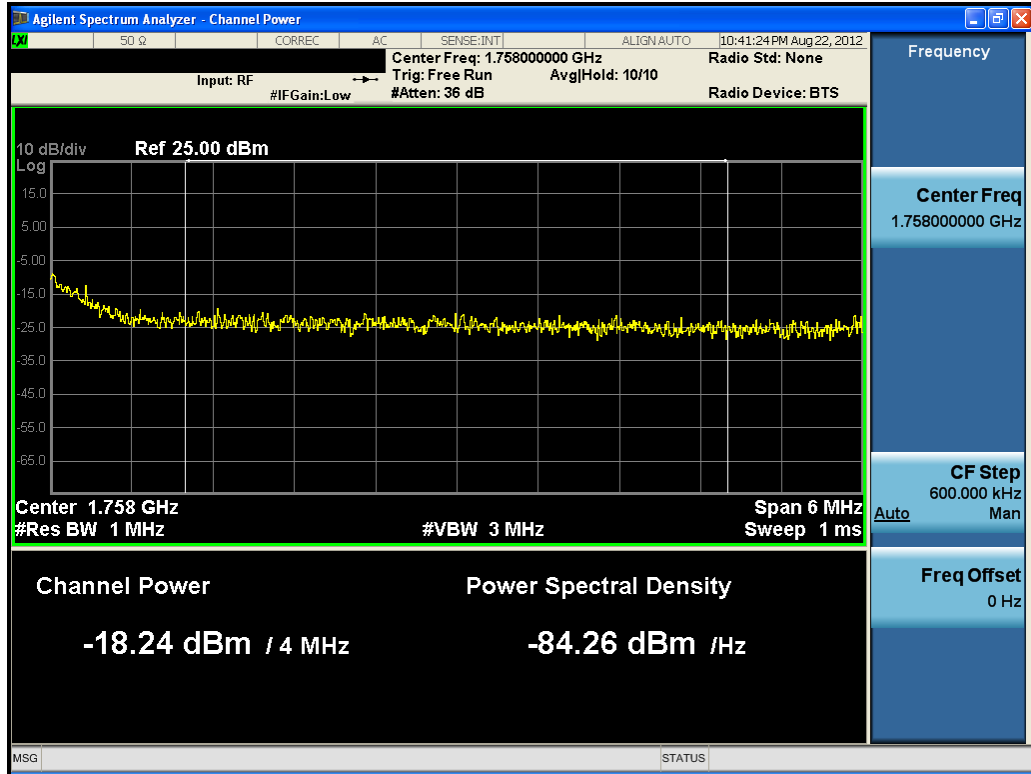


Plot 9-43. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)





Plot 9-44. Upper Band Edge Plot (QPSK – RB Size 100)

| | | | | |
|--------------------------------------|--|--|----|---------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 76 of 90 |

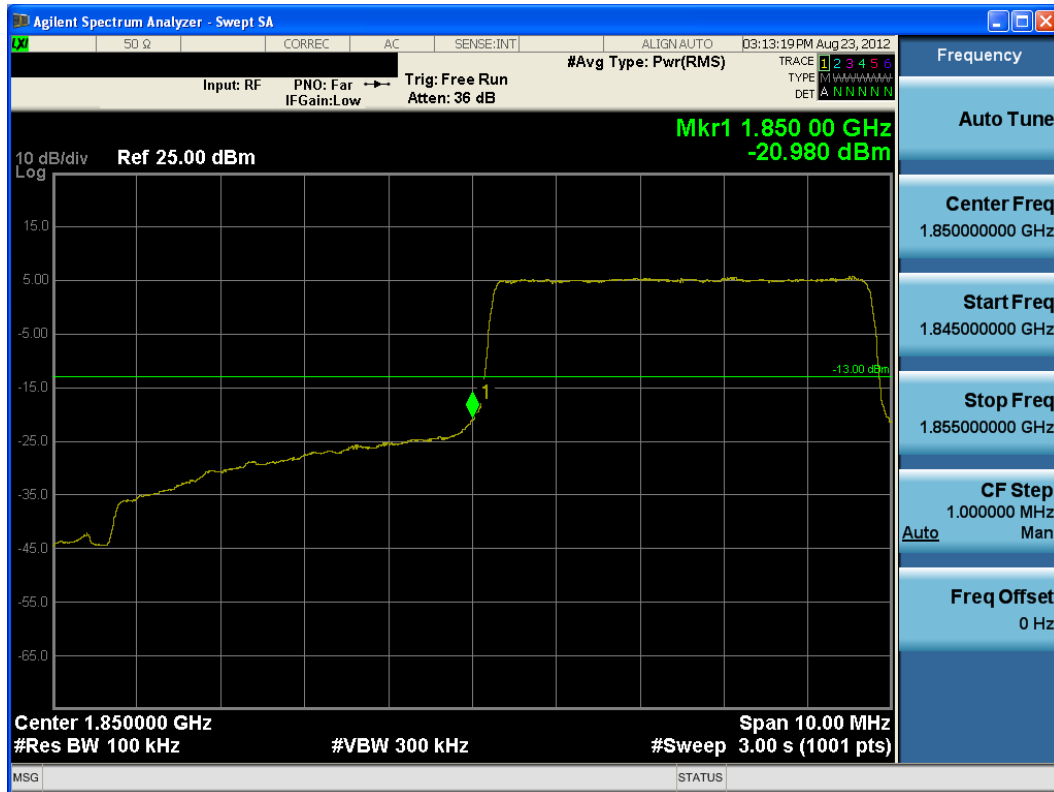


Plot 9-45. Upper Ext. Band Edge Plot (16-QAM – RB Size 100)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 77 of 90 |

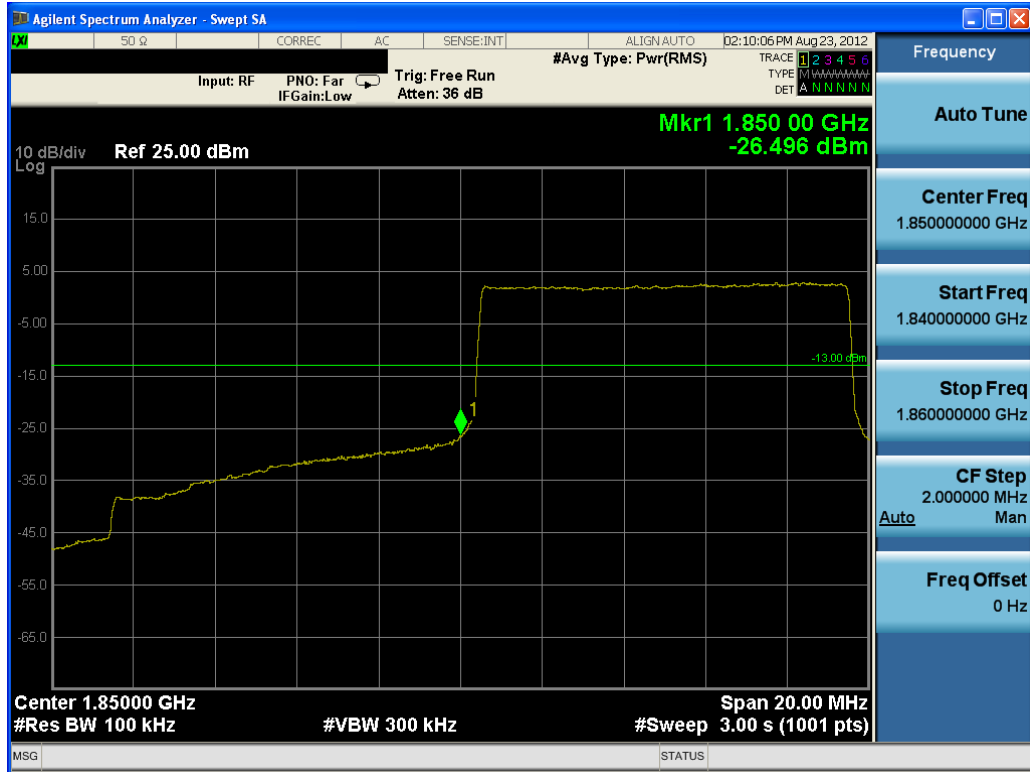
10.0 BAND 2 PLOTS OF EMISSIONS

Note: All bandwidths, RB configurations, and modulations were investigated. The worst case test results are reported below.

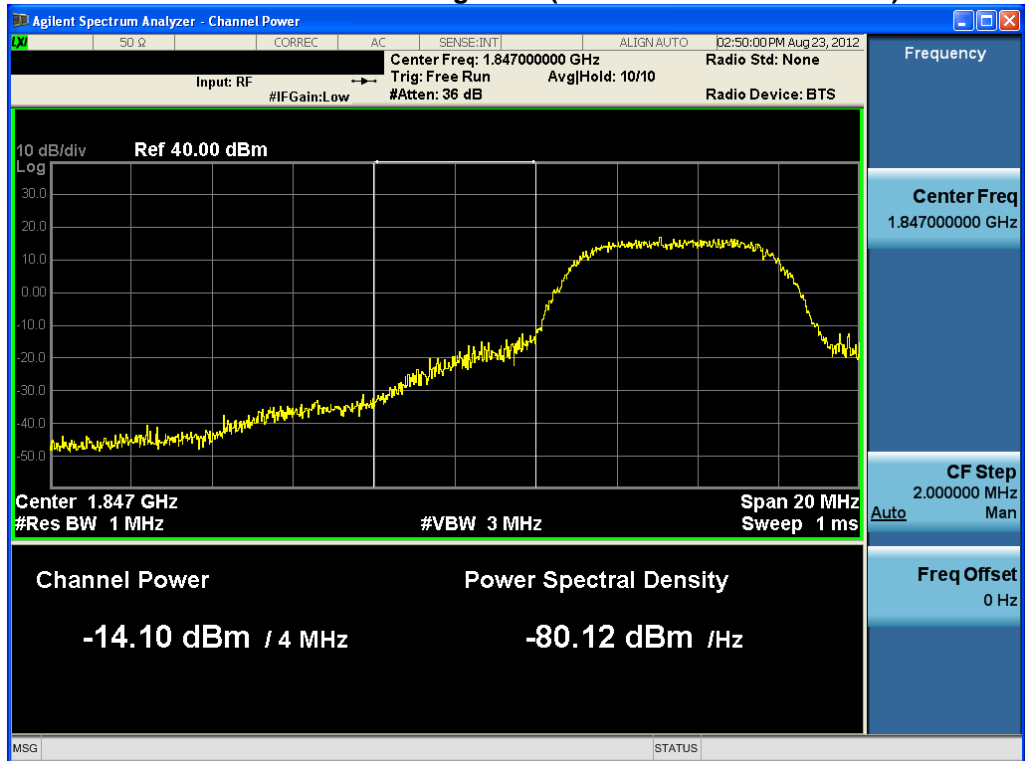


Plot 10-1. Lower Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 78 of 90 |

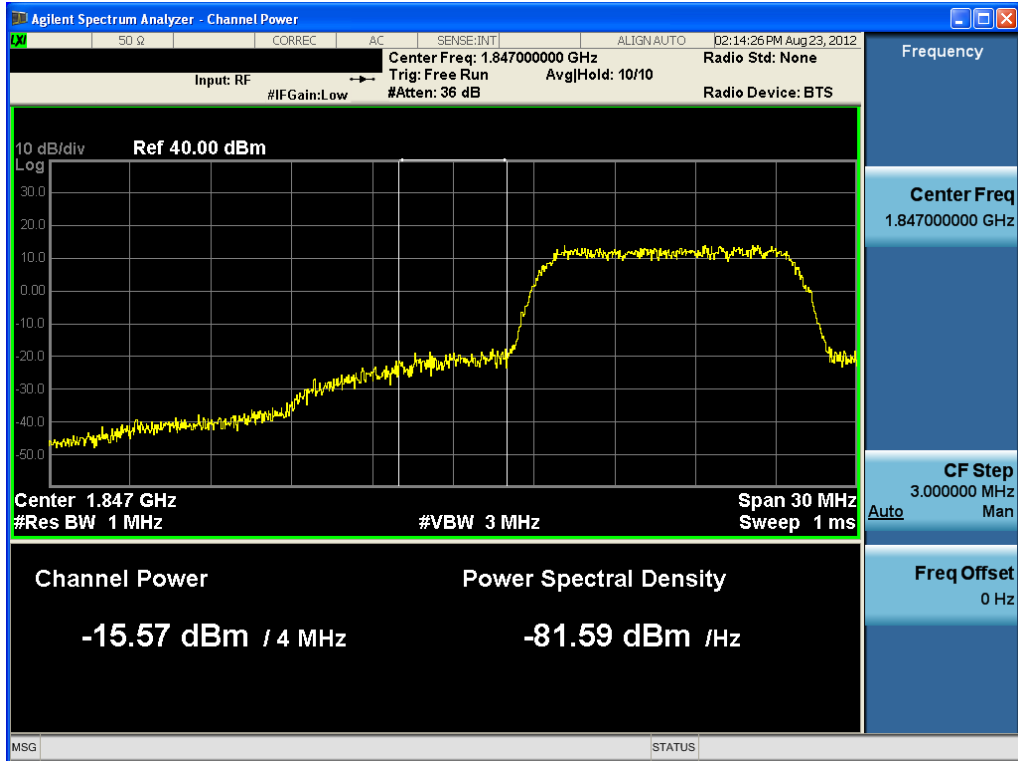


Plot 10-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

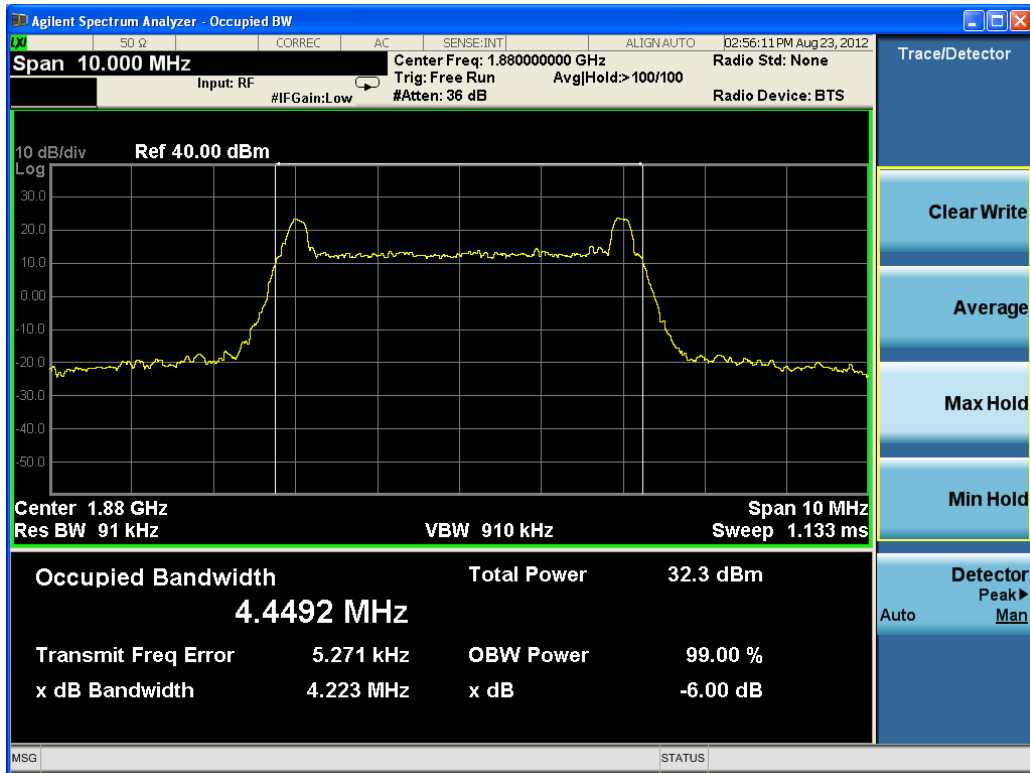


Plot 10-3. Lower Extended Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 79 of 90 |

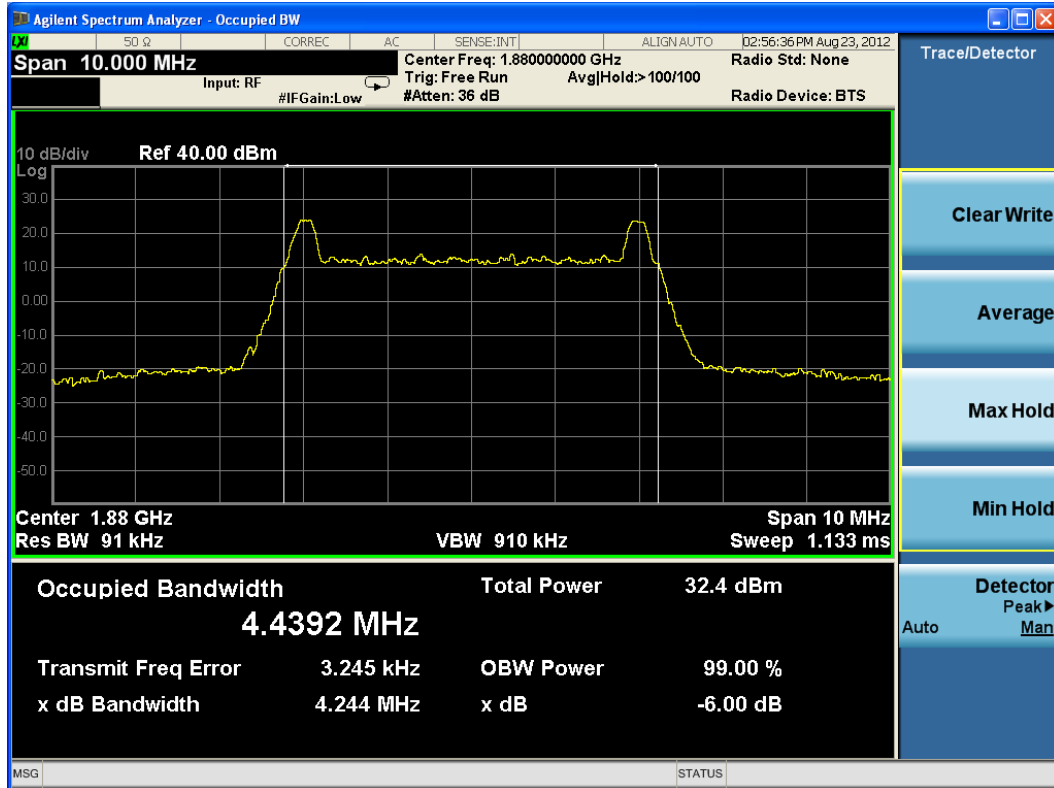


Plot 10-4. Lower Extended Band Edge Plot (10MHz QPSK – RB Size 50)

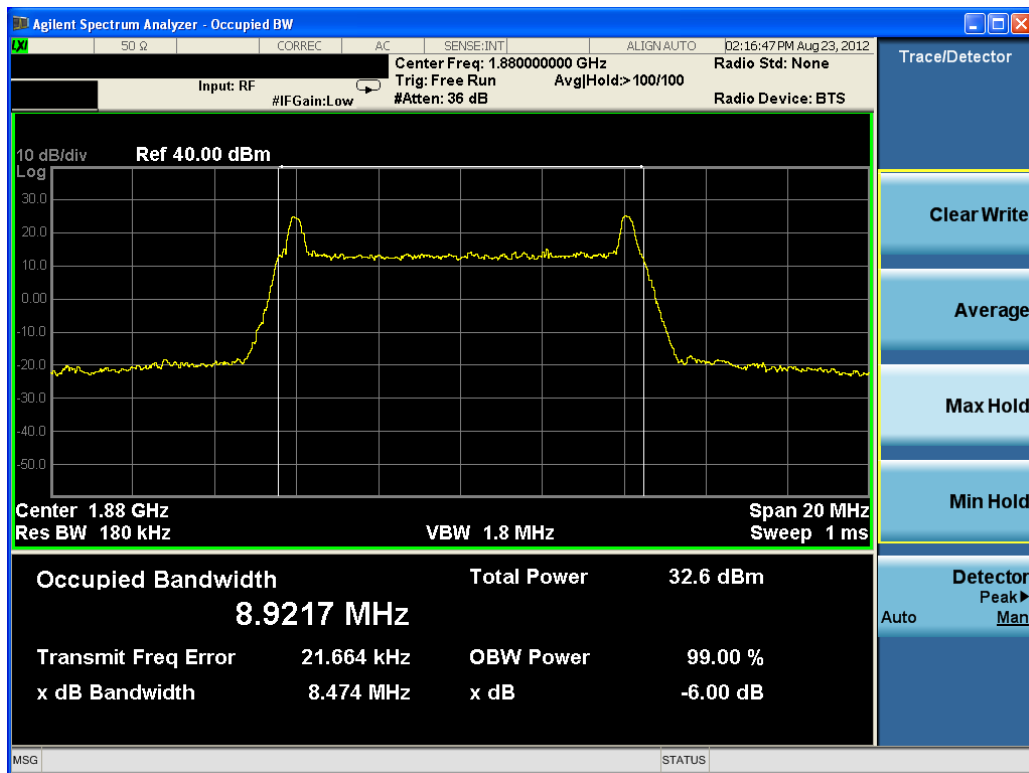


Plot 10-5. Occupied Bandwidth Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 80 of 90 |

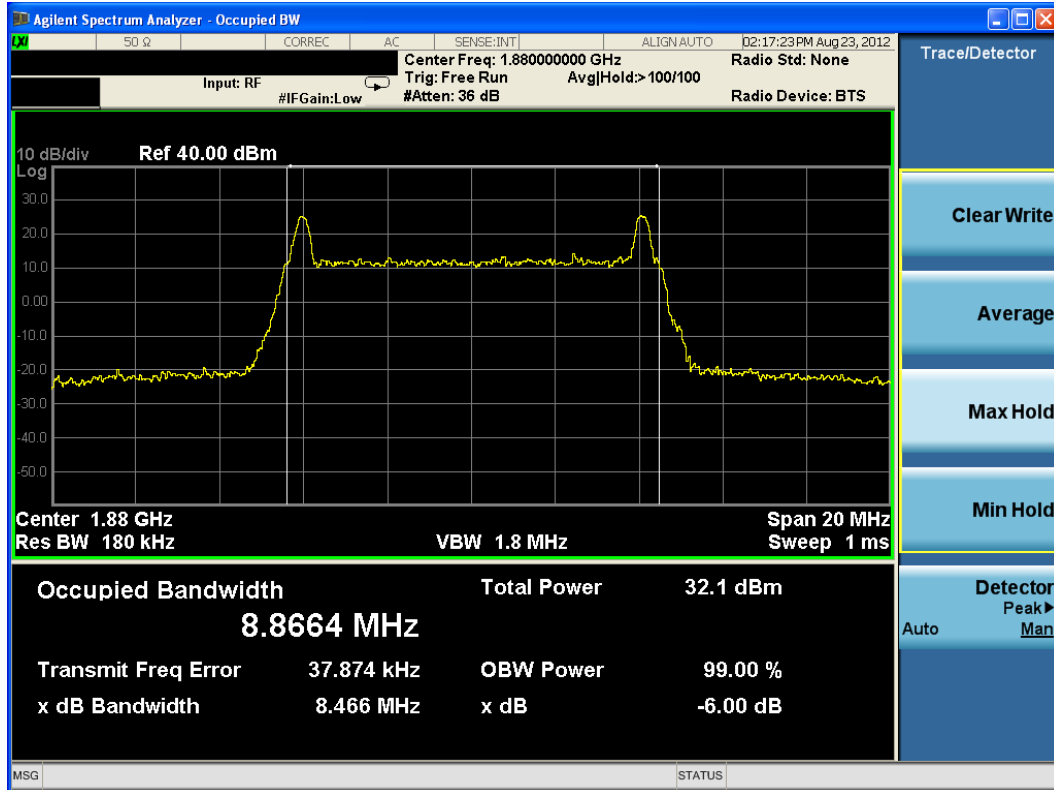


Plot 10-6. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

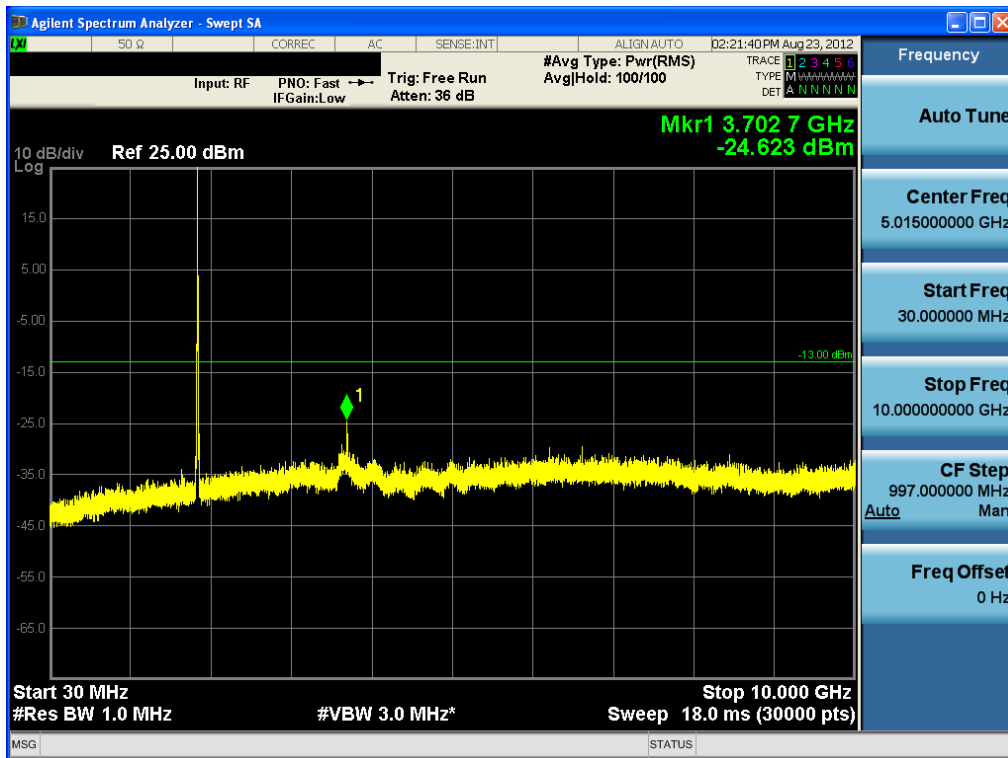


Plot 10-7. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 81 of 90 |

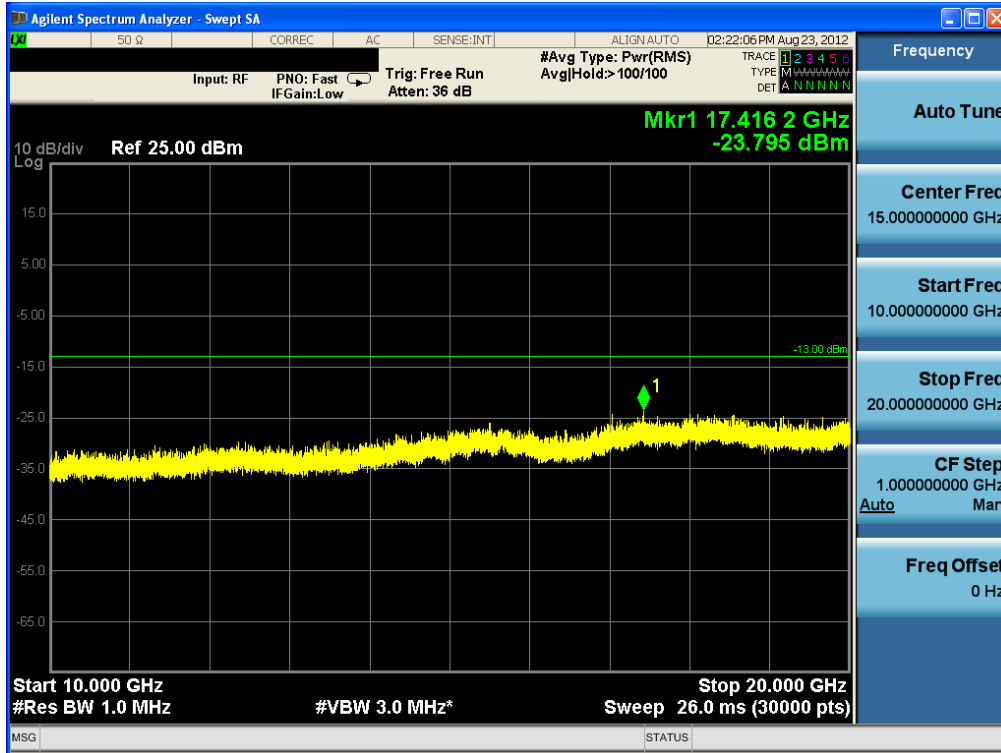


Plot 10-8. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

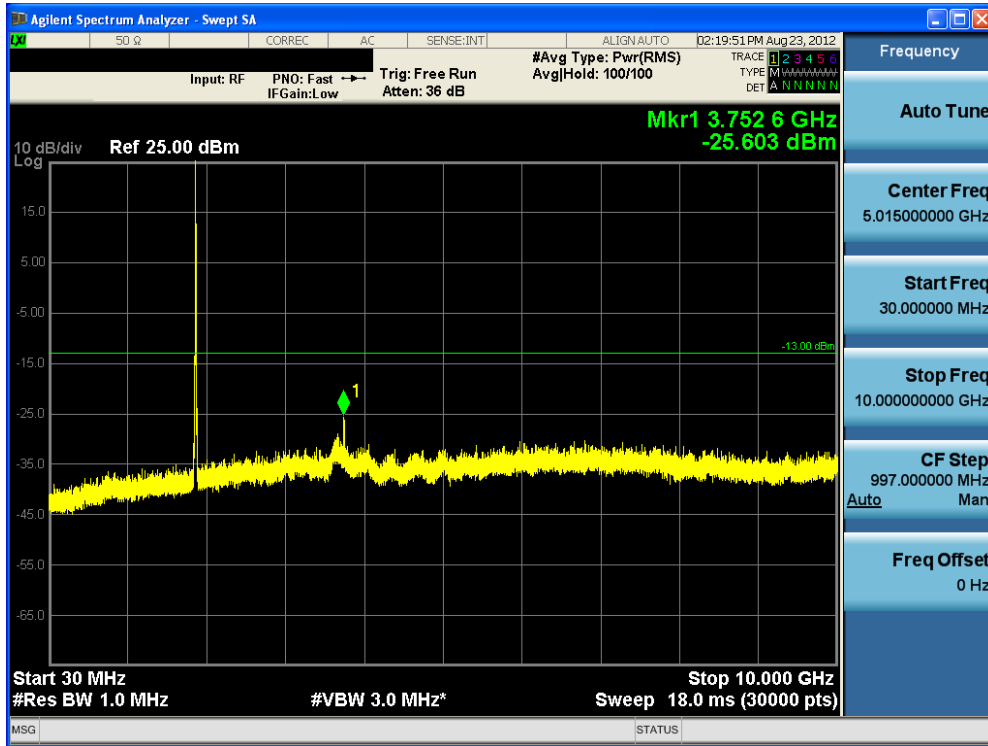


Plot 10-9. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 82 of 90 |

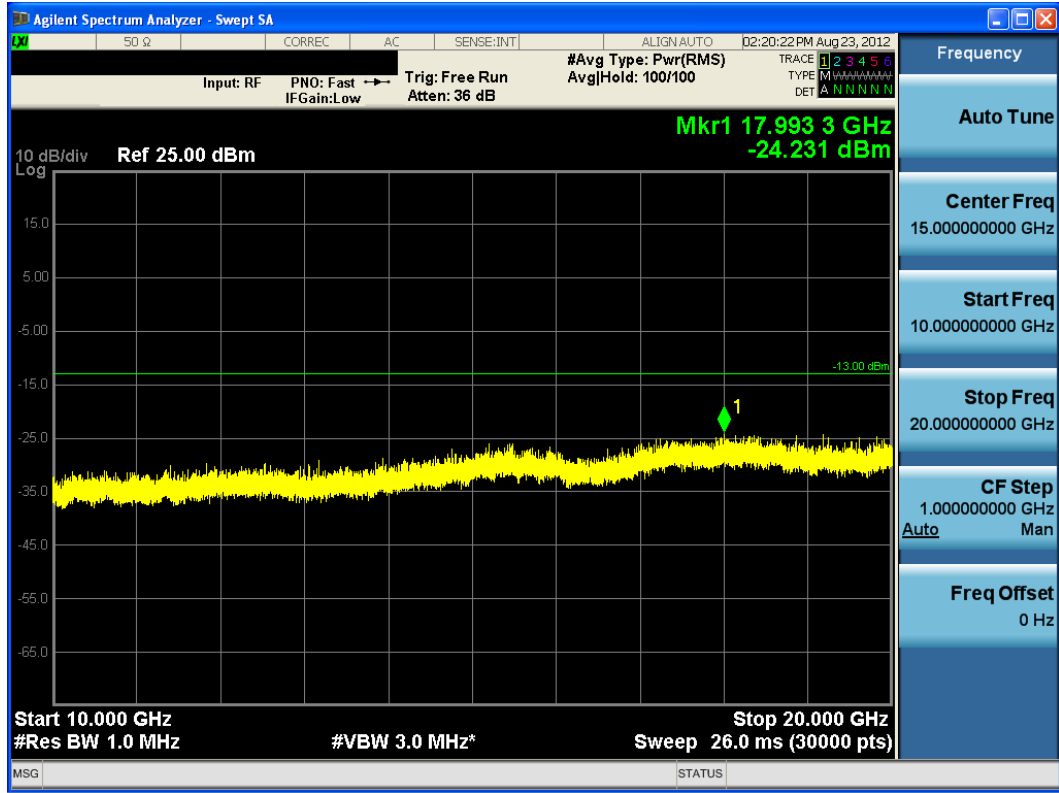


Plot 10-10. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

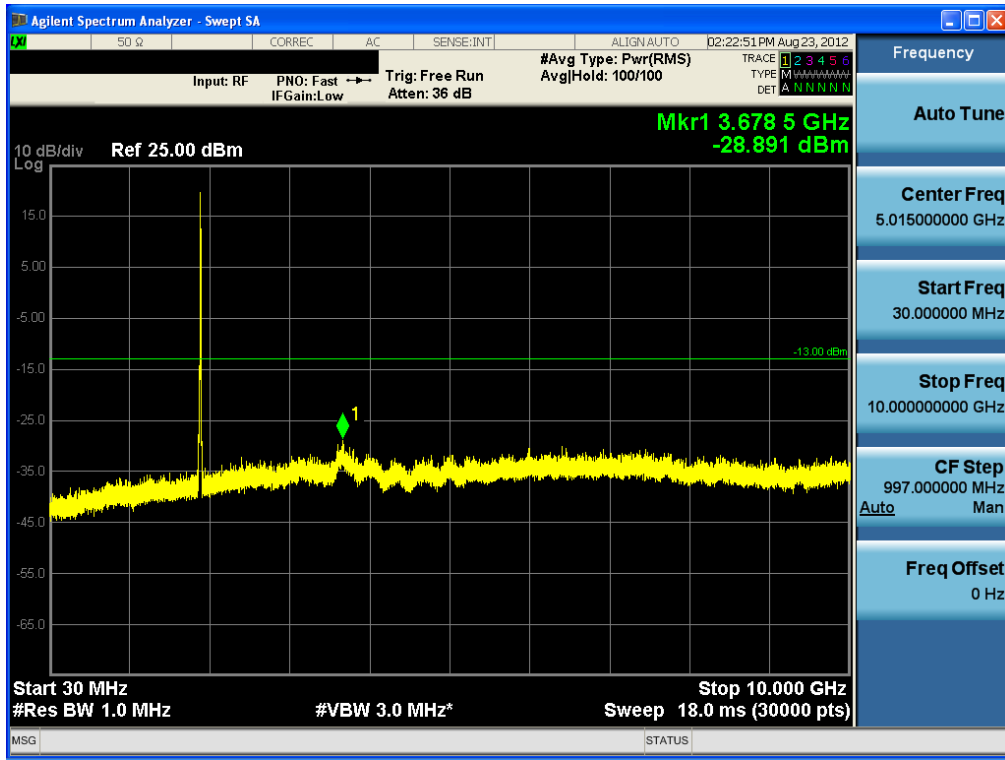


Plot 10-11. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

| | | | | |
|--------------------------------------|-----------------------------------|---|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 83 of 90 |

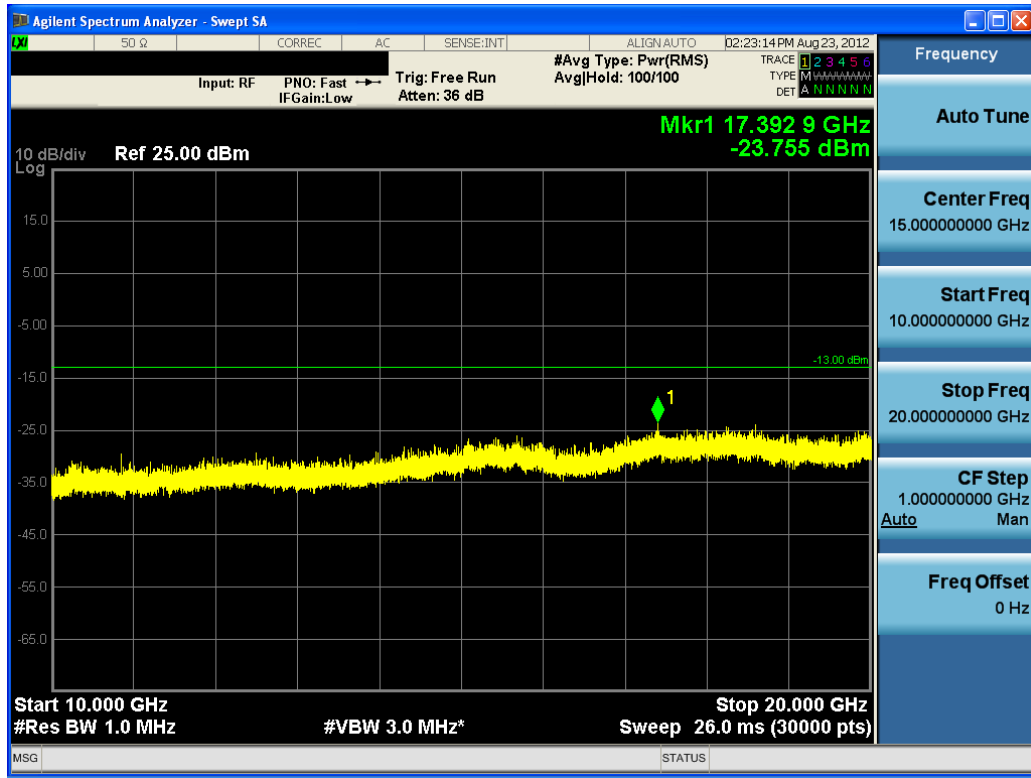


Plot 10-12. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



Plot 10-13. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)


| | | | | |
|-----------------------------------|-------------------------------------|---|----|------------------------------|
| FCC ID: ZNFE973 | PCTEST ENGINEERING LABORATORY, INC. | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | LG | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 84 of 90 |



Plot 10-14. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

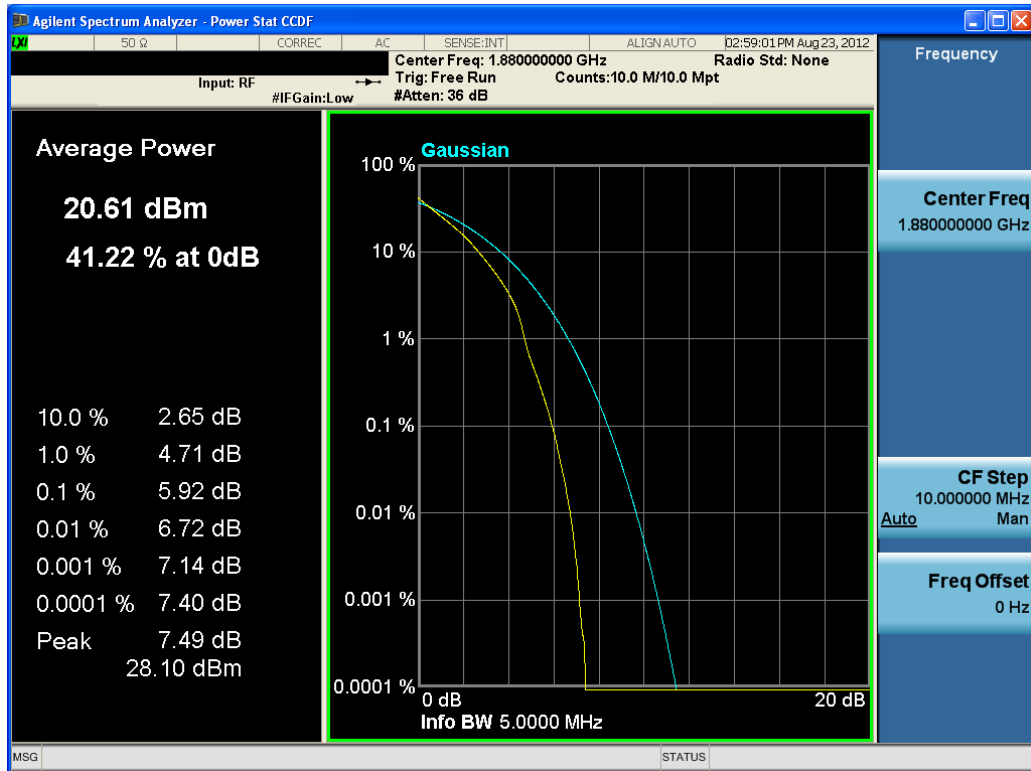


Plot 10-15. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|---|--|---|---------------------------------|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 85 of 90 |

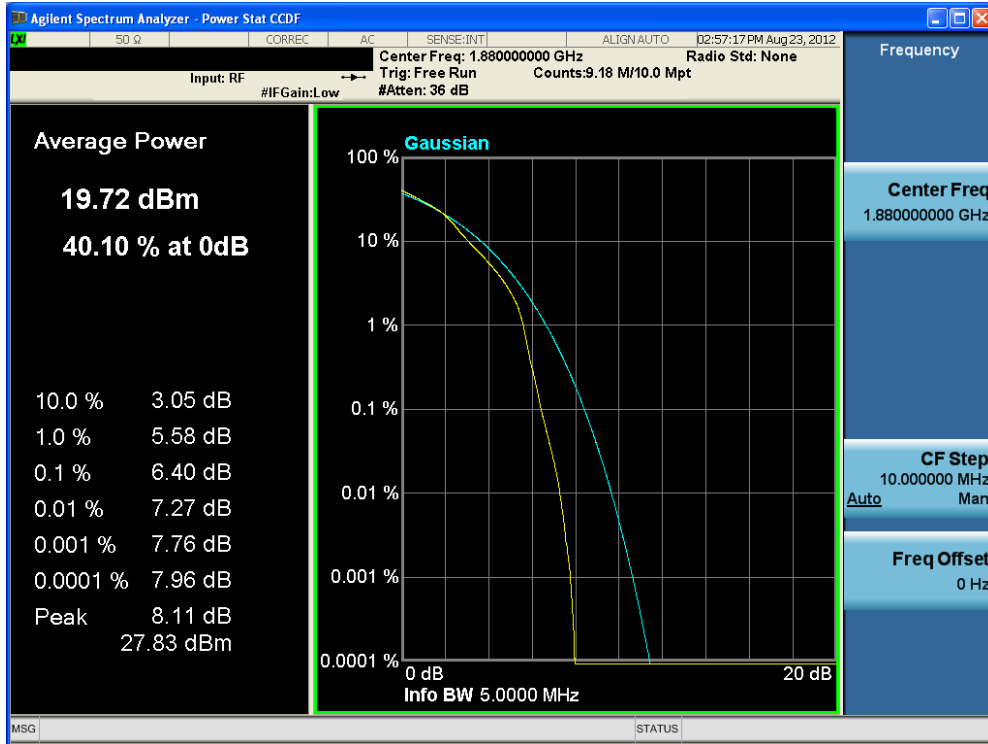


Plot 10-18. Upper Extended Band Edge Plot (10MHz QPSK – RB Size 50)

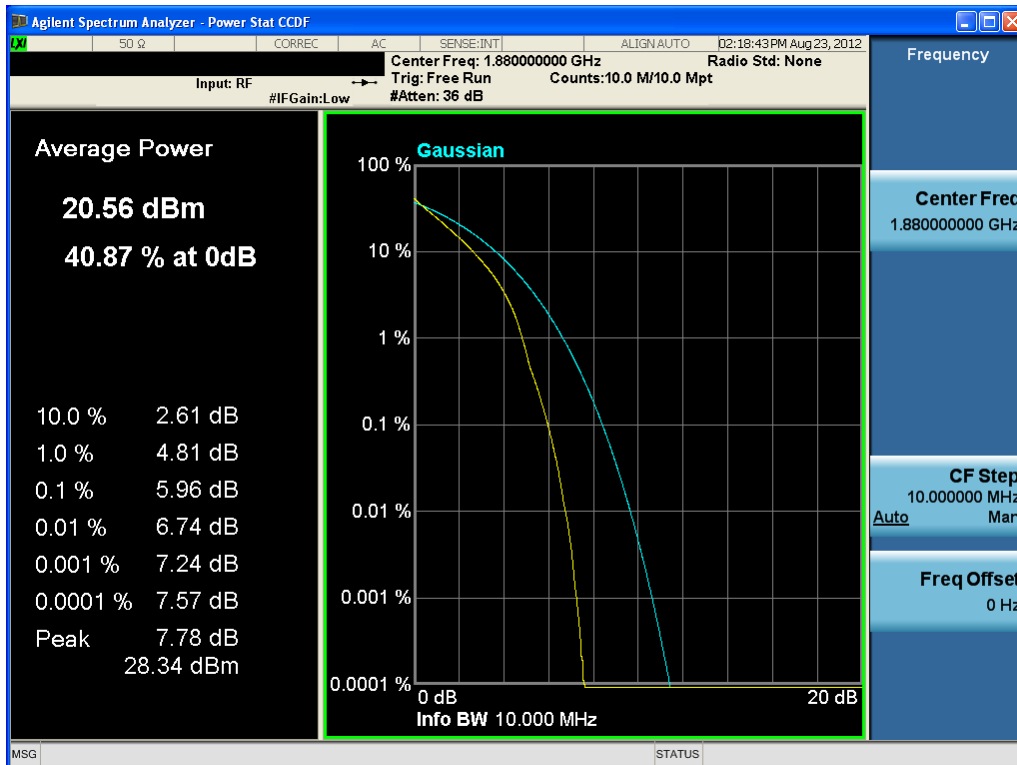


Plot 10-19. PAR Plot (5MHz QPSK – RB Size 25)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 87 of 90 |

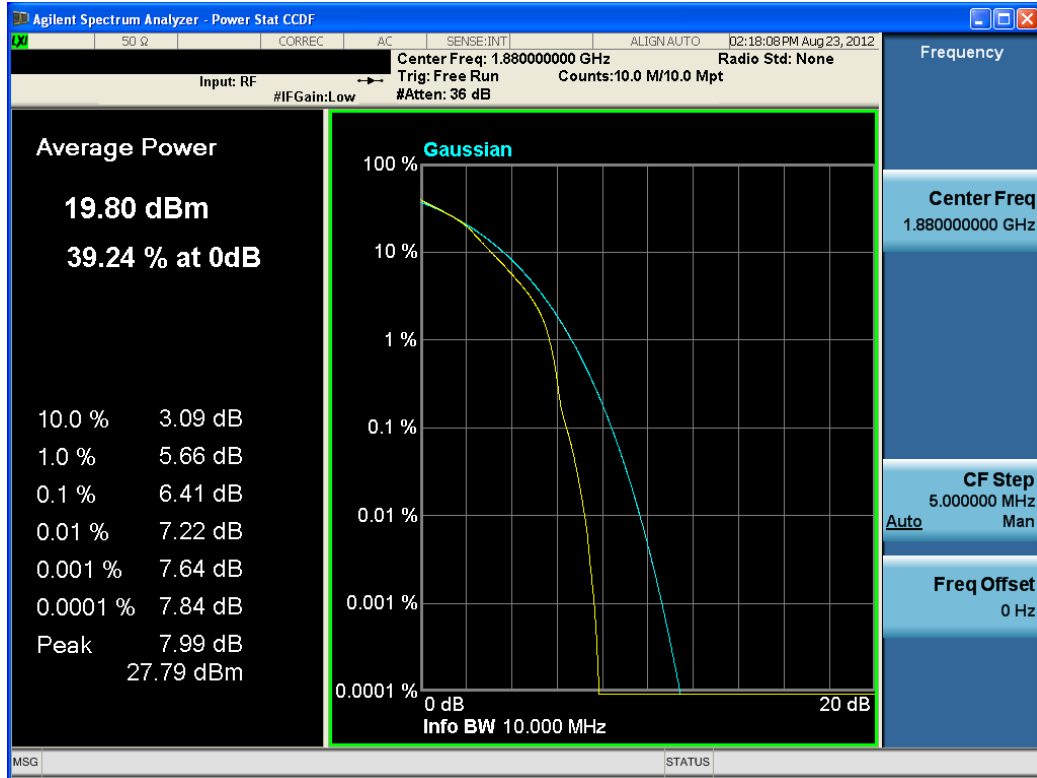


Plot 10-20. PAR Plot (5MHz 16QAM – RB Size 25)



Plot 10-21. PAR Plot (10MHz QPSK – RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 88 of 90 |



Plot 10-22. PAR Plot (10MHz 16QAM – RB Size 50)

| | | | | |
|--------------------------------------|-----------------------------------|--|--|---------------------------------|
| FCC ID: ZNFE973 | | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) | | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | | Page 89 of 90 |

11.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Electronics MobileComm U.S.A Portable Handset FCC ID: ZNFE973** complies with all the requirements of Parts 2, 22, 24 and 27 of the FCC rules for LTE operation only.

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|---|---|--|---|--|
| FCC ID: ZNFE973 |  | FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by: Quality Manager |
| Test Report S/N: 0Y1208081134.ZNF | Test Dates: August 20-29, 2012 | EUT Type: Portable Handset | Page 90 of 90 | |