

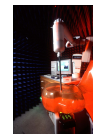


PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA

Tel. 410.290.6652 / Fax 410.290.6554

<http://www.pctestlab.com>



CERTIFICATE OF COMPLIANCE FCC Part 27 Certification

Applicant Name:
LG Electronics USA
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
August 17, 2009
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0908191558.BEJ

FCC ID:	BEJM4
APPLICANT:	LG ELECTRONICS USA

Application Type: Certification
FCC Classification: Licensed Non-Broadcast Transmitter (TNB)
FCC Rule Part(s): §2; §27 Subpart L
EUT Type: AWS LTE Device
Model(s): M4
Tx Frequency Range: 1715 – 1750MHz (LTE)
Max. RF Output Power: 0.486 W EIRP (BPSK) (26.87 dBm)
0.568 W EIRP (QPSK) (27.54 dBm)
0.601 W EIRP (16QAM) (27.79 dBm)
Emission Designator(s): 9M56G7D (BPSK) / 8M72G7D (QPSK) / 8M75D7W (16QAM)
Test Device Serial No.: *identical prototype* [S/N: M4B-VELCROE-10041]

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.

Grant Conditions: Power output listed is ERP for Part 27.

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


Randy Ortanez
President



FCC ID: BEJM4		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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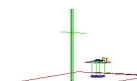
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MEASUREMENT REPORT

FCC Part 27



§2.1033 General Information

APPLICANT: LG Electronics USA
APPLICANT ADDRESS: 1000 Sylvan Avenue
 Englewood Cliffs, NJ 07632
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S): §2; §27
BASE MODEL: M4
FCC ID: BEJM4
FCC CLASSIFICATION: Licensed Non-Broadcast Transmitter (TNB)
EMISSION DESIGNATOR(S): 9M56G7D (BPSK) / 8M72G7D (QPSK) / 8M75D7W (16QAM)
MODE: LTE
FREQUENCY TOLERANCE: $\pm 0.00025\%$ (2.5 ppm)
Test Device Serial No.: M4B-VELCROE-10041
☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST: August 17, 2009
TEST REPORT S/N: LG Electronics USA

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. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451A-1).
- 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 and Industry Canada Rules.
- 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 facility is an IC registered (2451A-1) test laboratory with the site description on file at Industry Canada.
- 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.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity area, the Baltimore-Washington Intern'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 in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. 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 January 27, 2006.

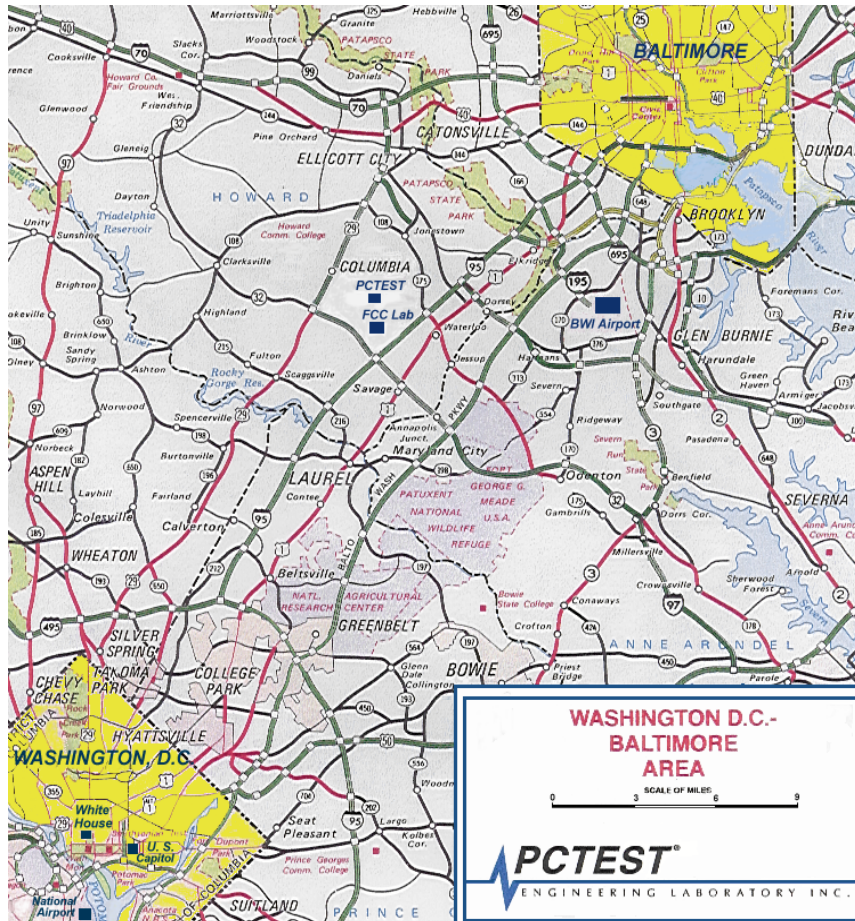


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LGE AWS LTE Device FCC ID: BEJM4**. The test data contained in this report pertains only to the emissions due to the EUT's AWS LTE function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
LGE / Model: M4	BEJM4	AWS LTE Device

Table 2-1. EUT Equipment Description

Note: The BEJM4 AWS LTE Device was set to transmit at maximum power in all MCS levels, RB sizes, and RB offsets through software installed on a laptop computer via USB interface between the BEJM4 and the laptop computer. Additionally, a vector signal generator with pre-loaded waveforms was used to provide downlink signal to the BEJM4.

2.2 EMI Suppression Device(s)/Modifications

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

2.3 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).

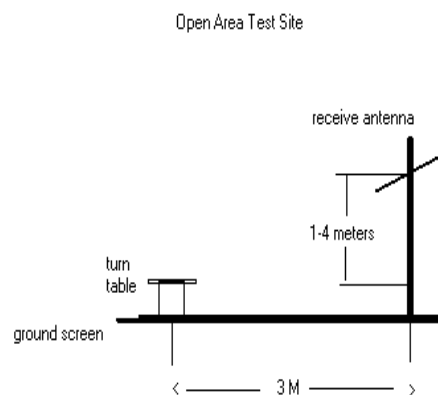
Please see attachment for FCC ID label and label location.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (See Figure 3-1). The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This power level was recorded using a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded with the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.



Deviation from Measurement Procedure.....None

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

3.2 Occupied Bandwidth Emission Limits

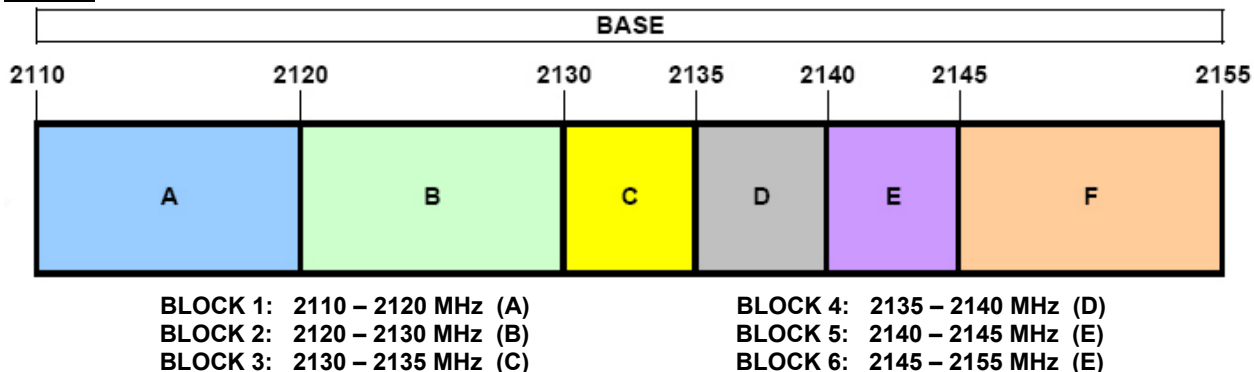
§2.1049, §27.53(g)(1)

- 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.
- When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.
- The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

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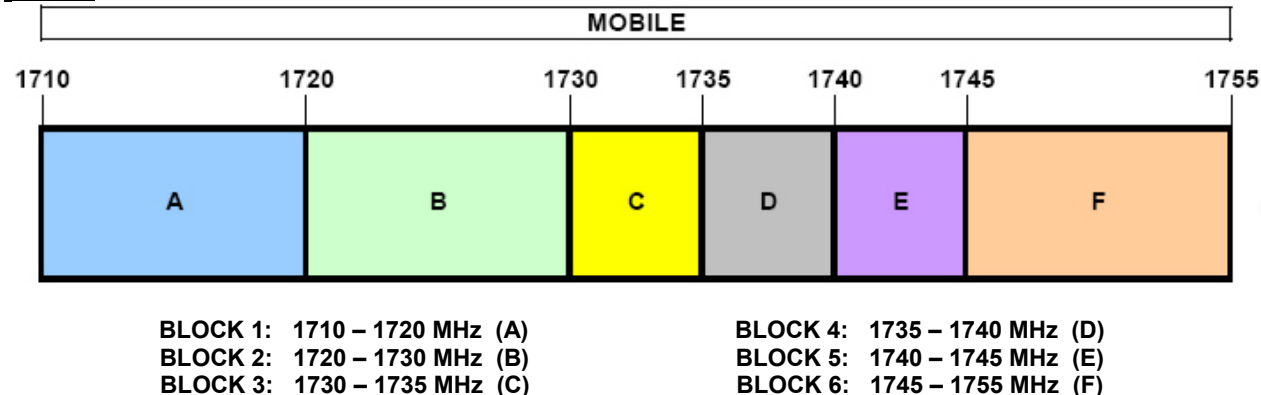
3.3 AWS - Base Frequency Blocks

§27.5(h)



3.4 AWS - Mobile Frequency Blocks

§27.5(h)



3.5 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, §27.53(g)

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.

3.6 Radiated Spurious and Harmonic Emissions

§2.1053, §27.53(g)

Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This level is then measured with a broadband average power meter. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive average power meter reading. This spurious level is recorded with the power meter. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. This device was tested under all configurations and the worst case is reported with 16QAM modulation.

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3.7 Peak-Average Ratio

§27.50(d)(5)

A peak to average ratio measurement is performed at the conducted port of the EUT. For LTE signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth.

3.8 Frequency Stability / Temperature Variation

§2.1055, §27.54

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 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. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

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 period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

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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
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No. 165	(30MHz - 1000MHz) RG58 Coax Cable	N/A		N/A	N/A
-	No. 166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No. 167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	11713A	Attenuation/Switch Driver	12/4/2008	Annual	12/4/2009	3439A02645
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/4/2008	Annual	12/4/2009	3008A00985
Agilent	8495A	(0-70dB) DC-4GHz Attenuator	N/A		N/A	N/A
Agilent	85650A	Quasi-Peak Adapter	12/4/2008	Annual	12/4/2009	3303A01872
Agilent	85650A	Quasi-Peak Adapter	3/24/2009	Annual	3/24/2010	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/5/2008	Annual	12/5/2009	3638A08713
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/11/2007	Biennial	10/11/2009	3613A00315
Agilent	E4407B	ESA Spectrum Analyzer	3/24/2009	Annual	3/24/2010	US39210313
Rohde & Schwarz	SMU 200A	Vector Signal Generator	N/A	Annual	N/A	100782
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	12/5/2008	Annual	12/5/2009	US42510244
Agilent	E5515C	Wireless Communications Test Set	9/10/2008	Biennial	9/10/2010	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/25/2009	Biennial	3/25/2011	MY45470194
Agilent	E8267C	Vector Signal Generator	11/15/2007	Biennial	11/15/2009	US42340152
Agilent	N9020A	MXA Signal Analyzer	9/17/2008	Annual	9/17/2009	US46470561
Compliance Design	Roberts	Dipole Set	11/9/2007	Biennial	11/9/2009	146
Compliance Design	Roberts	Dipole Set	11/9/2007	Biennial	11/9/2009	147
Emco	3115	Horn Antenna (1-18GHz)	9/24/2007	Biennial	9/24/2009	9704-5182
Emco	3115	Horn Antenna (1-18GHz)	10/4/2007	Biennial	10/4/2009	9205-3874
Espec	ESX-2CA	Environmental Chamber	3/30/2009	Annual	3/30/2010	17620
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	1300/4000
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	4000/12000
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	NRVD	Dual Channel Power Meter	8/20/2008	Biennial	8/20/2010	101695
Rohde & Schwarz	NRV-Z32	Peak Power Sensor (100uW-2W)	12/5/2008	Biennial	12/5/2010	100155
Rohde & Schwarz	NRV-Z33	Peak Power Sensor (1mW-20W)	12/5/2008	Biennial	12/5/2010	100004
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	7/17/2009	Biennial	7/17/2011	9105-2404
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Tx	7/17/2009	Biennial	7/17/2011	9105-2403
Solar Electronics	8012-50-R-24-BNC	LISN	11/8/2007	Biennial	11/8/2009	310233
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	5/14/2009	Biennial	5/14/2011	A050307
Rohde & Schwarz	CMU200	Base Station Simulator	6/12/2009	Annual	6/12/2010	836536/0005
Rohde & Schwarz	FSQ 26	Spectrum Analyzer	9/29/2008	Annual	9/29/2009	200452

Table 4-1. Test Equipment

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5.0 SAMPLE CALCULATIONS

Emission Designator

Emission Designator = 1M25F9W

CDMA BW = 1.25 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

Spurious Radiated Emission – AWS Band

Example: Channel 450 AWS Mode 2nd Harmonic (3465.0 MHz)

The average receive power meter 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 power meter. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3465.0 MHz. So 6.1 dB is added to the power meter 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) = 50.3 dBc.

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6.0 TEST RESULTS

6.1 Summary

Company Name: LG Electronics USA
 FCC ID: BEJM4
 FCC Classification: Licensed Non-Broadcast Transmitter (TNB)
 Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
<u>TRANSMITTER MODE (TX)</u>					
2.1049, 27.53(g)(1)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 27.53(h)	Band Edge / Conducted Spurious Emissions	< 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Section 7.0
27.50(d)(5)	Peak-Average Ratio	< 13 dB		PASS	Section 6.3
2.1046	Transmitter Conducted Output Power	N/A		PASS	See Operational Description Power Table
27.50(d)(2)	Equivalent Isotropic Radiated Power	< 1 Watts max. EIRP	RADIATED	PASS	Section 6.2
2.1053, 27.53(h)	Undesirable Emissions	< 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 6.4
2.1055, 27.54	Frequency Stability	< 2.5 ppm		PASS	Section 6.5
<u>RECEIVER MODE (RX) / DIGITAL EMISSIONS</u>					
15.107	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.107 limits	LINE CONDUCTED	PASS	Pt. 15B Test Report
15.109	General Field Strength Limits (Restricted Bands and Radiated Emissions Limits)	< FCC 15.109 limits	RADIATED (30MHz-1GHz) (1-25 GHz)	PASS	Pt. 15B Test Report
<u>RF EXPOSURE</u>					
2.1091 / 2.1093	MPE Test	1 mW/cm² (MPE Limit) @ 20 cm	MPE	PASS	MPE Report

Table 6-1. Summary of Test Results

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6.2 Equivalent Isotropic Radiated Power Output Data

§27.50(d)(2)

Frequency [MHz]	Modulation	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Power Source
1715.00	16QAM	-13.85	19.79	8.00	H	27.79	0.601	AC
1730.00	16QAM	-14.65	18.99	8.00	H	26.99	0.500	AC
1750.00	16QAM	-14.87	18.77	8.00	H	26.77	0.475	AC
1715.00	QPSK	-14.10	19.54	8.00	H	27.54	0.568	AC
1715.00	BPSK	-14.77	18.87	8.00	H	26.87	0.486	AC

Table 6-2. Equivalent Isotropic Radiated Power Output Data (AWS LTE Mode)

NOTES:

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

This device was tested under all configurations and the worst case is reported with 16QAM modulation. This unit was tested while powered by an AC power supply.

6.3 Peak-Average Ratio Data

§27.50(d)(5)

Frequency [MHz]	Modulation	Worst Case Peak-Average Ratio [dB]
1730.00	QPSK	7.97
1730.00	16-QAM	8.07
1715.00	BPSK	6.78

Table 6-3. Peak-Average Ratio Measurements

Note: The peak-to-average power ratios were measured on the low (1715MHz), mid (1730MHz), and high (1750MHz) channels for AWS LTE. The maximum values measured between the 3 channels are listed above.



Figure 6-1. Test Setup Diagram

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6.4 AWS LTE Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1715.00 MHz
 CHANNEL: LBS
 MEASURED OUTPUT POWER: 27.790 dBm = 0.601 W
 MODULATION SIGNAL: 16QAM
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 40.79 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3430.00	-50.41	10.06	-40.36	H	68.1
5145.00	-50.86	10.67	-40.19	H	68.0
6860.00	-89.37	11.38	-78.00	H	105.8
8575.00	-85.72	11.18	-74.55	H	102.3
10290.00	-85.32	12.17	-73.15	H	100.9

Table 6-4. Radiated Spurious Data (AWS LTE Mode – Low Channel)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the worst case is reported with 16QAM modulation. This unit was tested while powered by an AC power supply.

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AWS LTE Radiated Measurements (Cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1730.00 MHz
 CHANNEL: MBS
 MEASURED OUTPUT POWER: 27.790 dBm = 0.601 W
 MODULATION SIGNAL: 16QAM
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 40.79 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3460.00	-52.07	10.08	-41.99	H	69.8
5230.00	-49.10	10.66	-38.44	H	66.2
6960.00	-89.20	11.28	-77.92	H	105.7
8690.00	-85.43	11.13	-74.30	H	102.1
10420.00	-85.27	12.24	-73.04	H	100.8

Table 6-5. Radiated Spurious Data (AWS LTE Mode – Mid Channel)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the worst case is reported with 16QAM modulation. This unit was tested while powered by an AC power supply.

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AWS LTE Radiated Measurements (Cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1750.00 MHz
 CHANNEL: UBS
 MEASURED OUTPUT POWER: 27.790 dBm = 0.601 W
 MODULATION SIGNAL: 16QAM
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W)$ 40.79 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3500.00	-51.77	10.09	-41.67	H	69.5
5250.00	-50.43	10.65	-39.79	H	67.6
6980.00	-89.04	11.21	-77.82	H	105.6
8710.00	-85.14	11.09	-74.04	H	101.8
10440.00	-85.20	12.32	-72.89	H	100.7

Table 6-6. Radiated Spurious Data (AWS LTE Mode – High Channel)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the worst case is reported with 16QAM modulation. This unit was tested while powered by an AC power supply.

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6.5 AWS LTE Frequency Stability Measurements

§2.1055, §27.54

OPERATING FREQUENCY: 1,730,000,000 Hz

REFERENCE VOLTAGE: 5 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	5.00	+ 20 (Ref)	1,729,999,117	-883	-0.000051
100 %		- 30	1,730,003,265	3265	0.000189
100 %		- 20	1,730,003,570	3570	0.000206
100 %		- 10	1,729,996,375	-3625	-0.000210
100 %		0	1,729,996,034	-3966	-0.000229
100 %		+ 10	1,730,002,656	2656	0.000154
100 %		+ 20	1,729,997,694	-2306	-0.000133
100 %		+ 30	1,729,997,984	-2016	-0.000117
100 %		+ 40	1,729,998,583	-1417	-0.000082
100 %		+ 50	1,730,001,152	1152	0.000067
115 %	5.75	+ 20	1,730,001,526	1526	0.000088
BATT. ENDPOINT	4.47	+ 20	1,729,999,525	-475	-0.000027

Table 6-7. Frequency Stability Data (AWS LTE Mode)

AWS LTE Frequency Stability Measurements (Cont'd)

§2.1055, §27.54

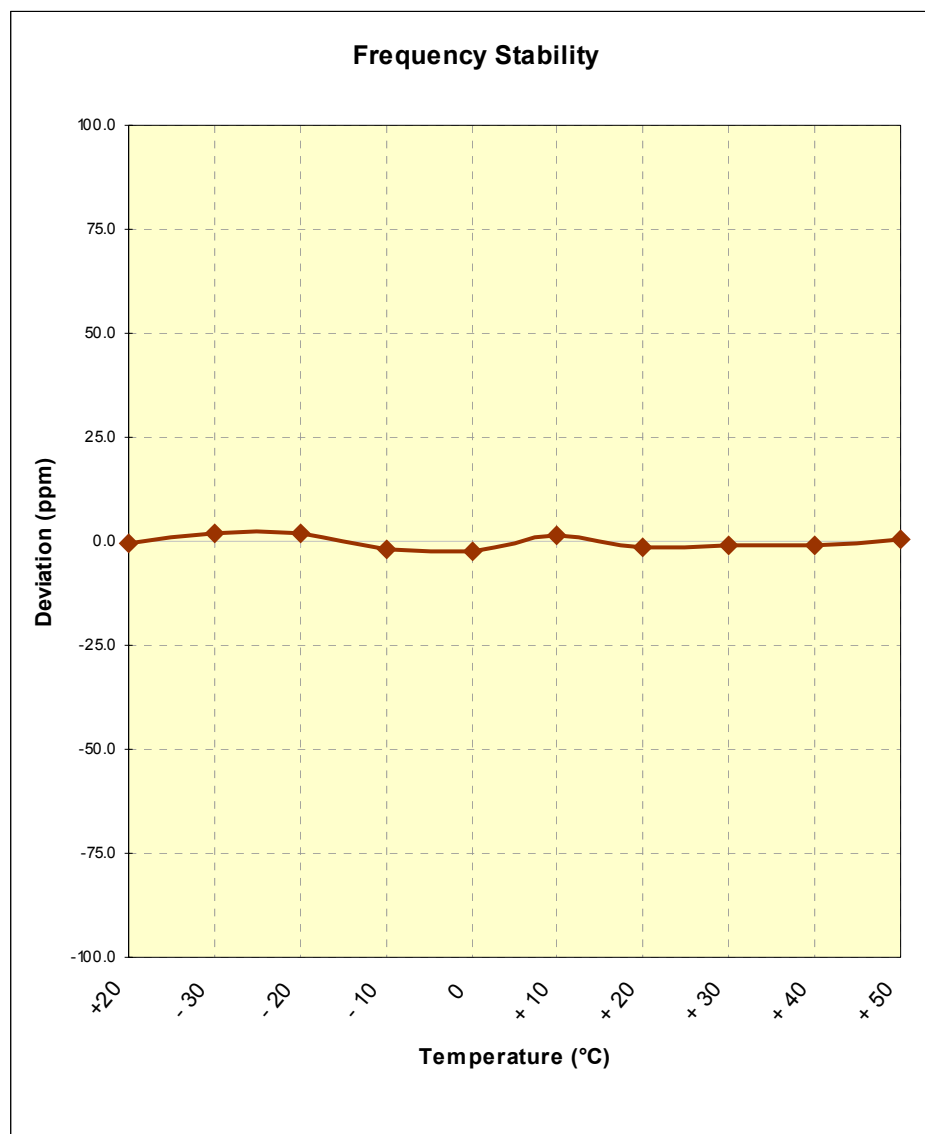
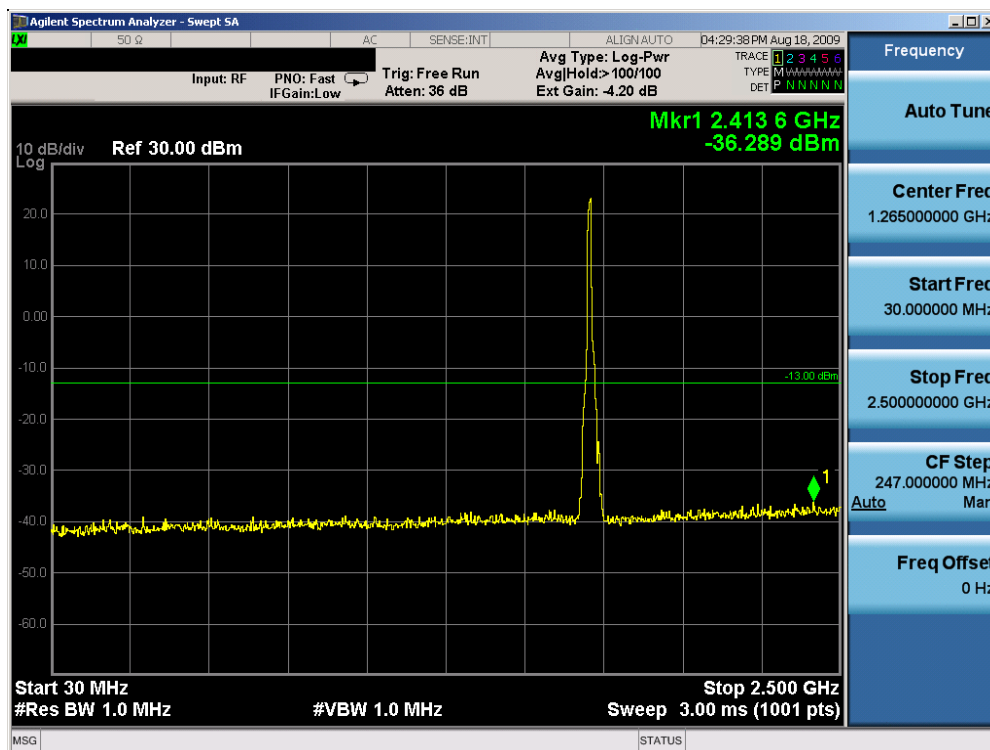


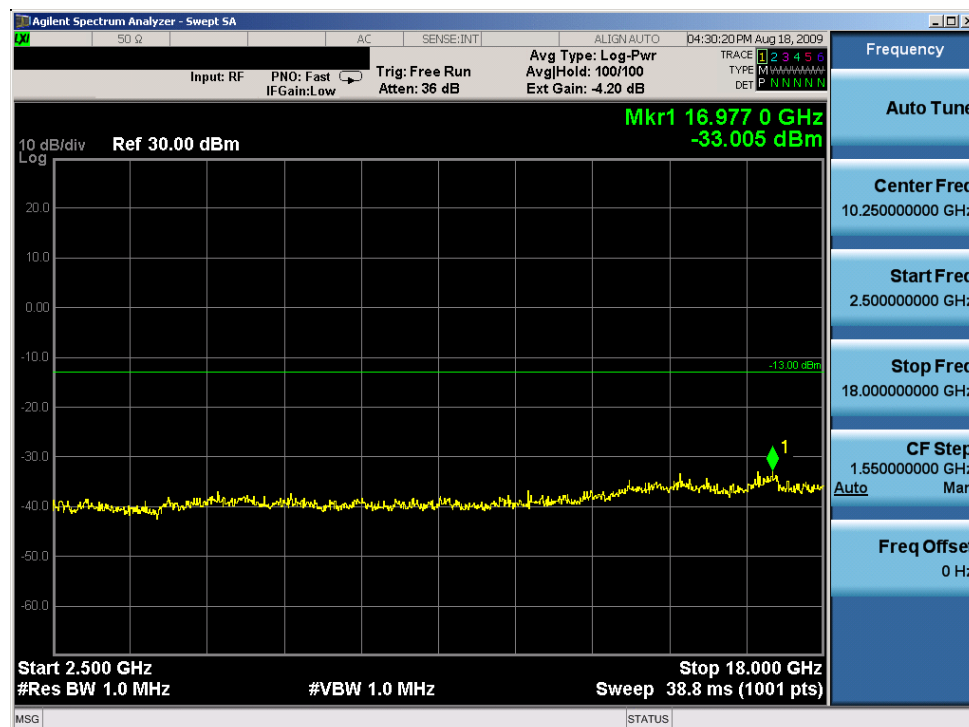
Figure 6-2. Frequency Stability Graph (AWS LTE Mode)

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7.0 PLOT(S) OF EMISSIONS

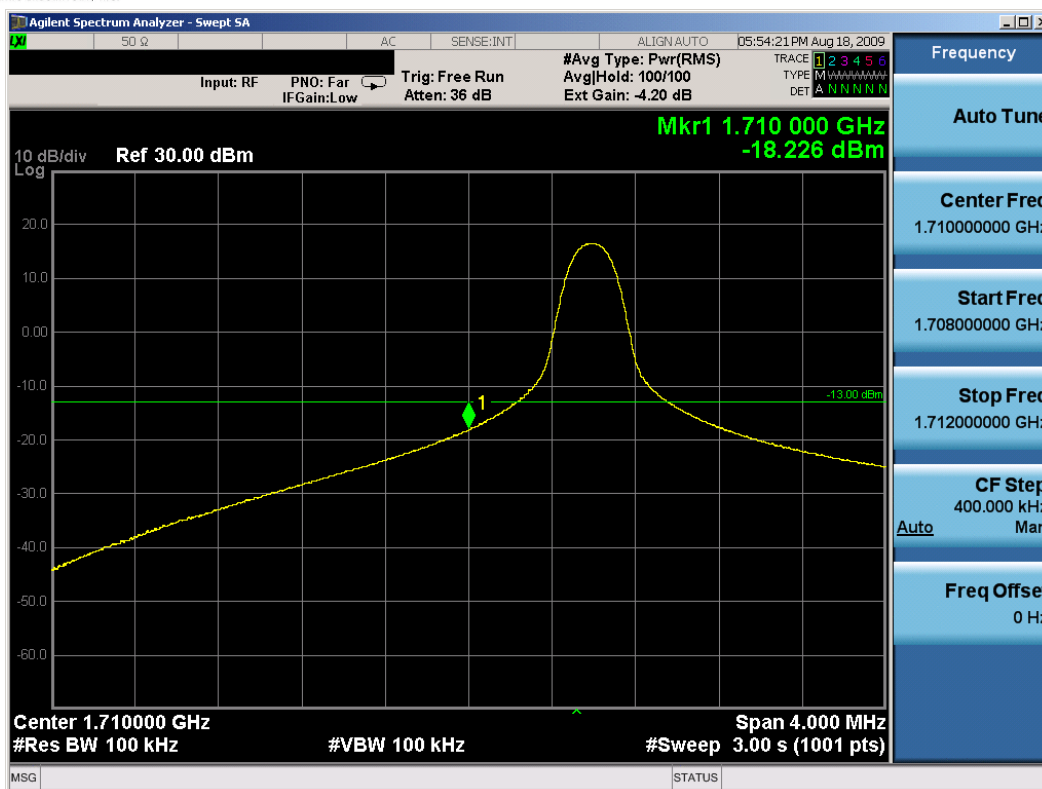


Plot 7-1. Conducted Spurious Plot (AWS LTE Mode, 1715MHz)

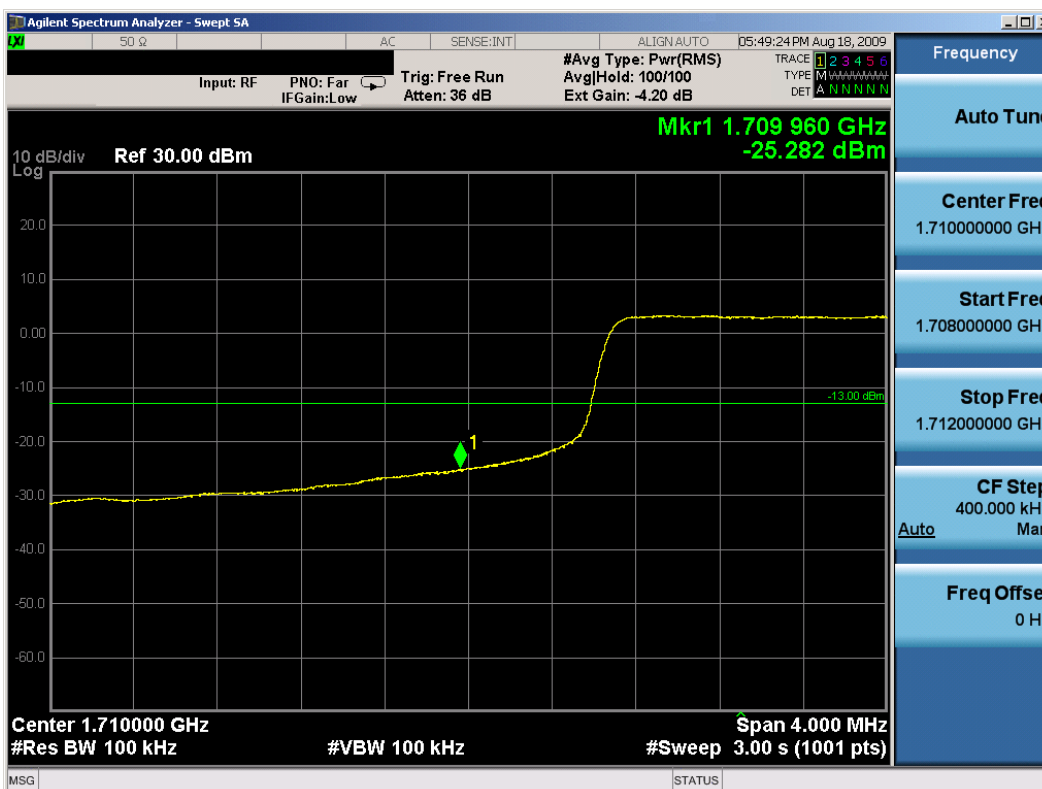


Plot 7-2. Conducted Spurious Plot (AWS LTE Mode, 1715MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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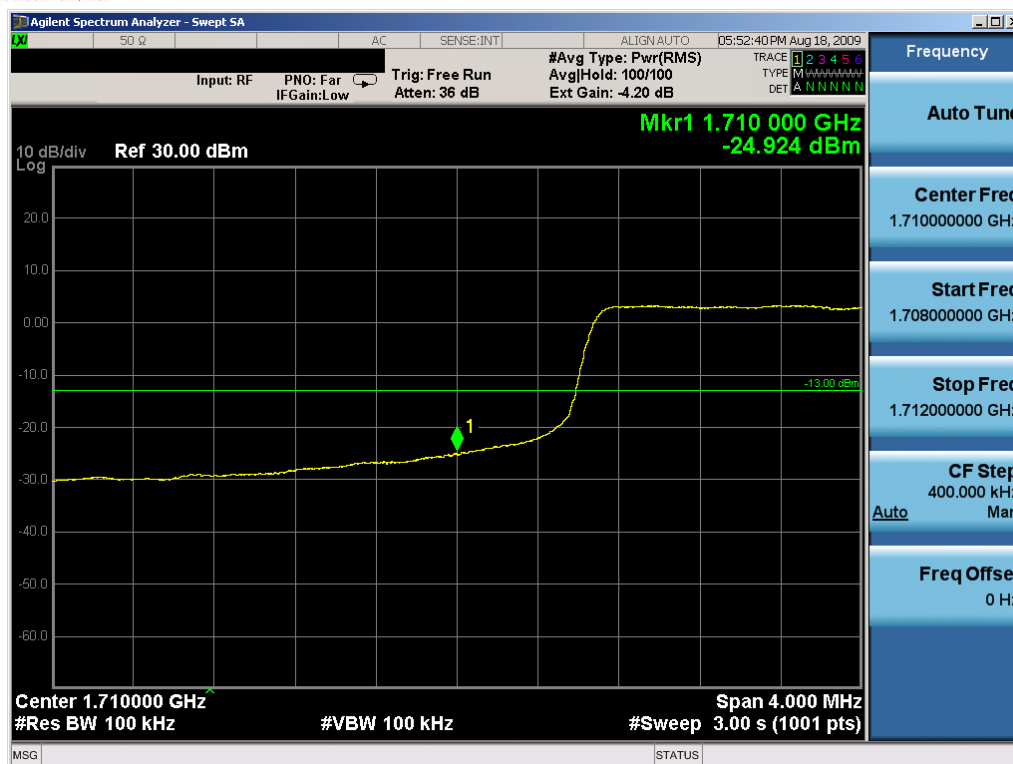


Plot 7-3. Band Edge Plot (AWS LTE Mode – BPSK, 1715MHz)

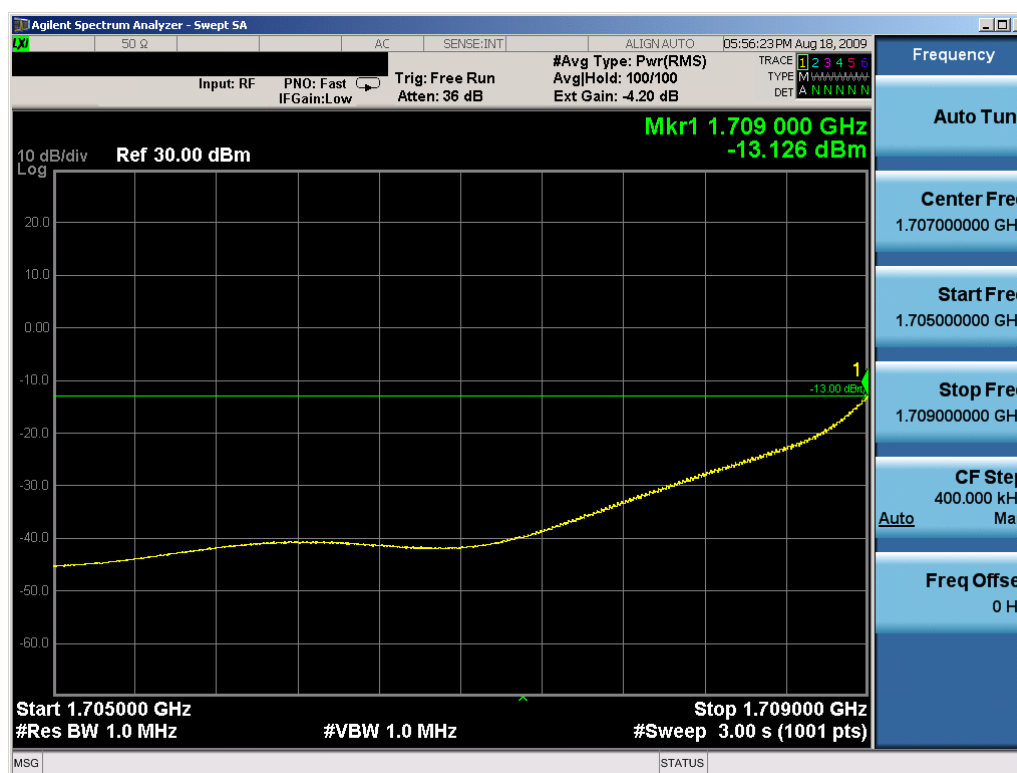


Plot 7-4. Band Edge Plot (AWS LTE Mode – QPSK, 1715MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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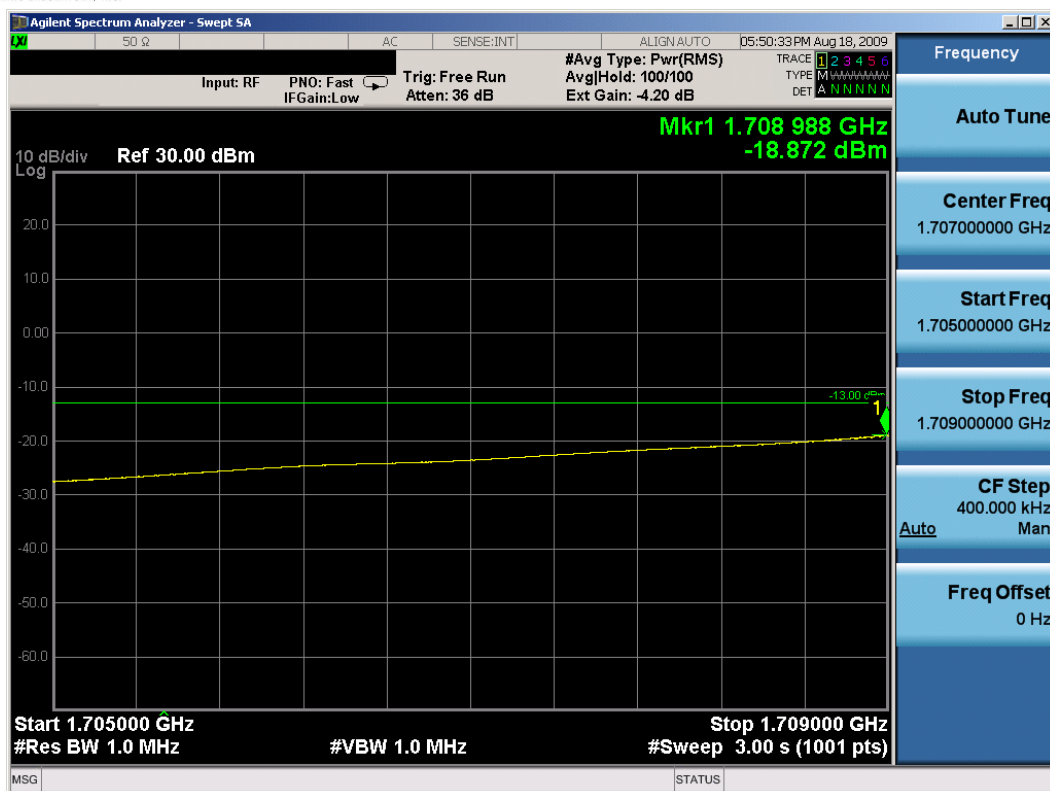


Plot 7-5. Band Edge Plot (AWS LTE Mode – 16QAM, 1715MHz)

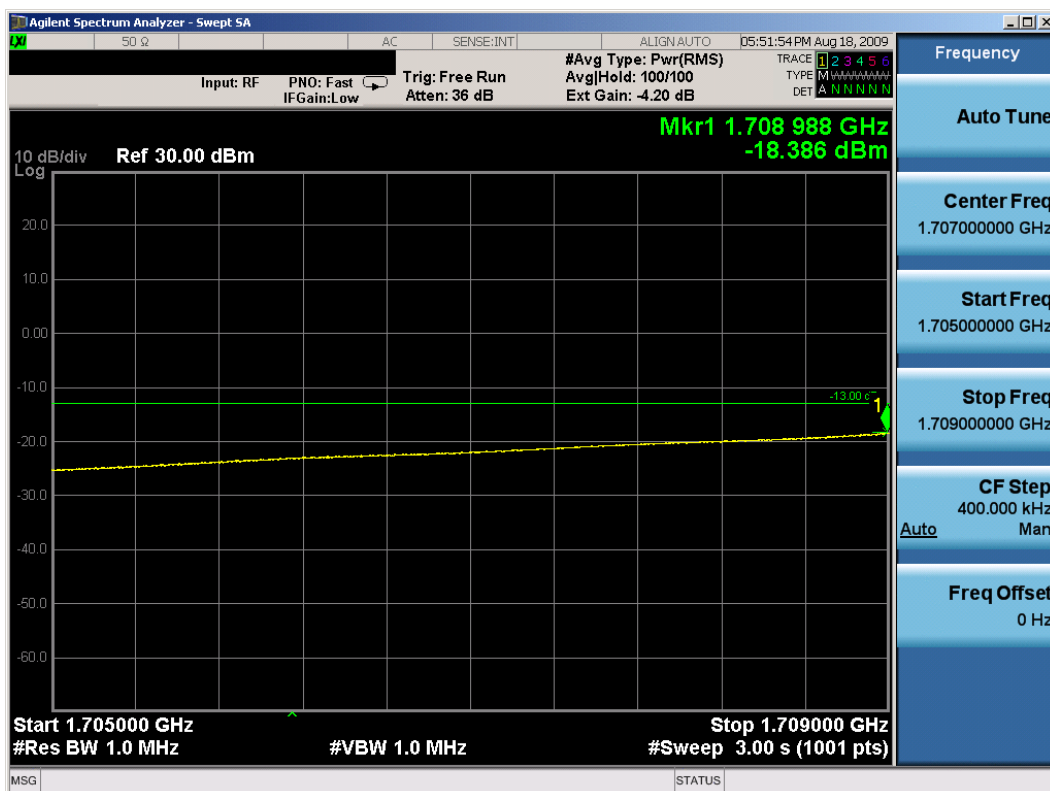


Plot 7-6. 4MHz Span Plot (AWS LTE Mode – BPSK, 1715MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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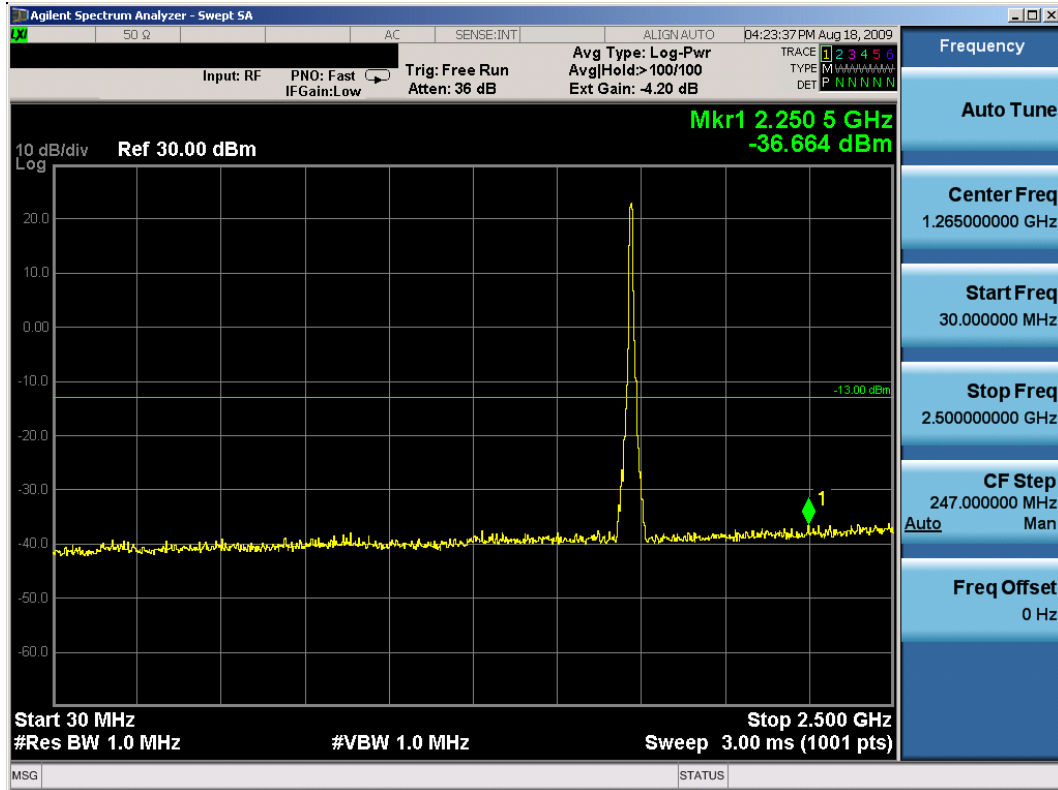


Plot 7-7. 4MHz Span Plot (AWS LTE Mode – QPSK, 1715MHz)



Plot 7-8. 4MHz Span Plot (AWS LTE Mode – 16QAM, 1715MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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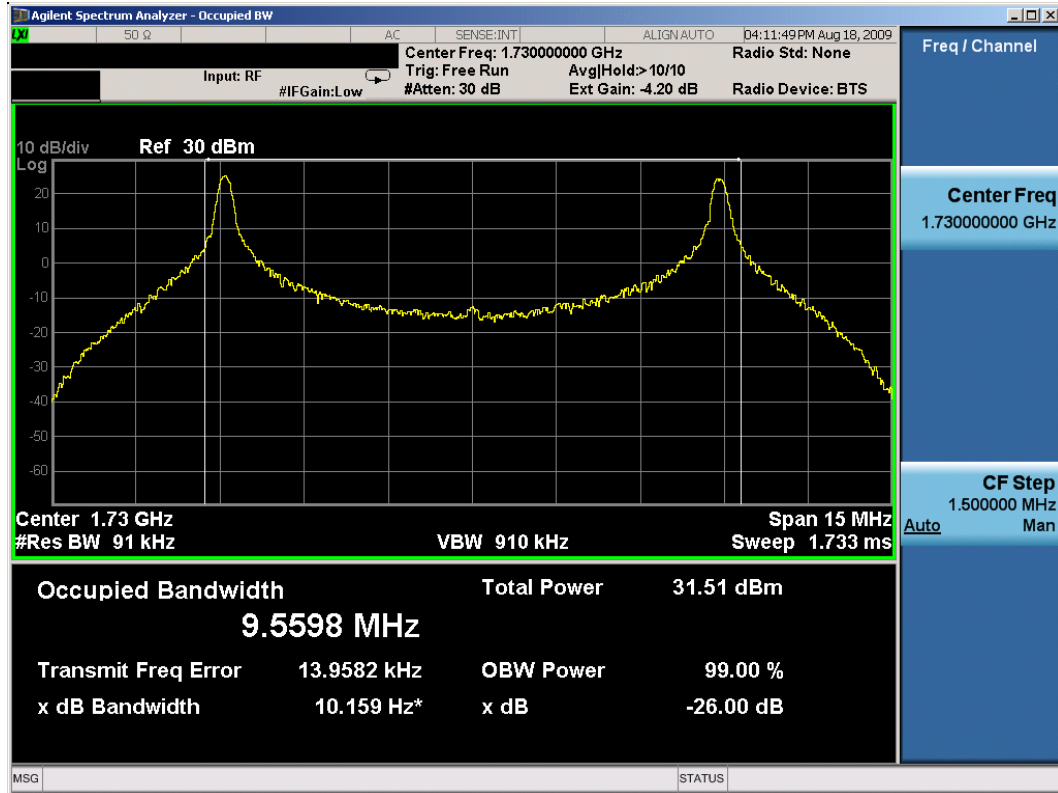


Plot 7-9. Conducted Spurious Plot (AWS LTE Mode – 1730MHz)

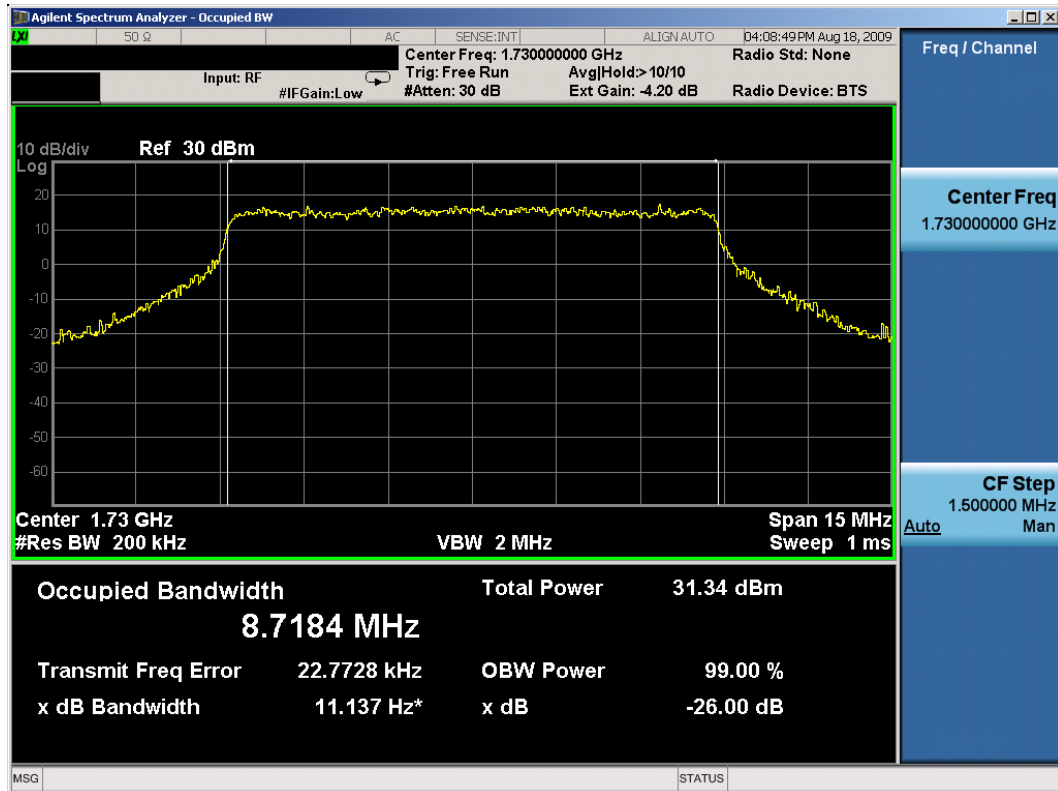


Plot 7-10. Conducted Spurious Plot (AWS LTE Mode – 1730MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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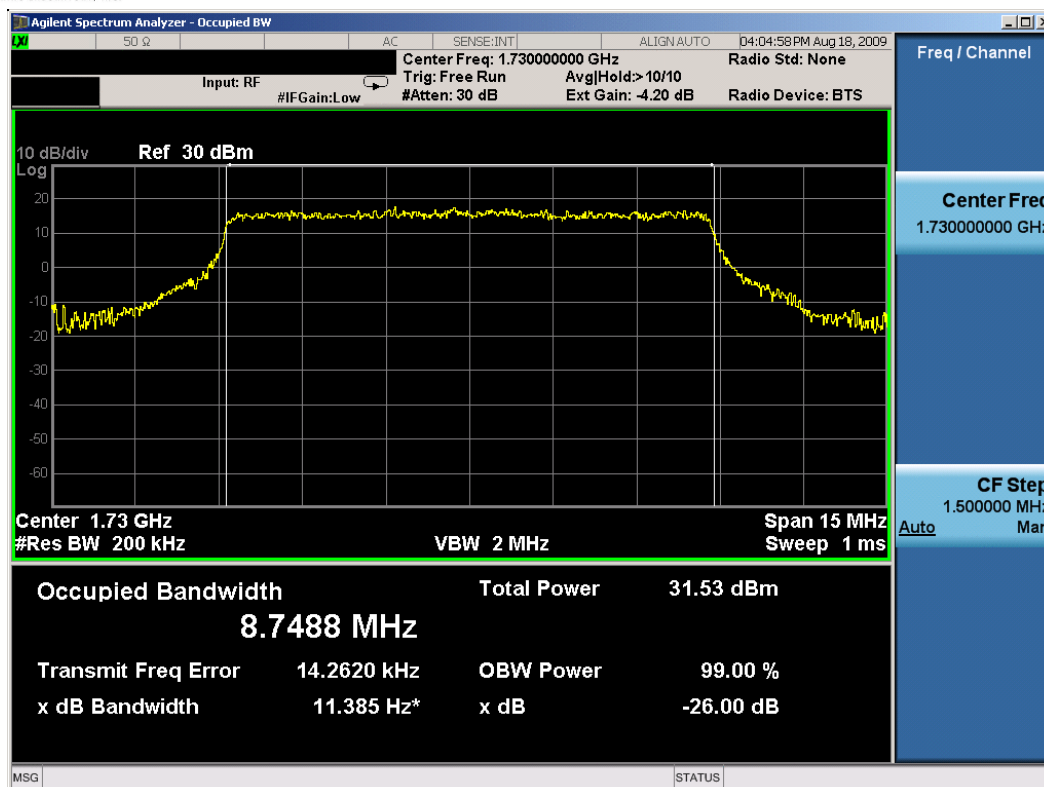


Plot 7-11. Occupied Bandwidth Plot (AWS LTE Mode – BPSK, 1730MHz)

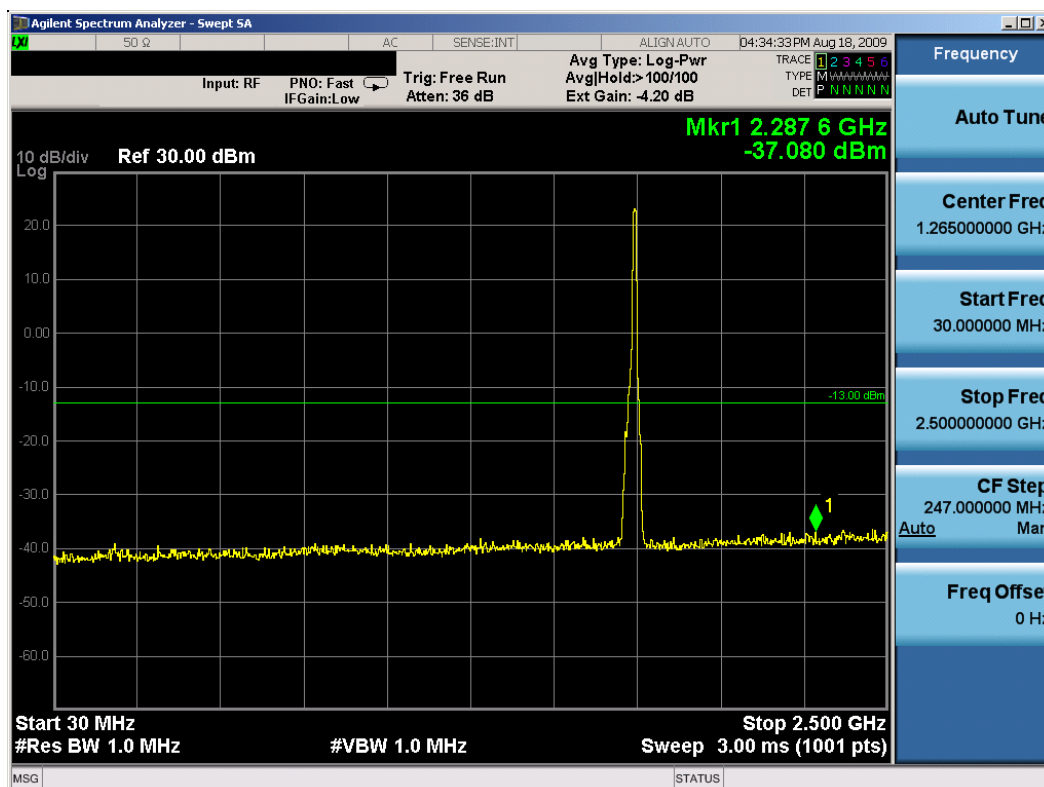


Plot 7-12. Occupied Bandwidth Plot (AWS LTE Mode – QPSK, 1730MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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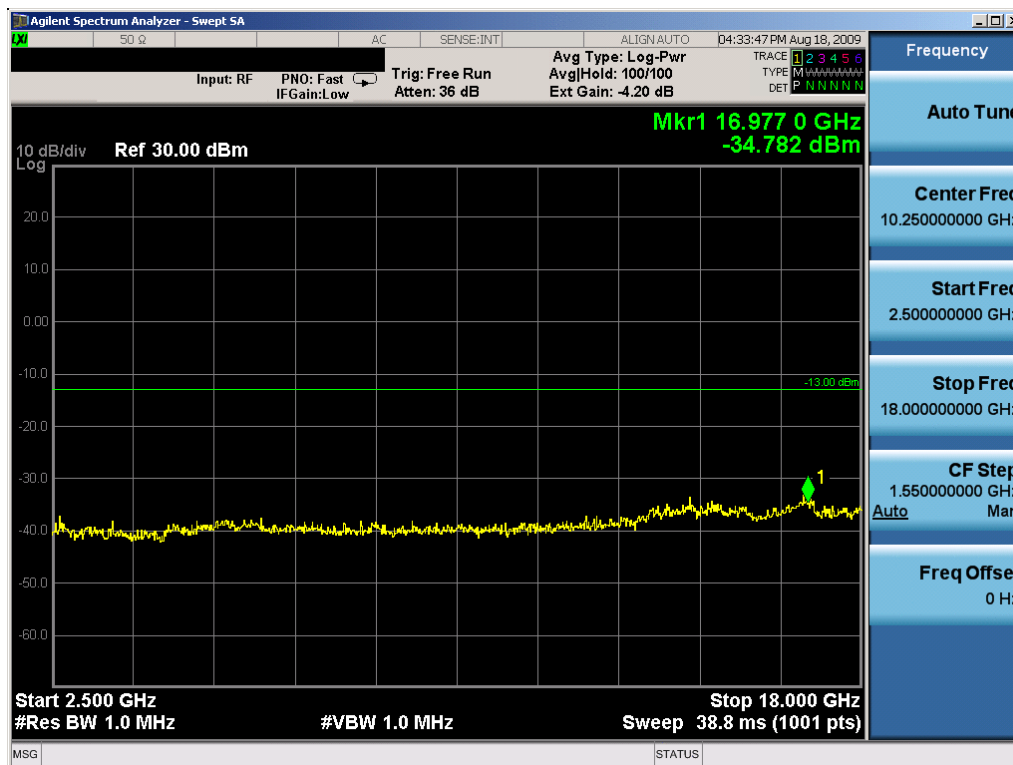


Plot 7-13. Occupied Bandwidth Plot (AWS LTE Mode – 16QAM, 1730MHz)

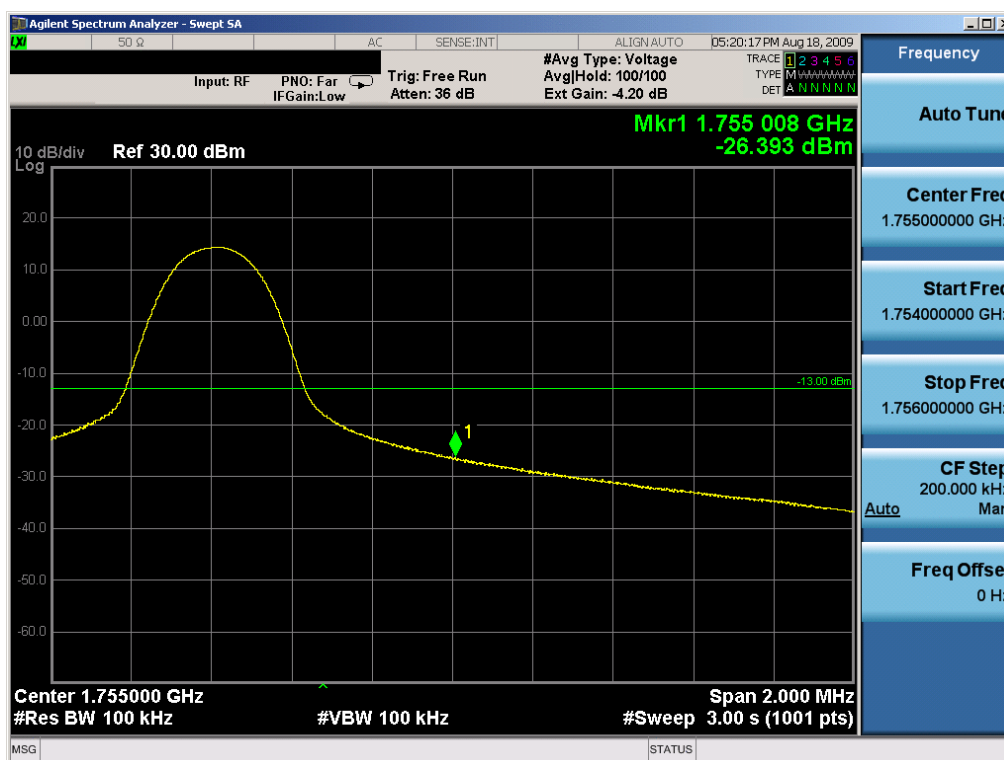


Plot 7-14. Conducted Spurious Plot (AWS LTE Mode, 1750MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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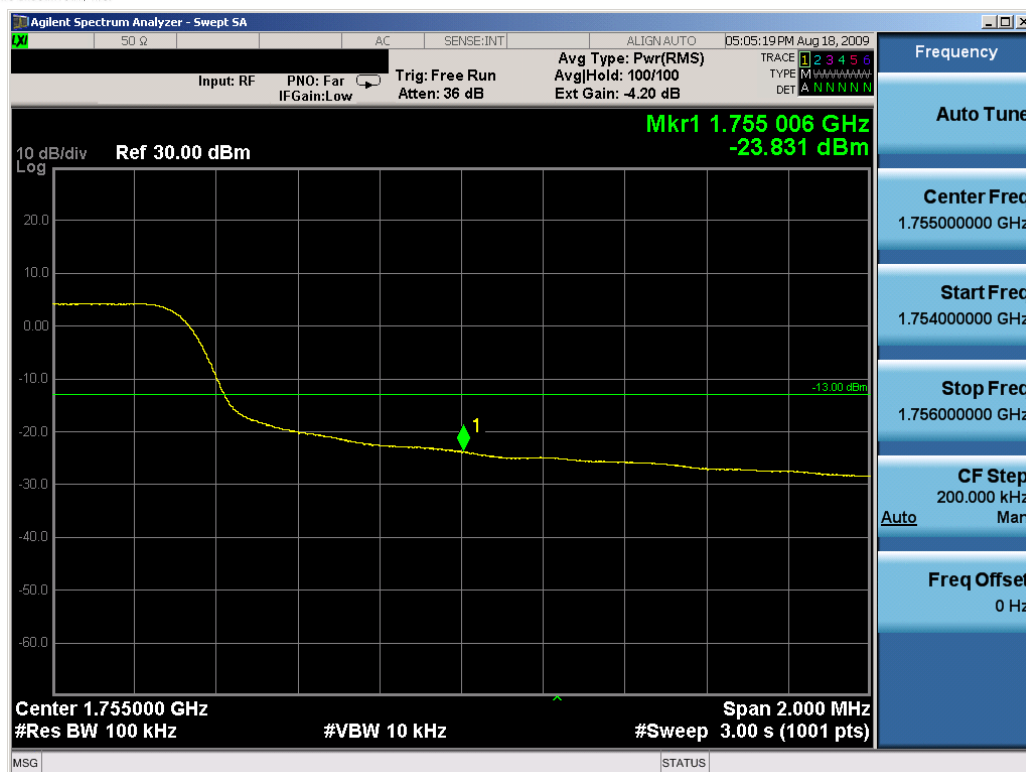


Plot 7-15. Conducted Spurious Plot (AWS LTE Mode, 1750MHz)

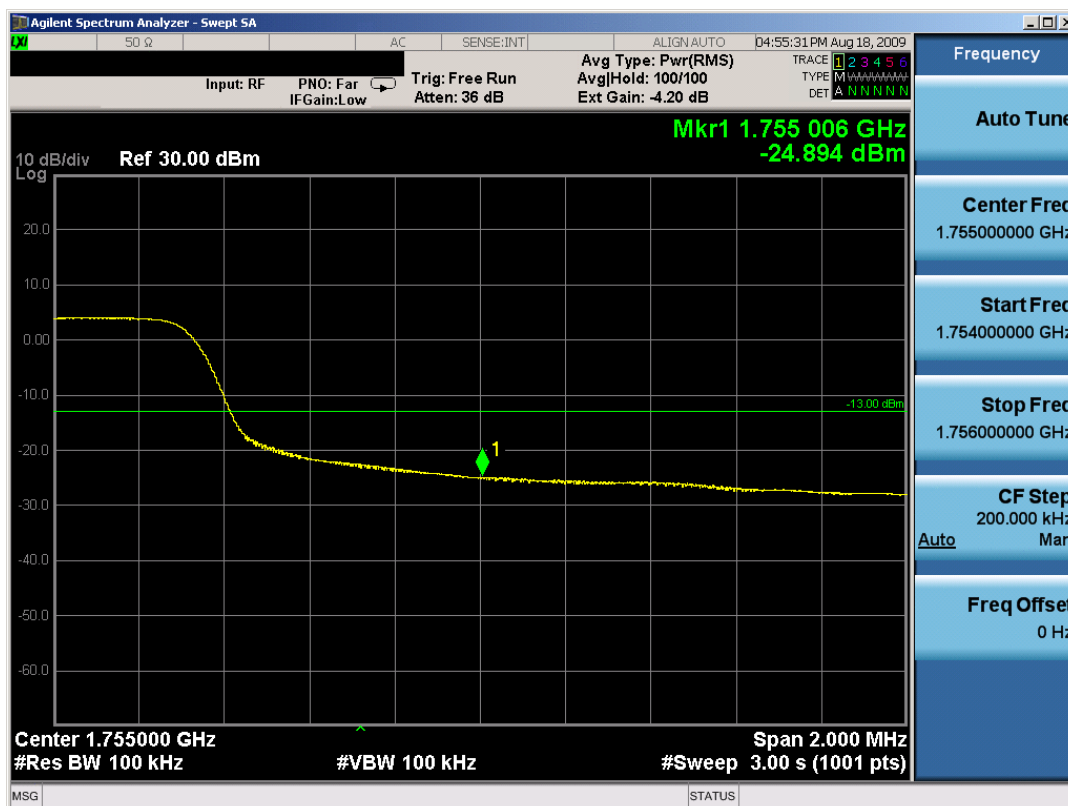


Plot 7-16. Band Edge Plot (AWS LTE Mode – BPSK, 1750MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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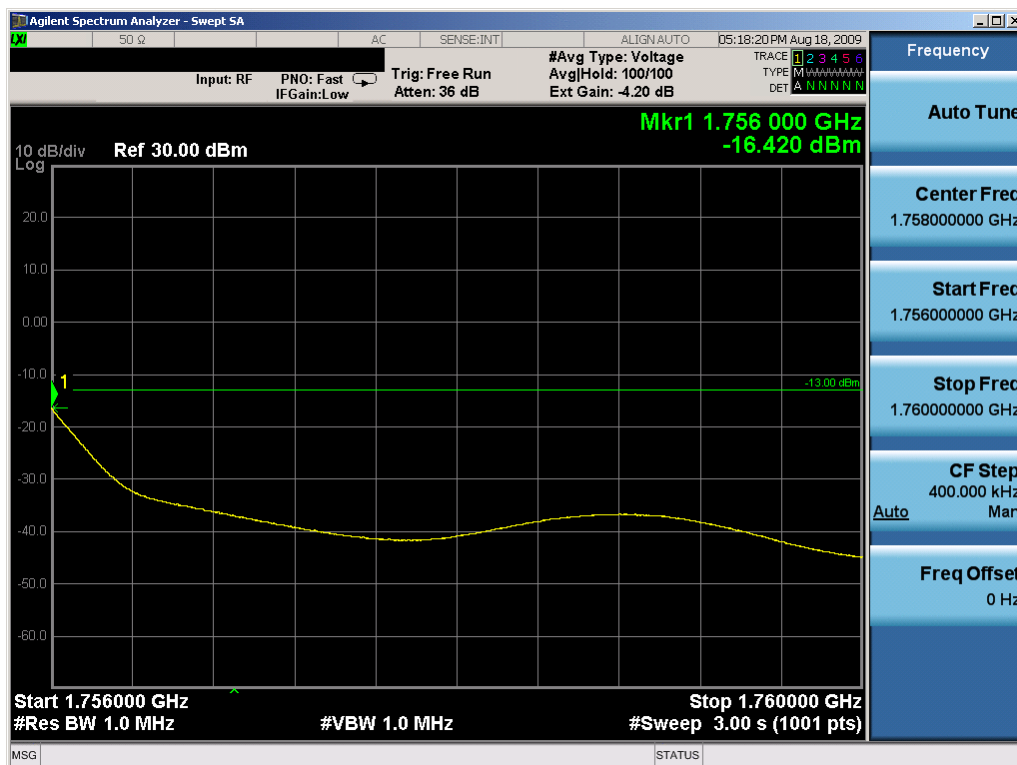


Plot 7-17. Band Edge Plot (AWS LTE Mode – QPSK, 1750MHz)



Plot 7-18. Band Edge Plot (AWS LTE Mode – 16QAM, 1750MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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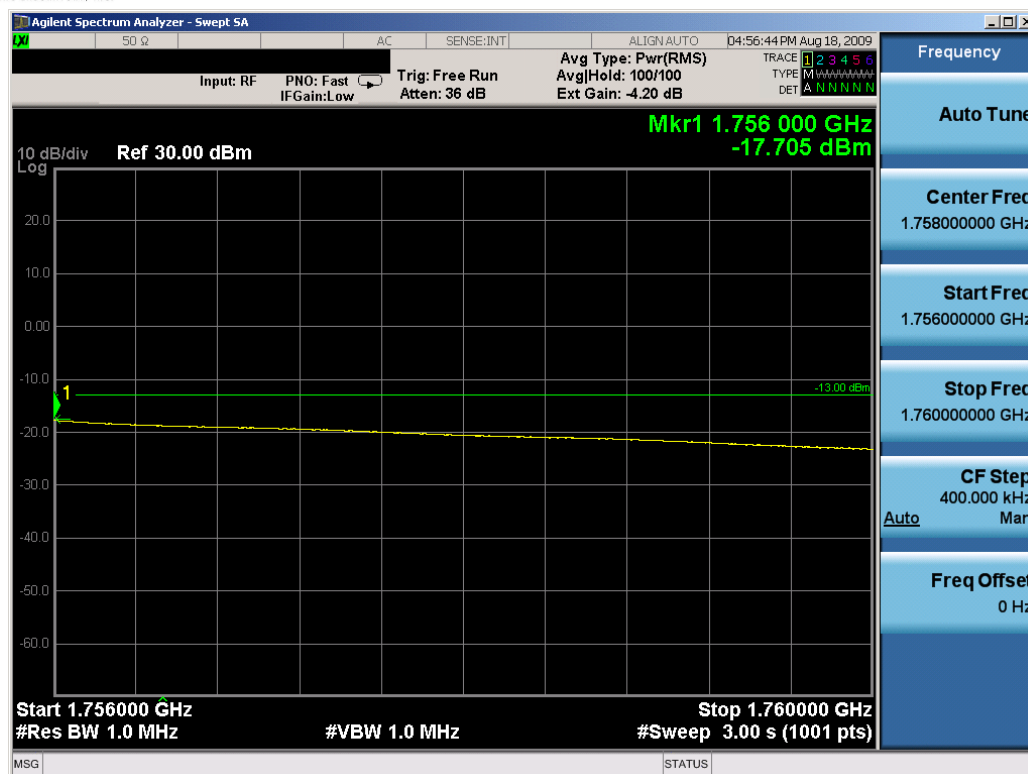


Plot 7-19. 4MHz Span Plot (AWS LTE Mode – BPSK, 1750MHz)



Plot 7-20. 4MHz Span Plot (AWS LTE Mode – QPSK, 1750MHz)

FCC ID: BEJM4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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Plot 7-21. 4MHz Span Plot (AWS LTE Mode – 16QAM, 1750MHz)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LGE AWS LTE Device** **FCC ID: BEJM4** complies with all the requirements of Parts 2 and 27 of the FCC rules.

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