



PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA
Tel. 410.290.6652 / Fax 410.290.6654
<http://www.pctestlab.com>



MEASUREMENT REPORT FCC Part 90 Band Class 10 CDMA

Applicant:

LG Electronics MobileComm U.S.A., Inc.
10101 Old Grove Road,
San Diego, CA 92131
USA

Date of Testing:

Nov. 29, 2011 - Feb. 10, 2012

Test Site/Location:

PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:

0Y1111232033.ZNF

FCC ID:

ZNFLS696

APPLICANT:

LG ELECTRONICS MOBILECOMM U.S.A., INC.

Applicant Type:

Certification

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part:

§90.691

EUT Type:

Portable Handset

Model(s):

LS696, LG-LS696

Tx Frequency Range:

817.9 - 823.1 MHz (CDMA)

Max. RF Output Power:

0.153 W ERP CDMA (21.86 dBm)

Emission Designator(s):

1M27F9W (CDMA)

Test Device Serial No.:

identical prototype [S/N: RF, BT]

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 90.

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.


Randy Ortanez
President

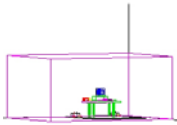


FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 1 of 22	

TABLE OF CONTENTS

FCC PART 90 MEASUREMENT REPORT	3
1.0 INTRODUCTION	4
1.1 SCOPE	4
1.2 TESTING FACILITY	4
2.0 PRODUCT INFORMATION.....	5
2.1 EQUIPMENT DESCRIPTION	5
2.2 EMI SUPPRESSION DEVICE(S)/MODIFICATIONS	5
3.0 DESCRIPTION OF TESTS	6
3.1 MEASUREMENT PROCEDURE	6
3.2 OCCUPIED BANDWIDTH	6
3.3 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL.....	6
3.4 RADIATED POWER AND RADIATED SPURIOUS EMISSIONS	7
4.0 TEST EQUIPMENT CALIBRATION DATA	8
5.0 SAMPLE CALCULATIONS	9
6.0 TEST RESULTS.....	10
6.1 SUMMARY.....	10
6.2 EFFECTIVE RADIATED POWER OUTPUT DATA	11
6.3 BC10 CDMA RADIATED MEASUREMENTS	12
6.4 BC10 CDMA FREQUENCY STABILITY MEASUREMENTS	14
7.0 PLOT(S) OF EMISSIONS	16
8.0 CONCLUSION.....	22

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset		Page 2 of 22



MEASUREMENT REPORT

BC10 CDMA

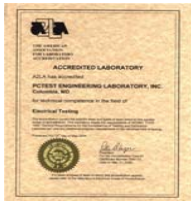


§2.1033 General Information

APPLICANT: LG Electronics MobileComm U.S.A., Inc.
APPLICANT ADDRESS: 10101 Old Grove Road,
San Diego, CA 92131, USA
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 6660-B Dobbin Road, Columbia, MD 21045 USA
BASE MODEL: LS696
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
EMISSION DESIGNATOR(S): 1M27F9W (CDMA)
MODE: CDMA
FREQUENCY TOLERANCE: $\pm 0.00025\%$ (2.5 ppm)
Test Device Serial No.: RF, BT ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST: Nov. 29, 2011 - Feb. 10, 2012
TEST REPORT S/N: 0Y1111232033.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. 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.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 3 of 22	

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 are, 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 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 28, 2009.

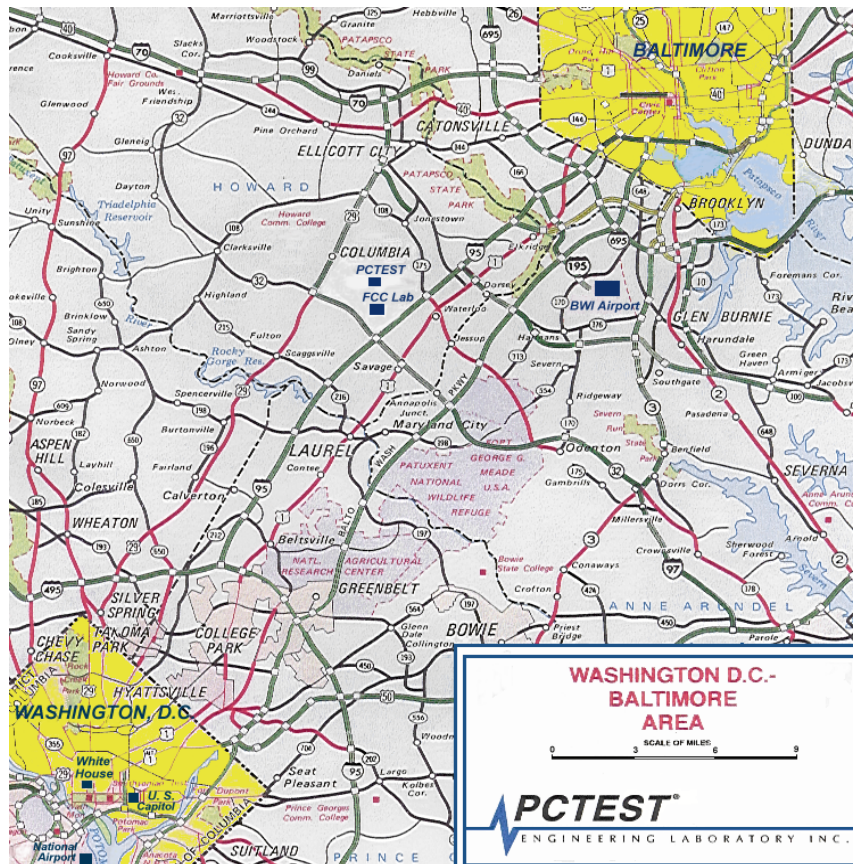


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

FCC ID: ZNFLS696	PCTEST ENGINEERING LABORATORY, INC.	BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset		Page 4 of 22

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFLS696**. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
LG / Model: LS696	ZNFLS696	Portable Handset

Table 2-1. EUT Equipment Description

Note: All data contained in this report is applicable for the device operation in the BC10 (817 – 824 MHz). Test data shown supports the devices compliance with §90.691 of the FCC Rules and Regulation.

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO (BC0, BC1, BC10), 802.11b/g/n WLAN, Bluetooth, NFC

2.3 EMI Suppression Device(s)/Modifications

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

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset		Page 5 of 22

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 80cm above the ground plane and 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.

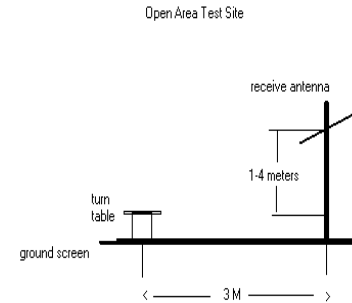


Figure 3-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

3.2 Occupied Bandwidth

§2.1049

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. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

3.3 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, §90.691

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.

Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log₁₀(f/6.1) decibels or 50 + 10 Log₁₀(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset		Page 6 of 22

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10\log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

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.

3.4 Radiated Power and Radiated Spurious Emissions

§2.1053, §90.635, §90.691

Radiated power and radiated spurious emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 80cm above the ground plane and 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 R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 7 of 22	

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.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	8449B	(1-26.5GHz) Pre-Amplifier	2/8/2011	Annual	2/8/2012	3008A00985
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
Agilent	E4407B	ESA Spectrum Analyzer	4/5/2011	Annual	4/5/2012	US39210313
Agilent	85650A	Quasi-Peak Adapter	4/7/2011	Annual	4/7/2012	2043A00301
Agilent	85650A	Quasi-Peak Adapter	4/7/2011	Annual	4/7/2012	3303A01872
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	4/7/2011	Annual	4/7/2012	3638A08713
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB41450275
Agilent	N9038A	MXE EMI Receiver	8/5/2011	Annual	8/5/2012	MY51210133
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	E5515C	Wireless Communications Test Set	10/10/2011	Annual	10/10/2012	GB46110872
Agilent	E8267C	Vector Signal Generator	10/10/2011	Annual	10/10/2012	US42340152
Agilent	N9020A	MXA Signal Analyzer	10/10/2011	Annual	10/10/2012	US46470561
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	146
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	147
Emco	3115	Horn Antenna (1-18GHz)	4/8/2010	Biennial	4/8/2012	9205-3874
Espec	ESX-2CA	Environmental Chamber	4/21/2011	Annual	4/21/2012	17620
ETS Lindgren	3160-09	18-26.5 GHz Standard Gain Horn	5/31/2011	Annual	5/31/2012	135427
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Annual	7/22/2012	125518
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/12/2011	Annual	10/12/2012	1833460
Gigatronics	8651A	Universal Power Meter	10/12/2011	Annual	10/12/2012	8650319
K & L	11SH10	Band Pass Filter	N/A		N/A	1300/4000
K & L	11SH10	Band Pass Filter	N/A		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	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
Rohde & Schwarz	CMU200	Base Station Simulator	6/1/2011	Annual	6/1/2012	833855/0010
Rohde & Schwarz	RS-PR26	18-26.5 GHz Pre-Amplifier	6/9/2011	Annual	6/9/2012	100040
Rohde & Schwarz	RS-PR18	1-18 GHz Pre-Amplifier	6/9/2011	Annual	6/9/2012	100071
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/5/2011	Annual	8/5/2012	112347
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/25/2011	Annual	8/25/2012	100976
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Annual	10/7/2012	103962
Rohde & Schwarz	CMU200	Base Station Simulator	N/A			836536/0005
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
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	12/17/2009	Biennial	12/17/2011	A051107
Sunol	DRH-118	Horn Antenna (1-18 GHz)	6/17/2011	Biennial	6/17/2013	A042511
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	7/5/2011	Biennial	7/5/2013	A050307

Table 4-1. Test Equipment

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 8 of 22	

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 – Cellular Band

Example: Channel 476 CDMA BC10 Mode 3rd Harmonic (2453.70MHz)

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 2453.70 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) = 50.3 dBc.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 9 of 22	

6.0 TEST RESULTS

6.1 Summary

Company Name: LG Electronics MobileComm U.S.A., Inc.
 FCC ID: ZNFLS696
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): CDMA
 Band: Band Class 10

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
§2.1051, §90.691	Band Edge / Conducted Spurious Emissions	$< 50 + 10\log_{10}(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions within 37.5kHz of Block Edge	CONDUCTED	PASS	Section 7.0
§2.1046	Transmitter Conducted Output Power	N/A		PASS	RF Exposure Report
§90.635	Effective Radiated Power	< 100 Watts max. ERP	RADIATED	PASS	Section 6.2
§2.1053, §90.691	Undesirable Emissions	$< 43 + 10\log_{10}(P[\text{Watts}])$ for all out-of-band emissions		PASS	Sections 6.3
§2.1055, §90.213	Frequency Stability	< 2.5 ppm		PASS	Section 6.4

Table 6-1. Summary of Test Results

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset			Page 10 of 22

6.2 Effective Radiated Power Output Data

§90.635

Frequency [MHz]	Mode BC10 [Channel]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
817.90	Ch. 476	-14.380	21.86	0.00	H	21.86	0.153	Standard
823.10	Ch. 684	-14.820	21.42	0.00	H	21.42	0.139	Standard

Table 6-2. Effective Radiated Power Output Data

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 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 level is recorded using the power meter. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 11 of 22	

6.3 BC10 CDMA Radiated Measurements

§2.1053, §90.691

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 817.90 MHz
 CHANNEL: 476
 MEASURED OUTPUT POWER: 21.860 dBm = 0.153 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.86 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1635.80	-55.45	8.31	-47.14	H	69.0
2453.70	-52.95	8.49	-44.46	H	66.3
3271.60	-45.08	8.86	-36.22	H	58.1
4089.50	-52.76	9.54	-43.22	H	65.1
4907.40	-92.19	11.06	-81.13	H	103.0

Table 6-3. Radiated Spurious Data (CDMA Mode – BC10 Ch. 476)

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 80cm above the ground plane and 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 R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 12 of 22	

BC10 CDMA Radiated Measurements (Cont'd)

§2.1053, §90.691

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 823.10 MHz
 CHANNEL: 684
 MEASURED OUTPUT POWER: 21.420 dBm = 0.139 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.42 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1646.20	-55.49	8.31	-47.17	H	68.6
2469.30	-56.45	8.49	-47.96	H	69.4
3292.40	-45.97	8.86	-37.11	H	58.5
4115.50	-53.69	9.54	-44.14	H	65.6
4938.60	-92.00	11.06	-80.94	H	102.4

Table 6-4. Radiated Spurious Data (CDMA Mode – BC10 Ch. 684)

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 80cm above the ground plane and 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 R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset		Page 13 of 22

6.4 BC10 CDMA Frequency Stability Measurements

§2.1055, §90.213

OPERATING FREQUENCY: 823,100,000 Hz

CHANNEL: 684

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)	823,100,018	18	0.000002
100 %		- 30	823,100,019	19	0.000002
100 %		- 20	823,099,981	-19	-0.000002
100 %		- 10	823,100,020	20	0.000002
100 %		0	823,099,986	-14	-0.000002
100 %		+ 10	823,100,020	20	0.000002
100 %		+ 20	823,099,982	-18	-0.000002
100 %		+ 30	823,100,014	14	0.000002
100 %		+ 40	823,099,988	-12	-0.000001
100 %		+ 50	823,099,981	-19	-0.000002
115 %	4.26	+ 20	823,099,984	-16	-0.000002
BATT. ENDPOINT	3.40	+ 20	823,100,019	19	0.000002

Table 6-5. Frequency Stability Data (Cellular CDMA Mode – Ch. 684)

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset			Page 14 of 22

BC10 CDMA Frequency Stability Measurements (Cont'd)

§2.1055, §90.213

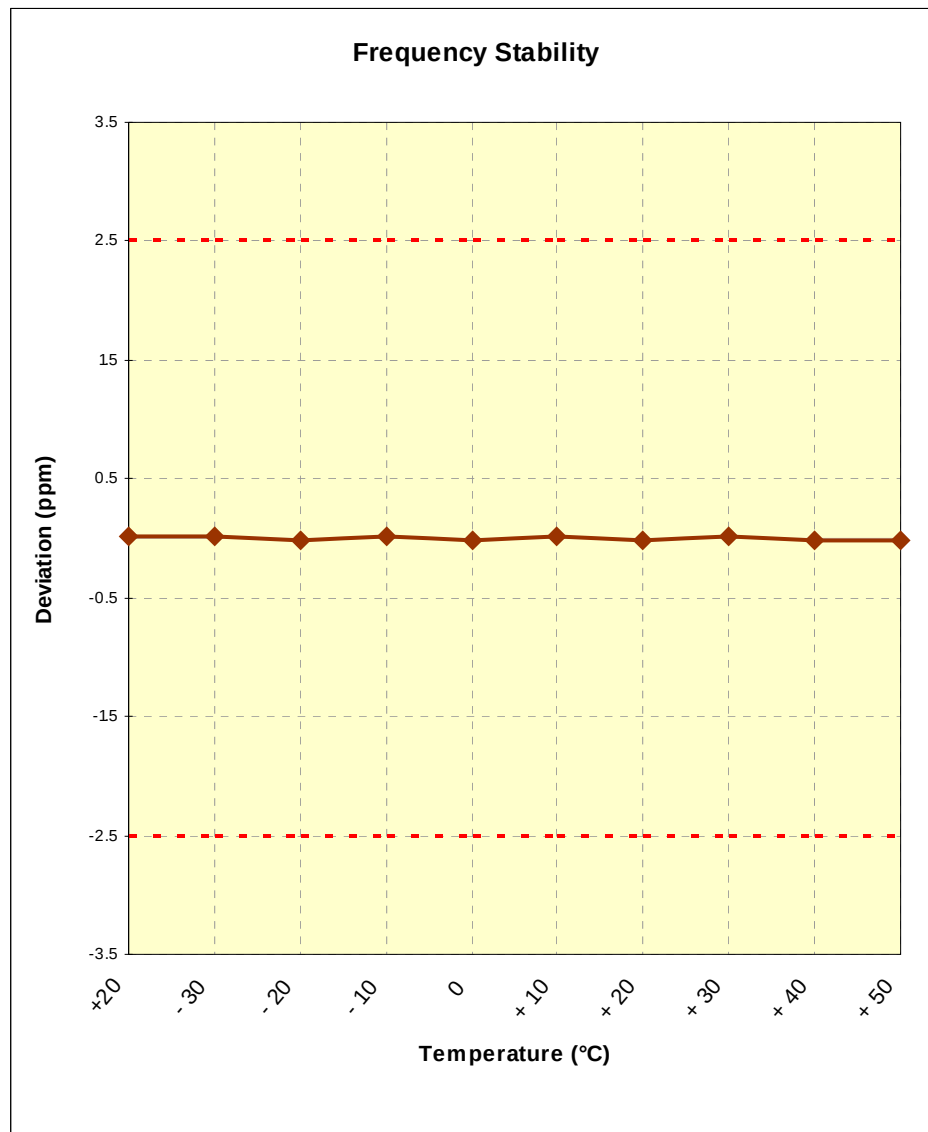
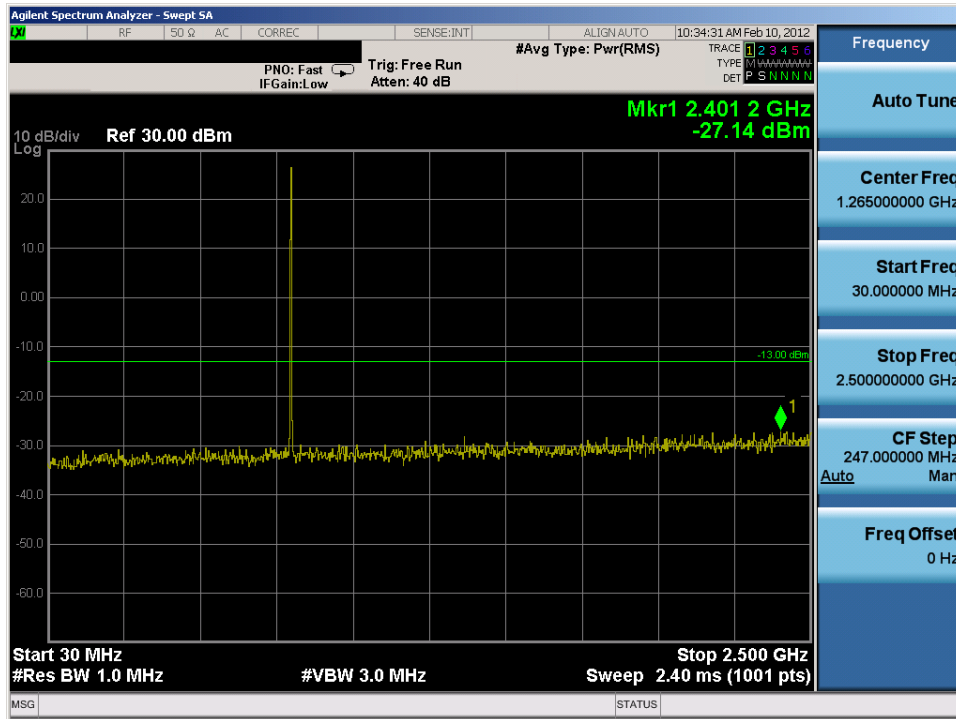


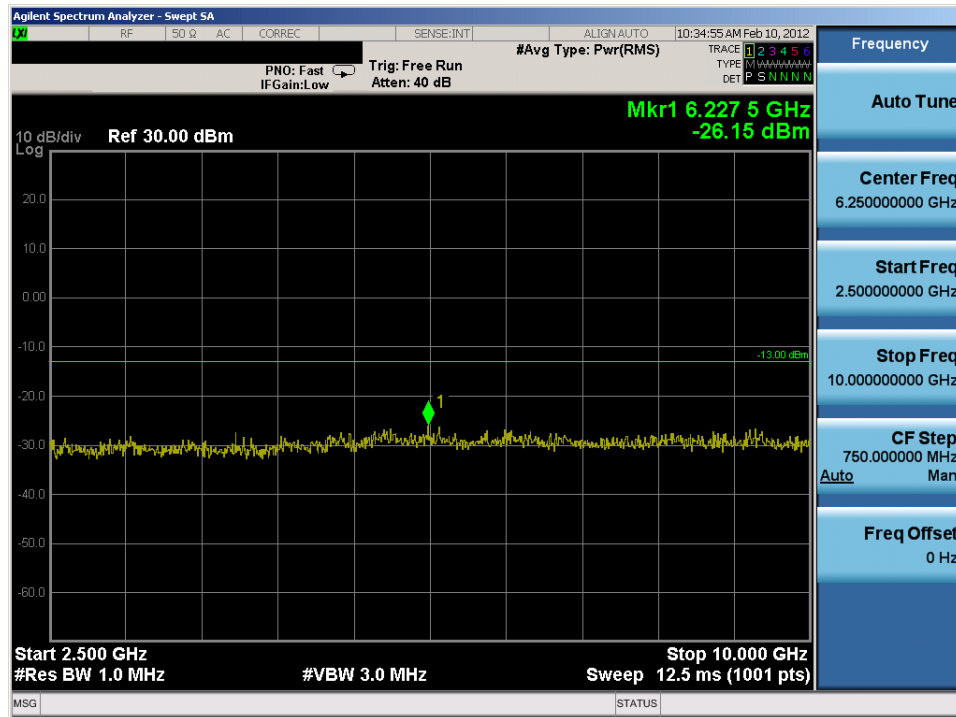
Figure 6-1. Frequency Stability Graph (Cellular CDMA Mode – Ch. 684)

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 15 of 22	

7.0 PLOT(S) OF EMISSIONS

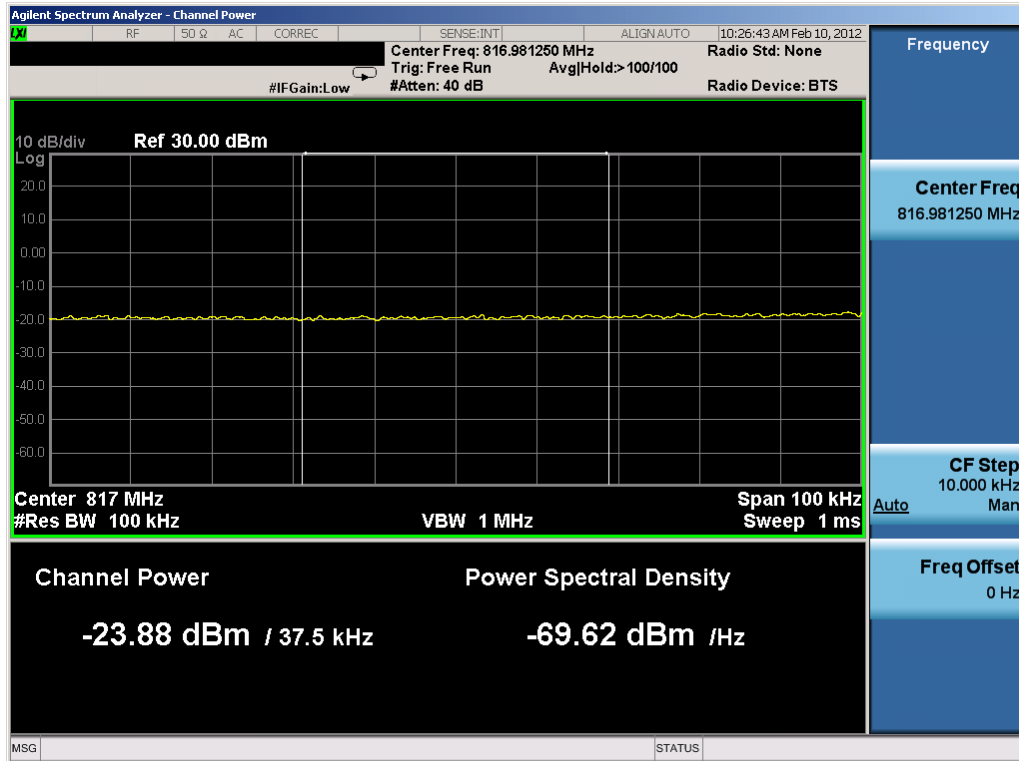


Plot 7-1. Conducted Spurious Plot (BC10 CDMA Ch. 476)

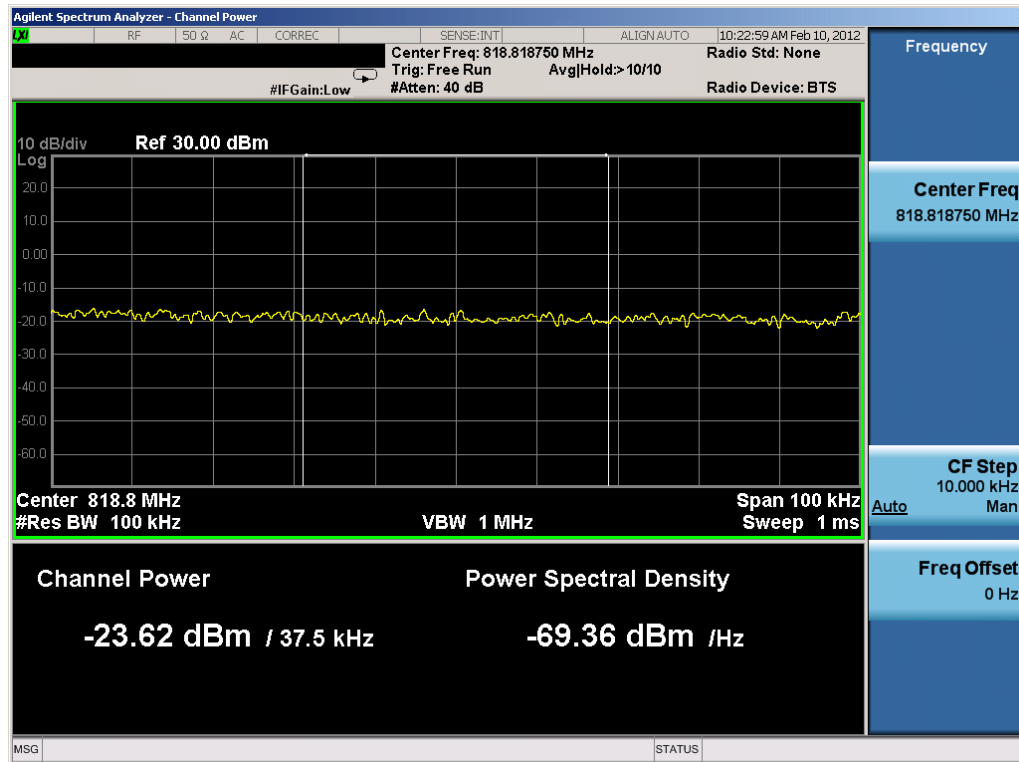


Plot 7-2. Conducted Spurious Plot (BC10 CDMA Ch. 476)

FCC ID: ZNFLS696	PCTEST ENGINEERING LABORATORY, INC.	BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset		Page 16 of 22	

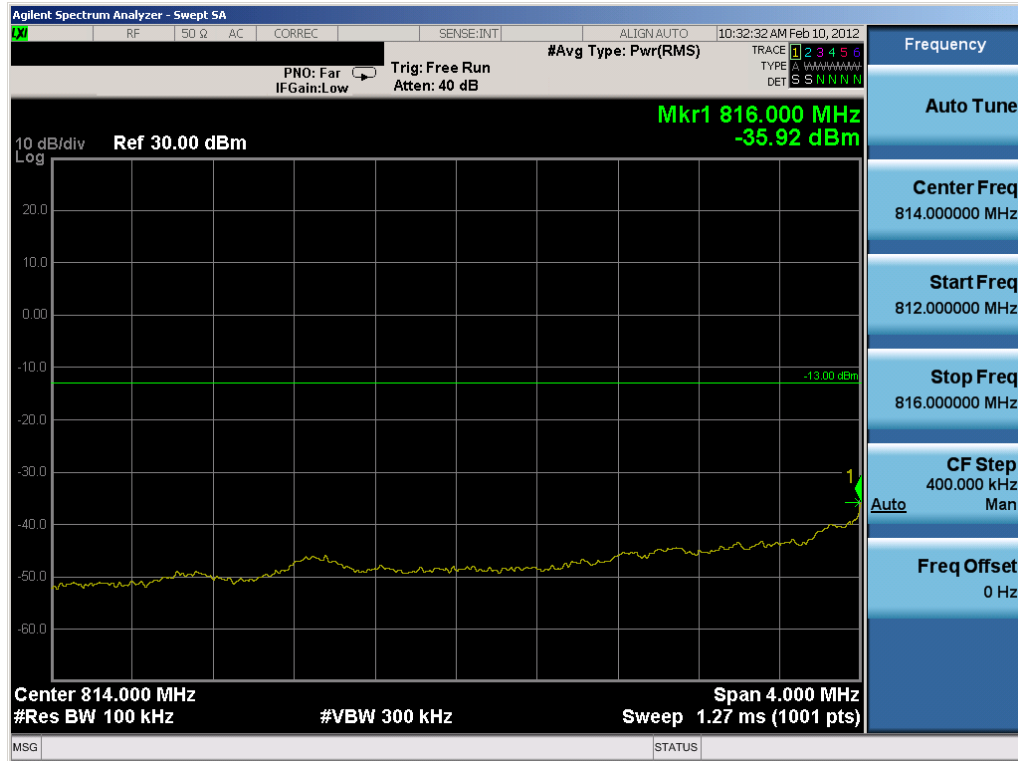


Plot 7-3. Channel Edge Plot (BC10 CDMA Ch. 476) - §90.691

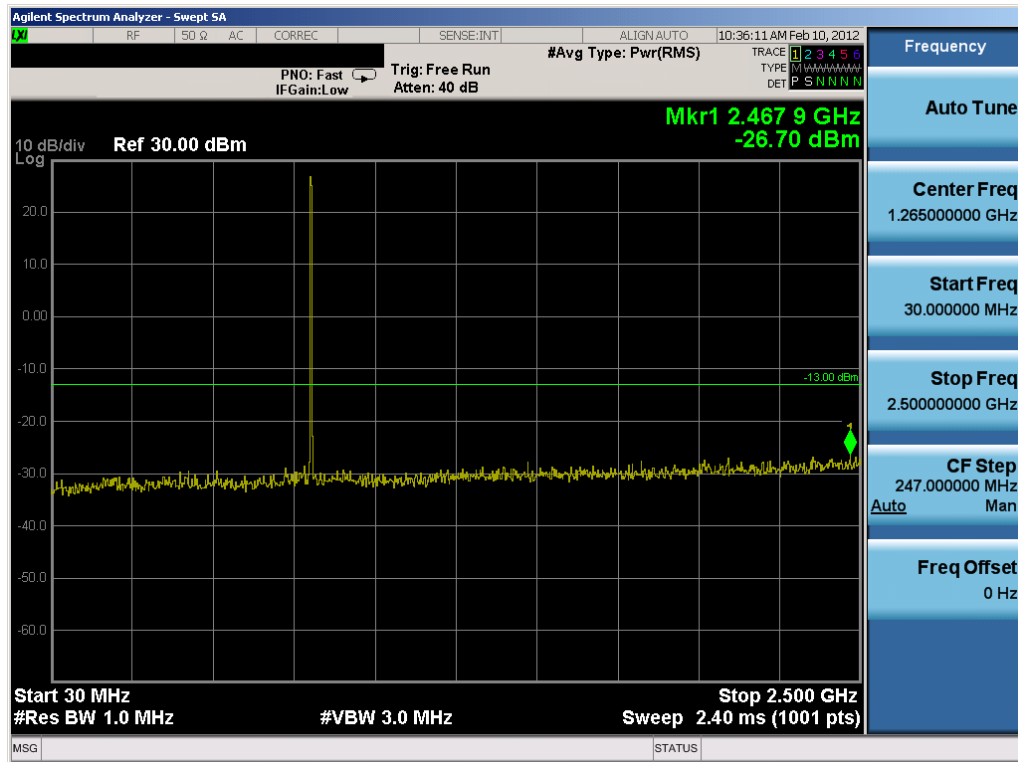


Plot 7-4. Interior Channel Edge Plot (BC10 CDMA Ch. 476) - §90.691

FCC ID: ZNFLS696	PCTEST ENGINEERING LABORATORY, INC.	BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		LG	Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset			Page 17 of 22

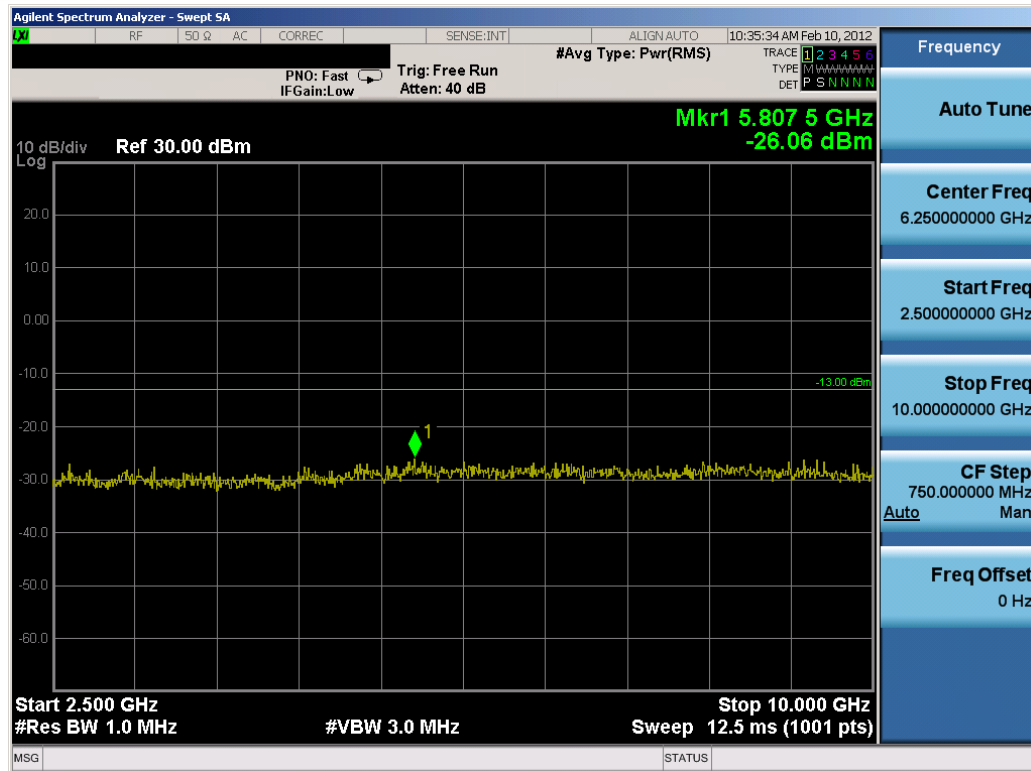


Plot 7-5. 4MHz Span Plot (BC10 CDMA Ch. 476)

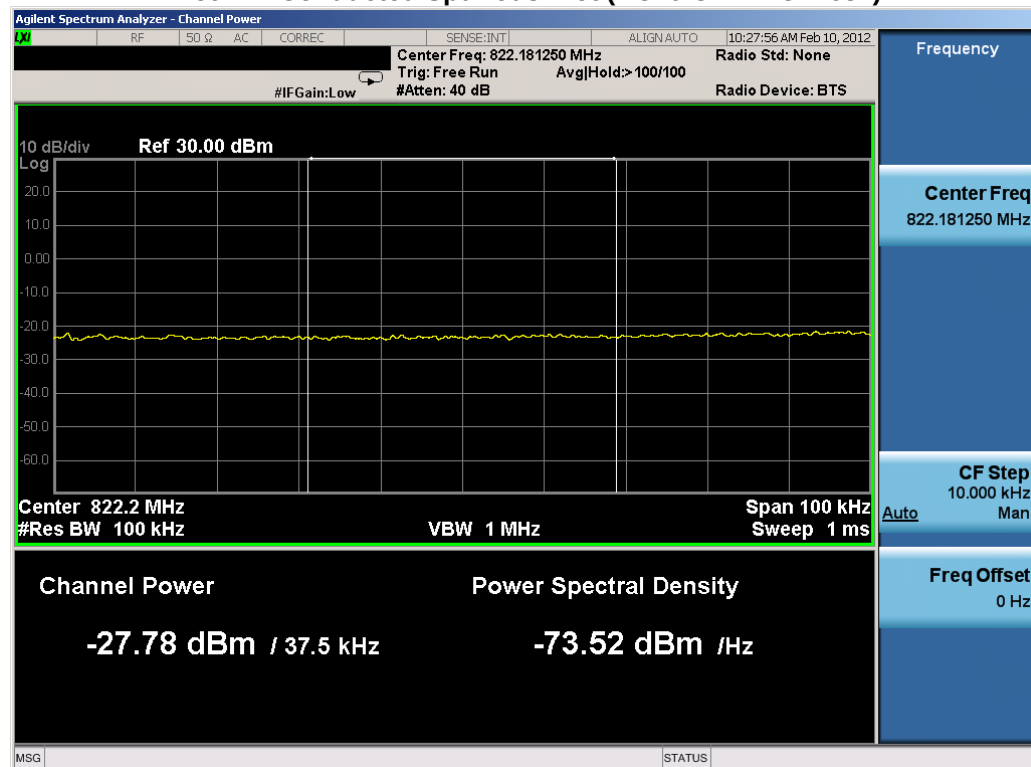


Plot 7-6. Conducted Spurious Plot (BC10 CDMA Ch. 684)

FCC ID: ZNFLS696	PCTEST ENGINEERING LABORATORY, INC.	BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		LG	Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset			Page 18 of 22

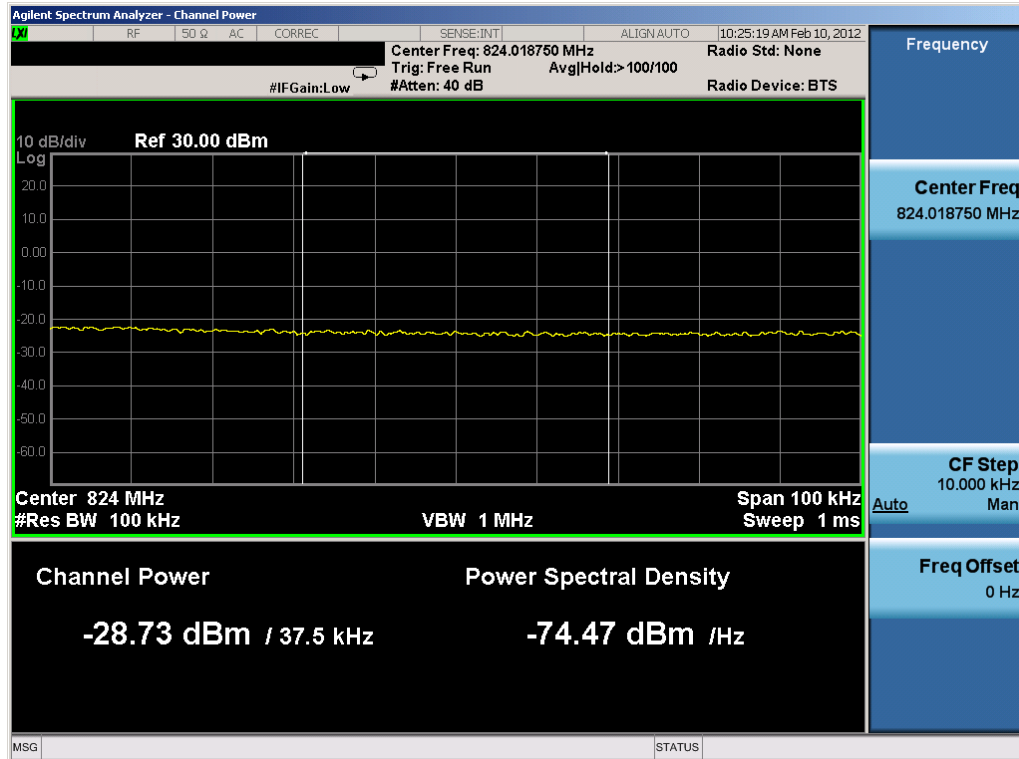


Plot 7-7. Conducted Spurious Plot (BC10 CDMA Ch. 684)

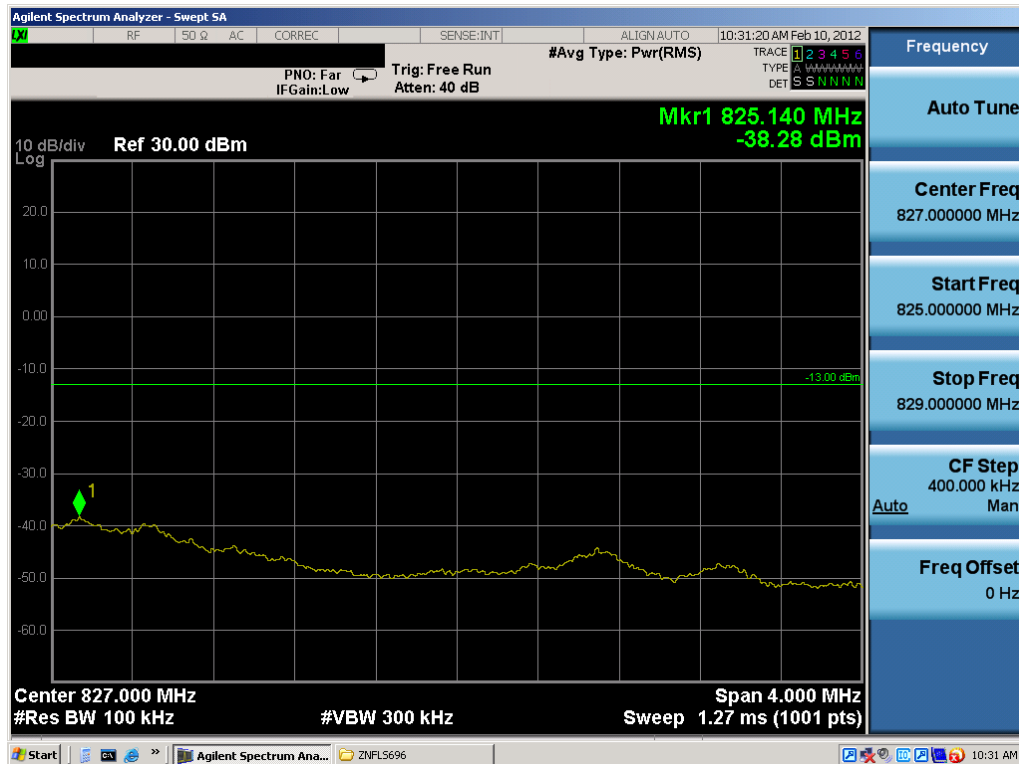


Plot 7-8. Interior Channel Edge Plot (BC10 CDMA Ch. 684) - §90.691

FCC ID: ZNFLS696	 BC10 CDMA MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 19 of 22

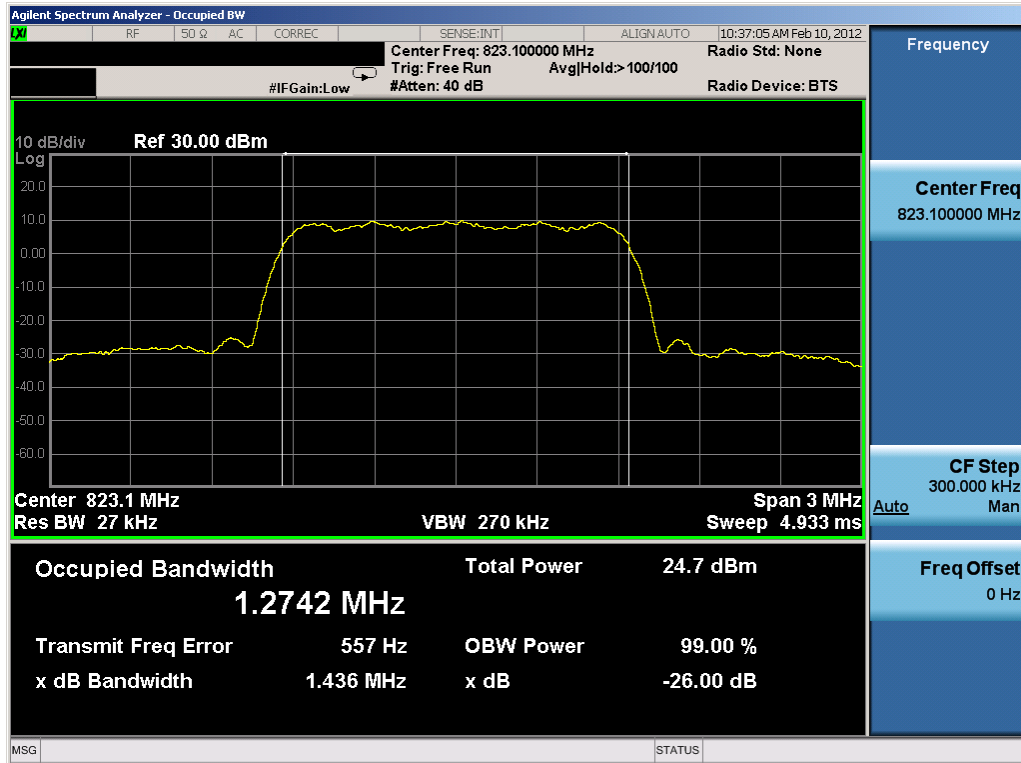


Plot 7-9. Channel Edge Plot (BC10 CDMA Ch. 684) - §90.691



Plot 7-10. 4MHz Span Plot (BC10 CDMA Ch. 684)

FCC ID: ZNFLS696	PCTEST ENGINEERING LABORATORY, INC.	BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset			Page 20 of 22



Plot 7-11. Occupied Bandwidth Plot (BC10 CDMA Ch. 684)

FCC ID: ZNFLS696	BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset		Page 21 of 22

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFLS696** complies with all the requirements of Parts 90 of the FCC rules.

FCC ID: ZNFLS696		BC10 CDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1111232033.ZNF	Test Dates: Nov. 29, 2011 - Feb. 10, 2012	EUT Type: Portable Handset	Page 22 of 22	