

PCTEST ENGINEERING LABORATORY, INC.

7185 Oakland Mills Road, Columbia, MD 21046 USA Tel. 410.290.6652 / Fax 410.290.6654 http://www.pctestlab.com



MEASUREMENT REPORT

FCC Part 22, 24

Applicant Name:

LG Electronics MobileComm U.S.A 1000 Sylvan Avenue Englewood Cliffs, NJ 07632 United States Date of Testing: 5/20 - 5/22/2013 Test Site/Location: PCTEST Lab., Columbia, MD, USA Test Report Serial No.: 0Y1305140842.ZNF

FCC ID:

ZNFLS980

APPLICANT:

LG ELECTRONICS MOBILECOMM U.S.A

Application Type: Model(s): EUT Type: FCC Classification: FCC Rule Part(s): Test Procedure(s): Test Device Serial No.:

Certification LS-980, LGLS980 Portable Handset PCS Licensed Transmitter Held to Ear (PCE) §2 §22(H) §24(E) ANSI/TIA-603-C-2004, KDB 971168 *identical prototype* [S/N: RF1]

			ERP/EIRP	
Mode	Tx Frequency (MHz)	Emission Designator	Max. Power (W)	Max. Power (dBm)
GSM850	824.2 - 848.8	244KGXW	0.566	27.53
EDGE850	824.2 - 848.8	237KG7W	0.160	22.05
GSM1900	1850.2 - 1909.8	248KGXW	0.701	28.46
EDGE1900	1850.2 - 1909.8	242KG7W	0.195	22.89
CDMA850	824.70 - 848.31	1M27F9W	0.096	19.80
CDMA1900	1851.25 - 1908.75	1M28F9W	0.146	21.64
WCDMA850	826.4 - 846.6	4M14F9W	0.073	18.65
WCDMA1900	1852.4 - 1907.6	4M15F9W	0.168	22.24

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.

Randy Ortanez President



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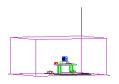
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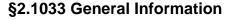
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APPLICANT:	LG Electronics Mobile	LG Electronics MobileComm U.S.A		
APPLICANT ADDRESS:	1000 Sylvan Avenue			
	Englewood Cliffs, NJ	07632, United Sta	ates	
TEST SITE:	PCTEST ENGINEERI	NG LABORATO	RY, INC.	
TEST SITE ADDRESS:	7185 Oakland Mills Ro	oad, Columbia, M	ID 21046 USA	
FCC RULE PART(S):	§2 §22(H) §24(E)			
BASE MODEL:	LS-980			
FCC ID:	ZNFLS980			
FCC CLASSIFICATION:	PCS Licensed Transm	nitter Held to Ear	(PCE)	
MODE:	GSM / EDGE / CDMA	/ WCDMA		
FREQUENCY TOLERANCE:	±0.00025 % (2.5 ppm))		
Test Device Serial No.:	RF1	Production	Pre-Production	Engineering
DATE(S) OF TEST:	5/20 - 5/22/2013			
TEST REPORT S/N:	0Y1305140842.ZNF			

Test Facility / Accreditations

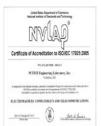
Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- 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 and Industry Canada (2451B-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.
- ۲ _shipd due
 - 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 Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and

- PCTEST facility is an IC registered (2451B-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 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'I (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 C63.4-2009 on February 15, 2012.

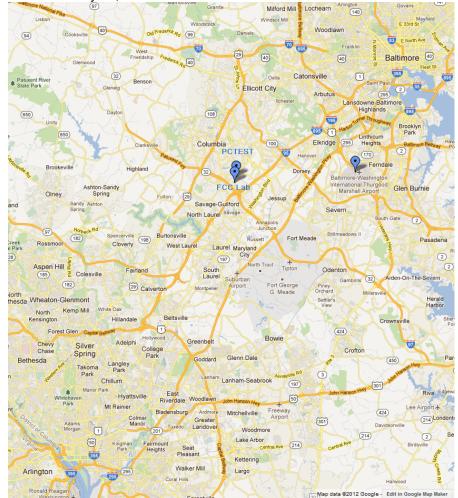


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFLS980**. The test data contained in this report pertains only to the emissions due to the EUT's 2G/3G licensed transmitters.

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC1), 850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Band 25 (3,5,10MHz), 26 (1.4,3,5,10 MHz), 41 (10,15,20 MHz) LTE, 802.11a/b/g/n/ac WLAN (DTS/NII), Bluetooth (1x,EDR, LE), NFC

2.3 Test Configuration

The LG Portable Handset FCC ID: ZNFLS980 was tested per the guidance of ANSI/TIA-603-C-2004 and KDB 971168. See Section 3.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

2.4 EMI Suppression Device(s)/Modifications

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

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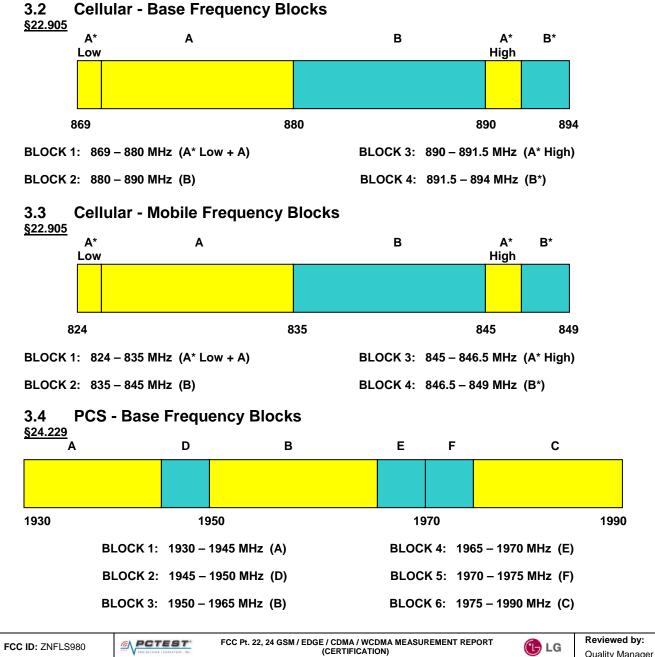


DESCRIPTION OF TESTS 3.0

Evaluation Procedure 3.1

The measurement procedures described in the "Land Mobile FM or PM - Communications Equipment -Measurements and Performance Standards" (ANSI/TIA-603-C-2004) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168) were used in the measurement of the LG Portable Handset FCC ID: ZNFLS980.

Deviation from Measurement Procedure.....None



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<u>§24.229</u> D Ε F С Α В 1850 1870 1890 BLOCK 1: 1850 - 1865 MHz (A) BLOCK 4: 1885 - 1890 MHz (E) BLOCK 2: 1865 - 1870 MHz (D) BLOCK 5: 1890 - 1895 MHz (F)

3.5 **PCS - Mobile Frequency Blocks**

BLOCK 3: 1870 - 1885 MHz (B)

3.6 **Occupied Bandwidth**

§2.1049 RSS-Gen(4.6.1) RSS-133(2.3)

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 spectrum analyzers' "occupied bandwidth" measurement function was used to record the occupied bandwidth in accordance with KDB 971168.

3.7 Spurious and Harmonic Emissions at Antenna Terminal §2.1051 §22.917(a) §24.238(a) RSS-132(4.5.1) RSS-133(6.5.1)

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 100 kHz or greater for Part 22 and 1 MHz or greater for Part 24. 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.

3.8 Radiated Power and Radiated Spurious Emissions §2.1053 §22.913(a.2) §22.917(a) §24.232(c) §24.238(a) RSS-132(4.4) RSS-132(4.5.1) RSS-133(6.4) RSS-133(6.5.1)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An ETS Lindgren Model 2188 raised turntable is used for radiated measurement. It is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 78cm high PVC support structure is placed on top of the turntable. A 3/4" (~1.9cm) sheet of high density polvethylene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.

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1910

BLOCK 6: 1895 - 1910 MHz (C)



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 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. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168.

Per the guidance of ANSI/TIA-603-C-2004, 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:

 $P_{d [dBm]} = P_{g [dBm]} - cable loss_{[dB]} + antenna gain_{[dBd/dBi]}$

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 $P_{g \text{ [dBm]}}$ – cable loss $_{\text{[dB]}}$.

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 + 10log₁₀(Power _[Watts]) specified in 22.917(a) and 24.238(a).

3.9 Peak-Average Ratio

§24.232(d) RSS-132(5.4) RSS-133(6.4)

A peak to average ratio measurement is performed at the conducted port of the EUT. 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.

For pulsed signals, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power. For continuous signals, the trigger is set to "free run" in the CCDF measurement mode.

3.10 Frequency Stability / Temperature Variation §2.1055 §22.355 §22.863 §22.905 §24.229 §24.235 RSS-132(4.3) RSS-133(6.3)

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-C-2004. 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.

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Specification – For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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 fifteen minutes 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
-	LTx1	Licensed Transmitter Cable Set	1/17/2013	Annual	1/17/2014	N/A
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	3/29/2013 Annual 3/29/2014			N/A
Agilent	8447D	Broadband Amplifier	6/8/2012	Annual	6/8/2013	2443A01900
Agilent	N9020A	MXA Signal Analyzer	10/9/2012	Annual	10/9/2013	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	1/11/2013	Annual	1/11/2014	MY52350166
Anritsu	MA2411B	Pulse Sensor	9/19/2012	Annual	9/19/2013	1027293
Anritsu	ML2495A	Power Meter	10/11/2012	Annual	10/11/2013	1039008
Espec	ESX-2CA	Environmental Chamber	4/16/2013	Annual	4/16/2014	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	7/22/2011 Biennial		125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	11/7/2012 Biennial 1		11/7/2014	128338
Mini-Circuits	VHF-1200+	High Pass Filter	1/17/2013 Annual :		1/17/2014	30923
Mini-Circuits	VHF-3100+	High Pass Filter	1/17/2013	Annual	1/17/2014	30841
Mini-Circuits	SSG-4000HP	USB Synthesized Signal Generator		N/A		11208010032
Mini-Circuits	PWR-SENS-4RMS	USB Power Sensor	4/17/2013	Annual	4/17/2014	11210140001
Mini-Circuits	TVA-11-422	RF Power Amp		N/A		QA1303002
Rohde & Schwarz	CMU200	Base Station Simulator		N/A		836536/0005
Rohde & Schwarz	TS-PR18	1-18 GHz Pre-Amplifier	6/26/2012	Annual	6/26/2013	100071
Rohde & Schwarz	ESU26	EMI Test Receiver	2/25/2013	Annual	2/25/2014	100342
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	
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012 Triennial 3/5/2015		N/A	
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/26/2012	Biennial	1/26/2014	A051107

Table 4-1. Test Equipment

Notes:

1. Equipment used for signaling with a calibration date of "N/A" shown in this list was only used for maintaining a link between the piece of equipment and the EUT. This equipment was not used to make direct calibrated measurements.

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5.0 SAMPLE CALCULATIONS

GSM Emission Designator

Emission Designator = 250KGXW

GSM BW = 250 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 250KG7W

EDGE BW = 250 kHz G = Phase Modulation 7 = Quantized/Digital Info W = Combination (Audio/Data)

CDMA 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)

WCDMA Emission Designator

Emission Designator = 4M16F9W

WCDMA BW = 4.16 MHz F = Frequency Modulation 9 = Composite Digital Info W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive 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 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm - (-24.80) = 50.3 dBc.

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6.0 TEST RESULTS

6.1 Summary

Company Name:	LG Electronics MobileComm U.S.A
FCC ID:	ZNFLS980
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	<u>GSM / EDGE / CDMA / WCDMA</u>

FCC Part Section(s)	Test Description Test Limit		Test Condition	Test Result	Reference
TRANSMITTER					
2.1049	Occupied Bandwidth	N/A		PASS	Section 7.0
2.1051 22.917(a) 24.238(a)	Band Edge / Conducted Spurious Emissions	> 43 + log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions	CONDUCTED	PASS	Section 7.0
24.232(d)	Peak-Average Ratio	< 13 dB	CONDUCTED	PASS	Section 7.0
2.1046	Transmitter Conducted Output Power	N/A		PASS	RF Exposure Report
22.913(a.2)	Effective Radiated Power	< 7 Watts max. ERP		PASS	Section 6.2
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		PASS	Section 6.3
2.1053 22.917(a) 24.238(a)	Undesirable Emissions	> 43 + log ₁₀ (P[Watts]) for all out- of-band emissions	RADIATED	PASS	Sections 6.4, 6.5, 6.6, 6.7, 6.8, 6.9
2.1055 22.355 24.235	.355 Frequency Stability <a>< 2.5 ppm (Part 22) Emission must remain in band (Part 24)		140	PASS	Sections 6.10, 6.11, 6.12, 6.13, 6.14, 6.15

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 Section 7.0 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 Cellular Effective Radiated Power (ERP) §22.913(a)(2) RSS-132(4.4) [SRSP-503(5.1.3)]

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.20	GSM850	Standard	22.32	4.59	Н	26.91	0.491	38.45	-11.54
836.60	GSM850	Standard	22.66	4.82	Н	27.48	0.560	38.45	-10.97
848.80	GSM850	Standard	22.48	5.05	Н	27.53	0.566	38.45	-10.92
848.80	EDGE850	Standard	17.00	5.05	Н	22.05	0.160	38.45	-16.40

Table 6-2. ERP (Cellular GSM)

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	CDMA850	Standard	14.83	4.60	н	19.43	0.088	38.45	-19.02
836.52	CDMA850	Standard	14.98	4.82	н	19.80	0.096	38.45	-18.65
848.31	CDMA850	Standard	14.51	5.04	Н	19.55	0.090	38.45	-18.90

Table 6-3. ERP (Cellular CDMA)

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	
826.40	WCDMA850	Standard	14.02	4.63	Н	18.65	0.073	38.45	-19.80	
836.60	WCDMA850	Standard	13.85	4.80	Н	18.65	0.073	38.45	-19.81	
846.60	WCDMA850	Standard	13.61	5.01	Н	18.62	0.073	38.45	-19.83	
	Table 6-4. ERP (Cellular WCDMA)									

- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active. 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 device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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6.3 PCS Equivalent Isotropically Radiated Power (EIRP) §22.913(a)(2) RSS-132(4.4) [SRSP-503(5.1.3)]

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.20	GSM1900	Standard	18.86	9.60	Н	28.46	0.701	33.01	-4.55
1880.00	GSM1900	Standard	17.86	9.53	Н	27.39	0.548	33.01	-5.62
1909.80	GSM1900	Standard	18.95	9.47	Н	28.42	0.695	33.01	-4.59
1850.20	EDGE1900	Standard	13.29	9.60	Н	22.89	0.195	33.01	-10.12

Table 6-4. EIRP (PCS GSM)

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1851.25	CDMA1900	Standard	11.96	9.60	н	21.56	0.143	33.01	-11.45
1880.00	CDMA1900	Standard	12.11	9.53	н	21.64	0.146	33.01	-11.37
1908.75	CDMA1900	Standard	11.71	9.47	Н	21.18	0.131	33.01	-11.83

Table 6-5. EIRP (PCS CDMA)

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	Standard	11.86	9.59	Н	21.45	0.140	33.01	-11.56
1880.00	WCDMA1900	Standard	12.71	9.53	Н	22.24	0.168	33.01	-10.77
1907.60	WCDMA1900	Standard	11.68	9.48	Н	21.16	0.130	33.01	-11.85
			Table 6-4. E	EIRP (PCS		AN)			

- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active. 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 device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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6.4 Cellular GSM Radiated Measurements §2.1053 §22.917(a) RSS-132(4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	824.2	20	MHz
CHANNEL:	128	3	_
MEASURED OUTPUT POWER:	26.91	dBm =	<u>0.491</u> W
MODULATION SIGNAL:	GSM (GMSK)		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	39.91	dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
		2. <u>6</u> 0		<u> H </u>	6 <u>7</u> .0
2472.60	46.11	2.90		<u>H_</u>	<u>70.1</u>
3296.80		5.44	51.31	Н	7 <u>8</u> .2
4121.00	-81.50	7.05	-74.45	<u> </u>	101.4
4945.20	-80.98	7.86	-73.12	H	100.0

 Table 6-6. Radiated Spurious Data (Cellular GSM Mode – Ch. 128)

- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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OPERATING FREQUENCY:	836.	60	MHz
CHANNEL:	190		_
MEASURED OUTPUT POWER:	27.48	dBm =	<u>0.560</u> W
MODULATION SIGNAL:	GSM (GMSK)		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	40.48	dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.20	-44.40	2.34	-42.06	<u> </u>	69.5
2509.80	-44.68	2.84	-41.84	<u> </u>	69.3
3346.40		5. <u>64</u> _	<u>-51.06</u>	Н	7 <u>8.5</u>
4183.00		7. <u>1</u> 5	74.51	Н	102.0
5019.60	-81.01	7.97	-73.04	Н	100.5

Table 6-7. Radiated Spurious Data (Cellular GSM Mode – Ch. 190)

- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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OPERATING FREQUENCY:	848.8	30	MHz
CHANNEL:	251		_
MEASURED OUTPUT POWER:	27.53	dBm =	<u>0.566</u> W
MODULATION SIGNAL:	GSM (GMSK)		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	40.53	dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1697.60	-45.98	2.08	-43.90	<u> </u>	71.4
2546.40	-46.30	3.17	-43.13	<u> </u>	70.7
3395.20	-57.33	5.84	51.49	н_	79.0
4244.00	-81.80	7.24		н_	102.1
5092.80	-80.78	8.03	-72.76	Н	100.3

Table 6-8. Radiated Spurious Data (Cellular GSM Mode – Ch. 251)

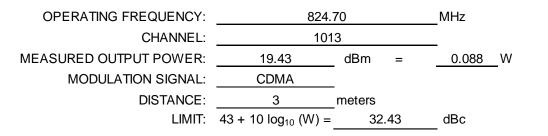
- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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6.5 Cellular CDMA Radiated Measurements §2.1053 §22.917(a) RSS-132(4.5.1)

Field Strength of SPURIOUS Radiation

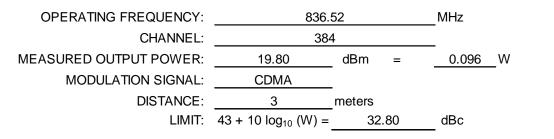


FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
	-50.29	2.59	47.71	<u> </u>	67.1
2474.10	-54.55	2.89	-51.66	<u> </u>	71.1
3298.80	-81.80	5.45	-76.35	<u>н</u>	95.8
4123.50	-81.51	7.05	-74.46	<u>н</u>	93.9
4948.20	-80.98	7.87	-73.12	Н	92.5

Table 6-9. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)

- 1) 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.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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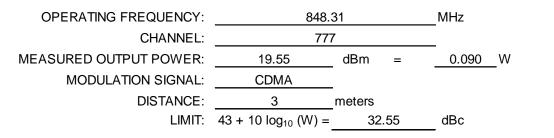


FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
		2. <u>3</u> 4	45.42	H	6 <u>5</u> .2
2509.56	52.52	2.84	49.69	H	<u>69.5</u>
3346.08		5.64	76.33	<u>н</u>	9 <u>6</u> .1
4182.60		7. <u>1</u> 4	-74.51	н_	94.3
5019.12	-81.01	7.97	-73.04	Н	92.8

Table 6-10. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

- 1) 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.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
		2. <u>0</u> 9	<u>-38.33</u>	<u> </u>	5 <u>7</u> .9
2544.93	52.56	<u>3.16</u>		H	<u>6</u> 9. <u>0</u>
3393.24		5.83	76.31	н_	95.9
4241.55	-81.79	7.24	-74.56	н_	94.1
5089.86	-80.79	8.02	-72.77	н	92.3

Table 6-11. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)

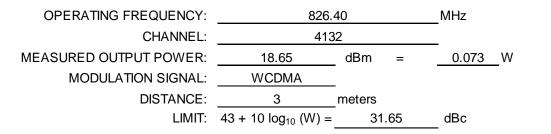
- 1) This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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6.6 Cellular WCDMA Radiated Measurements §2.1053 §22.917(a) RSS-132(4.5.1)

Field Strength of SPURIOUS Radiation

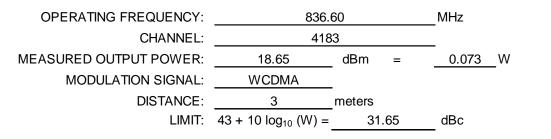


FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1652.80	-57.10	2.55	-54.55	<u> </u>	73.2
2479.20	-79.80	2.86	-76.93	<u> </u>	95.6
3305.60	-81.82	5.48	-76.35	<u> </u>	95.0
4132.00	-81.53	7.06	-74.46	<u>н</u>	93.1
4958.40	-81.00	7.88	-73.12	Н	91.8

Table 6-12. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)

- 1) This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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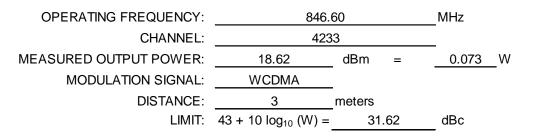


FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
		2. <u>3</u> 7	<u>-5</u> 4.73	H	7 <u>3</u> .4
2509.80	79.73	2.80		H	95.6
3346.40		5.62	- <u>76.35</u>	<u>н</u>	95.0
4183.00		7. <u>1</u> 3	74.46	н_	9 <u>3</u> .1
5019.60	-81.07	7.96	-73.12	Н	91.8

Table 6-13. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)

- 1) This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

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FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
		2. <u>1</u> 3	<u>-53.3</u> 1	<u> </u>	7 <u>1.9</u>
2539.80	80.05	<u>3.11</u>	-76.93	H	<u>9</u> 5. <u>6</u>
3386.40		5.80	76.35	<u>н</u>	95.0
4233.00		7.22	-74.46	н_	93.1
5079.60	-81.13	8.01	-73.12	Н	91.7

Table 6-14. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)

- 1) This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Demo 24 of 94
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6.7 PCS GSM Radiated Measurements §2.1053 §24.238(a) RSS-133(6.5.2)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1850.	.20	MHz
CHANNEL:	512	2	_
MEASURED OUTPUT POWER:	28.46	dBm =	<u>0.701</u> W
MODULATION SIGNAL:	GSM (GMSK)		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	41.46	dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
37_00.40	<u>-53.31</u> _	<u> </u>	44.91	H	7 <u>3</u> .4
5550.60	52.88	10.62		<u> </u>	<u>70.7</u>
7400.80		11.82	<u>-38.12</u>	н_	66.6
9251.00	-40.44	13.30	-27.14	<u>н</u>	55.6
11101.20	-47.41	13.50	-33.91	H	62.4

Table 6-15. Radiated Spurious Data (PCS GSM Mode – Ch. 512)

- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	.G	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 25 of 94
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	OPERATING FREQUENCY:		1880.00		MHz	
	CHANNEL:		66^	1	_	
MEASURED OUTPUT POWER:		27.39	dBm =	0.548	W	
	MODUL	ATION SIGNAL:	GSM (GMSK)			
		DISTANCE:	3	meters		
		LIMIT:	$43 + 10 \log_{10} (W) =$	40.39	dBc	
ī						
	FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
		ANTENNA TERMINALS	ANTENNA GAIN	EMISSION LEVEL		(dBc) 7 <u>4.</u> 0

3760.00		8.42		<u>H</u> _	7 <u>4</u> .0	
5640.00	52.97	10.66	-42.31	<u> </u>	<u>69.7</u>	
7520.00		11.92	- <u>36.6</u> 1	Н	64.0	
9400.00	-41.40	13.24	28.16	н_	55.5	
11280.00	-50.10	13.49	-36.61	Н	64.0	

Table 6-16. Radiated Spurious Data (PCS GSM Mode - Ch. 661)

- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 26 of 91
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OPERATING FREQUENCY:	1909	.80	MHz
CHANNEL:	810		_
MEASURED OUTPUT POWER:	28.42	dBm =	<u>0.695</u> W
MODULATION SIGNAL:	GSM (GMSK)		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	41.42	dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3819.60	-52.03	8.57	-43.46	<u> </u>	71.9
5729.40	-58.93	10.69	-48.24	<u> </u>	76.7
7639.20	-57.27	12.07	-45.20	н_	73.6
9549.00	-80.84	13.20	<u>-67.64</u>	н_	96.1
11458.80	-77.84	13.42	-64.43	H	92.8

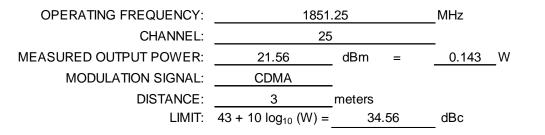
Table 6-17. Radiated Spurious Data (PCS GSM Mode – Ch. 810)

- 1) This device was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dego 27 of 91	
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6.8 PCS CDMA Radiated Measurements §2.1053 §24.238(a) RSS-133(6.5.2)

Field Strength of SPURIOUS Radiation

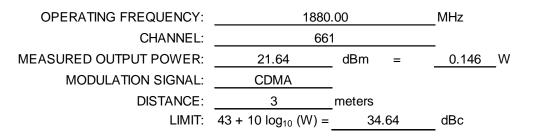


FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3702.50	<u>-51.91</u>	<u> </u>	43.51	H	6 <u>5</u> .1
5553.75	56.77	10.62		H	<u>67.7</u>
7405.00		11.82	- <u>68.20</u>	н_	8 <u>9</u> .8
9256.25	-79.41	13.30	-66.12	<u>н</u>	87.7
11107.50	-76.03	13.50	-62.53	H	84.1

Table 6-18. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)

- 1) 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.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	G Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 20 of 01	
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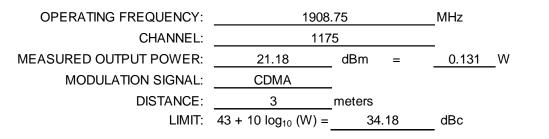


FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00		<u> </u>	41.29	H	6 <u>2</u> .9
5640.00	-57.30	10.66	-46.65	<u> </u>	<u>68.3</u>
7520.00		<u> </u>	- <u>68.20</u>	<u>н</u>	8 <u>9.8</u>
9400.00		13.24	<u>66.12</u>	н_	87.8
11280.00	-76.02	13.49	-62.53	H	84.2

Table 6-19. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)

- 1) 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.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3817.50		8.57		н_	59.2
5726.25	53.62	10.69		H	<u>64.1</u>
7635.00	-55.25	12.06	43.19	н_	64.4
9543.75	-79.32	13.20	<u>-66.12</u>	<u>н</u>	87.3
11452.50	-75.95	13.42	-62.53	н	83.7

Table 6-20. Radiated Spurious Data (PCS CDMA Mode - Ch. 1175)

- 1) 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.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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6.9 PCS WCDMA Radiated Measurements

<u>§2.1053 §24.238(a) RSS-133(6.5.2)</u>

Field Strength of SPURIOUS Radiation

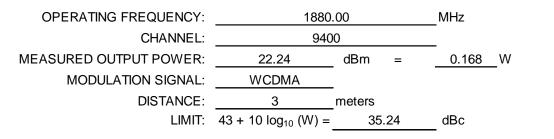
OPERATING FREQUENCY:	1852.	.40	MHz
CHANNEL:	926	2	_
MEASURED OUTPUT POWER:	21.45	dBm =	<u>0.140</u> W
MODULATION SIGNAL:	WCDMA		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	34.45	dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3704.80		<u> </u>	<u>-3</u> 3. <u>7</u> 5	H	5 <u>5</u> .2
5557.20	56.70	10.62		H	<u>6</u> 7.5
7409.60		11.83	<u>-68.19</u>	н_	89.6
9262.00	-79.40	13.30	-66.10	<u>н</u>	87.6
11114.40	-76.02	13.50	-62.52	H	84.0

Table 6-21. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)

- 1) This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 21 of 91
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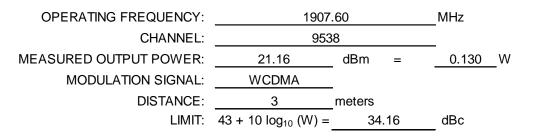


FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00		<u> </u>	- <u>3</u> 4.89	H	5 <u>7</u> .1
5640.00	55.55	10.66		H	<u>67.1</u>
7520.00		11.92	<u>-68.19</u>	<u>н</u>	90.4
9400.00		13.24	- <u>66.10</u>	н_	8 <u>8</u> .3
11280.00	-76.01	13.49	-62.52	Н	84.8

Table 6-22. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)

- 1) This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 22 of 94
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FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3815.20		<u>8.5</u> 6		H	6 <u>1.3</u>
5722.80	54.92	10.69		H	<u>65.4</u>
7630.40		12.06	<u>-68.19</u>	<u>н</u>	89.3
9538.00	-79.30	13.20	<u>-66.10</u>	Н	87.3
11445.60	-75.94	13.42	-62.52	Н	83.7

Table 6-23. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9538)

- 1) This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configuration was found with the EUT in the [H] position. The data reported in the table above was measured in this test setup.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 22 of 91
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6.10 Cellular GSM Frequency Stability Measurements §2.1055 §22.355 RSS-132(4.3)

OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: ______190

REFERENCE VOLTAGE: 3.80 VDC

DEVIATION LIMIT:	± 0.00025	% or 2.5 ppm

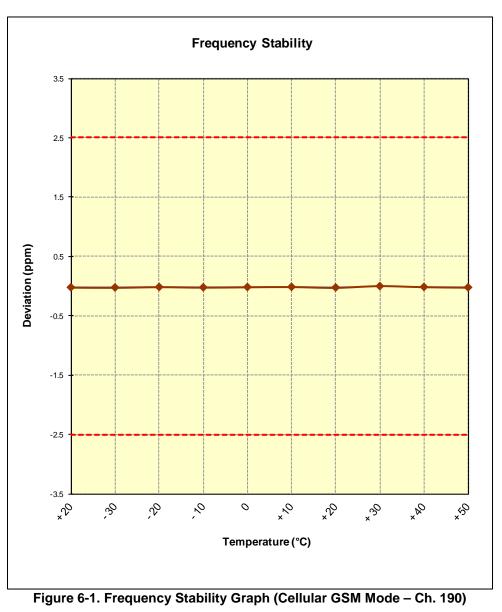
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 <u>%</u>	3.80	<u>+ 20 (Ref</u>)	836,599,982	<u>-18</u>	<u>-0.0000021</u>
<u>100 %</u>		<u>3</u> 0	836,599,980	-20	-0.0000023
100 %		<u>2</u> 0	836,599,987	-13	-0.0000015
100 %		- 10	836,599,982	-18	-0.0000021
100 %		0	836,599,986	-14	-0.0000016
100 %		+ 10	836,599,989	-11	-0.0000013
100 %		+ 20	836,599,980	-20	-0.0000024
<u>100 %</u>		+ <u>30</u>	_ 8 <u>36,599,999</u> _		-0.0000001
1 <u>00 %</u>		<u>+ 40</u>	836,599,987	<u>-13</u>	-0.0000015
<u>100 %</u>		+ <u>5</u> 0	_ 8 <u>36,599,982</u> _	18	-0.0000022
<u>115 %</u>	4.37	+ <u>2</u> 0	836,599,993	7	-0.0000008
BATT. ENDPOINT	3.40	+ 20	836,599,990 Sata (Cellular GSN	-10	-0.0000012

Table 6-24. Frequency Stability Data (Cellular GSM Mode – Ch. 190)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 24 of 94	
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Cellular GSM Frequency Stability Measurements (Cont'd) §2.1055 §22.355 RSS-132(4.3)



FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 25 of 91	
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6.11 Cellular CDMA Frequency Stability Measurements §2.1055 §22.355 RSS-132(4.3)

OPERATING FREQUENCY: 836,520,000 Hz

CHANNEL: _______ 384

REFERENCE VOLTAGE: 3.8 VDC

DEVIATION LIMIT:	± 0.00025	% or 2.5 ppm
		/ • • · = · • pp

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 <u>%</u>	3.80	<u>+ 20 (Ref</u>)	836,519,985	<u>-15</u>	-0.0000018
<u>100 %</u>		<u>3</u> 0	836,519,985	-1 <u>5</u>	-0.0000018
100 %		<u>2</u> 0	836,519,996	4	-0.0000005
100 %		- 10	836,519,992	8	-0.0000009
100 %		0	836,519,999	1	-0.0000001
100 %		+ 10	836,519,984	-16	-0.0000019
100 %		+ 20	836,519,996	4	-0.0000005
_ <u>100 %</u>		+ <u>30</u>	_ 8 <u>36,519,990</u> _	10	-0.0000012
1 <u>00 %</u>		<u>+ 40</u>	<u>836,519,980</u>	<u>-20</u>	-0.0000024
_ <u>100 %</u>		+ <u>5</u> 0	836,519,990	10	-0.0000012
<u>115 %</u>	4.37	+ <u>2</u> 0	_ 8 <u>36,519,9</u> 94_	6	-0.0000008
BATT. ENDPOINT	3.40	+ 20	836,519,999 ata (Cellular CDM	-1	-0.0000001

Table 6-25. Frequency Stability Data (Cellular CDMA Mode – Ch. 384)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 26 of 94	
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 36 of 81	
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Cellular CDMA Frequency Stability Measurements (Cont'd) §2.1055 §22.355 RSS-132(4.3)

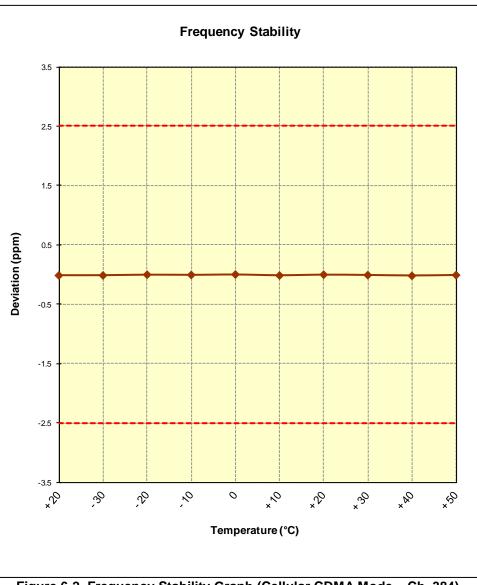


Figure 6-2. Frequency Stability Graph (Cellular CDMA Mode – Ch. 384)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 27 of 94	
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 37 of 81	
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6.12 Cellular WCDMA Frequency Stability Measurements §2.1055 §22.355 RSS-132(4.3)

OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: _____ 4183

REFERENCE VOLTAGE: 3.8 VDC

DEVIATION LIMIT: <u>± 0.00025</u> % or 2.5 ppr	m
--	---

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	<u>+ 20 (Ref</u>)	836,599,994	<u> </u>	-0.0000007
<u>100 %</u>		<u>3</u> 0	836,599,993	7	-0.0000008
<u>100 %</u>		<u>2</u> 0	_ 8 <u>36,599,9</u> 81_	19	-0.0000023
100 <u>%</u>		- 10	836,599,988		-0.0000015
100 %		0	836,599,988	-12	-0.0000015
100 %		+ 10	836,599,997	-3	-0.0000004
100 %		+ 20	836,599,981	-19	-0.0000023
100 %		+ 30	836,599,993	-7	-0.0000008
1 <u>00 %</u>		<u>+ 40</u>	836,599,980		-0.0000023
_ <u>100 %</u>		+ <u>5</u> 0	_ 8 <u>36,599,9</u> 82_	18	-0.0000021
<u>115 %</u>	4.37	+ <u>2</u> 0	_ 8 <u>36,599,9</u> 91_	9	-0.0000011
BATT. ENDPOINT	3.40	+ 20	836,599,981	-19	-0.0000023

 Table 6-26. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 91
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 38 of 81
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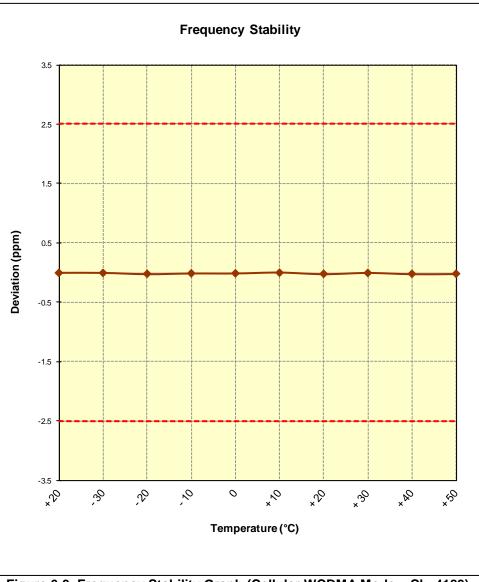


Figure 6-3. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 81	
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 39 of 81	
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6.13 PCS GSM Frequency Stability Measurements §2.1055 §24.235 RSS-139(6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: ______ 661

REFERENCE VOLTAGE: <u>3.8</u> VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
1 <u>00 %</u>	3.80	<u>+ 20 (Ref</u>)	<u>1,879,999,998</u>	2	-0.0000001
_ <u>100 %</u>		<u>3</u> 0	_1, <u>879,999,991</u>	9	0 <u>.0000005</u>
100 %		- 20	1,879,999,983	17	-0.0000009
100 %		- 10	1,879,999,990	-10	-0.0000005
100 %		0	1,879,999,994	-6	-0.0000003
100 %		+ 10	1,879,999,996	4	-0.0000002
100 %		+ 20	1,879,999,989	-11	-0.0000006
100 %		+ 30	1,879,999,983	-17	-0.0000009
1 <u>00 %</u>		<u>+ 40</u>	<u>1,879,999,983</u>	17	-0.0000009
<u> </u>		+ <u>5</u> 0	_1,879,999,986	14	-0.0000007
115 %	4.37	+ 20	1,879,999,986	-14	-0.0000007
BATT. ENDPOINT	3.40	+ 20	1,879,999,990	-10	-0.0000006

Table 6-27. Frequency Stability Data (PCS GSM Mode - Ch. 661)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 40 af 04
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 40 of 81
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PCS GSM Frequency Stability Measurements (Cont'd) §2.1055 §24.235 RSS-139(6.3)

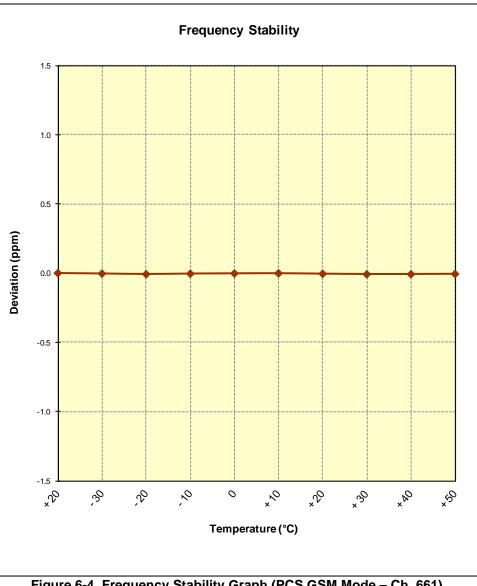


Figure 6-4. Frequency Stability Graph (PCS GSM Mode – Ch. 661)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 41 of 91	
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 41 of 81	
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6.14 PCS CDMA Frequency Stability Measurements §2.1055 §24.235 RSS-139(6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 661

REFERENCE VOLTAGE: <u>3.8</u> VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
1 <u>00 %</u>	3.80	<u>+ 20 (Ref</u>)	<u>1,879,999,995</u>	<u>-</u> 5	-0.0000003
<u>100 %</u>		<u>3</u> 0	_1, <u>879,999,984</u>	16	-0.0000009
100 %		- 20	1,879,999,984	-16	-0.0000009
100 %		- 10	1,879,999,984	-16	-0.0000009
100 %		0	1,879,999,996	-4	-0.0000002
100 %		+ 10	1,879,999,986	-14	-0.0000007
100 %		+ 20	1,879,999,998	-2	-0.0000001
100 %		+ 30	1,879,999,989	-11	-0.0000006
1 <u>00 %</u>		<u>+ 40</u>	<u>1,879,999,993</u>	7	-0.0000004
<u>100 %</u>		+ <u>5</u> 0	_1,879,999,994	6	0 <u>.0000003</u>
<u> </u>	4.37	+ 20	1,879,999,991	9	-0.0000005
BATT. ENDPOINT	3.40	+ 20	1,879,999,997	-3	-0.0000002

Table 6-28. Frequency Stability Data (PCS CDMA Mode – Ch. 600)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 42 of 94
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PCS CDMA Frequency Stability Measurements (Cont'd) §2.1055 §24.235 RSS-139(6.3)

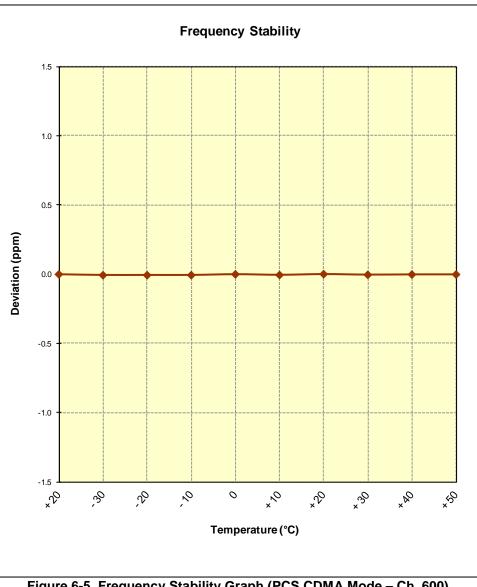


Figure 6-5. Frequency Stability Graph (PCS CDMA Mode – Ch. 600)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 42 of 94	
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 43 of 81	
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6.15 PCS WCDMA Frequency Stability Measurements §2.1055 §24.235 RSS-139(6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 9400

REFERENCE VOLTAGE: <u>3.8</u> VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
1 <u>00 %</u>	3.80	<u>+ 20 (Ref</u>)	<u>1,879,999,984</u>	16	-0.0000009
<u>100 %</u>		<u>3</u> 0	_1, <u>879,999,993</u>	7	-0.0000004
100 %		- 20	1,879,999,997	-3	-0.0000002
100 %		- 10	1,879,999,988	-12	-0.0000006
100 %		0	1,879,999,994	-6	-0.0000003
100 %		+ 10	1,879,999,999		-0.0000001
100 %		+ 20	1,879,999,989	-11	-0.0000006
100 %		+ 30	1,879,999,983	-17	-0.0000009
1 <u>00 %</u>		<u>+ 40</u>	<u>1,879,999,998</u>	2	-0.0000001
<u> </u>		+ <u>5</u> 0	_1,879,999,990	10	-0.0000005
115 %	4.37	+ 20	1,879,999,993	7	-0.0000004
BATT. ENDPOINT	3.40	+ 20	1,879,999,998	-2	-0.0000001

Table 6-29. Frequency Stability Data (PCS WCDMA Mode – Ch. 9400)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dama 44 af 04		
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 44 of 81		
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PCS WCDMA Frequency Stability Measurements (Cont'd) §2.1055 §24.235 RSS-139(6.3)

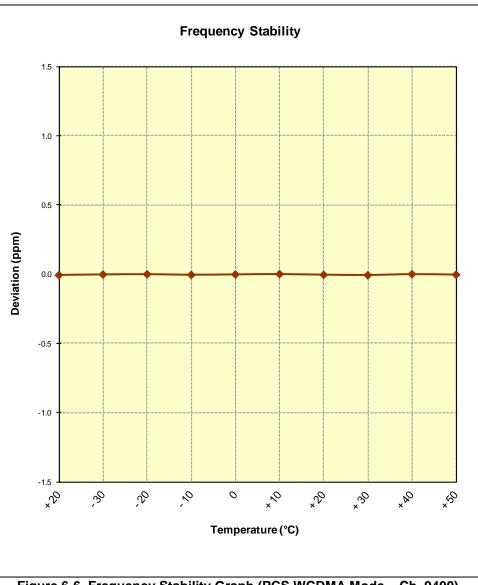


Figure 6-6. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager			
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0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 45 of 81			
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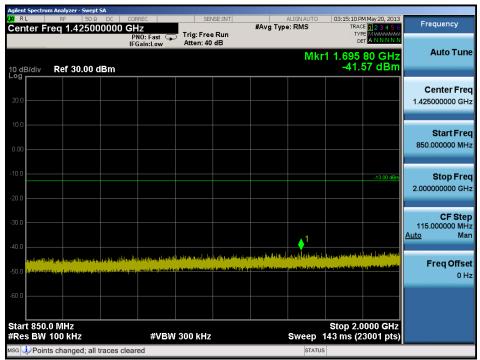
04/15/2013



7.0 PLOTS OF EMISSIONS

RL RF 50Ω DC enter Freq 426.500000	CORREC MHz PNO: Fast C IEGain:Low	SENSE:INT Trig: Free Run Atten: 40 dB	ALIGNAUTO #Avg Type: RMS	03:14:59 PM May 20, 2013 TRACE 12 3 4 5 6 TYPE M WWWWW DET A N N N N N	Frequency
dB/div Ref 30.00 dBm	IFGain:Low	Atten: 40 dB	MI	<r1 822.13="" mhz<br="">-40.21 dBm</r1>	Auto Tun
.0					Center Fre 426.500000 MH
.0					Start Fre 30.000000 MH
				-13.00 dBm	Stop Fre 823.000000 MH
0.0				1,	CF Ste 79.300000 M⊦ Auto Ma
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art 30.0 MHz Res BW 100 kHz		300 kHz		Stop 823.0 MHz 8.7 ms (20001 pts)	

Plot 7-1. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)



Plot 7-2. Conducted Spurious Plot (Cellular GSM Mode - Ch. 128)

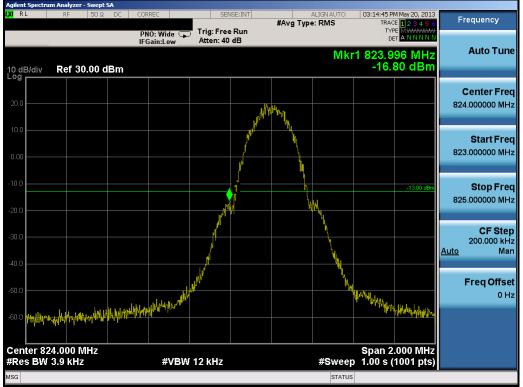
FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Daga 46 of 94			
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04/15/2013



	m Analyzer - !										
RL	RF	50 Ω DC	CORR	EC		ISE:INT	#Avg Type	ALIGNAUTO e: RMS	TRAC	M May 20, 2013	Frequency
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			100	111.2.0				M	kr1 2.47	3 5 GHz	Auto Tune
0 dB/div	Ref 10.	00 dBm							-19.	90 dBm	
.09											Center Fre
0.00											6.000000000 GH
10.0										-13.00 dBm	Start Fre
20.0	<u>\</u>										2.000000000 GH
.0.0											
30.0											Stop Fre
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40.0											
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											Freq Offs
70.0											0 H
30.0											
tart 2.00	0 GHz								Stop 10	.000 GHz	
	1.0 MHz			#VBW	3.0 MHz			Sweep ′	13.9 ms (1	6001 pts)	
SG								STATU	s		

Plot 7-3. Conducted Spurious Plot (Cellular GSM Mode - Ch. 128)



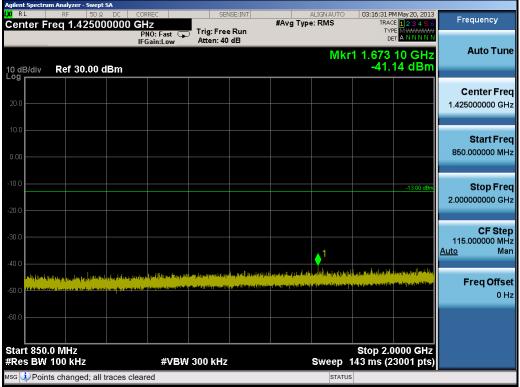
Plot 7-4. Band Edge Plot (Cellular GSM Mode – Ch. 128)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
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ter Freq 426.500000 MHz Trig: Free Run Auto Tune 3/div Ref 30.00 dBm 43.06 dBm 43.06 dBm Center Freq 3/div Ref 30.00 dBm 1 1 1 1 1 3/div Ref 30.00 dBm 1	Agilent Spectru	m Analyzer - Swept S RF 50 Ω		RREC	SEN	ISE:INT	ALIGNAUTO	03:16:16 P	M May 20, 2013	
Mkr1 719.00 MHz Auto Tune 3/div Ref 30.00 dBm 3/div Ref 30.00 dBm 426.50000 MHz 426.50000 Mz 426.5000 Mz 426.50000 Mz			000 MHz	NO: Fast 🗔	Trig: Free	Run		TRAC	123456	Frequency
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Image: Second	20.0									
Image:	0.00									
Image: State Stat	20.0								-13.00 dBm	
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	60.0									
t 30.0 MHz Stop 823.0 MHz s BW 100 kHz #VBW 300 kHz Sweep 98.7 ms (20001 pts)	itart 30.0			#\/D\M	300 642		Swoon_0	Stop 8	23.0 MHz	

Plot 7-5. Conducted Spurious Plot (Cellular GSM Mode - Ch. 190)



Plot 7-6. Conducted Spurious Plot (Cellular GSM Mode – Ch. 190)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 40 af 04	
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 48 of 81	
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glient Spectru // RL	um Analyzer - RF			RREC	CE	ISE:INT		ALIGNAUTO	00,16,55.0	M May 20, 2013	
RL	RF	1 20 22 1	F	NO: Fast 🗔	Trig: Free	e Run	#Avg Typ		TRAC	M May 20, 2013 E 1 2 3 4 5 6 PE M V M M M M	Frequency
0 dB/div	Ref 10	.00 dB		Gain:Low	Atten: 20	dB		M	kr1 2.51		Auto Tune
0.00											Center Fre 6.000000000 GH
10.0	↓1									-13.00 dBm	Start Fre 2.000000000 GH
40.0											Stop Fre 10.000000000 G⊢
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'0.0											Freq Offs 0 H
80.0											
itart 2.00 Res BW	00 GHz 1.0 MHz	,		#VBW	3.0 MHz			Sween	Stop 10 13.9 ms (1	.000 GHz 6001 pts)	
SG	102 101 14			/ TEM	640 mill2			STATU		aao i pia)	

Plot 7-7. Conducted Spurious Plot (Cellular GSM Mode - Ch. 190)



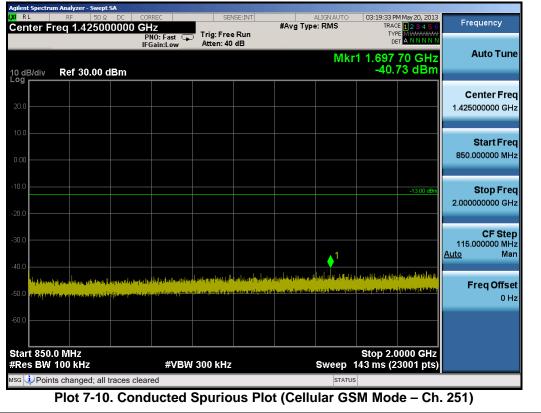
Plot 7-8. Occupied Bandwidth Plot (Cellular GSM Mode – Ch. 190)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 40 of 94
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 49 of 81
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XIRL	m Analyzer - Swept SA RF 50 Ω	DC CORREC		SENSE:1		ALIGNAUTO		M May 20, 2013	E
Center F	req 426.5000			rig: Free Ru Atten: 40 dB	Avg Type	: RMS	TYP	E 123456 E M WWWWW T A N N N N N	Frequency
10 dB/div	Ref 30.00 dE	Зm				MI	(r1 713. -43.)	01 MHz 24 dBm	Auto Tune
20.0									Center Fred 426.500000 MH;
0.00									Start Free 30.000000 MH
-10.0								-13.00 dBm	Stop Free 823.000000 MH:
30.0							<u> </u>		CF Stej 79.300000 MH <u>Auto</u> Ma
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-60.0							Stop 8	23.0 MHz	
#Res BW	100 kHz ts changed; all tra		#VBW 30	00 kHz		Sweep 9	8.7 ms (2	0001 pts)	

Plot 7-9. Conducted Spurious Plot (Cellular GSM Mode - Ch. 251)

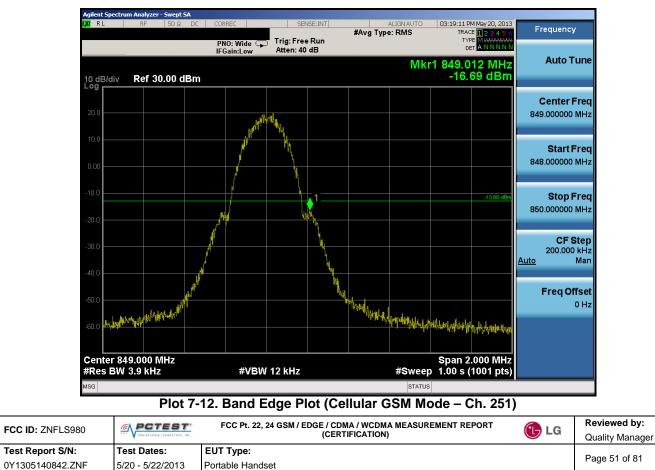


FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga E0 of 01
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 50 of 81
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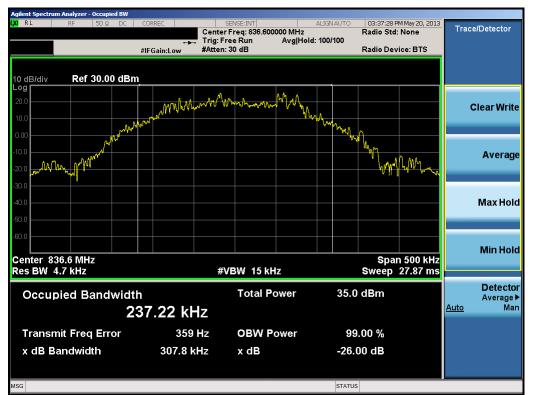


	um Analyzer - Swept							-		
L <mark>XI</mark> RL	RF 50 Ω	DC COF	IREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		M May 20, 2013	Frequency
			NO: Fast 🖵 Gain:Low	Trig: Free Atten: 20		•		TYF		
10 dB/div	Ref 10.00 c	IBm					Mł	(r1 2.54) -18.	7 0 GHz 87 dBm	Auto Tune
0.00										Center Freq 6.000000000 GHz
-10.0	↓1								-13.00 dBm	Start Freq 2.000000000 GHz
-30.0										Stop Freq 10.000000000 GHz
-50.0	en ya falyan bardi Mirana wa ang pana ang mirang ang ang			WW	ti Magailan (nigeral) ¹¹ Jacobil (pina) (الدوري الكامي المكتبي المعرب الكامي والكوري	l se plitike so plitike och prosistike so stillite och	l <mark>a</mark> and framework the second	CF Step 800.000000 MHz <u>Auto</u> Man
-70.0										Freq Offset 0 Hz
-80.0 Start 2.00								Stop 10	.000 GHz	
#Res BW	1.0 MHz		#VBW	3.0 MHz				3.9 ms (1	6001 pts)	
MSG							STATUS	6		

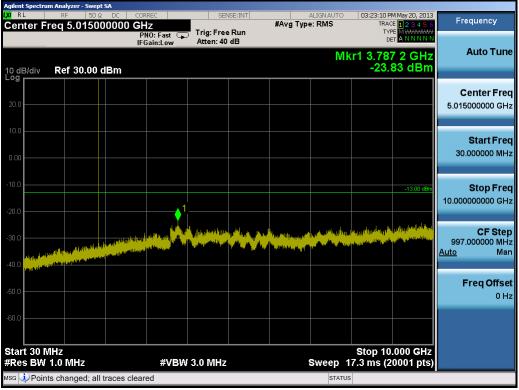
Plot 7-11. Conducted Spurious Plot (Cellular GSM Mode – Ch. 251)











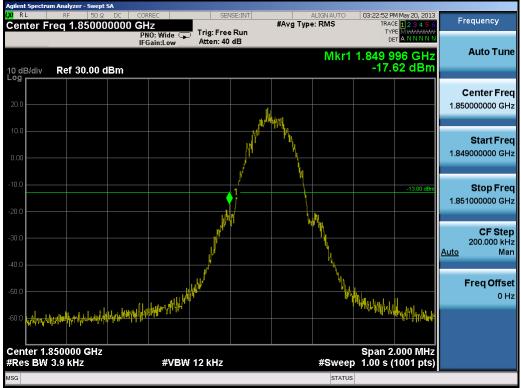
Plot 7-14. Conducted Spurious Plot (PCS GSM Mode – Ch. 512)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 52 of 94
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 52 of 81
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Agilent Spectru XI R L	m Analyzer - Swept SA RF 50 Ω D		SENSE:	INIT	ALIGNAUTO	03:23:24 PM May 20, 2013	
	req 15.000000		Trig: Free Ru Atten: 10 dB	#Avg Ty in	pe: RMS	TRACE 123456 TYPE M WWWWW DET A N N N N N	
10 dB/div _og	Ref 0.00 dBm				Mkr	1 16.054 5 GHz -46.76 dBm	Auto Tune
-09						-13.00 dBm	Center Fre 15.000000000 GH
20.0 30.0							Start Fre 10.000000000 GH
40.0	tis for the second s	And the same time of a state of	(Ritransk polov, táto _l t	1 The formation of the formation of the second s	had to fait the second second	alification and a state of the state of the	Stop Fre 20.000000000 GH
60.0 					alben pal ⁹⁴⁰ liniansk (nabelja	a falan yan ku ya mana ya fala ku ya ku mana ya ku mana ya ya ya	CF Ste 1.00000000 GH <u>Auto</u> Ma
30.0							Freq Offs 0 F
90.0						Stop 20 000 CHz	
Res BW		#VBW	3.0 MHz		Sweep 1	Stop 20.000 GHz 7.3 ms (20001 pts)	
ISG					STATUS	1	

Plot 7-15. Conducted Spurious Plot (PCS GSM Mode - Ch. 512)



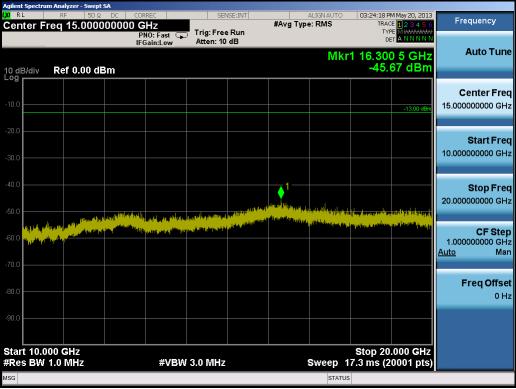
Plot 7-16. Band Edge Plot (PCS GSM Mode – Ch. 512)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 52 of 94
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 53 of 81
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	m Analyzer - Swep		_					-		
Center F	RF 50 ດ req 5.0150		REC		ISE:INT	#Avg Typ	ALIGNAUTO e: RMS	TRA	M May 20, 2013 CE <mark>1 2 3 4 5 6</mark>	Frequency
		PI	NO: Fast 🕞 Gain:Low	Trig: Free Atten: 40				TY D	PE MWWWWWW ET A N N N N N	
							MI	kr1 9.77	3 7 GHz	Auto Tune
10 dB/div Log	Ref 30.00	dBm						-23.	66 dBm	
LUg										Center Freq
20.0									<u> </u>	5.015000000 GHz
10.0										Start Freq
0.00										30.000000 MHz
0.00										
-10.0									-13.00 dBm	Stop Freq
										10.000000000 GHz
-20.0									<u> </u>	
-30.0				In a station	uh di Ac	والمراجع والمراجع	والبولال وال	h daga kan jada ka tu	a server the behavior	CF Step
-30.0	ر مرابط العبد برا ماداني	14 mail 14 hours in the state of the	Aria da cuerta da cue	and the second second		The stiffer of the second		الله و الألكرينة فالي وولاري ال		997.000000 MHz <u>Auto</u> Man
-40.0	Concerning of the International Station									
										Freq Offset
-50.0										0 Hz
-60.0										
-00.0										
	811-							<u> </u>		
Start 30 N #Res BW			#VBW	3.0 MHz			Sweep_1		.000 GHz 20001 pts)	
	ts changed; all	traces clear					STATU	_		

Plot 7-17. Conducted Spurious Plot (PCS GSM Mode - Ch. 661)



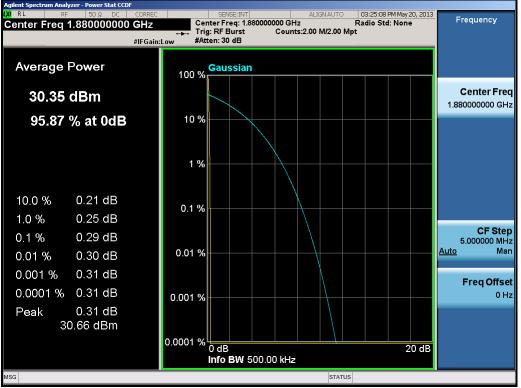
Plot 7-18. Conducted Spurious Plot (PCS GSM Mode - Ch. 661)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dogo 54 of 94			
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 54 of 81			
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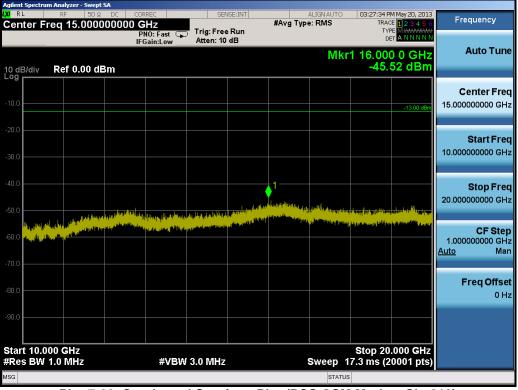
Plot 7-20. Peak-Average Ratio Plot (PCS GSM Mode - Ch. 661)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 55 of 94
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Agilent Spectru	ım Analyzer - Swept S									
	RF 50 Ω req 5.015000	DC COR 0000 GH		SEN	ISE:INT	#Avg Type	ALIGNAUTO	TRAC	M May 20, 2013	Frequency
Contor 1		PN	lO: Fast 🖵 Jain:Low	Trig: Free Atten: 40				TYI D	PE M WWWWW ET A N N N N N	
		IFC	ain:Low	Atten: 40	a D		N/L		6 7 GHz	Auto Tune
10 dB/div	Ref 30.00 dl	Rm					IVI	-24.	13 dBm	
	Kei 30.00 di									
										Center Freq
20.0										5.015000000 GHz
10.0										Start Freq
										30.000000 MHz
0.00										00.000000 11112
-10.0									-13.00 dBm	Stop Freq
			. 1							10.00000000 GHz
-20.0			• '							
-30.0			Land and Market	and the second	المراقل الأروا	ا المري المرووطية الا		البرجين ليشرعه	Leading He Alle Dates	CF Step
-30.0	unional allaberation and the	All the second second	a distance of the second	a shartstall at		المريق بالمالات	a the states of the	A Charles and the second		997.000000 MHz Auto Mar
-40.0	Charlen of the state of the sta	والمتنا المتشكر والم								<u>Auto</u> Mar
and the best										
-50.0										Freq Offset
										0 Hz
-60.0										
Start 30 N #Res BW			#\/D\M	3.0 MHz			Swoon	Stop 10	.000 GHz	
				3.0 WIH2					0001 pts)	
isg 斗 Poin	its changed; all tr	aces cleare	ed				STATU	s		

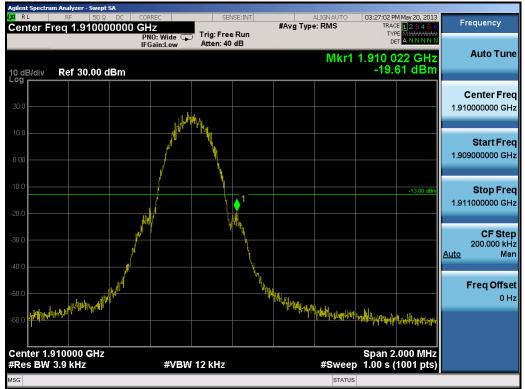
Plot 7-21. Conducted Spurious Plot (PCS GSM Mode – Ch. 810)

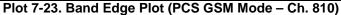


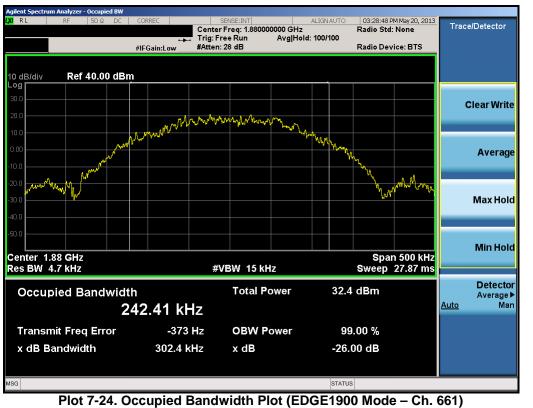
Plot 7-22. Conducted Spurious Plot (PCS GSM Mode - Ch. 810)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager					
Test Report S/N:	Test Dates:	EUT Type:		Dage 56 of 94					
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset	Page 56 of 81						
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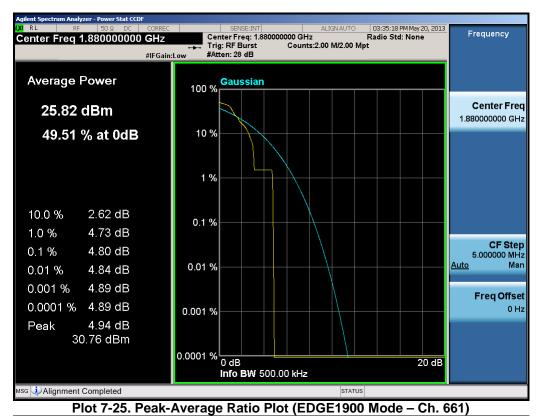






	PCTEST	FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT		Reviewed by:					
FCC ID: ZNFLS980	ENERGIESING LABORATORY, INC.	(CERTIFICATION)	🕒 LG	Quality Manager					
Test Report S/N:	Test Dates:	EUT Type:		Dege 57 of 91					
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset	Page 57 of 81						
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er - Swept SA RL 04:02:58 PM May 20, 2013 Frequency #Avg Type: RMS TRACE Center Freq 2.515000000 GHz TYPE Trig: Free Run PNO: Fast 😱 IFGain:Low Atten: 40 dB Auto Tune Mkr1 3.759 488 GHz -24.00 dBm 10 dB/div Log Ref 30.00 dBm **Center Freq** 2.515000000 GHz Start Freq 30.000000 MHz **Stop Freq** 5.00000000 GHz CF Step 497.000000 MHz Man <u>Auto</u> **Freq Offset** 0 Hz Start 30 MHz Stop 5.000 GHz #VBW 3.0 MHz Sweep 8.67 ms (10001 pts) #Res BW 1.0 MHz MSG Doints changed; all traces cleared STATUS

Plot 7-26. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 1013)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager					
Test Report S/N:	Test Dates:	EUT Type:		Daga 50 of 01					
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset	Page 58 of 81						
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RL	រ m Analyzer - Swep i RF 50 ជ	2 DC COF	RREC	SEN	ISE:INT		ALIGN AUTO		M May 20, 2013	English
enter F	req 7.5000	00000 GH	Z NO: Fast 🗔	Trig: Free	Run	#Avg Typ	e: RMS	TRAC TYP	CE 123456 PE MWWWWW ET ANNNNN	Frequency
			Gain:Low	Atten: 10						
dB/div	Ref 0.00 d	Bm					Μ	4r1 9.55 -54.	4 5 GHz 22 dBm	Auto Tun
										Center Fre
D.O									-13.00 dBm	7.500000000 GI
									10.00 0.01	
0.0										Start Fre
										5.00000000 GI
0.0										
0.0										Oton Er
										Stop Fr 10.00000000 G
0.0									<u> </u>	10.0000000000
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D.O Net		a dina da segunda de de segunda d Como de segunda de segun	a ang ang ang ang ang ang ang ang ang an			a fan general fan skrifter fan s Friederik	the state of the state	in Landinard dis we	and the second second second	500.000000 M
	uun. siftle, nam		a house of the second							<u>Auto</u> M
0.0										
0.0										Freq Offs
										0
0.0										
Lart 5.00)0 GHz							Stop 10	.000 GHz	
	1.0 MHz		#VBW	3.0 MHz			Sweep	8.67 ms (1	0001 pts)	
G							STATU	JS		

Plot 7-27. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 1013)



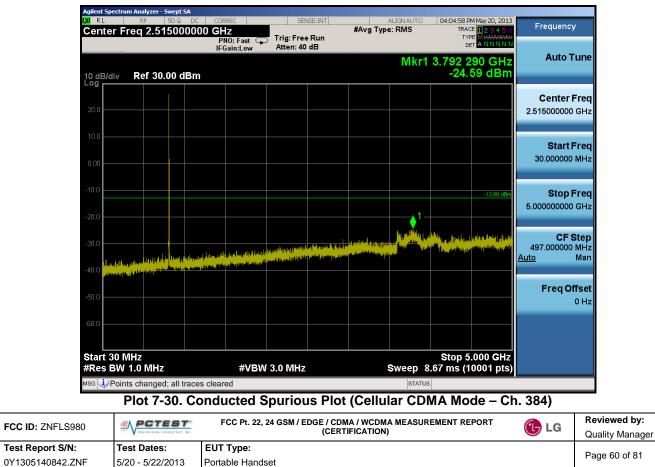
Plot 7-28. Band Edge Plot (Cellular CDMA Mode – Ch. 1013)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 50 at 04
0Y1305140842.ZNF	5/20 - 5/22/2013	ortable Handset		Page 59 of 81
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Agilent Spectru	m Analyzer - Swept SA RF 50 Ω DC	CORREC	SENSE:INT		LIGN AUTO	04:02:36 PM May 20, 2013	
	req 821.000000	MHz		#Avg Type		TRACE 123456 TYPE MWWWW	Frequency
		PNO: Wide 🔸 IFGain:Low	Atten: 40 dB			DETANNNN	.
10 dB/div	Ref 30.00 dBm				Mkr	1 822.992 MHz -30.39 dBm	Auto Tune
20.0							Center Freq 821.000000 MHz
0.00							Start Freq 819.000000 MHz
-10.0						-13.00 dBm	Stop Freq 823.000000 MHz
-30.0					-	1.	CF Step 400.000 kHz <u>Auto</u> Man
-40.0			and and a second se				Freq Offset 0 Hz
-60.0							
Center 82 #Res BW	21.000 MHz 100 kHz	#VBW	300 kHz		#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG					STATUS		

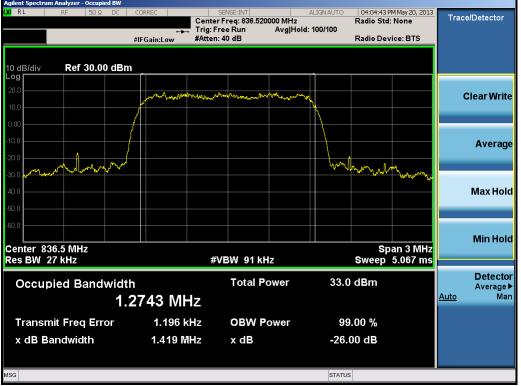






RL	m Analyzer - Swej RF 50		DRREC	SEN	VSE:INT		ALIGN AUTO		M May 20, 2013	-
enter F	req 7.5000		HZ PNO: Fast 😱 Gain:Low	Trig: Free Atten: 10		#Avg Type	e: RMS	TYP	E 1 2 3 4 5 6 E M WAMAA T A N N N N N	Frequency
0 dB/div	Ref 0.00 c		Sumeow				Mł	(r1 9.74(-54.() 5 GHz)9 dBm	Auto Tun
									-13.00 dBm	Center Fre 7.500000000 G⊢
D.0										Start Fre 5.000000000 GF
).0).0									1	Stop Fr 10.000000000 Gi
		a billion type gamme da na ^{tha} sa na na gatana a	11) na kajan ja pie 1100 la Malana anto da angela filato			ing part of the second s	a da ki ki ka ja ka di k General Preka perteka	i dependente tet dela postación e postación	eterangen and tereformy particular actives, begins to formally particular actives, begins to formally particular	CF Ste 500.000000 Mi <u>Auto</u> Mi
).0										Freq Offs 01
0.0										
tart 5.00								Stop 10.	000 GHz	
Res BW	1.0 MHz		#VBW	/ 3.0 MHz			Sweep 8	.67 ms (1	0001 pts)	

Plot 7-31. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 384)



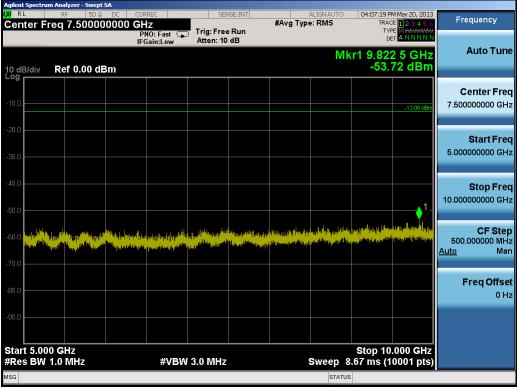
Plot 7-32. Occupied Bandwidth Plot (Cellular CDMA Mode - Ch. 384)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 04 af 04
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 61 of 81
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	um Analyzer - Swe									
Center F	RF 50	000000 GH	REC Z		ISE:INT	#Avg Typ	ALIGNAUTO e: RMS	TRAC	M May 20, 2013 CE <mark>1 2 3 4 5 6</mark> PE M WWWWW	Frequency
10 dB/div	Ref 30.00	IFO	NO: Fast 😱 Gain:Low	Trig: Free Atten: 40			Mkr1	D 3.792 2	290 GHz 30 dBm	Auto Tune
20.0										Center Freq 2.515000000 GHz
0.00										Start Freq 30.000000 MHz
-10.0							1_		-13.00 dBm	Stop Freq 5.000000000 GHz
-30.0	ang tang bila di pangahan bila di	alay is successive the formula se-	a je stani stani se sa	a a a a fair	a and a set of some states				adad minika ayan Alamatan Mayayan A	CF Step 497.000000 MHz <u>Auto</u> Man
-50.0										Freq Offset 0 Hz
-60.0 Start 30 F								Stop 5	.000 GHz	
#Res BW				3.0 MHz				-	0001 pts)	
MSG 🔱 Poin	nts changed; a	Il traces clear	ed				STATUS	5		

Plot 7-33. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 777)



Plot 7-34. Conducted Spurious Plot (Cellular CDMA Mode - Ch. 777)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage C2 of 94
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Plot 7-35. Band Edge Plot (Cellular CDMA Mode – Ch. 777)



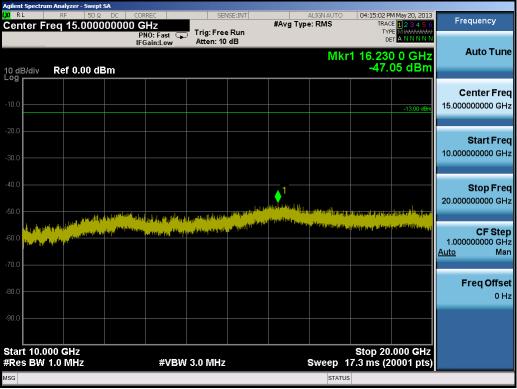
Plot 7-36. 4MHz Span Plot (Cellular CDMA Mode – Ch. 777)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama (0) at 04
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 63 of 81
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	m Analyzer - Swej									
X/RL Center E	RF 50 req 5.0150		RREC	SEN	ISE:INT	#Avg Type	ALIGNAUTO	TRA	M May 20, 2013	Frequency
Contor I	100 0.0100	Р	NO: Fast 🖵 Gain:Low	Trig: Free Atten: 40		•		TY D	PE MWWWWW ET A N N N N N	
		IF	Gain:Low	Atten: 40			M		0 2 GHz	Auto Tune
10 dB/div Log	Ref 30.00	dBm						-23.	35 dBm	
209										Center Freq
20.0										5.015000000 GHz
10.0										Start Freq
0.00										30.000000 MHz
0.00										
-10.0									-13.00 dBm	Stop Freq
									.1	10.000000000 GHz
-20.0									<u>├</u>	
-30.0			adding of the last	Martin Martin B		heldlar to hod	A CONTRACTOR OF STREET, STREET	a Production of the second	e pertinanten harten	CF Step
	non (na statistica statistica statistica statistica statistica statistica statistica statistica statistica st	The second second second	-	A second second	14. A.A.	and day may the	والمحالي والمر	and the second second second second		997.000000 MHz Auto Man
-40.0	na international de la companya de									
										Freq Offset
-50.0										0 Hz
-60.0										
00.0										
Start 30 M	147							Stop 10		
start 30 M #Res BW			#VBW	3.0 MHz			Sweep	310p 10 17.3 ms (2	.000 GHz 20001 pts)	
·	ts changed; al	l traces clear					STATU			

Plot 7-37. Conducted Spurious Plot (PCS CDMA Mode – Ch. 25)



Plot 7-38. Conducted Spurious Plot (PCS CDMA Mode - Ch. 25)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Agilent Spectru	m Analyzer - Swept 9 RF 50 Ω	SA DC COR	REC	SEN	ISE:INT		ALIGNAUTO	04·14·24 P	M May 20, 2013		
	req 1.85000	0000 GH	Z 10: Wide 🔾	Trig: Free	Run	#Avg Type		TRAC	^{2E} 1 2 3 4 5 6 РЕМ ИМИМИ ТАNNNN	Freque	ncy
10 dB/div Log	Ref 30.00 d		Gain:Low	Atten: 40	dB		Mkr1	1.849 9	90 GHz 82 dBm	Aut	o Tune
20.0										Cento 1.8500000	e r Freq 000 GHz
0.00						1 martin	k _{unn} nonturalite	Montal Rook		Sta 1.8475000	rt Fred
-10.0					.1				-13.00 dBm	Sto 1.8525000	p Frec 000 GH:
30.0		1 million and the second	nyan manjarah	and the second	a a freed at most				and the state of t		F Stej 000 kH Ma
50.0	www.									Freq	Offse 0 H
-60.0											
Center 1.8 #Res BW	850000 GHz 15 kHz		#VBW	47 kHz			#Sweep	Span 5 1.00 s (.000 MHz 1001 pts)		
MSG							STATUS				

Plot 7-39. Band Edge Plot (PCS CDMA Mode - Ch. 25)

SG					STATUS			
	847000 GHz 1.0 MHz	#VBW	3.0 MHz		#Sweep	Span 4. 3.00 s (*	000 MHz 1001 pts)	
60.0								
50.0								Freq Offse 0 H
40.0	A Second S							
50.0				- And and a start of the start				400.000 kH <u>Auto</u> Ma
30.0					- Star - Star - Star - Star	and a star and a star a st		CF Ste
20.0								1.849000000 GH
10.0							-13.00 c 1 /	Stop Fre
0.00								1.845000000 GH
10.0								Start Fre
								1.847000000 GH
20.0								Center Free 1.847000000 GH
0 dB/div .og	Ref 30.00 dBm					-15.9	94 dBm	
		IFGain:Low	Atten: 40 dB		Mkr1		96 GHz	Auto Tun
Center F	req 1.84700000	O GHz PNO: Wide ↔→	Trig: Free Run	#Avg Type	e: RMS	TRAC TYP	E 123456 E M WAWAW T A N N N N N	Frequency
	RF 50 Ω DC	CORREC	SENSE:INT		ALIGN AUTO		4 May 20, 2013	F

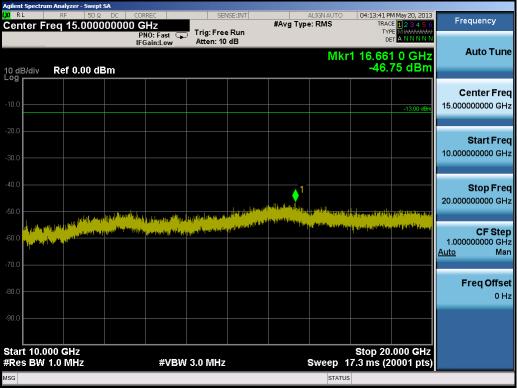
Plot 7-40. 4MHz Span Plot (PCS CDMA Mode – Ch. 25)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage CE of 94
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 65 of 81
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txv RL RF 50 Ω Center Freq 5.0150	00000 GH	RREC 12 NO: Fast 💽	SEN	ISE:INT		ALIGN AUTO	04:13:33 P	M May 20, 2013	
	P				#Avg Type	e: RMS		E 1 2 3 4 5 6	Frequency
	IFO	no:Fast 🕞	Trig: Free				TY	E MWWWW T A N N N N N	
		Gain:Low	Atten: 40	dB					Auto Tune
						MI	(r1 3.76	6 8 GHz	Auto Tune
10 dB/div Ref 30.00	dBm						-23.	43 dBm	
									Contor From
20.0									Center Freq
20.0									5.015000000 GHz
10.0									Start Freq
									30.000000 MHz
0.00									30.000000 MIHZ
-10.0								-13.00 dBm	Stop Freq
									10.000000000 GHz
-20.0		 1							
			.				فأر الطليستية وراتس	and all a line of	
-30.0	I I water to	a filler of the second	a summer of	Market ler	Contraction of the		and a state of the second s	The state of the second	CF Step
-30.0	A STATE OF A STATE	and the second second	A CONTRACTOR OF STREET	March Mar	a charles as and		J.Frankiska i Sta		997.000000 MHz Auto Man
-40.0									<u>/ aco</u> man
ACT AND A DESCRIPTION OF									
-50.0									Freq Offset
-50.0									0 Hz
-60.0									
Start 30 MHz							Stop 10	.000 GHz	
#Res BW 1.0 MHz		#VBW	3.0 MHz			Sweep 1	17.3 ms (2	0001 pts)	
мsg 🕕 Points changed; all	traces close					STATU			

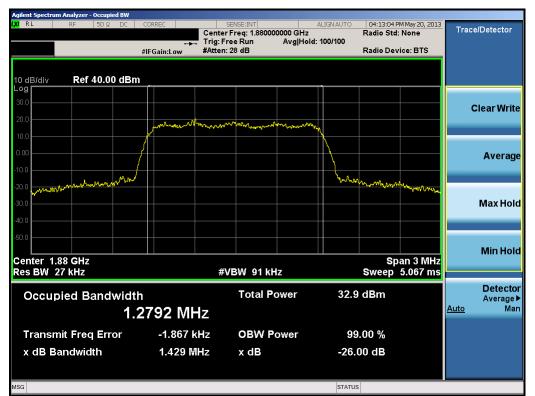
Plot 7-41. Conducted Spurious Plot (PCS CDMA Mode – Ch. 600)



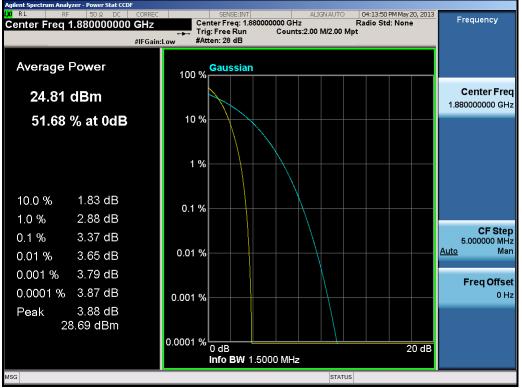
Plot 7-42. Conducted Spurious Plot (PCS CDMA Mode - Ch. 600)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage CC of 94
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 66 of 81
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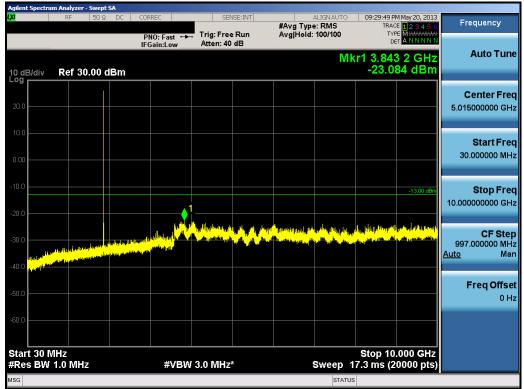




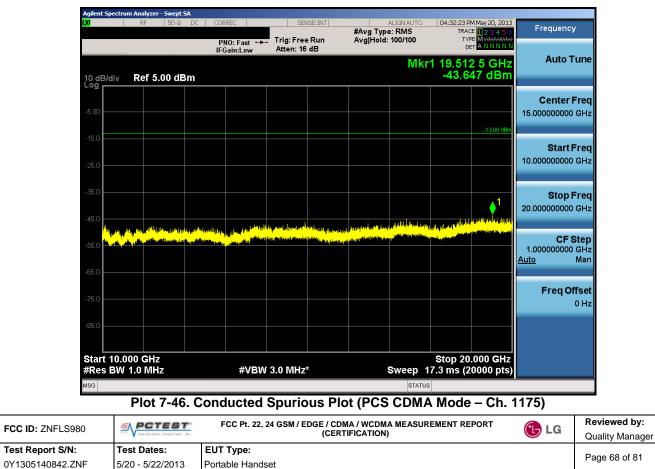
Plot 7-44. Peak-Average Ratio Plot (PCS CDMA Mode - Ch. 600)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 67 of 94
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 67 of 81
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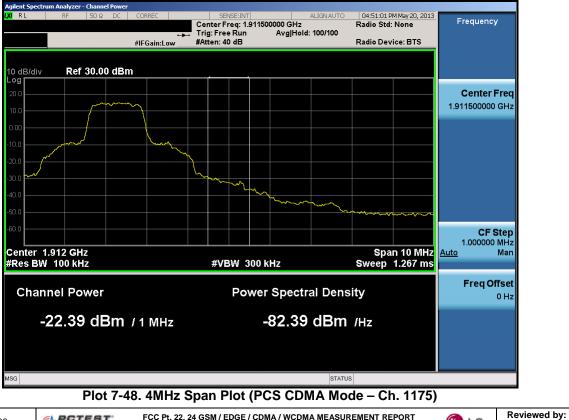






Agilent Spectrum Analyzer - Swept SA	CORREC SEN	ISE:INT	ALIGNAUTO	04:16:39 PM May 20, 2013	_
Center Freq 1.910000000	PNO: Wide 😱 Trig: Free		e: RMS	TRACE 123456 TYPE MWWWWW DET A N N N N N	Frequency
10 dB/div Ref 30.00 dBm	IFGain:Low Atten: 40	a D	Mkr1	1.910 005 GHz -15.83 dBm	Auto Tune
20.0					Center Freq 1.910000000 GHz
10.0 0.00	nuskana				Start Freq 1.907500000 GHz
-10.0	her	1		-13.00 dBm	Stop Freq 1.912500000 GHz
-30.0		""There"	Notel mand of Mary	n. 200	CF Step 500.000 kHz <u>Auto</u> Man
-50.0				water the way and the second	Freq Offset 0 Hz
-60.0 Center 1.910000 GHz				Span 5.000 MHz	
#Res BW 15 kHz	#VBW 47 kHz		#Sweep	1.00 s (1001 pts)	

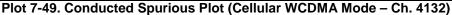
Plot 7-47. Band Edge Plot (PCS CDMA Mode - Ch. 1175)

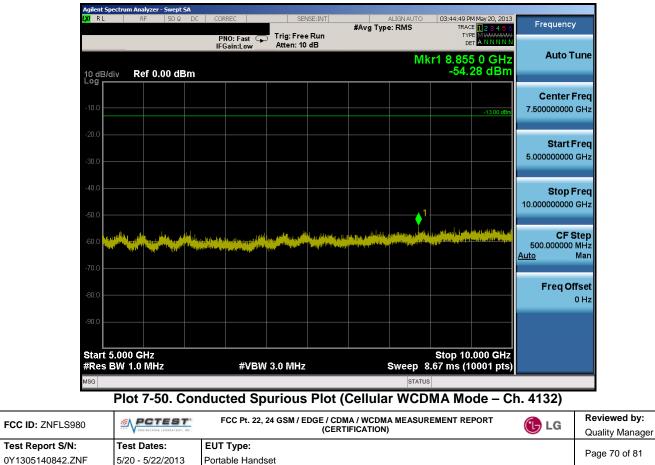


FCC ID: ZNFLS980		(CERTIFICATION)	🕒 LG	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		, , , , , , , , , , , , , , , , , , , ,
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 69 of 81
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	ım Analyzer - Swep									
LX/RL	RF 50 \$	2 DC COI	RREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		M May 20, 2013	Frequency
		P IF ⁱ	NO: Fast 🖵 Gain:Low	Trig: Free Atten: 36				TY D		Auto Tune
10 dB/div Log	Ref 25.00	dBm						-27.	302 GHz 54 dBm	
15.0										Center Freq 2.515000000 GHz
5.00										2.01000000 0112
5.00										Start Freq 30.000000 MHz
-5.00									-13.00 dBm	30.000000 MH2
-15.0										Stop Freq
-25.0										5.000000000 GHz
-35.0			المراجع والمراجع	an laiste tigte en drage	a the state of the				and philipson of _{ballso} parts , and philipson of ballson balls	CF Step 497.000000 MHz
<mark>D^hnhal</mark> درمندنده،				an a	and de la più dia, de dia					<u>Auto</u> Man
										Freq Offset
-55.0										0 Hz
-65.0										
Start 30 I								Stop 5	.000 GHz	
#Res BW	1.0 MHz		#VBW	3.0 MHz					0001 pts)	
MSG							STATUS	S		

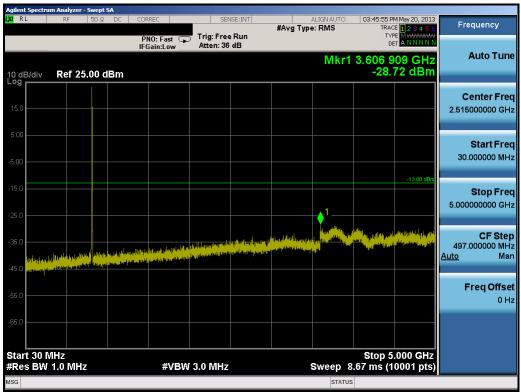






Agilent Spectrum Analyzer - Swept SA XI RL RF 50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO	03:43:50 PM May 20, 2013	
			#Avg Type: RMS	TRACE 123456 TYPE MWWWWW	Frequency
	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 40 dB		DET ANNNN	
10 dB/div Ref 30.00 dBm			Mł	r1 824.000 MHz -24.668 dBm	Auto Tune
20.0					Center Free 824.000000 MH
					024.000000 Mil 1
10.0			through and the second se		Start Fre
0.00		1		1	816.500000 MH
0.00		/			
10.0				-13.00 dBm	Stop Fre
					831.500000 MH
20.0		∳ ¹			
30.0		www.			CF Ste 1.500000 MH
	and and part and a stranger of the			and a second and a	Auto Ma
40.0					
50.0					Freq Offs
					0 H
50.0					
Center 824.000 MHz	40 (P) (J)	000 1-11-	" ~	Span 15.00 MHz p 1.00 s (1001 pts)	
Res BW 100 kHz	#VBW	300 kHz	#Swee		
G	Den 1 E Ja		STATU		

Plot 7-51. Band Edge Plot (Cellular WCDMA Mode – Ch. 4132)



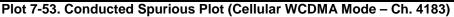
Plot 7-52. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4183)

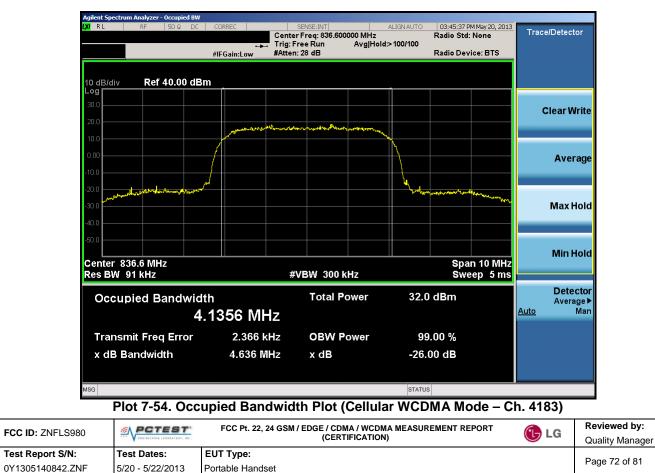
FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 74 af 04
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 71 of 81
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ingineering Laboratory, Inc.



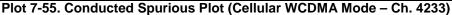
		yzer - Swept									
I <mark>XI</mark> RL	RF	50 Ω	DC CO	RREC	SEM	VSE:INT	#Avg Typ	ALIGNAUTO		May 20, 2013	Frequency
				'NO: Fast 🖵 Gain:Low	Trig: Free Atten: 10				TYF De	E M WAWAA T A N N N N N	Auto Tuno
10 dB/di Log 👝	iv Re	f 0.00 dE	ßm					M	(r1 9.804 -54.0	10 GHz 58 dBm	Auto Tune
-10.0										-13.00 dBm	Center Freq 7.50000000 GHz
-20.0											Start Freq 5.000000000 GHz
-40.0										1-	Stop Freq 10.000000000 GHz
-60.0				ha kang pala kang pana kang ba Nga pana kang pana ka Nga pang pang pang pang pang pang pang pa			nin a filo _{a s} tra di filologia. Ni ta ta paga parta (di manta a		a la poste tre qu'esta di na se chi tina a su chi di		CF Step 500.000000 MHz <u>Auto</u> Man
-80.0											Freq Offset 0 Hz
-90.0	000 C	7							Stop 10	.000 GHz	
#Res E				#VBW	3.0 MHz			Sweep 8	3.67 ms (1	000 GH2 0001 pts)	
MSG								STATUS	6		

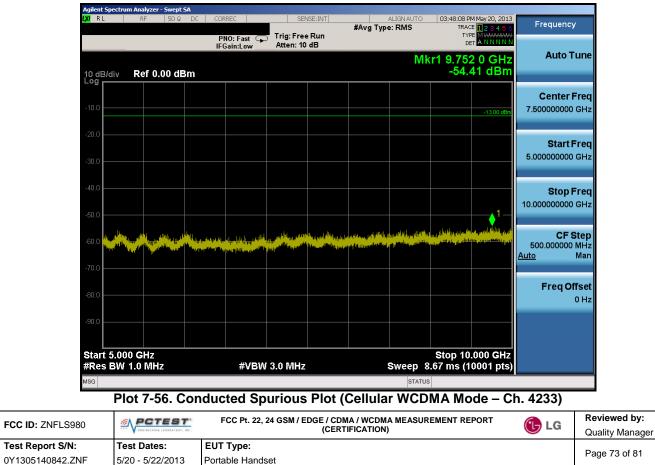






	m Analyzer - Swept S								
I,XI RL	RF 50 Ω	DC CORREC	SEI	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	03:47:49 P TRAC	M May 20, 2013 E <mark>1 2 3 4 5 6</mark>	Frequency
		PNO: Fas IFGain:Lo	t 🕞 Trig: Free w Atten: 36				DE		
10 dB/div Log	Ref 25.00 dl	Зm				Mkr1	3.799 7 -27.3	45 GHz 35 dBm	Auto Tune
15.0									Center Freq 2.515000000 GHz
-5.00									Start Freq 30.000000 MHz
-15.0						1		-13.00 dBm	Stop Freq 5.000000000 GHz
-35.0	sala na dini sa 191 ni na din	the states and states in the states and the states and the states and the states and the states are states and the states are s		a fai fiografia a suis na diationa a suis	n a second final and a second final			in a fillen folk (Lipsy folk Antonio a film (Lipsy folk)	CF Step 497.000000 MHz <u>Auto</u> Man
-45.0									Freq Offset 0 Hz
-65.0									
Start 30 N #Res BW		#1	VBW 3.0 MHz			Sweep 8	5 Stop 1.67 ms (1	.000 GHz 0001 pts)	
MSG						STATUS	-		

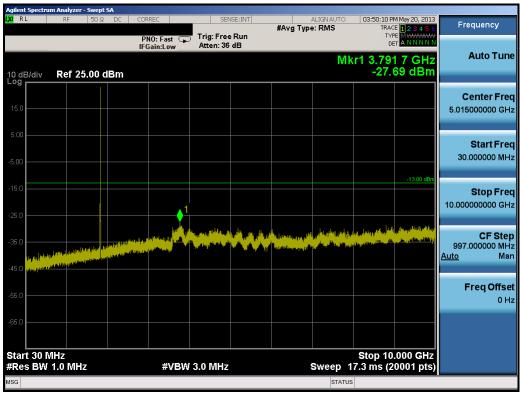






Agilent Spectru LXI R L	m Analyzer - Swept SA RF 50 Ω DC	CORREC	SENSE:INT	ALIO	GNAUTO	03:47:04 PM	1 May 20, 2013	-
Center F	req 849.000000	MHz PNO: Wide 🖵	Trig: Free Run	#Avg Type: F	RMS	TRACE	123456 M WWWW	Frequency
		IFGain:Low	Atten: 40 dB		Miland			Auto Tune
10 dB/div Log	Ref 30.00 dBm				IVIKE	-27.23	00 MHz 80 dBm	
								Center Fred
20.0								849.000000 MHz
10.0		ومورو _{ور} سرومهم المرومي						
								Start Freq 841.500000 MHz
0.00								
-10.0							-13.00 dBm	Stop Freq
-20.0								856.500000 MHz
								CF Step
-30.0	and the second s		har	erenies and				1.500000 MHz <u>Auto</u> Mar
-40.0				- mann	×			
-50.0					Many	And the state of t		Freq Offset
							and the state of the	0 Hz
-60.0								
Center 94	9.000 MHz					Snan 14	5.00 MHz	
#Res BW		#VBW	300 kHz	#	≠Sweep	1.00 s (1	1001 pts)	
MSG					STATUS			

Plot 7-57. Band Edge Plot (Cellular WCDMA Mode – Ch. 4233)



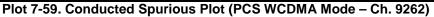
Plot 7-58. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9262)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 74 of 94
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PNO: Fast Trig: Free Run Rten: 10 dB Aveg Type: RMS Trace Processor Auto Tune 10 dB/div Ref 0.00 dBm -45.99 dBm -45.99 dBm Center Freq 15.00000000 GHz Start Freq 10.00000000 GHz Start Freq 10.00000000 GHz CF Step 1.00000000 GHz Stop Freq 20.0000000 GHz CF Step 1.00000000 GHz 000 Image Build Auto		ctrum Analyzer - Swept S						_		
Atten: 10 dB Mkr1 16.079 5 GHz 45.99 dBm Certer Freq 15.00000000 GHz 400 400 400 400 400 400 400 40	l <mark>XI</mark> RL	RF 50 Ω	DC CORREC		SENSE:INT			TRACE	123456	Frequency
10. d B/div Ref 0.00 dBm 10. d B/div Ref 0.00 dBm 10. d B/div Image: Context Freq 10. d B/div Image: Context Freq 10. d B/div Image: Context Freq <			PNO: IFGain				Mkr	DET	ANNNNN	Auto Tune
100 13000000000000000000000000000000000000	10 dB/div Log	v Ref 0.00 dB	m					-45.9	9 dBm	
200 200 20000000 GHz 200 200 2000000 GHz 200 200 2000000 GHz 200 200 2000000 GHz 200 200 2000000 GHz 200 200 200000 GHz 200 200 200000 GHz 200 200 200000 GHz 200 200 200 200 200 200 200 200 200 200	-10.0								12.00 dBm	
300 Image: Start Freq 400 Image: S	-20 0								-13.00 ubm	
-500 -500										
-60.0 -60.0 <td< td=""><td>-40.0</td><td></td><td></td><td></td><td></td><td>♦¹</td><td></td><td></td><td></td><td></td></td<>	-40.0					♦ ¹				
60.0 Cr Step 70.0 Cr Step 80.0 Freq Offset 90.0 Cr Step 90.0 Start 10.000 GHz Start 10.000 GHz Stop 20.000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz	-50.0		THE REPORT OF A DESCRIPTION OF A DESCRIP	al a la contra c	A STATE OF STATE AND A STATE	a na se an	and Children in a start of the	a theory of the optimation of	enter antibut antique particular de la constante de la constante de la constante de la constante de la constant La constante de la constante de	
Auto Man Auto Man Freq Offset 0 Hz 900 Start 10.000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 17.3 ms (20001 pts)	-60.0		S. I. S.	and the second secon						
-600 -600	-70.0									
.900 Start 10.000 GHz Stop 20.000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 17.3 ms (20001 pts)	90.0									Freq Offset
Start 10.000 GHz Stop 20.000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 17.3 ms (20001 pts)	-00.0									0 Hz
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 17.3 ms (20001 pts)	-90.0									
					R 41 I			Stop 20.0	000 GHz	
	#Res B	W 1.0 WHz		#VBW 3.0	IVIHZ				001 pts)	

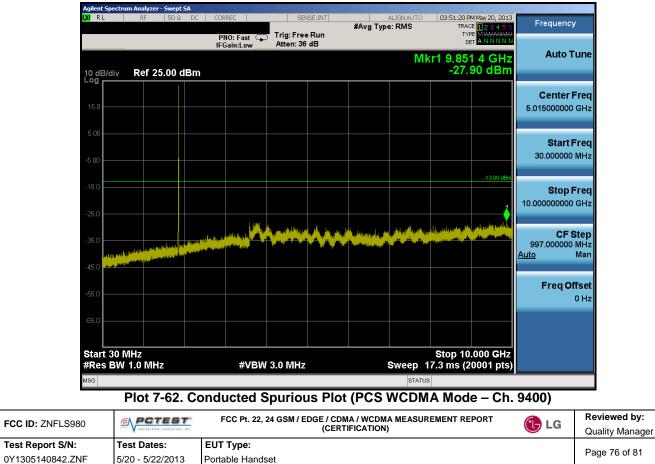






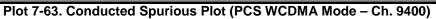
Agilent Spectru I <mark>XI</mark> RL	m Analyzer - Swept SA RF 50 Ω DC	CORREC	SENSE:INT	4	LIGNAUTO	03:53:08 PM May 20, 20	13 _
Center Fi	req 1.84700000) GHz PNO: Wide ↔ IFGain:Low	. Trig: Free Run Atten: 40 dB	#Avg Type	RMS	TRACE 12345 TYPE MWWWW DET A N N N N	
10 dB/div	Ref 30.00 dBm				Mkr1	1.849 000 GH -15.95 dBr	z Auto Tune n
20.0							Center Fred 1.847000000 GH2
0.00							Start Fred 1.845000000 GH
-10.0						-13.00 c	Stop Free 1.849000000 GH:
-30.0		namunakan fan taran anan anan anan ana			<u></u>		CF Ste 400.000 kH <u>Auto</u> Ma
50.0							Freq Offse 0 H
-60.0	347000 GHz					Span 4.000 MH	z
#Res BW	1.0 MHz	#VBW	3.0 MHz		#Sweep	3.00 s (1001 pts	5)

Plot 7-61. 4MHz Span Plot (PCS WCDMA Mode - Ch. 9262)





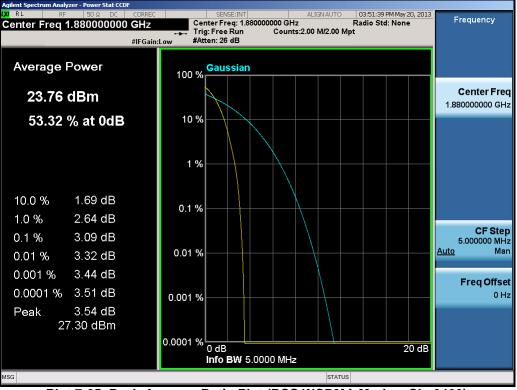
RL RF	50Ω DC C	ORREC	SENS	*	/ Avg Type	EIGN AUTO	TRAC	4 May 20, 2013 1 2 3 4 5 6	Frequency
0 dB/div Ref 0.0		PNO: Fast 😱 FGain:Low	Trig: Free I Atten: 10 c			Mkr	DE 1 16.395	0 GHz 3 dBm	Auto Tune
og 10.0								-13.00 dBm	Center Fre 15.000000000 GH
30.0									Start Fre 10.000000000 GH
40.0	A ST TAKEN A ST TAKEN A ST TAKEN	aka tited		Angere & Program (1997)		^{tene} ld ⁱⁿ and theil	بىر _ا رابارىلىغ كىنى غەر دىر	The second s	Stop Fre 20.000000000 GH
		in and the fillent of the second	sa dhiffig a bhasaint i d			n ^{diala} r ny Ny tany.	to diguita postes as	A CONTRACTOR OF CONTRACTOR	CF Ste 1.000000000 GH <u>Auto</u> Ma
30.0									Freq Offse 0 ⊢
30.0 tart 10.000 GHz		#\/D\\	2.0.841				Stop 20.	000 GHz	
Res BW 1.0 MHz		#VBW	3.0 MHz			Sweep 1		0001 pts)	



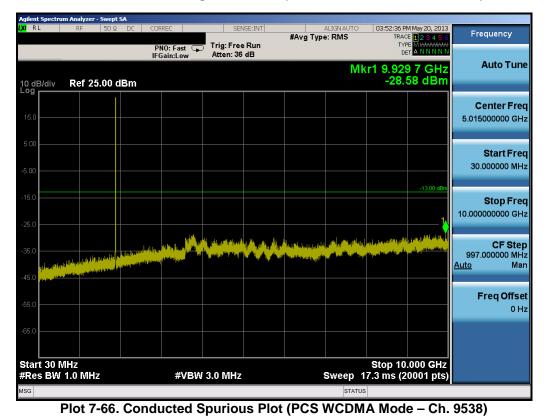


FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 77 at 04
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FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 70 of 01
0Y1305140842.ZNF	5/20 - 5/22/2013	Portable Handset		Page 78 of 81
O 0040 DOTEOT Es sis series a	ale anatami. In a			VOC



	rum Analyzer - Swept S/					
IXI RL	RF 50 Ω	DC CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	03:52:43 PM May 20, 2013 TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast C IFGain:Low	Trig: Free Run Atten: 10 dB		TYPE MWWWW DET ANNNNN	Auto Tune
10 dB/div Log	Ref 0.00 dB	m		Mkr	1 16.446 0 GHz -46.98 dBm	Auto Tune
-10.0					-13.00 dBm	Center Freq 15.000000000 GHz
-20.0						Start Freq 10.000000000 GHz
-40.0		ar, aliattha berr a cruto ana	standing of the standing strends	1 enderstein Tenter Die Hinnen auf	ay this believes in a final way a series which we have	Stop Freq 20.000000000 GHz
-60.0 <mark>41,411</mark>	and a first and a	in a state of the	الله المدارية المراجعة المراجعة المراجعة على المراجعة على المراجعة على المراجعة المراجعة على المراجعة المراجعة المراجعة المراجعة الم	ing an international de la gal décide de la gal	(hina) jalat "Ayriinten) (general of bill og gjær	CF Step 1.00000000 GHz <u>Auto</u> Man
-80.0						Freq Offset 0 Hz
-90.0 Start 10.					Stop 20.000 GHz	
	1.0 MHz	#VB	N 3.0 MHz		7.3 ms (20001 pts)	
MSG				STATUS		







Agilent Spectru	m Analyzer - Swept SA RF 50 Ω DC	CORREC	SENSE:INT		ALIGN AUTO	03:52:20 PM May 20, 2013	
	req 1.91300000			#Avg Type		TRACE 1 2 3 4 5 6 TYPE M WWWWW	Frequency
		IFGain:Low	Atten: 40 dB			DET A N N N N	
10 dB/div Log	Ref 30.00 dBm				Mkr1	1.911 000 GHz -16.04 dBm	Autorune
20.0							Center Freq 1.913000000 GHz
10.0							Start Freq 1.911000000 GHz
-10.0 1						-13.00 dBm	Stop Freq 1.915000000 GHz
-30.0						and the second	CF Step 400.000 kHz <u>Auto</u> Man
-40.0							Freq Offset 0 Hz
-60.0							
Center 1.9 #Res BW	913000 GHz 1.0 MHz	#VBW	3.0 MHz		#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG					STATUS		

Plot 7-69. 4MHz Span Plot (PCS WCDMA Mode – Ch. 9538)

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFLS980** complies with all the requirements of Parts 2, 22, 24 of the FCC rules.

FCC ID: ZNFLS980		FCC Pt. 22, 24 GSM / EDGE / CDMA / WCDMA MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Reviewed by: Quality Manager
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