

PCTEST ENGINEERING LABORATORY, INC.

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MEASUREMENT REPORT GSM / GPRS / EDGE / WCDMA

Applicant Name:

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

Date of Testing: 11/10 - 11/22/2017 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M1711080290-02.ZNF

FCC ID:

ZNFX210APM

APPLICANT:

LG Electronics MobileComm U.S.A

Application Type: Model: Additional Model(s):

EUT Type: FCC Classification: FCC Rule Part(s): Test Procedure(s): Certification LM-X210APM LMX210APM, X210APM, LM-X210CM, LM-X210CMR, LMX210CM, LMX210CMR, X210CM, X210CMR Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 22, 24, & 27 ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03

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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			EF	RP	Ell	RP	
Mode	FCC Rule	Tx Frequency (MHz)	Max.	Max.	Max.	Max.	Emission
Mode	Part		Power	Power	Power	Power	Designator
			(W)	(dBm)	(W)	(dBm)	
GPRS850	22H	824.2 - 848.8	0.880	29.45	1.444	31.60	243KGXW
EDGE850	22H	824.2 - 848.8	0.363	25.60	0.595	27.75	245KG7W
WCDMA850	22H	826.4 - 846.6	0.167	22.22	0.274	24.37	4M15F9W
WCDMA1700	27	1712.4 - 1752.6			0.350	25.44	4M18F9W
GPRS1900	24E	1850.2 - 1909.8			1.412	31.50	245KGXW
EDGE1900	24E	1850.2 - 1909.8			1.337	31.26	252KG7W
WCDMA1900	24E	1852.4 - 1907.6			0.377	25.76	4M15F9W

EUT Overview

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) 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 Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. 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 measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

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

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (22831) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFX210APM**. The test data contained in this report pertains only to the emissions due to the EUT's 2G/3G licensed transmitters.

Test Device Serial No.: 0707, 0749, 0632

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n WLAN, Bluetooth (1x, EDR, LE)

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03. See Section 7.0 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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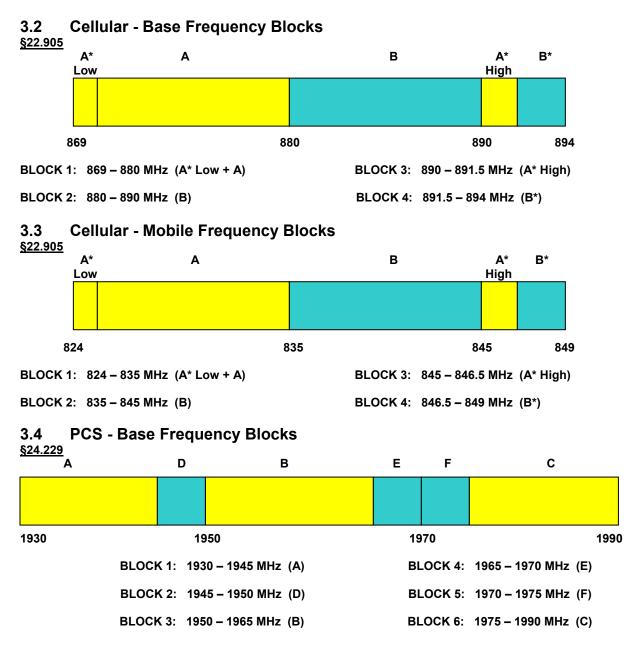


3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (KDB 971168 D01 v03) were used in the measurement of the EUT.

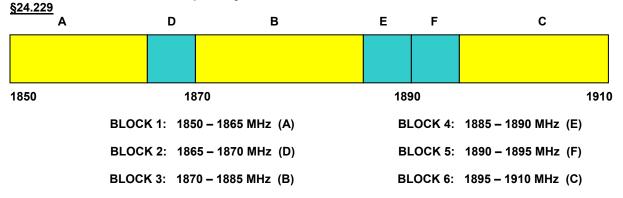
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Deviation from Measurement Procedure......None
```



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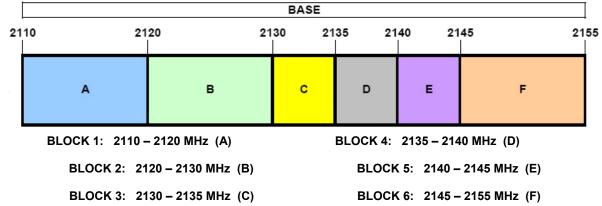


3.5 PCS - Mobile Frequency Blocks



3.6 AWS - Base Frequency Blocks

<u>§27.5(h)</u>



3.7 AWS - Mobile Frequency Blocks

<u>§27.5(h)</u>

[MOBILE				
17	10	1	720 1: 	730 17	'35 17 	40 17	45	1755
		А	в	с	D	E	F	
		BLOCK 1: 1	710 – 1720 MHz (A)		BLOCK	4: 1735 –	1740 MHz (D)	
		BLOCK 2: 1	720 – 1730 MHz (B)		BLOCK	5: 1740 –	1745 MHz (E)	
		BLOCK 3: 1	730 – 1735 MHz (C)		BLOCK	6: 1745 –	1755 MHz (F)	

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3.8 Radiated Measurements

§2.1053 §22.913(a)(2) §22.917(a) §24.232(c) §24.238(a) §27.50(d)(10) §27.53(h)

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. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. 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 above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table 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. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 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.

Per the guidance of ANSI/TIA-603-E-2016, 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 $P_{g [dBm]}$ – cable loss [dB].

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-E-2016.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	LTx2	Licensed Transmitter Cable Set	8/10/2017	Annual	8/10/2018	LTx2
Agilent	N9020A	MXA Signal Analyzer	12/28/2016	Annual	12/28/2017	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	3/27/2017	Annual	3/27/2018	MY52350166
COM-Power	AL-130R	Active Loop Antenna	6/5/2017	Annual	6/5/2018	121085
Emco	3115	Horn Antenna (1-18GHz)	3/10/2016	Biennial	3/10/2018	9704-5182
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/23/2016	Biennial	8/23/2018	135427
Espec	ESX-2CA	Environmental Chamber	4/11/2017	Annual	4/11/2018	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	12/1/2016	Biennial	12/1/2018	125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	4/26/2016	Biennial	4/26/2018	128337
Huber+Suhner	Sucoflex 102A	40GHz Radiated Cable	5/19/2017	Annual	5/19/2018	251425001
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/24/2017	3/24/2017 Annual 3/24/2018		11401010036
Mini Circuits	TVA-11-422	RF Power Amp		N/A		
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		11208010032
Rohde & Schwarz	CMW500	Radio Communication Tester	10/13/2017	Annual	10/13/2018	102060
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	4/19/2017	Annual	4/19/2018	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/31/2017	Annual	7/31/2018	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/11/2017	Annual	8/11/2018	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102135
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102134
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102133
Rohde & Schwarz	TC-TA18	Cross-Pol Antenna 400MHz-18GHz	10/30/2017	Annual	10/30/2018	101058
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/11/2017	Annual	5/11/2018	100040
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	3/30/2016	Biennial	3/30/2018	9105-2404
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/2/2016	Biennial	3/2/2018	N/A
Sunol	DRH-118	Horn Antenna (1-18GHz)	8/11/2017	Biennial	8/11/2019	A050307
Sunol Sciences	JB6	JB6 Antenna	9/27/2016	Biennial	9/27/2018	A082816

Table 5-1. Test Equipment

Notes:

- 1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
- 2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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6.0 SAMPLE CALCULATIONS

GPRS Emission Designator

Emission Designator = 250KGXW

GPRS 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)

WCDMA Emission Designator

Emission Designator = 4M16F9W

WCDMA BW = 4.16 MHz F = Frequency Modulation 9 = Composite Digital Info W = Combination (Audio/Data)

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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7.0 TEST RESULTS

7.1 Summary

Company Name:	LG Electronics MobileComm U.S.A
FCC ID:	ZNFX210APM
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	<u>GSM / GPRS / EDGE / WCDMA</u>

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	RSS-Gen (4.6.1) RSS-133(2.3) RSS-139(2.3)	Occupied Bandwidth	N/A		PASS	Section 7.2
2.1051 22.917(a) 24.238(a) 27.53(h)	RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)	Conducted Band Edge / Spurious Emissions	> 43 + log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Sections 7.3, 7.4
24.232(d)	RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)	Peak-Average Ratio	< 13 dB	CONDUCTED	PASS	Section 7.5
2.1046	RSS-132(5.4) RSS-133(4.1) RSS-139(4.1)	Transmitter Conducted Output Power	N/A		PASS	RF Exposure Report
2.1055 22.355 24.235 27.54	RSS-132(5.3) RSS-133(6.3) RSS-139(6.4)	Frequency Stability	< 2.5 ppm (Part 22) Emission must remain in band (Part 24, 27)		PASS	Section 7.8
22.913(a)(2)	RSS-132(5.4)	Effective Radiated Power	< 7 Watts max. ERP		PASS	Section 7.6
24.232(c)	RSS-133(6.4)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		PASS	Section 7.6
27.50(d)(4)	RSS-139(6.5)	Equivalent Isotropic Radiated Power	< 1 Watts max. EIRP	RADIATED	PASS	Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(h)	RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)	Radiated Spurious Emissions	> 43 + log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 7.7

Table 7-1. 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 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.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "2G/3G Automation," Version 3.9.

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7.2 Occupied Bandwidth §2.1049 RSS-Gen (4.6.1) RSS-133(2.3) RSS-139(2.3)

Test Overview

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. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03 - Section 4.2

Test Settings

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. VBW \geq 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2 7 were repeated after changing the RBW such that it would be within

1-5% of the 99% occupied bandwidth observed in Step 7

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

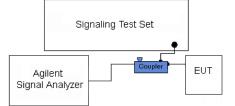


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

None.

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Plot 7-1. Occupied Bandwidth Plot (Cellular GPRS Mode)



Plot 7-2. Occupied Bandwidth Plot (EDGE850 Mode)

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Plot 7-3. Occupied Bandwidth Plot (PCS GPRS Mode)



Plot 7-4. Occupied Bandwidth Plot (EDGE1900 Mode)

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Plot 7-5. Occupied Bandwidth Plot (Cellular WCDMA Mode)



Plot 7-6. Occupied Bandwidth Plot (AWS WCDMA Mode)

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Plot 7-7. Occupied Bandwidth Plot (PCS WCDMA Mode)

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7.3 Spurious and Harmonic Emissions at Antenna Terminal §2.1051 §22.917(a) §24.238(a) §27.53(h) RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)

Test Overview

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. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03 – Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to 10GHz for Cell, 20GHz for AWS, 20GHz for PCS (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

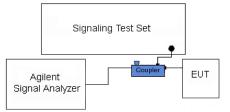


Figure 7-2. Test Instrument & Measurement Setup

Test Notes

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1MHz, and 100 kHz or greater for Part 22 and RSS-132 measurements below 1GHz. 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.

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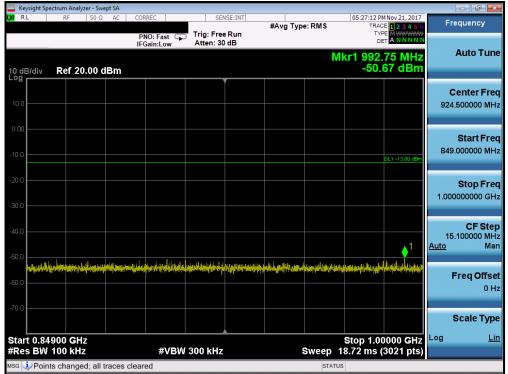
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Cellular GPRS Mode

🔤 Keysig	ght Spectrur	n Analyzer - Swe	ept SA									
LXI RL		RF 50 Ω	P	NO: Fast	Trig: Free		#Avg Typ	e: RMS	TRAC	MNov 21, 2017 DE 1 2 3 4 5 6 PE MWWWWW ET A N N N N N	Fr	equency
10 dB/c	div R	ef 20.00 d		Gain:Low	Atten: 30	dB		М	kr1 822	.70 MHz 05 dBm		Auto Tune
10.0												Center Freq 6.500000 MHz
-10.0										DL1 -13.00 dBm	30	Start Freq 0.000000 MHz
-20.0											823	Stop Freq 8.000000 MHz
-40.0										1	79 <u>Auto</u>	CF Step 0.300000 MHz Man
	anter et de la factoria de la factor	a na ang ang ang ang ang ang ang ang ang	(Albert Georgeorgeo geological (Constanting	kapine kita, Upergan kata Minang na kita mang timi	ala la na fi fina pri prijek Na kriga da fijektora l	n <mark>han dan seberah kana kana kana kana kana kana kana ka</mark>	a finansi ya Kalendari Gunda ka katalari katalari	in Hujalan Jana Ind Hujalan Jana	a mening the string of the second s	n an		Freq Offset 0 Hz
-70.0	30.0 MI	47							Stop	23.0 MHz	Log	Scale Type Lin
	BW 100			#VBW	300 kHz		s	weep 98		5861 pts)		
MSG								STATU	S			

Plot 7-8. Conducted Spurious Plot (Cellular GPRS Mode - Low Channel)



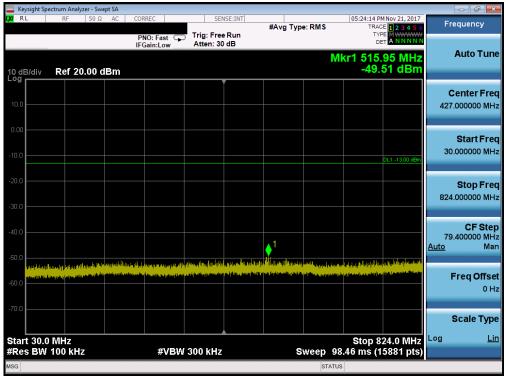
Plot 7-9. Conducted Spurious Plot (Cellular GPRS Mode - Low Channel)

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Keysight Spectrum Analyze	er - Swept SA							
RL RF	50 Ω AC COR	IREC	SENSE:INT	#Avg Type	e: RMS	05:27:32 PM TRACE	123456	Frequency
	PI IFC		Free Run n: 30 dB	•		TYPE DE	M WWWWW A N N N N N	A
10 dB/div Ref 20.	00 dBm				Mk	r1 1.648 -29.7	5 GHz 78 dBm	Auto Tune
10.0								Center Fred 5.50000000 GH:
-10.0							DL1 -13.00 dBm	Start Free 1.000000000 GH:
-20.0								Stop Fred 10.000000000 GH
-40.0		and says on the start of the star The start of the start	(ak di _{Man} Jati Kenganjan Ke	konsegna provinska klema I na konsegna provinska klema I na konsegna provinska politika den 10	A Degler And Print	Harristel Harriste		CF Step 900.000000 MH: <u>Auto</u> Mar
-60.0								Freq Offse 0 H
-70.0								Scale Type
Start 1.000 GHz #Res BW 1.0 MHz		#VBW 3.0 N	IHz	S	weep 15.	Stop 10. 60 ms (18		Log <u>Lir</u>
MSG					STATUS			

Plot 7-10. Conducted Spurious Plot (Cellular GPRS Mode - Low Channel)



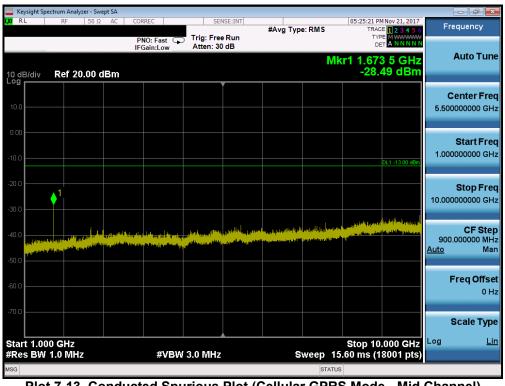
Plot 7-11. Conducted Spurious Plot (Cellular GPRS Mode - Mid Channel)

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Keysight Spec				00000			OTHOT JUT			05.04.00.0		
N KL	KF	50 Ω	AC	CORRE		Tuinu	SENSE:INT	#Avg Typ	e:RMS	TRAC	MNov 21, 2017	Frequency
					:Fast ⊆ in:Low		: 30 dB			D		
10 dB/div	Ref 20.	00 d	Bm						Ν	Akr1 982 -50	.00 MHz 31 dBm	Auto Tun
. ^{og} Г	Kel 20.	00 u										
												Center Fre
10.0												924.500000 MH
0.00												
0.00												Start Fre
10.0											DL1 -13.00 dBm	849.00000 MH
-20.0												Stop Fre
30.0												1.00000000 GH
30.0												
40.0												CF Ste 15.100000 MH
											1	Auto Ma
50.0	at the stability	alata	La vela la ca		ويستر الأواط	He Helle Hales	والما والمراجع والمراجع	يد بيا بالسيانانيون	all sugarable to	analyse all the state of the	المعرز الغادر بدأهما وطائرهم	
60.0	الجنائم والدا كأركن	ing selling	and the particular	a takat tak	a si yala ya si si	ar sisial dirumbuta	a Maria ya Maria (K. 1929) Aka	المانية بريري المراجع المراجع المراجع	a light for the state of the st	المطلقات ودهمان كله	n Server and the first	Freq Offs
00.0												0 H
70.0												
												Scale Typ
Start 0.849	000 GHz									Stop 1.0	0000 GHz	Log <u>L</u>
Res BW					#VBV	/ 300 k	lz		Sweep	18.72 ms	(3021 pts)	
sg 🤳 Points	s changed	; all tr	aces c	leared					STAT	us		

Plot 7-12. Conducted Spurious Plot (Cellular GPRS Mode - Mid Channel)



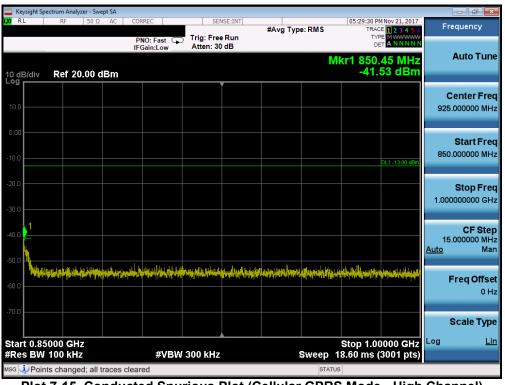
Plot 7-13. Conducted Spurious Plot (Cellular GPRS Mode - Mid Channel)

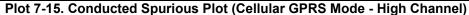
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	ectrum Analyzer - S	Swept SA									di X
L <mark>XI</mark> RL	RF 50	Ω AC	CORREC	SEI	ISE:INT	#Avg Typ	e: RMS		MNov 21, 2017	Frequer	су
			PNO: Fast 🖵	Trig: Fre				TYP			
			IFGain:Low	Atten: 30	dB					Auto	Tune
								Mkr1 810.	48 dBm		
10 dB/div Log	Ref 20.00	dBm		,				-50.	40 UDIII		
										Cente	r Freq
10.0										427.00000	00 MHz
0.00										Stor	tFreq
										30.00000	
-10.0									DL1 -13.00 dBm	00.00000	50 min 12
-20.0											
-20.0											o Freq
-30.0										824.00000	00 MHz
-40.0										CF 79.40000	Step
									1	79.40000 Auto	Man
-50.0			nd to de pala parte parte de la	on a national	the second state		. II	1.1.1.1.1.1			
i portante de la comparte La contracta de la comparte de la co	an a	erret depreter meteter de la su de selferate de	angeneration (na angeneration) Angeneration (na angeneration)	n an graph a gri sin provinsi si s A tra filin and se filin an dha filin	and the state of the	in na sere propos Upini slovnice Albier	e a la constanti la La constanti la	en en solen en solen de solen de solen en solen En solen en s	and a state of the state of the	Freq	Offset
-60.0	A Base of Incolor States									Treq	0 Hz
-70.0										Scale	е Туре
										Scale	rype
Start 30.0								Stop 8	24.0 MHz	Log	Lin
#Res BW	100 kHz		#VBW	/ 300 kHz		s	weep	98.46 ms (1	5881 pts)		
MSG							STA	TUS			

Plot 7-14. Conducted Spurious Plot (Cellular GPRS Mode - High Channel)





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	ectrum Analy:	zer - Swep	ot SA										
X/RL	RF	50 Ω	AC	CORREC	st 😱	Trig: Free		#Avg Typ	e: RMS	TRA	MNov 21, 2017 CE 1 2 3 4 5 6 PE M WWWWW ET A N N N N N	Frequ	uency
10 dB/div	Ref 20).00 di	Bm	IFGain:Lo	w	Atten: 30	dB		Mk	r1 1.69	8 0 GHz 31 dBm	A	uto Tune
10.0													nter Fred 10000 GH2
-10.0											DL1 -13.00 dBm		tart Fred 10000 GH:
-20.0	↓1											S 10.00000	top Fre 10000 GH
	ren) - 111 k Alvitt' farm		an a	territet (ander (Marine)			and a state of the second	lings (spilogelini) Mangal (see the second spilo	l <mark>anna an an</mark>	Part of the second s Second second s	elegatikî Deşanaşteş Alegatikî seşteka a		CF Step 0000 MH Mar
60.0												Fre	e q Offse 0 H
-70.0										Stop 10	.000 GHz	Sc Log	ale Type
#Res BW		z		#	VBW 3	3.0 MHz		s	weep 15	.60 ms (1	8001 pts)	-	
ISG									STATUS	5			

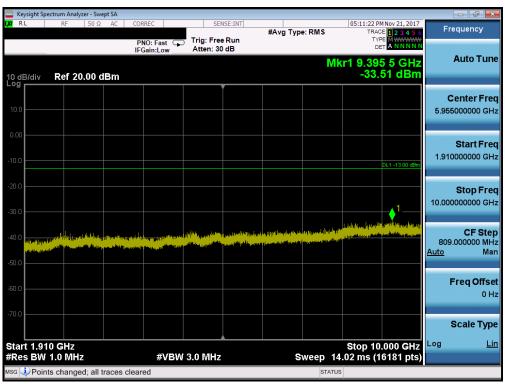
Plot 7-16. Conducted Spurious Plot (Cellular GPRS Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swep					
<mark>χύ</mark> RL RF 50 Ω	AC CORREC	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	05:11:07 PM Nov 21, 2017 TRACE 1 2 3 4 5 6 TYPE MWWWW DET A N N N N N	Frequency
10 dB/div Ref 20.00 dl	IFGain:Low	Atten: 30 dB	M	(r1 1.825 5 GHz -39.09 dBm	Auto Tun
10.0					Center Fre 937.500000 MH
10.0				DL1 -13.00 dBm	Start Fre 30.000000 M⊦
30.0					Stop Fre 1.845000000 G⊦
40.0 	al han the stand of the standard and belle at	fil og skal fils filser, stor på skalskalskalskalska	n an		CF Ste 181.500000 MH <u>Auto</u> Ma
60.0					Freq Offs 0 F
5tart 0.0300 GHz				Stop 1.8450 GHz	Scale Typ
#Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 2	2.420 ms (3631 pts)	

Plot 7-17. Conducted Spurious Plot (PCS GPRS Mode - Low Channel)



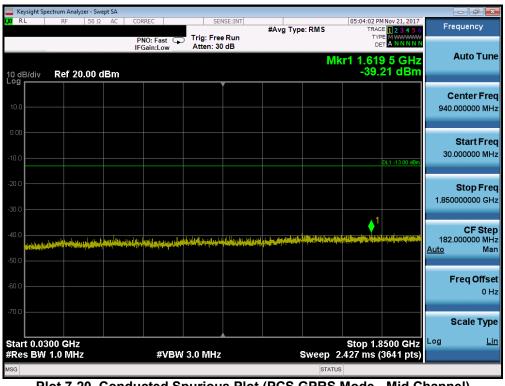
Plot 7-18. Conducted Spurious Plot (PCS GPRS Mode - Low Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA				
LX/ R L RF 50 Ω AC	CORREC SE	NSE:INT #Avg Type	05:11:39 PM Nov 21, 201 RMS TRACE 1 2 3 4 5	
10 dB/div Ref 10.00 dBm	PNO: Fast Trig: Fre IFGain:Low Atten: 20		Mkr1 17.023 5 GH -36.32 dBr	Auto Tune
				Center Freq 15.00000000 GHz
-10.0			0L1 -13.00 eE	Start Freq 10.000000000 GHz
-30.0	I I. J. Wilson alkiller		1 Las y alterné V. delle a literation de la destructure	Stop Freq 20.000000000 GHz
-50.0				CF Step 1.00000000 GHz <u>Auto</u> Man
-70.0				Freq Offset 0 Hz
80.0 Start 10.000 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	- Sv	Stop 20.000 GH weep 25.33 ms (20001 pt	Scale Type
MSG Doints changed; all traces cl			STATUS	<i></i>

Plot 7-19. Conducted Spurious Plot (PCS GPRS Mode - Low Channel)



Plot 7-20. Conducted Spurious Plot (PCS GPRS Mode - Mid Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight S	pectrum A	nalyzer - Sw	ept SA										
XI RL	RF	50 Ω	AC	CORREC	Fast 😱			#Avg Typ	e: RMS	TRAC	MNov 21, 2017 DE 1 2 3 4 5 6 PE MWWWWW ET A N N N N N	Fr	equency
10 dB/div	Ref	20.00	dBm	IFGain	Low	Atten: 30			N	lkr1 9.48			Auto Tune
10.0													Center Free 5000000 GH
-10.00											DL1 -13.00 dBm	1.910	Start Fre
-20.0											1	10.000	Stop Fre 0000000 GH
Under an	an a	anan provensi Marana	a Logathan Marine	n <mark>ingenerationski se </mark>	ra n ^{ala} s francia A n ^{anala} s salas	gantiga ganigat Mataloga ganatati	ter gener for første forste Generale for det forste som et	(<mark>) esta (ha) (han (han a d</mark> a) en mana secto (h ^{an ma} na ha (ha)	i en tu person i feli fe		a ya ana da ngangan si jalan. Ingga kalani ing para kapang	809 <u>Auto</u>	CF Ste .000000 MH Ma
50.0 												-	Freq Offso 0 ⊦
70.0												Log	Scale Typ
Start 1.9 #Res BW					#VBW	3.0 MHz		s	weep	Stop 10 14.02 ms (1	.000 9112	LUg	<u>Li</u>
ISG									STAT	rus			

Plot 7-21. Conducted Spurious Plot (PCS GPRS Mode - Mid Channel)



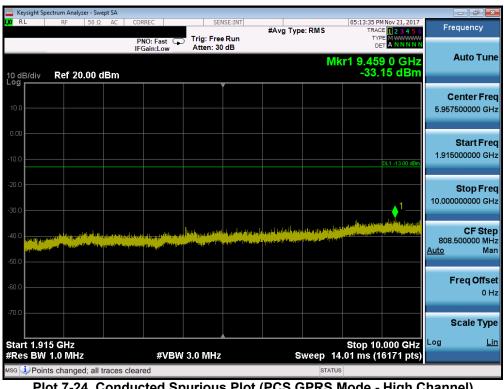
Plot 7-22. Conducted Spurious Plot (PCS GPRS Mode - Mid Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	pectrum Analyz	zer - Swept	t SA										
LXU RL	RF	50 Ω		ORREC		Trig: Free		#Avg Typ	e:RMS	TRA	MNov 21, 2017 CE 1 2 3 4 5 6 PE M WWWWW ET A NNNNN	Fre	quency
10 dB/div Log	Ref 20	.00 dE		IFGain:Lo	w	Atten: 30) dB		М	kr1 1.80	7 0 GHz 11 dBm		Auto Tune
10.0													enter Fred 000000 MH
-10.0											DL1 -13.00 dBm		Start Fre 000000 MH
-20.0													Stop Fre 000000 GH
-40.0 yylida y -50.0	المريبة الأحضائلين	t history of the	, edda o gogler a	le, luid _e irin	فتوسيهانين	het i the definition	1. Martin for de 1999			anga at the first state of the	ng n	182. <u>Auto</u>	CF Ste 000000 M⊢ Ma
-60.0												F	r eq Offs e 0 H
-70.0	300 GHz									Stop 1.	8500 GHz		Scale Typ
#Res BV	V 1.0 MHz			#	VBW 3	3.0 MHz				2.427 ms	(3641 pts)		
ISG									STATI	JS			

Plot 7-23. Conducted Spurious Plot (PCS GPRS Mode - High Channel)



Plot 7-24. Conducted Spurious Plot (PCS GPRS Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	ectrum Analyzer - S	Swept SA									
XI RL	RF 50	Ω ΑC (CORREC	SEN	SE:INT	#Avg Typ	e' RMS		MNov 21, 2017 DE 1 2 3 4 5 6	Frequenc	cy
			PNO: Fast 🖵 IFGain:Low	Trig: Free Atten: 20				TY			
10 dB/div Log	Ref 10.00						Mkr	1 17.05 -36.	5 0 GHz 19 dBm	Auto	Tune
0.00										Center 15.00000000	
-10.0									DL1 -13.00 dBm	Start 10.00000000	
-30.0	ally the formation of the form			enan da aktor, på	للكاند ، رسمها والمكاندة المدر أم		1 Malau kathlatilik	Alla an triangent	la fa dela citata da s	Stop 20.00000000	
-50.0		nada perint kapanan kapan perint p			and the second of the second					CF 1.00000000 <u>Auto</u>	Step 0 GHz Mar
-70.0										Freq C	Offsel 0 Hz
-80.0	000 GHz							Stop 20	.000 GHz	Scale	Type Lin
#Res BW			#VBW	3.0 MHz		S	weep 25	.33 ms (2	20001 pts)		
usg 칮 Poin	nts changed; a	Il traces cle	ared				STATUS				

Plot 7-25. Conducted Spurious Plot (PCS GPRS Mode - High Channel)

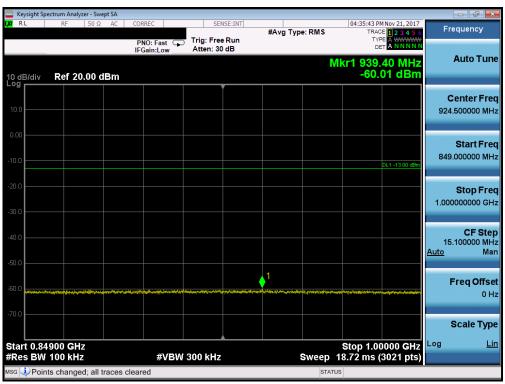
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Cellular WCDMA Mode

	um Analyzer - Swept SA					
C RL	RF 50 Ω AC	PNO: Fast	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	04:35:38 PM Nov 21, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN N	Frequency
0 dB/div	Ref 20.00 dBm	II Gam.Low		N	lkr1 822.80 MHz -35.44 dBm	Auto Tun
10.0						Center Fre 426.500000 MH
10.0					DL1 -13.00 dBm	Start Fre 30.000000 M⊦
20.0					1,	Stop Fre 823.000000 M⊦
40.0 50.0						CF Ste 79.30000 MH <u>Auto</u> Ma
50.0						Freq Offs 0 H
70.0						Scale Typ
tart 30.0 N Res BW 10		#VBW	300 kHz	Sweep 9	Stop 823.0 MHz 8.33 ms (15861 pts)	Log <u>L</u>
SG				STAT	us	

Plot 7-26. Conducted Spurious Plot (Cellular WCDMA Mode - Low Channel)



Plot 7-27. Conducted Spurious Plot (Cellular WCDMA Mode - Low Channel)

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	pectrum Analy												
(X) RL	RF	50 Ω	AC	CORREC		SEI	ISE:INT	#Avg Typ	e: RMS		10 PM Nov 21, 2017	Fre	equency
				PNO: Fa	ast 🖵	Trig: Free Atten: 30		• ,,					
				IFGain:L	ow	Atten: 50	ub			Akr1 Q	127 5 GHz		Auto Tune
10 dB/div	Ref 20	0.00 dE	Зm							-4	1.88 dBm		
												-	enter Freg
10.0													000000 GHz
												0.000	000000 0112
0.00													
													Start Freq
-10.0											DL1 -13.00 dBm	1.000	000000 GHz
-20.0													Stop Freq
-30.0												10.000	000000 GHz
-30.0													
-40.0											¹		CF Step
												Auto	000000 MHz. Man
-50.0	and and a second se												
												F	req Offset
-60.0													0 Hz
70.0													
-70.0												9	Scale Type
Start 1.0								_		Stop	10.000 GHz	Log	Lin
#Res BW	1.0 MH	2		;	₽VB₩	3.0 MHz		\$; (18001 pts)		
MSG									STA	TUS			

Plot 7-28. Conducted Spurious Plot (Cellular WCDMA Mode - Low Channel)



Plot 7-29. Conducted Spurious Plot (Cellular WCDMA Mode - Mid Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 94
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	ctrum Analyzer - Sw										_	
XI RL	RF 50 Ω	2 AC	CORREC PNO: Fas		sense	un	#Avg Type	e: RMS	TR	PM Nov 21, 2017 ACE 1 2 3 4 5 6 YPE A WWWWW DET A NNNNN	Fre	quency
10 dB/div Log	Ref 20.00	dBm	IFGain:Lo	w A	tten: 30 dl	3		N	/kr1 849	9.15 MHz 9.90 dBm		Auto Tune
10.0												enter Freq 500000 MHz
.10.0										DL1 -13.00 dBm		Start Fred 000000 MHz
30.0												Stop Fred 000000 GH:
-40.0											15.1 <u>Auto</u>	CF Step 100000 MH Mar
60.0	Hertnad dy mension og anter om	lafransverige of	ted 4.4 meter Tradic spins drift	ely law gla, del a stragg f	ngt :- Ingen generation of the second	Ann ann dù ann ann a' ann ann a' ann ann a' ann	Anyour of managed in provide	¹ ปรุกษณฑริสาร	ىرىن رىغەر ئور يېزى يېزى مۇرىي مۇرىيى . مەرىپ يېرىك بىرى يېزىك يېزىك يېزىك يېزىك يېزىك يېزىك يېزىك يېزىك يېزىك يېزىك يېزىك يېز	San sealar an an an an an an an an an	F	r eq Offse 0 H:
-70.0												cale Type
Start 0.84 #Res BW				/BW 30	0 kHz		1	Sweep	18.72 ms	00000 GHz (3021 pts)	Log	Lin



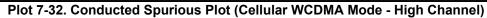


Plot 7-31. Conducted Spurious Plot (Cellular WCDMA Mode - Mid Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer - Swe										X
LX/IRL	RF 50 Ω	AC	CORREC		NSE:INT	#Avg Typ	e: RMS	TRAC	MNov 21, 2017	Fr	equency
			PNO: Fast IFGain:Low	Atten: 30							
10 dB/div Log	Ref 20.00 c	lBm					М	kr1 819. -59.	85 MHz 16 dBm		Auto Tune
10.0											Center Freq .000000 MHz
-10.0									DL1 -13.00 dBm	30	Start Freq .000000 MHz
-20.0										824	Stop Freq .000000 MHz
-40.0										79 <u>Auto</u>	CF Step .400000 MHz Man
-60.0	ti ta baran ya ku ya Wana ku ya								1		F req Offset 0 Hz
-70.0											Scale Type
Start 30.0 #Res BW			#VBW	300 kHz		s	weep 9	Stop 8 8.46 ms (1	24.0 MHz 5881 pts)	Log	Lin
MSG							STATU	s			





Plot 7-33. Conducted Spurious Plot (Cellular WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	ectrum Analyze												
LXI RL	RF	50 Ω	AC	CORREC		SEN	NSE:INT	#Avg Typ	e RMS		PM Nov 21, 2017	Freque	ncy
				PNO: Fa	ast 🖵	Trig: Free Atten: 30							
				IFGain:L	.ow	Atten. 30	ub .		M	kr1 0 /	66 5 GHz	Auto	o Tune
10 dB/div Log	Ref 20.	00 dl	Bm							-4	1.67 dBm		
							Í					Cente	er Freg
10.0												5.5000000	
0.00												Sta	rt Freq
-10.0											DL1 -13.00 dBm	1.0000000	00 GHz
											UL1 -13.00 dBm		
-20.0												Sto	p Freq
-30.0												10.000000	00 GHz
-30.0													
-40.0												900.0000	F Step
						and the second s	and the second		-	and the second second		Auto	Man
-50.0													
-60.0												Freq	Offset
													0 Hz
-70.0													
												Scal	е Туре
Start 1.00										Stop 1	0.000 GHz	Log	<u>Lin</u>
#Res BW	1.0 MHz			#	¢VBW	3.0 MHz		s	weep 1	5.60 ms	(18001 pts)		
MSG									STATU	JS			

Plot 7-34. Conducted Spurious Plot (Cellular WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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AWS WCDMA Mode

	ctrum Analyzer -						
RL	RF 5	DΩ AC	CORREC PNO: Fast G	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	04:22:21 PM Nov 21, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div	Ref 20.0	0 dBm			M	kr1 1.705 0 GHz -33.68 dBm	Auto Tur
10.0							Center Fre 867.500000 M⊦
0.0						DL1 -13 00 dBm	Start Fre 30.000000 MH
0.0						1	Stop Fre 1.705000000 GH
0.0	. Sur Prioritation		and a fundamental for the first first state of the state			her y blaumiget in fright dans of a mysell with on the one of the mysell	CF Ste 167.500000 MH <u>Auto</u> Ma
0.0							Freq Offs 0 H
10.0 tart 0.03	00 GHz					Stop 1.7050 GHz	Scale Typ
Res BW			#VBV	V 3.0 MHz	Sweep	Stop 1.7050 GHz 2.233 ms (3351 pts)	

Plot 7-35. Conducted Spurious Plot (AWS WCDMA Mode - Low Channel)



Plot 7-36. Conducted Spurious Plot (AWS WCDMA Mode - Low Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 34 of 84
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	ectrum Analyzer -										- • ×
LXI RL	RF 5	OΩ AC	CORREC	SEN	SE:INT	#Avg Typ	e RMS		MNov 21, 2017 DE 1 2 3 4 5 6	Fre	equency
			PNO: Fast 🖵	Trig: Free Atten: 20				TY			
10 dB/div Log	Ref 10.0	0 dBm					Mk	r1 16.97 -44.	4 0 GHz 21 dBm		Auto Tune
0.00											enter Freq 000000 GHz
-10.0									DL1 -13.00 dBm	10.000	Start Freq 000000 GHz
-30.0							1			20.000	Stop Freq 000000 GHz
-50.0				and the second second					·	1.000 <u>Auto</u>	CF Step 000000 GHz Man
-70.0										F	F req Offset 0 Hz
-80.0										s Log	Scale Type
Start 10.0 #Res BW			#VBW	3.0 MHz		s	weep 2	20 Stop 25.33 ms			<u>Lin</u>
мsg 🤙 Poin	ts changed;	all traces of	cleared				STAT				

Plot 7-37. Conducted Spurious Plot (AWS WCDMA Mode - Low Channel)

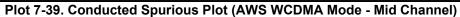


Plot 7-38. Conducted Spurious Plot (AWS WCDMA Mode - Mid Channel)

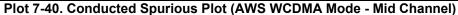
FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 25 of 94
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	ctrum Analyze		t SA										
LXI RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Avg Typ	e RMS		PM Nov 21, 2017 ACE 1 2 3 4 5 6	Freq	uency
				PNO: F	ast 🖵	Trig: Fre Atten: 3				т			
				IFGain:l	LOW	Atten: 3	Uав					A	uto Tune
10 dB/div Log	Ref 20.	00 dE	3m						IVI	-41	47 5 GHz .68 dBm		
209							Ĭ					Cei	nter Frea
10.0													00000 GHz
0.00													tart Freq
													00000 GHz
-10.0											DL1 -13.00 dBm		
-20.0													ten Ener
													top Freq
-30.0												10.00000	0000 0112
											1		CF Step
-40.0												824.50	0000 MHz
-50.0	-	-			No.	المصويية المصحوب	a subsection of the second					<u>Auto</u>	Man
-30.0													
-60.0												Fre	eq Offset
													0 Hz
-70.0													
												Sc	ale Type
Start 1.75	5 GHz									Stop 1	0.000 GHz	Log	Lin
#Res BW	1.0 MHz			;	#VBW	3.0 MHz	:	S	weep 1	4.29 ms ((16491 pts)		
мsg 🧼 Point	s changed	; all tra	aces cl	eared					STAT	US			







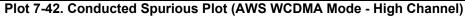
FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyze		t SA											
X/RL	RF	50 Ω	AC	CORRE	c :Fast C	Tr	ig: Free	NSE:INT	#Avg Typ	e:RMS	TRA	M Nov 21, 2017 CE 1 2 3 4 5 6 PE A WWWWWW ET A N N N N N	Fr	equency
10 dB/div	Ref 20.	00 dE	3m	IFGai	n:Low	A	tten: 30) dB		M		2 0 GHz 33 dBm		Auto Tune
10.0														Center Free
-10.0												DL1 -13.00 dBm	30	Start Free .000000 MH
-20.0													1.710	Stop Fre 0000000 GH
-40.0	an a succession of the second starts			Marialdar	Marrian					a and the second	in marterial and the print of the	↓ 1	168 <u>Auto</u>	CF Ste .000000 MH Ma
60.0													1	Freq Offse 0 H
-70.0 Start 0.03											Stop 1.		Log	Scale Typ <u>Li</u>
#Res BW	1.0 MHz				#VB	W 3.0	MHz			Sweep State		(3361 pts)		

Plot 7-41. Conducted Spurious Plot (AWS WCDMA Mode - High Channel)





FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spe	ctrum Analyz		t SA										
LX/ RL	RF	50 Ω	AC	CORREC		SEI	VSE:INT	#Avg Typ	e: RMS	04:24	:23 PM Nov 21, 2017 TRACE 1 2 3 4 5 (F	requency
				PNO: Fa	st 🖵	Trig: Free Atten: 20							
				IFGain:L	ow	Atten: 20	ав						Auto Tune
	Ref 10.	00 45	2						IVII	KT 17.	028 0 GHz 43.92 dBm		
10 dB/div	Rel IU.	.00 u	ыш				/						
													Center Freq
0.00												15.00	00000000 GHz
-10.0											DL1 -13.00 dBm		Start Freq
~												10.00	00000000 GHz
-20.0													
-30.0													
00.0													Stop Freq
-40.0									1			20.00	00000000 GHz
-50.0						and so and so and so	and the part of the second					1.00	CF Step
												Auto	Man
-60.0													
													Freq Offset
-70.0													0 Hz
-80.0													
-00.0													Scale Type
Start 10.0				,						Stop	20.000 GHz	Log	Lin
#Res BW					VBW	3.0 MHz		s			s (20001 pts		
мsg 횢 Point	s changed	d; all tra	aces c	leared					STA	rus			

Plot 7-43. Conducted Spurious Plot (AWS WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	rum Analyzer - Swept SA					
<mark>XI</mark> RL	RF 50 Ω AC	PNO: Fast 🗔	SENSE:INT	#Avg Type: RMS	04:05:50 PM Nov 21, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div	Ref 20.00 dBm	IFGain:Low	Atten: 30 dB	М	kr1 1.845 0 GHz -40.68 dBm	Auto Tun
10.0						Center Fre 937.500000 MH
-10.0					DL1 -13.00 dBm	Start Fre 30.000000 MH
-20.0						Stop Fre 1.845000000 GH
-40.0			and while the provide second that the	۵۰ (۱۹۹۵-۱۹۹۵) ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰		CF Ste 181.50000 M⊢ <u>Auto</u> Ma
60.0						Freq Offso 0 ⊦
-70.0						Scale Typ
Start 0.030 #Res BW 1		#VBW	3.0 MHz	Sweep	Stop 1.8450 GHz 2.420 ms (3631 pts)	Log <u>Li</u>
ISG				STATU	JS	

Plot 7-44. Conducted Spurious Plot (PCS WCDMA Mode - Low Channel)



Plot 7-45. Conducted Spurious Plot (PCS WCDMA Mode - Low Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer							
LXI RL	RF	50Ω AC	CORREC	SENSE:INT	#Avg Type:	04:06:22 PMI RMS TRACE	Nov 21, 2017	Frequency
			PNO: Fast IFGain:Low	Trig: Free Run Atten: 20 dB		TYPE	A WWWWW A NNNNN	
10 dB/div Log	Ref 10.0	00 dBm				Mkr1 17.017 -44.0	5 GHz 7 dBm	Auto Tune
0.00							1	Center Freq 5.000000000 GHz
-10.0						D	L1 -13.00 dBm	Start Freq 0.000000000 GHz
-30.0						1	2	Stop Freq 0.000000000 GHz
-50.0								CF Step 1.000000000 GHz I <u>to</u> Man
-70.0								Freq Offset 0 Hz
-80.0								Scale Type
Start 10.0 #Res BW			#VBW	3.0 MHz	Sw	Stop 20.0 eep 25.33 ms (20	700 GHZ	
мsg 🧼 Point	ts changed;	all traces	cleared			STATUS		

Plot 7-46. Conducted Spurious Plot (PCS WCDMA Mode - Low Channel)



Plot 7-47. Conducted Spurious Plot (PCS WCDMA Mode - Mid Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyz	er - Swep	ot SA										
LXI RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Avg Typ	e: RMS		24 PM Nov 21, 2017 RACE 1 2 3 4 5 6	Fr	equency
					ast 🖵	Trig: Fre Atten: 30							
				IFGain:	Low	Atten: 30	a B			Alend O.			Auto Tune
	Ref 20	00 45	Bma							4-4 AKT	135 0 GHz 1.79 dBm		
10 dB/div	Rel 20	.00 a.	ыш				•						
												c	enter Freq
10.0												5.95	5000000 GHz
0.00													Start Freq
												1 91	0000000 GHz
-10.0											DL1 -13.00 dBm	1.01	
-20.0													
-20.0													Stop Freq
-30.0												10.00	0000000 GHz
-40.0											¹		CF Step
										and the second sec		Auto	.000000 MHz Man
-50.0		~~~~											
													Freq Offset
-60.0													0 Hz
													0112
-70.0													
													Scale Type
Start 1.91	0 GHz									Stop	10.000 GHz	Log	Lin
#Res BW					#VBW	3.0 MHz		s	weep	14.02 ms	(16181 pts)		
мsg 🤳 Poin	ts change	d; all tra	aces c	leared					STA	TUS			

Plot 7-48. Conducted Spurious Plot (PCS WCDMA Mode - Mid Channel)



Plot 7-49. Conducted Spurious Plot (PCS WCDMA Mode - Mid Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyz		it SA											
LXU RL	RF	<u>50 Ω</u>	AC	CORRE	C	Trig	SEN	Run	#Avg Typ	e:RMS	TR	PM Nov 21, 2017 ACE 1 2 3 4 5 6 YPE A WWWWW DET A NNNNN	Fr	equency
10 dB/div Log	Ref 20	.00 di	3m	IFGai	n:Low	Att	en: 30	dB		М		91 0 GHz 3.28 dBm		Auto Tune
10.0														Center Fred 0.000000 MH:
-10.0												DL1 -13.00 dBm	30	Start Free 0.000000 MH
-20.0													1.85	Stop Fre 0000000 GH
-40.0	Angeneral States	لىنىر بىرىيىرىك	ار دوارم بر ارزاد	******	Ag-later The April of The			and the part of the local data		an address of a series	ign gywlawllawda	1	182 <u>Auto</u>	CF Ste 2.000000 MH Ma
60.0														Freq Offse 0 H
Start 0.03					#VBV					C 11/2017	Stop 1		Log	Scale Typ
	T.U IMHZ				#vBv	v 3.0 I	WINZ			Sweep		(3641 pts)		

Plot 7-50. Conducted Spurious Plot (PCS WCDMA Mode - High Channel)



Plot 7-51. Conducted Spurious Plot (PCS WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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RF 50										• 🗗 💌
N 50	Ω AC	CORREC	SEM	NSE:INT	#Ava Tvp	e RMS		2 PM Nov 21, 2017 RACE 1 2 3 4 5 6	Freq	uency
		PNO: Fast								
		IFGain:Low	Atten. 20	, ab		M	kr1 16 0		A	uto Tune
Ref 10.00) dBm					IVI	-4	4.04 dBm		
			,	Í					Cei	nter Freg
										00000 GHz
								DL1 -13.00 dBm	9	tart Freq
										00000 GHz
										top Freq
										00000 GHz
						↓ 1				
						Therease				CF Step
										00000 GHz Man
									Auto	Ivian
									En	eq Offset
										0 Hz
									Sc	ale Type
		#V	BW 3.0 MHz		s	ween	Stop : 25.33 ms	20.000 0112	-	Lin
	ll traces		511-050 191112					(Zooon pts)		
	0 GHz 0.0 MHz	.0 MHz	Ref 10.00 dBm	Atten: 20 Ref 10.00 dBm	IFGain:Low Atten: 20 dB Ref 10.00 dBm	PNO: Fast IFGain:Low Trig: Free Run Atten: 20 dB Ref 10.00 dBm	Atten: 20 dB Ref 10.00 dBm	PNO: Fast Trig: Free Run Atten: 20 dB Ref 10.00 dBm -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	PNO: Fast Trig: Free Run Atten: 20 dB Mkr1 16.988 0 GHz -44.04 dBm 0 L1-3300 dBm 0 L1-3300 dBm 0 L1-3300 dBm 0 L1-3300 dBm 0 L1-3300 dBm 1 L1	PNO: Fast IFGain:Low Trig: Free Run Atten: 20 dB Mkr1 16.968 0 GHz -44.04 dBm Cer 15.0000 10.00000 10.0000 10.

Plot 7-52. Conducted Spurious Plot (PCS WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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7.4 Band Edge Emissions at Antenna Terminal §2.1051 §22.917(a) §24.238(a) §27.53(h) RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03 - Section 6.0

Test Settings

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW > 1% of the emission bandwidth
- 4. VBW <u>></u> 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

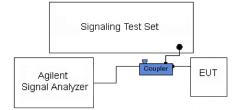


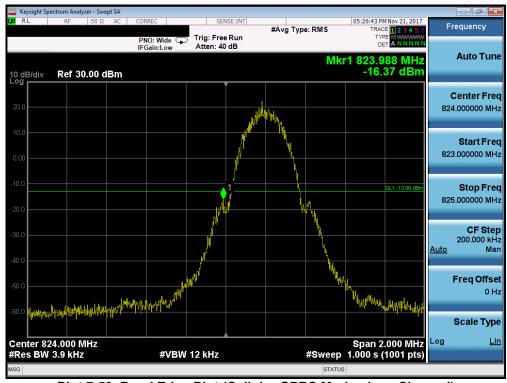
Figure 7-3. Test Instrument & Measurement Setup

Test Notes

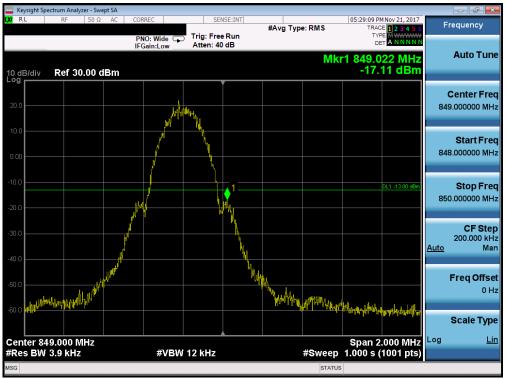
Per 22.917(b) 24.238(b) 27.53(h)(3) and RSS-132(5.5) RSS-133(6.5) RSS-139(6.5) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. 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.

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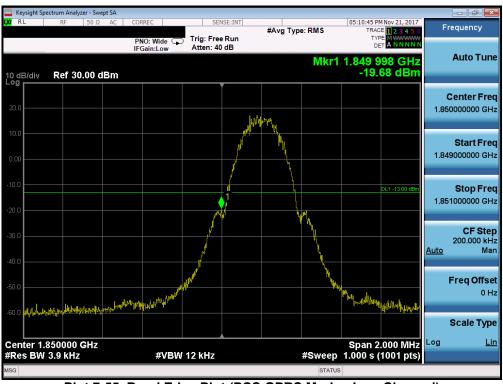
Plot 7-53. Band Edge Plot (Cellular GPRS Mode - Low Channel)



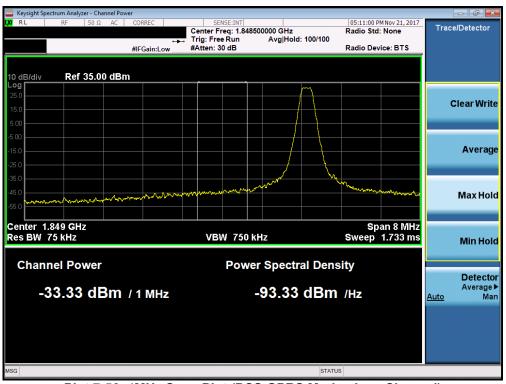
Plot 7-54. Band Edge Plot (Cellular GPRS Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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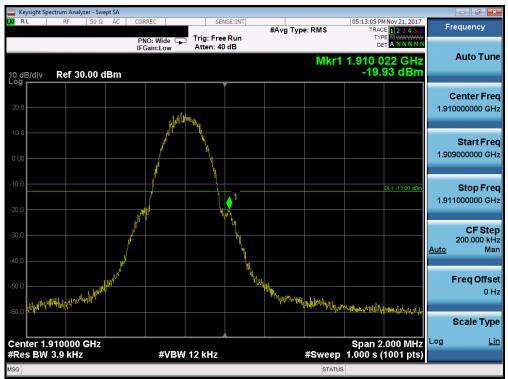




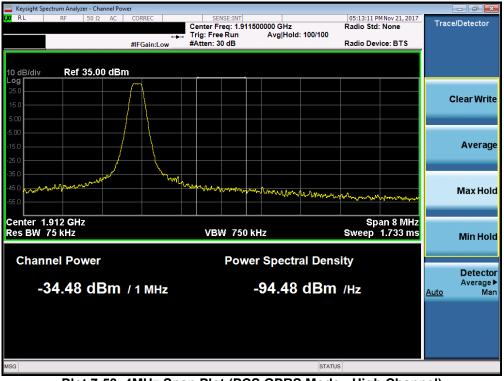
Plot 7-56. 4MHz Span Plot (PCS GPRS Mode - Low Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Plot 7-57. Band Edge Plot (PCS GPRS Mode - High Channel)



Plot 7-58. 4MHz Span Plot (PCS GPRS Mode - High Channel)

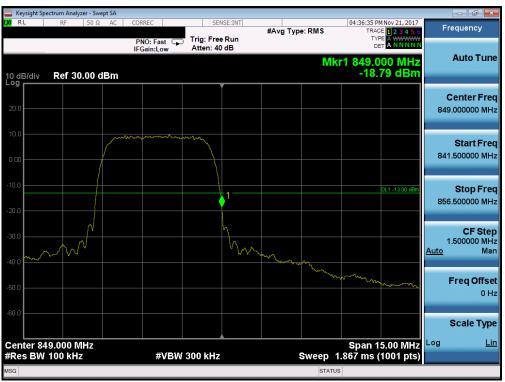
FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Cellular WCDMA Mode



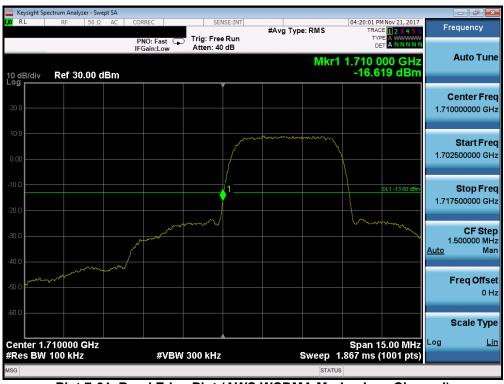
Plot 7-59. Band Edge Plot (Cellular WCDMA Mode - Low Channel)



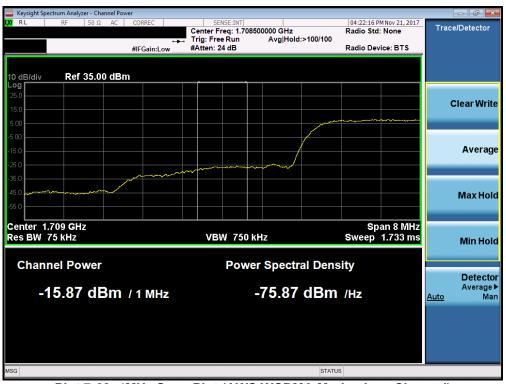
Plot 7-60. Band Edge Plot (Cellular WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Plot 7-61. Band Edge Plot (AWS WCDMA Mode - Low Channel)



Plot 7-62. 4MHz Span Plot (AWS WCDMA Mode - Low Channel)

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	ectrum Analyze											-
XI RL	RF	50 Ω	AC	CORREC PNO: F IFGain:	ast 🖵			#Avg Ty	pe:RMS	TR	PM Nov 21, 2017 ACE 1 2 3 4 5 6 YPE A DET A NNNN	Frequency
10 dB/div	Ref 30.	00 dE	3m	i Guin.	2011				Mkr	1 1.755 -14	000 GHz .63 dBm	Auto Tur
20.0												Center Fre 1.755000000 GF
0.00		/	,	~~~~	U~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m						Start Fre 1.747500000 G⊦
20.0	And the second]					1				DL1 -13.00 dBm	Stop Fre 1.762500000 G⊦
30.0								and the second				CF Ste 1.500000 M⊦ <u>Auto</u> Ma
50.0										www.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Freq Offs 0 H
60.0												Scale Typ
	755000 G 100 kHz	Hz			#VBW	300 kH	z		Sweep	Span 1.867 ms	15.00 MHz (1001 pts)	Log <u>L</u>

Plot 7-63. Band Edge Plot (AWS WCDMA Mode - High Channel)



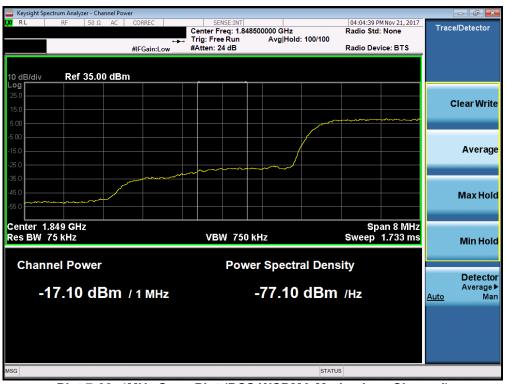
Plot 7-64. 4MHz Span Plot (AWS WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Plot 7-65. Band Edge Plot (PCS WCDMA Mode - Low Channel)



Plot 7-66. 4MHz Span Plot (PCS WCDMA Mode - Low Channel)

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	ectrum Analyzer - S										- 6 ×
XI RL	RF 50	Ω AC	CORREC PNO: Fast	Trig: Fre		#Avg Typ	e:RMS	TR	PM Nov 21, 2017 ACE 1 2 3 4 5 6 YPE A WWWWW DET A NNNNN	Fre	quency
10 dB/div	Ref 30.00	dBm	IFGain:Lov	Atten: 4	0 dB		Mkr	1 1.910	000 GHz .86 dBm		Auto Tune
20.0											e nter Fre 000000 GH
0.00		m		many							Start Fre 500000 GH
-10.0					1				DL1 -13.00 dBm		Stop Fre 500000 GH
30.0 40.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				V.m	·····	hy			1.9 <u>Auto</u>	CF Ste 500000 MH Ma
50.0								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	F	r eq Offse 0 H
-60.0											cale Typ
Center 1. Res BW	910000 GH: 100 kHz	Ζ	#\	/BW 300 kHz			Sweep	Span 1.867 ms	15.00 MHz (1001 pts)	LOg	LI
ISG							STAT	US			

Plot 7-67. Band Edge Plot (PCS WCDMA Mode - High Channel)



Plot 7-68. 4MHz Span Plot (PCS WCDMA Mode - High Channel)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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7.5 Peak-Average Ratio §24.232(d) RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)

Test Overview

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.

Test Procedure Used

KDB 971168 D01 v03 - Section 5.7.1

Test Settings

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW > Emission bandwidth of signal
- 4. The signal analyzer was set to collect one million samples to generate the CCDF curve
- 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

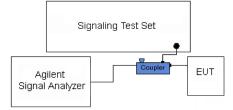


Figure 7-4. Test Instrument & Measurement Setup

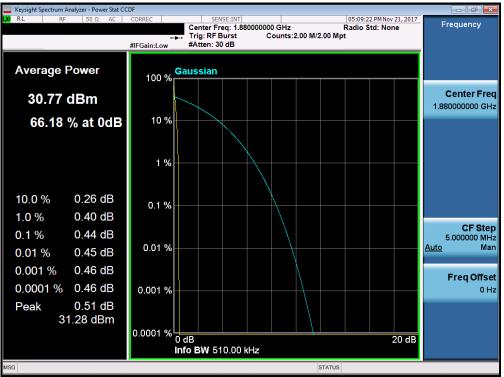
Test Notes

None

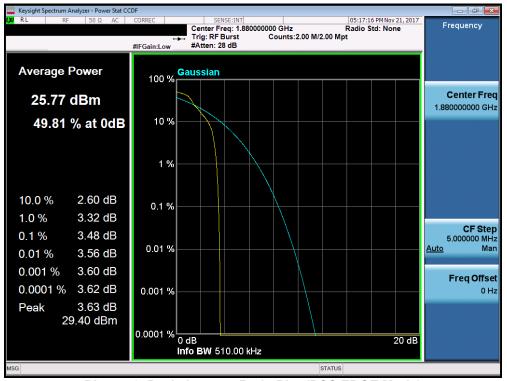
FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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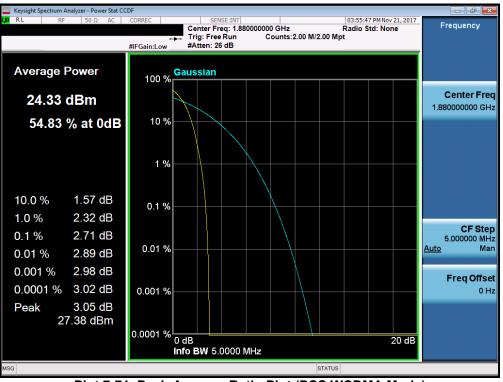




Plot 7-70. Peak-Average Ratio Plot (PCS EDGE Mode)

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Plot 7-71. Peak-Average Ratio Plot (PCS WCDMA Mode)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
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7.6 Radiated Power (ERP/EIRP) §22.913(a)(2) 24.232(c) 27.50(d)(4) RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03 - Section 5.2.1

ANSI/TIA-603-E-2016 - Section 2.2.17

Test Settings

- Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
- 2. RBW = 1 5% of the expected OBW, not to exceed 1MHz
- 3. VBW \geq 3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points \geq 2 x span / RBW
- 6. Detector = RMS
- 7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
- 8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
- 9. Trace mode = trace averaging (RMS) over 100 sweeps
- 10. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

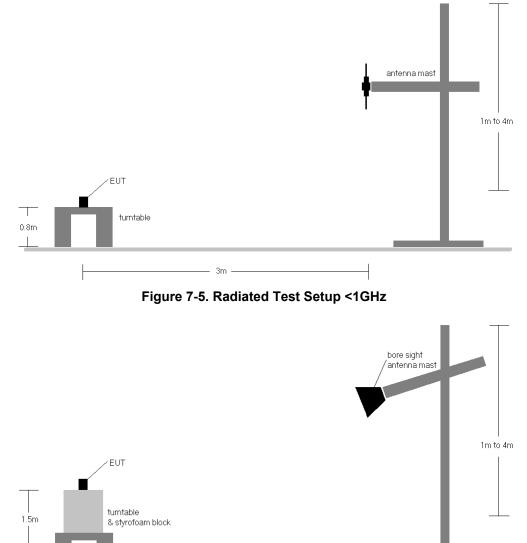


Figure 7-6. Radiated Test Setup >1GHz

3m

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- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 3) This unit was tested with its standard battery.
- 4) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

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Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.20	GPRS850	н	150	315	30.10	1.50	29.45	0.880	38.45	-9.01	31.60	1.444	40.61	-9.01
836.60	GPRS850	н	150	308	29.78	1.50	29.13	0.819	38.45	-9.32	31.28	1.344	40.61	-9.32
848.80	GPRS850	н	150	328	28.88	1.50	28.23	0.665	38.45	-10.23	30.38	1.091	40.61	-10.23
824.20	GPRS850	V	150	356	30.07	1.50	29.41	0.874	38.45	-9.04	31.56	1.434	40.61	-9.04
824.20	EDGE850	н	150	315	26.25	1.50	25.60	0.363	38.45	-12.86	27.75	0.595	40.61	-12.86

Table 7-2. ERP/EIRP (Cellular GPRS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
826.40	WCDMA850	Н	150	24	22.87	1.50	22.22	0.167	38.45	-16.24	24.37	0.274	40.61	-16.24
836.60	WCDMA850	н	150	24	21.73	1.50	21.08	0.128	38.45	-17.38	23.23	0.210	40.61	-17.38
846.60	WCDMA850	Н	150	24	21.93	1.50	21.28	0.134	38.45	-17.18	23.43	0.220	40.61	-17.18
826.40	WCDMA850	V	150	17	22.13	1.50	21.48	0.141	38.45	-16.98	23.63	0.231	40.61	-16.98

Table 7-3. ERP/EIRP (Cellular WCDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	V	150	278	19.37	5.63	25.00	0.316	30.00	-5.00
1732.60	WCDMA1700	V	150	278	20.03	5.41	25.44	0.350	30.00	-4.56
1752.60	WCDMA1700	V	150	278	19.41	5.19	24.60	0.288	30.00	-5.40
1732.60	WCDMA1700	н	150	112	19.25	5.41	24.66	0.292	30.00	-5.34

Table 7-4. EIRP (AWS WCDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.20	GPRS1900	Н	150	14	26.44	4.82	31.26	1.336	33.01	-1.75
1880.00	GPRS1900	н	150	10	26.76	4.74	31.50	1.412	33.01	-1.51
1909.80	GPRS1900	н	150	10	26.79	4.68	31.48	1.404	33.01	-1.54
1880.00	GPRS1900	V	150	3	25.33	4.74	30.07	1.015	33.01	-2.94
1880.00	EDGE1900	н	150	10	26.52	4.74	31.26	1.337	33.01	-1.75

Table 7-5. EIRP (PCS GPRS)

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Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	Н	150	34	20.95	4.81	25.76	0.377	33.01	-7.25
1880.00	WCDMA1900	н	150	34	20.96	4.74	25.70	0.372	33.01	-7.31
1907.60	WCDMA1900	Н	150	34	20.83	4.68	25.51	0.356	33.01	-7.50
1852.40	WCDMA1900	V	150	12	18.90	4.74	23.64	0.231	33.01	-9.37

Table 7-6. EIRP (PCS WCDMA)

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7.7 Radiated Spurious Emissions Measurements §2.1053 §22.917(a) 24.238(a) 27.53(h) RSS-132(5.5) RSS-133(5.5) RSS-139(6.6)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03 – Section 5.8

ANSI/TIA-603-E-2016 - Section 2.2.12

Test Settings

- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW \geq 3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points > 2 x span / RBW
- 5. Detector = RMS
- 6. Trace mode = Average (Max Hold for pulsed emissions)
- 7. The trace was allowed to stabilize

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EUT turntable 8. styrofoam block

The EUT and measurement equipment were set up as shown in the diagram below.

Figure 7-7. Test Instrument & Measurement Setup

Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 3) This unit was tested with its standard battery.
- 4) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 5) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 6) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 7) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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OPERATING FREQUENCY:	824	MHz	
CHANNEL:	1.	_	
MODULATION SIGNAL:	GPRS (GMSK)	_	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1648.40	Н	183	10	-59.92	9.01	-50.91	-37.9
2472.60	Н	331	226	-66.60	9.12	-57.48	-44.5
3296.80	Н	-	-	-72.40	9.37	-63.03	-50.0
4121.00	Н	-	-	-69.91	9.83	-60.08	-47.1
4945.20	Н	-	-	-70.84	11.24	-59.60	-46.6

Table 7-7. Radiated Spurious Data (Cellular GPRS Mode – Ch. 128)

MHz	6.60	836	OPERATING FREQUENCY:
	90	1	CHANNEL:
		GPRS (GMSK)	MODULATION SIGNAL:
	meters	3	DISTANCE:
	dBm	-13	LIMIT:

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.20	Н	147	32	-55.87	8.85	-47.02	-34.0
2509.80	Н	118	219	-67.73	9.17	-58.57	-45.6
3346.40	Н	-	-	-69.62	9.36	-60.26	-47.3
4183.00	Н	-	-	-70.41	10.19	-60.22	-47.2
5019.60	Н	-	-	-71.00	11.09	-59.91	-46.9

Table 7-8. Radiated Spurious Data (Cellular GPRS Mode – Ch. 190)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 62 af 04
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MHz	.80	848	OPERATING FREQUENCY:
-	51	2	CHANNEL:
-		GPRS (GMSK)	MODULATION SIGNAL:
	meters	3	DISTANCE:
	dBm	-13	LIMIT:
	meters	GPRS (GMSK) 3	MODULATION SIGNAL: DISTANCE:

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1697.60	Н	153	27	-52.65	8.67	-43.98	-31.0
2546.40	Н	163	305	-63.59	9.28	-54.31	-41.3
3395.20	Н	-	-	-67.14	9.46	-57.68	-44.7
4244.00	Н	-	-	-70.73	10.48	-60.25	-47.3
5092.80	Н	-	-	-70.27	10.88	-59.39	-46.4

Table 7-9. Radiated Spurious Data (Cellular GPRS Mode – Ch. 251)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 64 of 94	
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Cellular WCDMA Mode

OPERATING FREQUENCY:	82	MHz	
CHANNEL:	4		
MODULATION SIGNAL:	WCDMA	_	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1652.80	Н	-	-	-81.50	8.99	-72.51	-59.5
2479.20	Н	-	-	-76.89	9.12	-67.77	-54.8
3305.60	Н	-	-	-73.75	9.37	-64.38	-51.4

Table 7-10. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)

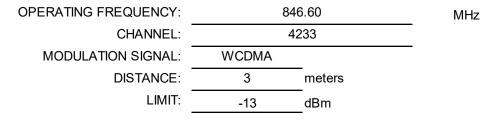
MHz	86.60	OPERATING FREQUENCY:	
-	183		CHANNEL:
-		WCDMA	MODULATION SIGNAL:
	meters	3	DISTANCE:
	dBm	-13	LIMIT:

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.20	Н	-	-	-81.05	8.85	-72.20	-59.2
2509.80	Н	-	-	-77.84	9.17	-68.68	-55.7
3346.40	Н	-	-	-73.73	9.36	-64.37	-51.4

Table 7-11. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 65 of 94	
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.20	Н	-	-	-80.81	8.70	-72.11	-59.1
2539.80	Н	-	-	-77.43	9.26	-68.17	-55.2
3386.40	Н	-	-	-73.08	9.44	-63.64	-50.6

Table 7-12. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 66 of 94	
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OPERATING FREQUENCY:	1	MHz	
CHANNEL:			
MODULATION SIGNAL:	WCDMA		
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3424.80	V	-	-	-66.80	6.47	-60.32	-47.3
5137.20	V	-	-	-65.87	8.43	-57.44	-44.4
6849.60	V	-	-	-63.71	8.71	-55.00	-42.0

Table 7-13. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1312)

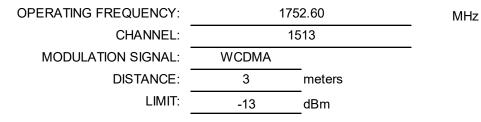
MHz	732.60	17	OPERATING FREQUENCY:
_	1413		CHANNEL:
_		WCDMA	MODULATION SIGNAL:
	meters	3	DISTANCE:
	dBm	-13	LIMIT:

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3465.20	V	-	-	-66.55	6.56	-59.99	-47.0
5197.80	V	-	-	-64.91	8.46	-56.46	-43.5
6930.40	V	-	-	-62.61	8.67	-53.94	-40.9

Table 7-14. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1413)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 67 of 04	
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3505.20	V	-	-	-67.53	6.59	-60.94	-47.9
5257.80	V	-	-	-65.44	8.41	-57.03	-44.0
7010.40	V	-	-	-62.72	8.58	-54.14	-41.1

Table 7-15. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1513)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 69 of 94
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OPERATING FREQUENCY:	185	0.20	MHz
CHANNEL:	5		
MODULATION SIGNAL:	GPRS (GMSK)	_	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3700.40	Н	118	226	-63.24	9.74	-53.50	-40.5
5550.60	Н	140	8	-60.03	10.97	-49.05	-36.1
7400.80	Н	-	-	-64.46	10.77	-53.69	-40.7
9251.00	Н	253	29	-52.46	12.28	-40.18	-27.2
11101.20	Н	230	5	-64.03	12.94	-51.09	-38.1
12951.40	Н	-	-	-62.75	12.69	-50.06	-37.1

Table 7-16. Radiated Spurious Data (PCS GPRS Mode – Ch. 512)

OPERATING FR	EQUENCY:	
	CHANNEL:	

MODULATION SIGNAL:

DISTANCE:

LIMIT:

661 GPRS (GMSK) 3 meters -13 dBm

1880.00

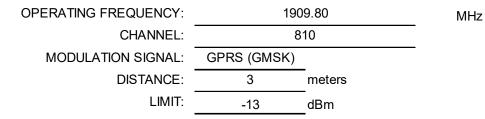
MHz

Turntable Ant. Antenna Level at Substitute **Spurious** Frequency Margin Pol. Height Azimuth Antenna Antenna Gain **Emission Level** [MHz] [dB] [H/V] [cm] [degree] Terminals [dBm] [dBi] [dBm] 3760.00 Н 191 338 -65.48 9.50 -55.98 -43.0 5640.00 Н 138 3 -59.05 11.16 -47.89 -34.9 7520.00 Н -65.05 11.03 -54.02 -41.0 _ -9400.00 Н 199 43 -52.51 12.19 -27.3 -40.32 11280.00 Н 123 262 -63.20 13.15 -50.05 -37.0 13160.00 Н -62.48 12.88 -49.60 -36.6 ---47.54 15040.00 Н -59.27 11.73 -34.5 --Н -64.35 15.35 16920.00 -49.00 -36.0 --

Table 7-17. Radiated Spurious Data (PCS GPRS Mode - Ch. 661)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3819.60	Н	390	241	-65.62	9.29	-56.32	-43.3
5729.40	Н	324	228	-65.55	11.34	-54.21	-41.2
7639.20	Н	-	-	-66.02	11.28	-54.74	-41.7
9549.00	Н	103	41	-51.27	12.24	-39.04	-26.0
11458.80	Н	-	-	-64.91	13.26	-51.65	-38.6

Table 7-18. Radiated Spurious Data (PCS GPRS Mode – Ch. 810)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 70 of 94	
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OPERATING FREQUENCY:	18	352.40	MHz
CHANNEL:			
MODULATION SIGNAL:	WCDMA		
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3704.80	Н	-	-	-74.31	9.72	-64.59	-51.6
5557.20	Н	-	-	-71.15	10.99	-60.17	-47.2
7409.60	Н	-	-	-67.38	10.79	-56.59	-43.6

Table 7-19. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)

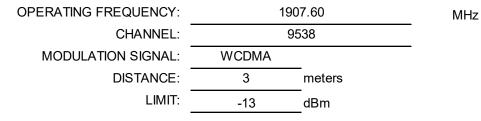
MHz	880.00	1	OPERATING FREQUENCY:
-	9400		CHANNEL:
-		WCDMA	MODULATION SIGNAL:
	meters	3	DISTANCE:
	dBm	-13	LIMIT:

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	Н	-	-	-72.31	9.50	-62.81	-49.8
5640.00	Н	-	-	-71.39	11.16	-60.23	-47.2
7520.00	Н	-	-	-67.29	11.03	-56.26	-43.3

Table 7-20. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager	
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3815.20	Н	-	-	-70.65	9.30	-61.35	-48.3
5722.80	Н	-	-	-71.81	11.33	-60.48	-47.5
7630.40	Н	-	-	-67.87	11.26	-56.61	-43.6

Table 7-21. Radiated Spurious Data (PCS WCDMA Mode - Ch. 9538)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 72 of 94	
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7.8 Frequency Stability / Temperature Variation §2.1055 §22.355 §24.235 §27.54 RSS-132(5.3) RSS-133(6.3) RSS-139(6.4)

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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.

For Part 22, RSS-132 and RSS-133, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24 Part 27 and RSS-139, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

- 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.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

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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 %	3.80	+ 20 (Ref)	836,600,002	2	0.0000002
100 %		- 30	836,600,072	72	0.000086
100 %		- 20	836,599,938	-62	-0.0000074
100 %		- 10	836,599,964	-36	-0.0000043
100 %		0	836,599,916	-84	-0.0000100
100 %		+ 10	836,599,964	-36	-0.0000043
100 %		+ 20	836,599,961	-39	-0.0000047
100 %		+ 30	836,600,444	444	0.0000531
100 %		+ 40	836,600,163	163	0.0000195
100 %		+ 50	836,599,817	-183	-0.0000219
BATT. ENDPOINT	3.40	+ 20	836,599,728	-272	-0.0000325

Table 7-22. Frequency Stability Data (Cellular GPRS Mode - Ch. 190)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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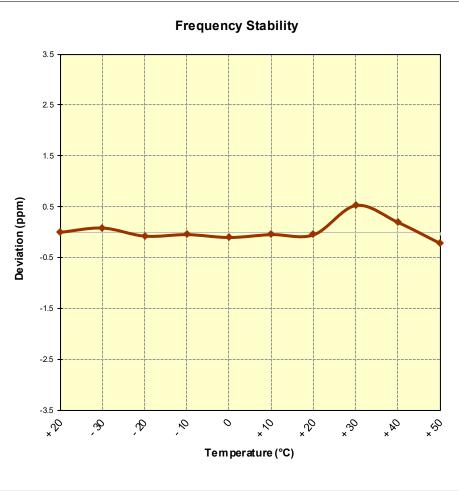


Figure 7-8. Frequency Stability Graph (Cellular GPRS Mode – Ch. 190)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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OPERATING FREQUENCY:	836,600,000	Hz
CHANNEL:	4183	-
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 %	3.80	+ 20 (Ref)	836,599,923	-77	-0.0000092
100 %		- 30	836,599,720	-280	-0.0000335
100 %		- 20	836,600,130	130	0.0000155
100 %		- 10	836,600,110	110	0.0000131
100 %		0	836,599,806	-194	-0.0000232
100 %		+ 10	836,599,976	-24	-0.0000029
100 %		+ 20	836,600,253	253	0.0000302
100 %		+ 30	836,600,108	108	0.0000129
100 %		+ 40	836,600,168	168	0.0000201
100 %		+ 50	836,600,154	154	0.0000184
BATT. ENDPOINT	3.40	+ 20	836,600,134	134	0.0000160

Table 7-23. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
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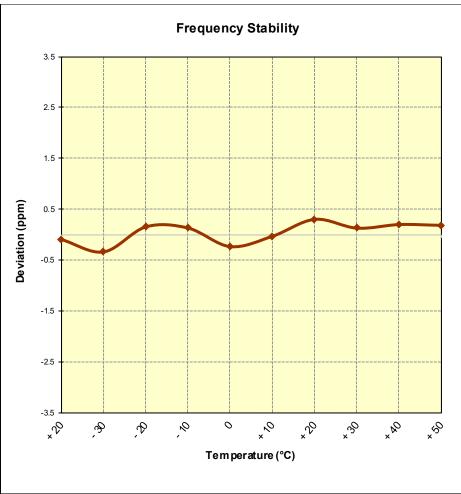


Figure 7-9. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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OPERATING FREQUENCY:	1,732,600,000	Hz
CHANNEL:	1413	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,732,600,040	40	0.0000023
100 %		- 30	1,732,599,784	-216	-0.0000125
100 %		- 20	1,732,599,741	-259	-0.0000149
100 %		- 10	1,732,599,874	-126	-0.0000073
100 %		0	1,732,600,235	235	0.0000136
100 %		+ 10	1,732,599,983	-17	-0.0000010
100 %		+ 20	1,732,599,866	-134	-0.0000077
100 %		+ 30	1,732,600,000	0	0.0000000
100 %		+ 40	1,732,599,694	-306	-0.0000177
100 %		+ 50	1,732,599,995	-5	-0.000003
BATT. ENDPOINT	3.40	+ 20	1,732,600,066	66	0.000038

Table 7-24. Frequency Stability Data (AWS WCDMA Mode – Ch. 1413)

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 in-band 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.

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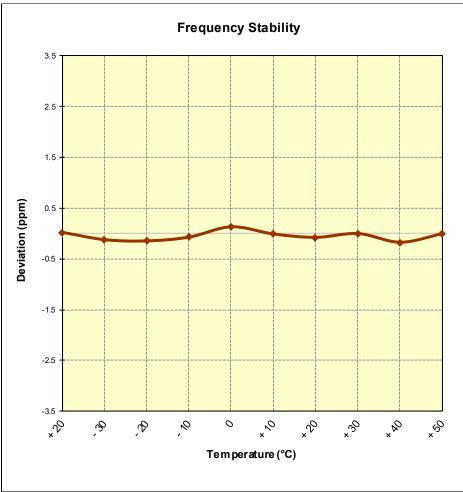


Figure 7-10. Frequency Stability Graph (AWS WCDMA Mode – Ch. 1413)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Hz	1,880,000,000	OPERATING FREQUENCY:
_	661	CHANNEL:
VDC	3.80	REFERENCE VOLTAGE:
_	± 0.00025 % or 2.5 ppm	DEVIATION LIMIT:

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,880,000,013	13	0.0000007
100 %		- 30	1,880,000,239	239	0.0000127
100 %		- 20	1,879,999,969	-31	-0.0000016
100 %		- 10	1,880,000,019	19	0.0000010
100 %		0	1,880,000,137	137	0.0000073
100 %		+ 10	1,880,000,017	17	0.000009
100 %		+ 20	1,880,000,303	303	0.0000161
100 %		+ 30	1,879,999,948	-52	-0.0000028
100 %		+ 40	1,879,999,952	-48	-0.0000026
100 %		+ 50	1,880,000,215	215	0.0000114
BATT. ENDPOINT	3.40	+ 20	1,880,000,103	103	0.0000055

Table 7-25. Frequency Stability Data (PCS GPRS Mode – Ch. 661)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 90 of 94
1M1711080290-02.ZNF	11/10 - 11/22/2017	Portable Handset		Page 80 of 84
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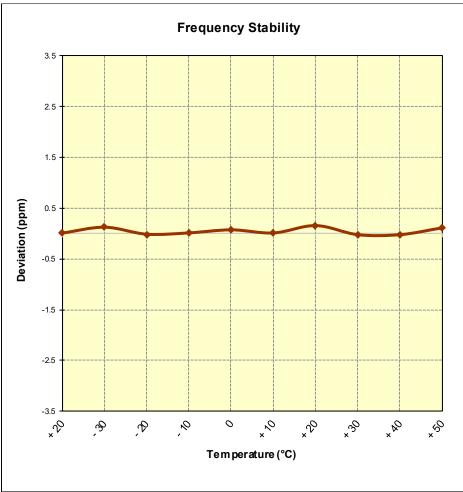


Figure 7-11. Frequency Stability Graph (PCS GPRS Mode – Ch. 661)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 01 of 04
1M1711080290-02.ZNF	11/10 - 11/22/2017	Portable Handset		Page 81 of 84
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OPERATING FREQUENCY:	1,880,000,000	Hz
CHANNEL:	9400	
REFERENCE VOLTAGE:	3.80	VDC
DEVIATION LIMIT :	± 0.00025 % or 2.5 ppm	_

VOLTAGE POWER TEMP FREQUENCY Freq. Dev. **Deviation** (VDC) (Hz) (%) (°C) (Hz) (%) 100 % -0.0000168 3.80 + 20 (Ref) 1,879,999,684 -316 100 % - 30 1,879,999,749 -251 -0.0000134 100 % - 20 0.0000015 1,880,000,028 28 - 10 -0.0000004 100 % 1,879,999,992 -8 100 % 0 1,879,999,822 -178 -0.0000095 100 % + 10 1,880,000,367 367 0.0000195 100 % + 20 1,879,999,915 -85 -0.0000045 100 % + 30 1,879,999,778 -222 -0.0000118 100 % + 40 1,879,999,763 -237 -0.0000126 100 % + 50 1,880,000,251 251 0.0000134 BATT. ENDPOINT 3.40 + 20 1,880,000,039 39 0.0000021

Table 7-26. Frequency Stability Data (PCS WCDMA Mode - Ch. 9400)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 92 of 94
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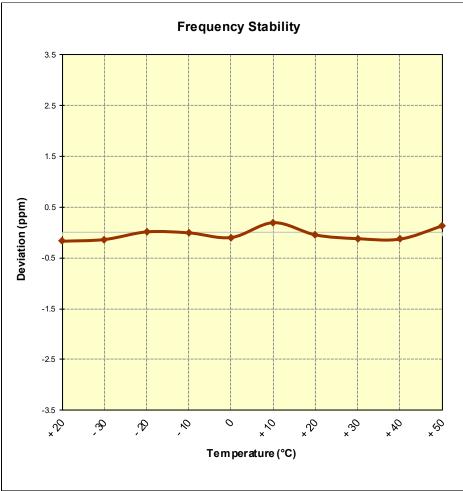


Figure 7-12. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 02 of 04
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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: ZNFX210APM complies with all the requirements of Part 22, 24, & 27 of the FCC Rules.

FCC ID: ZNFX210APM		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 84 of 84
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