

## **PCTEST**

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



### MEASUREMENT REPORT GSM / GPRS / EDGE / WCDMA

#### **Applicant Name:**

LG Electronics USA, Inc. 1000 Sylvan Avenue Englewood Cliffs, NJ 07632 United States Date of Testing: 01/12/2020 - 02/14/2020 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M2001200008-02.ZNF

### FCC ID:

#### ZNFK300AM

Certification

**APPLICANT:** 

## LG Electronics USA, Inc.

Application Type: Model: Additional Model(s): EUT Type: FCC Classification: FCC Rule Part(s): Test Procedure(s):

LM-K300AM LM-K300CMR, LMK300AM, LMK300CMR, K300AM, K300CMR Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 22, 24, & 27 ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01

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	EI	RP	
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)	Emission Designator
GPRS850	22H	824.2 - 848.8	0.634	28.02	1.040	30.17	242KGXW
EDGE850	22H	824.2 - 848.8	0.265	24.24	0.436	26.39	245KG7W
WCDMA850	22H	826.4 - 846.6	0.064	18.03	0.104	20.18	4M19F9W
WCDMA1700	27	1712.4 - 1752.6			0.106	20.27	4M18F9W
GPRS1900	24E	1850.2 - 1909.8			0.801	29.04	246KGXW
EDGE1900	24E	1850.2 - 1909.8			0.517	27.14	244KG7W
WCDMA1900	24E	1852.4 - 1907.6			0.187	22.73	4M19F9W

**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 facility located at 7185 Oakland Mills Road, Columbia, MD 21046. 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 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 (2451B) 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: ZNFK300AM**. 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.: 01396, 01305, 01370

#### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11 b/g/n, 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 v03r01. 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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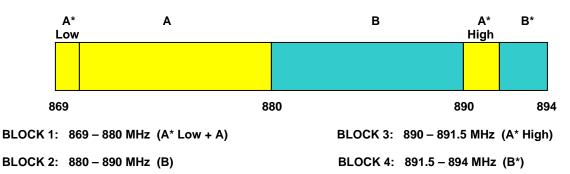
## 3.0 DESCRIPTION OF TESTS

### 3.1 Evaluation Procedure

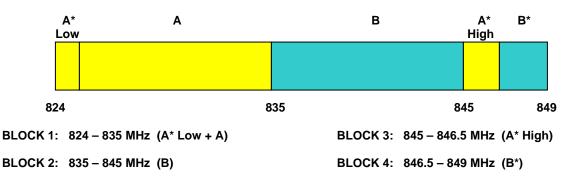
The measurement procedures described in the "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

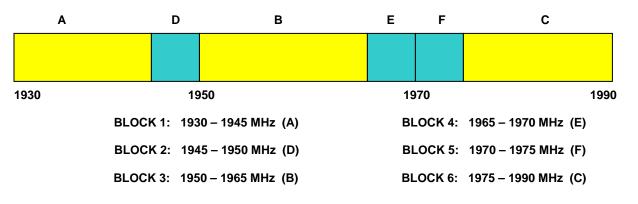
### 3.2 Cellular - Base Frequency Blocks



### 3.3 Cellular - Mobile Frequency Blocks

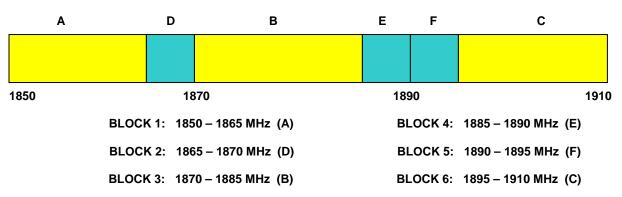


### 3.4 PCS - Base Frequency Blocks



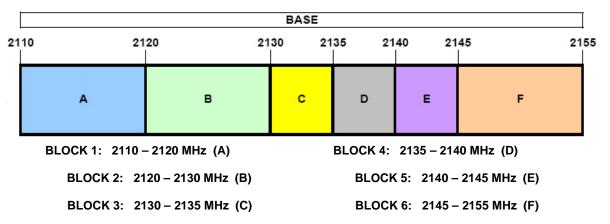
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### 3.5 PCS - Mobile Frequency Blocks





### 3.7 AWS - Mobile Frequency Blocks

					MOBILE				
17	10	1	720	17	30 17	'35 17 	40 17	45	1755
		A	в		с	D	E	F	
			710 – 1720 MHz (A) 720 – 1730 MHz (B)					1740 MHz (D) 1745 MHz (E)	
		BLOCK 3: 1	730 – 1735 MHz (C)			BLOCK	6: 1745 –	1755 MHz (F)	

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### 3.8 Radiated Measurements

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].

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 474788 D01.

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
-	LTx1	Licensed Transmitter Cable Set	6/4/2019	Annual	6/4/2020	LTx1
-	LTx4	Licensed Transmitter Cable Set	6/4/2019	Annual	6/4/2020	LTx4
Agilent	E5515C	Wireless Communications Test Set		N/A	-	GB46310798
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Agilent	N9038A	MXE EMI Receiver	7/17/2019	Annual	7/17/2020	MY51210133
Agilent	N9030A	PXA Signal Analyzer (44GHz)	6/12/2019	Annual	6/12/2020	MY52350166
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	5/10/2019	Annual	5/10/2020	441112
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	2/14/2019	Biennial	2/14/2021	125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/28/2018	Biennial	3/28/2020	128337
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	2/22/2019	Biennial	2/22/2021	128338
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		100976
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	6/5/2019	Annual	6/5/2020	100342
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107

Table 5-1. Test Equipment

#### Notes:

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

### **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)

### 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 USA, Inc.
FCC ID:	ZNFK300AM
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	t Description Test Limit		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 + 10 $\log_{10}$ (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)(5)	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 + 10 log <sub>10</sub> (P[Watts]) for all out-of-band emissions		PASS	Section 7.7

Table 7-1. Su	mmary of	Test R	esults
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#### 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 4.2.

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### 7.2 Occupied Bandwidth

#### **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 v03r01 - 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.



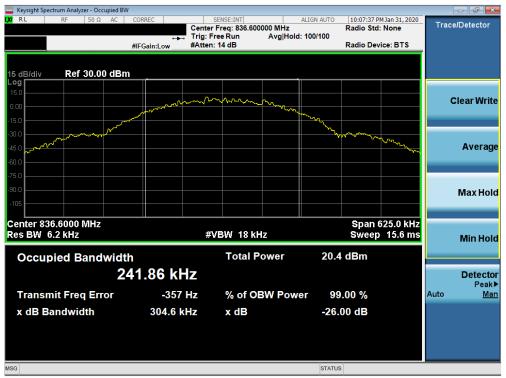
Figure 7-1. Test Instrument & Measurement Setup

### 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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Keysight Spectrum Analyzer - Occupied BV					
XIRL RF 50Ω AC		SENSE:INT Freg: 1.880000000 GHz		39 PM Jan 31, 2020 Std: None	Trace/Detector
		ree Run Avg Hold		Sta: None	
	#IFGain:Low #Atten:			Device: BTS	
15 dB/div Ref 35.00 dBn	n				
Log					
20.0		man and a start and a start and a start			Clear Write
ر	www.		home		Clear write
-10.0					
-25.0				and the second s	
-40.0				~~~~	Average
					, it of ugo
-55.0					
-70.0					
-85.0					Max Hold
-100					
Center 1.8800000 GHz				an 625.0 kHz	
Res BW 6.2 kHz	#\	/BW 18 kHz	SWe	ep 15.6 ms	Min Hold
Occupied Bandwidt	h	Total Power	36.9 dBm		
2	45.78 kHz				Detector Peak▶
Transmit Freq Error	704 Hz	% of OBW Pow	er 99.00 %	)	Auto <u>Man</u>
x dB Bandwidth	319.3 kHz	x dB	-26.00 dB		
			20100 42		
MSG			STATUS		

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



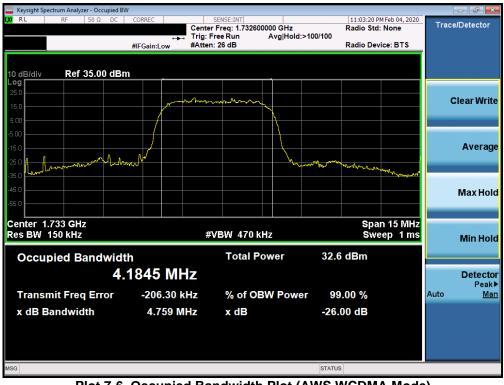
Plot 7-4. Occupied Bandwidth Plot (EDGE1900 Mode)

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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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Keysight Spectrum Analyzer - Occupied BW				
X RL RF 50Ω DC	CORREC	SENSE:INT ter Freg: 1.880000000 GHz	11:19:55 PM Feb 04, 2 Radio Std: None	Trace/Detector
	🛶 Trig	: Free Run Avg Hol	d: 100/100	
	#IFGain:Low #Att	en: 26 dB	Radio Device: BTS	
10 dB/div Ref 40.00 dBn	<u> </u>			
30.0				
20.0				Clear Write
10.0		^		
0.00	/	\		
-10.0				Average
-20.0 man man Marken 14 th marke	mann	- Andrew - A	low handraland and handrand	<del>vily-</del>
-30.0				
-40.0				Max Hold
-50.0				Maxmola
Center 1.88 GHz Res BW 150 kHz		#VBW 470 kHz	Span 15 N Sweep 1	
NC3 BW 150 KHZ		#VDVV +/ 0 KHZ	омеер т	Min Hold
Occupied Bandwidt	h	Total Power	33.3 dBm	
4	1869 MHz			Detector
				Peak▶
Transmit Freq Error	-3.600 kHz	% of OBW Pow	ver 99.00 %	Auto <u>Mar</u>
x dB Bandwidth	4.783 MHz	x dB	-26.00 dB	
ISG			STATUS	

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### 7.3 Spurious and Harmonic Emissions at Antenna Terminal

#### **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 10<sup>th</sup> 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 $43 + 10\log_{10}(P_{[Watts]})$ , where P is the transmitter power in Watts.

#### Test Procedure Used

KDB 971168 D01 v03r01 - 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

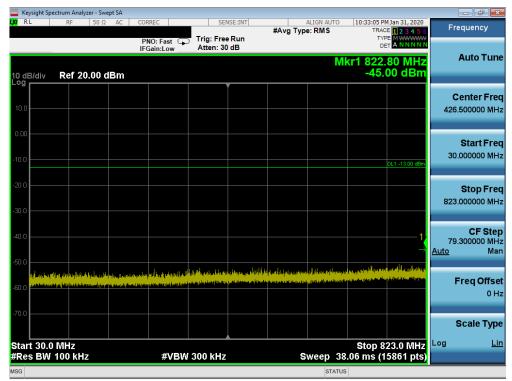
#### Test Notes

Per 24.238(b), 27.53(h)(3), and RSS-133(6.5), RSS-139(6.5), 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.

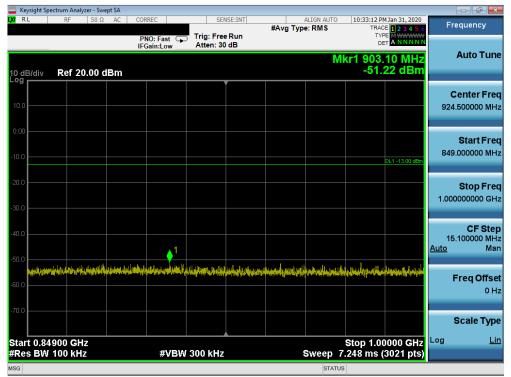
FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### **Cellular GPRS Mode**



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



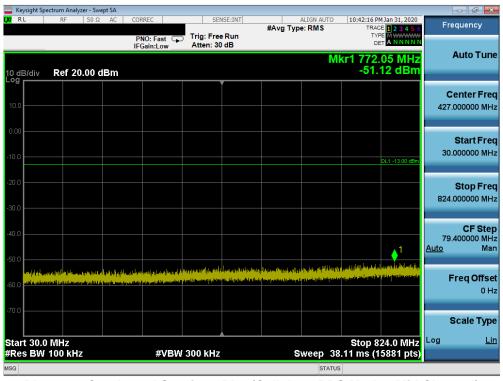
#### Plot 7-9. Conducted Spurious Plot (Cellular GPRS Mode - Low Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	nt Spectrum Ana												
<mark>(</mark> RL	RF	<u>50 Ω</u>	AC	CORREC	nst 🕞	SEN		#Avg Typ	e: RMS	TRA	AM Feb 12, 2020 ACE 1 2 3 4 5 6 YPE M WWWWWW DET A N N N N N	Fr	equency
0 dB/di	v Ref 2	20.00 d	IBm	IFGain:L	.ow	#Atten: 3				Mkr1 9.94	4 5 GHz .77 dBm		Auto Tune
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10.00											DL1 -13.00 dBm	1.00	Start Free
20.0 -						. 10	. Man and the cold	The state of the s		undlar ac male at most is		10.00	Stop Fre 0000000 GH
40.0 <b>40</b> .0		an ( in the second s			nan Malania Lagunana at	an di seri dalam pilan di Andrea Seguna di Andrea di A Andrea di Andrea di An		d to the first of the state of the state of		septin nepoketaseptas Nepiketas		900 <u>Auto</u>	CF Ste 0.000000 MH Ma
60.0													Freq Offso 0 H
												Log	Scale Typ Li
	.000 GHz W 1.0 M	lz		-	¢VB₩	3.0 MHz		s	weep		0.000 GHz 18001 pts)	209	
ISG										TUS	Pro/		_

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	Spectrum Ana												- Ø 론
RL	RF	50 Ω	AC	PNO: F	ast 🖵	Trig: Free Atten: 30		#Avg Ty	ALIGN AUTO pe: RMS	TRAC	M Jan 31, 2020 DE <b>1 2 3 4 5</b> 6 DE M WWWW ET A N N N N N	Fr	equency
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0.0											DL1 -13.00 dBm	849	<b>Start Fre</b> .000000 MH
0.0												1.00	<b>Stop Fre</b>
0.0		•	1									15 <u>Auto</u>	CF Ste .100000 MI M
5.0 <b>,/m///</b> 0.0	riadauser daribe	niyarda Abil	k, Anni Ingeria	hang kina aritika	iler pieł i suppl		and is all free	enimerijin Andrijety)	Halph Profession	and an	defel hydraethad aray		F <b>req Offs</b> 0 I
												Log	Scale Typ
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				· · · ·					STATU				

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



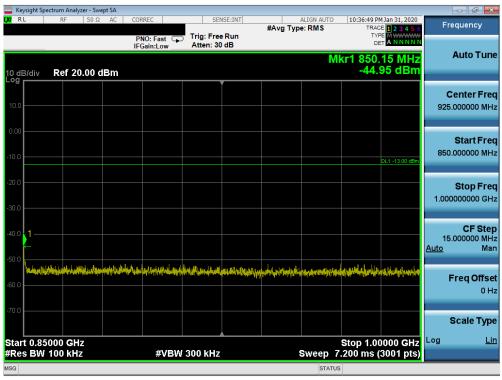
Plot 7-13. Conducted Spurious Plot (Cellular GPRS Mode - Mid Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	Spectrum Anal												- • ×
RL	RF	<u>50 Ω</u>	AC	CORREC	st 🖵	Trig: Free Atten: 30		#Avg Typ	ALIGN AUT e: RMS	т	2 PM Jan 31, 2020 RACE 1 2 3 4 5 6 TYPE M WWWWW DET A N N N N N	Fre	equency
0 dB/div	Ref 2	0.00 d	IBm	IFGain:Lo	ow	Atten: 30	dB			Mkr1 80	5.85 MHz 0.69 dBm		Auto Tune
. <b>og</b>													enter Fred .000000 MH:
10.00											DL1 -13.00 dBm	30	Start Free .000000 MH
20.0												824	<b>Stop Fred</b> .000000 MH:
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70.0	0.0411-7									Stor	824.0 MHz	Log	Scale Type
	.0 MHZ V 100 kH	z		#	VBW	300 kHz		s	weep		824.0 MHz (15881 pts)		
SG									_	TUS			

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



Plot 7-15. Conducted Spurious Plot (Cellular GPRS Mode - High Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight S R L	pectrum Analyz RF	er - Swej 50 Ω		CORREC	1	CEN	SE:INT			00-40-00-4	ME-1 10 0000		
KL	KF	50 \	AC			Trig: Free		#Avg Typ	e:RMS	TRA	M Feb 12, 2020 CE 1 2 3 4 5 6 PE M WWWWW	Freq	uency
0 dB/div	Ref 20	.00 d	Bm	PNO: Fa IFGain:L	ow	#Atten: 36			N	□ Ikr1 7.81		A	uto Tun
og													nter Fre 00000 GH
10.0											DL1 -13.00 dBm		tart Fre
80.0		ط اند جد م	ا والمعارين		n . 11 . nl	lass () selected to be a selected to be	<sup>19</sup> 14 States States States	el far gyngal fernif far fryn yn yn gyngal far far fryn yn yn gyngal far yn gyngal far far yn yn yn gyngal far Gwyngal far gyngal far gyngal far far gyngal f	alaariinaa alka	aling the grant of the last strength of the second strength of the second strength of the second strength of the	() ]]]el (space free "start"		top Fre
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0.0												Fr	eq Offs 0 H
10.0	00 GHz									Stop-1	).000 GHz	Sc	ale Typ: L
	/ 1.0 MHz			#	<b>VBW</b>	3.0 MHz		S	weep 1	15.60 ms (1	18001 pts)		
G									STAT				

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

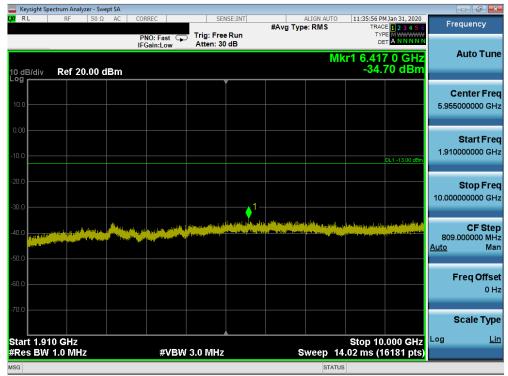
FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 22 of 95
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### PCS GPRS Mode

	pectrum Analy												- 0
RL	RF	50 Ω	AC	CORREC		S	ENSE:INT	#	ALIGN AUTO		M Jan 31, 2020	Fre	quency
						Trig: Fr	e Run	#Avg	Type: RMS	TY	E 1 2 3 4 5 6		queriey
				PNO: Fa	ast 🖵	Atten: 3				DI			
				II Outilia									Auto Tur
									IVI	(r1 1.76	1 5 GHz		
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° <sup>g</sup> [													
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												557.	500000 IVI
0.00													
													Start Fr
10.0												30.	оооооо м
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20.0											<u> </u>		Stop Fr
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tart 0.0	300 GHz									Stop 1	3450 GHz	Log	L
	300 GHZ				#\/D\A4	3.0 MH			Swaan	- Stop 1.0	2621 nto		
Res DW	T.U MH			,	₹VDW	3.0 MH	2		Sweep 2	.420 ms (	3631 pts)		
G									STATU	5			

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	pectrum Anal												
RL	RF	50 Ω	AC	CORREC PNO: Fa	ist 🖵	Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	TRA	PM Jan 31, 2020 ACE 1 2 3 4 5 6 YPE M WWWWW DET A NNNN	Fr	equency
0 dB/div	Ref 1	0.00 d	Bm	IFGain:L	ow	Atten: 20	) dB		MI	kr1 17.4	57 5 GHz .41 dBm		Auto Tun
0.00													Center Fre
20.0											DL1 -13.00 dBm	10.00	<b>Start Fre</b> 0000000 G⊦
40.0						nel fuel fuel en la fuel la	all that also a short o					20.00	<b>Stop Fre</b> 0000000 GH
			Al balta itera a									1.000 <u>Auto</u>	CF Ste 0000000 GH Ma
0.0												ľ	F <b>req Offs</b> 0 I
30.0												Log	Scale Typ
	.000 GHz V 1.0 MH				1/D1/	3.0 MHz			woon	Stop 2	0.000 GHz	Log	L
N 49 - M	V I.U WIH	2		#	PVEW	J.U WIHZ		5	weep .	23.33 MS (	20001 pts)		

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



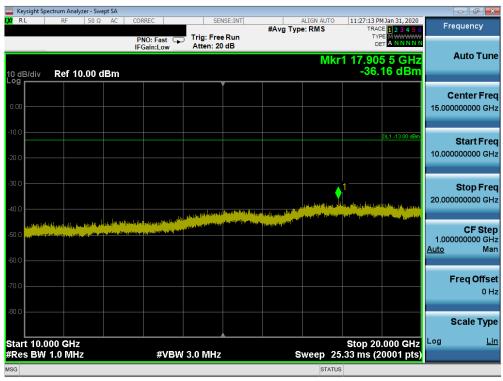
Plot 7-20. Conducted Spurious Plot (PCS GPRS Mode - Mid Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	pectrum Analyz										- 6 ×
u RL	RF	50 Ω	ORREC			#Avg Typ	ALIGN AUTO e: RMS	TRA	M Jan 31, 2020 CE 1 2 3 4 5 6 PE M WWWWW ET A N N N N N	Fre	quency
0 dB/div	Ref 20	.00 dl	FGain:Low	Atten: 30			N	/kr1 6.87			Auto Tun
10.0											enter Fre 000000 GH
10.00									DL1 -13.00 dBm		<b>Start Fre</b> 000000 G⊦
20.0						1					Stop Fre 000000 G⊦
40.0 1979-197 2049-197		dh <u>adhaa aa</u> Wiitiisaaa	Mall <u>of the state of the state</u> for the providence of the state of th	la patie (sour de la de la 19 milio (sous altraism	den of a difference of the second			Verse Report for Report for Sealing	er an feil (1995) an de feil an saide an saide gear an saide an saide	809.0 <u>Auto</u>	CF Ste 000000 MH Ma
60.0										F	req Offs 0 H
70.0	10 GHz							Stop 40		S	cale Typ
	10 GHZ V 1.0 MHz		#VBV	V 3.0 MHz		s	weep	stop 10 14.02 ms (1	).000 GHz (6181 pts)		
SG							STAT				

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



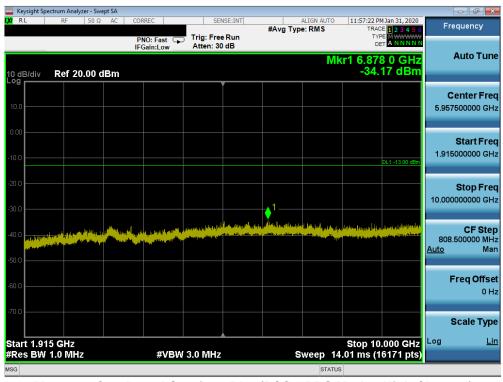
Plot 7-22. Conducted Spurious Plot (PCS GPRS Mode - Mid Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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R L	pectrum Analy RF	zer - Swep 50 Ω	AC	CORREC		SE	SE:INT		ALIGN AUTO	11:57:01 P	M Jan 31, 2020		
				PNO: Fa	ast 🖵	Trig: Fre Atten: 30		#Avg Typ		TRA TY D	CE 1 2 3 4 5 6 PE M WWWW ET A N N N N N	Fr	equency
dB/div	Ref 20	0.00 dE	Зm	II Gam.L					Μ	kr1 1.71 -38.	7 5 GHz 59 dBm		Auto Tune
													Center Fred
.00 D.0											DL1 -13.00 dBm	30	Start Fred
D.O												1.85	Stop Free
D.O <b>Milini</b>	and the second second second	بالمورجي والم	<u>hiyiyin kiri</u> yi	nijegy, utvići	lift for st det	n telt ligh film fifth an	artado dikeliki periodo a	adi dada kacana bi		nya fa dina tahuna tahuna tahuna tahuna tahun	1 Historica (Historica)	182 <u>Auto</u>	CF Step 000000 MH Mar
0.0												· · ·	Freq Offse 0 Hi
												Log	Scale Type
	300 GHz / 1.0 MH;	,		ź	tvr)	3.0 MHz			Sween		8500 GHz (3641 pts)	Log	Lir
G					<u>u-</u>	0.0 10112			STATL	_	(0041 505)		

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer - Sw									_	
LXI RL	RF 50 Ω	AC CC	ORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO		M Jan 31, 2020 DE <b>1 2 3 4 5 6</b>	Freq	uency
		F	PNO: Fast G Gain:Low	Trig: Free Atten: 20		"s)r		TY			
10 dB/div Log	Ref 10.00 c	lBm					Mk	r1 17.53 -36.	9 5 GHz 43 dBm	A	uto Tune
0.00											<b>nter Freq</b> 00000 GHz
-10.0									DL1 -13.00 dBm		<b>Start Freq</b> 00000 GHz
-30.0					• क्रम्न <del>् । जन्म</del> ः देशस्य	The second s			h let deter i har die geweitel bes		<b>Stop Freq</b> D0000 GHz
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-70.0										Fr	e <b>q Offset</b> 0 Hz
-80.0 Start 10.0	00 GHz							Stop 20	.000 GHz	So Log	ale Type: <u>Lin</u>
#Res BW	1.0 MHz		#VBV	V 3.0 MHz		s	weep 2	5.33 ms (2	20001 pts)		
мsg 🗼 Poin	ts changed; all	traces clea	red				STATU	JS			

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

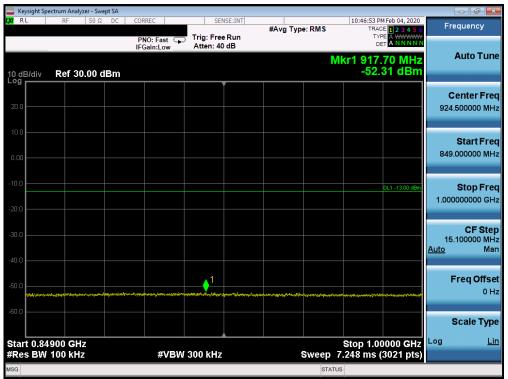
FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 20 of 95
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### Cellular WCDMA Mode

Keysight Spectrum Analyzer - Swept					- ē 💌
<b>X</b> RL RF 50 Ω 1	DC CORREC PNO: Fast IFGain:Low	SENSE:INT	#Avg Type: RMS	10:46:47 PM Feb 04, 2020 TRACE 123456 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 30.00 dB		Atten: 40 dB	Μ	lkr1 822.00 MHz -32.56 dBm	Auto Tun
20.0					<b>Center Fre</b> 426.500000 MH
0.00					<b>Start Fre</b> 30.000000 MH
-10.0				DL1 -13.00 dBm	Stop Fre 823.000000 MH
-30.0					<b>CF Ste</b> 79.300000 MH <u>Auto</u> Ma
50.0			ytel yn tryfur menne ytel an bynan a'r denam feld		<b>Freq Offse</b> 0 H
-60.0					Scale Typ
Start 30.0 MHz #Res BW 100 kHz	#VBW	300 kHz	Sweep 3	Stop 823.0 MHz 8.06 ms (15861 pts)	
ISG			STATU	IS	

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-28. Conducted Spurious Plot (Cellular WCDMA Mode - Low Channel)



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

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		Analyzer - Sw									
l <mark>xi</mark> RL	R	F 50 S	2 DC	CORREC		SENSE:INT	#Avg Typ	e: RMS		M Feb 04, 2020	Frequency
				PNO: Fast IFGain:Lov		Free Run : 30 dB	• ,,		TYI	E A WWWWW A NNNNN	
				IFGain:Lov	W Atten			N	lkr1 849.	00 MHz	Auto Tune
10 dB/d Log	liv Re	f 20.00	dBm						-57.	53 dBm	
											Center Freq
10.0											924.500000 MHz
0.00											Start Freq
-10.0											849.000000 MHz
										DL1 -13.00 dBm	
-20.0											Stop Freq
											1.000000000 GHz
-30.0 —											
-40.0											CF Step 15.100000 MHz
											Auto Man
-50.0											
-60.0											Freq Offset
-00:0	to Harmon of the second	ودروية ومرور ومرورون	maannathiim	alan and a second	aning the state of		-	****	***	ininaipenantistipaeta	0 Hz
-70.0											
											Scale Type
	).84900								Stop 1.00	0000 GHz	Log <u>Lin</u>
· · · · · ·	BW 100	kHz		#\	/BW 300 k	Hz		Sweep	7.248 ms (	3021 pts)	
MSG								STATI	JS		

Plot 7-30. Conducted Spurious Plot (Cellular WCDMA Mode - Mid Channel)



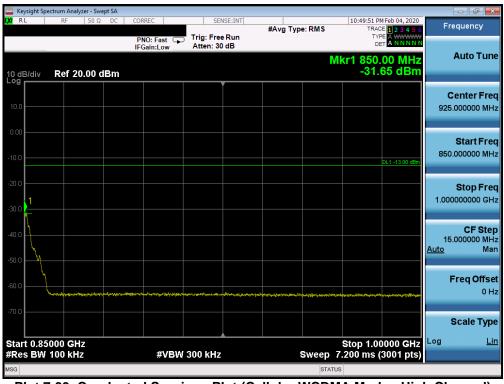
Plot 7-31. Conducted Spurious Plot (Cellular WCDMA Mode - Mid Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analy											(	- # ×
LXU RL	RF	<b>50</b> Ω	DC	CORREC	ast 🗔	Trig: Free		#Avg Typ	e: RMS	TRAC	M Feb 04, 2020 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	Fre	quency
10 dB/div	Ref 2	0.00 d	Bm	IFGain:L	ow	Atten: 30	) dB		N	lkr1 820			Auto Tune
10.0													<b>enter Freq</b> 000000 MHz
-10.0											DL1 -13.00 dBm		Start Freq 000000 MHz
-20.0												824.	Stop Freq 000000 MHz
-40.0												79. <u>Auto</u>	CF Step 400000 MHz Man
-60.0		poljunati drugosta		i danni dan jeda did	and the spliger for the se	<u>ter filmen det</u>					1 Northelesternet	F	F <b>req Offset</b> 0 Hz
-70.0	MUZ									Stop	24.0 MHz	s Log	Scale Type Lin
#Res BW		z		\$	≠VBW	300 kHz		s	weep 3	8.11 ms (1	5881 pts)		
MSG									STATI	JS			

Plot 7-32. Conducted Spurious Plot (Cellular WCDMA Mode - High Channel)



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 at 05
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	ectrum Analyz									-0	
LXI RL	RF	50 Ω DC	CORREC	SE	NSE:INT	#Avg Typ	e RMS		M Feb 04, 2020	Frequ	ency
			PNO: Fas	t 🖵 Trig: Fre				TY	PE A WWWWW		
			IFGain:Lo	w Atten: 3	Jab			_		Au	to Tune
40.002.00	Dof 20	.00 dBm					IVI	kr1 9.82 -41	42 dBm		
10 dB/div	Rel 20	.00 06111			•						
										Cen	ter Freq
10.0										5.500000	0000 GHz
0.00										St	artFreq
-10.0											0000 GHz
-10.0									DL1 -13.00 dBm		
-20.0											
										10.000000	op Freq
-30.0										10.000000	000 GH2
									1		
-40.0										900 000	CF Step
			~~~	$\sim$	$\sim$	man con	-			Auto	Man
-50.0											
										Fre	q Offset
-60.0											0 Hz
-70.0											
-70.0										Sca	ale Type
Start 1.00 #Res BW				VBW 3.0 MHz			woon 1	Stop 10 5.60 ms (1	0.000 GHz	Log	<u>Lin</u>
			#			5			isouri pis)		
MSG							STATU	15			

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### **AWS WCDMA Mode**

	m Analyzer - Swept SA					- 6
U RL	RF 50 Ω DC	PNO: Fast	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	11:14:51 PM Feb 04, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
0 dB/div R	ef 20.00 dBm	IFGain:Low	Atten: 00 dB	М	kr1 1.705 0 GHz -33.89 dBm	Auto Tur
10.0						Center Fre 867.500000 MH
10.0					DL1 -13.00 dBm	Start Fre 30.000000 MH
30.0					1	<b>Stop Fre</b> 1.705000000 GF
i0.0					an Danae (11.2. 112. 111. 111.	<b>CF Ste</b> 167.500000 Mi <u>Auto</u> Mi
i0.0	12,000,000 , dan 16 da any 16 da	yyen dinan allan ay kaniyaliyala ya dinana dinan	ng mga dhar ya na ng gala na ng gala ng			Freq Offs 01
70.0					Stop 1.7050 GHz 2.233 ms (3351 pts)	Scale Tyr
Res BW 1.0	IVIHZ	#VBW	( 3.0 MHz	Sweep		

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 04 af 05	
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	ectrum Analyzer	- Swept SA					
LX/ RL	RF	50 Ω DC	CORREC	Trig: Free Run	#Avg Type: R	11:15:37 PM Feb 04, 2020 MS TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N	Frequency
10 dB/div	Ref 10.0	10 dBm	IFGain:Low	Atten: 20 dB		Mkr1 19.494 5 GHz -46.11 dBm	Auto Tune
0.00							Center Fred 15.000000000 GH:
-10.0						0L1 -13.00 dBm	Start Free 10.000000000 GH:
-30.0						1	Stop Free 20.000000000 GH
-50.0							CF Step 1.000000000 GH <u>Auto</u> Mar
70.0							<b>Freq Offse</b> 0 H
-80.0 Start 10.0						Stop 20.000 GHz	Scale Type
#Res BW	1.0 MHz		#VB\	V 3.0 MHz	Swe	ep 17.33 ms (20001 pts)	

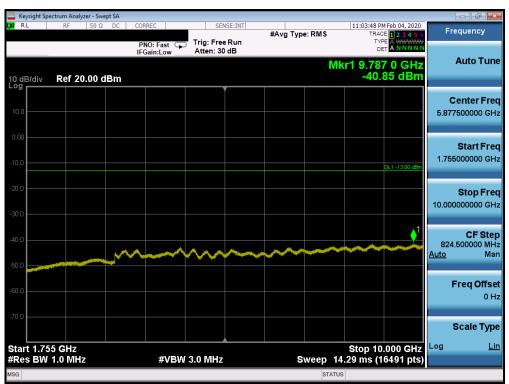
Plot 7-37. Conducted Spurious Plot (AWS WCDMA Mode - Low Channel)



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		
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Plot 7-39. Conducted Spurious Plot (AWS WCDMA Mode - Mid Channel)



Plot 7-40. Conducted Spurious Plot (AWS WCDMA Mode - Mid Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 36 of 85
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	ectrum Analyzer - S	Swept SA						
XI RL	RF 50	Ω DC	CORREC	Trig: Free		#Avg Type: RMS	11:16:34 PM Feb 04, 2020 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	N	/kr1 1.682 5 GHz -50.19 dBm	Auto Tune
10.0								Center Freq 870.000000 MHz
-10.0							DL1 -13.00 dBm	Start Free 30.000000 MHz
-20.0								<b>Stop Fred</b> 1.710000000 GHz
-40.0								CF Step 168.000000 MH: <u>Auto</u> Mar
60.0	annan aine ann an an an an an ann an an an an an a	****	99999999999999999999999999999999999999	yan nanananjari nangin				Freq Offse 0 H:
-70.0							Stop 1.7100 GHz	Scale Type
#Res BW			#VB	W 3.0 MHz		Sweep	2.240 ms (3361 pts)	
MSG						STA	TUS	

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



Plot 7-42. Conducted Spurious Plot (AWS WCDMA Mode - High Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spec												
LXI RL	RF	<u>50 Ω</u>	DC	CORREC PNO: Fa	st 😱	Trig: Fre Atten: 20	#Avg Typ	e: RMS	TR	PM Feb 04, 2020 ACE 1 2 3 4 5 6 YPE A WWWW DET A N N N N N	Frequei	ncy
10 dB/div	Ref 1	0.00 dE	3m					Mkı	1 19.48 -45	39 0 GHz .97 dBm	Auto	o Tune
0.00											Cente 15.0000000	e <b>r Freq</b> 00 GHz
-10.0										DL1 -13.00 dBm	Sta 10.0000000	r <b>t Freq</b> 00 GHz
40.0										1-	Sto 20.0000000	<b>p Freq</b> 00 GHz
-50.0	Kent Angertika										C 1.0000000 <u>Auto</u>	F Step 00 GHz Man
70.0											Freq	Offset 0 Hz
-80.0											Scal	е Туре
Start 10.00 #Res BW				#	VBW :	3.0 MHz	s	weep 17	Stop 2 7.33 ms (	0.000 GHz 20001 pts)	Log	<u>Lin</u>
MSG								STATU	S			

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# **PCS WCDMA Mode**

Keysight Spectrum Analyzer - Swept SA					- ē <b>-</b> ×
α RL RF 50 Ω D(	PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	#Avg Type: RMS	11:22:36 PM Feb 04, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNN	Frequency
0 dB/div Ref 20.00 dBn	n		M	kr1 1.845 0 GHz -32.24 dBm	Auto Tun
10.0					Center Fre 937.500000 MH
10.0				DL1 -13.00 dBm	Start Fre 30.000000 M⊦
20.0				1	<b>Stop Fre</b> 1.845000000 G⊦
40.0					<b>CF Ste</b> 181.500000 M⊦ <u>Auto</u> Ma
50.0	naktion yoke his yoke yoke yoke yoke yoke yoke yoke yoke	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		a yala madala da kala kala kala kala kala kala k	Freq Offs 0 F
70.0 Start 0.0300 GHz					Scale Typ
Res BW 1.0 MHz	#VBW 3	.0 MHz	Sweep 2	2.420 ms (3631 pts)	

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyz												
U RL	RF	<b>50</b> Ω	DC	CORREC	ast 😱	Trig: Fre		#Avg Typ	e: RMS	TRAC	M Feb 04, 2020 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	Fre	quency
0 dB/div	Ref 10	.00 di	3m	IFGain:L	.0W	Atten: 2	Jab		Mk		4 5 GHz 55 dBm		Auto Tun
0.00													<b>enter Fre</b> 000000 GH
20.0											DL1 -13.00 dBm		<b>Start Fre</b> 000000 G⊦
10.0 <b></b>											1_		<b>Stop Fre</b> 000000 GF
50.0 <b>~~</b>	~~~	~~~		~~	~~~~			New Property Property and				1.000 <u>Auto</u>	CF Ste 000000 GH Ma
0.0												F	req Offs 0 H
30.0													cale Typ
tart 10.0 Res BW				#	≠VBW	3.0 MHz		s	weep 1	Stop 20 7.33 ms (2	.000 GHz 20001 pts)	Log	L
SG									STATU				

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spec													×
XI RL	RF	50 Ω	DC	CORREC PNO: F	ast ↔→			#Avg Typ	e:RMS	TF	7 PM Feb 04, 2020 RACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency	y
10 dB/div Log	Ref 20	0.00 di	Bm	IFGaint	-ow	Atten: 5	U U D		М	kr1 9.7	85 0 GHz 1.52 dBm	Auto T	'une
10.0												Center I 5.955000000	
10.00											DL1 -13.00 dBm	Start F 1.910000000	
30.0												Stop I 10.000000000	
50.0			~	~~	$\sim$	$\sim$	~~~	~~~			<b>1</b>	CF \$ 809.000000 <u>Auto</u>	
60.0												Freq Of	ffse 0 H
-70.0 Start 1.910										Stop	10.000 GHz	Scale T	Гуре Lir
#Res BW		z		;	≠VBW	3.0 MHz	:	s	weep 1	4.02 ms	(16181 pts)		
ISG									STAT	US			

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer -										
XV RL	RF 5	0Ω DC	CORREC PNO: Fast	Trig: Free		#Avg Type	RMS	TRAC	M Feb 04, 2020 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	Frequ	iency
10 dB/div	Ref 20.0	0 dBm	IFGain:Low	Atten: 30	dB		Mk	r1 1.71	7 0 GHz 96 dBm	Au	ito Tune
10.0											n <b>ter Freq</b> 0000 MHz
-10.0									DL1 -13.00 dBm		t <b>art Frec</b> 0000 MH:
-20.0											top Frec 0000 GHz
-40.0									<b>↓</b> <sup>1</sup>	182.00 <u>Auto</u>	CF Step 0000 MH Mar
60.0	1987 1925 - 20 		liyya Alisiyad dan bi ji ya madada		**********************					Fre	e <b>q Offse</b> 0 H
-70.0 Start 0.03								Stop 1.8	5000 GHZ	Sc Log	ale Type <u>Lir</u>
#Res BW	1.0 MHz		#VB	W 3.0 MHz		S		.427 ms (	3641 pts)		
30							STATUS				

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



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spectr												- 0	d X
XI RL	RF	50 Ω	DC	CORREC PNO: Fa		Trig: Free Atten: 20		#Avg Ty	oe: RMS	т	6 PM Feb 04, 2020 RACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequ	iency
10 dB/div	Ref 1	0.00 d	Bm	IFGalli.L	ow	, then . Le			Mk	(r1 19.5 -4	03 5 GHz 6.07 dBm	Αι	ito Tune
0.00													i <b>ter Freq</b> 0000 GHz
-10.0											DL1 -13.00 dBm	<b>St</b> 10.00000	t <b>art Freq</b> 0000 GHz
40.0											1	<b>Si</b> 20.00000	t <b>op Freq</b> 0000 GHz
50.0	-		~~~	*****									<b>CF Step</b> 0000 GHz Mar
70.0												Fre	e <b>q Offse</b> l 0 Hz
-80.0												Sca	ale Type
Start 10.000 #Res BW 1.				#	VBW 3	3.0 MHz	·		Sweep 1	Stop 7.33 ms	20.000 GHz (20001 pts)	Log	<u>Lin</u>
ISG									STAT	US			

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# 7.4 Band Edge Emissions at Antenna Terminal

#### **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 $43 + 10 \log_{10}(P_{[Watts]})$ , where P is the transmitter power in Watts.

#### Test Procedure Used

KDB 971168 D01 v03r01 - 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  $\geq$  1% of the emission bandwidth
- 4. VBW  $\geq$  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

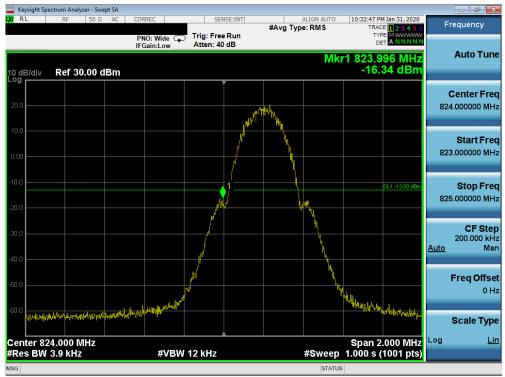
#### Test Notes

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.

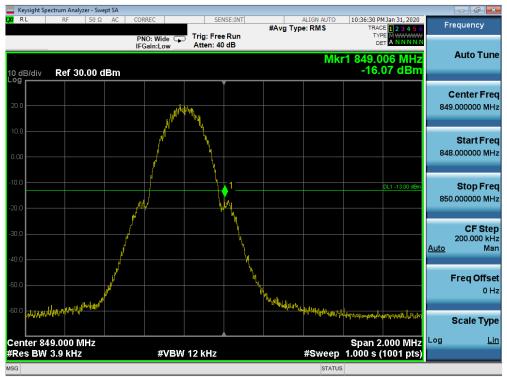
FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 44 of 95
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### **Cellular GPRS Mode**



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

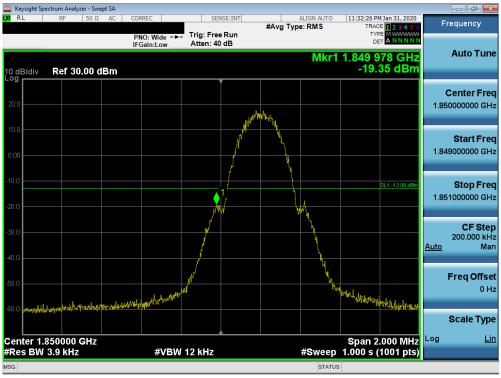


#### Plot 7-54. Band Edge Plot (Cellular GPRS Mode - High Channel)

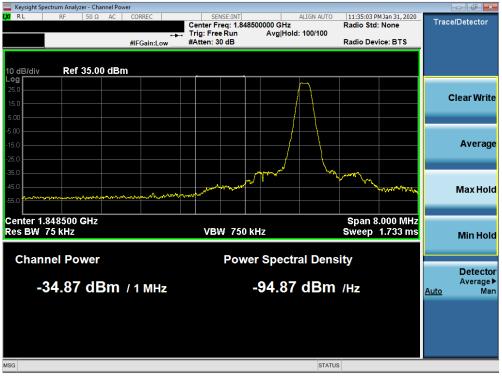
FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### PCS GPRS Mode



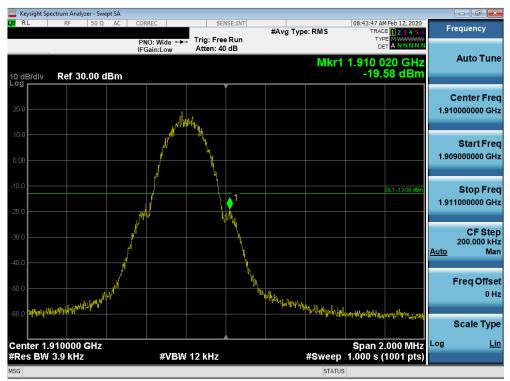
Plot 7-55. Band Edge Plot (PCS GPRS Mode - Low Channel)



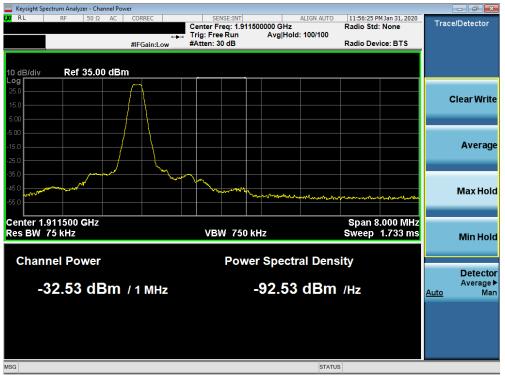
#### Plot 7-56. 4MHz Span Plot (PCS GPRS Mode - Low Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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#### Plot 7-58. 4MHz Span Plot (PCS GPRS Mode - High Channel)

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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: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 40 at 05
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### **AWS WCDMA Mode**



Plot 7-61. Band Edge Plot (AWS WCDMA Mode - Low Channel)



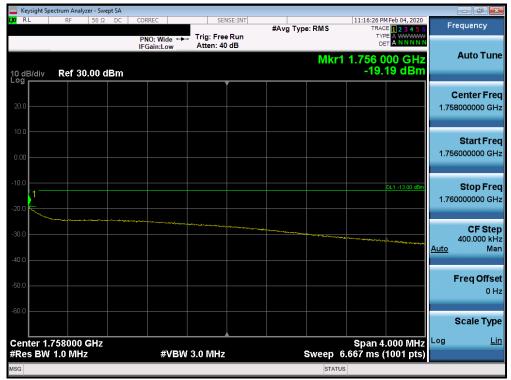
#### Plot 7-62. 4MHz Span Plot (AWS WCDMA Mode - Low Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 40 of 95
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Plot 7-63. Band Edge Plot (AWS WCDMA Mode - High Channel)



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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage E0 of 95
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### **PCS WCDMA Mode**



Plot 7-65. Band Edge Plot (PCS WCDMA Mode - Low Channel)



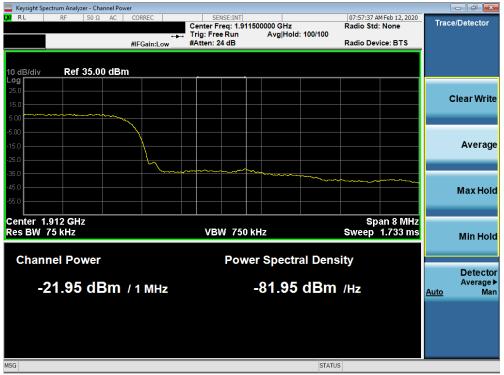
#### Plot 7-66. 4MHz Span Plot (PCS WCDMA Mode - Low Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 54 af 05
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#### Plot 7-68. 4MHz Span Plot (PCS WCDMA Mode - High Channel)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 52 of 95
1M2001200008-02.ZNF	01/12/2020 - 02/14/2020	Portable Handset		Page 52 of 85
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# 7.5 Peak-Average Ratio

#### **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 v03r01 - 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.



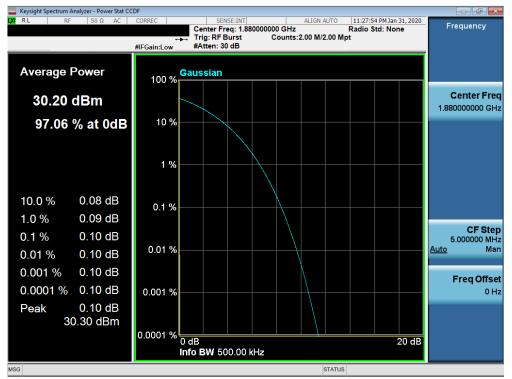
Figure 7-4. Test Instrument & Measurement Setup

#### Test Notes

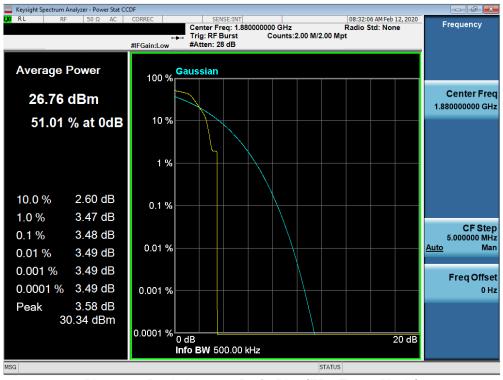
None

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 52 of 95
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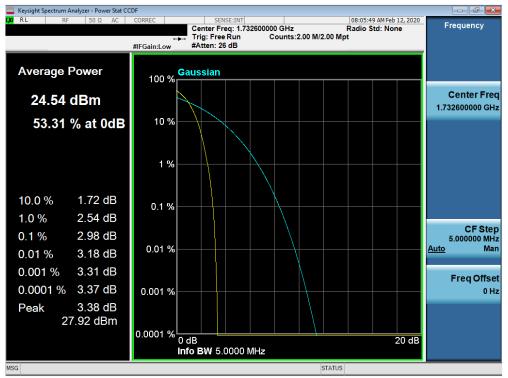




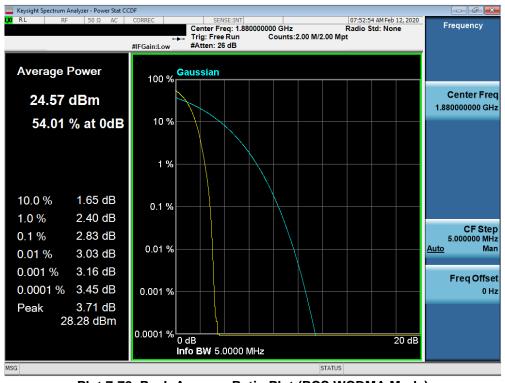
Plot 7-70. Peak-Average Ratio Plot (EDGE1900 Mode)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		
1M2001200008-02.ZNF	01/12/2020 - 02/14/2020	Portable Handset	Page 54 of 85	
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Plot 7-72. Peak-Average Ratio Plot (PCS WCDMA Mode)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage FE of 95	
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# 7.6 Radiated Power (ERP/EIRP)

#### **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 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 v03r01 - Section 5.2.1

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

#### Test Settings

- 1. 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  $\ge$  3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points  $\geq 2 \times \text{span} / \text{RBW}$
- 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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage FC of 95
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#### Test Setup

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

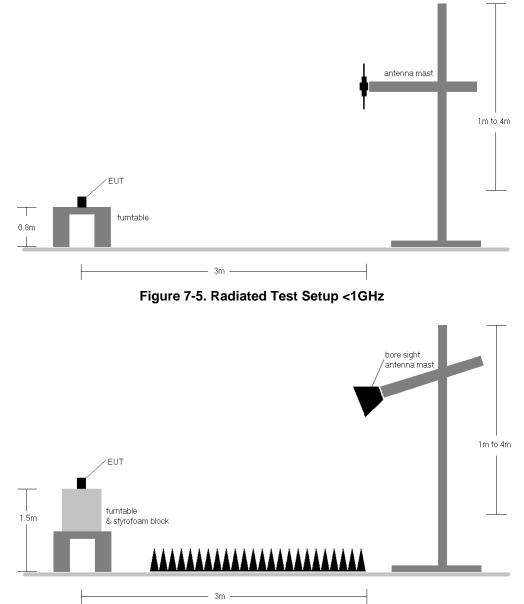


Figure 7-6. Radiated Test Setup >1GHz

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 57 of 95
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#### 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) and HSDPA capabilities. The EUT 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."
- 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.

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 50 of 05	
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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 Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
824.20	GPRS850	н	211	307	23.47	6.70	28.02	38.45	-10.43	30.17	40.61	-10.44
836.60	GPRS850	н	208	301	22.80	6.70	27.35	38.45	-11.10	29.50	40.61	-11.11
848.80	GPRS850	н	196	279	22.09	6.70	26.64	38.45	-11.81	28.79	40.61	-11.82
824.20	GPRS850	V	139	253	22.76	6.30	26.91	38.45	-11.54	29.06	40.61	-11.55
824.20	EDGE850	н	211	307	19.69	6.70	24.24	38.45	-14.21	26.39	40.61	-14.22

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

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
826.40	WCDMA850	Н	203	284	13.48	6.70	18.03	38.45	-20.42	20.18	40.61	-20.43
836.60	WCDMA850	н	203	288	12.85	6.70	17.40	38.45	-21.05	19.55	40.61	-21.06
846.60	WCDMA850	н	202	280	11.59	6.60	16.04	38.45	-22.41	18.19	40.61	-22.42
826.40	WCDMA850	V	135	270	13.19	6.30	17.34	38.45	-21.11	19.49	40.61	-21.12

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 Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	Н	103	337	10.61	9.43	20.04	30.00	-9.96
1732.60	WCDMA1700	Н	184	343	10.96	9.31	20.27	30.00	-9.73
1752.60	WCDMA1700	Н	101	340	10.85	9.21	20.06	30.00	-9.94
1732.60	WCDMA1700	V	144	317	10.15	9.19	19.34	30.00	-10.66

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 Limit [dBm]	Margin [dB]
1850.20	GPRS1900	Н	110	135	18.84	9.48	28.32	33.01	-4.69
1880.00	GPRS1900	н	121	134	18.36	9.90	28.26	33.01	-4.75
1909.80	GPRS1900	н	145	135	18.78	10.26	29.04	33.01	-3.97
1909.80	GPRS1900	V	157	44	16.71	10.31	27.02	33.01	-5.99
1909.80	EDGE1900	н	145	135	16.88	10.26	27.14	33.01	-5.87

#### Table 7-5. EIRP (PCS GPRS)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 50 of 95	
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O 0000 DOTEOT			1/0.0.00/04/0040	



Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	Н	163	143	13.22	9.51	22.73	33.01	-10.28
1880.00	WCDMA1900	Н	119	138	12.06	9.90	21.96	33.01	-11.05
1907.60	WCDMA1900	н	145	138	12.09	10.24	22.33	33.01	-10.68
1852.40	WCDMA1900	V	106	316	11.53	9.89	21.42	33.01	-11.59

Table 7-6. EIRP (PCS WCDMA)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 60 of 95	
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### 7.7 Radiated Spurious Emissions Measurements

#### **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 v03r01 - 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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 61 of 95
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### Test Setup

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

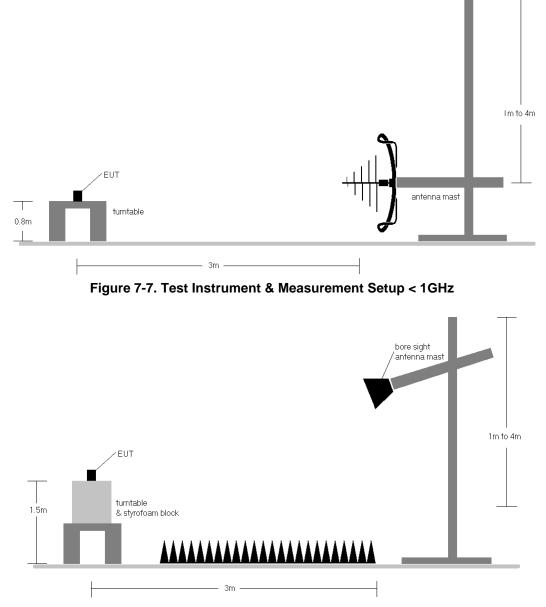


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		
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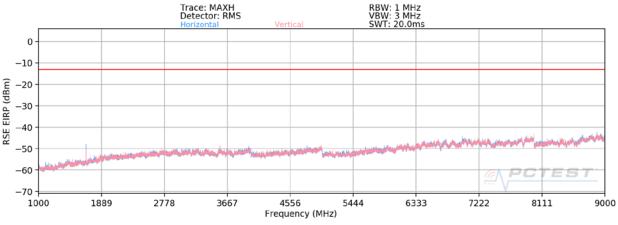
#### Test Notes

- 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) and HSDPA capabilities. The EUT 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."
- 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.

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 62 of 95
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# **Cellular GPRS Mode**



Plot 7-73. Radiated Spurious Plot above 1GHz (Cellular GPRS Mode)

824.20

meters

MHz

**OPERATING FREQUENCY:** 

MODULATION SIGNAL:

ON SIGNAL: <u>GPRS (GMSK)</u> DISTANCE: 3

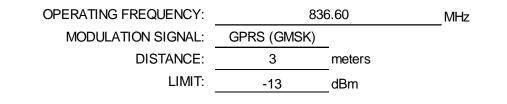
LIMIT: -13 dBm

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	101	19	-49.91	3.07	-46.84	-33.8
2472.60	Н	101	41	-55.09	3.82	-51.27	-38.3
3296.80	Н	-	-	-59.81	6.00	-53.81	-40.8
4121.00	Н	112	270	-58.87	7.67	-51.20	-38.2
4945.20	Н	-	-	-60.39	8.72	-51.67	-38.7
5769.40	Н	-	-	-58.97	9.09	-49.88	-36.9

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 64 of 95
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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]
1673.20	Н	138	329	-47.64	3.10	-44.54	-31.5
2509.80	Н	111	40	-53.75	4.02	-49.73	-36.7
3346.40	Н	-	-	-58.49	6.03	-52.46	-39.5
4183.00	Н	104	299	-57.09	7.79	-49.29	-36.3
5019.60	Н	-	-	-60.49	8.78	-51.71	-38.7
5856.20	Н	-	-	-60.14	9.18	-50.96	-38.0

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

meters

MHz

OPERATING FREQUENCY: MODULATION SIGNAL:

REQUENCY:848.80ON SIGNAL:GPRS (GMSK)DISTANCE:3

LIMIT: <u>-13</u> dBm

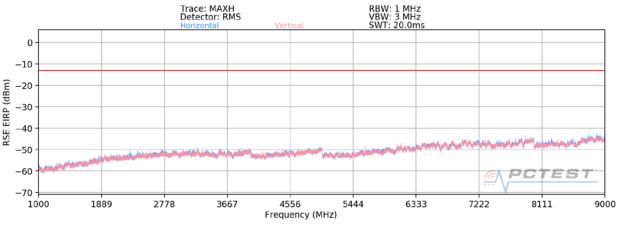
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1697.60	Н	121	331	-52.97	3.15	-49.82	-36.8
2546.40	Н	107	8	-55.20	4.15	-51.06	-38.1
3395.20	Н	-	-	-59.01	6.24	-52.77	-39.8
4244.00	Н	116	296	-58.30	7.97	-50.33	-37.3
5092.80	Н	-	-	-60.56	8.88	-51.68	-38.7
5941.60	Н	-	-	-59.64	9.31	-50.33	-37.3

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage CE of 95
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# Cellular WCDMA Mode



Plot 7-74. Radiated Spurious Plot above 1GHz (Cellular WCDMA Mode)

OPERATING FREQUENCY:	82	6.40 M	Hz
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]
1652.80	Н	-	-	-69.14	3.09	-66.05	-53.0
2479.20	Н	-	-	-66.52	3.91	-62.61	-49.6

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

OPERATING FREQUENCY:836.60MHzMODULATION SIGNAL:WCDMADISTANCE:3LIMIT:-13dBm

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	-	-	-69.05	3.10	-65.95	-52.9
2509.80	Н	-	-	-67.35	4.02	-63.33	-50.3

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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OPERATING FREQUENCY:	84	6.60	MHz
MODULATION SIGNAL:	WCDMA		
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

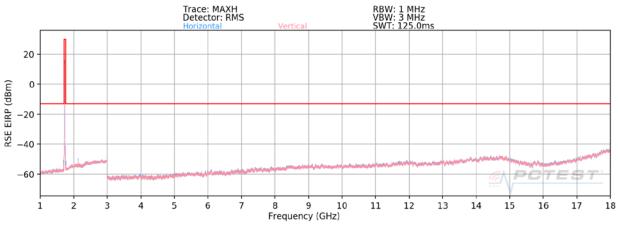
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.20	Н	-	-	-69.05	3.17	-65.88	-52.9
2539.80	Н	-	-	-67.37	4.13	-63.24	-50.2

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 67 of 95
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# AWS WCDMA Mode



Plot 7-75. Radiated Spurious Plot above 1GHz (AWS WCDMA Mode)

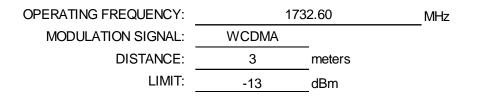
OPERATING FREQUENCY:	1712.40		MHz
MODULATION SIGNAL:	WCDMA	_	
DISTANCE:	3	meters	
LIMIT:	-13	_dBm	

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]
3424.80	H	329	126	-68.31	9.83	-58.48	-45.5
5137.20	H	-	-	-71.82	10.69	-61.13	-48.1
6849.60	Н	-	-	-70.02	11.64	-58.38	-45.4
8562.00	Н	-	-	-67.79	11.14	-56.64	-43.6

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 69 of 95	
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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]
3465.20	Н	195	128	-68.56	9.88	-58.68	-45.7
5197.80	Н	-	-	-72.09	10.76	-61.34	-48.3
6930.40	Н	-	-	-71.90	11.74	-60.15	-47.2
8663.00	Н	-	-	-68.21	11.02	-57.20	-44.2

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

OPERATING FREQUENCY:

MODULATION SIGNA

175	2.60
WCDMA	_
3	meters
-13	dBm
	WCDMA 3

MHz

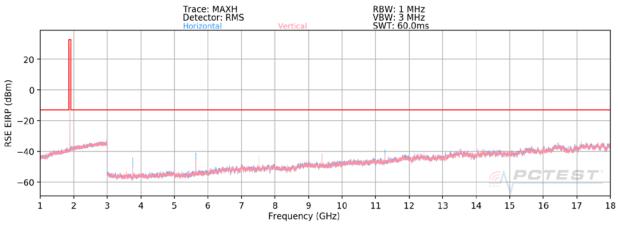
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3505.20	Н	185	131	-68.58	9.92	-58.66	-45.7
5257.80	Н	-	-	-71.48	10.72	-60.77	-47.8
7010.40	Н	-	-	-71.36	11.86	-59.50	-46.5
8763.00	Н	-	-	-67.93	10.98	-56.95	-43.9

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 60 of 95
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# PCS GPRS Mode



Plot 7-76. Radiated Spurious Plot above 1GHz (PCS GPRS Mode)

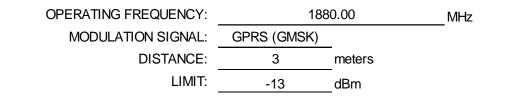
OPERATING FREQUENCY:	185	0.20	MHz
MODULATION SIGNAL:	GPRS (GMSK)	_	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

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	101	154	-49.48	6.89	-42.59	-29.6
5550.60	Н	174	356	-50.83	9.02	-41.81	-28.8
7400.80	Н	136	290	-52.79	9.21	-43.58	-30.6
9251.00	Н	121	303	-47.96	9.45	-38.51	-25.5
11101.20	Н	238	302	-46.35	9.44	-36.91	-23.9
12951.40	Н	-	-	-51.86	8.77	-43.08	-30.1
14801.60	Н	-	-	-48.86	8.64	-40.22	-27.2

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 70 of 95
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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]
3760.00	Н	104	150	-50.44	6.93	-43.51	-30.5
5640.00	Н	159	306	-46.32	9.15	-37.17	-24.2
7520.00	Н	145	305	-51.65	9.31	-42.34	-29.3
9400.00	Н	130	315	-49.89	9.49	-40.40	-27.4
11280.00	Н	237	22	-48.49	9.48	-39.01	-26.0
13160.00	Н	-	-	-49.48	8.71	-40.76	-27.8

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

MHz

OPERATING FREQUENCY: MODULATION SIGNAL:

 REQUENCY:
 1909.80

 ON SIGNAL:
 GPRS (GMSK)

 DISTANCE:
 3

LIMIT: <u>-13</u> dBm

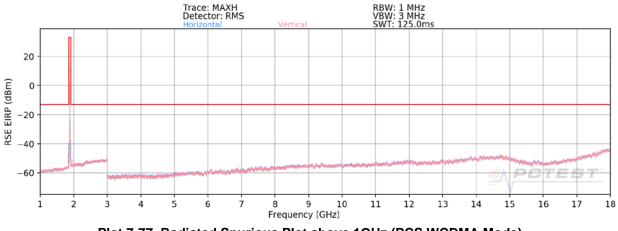
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3819.60	Н	128	138	-51.20	7.11	-44.09	-31.1
5729.40	Н	184	356	-50.02	9.03	-40.99	-28.0
7639.20	Н	177	3	-48.91	9.29	-39.62	-26.6
9549.00	Н	140	320	-49.22	9.43	-39.79	-26.8
11458.80	Н	224	304	-48.92	9.49	-39.43	-26.4
13368.60	Н	-	-	-48.74	8.71	-40.02	-27.0

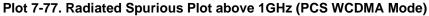
Table 7-18. Radiated Spurious Data (PCS GPRS Mode - Ch. 810)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 71 of 95
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# **PCS WCDMA Mode**





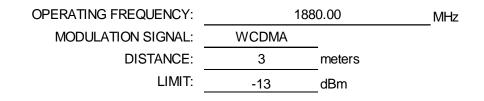
OPERATING FREQUENCY:	185	52.40	MHz
MODULATION SIGNAL:	WCDMA	_	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

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	V	210	299	-72.49	9.57	-62.93	-49.9
5557.20	V	-	-	-72.51	10.95	-61.56	-48.6
7409.60	V	230	311	-65.21	10.96	-54.25	-41.3
9262.00	V	-	-	-68.37	11.63	-56.74	-43.7
11114.40	V	-	-	-67.88	12.74	-55.15	-42.1

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 72 of 95
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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]
3760.00	V	204	313	-71.48	9.37	-62.12	-49.1
5640.00	V	-	-	-71.61	11.17	-60.44	-47.4
7520.00	V	207	307	-65.78	11.11	-54.66	-41.7
9400.00	V	-	-	-67.07	11.57	-55.50	-42.5
11280.00	V	-	-	-67.95	12.72	-55.23	-42.2
13160.00	V	-	-	-66.91	13.15	-53.77	-40.8

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

OPERATING FREQUENCY: MODULATION SIGNAL:

DISTANCE:

LIMIT:

 1907.60

 WCDMA
 meters

 3
 meters

 -13
 dBm

MHz

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	V	396	14	-71.32	9.30	-62.02	-49.0
5722.80	V	-	-	-71.94	11.37	-60.57	-47.6
7630.40	V	400	17	-67.85	11.31	-56.54	-43.5
9538.00	V	-	-	-67.84	11.76	-56.08	-43.1
11445.60	V	-	-	-68.06	12.82	-55.24	-42.2

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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#### **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  $\pm 0.00025\%$  ( $\pm 2.5$  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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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OPERATING FREQUENCY:	836,600,000	Hz
CHANNEL:	190	
REFERENCE VOLTAGE:	4.34	VDC
<b>DEVIATION LIMIT:</b>	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	836,600,016	16	0.0000019
100 %		- 20	836,600,060	60	0.0000072
100 %		- 10	836,600,383	383	0.0000458
100 %		0	836,599,897	-103	-0.0000123
100 %		+ 10	836,599,872	-128	-0.0000153
100 %		+ 20	836,599,690	-310	-0.0000371
100 %		+ 30	836,599,982	-18	-0.0000022
100 %		+ 40	836,599,779	-221	-0.0000264
100 %		+ 50	836,600,425	425	0.0000508
BATT. ENDPOINT	3.29	+ 20	836,599,738	-262	-0.0000313

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

FCC ID: ZNFK300AM	<u> PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 75 of 95
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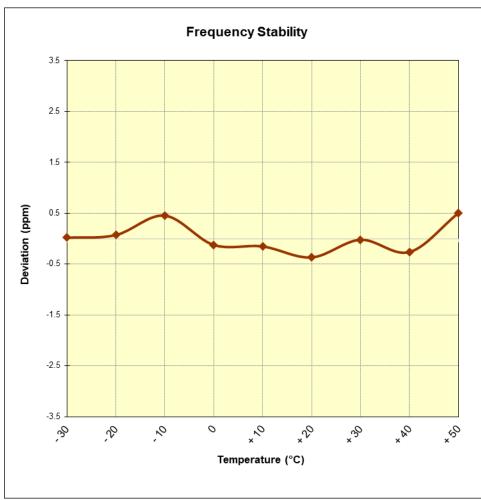


Figure 7-9. Frequency Stability Graph (Cellular GPRS Mode – Ch. 190)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 70 of 05
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OPERATING FREQUENCY:	836,600,000	Hz
CHANNEL:	4183	
REFERENCE VOLTAGE:	4.34	VDC
<b>DEVIATION LIMIT</b> :	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	836,599,978	-22	-0.0000026
100 %		- 20	836,600,011	11	0.0000013
100 %		- 10	836,599,901	-99	-0.0000118
100 %		0	836,599,892	-108	-0.0000129
100 %		+ 10	836,600,094	94	0.0000112
100 %		+ 20	836,599,931	-69	-0.000082
100 %		+ 30	836,599,934	-66	-0.0000079
100 %		+ 40	836,600,084	84	0.0000100
100 %		+ 50	836,599,994	-6	-0.0000007
BATT. ENDPOINT	3.29	+ 20	836,600,282	282	0.0000337

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 77 of 95
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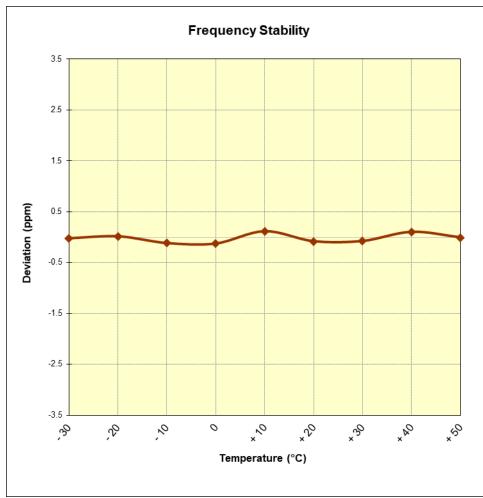


Figure 7-10. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 70 of 95
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OPERATING FREQUENCY:	1,732,600,000	Hz
CHANNEL:	1413	_
REFERENCE VOLTAGE:	4.34	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	1,732,599,848	-152	-0.000088
100 %		- 20	1,732,599,680	-320	-0.0000185
100 %		- 10	1,732,600,050	50	0.0000029
100 %		0	1,732,599,994	-6	-0.0000003
100 %		+ 10	1,732,599,939	-61	-0.0000035
100 %		+ 20	1,732,599,636	-364	-0.0000210
100 %		+ 30	1,732,600,020	20	0.0000012
100 %		+ 40	1,732,599,921	-79	-0.0000046
100 %		+ 50	1,732,599,966	-34	-0.0000020
BATT. ENDPOINT	3.29	+ 20	1,732,600,143	143	0.000083

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.

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Da az 70 at 05
1M2001200008-02.ZNF	01/12/2020 - 02/14/2020	Portable Handset		Page 79 of 85
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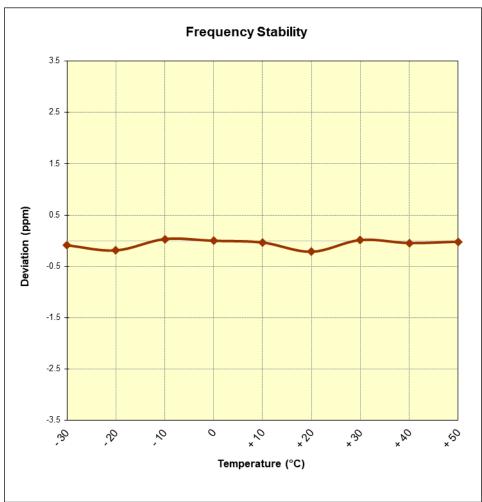


Figure 7-11. Frequency Stability Graph (AWS WCDMA Mode – Ch. 1413)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 90 of 95
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OPERATING FREQUENCY:	1,880,000,000	Hz
CHANNEL:	661	
REFERENCE VOLTAGE:	4.34	VDC
<b>DEVIATION LIMIT</b> :	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	1,880,000,066	66	0.0000035
100 %		- 20	1,879,999,736	-264	-0.0000140
100 %		- 10	1,879,999,733	-267	-0.0000142
100 %		0	1,880,000,260	260	0.0000138
100 %		+ 10	1,880,000,087	87	0.0000046
100 %		+ 20	1,879,999,997	-3	-0.0000002
100 %		+ 30	1,880,000,128	128	0.0000068
100 %		+ 40	1,879,999,938	-62	-0.0000033
100 %		+ 50	1,880,000,326	326	0.0000173
BATT. ENDPOINT	3.29	+ 20	1,880,000,021	21	0.0000011

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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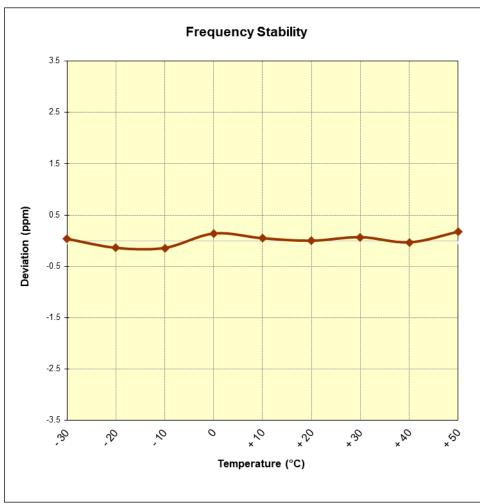


Figure 7-12. Frequency Stability Graph (PCS GPRS Mode – Ch. 661)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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OPERATING FREQUENCY:	1,880,000,000	Hz
CHANNEL:	9400	
REFERENCE VOLTAGE:	4.34	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	1,880,000,007	7	0.0000004
100 %		- 20	1,879,999,844	-156	-0.000083
100 %		- 10	1,879,999,824	-176	-0.0000094
100 %		0	1,880,000,309	309	0.0000164
100 %		+ 10	1,880,000,171	171	0.0000091
100 %		+ 20	1,879,999,633	-367	-0.0000195
100 %		+ 30	1,879,999,958	-42	-0.0000022
100 %		+ 40	1,880,000,025	25	0.0000013
100 %		+ 50	1,879,999,801	-199	-0.0000106
BATT. ENDPOINT	3.29	+ 20	1,880,000,030	30	0.0000016

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

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 92 of 95
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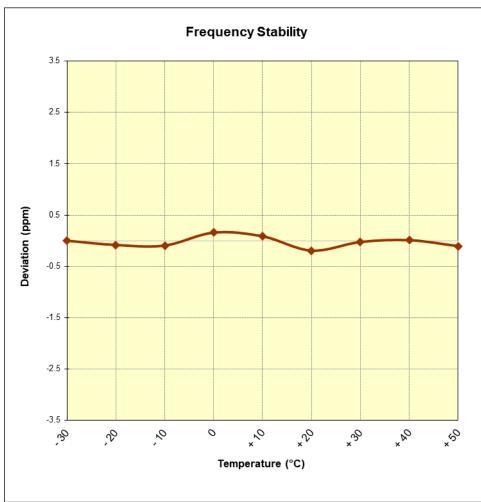


Figure 7-13. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

FCC ID: ZNFK300AM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 04 of 05
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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: ZNFK300AM complies with all the requirements of Part 22, 24, & 27 of the FCC Rules.

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