

PCTEST ENGINEERING LABORATORY, INC.

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# **MEASUREMENT REPORT**

LTE

#### Applicant Name:

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

## Date of Testing: 5/8/2018 - 5/25/2018 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M1805030091-03.ZNF

# FCC ID:

#### ZNFL414DL

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 LML414DL LM-414DL, L414DL 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



FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 1 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 1 of 163
© 2018 PCTEST Engineering Laboratory Inc				V 8 0 04/05/2018



# TABLE OF CONTENTS

1.0	INTF	RODUCTION	5
	1.1	Scope	5
	1.2	PCTEST Test Location	5
	1.3	Test Facility / Accreditations	5
2.0	PRO	DUCT INFORMATION	6
	2.1	Equipment Description	6
	2.2	Device Capabilities	6
	2.3	Test Configuration	6
	2.4	EMI Suppression Device(s)/Modifications	6
3.0	DES	CRIPTION OF TESTS	7
	3.1	Measurement Procedure	7
	3.2	Block C Frequency Range	7
	3.3	Block A Frequency Range	7
	3.4	Cellular - Base Frequency Blocks	7
	3.5	Cellular - Mobile Frequency Blocks	7
	3.6	PCS - Base Frequency Blocks	8
	3.7	PCS - Mobile Frequency Blocks	8
	3.8	AWS - Base Frequency Blocks	8
	3.9	AWS - Mobile Frequency Blocks	8
	3.10	Radiated Power and Radiated Spurious Emissions	9
4.0	MEA	ASUREMENT UNCERTAINTY	10
5.0	TES	T EQUIPMENT CALIBRATION DATA	11
6.0	SAM	IPLE CALCULATIONS	12
7.0	TES	T RESULTS	13
	7.1	Summary	
	7.2	Occupied Bandwidth	15
	7.3	Spurious and Harmonic Emissions at Antenna Terminal	42
	7.4	Band Edge Emissions at Antenna Terminal	73
	7.5	Peak-Average Ratio	121
	7.6	Radiated Power (ERP/EIRP)	128
	7.7	Radiated Spurious Emissions Measurements	135
	7.8	Frequency Stability / Temperature Variation	150
8.0	CON	ICLUSION	163

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 2 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 2 of 163
© 2018 PCTEST Engineering Laboratory, Inc. V				





# MEASUREMENT REPORT FCC Part 22, 24, & 27



			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	Modulation
LTE Band 71	27	665.5 - 695.5	0.074	18.67			4M54G7D	QPSK
LTE Band 71	27	665.5 - 695.5	0.063	17.99			4M54W7D	16QAM
LTE Band 71	27	672 - 693	0.077	18.84			8M99G7D	QPSK
LTE Band 71	27	672 - 693	0.062	17.91			9M03W7D	16QAM
LTE Band 71	27	670.5 - 690.5	0.077	18.87			13M5G7D	QPSK
LTE Band 71	27	670.5 - 690.5	0.063	18.00			13M5W7D	16QAM
LTE Band 71	27	673 - 688	0.066	18.21			18M0G7D	QPSK
LTE Band 71	27	673 - 688	0.056	17.45			18M0W7D	16QAM
LTE Band 12	27	699.7 - 715.3	0.079	19.00	0.130	21.15	1M11G7D	QPSK
LTE Band 12	27	699.7 - 715.3	0.059	17.69	0.096	19.84	1M11W7D	16QAM
LTE Band 12	27	700.5 - 714.5	0.072	18.58	0.118	20.73	2M72G7D	QPSK
LTE Band 12	27	700.5 - 714.5	0.052	17.13	0.085	19.28	2M73W7D	16QAM
LTE Band 12	27	701.5 - 713.5	0.067	18.27	0.110	20.42	4M56G7D	QPSK
LTE Band 12	27	701.5 - 713.5	0.046	16.58	0.075	18.73	4M54W7D	16QAM
LTE Band 12	27	704 - 711	0.073	18.66	0.121	20.81	9M04G7D	QPSK
LTE Band 12	27	704 - 711	0.052	17.20	0.086	19.35	9M04W7D	16QAM
LTE Band 13	27	779.5 - 784.5	0.088	19.47	0.145	21.62	4M60G7D	QPSK
LTE Band 13	27	779.5 - 784.5	0.065	18.11	0.106	20.26	4M54W7D	16QAM
LTE Band 13	27	782	0.089	19.49	0.146	21.64	9M00G7D	QPSK
LTE Band 13	27	782	0.071	18.50	0.116	20.65	9M01W7D	16QAM
LTE Band 5	22H	824.7 - 848.3	0.104	20.15	0.170	22.30	1M11G7D	QPSK
LTE Band 5	22H	824.7 - 848.3	0.084	19.26	0.138	21.41	1M12W7D	16QAM
LTE Band 5	22H	825.5 - 847.5	0.106	20.26	0.174	22.41	2M72G7D	QPSK
LTE Band 5	22H	825.5 - 847.5	0.085	19.31	0.140	21.46	2M73W7D	16QAM
LTE Band 5	22H	826.5 - 846.5	0.102	20.08	0.167	22.23	4M60G7D	QPSK
LTE Band 5	22H	826.5 - 846.5	0.082	19.13	0.134	21.28	4M55W7D	16QAM
LTE Band 5	22H	829 - 844	0.097	19.89	0.160	22.04	9M04G7D	QPSK
LTE Band 5	22H	829 - 844	0.077	18.89	0.127	21.04	9M02W7D	16QAM

EUT Overview (<1GHz)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 2 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 3 of 163
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018



			EIRP				
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Emission Designator	Modulation	
LTE Band 66/4	27	1710.7 - 1779.3	0.267	24.27	1M11G7D	QPSK	
LTE Band 66/4	27	1710.7 - 1779.3	0.229	23.60	1M11W7D	16QAM	
LTE Band 66/4	27	1711.5 - 1778.5	0.260	24.14	2M72G7D	QPSK	
LTE Band 66/4	27	1711.5 - 1778.5	0.212	23.26	2M73W7D	16QAM	
LTE Band 66/4	27	1712.5 - 1777.5	0.242	23.83	4M58G7D	QPSK	
LTE Band 66/4	27	1712.5 - 1777.5	0.184	22.64	4M55W7D	16QAM	
LTE Band 66/4	27	1715 - 1775	0.280	24.47	9M02G7D	QPSK	
LTE Band 66/4	27	1715 - 1775	0.215	23.33	9M01W7D	16QAM	
LTE Band 66/4	27	1717.5 - 1772.5	0.297	24.72	13M5G7D	QPSK	
LTE Band 66/4	27	1717.5 - 1772.5	0.254	24.04	13M5W7D	16QAM	
LTE Band 66/4	27	1720 - 1770	0.280	24.47	18M0G7D	QPSK	
LTE Band 66/4	27	1720 - 1770	0.191	22.81	18M0W7D	16QAM	
LTE Band 2	24E	1850.7 - 1909.3	0.338	25.29	1M11G7D	QPSK	
LTE Band 2	24E	1850.7 - 1909.3	0.260	24.15	1M11W7D	16QAM	
LTE Band 2	24E	1851.5 - 1908.5	0.359	25.55	2M72G7D	QPSK	
LTE Band 2	24E	1851.5 - 1908.5	0.283	24.52	2M72W7D	16QAM	
LTE Band 2	24E	1852.5 - 1907.5	0.353	25.48	4M56G7D	QPSK	
LTE Band 2	24E	1852.5 - 1907.5	0.274	24.37	4M55W7D	16QAM	
LTE Band 2	24E	1855 - 1905	0.387	25.87	9M02G7D	QPSK	
LTE Band 2	24E	1855 - 1905	0.322	25.08	9M01W7D	16QAM	
LTE Band 2	24E	1857.5 - 1902.5	0.394	25.96	13M5G7D	QPSK	
LTE Band 2	24E	1857.5 - 1902.5	0.323	25.10	13M5W7D	16QAM	
LTE Band 2	24E	1860 - 1900	0.354	25.49	18M0G7D	QPSK	
LTE Band 2	24E	1860 - 1900	0.287	24.58	18M0W7D	16QAM	

EUT Overview (>1GHz)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 4 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 4 of 163
© 2018 PCTEST Engineering Laboratory Inc.				V 8 0 04/05/2018



# **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 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 (2451B) test laboratory with the site description on file with ISED.

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage E of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 5 of 163
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018



# 2.0 PRODUCT INFORMATION

# 2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFL414DL**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 00631, 00581, 00599, 00623, 00560

## 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA (BC0, BC1), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n WLAN, Bluetooth (1x, EDR, LE)

LTE Band 66 (1710 - 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.

## 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.

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 6 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 6 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			

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# 3.0 DESCRIPTION OF TESTS

## 3.1 Measurement Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

# 3.2 Block C Frequency Range

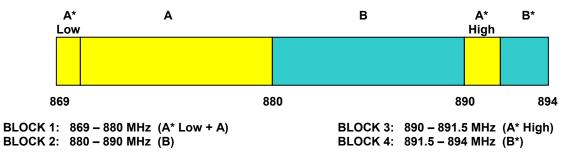
Two paired channels of 11 megahertz each are available for assignment in Block C in the 746-757 MHz and 776-787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results do not satisfy the applicable reserve price, the spectrum in the 746-757 MHz and 776-787 MHz bands will instead be made available for assignment at a subsequent auction as follows: (i) Two paired channels of 6 megahertz each available for assignment in Block C1 in the 746-752 MHz and 776-782 MHz bands. (ii) Two paired channels of 5 megahertz each available for assignment in Block C2 in the 752-757 MHz and 782-787 MHz bands.

# 3.3 Block A Frequency Range

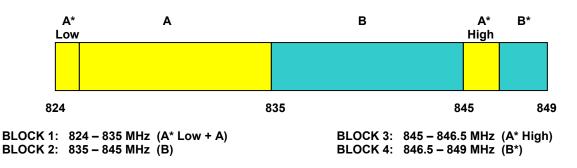
<u>698-746 MHz band</u>. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

Block A: 698-704 MHz and 728-734 MHz; Block B: 704-710 MHz and 734-740 MHz; and Block C: 710-716 MHz and 740-746 MHz.

# 3.4 Cellular - Base Frequency Blocks



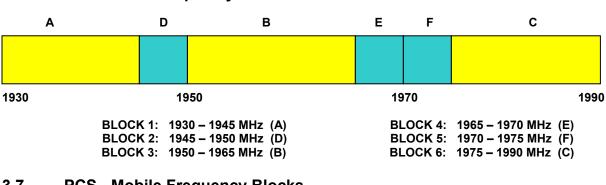
# 3.5 Cellular - Mobile Frequency Blocks



FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 7 af 100
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 7 of 163
© 2018 PCTEST Engineering Laboratory Inc				V 8 0 04/05/2018

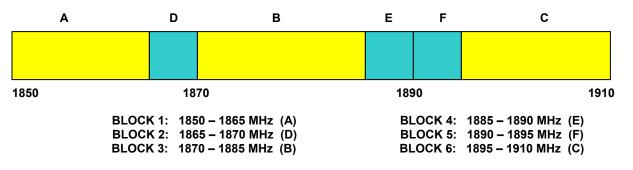


3.6

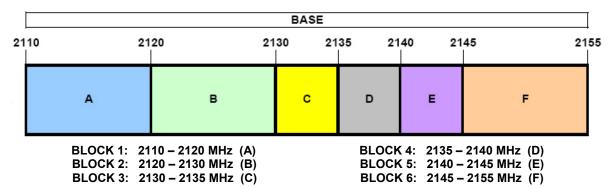


## 3.7 PCS - Mobile Frequency Blocks

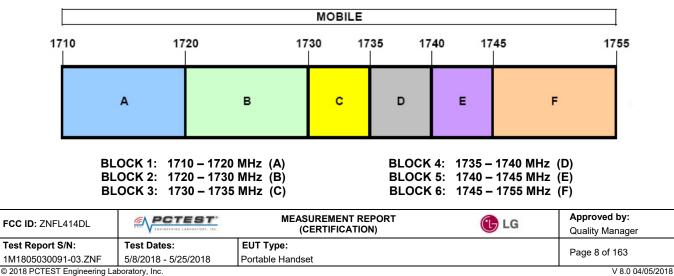
**PCS - Base Frequency Blocks** 



## 3.8 AWS - Base Frequency Blocks



# 3.9 AWS - Mobile Frequency Blocks





## 3.10 Radiated Power and Radiated Spurious Emissions

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. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v03r01.

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].

The calculated  $P_d$  levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log<sub>10</sub>(Power [Watts]).

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 0 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 9 of 163
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018



# 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  $U_{\text{CISPR}}$  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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 10 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 10 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



# 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
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	1/24/2018 Annual 1/24/20		US46470561
Anritsu	MT8820C	Radio Communication Analyzer	5/23/2017	Annual	5/23/2018	6201240328
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/23/2016	Biennial	8/23/2018	135427
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
Espec	ESX-2CA	Environmental Chamber	3/28/2018	Annual	3/28/2019	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	3/28/2018	Biennial	3/28/2020	00128337
Huber+Suhner	Sucoflex 102A	40GHz Radiated Cable	1/23/2018	Annual	1/23/2019	251425001
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/30/2018	Annual	3/30/2019	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	ESU40	EMI Test Receiver (40GHz)	7/31/2017	Annual	7/31/2018	100348
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102135
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	1/24/2018	Annual	1/24/2019	100040
Schwarzbeck	UHA 9105	Dipole Antenna	8/26/2016	Biennial	8/26/2018	2696
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. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements. For test equipment with calibration due dates that fall within the test date range, care was taken to ensure that the equipment was used before calibration due date.

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 11 of 163
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 11 01 105
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



# 6.0 SAMPLE CALCULATIONS

#### **Emission Designator**

#### **QPSK Modulation**

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz G = Phase Modulation 7 = Quantized/Digital Info D = Data transmission, telemetry, telecommand

#### **QAM Modulation**

#### Emission Designator = 8M45W7D

LTE BW = 8.45 MHz W = Amplitude/Angle Modulated 7 = Quantized/Digital Info D = Data transmission, telemetry, telecommand

## Spurious Radiated Emission – LTE Band

#### Example: Middle Channel LTE Mode 2<sup>nd</sup> Harmonic (1564 MHz)

The average 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 analzyer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Page 12 of 163	
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset			
© 2018 PCTEST Engineering La	V 8.0 04/05/2018				



#### **TEST RESULTS** 7.0

#### 7.1 Summary

Company Name:	LG Electronics MobileComm U.S.A
FCC ID:	ZNFL414DL
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	<u>LTE</u>

Mode(s):

**FCC Part** Test Test **Test Limit Test Description** Reference Condition Section(s) Result 2.1049 Occupied Bandwidth N/A PASS Section 7.2 2.1051 2.917(a) > 43 + 10log<sub>10</sub> (P[Watts]) at 24.238(a) Section 7.3, Out of Band Emissions Band Edge and for all out-of-PASS 27.53(c) 7.4 band emissions 27.53(g) 27.53(h) Section 7.5 24.232(d) Peak-Average Ratio < 13 dB PASS CONDUCTED See RF Transmitter Conducted 2.1046 N/A PASS Exposure **Output Power** Report 2.1055 < 2.5 ppm (Part 22) and 22.355 fundamental emissions stay **Frequency Stability** PASS Section 7.8 24.235 within authorized frequency 27.54 block (Part 2, 27)

Table 7-1. Summary of Conducted Test Results

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 13 of 163
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 13 01 103
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 5)	< 7 Watts max. ERP		PASS	Section 7.6
27.50(b)(10) 27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 71, 12, 13)	< 3 Watts max. ERP		PASS	Section 7.6
24.232(c)	Equivalent Isotropic Radiated Power (Band 21)	< 2 Watts max. EIRP		PASS	Section 7.6
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 66)	< 1 Watts max. EIRP	RADIATED	PASS	Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions	> 43 + 10log <sub>10</sub> (P[Watts]) for all out-of-band emissions		PASS	Section 7.7
27.53(f)	Undesirable Emissions (Band 13)	<ul> <li>-70 dBW/MHz (for wideband signals)</li> <li>-80 dBW (for discrete emissions less than 700Hz BW)</li> <li>For all emissions in the band 1559 – 1610 MHz</li> </ul>		PASS	Section 7.7

Table 7-2. Summary of Radiated 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 (Sections 7.2, 7.3, 7.4, 7.5) 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 "LTE Automation," Version 4.8.
- 5) For operation <1GHz, the EIRP limits in the table above are referenced to the specifications written in the relevant Radio Standards Specifications for Innovation, Science, and Economic Development Canada.

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 14 of 162	
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 14 of 163	
© 2018 PCTEST Engineering La	V 8.0 04/05/2018				



# 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.

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 15 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset	Page 15 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018		





Plot 7-1. Occupied Bandwidth Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-2. Occupied Bandwidth Plot (Band 71 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 16 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 16 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



Keysight Spectrum Analyzer - Occupied BV	V					5 🗙
IXIRL RF 50Ω AC	Center	SENSE:INT r Freq: 680.500000 MHz	Radio St	PM May 16, 2018 d: None	Trace/Dete	ctor
	#IFGain:Low #Atten	Free Run Avg Hold: h: 36 dB		evice: BTS		
10 dB/div Ref 40.00 dBn	n					
30.0						
20.0		mannan an many			Clear	write
10.0						
0.00					Av	erage
-10.0	~		hunan		AV	eraye
-30.0				and the street of the street o		
-40.0					Max	Hold
-50.0						
Center 680.5 MHz			Sp	an 25 MHz		
Res BW 240 kHz	#	VBW 750 kHz		veep 1ms	Min	Hold
Occupied Bandwidt	h	Total Power	32.9 dBm			
	 9875 MHz				Det	tector
						Peak▶
Transmit Freq Error	12.673 kHz	% of OBW Powe			Auto	<u>Man</u>
x dB Bandwidth	10.01 MHz	x dB	-26.00 dB			
MSG			STATUS			

Plot 7-3. Occupied Bandwidth Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-4. Occupied Bandwidth Plot (Band 71 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 17 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 17 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



Keysight Spectrum Analyzer - Occupied BW	/			
LXXIRL RF 50Ω AC	Center	SENSE:INT Freq: 680.500000 MHz Tree Run Avg Hold: 10	05:54:25 PM May Radio Std: Non 0/100	
		: 36 dB	Radio Device: E	BTS
10 dB/div Ref 40.00 dBn	n			
30.0	and a second sec			Clear Write
10.0				
-10.0	venant		and the second second second	Average
-30.0				Max Hold
-50.0 Center 680.5 MHz			Span 37.5	MHZ
Res BW 360 kHz		VBW 1.1 MHz	Sweep	
Occupied Bandwidt	h	Total Power	33.1 dBm	
	3.506 MHz			Detector Peak►
Transmit Freq Error	38.434 kHz	% of OBW Power	99.00 %	Auto <u>Man</u>
x dB Bandwidth	14.92 MHz	x dB	-26.00 dB	
MSG			STATUS	

Plot 7-5. Occupied Bandwidth Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-6. Occupied Bandwidth Plot (Band 71 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 19 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset	Page 18 of 163
© 2018 PCTEST Engineering La	boratory, Inc.		V 8.0 04/05/2018



🔤 Keysight Spectrum Analyzer - Occupied BW	1				
LXIRL RF 50Ω AC	CORREC	SENSE:INT r Freg: 680.500000 MHz	06:22:05 P Radio Std	M May 16, 2018 : None	Trace/Detector
		Free Run Avg Hold: 1: 36 dB	>100/100 Radio Dev	rice: BTS	
	#il Gam.Low #il tabl				
10 dB/div Ref 40.00 dBm	1				
Log 30.0					
20.0					Clear Write
10.0	all manual mark	deren and a service of			
0.00					
-10.0					Average
-20.0			the growth where a	den er er	
-30.0				and a design of the second	
-40.0					Max Hold
-50.0					
Center 680.5 MHz			Spa	n 50 MHz	
Res BW 470 kHz	#	VBW 1.5 MHz		eep 1 ms	Min Hold
Occupied Bandwidt	b	Total Power	33.3 dBm		
			55.5 dBm		
1/	.964 MHz				Detector Peak►
Transmit Freq Error	29.793 kHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	19.58 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-7. Occupied Bandwidth Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-8. Occupied Bandwidth Plot (Band 71 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 10 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset	Page 19 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018		





Plot 7-9. Occupied Bandwidth Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-10. Occupied Bandwidth Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 20 of 163
© 2018 PCTEST Engineering Laboratory. Inc.				V 8.0 04/05/2018



🔤 Keysight Spectrum Analyzer - Occupied BW						
LXXI RL RF 50 Ω AC		SENSE:INT r Freg: 707.500000 MHz	10:57:58 Radio Sto	M May 18, 2018	Trace/I	Detector
	Trig: F	ree Run Avg Hold:	100/100			
	#IFGain:Low #Atten	1: 36 dB	Radio De	vice: BTS		
10 dB/div Ref 30.00 dBm						
20.0						
10.0	man	mmmmm			Cl	ear Write
0.00	/					
-10.0 -20.0 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm	~~		moment and the second	man		Average
						Average
-30.0						
-40.0						
-50.0						Max Hold
-60.0						
Center 707.5 MHz			Sna	n 7.5 MHz		
Res BW 68 kHz	#	VBW 220 kHz		p 1.6 ms		
				-		Min Hold
Occupied Bandwidth	า	Total Power	33.0 dBm			
27	7222 MHz					Detector
						Peak►
Transmit Freq Error	3.648 kHz	% of OBW Powe	er 99.00 %		Auto	<u>Man</u>
x dB Bandwidth	3.028 MHz	x dB	-26.00 dB			
MSG			074710			
MSG			STATUS			

Plot 7-11. Occupied Bandwidth Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



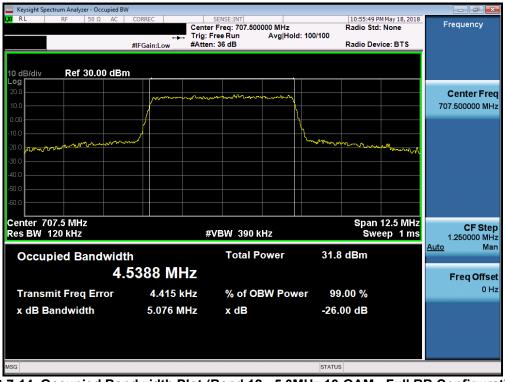
Plot 7-12. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 21 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 21 of 163
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018



Keysight Spectrum Analyzer - Occupied BW					
<b>LXI RL RF 50 Ω AC (</b>		SENSE:INT er Freq: 707.500000 MHz	10:55:39 Radio Sto	M May 18, 2018	Frequency
#		Free Run Avg Hold: n: 36 dB	: 100/100 Radio De	vice: BTS	
10 dB/div Ref 30.00 dBm					
20.0					Center Freq
10.0		and the second s			707.500000 MHz
0.00	_/				
-10.0	$\mathcal{A}$		hanness in a		
-20.0 when he have been been been been been been been be			Martin and and a second	www.where	
-30.0					
-40.0					
-50.0					
-60.0					
Center 707.5 MHz				12.5 MHz	CF Step
Res BW 120 kHz		¥VBW 390 kHz	5W	eep 1 ms	1.250000 MHz Auto Man
Occupied Bandwidth		Total Power	32.9 dBm		Man
4.5	627 MHz				Freq Offset
Transmit Freq Error	-2.698 kHz	% of OBW Powe	er 99.00 %		0 Hz
x dB Bandwidth	5.085 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-13. Occupied Bandwidth Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-14. Occupied Bandwidth Plot (Band 12 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 00 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 22 of 163
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018



Keysight Spectrum Analyzer - Occupied BW     RL RF 50 Ω AC	CORREC	SENSE:INT	10:47:39 PM	May 18, 2018	
	Cente	r Freq: 707.500000 MHz Free Run Avg Hold:>	Radio Std:		Trace/Detector
		n: 36 dB	Radio Devi	ce: BTS	
10 dB/div Ref 40.00 dBm	ì				
-og					
30.0					Clear Wri
20.0	man man and and a second	Mary more and			
10.0					
0.00					
10.0	www.		Mary Marghall and and		Avera
20.0 www.and water and			W W. Bit Level Rph / have	- mar mar	
30.0					
40.0					Max Ho
50.0					
Center 707.5 MHz			0	05 MU	
Res BW 240 kHz	#	VBW 750 kHz		n 25 MHz ep 1 ms	
					Min Ho
Occupied Bandwidt	h	Total Power	32.9 dBm		
9 (	0398 MHz				Detect
					Pea
Transmit Freq Error	25.165 kHz	% of OBW Power	99.00 %	A	uto <u>M</u>
x dB Bandwidth	9.941 MHz	x dB	-26.00 dB		
SG			STATUS		

Plot 7-15. Occupied Bandwidth Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-16. Occupied Bandwidth Plot (Band 12 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 22 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 23 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



Keysight Spectrum Analyzer - Occupied BV     RL	CORREC Cente	SENSE:INT r Freq: 782.000000 MHz Free Run Avg Hold h: 36 dB	Radio Std:	None	race/Detector
10 dB/div Ref 40.00 dBn	1				Clear Writ
10.0 0.00 10.0 20.0			Land and the second sec	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Averag
40.0 mm <sup></sup>					Max Hol
Center 782 MHz Res BW 120 kHz		VBW 390 kHz Total Power		12.5 MHz ep 1 ms	Min Ho
Occupied Bandwidt 4.	n 5992 MHz	Total Power	33.1 dBm		Detecto
Transmit Freq Error x dB Bandwidth	-15.289 kHz 5.145 MHz	% of OBW Powe x dB	ər 99.00 % -26.00 dB	Aut	
SG			STATUS		

Plot 7-17. Occupied Bandwidth Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-18. Occupied Bandwidth Plot (Band 13 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 24 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 24 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			





Plot 7-19. Occupied Bandwidth Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-20. Occupied Bandwidth Plot (Band 13 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 25 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 25 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



#### Band 5



Plot 7-21. Occupied Bandwidth Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-22. Occupied Bandwidth Plot (Band 5 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 26 of 162	
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 26 of 163	
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018	



Keysight Spectrum Analyzer - Occupied BW	1				- F	×
LXX RL RF 50Ω AC	CORREC	SENSE:INT r Freg: 836.500000 MHz	11:08:56 PM Radio Std:	May 18, 2018	Trace/Detect	or
	🛶 Trig: I	Free Run Avg Hold: 1	00/100			
	#IFGain:Low #Atter	n: 36 dB	Radio Devi	ce: BTS		
10 dB/div Ref 40.00 dBm	<u> </u>					
Log 30.0						
20.0					Clear W	Irite
10.0		mmmm				
0.00						
-10.0		۱			Aver	ade
-20.0			- marine marine	m		uge
-30.0						
-40.0					Max H	lold
-50.0						_
Center 836.5 MHz			Span	7.5 MHz		
Res BW 68 kHz	#	VBW 220 kHz	Sweep	) 1.6 ms	Min H	lold
		Total Power	33.0 dBm			
Occupied Bandwidt		Total Power	33.0 dBm			
2.	7249 MHz				Dete	
Transmit Freq Error	3.274 kHz	% of OBW Power	99.00 %			eak▶ Man
					, luito	man
x dB Bandwidth	3.117 MHz	x dB	-26.00 dB			
MSG			STATUS			

Plot 7-23. Occupied Bandwidth Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



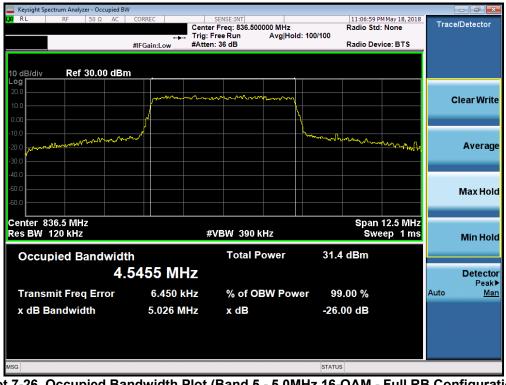
Plot 7-24. Occupied Bandwidth Plot (Band 5 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 07 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 27 of 163
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018



Keysight Spectrum Analyzer - Occupied B R RL RF 50 Ω AC	CORREC	SENSE:INT	11:06:47 PM May 18, 2018	
10 0012 110	Cente	er Freq: 836.500000 MHz	Radio Std: None	Trace/Detector
		Free Run Avg Hold: 10 n: 36 dB	00/100 Radio Device: BTS	
	#IFGain:Low #Atte	n. 36 dB	Radio Device. B13	
0 dB/div Ref 30.00 dBr	n			
.og 20.0				
	mm	mann		Clear Wri
10.0		<u> </u>		
).00				
10.0			mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm	
20.0 pm mm				Avera
30.0				
40.0				
50.0				
				Max Ho
60.0				
Center 836.5 MHz			Span 12.5 MHz	
les BW 120 kHz	\$	#VBW 390 kHz	Sweep 1 ms	Min Ho
			· · · ·	
Occupied Bandwidt	h	Total Power	32.8 dBm	
А	6011 MHz			Detect
				Pea
Transmit Freq Error	-24.539 kHz	% of OBW Power	99.00 %	Auto <u>M</u>
x dB Bandwidth	5.164 MHz	x dB	-26.00 dB	
	5.104 MHZ	X UD	-20.00 uB	
SG			STATUS	

Plot 7-25. Occupied Bandwidth Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-26. Occupied Bandwidth Plot (Band 5 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 29 of 162	
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 28 of 163	
© 2018 PCTEST Engineering La	V 8.0 04/05/2018				



Keysight Spectrum Analyzer - Occupied BW KI RL RF 50 Ω AC	CORREC	SENSE:INT	11:03:13 PM May 18,	2018
NF JUSE AC	Cente	r Freq: 836.500000 MHz	Radio Std: None	Trace/Detector
		Free Run Avg Hold: 1 n: 36 dB	100/100 Radio Device: BT	
	#IFGain:Low #Atter	1: 36 GD	Radio Device: B I	5
0 dB/div Ref 40.00 dBm	<u> </u>			
- <b>og</b> 30.0				
20.0				Clear Wr
	man			
10.0				
0.00				
10.0	~~~~		mather was and the second	Avera
20.0 may the all the second second				thurs,
30.0				
40.0				Max Ho
50.0				
Center 836.5 MHz	يع.		Span 25 M	
tes BW 240 kHz	#	VBW 750 kHz	Sweep 1	ms Min Ho
Occupied Bandwidt	h	Total Power	32.8 dBm	
				_
9.	0398 MHz			Detect
Transmit Freq Error	11.232 kHz	% of OBW Power	99.00 %	Auto <u>M</u>
x dB Bandwidth	10.14 MHz	x dB	-26.00 dB	
SG			STATUS	

Plot 7-27. Occupied Bandwidth Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-28. Occupied Bandwidth Plot (Band 5 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 20 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 29 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			





Plot 7-29. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-30. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 30 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



🔤 Keysight Spectrum Analyzer - Occupied B	W					×
<mark>(X/</mark> RL RF 50Ω AC		SENSE:INT r Freq: 1.745000000 GHz	11:36:01 PM Radio Std:	May 18, 2018	Trace/Detecto	or
	Trig: F	ree Run Avg Hold: 1	100/100			
	#IFGain:Low #Atten	:: 36 dB	Radio Devi	ce: BTS		
10 dB/div Ref 40.00 dBr	n					
Log 30.0						
20.0					Clear Wi	rite
10.0	m	manny				
0.00		1				
-10.0	~~~~d		mm	O	Avera	age
-20.0				molow and		
-30.0						
-40.0					Max H	old
-50.0						
			0	7.5.8411-		
Center 1.745 GHz Res BW 68 kHz	#	VBW 220 kHz		7.5 MHz 0 1.6 ms		
	"		Unce	7 NV 1115	Min H	old
Occupied Bandwid	th	Total Power	32.4 dBm			
	7211 MHz				Detec	tor
2.						ak▶
Transmit Freq Error	2.536 kHz	% of OBW Power	r 99.00 %			Man
x dB Bandwidth	3.063 MHz	x dB	-26.00 dB			
	5.005 MITZ	X UD	-20.00 08			
MSG			STATUS			

Plot 7-31. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



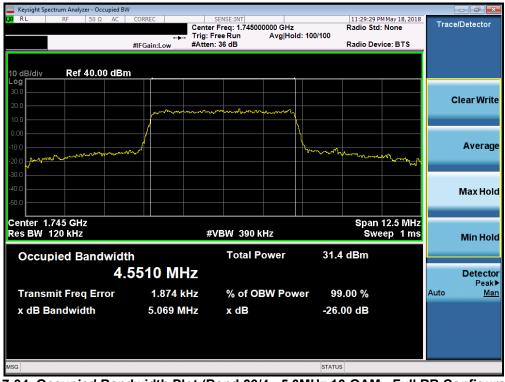
Plot 7-32. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 21 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 31 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



Keysight Spectrum Analyzer - Occupies  KI RL RF 50 Ω A0		SENSE:INT	11:29:20 PM May 18, 2018	
	Cente	r Freq: 1.745000000 GHz	Radio Std: None	Trace/Detector
	Trig: I			
	#IFGain:Low #Atter	n: 36 dB	Radio Device: BTS	
0 dB/div Ref 40.00 d	Bm			
.og 30.0				
				Clear Wri
20.0	m	mann		
10.0				
0.00		\\\		
10.0	mund	M.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Avera
20.0				
30.0				
40.0				
50.0				Max Ho
50.0				
Center 1.745 GHz			Span 12.5 MHz	
les BW 120 kHz	#	VBW 390 kHz	Sweep 1 ms	Min Ho
Occupied Bandwi	dth	Total Power	32.6 dBm	
	4.5818 MHz			Detect
				Pea
Transmit Freq Error	-15.634 kHz	% of OBW Power	99.00 %	Auto <u>M</u>
x dB Bandwidth	5.152 MHz	x dB	-26.00 dB	
ŝG			STATUS	

Plot 7-33. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-34. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 22 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 32 of 163
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.0 04/05/2018



Keysight Spectrum Analyzer - Occupied BW     RL RF 50 Ω AC	Trig: F	SENSE:INT r Freq: 1.745000000 GHz Free Run Avg Hold: n: 36 dB	Radio Std:		Trace/Detector
10 dB/div Ref 40.00 dBm					
20.0		moulanny			Clear Writ
10.0 0.00 10.0 20.0			more the source of		Averaç
40.0					Max Ho
Center 1.745 GHz Res BW 240 kHz	#	VBW 750 kHz		ep 1 ms	Min Ho
Occupied Bandwidth 9.(	י 0248 MHz	Total Power	32.5 dBm		Detect
Transmit Freq Error	7.712 kHz	% of OBW Powe	r 99.00 %	A	uto <u>M</u>
x dB Bandwidth	10.11 MHz	x dB	-26.00 dB		
SG			STATUS		

Plot 7-35. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-36. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 22 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset	Page 33 of 163	
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C Keysight Spectrum Analyzer - Occupied BW	CORREC	SENSE:INT	11:20:59 PM May	18,2018
NE NO JULI AC	Cente	r Freq: 1.745000000 GHz	Radio Std: Nor	
		Free Run Avg Hold: 1 n: 36 dB	00/100 Radio Device: I	BTS
	#IFGall:LOW #Atter	1. 00 0.5	Radio Device.	
0 dB/div Ref 40.00 dBm				
30.0				
20.0	ab ut the contraction			Clear Wri
10.0				
0.00				
10.0	<u>}</u>			Avera
the the strength of the state			man man man man	Avera
				and the second sec
30.0				
40.0				Max Ho
50.0				
Center 1.745 GHz			Span 37.	5 MHZ
Res BW 360 kHz	#	VBW 1.1 MHz	Sweep	
Occupied Bandwidt		Total Power	32.9 dBm	
13	.510 MHz			Detect
	0.000.111	0/ CODM/D	00.00.0/	Pea Auto M
Transmit Freq Error	8.980 kHz	% of OBW Power	99.00 %	Auto <u>M</u>
x dB Bandwidth	14.95 MHz	x dB	-26.00 dB	
SG			STATUS	

Plot 7-37. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



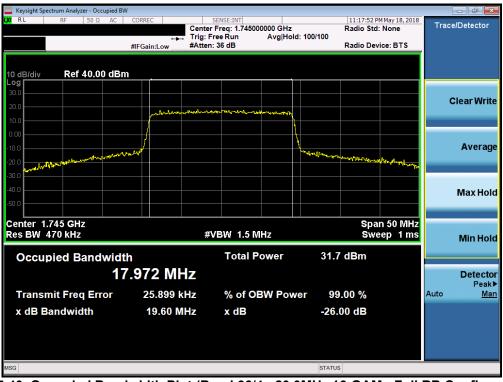
Plot 7-38. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 24 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 34 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω AC	Trig: I	SENSE:INT r Freq: 1.745000000 GHz Free Run Avg Hold: 1: 36 dB	Radio Std:		Trace/Detector
10 dB/div Ref 40.00 dBm					
20.0	Jack Changer and	manulambunnan			Clear Writ
0.00 10.0 20.0				Advant of	Averaç
40.0					Max Ho
Center 1.745 GHz Res BW 470 kHz	#	VBW 1.5 MHz		50 MHz ep 1 ms	Min Ho
Occupied Bandwidth 17	.969 MHz	Total Power	32.6 dBm		Detect
Transmit Freq Error	5.550 kHz	% of OBW Powe	r 99.00 %	A	uto <u>M</u>
x dB Bandwidth	19.54 MHz	x dB	-26.00 dB		
SG			STATUS		

Plot 7-39. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-40. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)

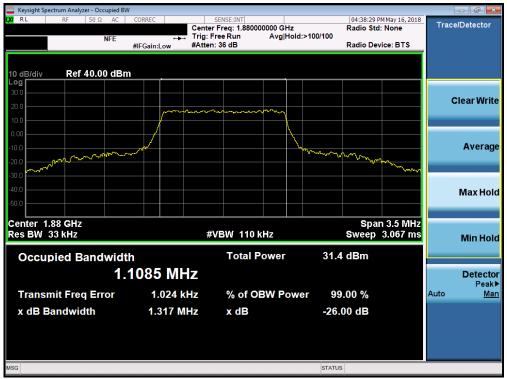
FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 25 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 35 of 163
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#### Band 2



Plot 7-41. Occupied Bandwidth Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-42. Occupied Bandwidth Plot (Band 2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 26 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 36 of 163
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🔤 Keysight Spectrum Analyzer - Occu	pied BW			
		SENSE:INT er Freq: 1.880000000 GHz Free Run Avg Hold:>1	04:22:06 PM May 16, 20 Radio Std: None	Trace/Detector
N		en: 36 dB	Radio Device: BTS	
10 dB/div Ref 40.00	dBm			
Log 30.0				
20.0				Clear Write
10.0		mannen		
0.00		\ \ \		
-10.0	man			Average
-20.0			mar and a second and a second and a second a sec	<b>~</b>
-30.0				
-40.0				Max Hold
-50.0				Max Hold
Center 1.88 GHz		#VBW 220 kHz	Span 7.5 MI	
Res BW 68 kHz	;	FVBW ZZUKHZ	Sweep 3.8 n	S Min Hold
Occupied Bandv	vidth	Total Power	32.8 dBm	
	2.7212 MHz			Detector
T		1/ - CODIN/ D	00.00.0/	Peak▶ Auto Man
Transmit Freq Erro		% of OBW Power		Auto <u>Man</u>
x dB Bandwidth	3.051 MHz	x dB	-26.00 dB	
MSG			STATUS	

Plot 7-43. Occupied Bandwidth Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-44. Occupied Bandwidth Plot (Band 2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 27 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 37 of 163
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Keysight Spectrum Analyzer - Occupied BW           RL         RF         50 Ω         AC	CORREC Cente	SENSE:INT r Freq: 1.880000000 GHz Free Run Avg Hold:	Radio Std:	MMay 16, 2018 None	Trace/Detector
NFE		n: 36 dB	Radio Devi	ice: BTS	
0 dB/div Ref 30.00 dBn	n				
.og					
10.0					Clear Wri
	<b>,</b>	1			
1.00					
0.0	~~~~ ·		hannen	~~~~	
20.0					Avera
60.0					
40.0					
50.0					Max Ho
60.0					
Center 1.88 GHz Res BW 120 kHz	#	VBW 390 kHz		12.5 MHz ep 1 ms	
	"				Min Ho
Occupied Bandwidt	h	Total Power	33.2 dBm		
4	5602 MHz				Detect
					Peal
Transmit Freq Error	-3.876 kHz	% of OBW Powe	r 99.00 %	Au	ito <u>M</u>
x dB Bandwidth	5.149 MHz	x dB	-26.00 dB		

Plot 7-45. Occupied Bandwidth Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-46. Occupied Bandwidth Plot (Band 2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕞 LG	Approved by: Quality Manager
Test Report S/N: Test Dates:		EUT Type:		Dage 29 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 38 of 163
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Keysight Spectrum Analyzer - Occupied BV     RL RF 50 Ω AC     NFE	CORREC Center	SENSE:INT r Freq: 1.880000000 GHz Free Run Avg Hold: n: 36 dB	Radio Sto 100/100	PM May 16, 2018 d: None vice: BTS	Trace/Detector
10 dB/div Ref 40.00 dBn -og 30.0 20.0					Clear Writ
10.0 0.00 10.0 20.0				wwwwwww	Averaç
40.0					Max Ho
Center 1.88 GHz Res BW 240 kHz		VBW 750 kHz	Sw	an 25 MHz eep 1 ms	Min Ho
Occupied Bandwidt 9.	<sup>h</sup> 0175 MHz	Total Power	32.7 dBm		Detecto
Transmit Freq Error x dB Bandwidth	-3.395 kHz 10.07 MHz	% of OBW Powe x dB	r 99.00 % -26.00 dB		Auto <u>Ma</u>
G			STATUS		

Plot 7-47. Occupied Bandwidth Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-48. Occupied Bandwidth Plot (Band 2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:         Test Dates:           1M1805030091-03.ZNF         5/8/2018 - 5/25/2018		EUT Type:	Baga 20 of 162
		Portable Handset	Page 39 of 163
© 2018 PCTEST Engineering La	boratory, Inc.		V 8.0 04/05/2018



- Keysight Spectrum Analyzer - Occupied BW X RL RF 50 Ω AC	CORREC	SENSE:INT	03:02:30 PI	4 May 16, 2018	
10 50 JL AC	Center	r Freq: 1.880000000 GHz	Radio Std:		Trace/Detector
NFE	Trig: F	Free Run Avg Hold: n: 36 dB	100/100 Radio Devi	DTC	
	#IFGain:Low #Atter	1: 36 dB	Radio Dev	ICE: DIS	
0 dB/div Ref 40.00 dBm					
.og 30.0					
					Clear Wri
20.0	monther	man an an and and and and and and and and			
10.0					
0.00	_/				
10.0			manufactor at		Avera
20.0			and all destroyed	w war	
30.0					
40.0					
50.0					Max Ho
50.0					
Center 1.88 GHz			Span :	37.5 MHz	
Res BW 360 kHz	#	VBW 1.1 MHz		ep 1 ms	Min Ho
Occupied Bandwidt	ו	Total Power	33.1 dBm		
13	.517 MHz				Detect
					Pea
Transmit Freq Error	-2.391 kHz	% of OBW Powe	er 99.00 %	A	Auto <u>M</u>
x dB Bandwidth	14.98 MHz	x dB	-26.00 dB		
			· · · · · ·		
5G			STATUS		

Plot 7-49. Occupied Bandwidth Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-50. Occupied Bandwidth Plot (Band 2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:         Test Dates:           1M1805030091-03.ZNF         5/8/2018 - 5/25/2018		EUT Type:		Daga 40 of 162
		Portable Handset		Page 40 of 163
© 2018 PCTEST Engineering La	boratory, Inc.	·		V 8.0 04/05/2018



Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω AC	CORREC	SENSE:INT	02:34:43 PM Radio Std:	May 16, 2018 None	Trace/Detector
NFE	Trig: F	Free Run Avg Hold: ^ n: 36 dB	100/100 Radio Devi	ce: BTS	
0 dB/div Ref 40.00 dBm					
og					
30.0					Clear Wri
20.0	- Martin Marter	man mar and a second and			
0.00					
10.0					Avera
20.0 martin martin and a second	and the second sec		and and a second a se		
30.0					
40.0					Max Ho
50.0					
Center 1.88 GHz			Spar	50 MHz	
Res BW 470 kHz	#	VBW 1.5 MHz		ep 1 ms	Min Ho
Occupied Bandwidt	h	Total Power	33.1 dBm		
	.009 MHz				Detect
					Pea
Transmit Freq Error	20.367 kHz	% of OBW Power	r 99.00 %	/	Auto <u>M</u>
x dB Bandwidth	19.54 MHz	x dB	-26.00 dB		
			STATUS		

Plot 7-51. Occupied Bandwidth Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-52. Occupied Bandwidth Plot (Band 2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N: Test Dates:		EUT Type:		Dage 41 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 41 of 163
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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 its maximum duty cycle, 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 v03r01 - Section 6.0

#### Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to at least 10 \* the fundamental frequency (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average
- 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

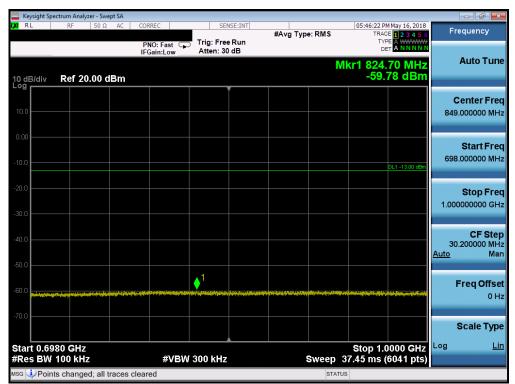
Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the 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: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:         Test Dates:           1M1805030091-03.ZNF         5/8/2018 - 5/25/2018		EUT Type:		Dage 42 of 162
		Portable Handset		Page 42 of 163
© 2018 PCTEST Engineering La	aboratory, Inc.	•		V 8.0 04/05/2018



Stari	t 30.0	MHz						<u> </u>			Stop	662.0 MHz	Log	L
-70.0													5	Scale Typ
	- data parti		dian- a pike	Contraction of the		A STATE OF STATE	We will see a post of the	and a committed of the lines				a na an		01
60.0			and our stiller to		ang kasa da	Marine Langer	mension or state	turi merupa isla	have a set the other the set of t	from the local back	all shares a state of a line	and the areas	F	req Offs
50.0													<u>Auto</u>	М
40.0												1		CF St 200000 M
30.0														
20.0													662	Stop Fr 000000 м
												DL1 -13.00 dBm		
10.0														Start Fr 000000 М
0.00														
10.0														000000 M
<sup>.og</sup>								Ĭ					С	enter Fr
0 dE	3/div	Ref 2	20.00 d	Bm							Mkr1 66 -4	2.00 MHz 2.55 dBm		
					PNO IFGai	:Fast ⊂ in:Low	Trig: Fr Atten: \$							Auto Tu
<mark>()</mark> RL		RF	50 Ω	AC	CORRE	C		ENSE:INT	#Avg Typ	e: RMS	т	6 PM May 16, 2018 RACE 1 2 3 4 5 6	Fre	quency

Plot 7-53. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-54. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

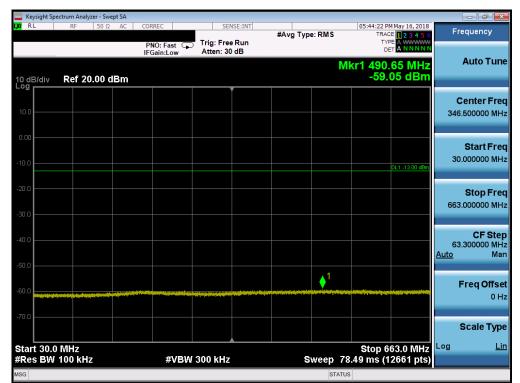
FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 42 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 43 of 163
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	ectrum Analyze		: SA										
LX/IRL	RF	50 Ω	AC	CORREC		S	ENSE:INT	#Avg Typ	e: RMS	TRA	M May 16, 2018 CE 1 2 3 4 5 6	Fr	equency
10 dB/div	Ref 17.	.00 dE		PNO: Fa IFGain:L	ast 🖵 .ow	Trig: Fro Atten: 2			N	7 /kr1 8.63			Auto Tune
7.00													<b>Center Freq</b> 0000000 GHz
-3.00											DL1 -13.00 dBm	1.00	Start Freq 0000000 GHz
-23.0												10.00	Stop Freq 0000000 GHz
-43.0		<u></u>			g the local distance	and the second s				1		900 <u>Auto</u>	CF Step 0.000000 MHz Mar
-63.0													Freq Offsel 0 Hz
-73.0													Scale Type
Start 1.00 #Res BW				#	¢VBW	3.0 MH	z	ŝ	Sweep	Stop 10 15.60 ms (	0.000 GHz 18001 pts)	Log	Lin
MSG									STA	TUS			

Plot 7-55. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-56. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 44 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 44 of 163
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	ctrum Analyzer										
X/RL	RF 5	50 Ω AC	CORREC			#Avg Typ	e: RMS	TRAC	M May 16, 2018 CE 1 2 3 4 5 6 PE A 4444	Free	quency
			PNO: Fast G	Atten: 30						,	Auto Tune
10 dB/div Log	Ref 20.0	0 dBm					M	lkr1 797. -59.	.45 MHz 57 dBm		
					Ĭ					Ce	enter Fre
10.0										849.0	00000 MH
0.00											Start Fre
-10.0									DL1 -13.00 dBm		000000 MH
									DET -13.00 (IBM)		
-20.0											<b>Stop Fre</b> 000000 GH
-30.0											
40.0										30.2	CF Stej
-50.0										<u>Auto</u>	Ma
			1							F	req Offse
-60.0	an a		alaran da ang ang ang ang ang ang ang ang ang an	a Birth handaga iyo alka					nini (sanini lagini yangini		он
-70.0										9	cale Type
								0.0			Lir
Start 0.69 #Res BW			#VB	N 300 kHz			Sweep :	stop 1.0 37.45 ms (	0000 GHz (6041 pts)	209	
usg 🧼 Point	ts changed;	all traces of	cleared				STATU	s			

Plot 7-57. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



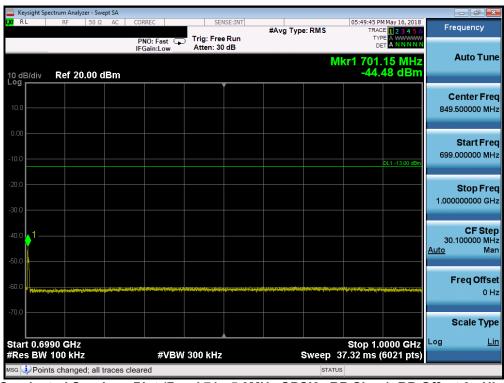
Plot 7-58. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 45 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 45 of 163
© 2018 PCTEST Engineering La	boratory, Inc.			V 8.0 04/05/2018



	ectrum Analyz		ot SA										
L <mark>XI</mark> RL	RF	<u>50 Ω</u>	AC	CORREC		SE	NSE:INT	#Avg Typ	e: RMS		M May 16, 2018	Fr	equency
				PNO: F	ast 🖵	Trig: Fre Atten: 30				TY	PE A WWWWW ET A NNNNN		
				IFGain:	Low	Atten. 30	Jub						Auto Tune
10 dB/div	Ref 20.	00 di	Bm						IVI	-58.	.55 MHz 84 dBm		
		.00 ul	-				Y						
												C	enter Freq
10.0												346	.500000 MHz
0.00													
0.00													Start Freq
-10.0												30	.000000 MHz
											DL1 -13.00 dBm		
-20.0													Stop Freq
												663	.000000 MHz
-30.0													
													CF Step
-40.0													.300000 MHz
-50.0												<u>Auto</u>	Man
-30.0									▲1				
-60.0	d he idid a decaration in the			a dia kana bahara ma		and the second sec							Freq Offset
nonvite de	A still a set of the last	a state of the				ding times and a cost is an							0 Hz
-70.0													
													Scale Type
Start 30.0	MHz						A			Stop 6	63.0 MHz	Log	Lin
#Res BW					#VBW	300 kHz		S	weep 7	3.49 ms (1	2661 pts)		
MSG									STATU	s			

Plot 7-59. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-60. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 46 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 46 of 163
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	ectrum An	alyzer - Swe	pt SA								
X/RL	RF	<u>50 Ω</u>	AC	CORREC		SEN	#Avg Typ	e:RMS	TF	PM May 16, 2018 RACE 1 2 3 4 5 6	Frequency
10 dB/div	Ref	15.00 d	Bm	IFGain:	ast ⊊ _ow_	Atten: 26			Mkr1 8.6	58 0 GHz 7.28 dBm	Auto Tur
5.00											<b>Center Fre</b> 5.500000000 GH
-5.00										DL1 -13.00 dBm	<b>Start Fre</b> 1.000000000 GH
-25.0											<b>Stop Fre</b> 10.000000000 GH
-45.0								i estatet, ku	1		CF Ste 900.000000 Mi <u>Auto</u> Ma
-65.0											Freq Offs 0 H
-75.0											Scale Typ
Start 1.00 #Res BW				;	#VBW	3.0 MHz	s	weep	5top / 15.60 ms	10.000 GHz (18001 pts)	_
MSG								ST	ATUS		

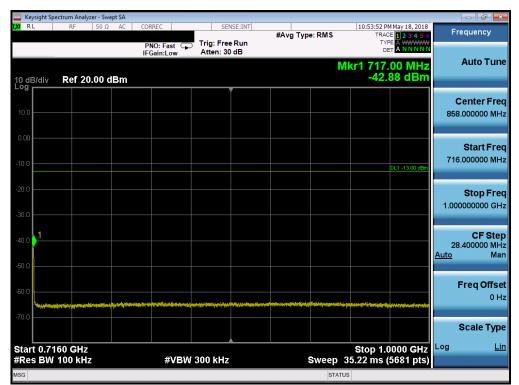
Plot 7-61. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 47 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 47 of 163
© 2018 PCTEST Engineering La	boratory, Inc.	•		V 8.0 04/05/2018



	ectrum Analyzer - Swept					- 6 -
X/ RL	RF 50 Ω	AC CORREC PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	#Avg Type: RMS	10:53:40 PM May 18, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div	Ref 20.00 dB			Ν	lkr1 697.90 MHz -47.56 dBm	Auto Tur
10.0						Center Fre 363.950000 MF
-10.0					DL1 -13.00 dBm	Start Fre 30.000000 MH
30.0						Stop Fre 697.900000 Mi
40.0					1	CF Ste 66.790000 Mi <u>Auto</u> Mi
60.0			and the second		and the star of the star of the star and the star of t	Freq Offs 0 I
70.0						Scale Typ
Start 30.0 Res BW	) MHz 100 kHz	#VBW	300 kHz	Sweep 8	Stop 697.9 MHz 2.82 ms (13359 pts)	Log <u>L</u>
ISG				STATU		

Plot 7-62. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



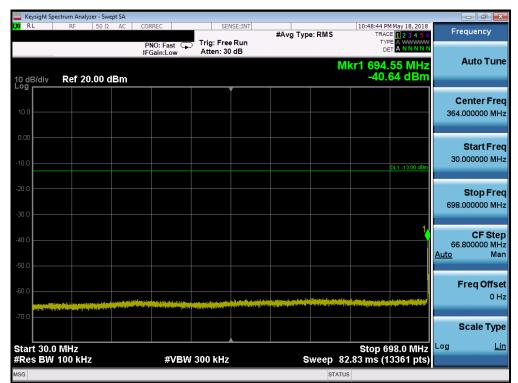
Plot 7-63. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 49 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 48 of 163
© 2018 PCTEST Engineering La	boratory Inc			V 8 0 04/05/2018



	ctrum Analyzer - Sv									
LXI RL	RF 50 \$	AC C	ORREC	SEN	ISE:INT	#Avg Typ	e: RMS		M May 18, 2018	Frequency
		I	PNO: Fast 🕞 FGain:Low	Trig: Free Atten: 28		- //		TYI Di		Auto Tune
10 dB/div Log	Ref 17.00	dBm					Mł	(r1 1.39 -45.	9 5 GHz 43 dBm	Auto Tune
										Center Freq
7.00										5.500000000 GHz
-3.00										Start Freq
-13.0									DL1 -13.00 dBm	1.000000000 GHz
-23.0										Stop Freq
22.0										10.000000000 GHz
-33.0										CF Step
-43.0										900.000000 MHz Auto Man
-53.0		-		-						
-63.0										Freq Offset 0 Hz
-73.0										
										Scale Type
Start 1.00 #Res BW			#VBM	/ 3.0 MHz		8	ween 15	Stop 10	.000 GHz 8001 pts)	Log <u>Lin</u>
MSG	110 111 12		<i>"</i> <b>v</b> B <b>v</b>	0.011112			STATUS		ooor pts)	

Plot 7-64. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-65. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 40 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 49 of 163
© 2018 PCTEST Engineering La	boratory, Inc.	•		V 8.0 04/05/2018



	ctrum Analyzer -									
LXU RL	RF 5	OΩ AC	CORREC	SEI	SE:INT	#Avg Typ	e: RMS		May 18, 2018	Frequency
			PNO: Fast IFGain:Low	Trig: Free Atten: 30		• //	M	TYF DE kr1 720.	50 MHz	Auto Tune
10 dB/div Log	Ref 20.0	0 dBm						-47.	70 dBm	
10.0										Center Freq 858.000000 MHz
-10.0									DL1 -13.00 dBm	Start Freq 716.000000 MHz
-20.0										<b>Stop Freq</b> 1.00000000 GHz
-40.0										CF Step 28.400000 MHz <u>Auto</u> Man
-60.0	And the state of the	ania yangari kaning	Performance and a second s	helionstation of the first state	a jala da karana fi	in an the product of the Same of States	i i ti sheepiyi karata iy	n de servicie de la compaction de la compa	مەربىغ ئۆرچىلىرىم	<b>Freq Offset</b> 0 Hz
-70.0										Scale Type
Start 0.71 #Res BW			#VB	W 300 kHz			Sweep (	Stop 1.0 35.22 ms (	000 0112	Log <u>Lin</u>
мsg 🗼 Poin	ts changed;	all traces	cleared				STATU	s		

Plot 7-66. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



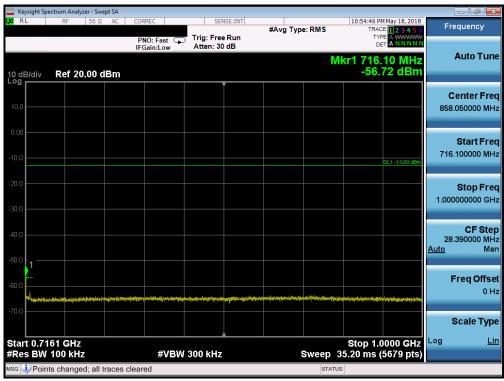
Plot 7-67. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 50 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 50 of 163
© 2018 PCTEST Engineering La	boratory, Inc.	•		V 8.0 04/05/2018



	ectrum Analyze	r - Swep	t SA										
LXI RL	RF	50 Ω	AC	CORREC PNO:	Fast 🗔		NSE:INT	#Avg Typ	e:RMS	10:54	:40 PM May 18, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN		uency
				IFGain	:Low	Atten: 3	) dB			Mkr1 6	98.00 MHz	A	uto Tune
10 dB/div Log	Ref 20.	00 dE	Зm							_	39.25 dBm		
10.0													n <b>ter Freq</b> 0000 MHz
-10.0											DL1 -13.00 dBm		tart Freq 0000 MHz
-20.0													ton Frod
-30.0													top Freq 0000 MHz
-40.0											1		CF Step
-50.0												66.80 <u>Auto</u>	0000 MHz Mar
-60.0												Fre	eq Offsel
	روار مراجع المحمد المحمد بروار المحمد المحمد المحمد والم	الارون در ا	اروسیاریس ماراند و مارو	and an a stand a		Lutration and the		and a subscription of the state		anan Ing tang tang tang tang tang tang tang ta	مراجع بر المراجع التي ميزانة (20 (مناجب وم 1996 - مراجع التي مرجع التي مراجع التي أن المناجب وم		0 Hz
-70.0												Sc	ale Type
Start 30.0 #Res BW					#VBW	300 kHz			ween	Sto 82.83 m	op 698.0 MHz s (13361 pts)	Log	Lin
MSG	100 112				<i></i>	-000 MH2				ATUS	5 (1650 F pts)		

Plot 7-68. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-69. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 51 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 51 of 163
© 2018 PCTEST Engineering La	aboratory, Inc.			V 8.0 04/05/2018



	ght Spectru	m Analyzer -	Swep												
L <b>XI</b> RL		RF 50	)Ω	AC	CORREC	Fast 🗔		NSE:INT	#Avg Typ	e:RMS	1	TRAC	May 18, 2018 E 1 2 3 4 5 6 E A WWWW T A N N N N N	F	requency
10 dB/	div R	ef 21.00	) di	3m	IFGain	Low	Atten: 3	2 dB			Mkr1	8.64	7 0 GHz 41 dBm		Auto Tune
11.0															<b>Center Freq</b> 00000000 GHz
-9.00													DL1 -13.00 dBm	1.00	Start Freq
-19.0 -														10.00	Stop Freq
-39.0														900 <u>Auto</u>	<b>CF Step</b> 0.000000 MHz Man
-59.0				patai http://											Freq Offset 0 Hz
-69.0	1.000 0											ton 10	.000 GHz	Log	Scale Type
	BW 1.0					#VBW	3.0 MHz		s	weep	15.60	) ms (1	8001 pts)		
MSG										ST	ATUS				

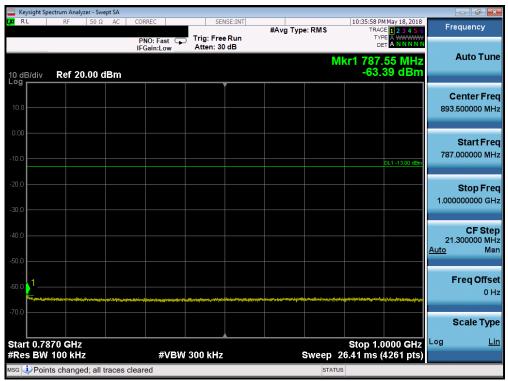
Plot 7-70. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 52 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 52 of 163
© 2018 PCTEST Engineering La	boratory, Inc.	•		V 8.0 04/05/2018



PNO: Fast PNO: Fast IFGain:Low PNO: Fast IFGain:Low Trig: Free Run Atten: 30 dB Mkr1 7776.90 MHz -18.03 dBm Center 403.45000 Center 400 Center 403.45000 Center 400.45000 Center 400.4500		ectrum Analyzer - Swe										- 7
Mkr1 776.90 MHz       Auto 1         0 d K/dtv       Ref 20.00 dBm       -18.03 dBm       Center         0 d K/dtv       Ref 20.00 dBm       Center       403.45000         0 d K/dtv       Center       403.45000       Start         0 d K/dtv       Center       Start       Start         0 d K/dtv       Center       Start       Start         0 d K/dtv       Cente	K RL	RF 50 Ω		PNO: Fast	Trig: Free	Run	#Avg Typ	e: RMS	TRAC	CE 1 2 3 4 5 6 PE A WWWW	Fr	equency
100       Center	0 dB/div	Ref 20.00 d		Gam.Low				Μ	kr1 776 -18.	.90 MHz 03 dBm		Auto Tur
100       0.11-13001       Start         200       0.11-13001       Stop         201       0.11-13001       Stop <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>enter Fre .450000 Mi</td></t<>												enter Fre .450000 Mi
Stop 776.90000 776.90000 776.90000 776.90000 776.90000 776.90000 776.90000 776.90000 Freq O Stop 776.90000 CF 74.690000 Auto Freq O Stop 776.90000 CF 74.69000 CF 74.69000 CF 74.69000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.690000 CF 74.69000 CF 76.9000 CF 76.9000 CF 76.9000 CF CF 76.9000 CF CF 76.9000 CF CF 76.9000 CF CF 76.9000 CF CF 74.50000 CF CF 74.50000 CF CF 74.50000 CF CF 74.50000 CF CF 74.50000 CF CF CF 74.50000 CF CF CF 74.50000 CF CF CF CF CF CF CF CF CF CF										DL1 -13.00 d <b>1</b> /	30	Start Fr .000000 M
1000       1000										<u> </u>	776	<b>Stop Fr</b> .900000 M
<pre>0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</pre>												CF Sto .690000 M M
tart 30.0 MHz Stop 776.9 MHz		et pola a fra port de port a fra de la compañía de	a fan de fan	enderine policy Dimensional Interpretation of	an per el la sua aprova	مر میں انہوں کی اور انہ کا انہ کا انہ کا انہ کا	te produktion and the second state of the seco				i	F <b>req Off</b> s 0
												Scale Tyj
				#VBW	300 kHz		S	weep 92	Stop 7 2.62 ms (1	76.9 MHz 4939 pts)		

Plot 7-71. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-72. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 52 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 53 of 163
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	ectrum Analyzer - Sv									_	
L <mark>XI</mark> RL	RF 50 \$	Ω AC C	ORREC	SEN	NSE:INT	#Avg Typ	e: RMS		M May 18, 2018	Fr	equency
		I	PNO: Fast 🕞 FGain:Low	Trig: Free Atten: 32		- //		TYI Di			Auto Tune
10 dB/div Log	Ref 21.00	dBm						kr1 8.65 -44.	8 5 GHZ 78 dBm		
				Ì							enter Freq
11.0										5.500	0000000 GHz
1.00											Stort From
-9.00										1.000	Start Freq
0.00									DL1 -13.00 dBm		
-19.0											Stop Freq
-29.0										10.000	000000 GHz
											CF Step
-39.0								• <sup>1</sup>		900 <u>Auto</u>	.000000 MHz Man
-49.0								and a second	يوريا والمراطنة معالم والمنا وفي يريوهم متعلقات والمان		
-59.0	And the life is a second se									F	req Offset
											0 Hz
-69.0											Scale Type
Start 1.00								Stop 10			Lin
#Res BW			#VBW	3.0 MHz		S	weep 1	5.60 ms (1	.000 GHz 8001 pts)		200
MSG							STATU	s			

Plot 7-73. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-74. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 54 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 54 of 163
© 2018 PCTEST Engineering La	aboratory, Inc.	•		V 8.0 04/05/2018



	ectrum Analyze												×
XV RL	RF	50 Ω	AC	CORREC			SENSE:INT	#Avg Typ	e: RMS	TRA	M May 18, 2018 CE <b>1 2 3 4 5 6</b>	Frequency	
				PNO: F IFGain:	ast 🖵	Trig: F	ree Run 30 dB	• ,,		TY	PE A WWWWW ET A N N N N N		
				IFGam.	LUW	/ tter.	ee ub		N	lkr1 788	.25 MHz	Auto Tu	ine
10 dB/div	Ref 20.	.00 dE	3m							-37.	95 dBm		
												Center Fi	
10.0												893.500000 N	
0.00												Start Fr	rec
-10.0												787.000000 M	
-10.0											DL1 -13.00 dBm		
-20.0												Stop Fr	rec
												1.000000000	
-30.0													
-40.0												CF St	
40.0												21.300000 M Auto M	ИН: Mar
-50.0													
												Freq Off	set
-60.0	Alexander da se da se		lana deletere		In a shift of th			n hadeli dan kanadar da		and a literation for the first state	an alabar life day stores		) Hz
-70.0	and the state of the second				PAD AN ALL AND	and the second se							
												Scale Ty	/pe
Start 0.78	70 GHz									Stop 1	0000 GHz	Log	Lin
#Res BW					#VBW	300 ki	IZ		Sweep	26.41 ms	(4261 pts)		
MSG 🗼 Poin	ts changed	d; all tra	aces c	leared					STATU	JS			

Plot 7-75. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



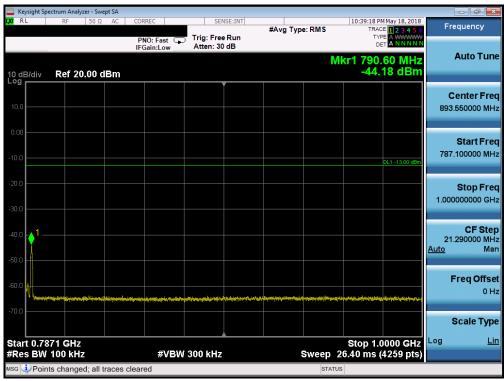
Plot 7-76. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage FE of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 55 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



		ctrum Anal												
<b>lxi</b> RL	_	RF	50 Ω	AC	CORREC		SEI	NSE:INT	#Avg Typ	e: RMS	TR	PM May 18, 2018	F	requency
					PNO: F IFGain:	ast ⊂⊫ Low	Trig: Free Atten: 30				T			
					il dani	2011					Mkr1 777	.00 MHz		Auto Tune
10 dB	3/div	Ref 2	0.00 d	Bm							-60	.44 dBm		
Log														Center Freq
10.0														3.500000 MHz
0.00														Start Freq
-10.0													30	0.000000 MHz
-10.0												DL1 -13.00 dBm		
-20.0														Stop Freq
													77	7.000000 MHz
-30.0														
-40.0														CF Step
40.0													74 Auto	4.700000 MHz Man
-50.0														
												1		Freq Offset
-60.0				a protocol de la		ad de al carte	الأنطر الاستحاد الالسحاء	Laptoptoptototot	de la comptenda estimaterial de la	and the second second	ومحروق والمراجع والمراجع والمراجع	and the second se		0 Hz
-70.0	الم الأخلية المقر		No.	Locale Martineter		ير الاركان مراويا	and the set of the set of the set	andreich, stare it, dei	and the survey of the state	a statistic de la constante de	and the least of the second	a da antiguna da antiguna da se		
														Scale Type
Start	t 30.0	MH7									Stop	777.0 MHz	Log	Lin
		100 kH	z			#VBW	300 kHz		s	weep	92.63 ms (	14941 pts)		
MSG										STA	TUS			

Plot 7-77. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-78. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager					
Test Report S/N:	Test Dates:	EUT Type:		Dogo E6 of 162					
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 56 of 163					
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🔤 Keysi	ight Spectrum	Analyzer - Si	wept SA										
L <mark>XI</mark> RL	Ą	F 50 9	Ω AC	CORRE			ISE:INT	#Avg Typ	e: RMS	TRAC	M May 18, 2018 DE <b>1 2 3 4 5 6</b>	F	requency
				PNO IFGai	:Fast ⊂ in:Low	Trig: Free Atten: 32							A
10 dB/ Log 🖵	div Re	ef 22.00	dBm						Μ	kr1 9.44 -45.	9 5 GHz 05 dBm		Auto Tune
												(	Center Freq
12.0 —												5.50	0000000 GHz
2.00													Start Freq
-8.00												1.00	0000000 GHz
											DL1 -13.00 dBm		
-18.0												10.00	Stop Freq
-28.0												10.00	0000000 GHz
-38.0												000	CF Step
							يد. يعقر	وروبية والمراجع	والمتعاومة والمتعاومة	د داده <b>انتشار م</b> ی داده در ما		Auto	Man
-48.0	and store induction				hi baran katika dagi Mangana katika dagi		and a standard standard	for the set of the set of the little	and a statistic state of the		and a submitted in the last of the		Erog Offoot
-58.0													Freq Offset 0 Hz
-68.0													
													Scale Type
	1.000 G BW 1.0				#VBW	3.0 MHz		s	weep 1	Stop 10 5.60 ms (1	.000 GHz 8001 pts)	Log	Lin
MSG									STAT	_	,,		

Plot 7-79. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

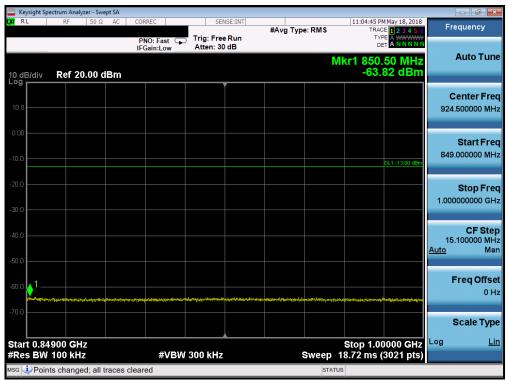
FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 57 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 57 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



### Band 5

	ectrum Analyzer - S	Swept SA									
XI RL	RF 50	Ω ΑC	CORREC PNO: Fast IEGain:Low	Trig: Fre		#Avg Type	RMS	TRAC	M May 18, 2018 CE <b>1 2 3 4 5</b> 6 PE A WWWWW T A N N N N N	Fr	equency
10 dB/div	Ref 20.00	dBm	IFGalli.Low				N	lkr1 822. -44.	.95 MHz 97 dBm		Auto Tune
10.0											enter Fred 500000 MH
10.00									DL1 -13.00 dBm	30	Start Fre .000000 MH
20.0 30.0										823	<b>Stop Fre</b> .000000 M⊦
40.0									1	79 <u>Auto</u>	CF Ste .300000 M⊦ Ma
60.0	talayan yasalalara sodalar Mangalar talatasa dalar		and the Delivery state of the second state of the second state of the second state of the second state of the s	ang pangang kanal kanal kanal kanal kanal Sang kang kanal kanal kanal kang kang kang kang kang kang kang kang	a ang ing ang ing ing ing ing ing ing ing ing ing i	under der Symmetry andere statistical operationer als statistical operation of the statistical operation of the	alampi parami para su	and dependent of the second	, 1, bet Mengement in Sector	i	FreqOffso 0⊦
-70.0									23.0 MHz	Log	Scale Typ <u>Li</u>
	100 kHz		#V	BW 300 kHz		Sv	veep 9	8.33 ms (1	5861 pts)		
SG							STATU	JS			

Plot 7-80. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-81. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

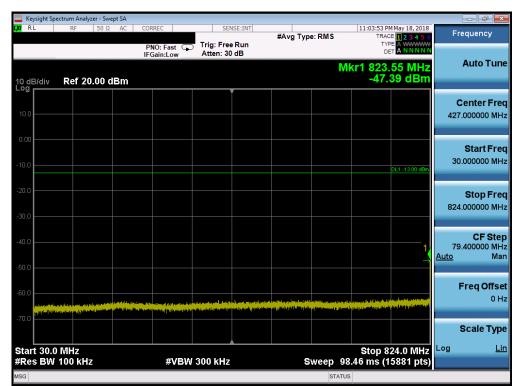
FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 59 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 58 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			

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	ectrum Analyzer -									
LX/RL	RF 5	0Ω AC	CORREC	SEN	ISE:INT	#Avg Typ	e: RMS	TRAC	May 18, 2018	Frequency
			PNO: Fast 🕞	Trig: Free Atten: 30		•		TYF		
			IFGalli.LOW	/ttell. oo	ub		Mk	r1 1 64	9 5 GHz	Auto Tur
10 dB/div	Ref 20.0	0 dBm						-43.	45 dBm	
										Center Fre
10.0										5.50000000 GH
0.00										Start Fre
40.0										1.000000000 GH
-10.0									DL1 -13.00 dBm	
-20.0										Stop Fre
										10.000000000 GH
-30.0										
-40.0	<b>1</b>									CF Ste
-40.0	•									900.000000 MH Auto Ma
-50.0			a and the strengt pay of the transm	and the support of the local distance of the						
Contraction of the State	and the particular states of the	and a second	and the second se	and the second	ingen in die fan ie.					Freq Offs
-60.0										01
-70.0										
-70.0										Scale Typ
										Log <u>L</u>
Start 1.00 #Res BW			#VBW	3.0 MHz		s	weep 15	Stop 10 .60 ms (1	.000 GHz 8001 pts)	
MSG			<i>"</i> <b>U D N</b>	010-11112			STATUS		otor proj	

Plot 7-82. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



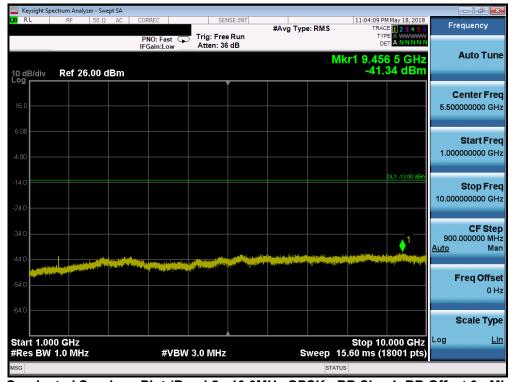
Plot 7-83. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 50 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 59 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



	ectrum Analyzer - S	wept SA								
LXI RL	RF 50	Ω AC	PNO: Fast			#Avg Typ	e: RMS	TRAC	M May 18, 2018 CE 1 2 3 4 5 6 PE A WWWWW T A N N N N N	Frequency
			IFGain:Low	Atten: 30			М	kr1 849.	45 MHz 93 dBm	Auto Tune
10 dB/div Log	Ref 20.00	dBm						-47.	93 aBm	
10.0										Center Freq 924.500000 MHz
0.00										
										Start Freq 849.00000 MHz
-10.0									DL1 -13.00 dBm	
-20.0										Stop Freq
-30.0										1.000000000 GHz
-40.0										CF Step
-50.0										15.100000 MH <u>Auto</u> Mar
-50.0										<b>E</b>
-60.0										Freq Offset 0 Hz
-70.0	*#************************************	erfijserit (fatosioci	altarisish prosident to be any	epter of share and share to be	aleges (n.) 18 deservers and	ditestinger isiproduk	lier dans sy'rendrind.	yophismed lage sign the series	and an	
										Scale Type
L Start 0.84 #Res BW			#VBV	V 300 kHz	· · · · · · · · · · · · · · · · · · ·		Sweep_1	Stop 1.0	0000 GHz 3021 pts)	Log <u>Lir</u>
	ts changed; al	l traces (					STATU			
-										

Plot 7-84. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



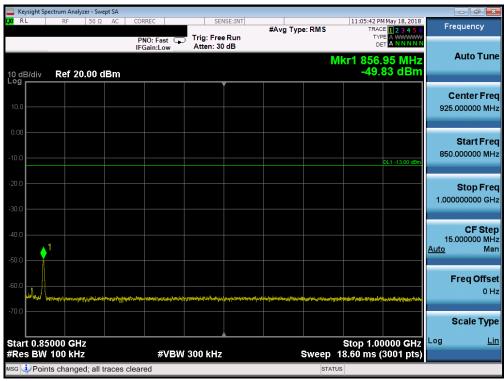
Plot 7-85. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 60 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 60 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



		ctrum Ana	lyzer - Swej	pt SA											
L <mark>XI</mark> R	L	RF	50 Ω	AC	CORREC		SEN	NSE:INT	#Avg Typ	e: RMS			May 18, 2018	F	requency
					PNO: F	ast 🖵	Trig: Free Atten: 30		• ,,			TYP			
					IFGain:	LOW	Atten: 30	ub			Mler	4 022	45 MHz		Auto Tune
10 di	B/div	Ref 2	0.00 d	Bm								-52.3	36 dBm		
Log			v.vv u	Bill			,	Ĩ							
															Center Freq
10.0														42	7.000000 MHz
0.00															Start Freq
-10.0														30	0.000000 MHz
10.0													DL1 -13.00 dBm		
-20.0															Stop Freq
														82	4.000000 MHz
-30.0	<u> </u>													- OL	
															CF Step
-40.0	$\vdash$													79	9.400000 MHz
													1	<u>Auto</u>	Man
-50.0													-		
-60.0															Freq Offset
-00.0	and the second	للعال عربان عام المتحضيان	فحلصوص	(planter sept	and the second	a space and	between the second party of		dischapeneering e	Construction		-			0 Hz
-70.0	a desta part	and the second	an an the familie familie of the	a tilling jung ja	information and the	وللالماستين ورواه	مرز به طاطأتها مستشي	a an		And Brown Ash	a local de loca	ta ad to follow bits			
															Scale Type
														Log	Lin
	t 30.0 s BW	MHz 100 kH	7			#VBM	300 kHz		8	ween	98.4	Stop 8:	24.0 MHz 5881 pts)		<u></u>
MSG	3-D-W	NO NI	1-				000 112				ATUS	o illo (I	ooor pts)		

Plot 7-86. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-87. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 61 of 162
1M1805030091-03.ZNF 5/8/2018 - 5/25/2018		Portable Handset	Page 61 of 163	
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300 -700 -17.0 -27.0	Frequency Auto Tune Center Freq 5.50000000 GHz
Instruction         Mkr1 8.710 0 GHz -42.98 dBm           10 dB/div         Ref 23.00 dBm         -42.98 dBm           130         -42.98 dBm         -42.98 dBm           130         -42.98 dBm         -42.98 dBm           130         -42.98 dBm         -42.98 dBm           10 dB/div         Ref 23.00 dBm         -42.98 dBm           130         -42.98 dBm         -42.98 dBm           130         -42.98 dBm         -42.98 dBm           10 dB/div         Ref 23.00 dBm         -42.98 dBm           10 dB/div         -42.98 dBm         -42.98 dBm           10 dB/div         -42.98 dBm         -42.98 dBm           10 dB/div         -42.98 dBm         -42.98 dBm           -7.00         -42.98 dBm         -42.98 dBm           -7.00         -42.98 dBm         -42.98 dBm           -7.00         -42.98 dBm         -41.1300 dBm           -7.00         -42.98 dBm	Center Freq
130	
-7.00	
	<b>Start Freq</b> 1.000000000 GHz
	<b>Stop Freq</b> 0.000000000 GHz
	<b>CF Step</b> 900.000000 MHz <u>to</u> Man
	<b>Freq Offset</b> 0 Hz
-67.0 Stop 10.000 GHz	Scale Type g <u>Lin</u>
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 15.60 ms (18001 pts)	

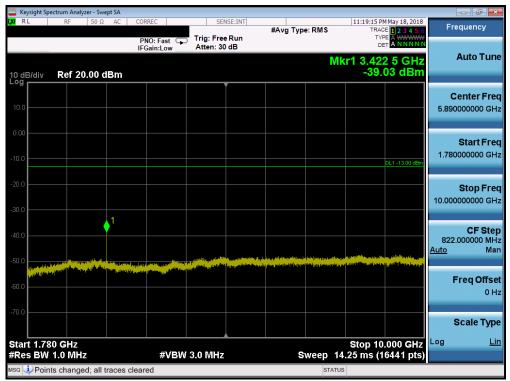
Plot 7-88. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 62 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 62 of 163
© 2018 PCTEST Engineering La	boratory, Inc.	•		V 8.0 04/05/2018



Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	CORREC SENSE:INT	#Avg Type: RMS TF	PM May 18, 2018           RACE         1 2 3 4 5 6           TYPE         A WWWWW
0 dB/div Ref 20.00 dBm	IFGain:Low Atten: 30 dB	Mkr1 1.7	09 0 GHz Auto Tur 3.03 dBm
10.0			Center Fre 869.500000 MH
10.0			Start Fre 30.000000 Mł
30.0			Stop Fre
			CF Ste 167.900000 M <u>Auto</u> M
0.0	seementalanun felinissimuskananun alasta esekense esekense esekense esekense esekense esekense esekense eseken		Freq Offs 0
70.0			Scale Typ
tart 0.0300 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Stop ′ Sweep 2.239 ms	l.7090 GHz └ºg └ s (3359 pts)

Plot 7-89. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-90. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 62 of 162
1M1805030091-03.ZNF 5/8/2018 - 5/25/2018		Portable Handset	Page 63 of 163	
© 2018 PCTEST Engineering La	boratory Inc			V 8 0 04/05/2018



	ectrum Analyzer -	Swept SA							
(XI) RL	RF 50	Ω AC	CORREC	SENSE	INT #Avg Typ	be: RMS	11:19:21 PM M TRACE	ay 18, 2018	Frequency
			PNO: Fast G	Trig: Free R Atten: 10 d			TYPE / DET /		Auto Tune
10 dB/div Log	Ref 0.00	dBm				MKr	1 16.964 ( -60.85	5 GHZ 5 dBm	
-10.0							DL'	1 -13.00 dBm	Center Freq 15.00000000 GHz
-20.0									<b>Start Freq</b> 10.000000000 GHz
-40.0									<b>Stop Freq</b> 20.000000000 GHz
-60.0	)	1 and a supering being the	ti lan ka yantinga (1000 line 1000 ayan dalahari yantinga				Denne general television property al second se		<b>CF Step</b> 1.000000000 GHz <u>Auto</u> Man
-70.0	ta yan dina yan dina di sa								<b>Freq Offset</b> 0 Hz
-90.0									Scale Type
Start 10.0 #Res BW	00 GHz 1.0 MHz		#VBW	/ 3.0 MHz		Sweep 25	Stop 20.00 .33 ms (200	00 GHz 001 pts)	Log <u>Lin</u>
мsg 🧼 Poin	ts changed; a	all traces c	leared			STATUS			

Plot 7-91. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-92. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dage 64 of 162			
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 64 of 163			
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🔤 Keysight Spectrum Analyzer - Swept SA				
<b>LX/</b> R L RF 50 Ω AC	CORREC SENS	E:INT #Avg Type	11:18:31 PM RMS TRACE	May 18, 2018 <b>1 2 3 4 5 6</b> Frequency
	PNO: Fast Trig: Free I IFGain:Low Atten: 30 of		TYPE DET	A NNNNN
10 dB/div Ref 20.00 dBm			Mkr1 3.472 -36.4	8 dBm
10.0				Center Fre 5.890000000 GH
-10.0			c	Start Fre 1.780000000 GH
-20.0				Stop Fre 10.000000000 GH
-40.0			linte series and a line of the set of the se	CF Ste 822.000000 MH Auto Ma
-60.0		a an an an Annaichte ann an Annaichte Annaichte Annaichte Annaichte Annaichte Annaichte Annaichte Annaichte Ann		Freq Offs 0 H
-70.0				Scale Typ
Start 1.780 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	S	Stop 10.0 weep 14.25 ms (16	000 0112
мsg iPoints changed; all traces c	leared		STATUS	

Plot 7-93. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



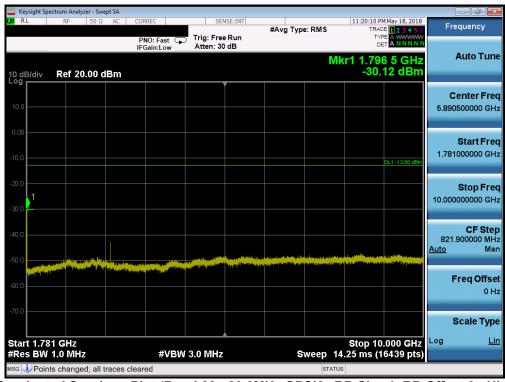
Plot 7-94. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dage 65 of 162			
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 65 of 163			
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	ectrum Analyzer - S										
L <mark>XI</mark> RL	RF 50 9	Ω AC	CORREC	SEN	ISE:INT	#Avg Typ	e: RMS		MMay 18, 2018	Fr	equency
			PNO: Fast G	Trig: Free Atten: 30				TY			
10 dB/div Log	Ref 20.00	dBm					M	kr1 1.70 -51.	9 0 GHz 80 dBm		Auto Tune
10.0											Center Freq 0.000000 MHz
-10.0									DL1 -13.00 dBm	30	Start Freq 0.000000 MHz
-20.0										1.71	Stop Freq 0000000 GHz
-40.0									1	168 <u>Auto</u>	CF Step 000000 MHz Man
-60.0			******		*****			angan gilakan, pandarkan panja	*4.94**********************************		Freq Offset 0 Hz
-70.0											Scale Type
Start 0.03 #Res BW			#VBW	/ 3.0 MHz			Sweep 2	Stop 1.7 2.240 ms (	7100 GHz 3361 pts)	Log	Lin
MSG							STATU				

Plot 7-95. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-96. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dage 66 of 162			
1M1805030091-03.ZNF 5/8/2018 - 5/25/2018		Portable Handset	Page 66 of 163				
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🔤 Keysight Sj	ectrum Analyzer - S	Swept SA									×
<b>lxi</b> Rl	RF 50	Ω AC	CORREC PNO: Fast		Run	#Avg Typ	e: RMS	TRAC	MMay 18, 2018 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	Frequency	/
10 dB/div	Ref 0.00 (	dBm	IFGain:Low	Atten: 10	dB		Mk	(r1 16.94		Auto T	'une
-10,0									DL1 -13.00 dBm	Center F 15.000000000	
-20.0										Start F 10.000000000	
-40.0										Stop F 20.000000000	
-60.0		and provide the	and de la casa de la c						ingen an Startinger and a starting of the start of the st	CF S 1.000000000 <u>Auto</u>	
-80.0										Freq Of	f <b>fset</b> 0 Hz
-90.0 Start 10.0									.000 0112	Scale T	Гуре <u>Lin</u>
	1.0 MHz			W 3.0 MHz		s		25.33 ms (2	0001 pts)		
мsg 🎝 Poir	nts changed; a	Il traces	cleared				STAT	US			

Plot 7-97. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

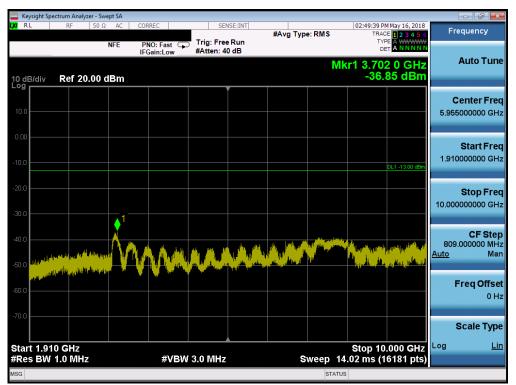
FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 67 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 67 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			



## Band 2

			nalyzer - S												
L <mark>XI</mark> R	L	RF	50 9	NFE		st 🖵		SEN : Free en: 30	#Avg Typ	e:RMS	02:	TRAC TYP	MMay 16, 2018 CE 1 2 3 4 5 6 PE A WWWWW ET A NNNNN	F	requency
10 dE Log	3/div	Ref	18.00	dBm						N			3 0 GHz 31 dBm		Auto Tune
8.00															<b>Center Freq</b> 9.500000 MHz
-2.00 -12.0													DL1-13.00 dBm 1.	3	Start Freq 0.000000 MHz
-22.0 -32.0														1.84	Stop Freq
-42.0 -52.0														18 <u>Auto</u>	CF Step 1.900000 MHz Mar
-62.0		The second s							antere for formula general general general						Freq Offset 0 Hz
-72.0															Scale Type
	t 0.030 s BW				#\	VBW	3.0 N	ЛНz		Sweep			3490 GHz (3639 pts)	Log	Lin
MSG										STA	TUS				

Plot 7-98. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



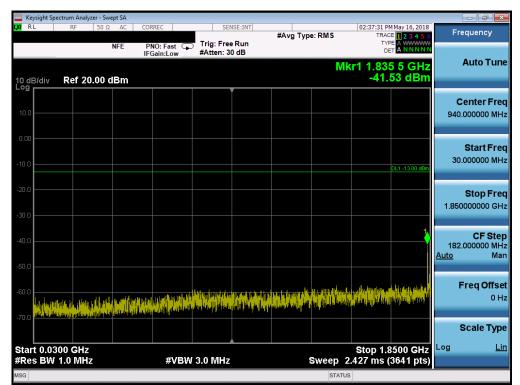
Plot 7-99. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 69 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 68 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			





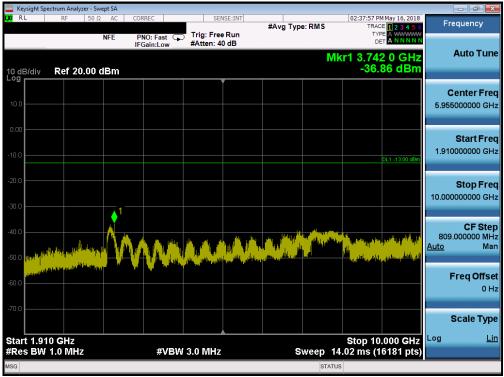
Plot 7-100. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



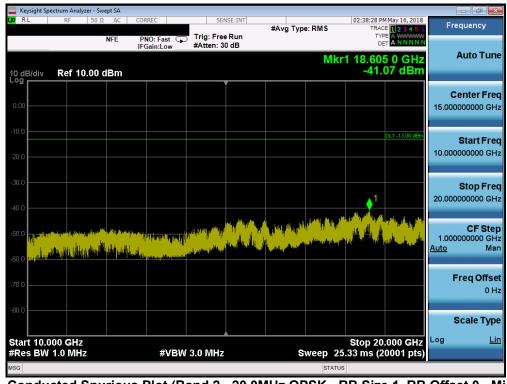
Plot 7-101. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 60 of 162
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 69 of 163
© 2018 PCTEST Engineering La	V 8.0 04/05/2018			





Plot 7-102. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



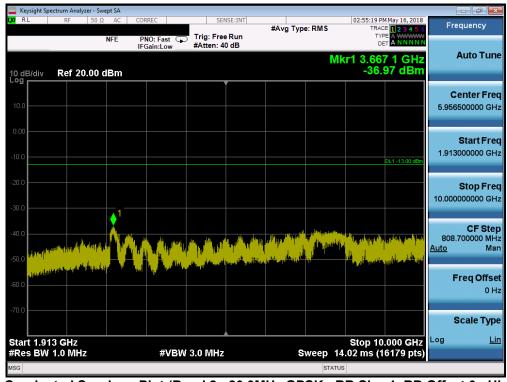
Plot 7-103. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 70 of 162	
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 70 of 163	
© 2018 PCTEST Engineering La	V 8.0 04/05/2018				



l <b>xi</b> Ri	L P	F 50 Ω	AC CO	RREC	SEN	NSE:INT	#Avg Typ	e: RMS	TRAC	MMay 16, 2018	Fr	equency
			NFE P	NO:Fast ⊂ Gain:Low	Trig: Free #Atten: 4				TYI Di			
				Gam.Low				M	(r1 1 82	9 5 GHz		Auto Tune
10 dE	3/div Re	ef 20.00 d	IBm							10 dBm		
Log					Ì							Contor From
10.0												Center Freq
											540	
0.00												
											-	Start Freq 0.000000 MHz
-10.0										DL1 -13.00 dBm	30	0.00000 WHZ
20.0												
-20.0												Stop Freq
-30.0											1.85	0000000 GHz
-40.0										1	183	CF Step 2.000000 MHz
										• • • • • • • • • • • • • • • • • • •		Man
-50.0	ي من يو الم	a tana tan	والمراد العلول وال			distanti di la	din Alivila dal d	nalas (d. 494) talelis atokim				
	and might in the s							Weiden wiele d	a la stancard			Freq Offset
-60.0												0 Hz
-70.0												
												Scale Type
											Log	Lin
	t 0.0300 ( s BW 1.0			#VBM	3.0 MHz			Sween 2		3500 GHz 3641 pts)		LIII
MSG	5.547 1.0	WI112		#VD90	<b>5.0</b> WII 12			STATU		over pts)		
									-			

Plot 7-104. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-105. Conducted Spurious Plot (Band 2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Daga 71 of 162			
1M1805030091-03.ZNF	5/8/2018 - 5/25/2018	Portable Handset		Page 71 of 163			
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