



PCTEST ENGINEERING LABORATORY, INC.

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



MEASUREMENT REPORT FCC Part 22, 24, & 27 LTE

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

Date of Testing:
12/17/2016-12/27/2016
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1612191963.ZNF

FCC ID :	ZNFL59BL
APPLICANT:	LG ELECTRONICS MOBILECOMM U.S.A



Application Type: Class II Permissive Change
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §2; §22; §24; §27
Test Procedure(s): ANSI/TIA-603-D-2010, KDB 971168 D01 v02r02
EUT Type: Portable Handset
Model: LGL59BL
Additional Model(s): LG-M257PR, LGM257PR, M257PR, LG-L59BL, L59BL, LG-M257, LGM257, M257
Test Device Serial No.: [S/N: 03904]
Class II Permissive Change: Please see FCC change document
Original Grant Date: 12/19/2016

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

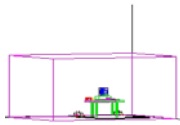


FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset		Page 1 of 28

T A B L E O F C O N T E N T S

FCC PART 22, 24, & 27 MEASUREMENT REPORT		3
1.0 INTRODUCTION		5
1.1 Scope.....		5
1.2 Testing Facility.....		5
2.0 PRODUCT 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 DESCRIPTION OF TESTS		7
3.1 Measurement Procedure.....		7
3.2 Block A Frequency Range		7
3.3 Cellular - Base Frequency Blocks		7
3.4 Cellular - Mobile Frequency Blocks.....		7
3.5 PCS - Base Frequency Blocks.....		8
3.6 PCS - Mobile Frequency Blocks		8
3.7 AWS - Base Frequency Blocks.....		8
3.8 AWS - Mobile Frequency Blocks.....		8
3.9 Radiated Power and Radiated Spurious Emissions.....		9
4.0 MEASUREMENT UNCERTAINTY		10
5.0 TEST EQUIPMENT CALIBRATION DATA		11
6.0 SAMPLE CALCULATIONS		12
7.0 TEST RESULTS		13
7.1 Summary.....		13
7.2 Radiated Power (ERP/EIRP)		14
7.3 Radiated Spurious Emissions Measurements.....		20
8.0 CONCLUSION.....		28

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 2 of 28	



MEASUREMENT REPORT

FCC Part 22, 24, & 27

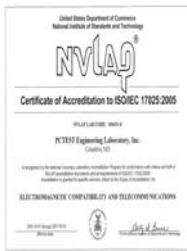
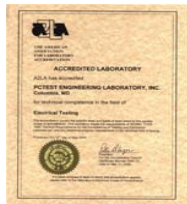


§2.1033 General Information



APPLICANT: LG Electronics MobileComm U.S.A
APPLICANT ADDRESS: 1000 Sylvan Avenue
 Englewood Cliffs, NJ 07632, United States
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 7185 Oakland Mills Road, Columbia, MD 21045 USA
FCC RULE PART(S): §2; §22; §24; §27
BASE MODEL: LGL59BL
FCC ID: ZNFL59BL
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: ±0.00025 % (2.5 ppm)
Test Device Serial No.: 03904 Production Pre-Production Engineering
DATE(S) OF TEST: 12/17/2016-12/27/2016
TEST REPORT S/N: 0Y1612191963.ZNF

Test Facility / Accreditations

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



- PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451B-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451B-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 3 of 28	





MEASUREMENT REPORT

FCC Part 22, 24, & 27



Mode	FCC Rule Part	Tx Frequency (MHz)	ERP/EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	
LTE Band 12	27	699.7 - 715.3	0.078	18.94	QPSK
LTE Band 12	27	699.7 - 715.3	0.065	18.10	16QAM
LTE Band 12	27	700.5 - 714.5	0.100	20.02	QPSK
LTE Band 12	27	700.5 - 714.5	0.072	18.56	16QAM
LTE Band 12	27	701.5 - 713.5	0.120	20.78	QPSK
LTE Band 12	27	701.5 - 713.5	0.080	19.04	16QAM
LTE Band 12	27	704 - 711	0.123	20.91	QPSK
LTE Band 12	27	704 - 711	0.087	19.37	16QAM
LTE Band 5	22H	824.7 - 848.3	0.095	19.78	QPSK
LTE Band 5	22H	824.7 - 848.3	0.071	18.50	16QAM
LTE Band 5	22H	825.5 - 847.5	0.124	20.95	QPSK
LTE Band 5	22H	825.5 - 847.5	0.099	19.95	16QAM
LTE Band 5	22H	826.5 - 846.5	0.145	21.60	QPSK
LTE Band 5	22H	826.5 - 846.5	0.092	19.62	16QAM
LTE Band 5	22H	829 - 844	0.170	22.31	QPSK
LTE Band 5	22H	829 - 844	0.122	20.86	16QAM
LTE Band 4	27	1710.7 - 1754.3	0.178	22.51	QPSK
LTE Band 4	27	1710.7 - 1754.3	0.133	21.23	16QAM
LTE Band 4	27	1711.5 - 1753.5	0.234	23.69	QPSK
LTE Band 4	27	1711.5 - 1753.5	0.155	21.90	16QAM
LTE Band 4	27	1712.5 - 1752.5	0.296	24.71	QPSK
LTE Band 4	27	1712.5 - 1752.5	0.193	22.86	16QAM
LTE Band 4	27	1715 - 1750	0.318	25.03	QPSK
LTE Band 4	27	1715 - 1750	0.212	23.26	16QAM
LTE Band 4	27	1717.5 - 1747.5	0.297	24.72	QPSK
LTE Band 4	27	1717.5 - 1747.5	0.196	22.92	16QAM
LTE Band 4	27	1720 - 1745	0.311	24.93	QPSK
LTE Band 4	27	1720 - 1745	0.238	23.76	16QAM
LTE Band 2	24E	1850.7 - 1909.3	0.178	22.51	QPSK
LTE Band 2	24E	1850.7 - 1909.3	0.113	20.55	16QAM
LTE Band 2	24E	1851.5 - 1908.5	0.223	23.48	QPSK
LTE Band 2	24E	1851.5 - 1908.5	0.142	21.52	16QAM
LTE Band 2	24E	1852.5 - 1907.5	0.267	24.27	QPSK
LTE Band 2	24E	1852.5 - 1907.5	0.170	22.31	16QAM
LTE Band 2	24E	1855 - 1905	0.257	24.10	QPSK
LTE Band 2	24E	1855 - 1905	0.195	22.89	16QAM
LTE Band 2	24E	1857.5 - 1902.5	0.260	24.15	QPSK
LTE Band 2	24E	1857.5 - 1902.5	0.196	22.92	16QAM
LTE Band 2	24E	1860 - 1900	0.258	24.12	QPSK
LTE Band 2	24E	1860 - 1900	0.184	22.65	16QAM

EUT Overview

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset		Page 4 of 28

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Intern't'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2014 on January 22, 2015.

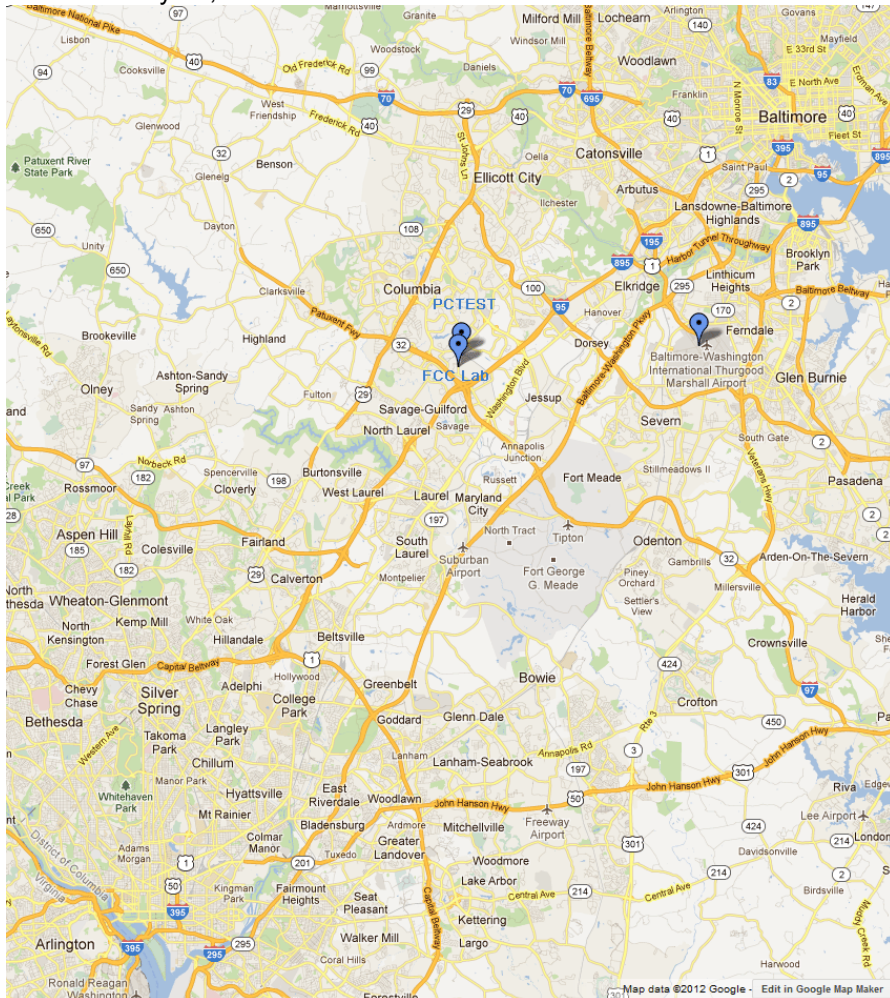


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset		Page 5 of 28

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFL59BL**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

2.2 Device Capabilities

This device contains the following capabilities:



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

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-D-2010 and KDB 971168 D01 v02r02. 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: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset		Page 6 of 28

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-D-2010) and “Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems” (KDB 971168 D01 v02r02) were used in the measurement of the EUT.

3.2 Block A Frequency Range

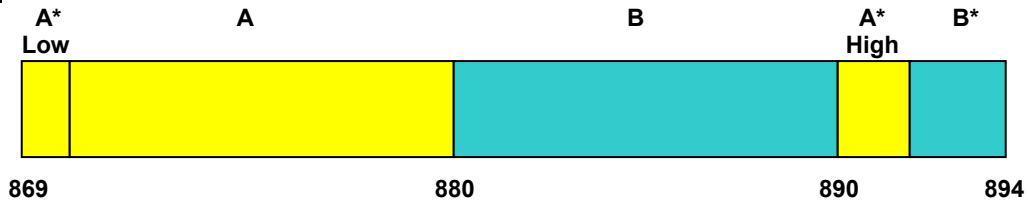
§27.5(c)

698-746 MHz band. 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.

3.3 Cellular - Base Frequency Blocks

§22.905

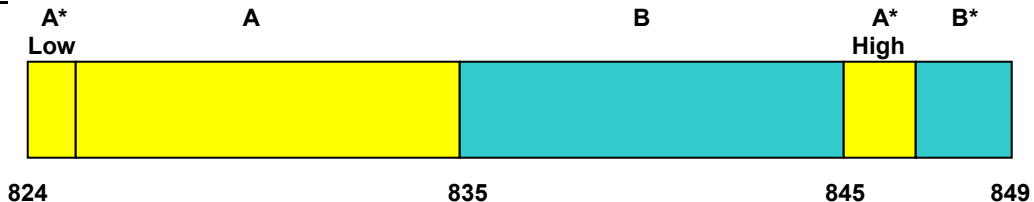


BLOCK 1: 869 – 880 MHz (A* Low + A)
BLOCK 2: 880 – 890 MHz (B)

BLOCK 3: 890 – 891.5 MHz (A* High)
BLOCK 4: 891.5 – 894 MHz (B*)



3.4 Cellular - Mobile Frequency Blocks

§22.905



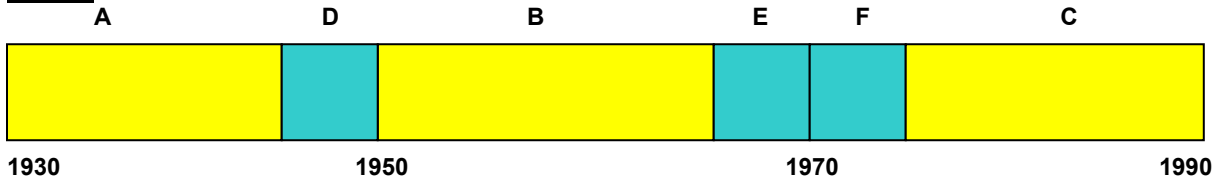
BLOCK 1: 824 – 835 MHz (A* Low + A)
BLOCK 2: 835 – 845 MHz (B)

BLOCK 3: 845 – 846.5 MHz (A* High)
BLOCK 4: 846.5 – 849 MHz (B*)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 7 of 28	

3.5 PCS - Base Frequency Blocks

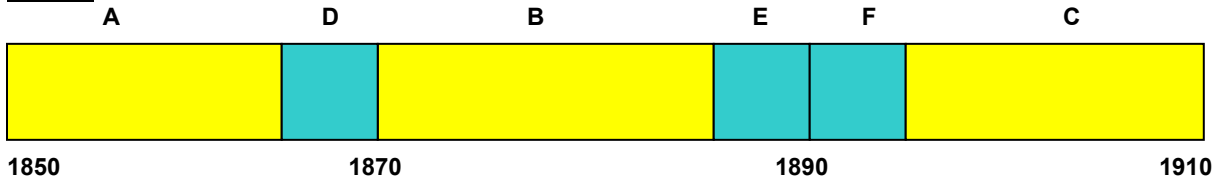
§24.229



- BLOCK 1: 1930 – 1945 MHz (A)
- BLOCK 2: 1945 – 1950 MHz (D)
- BLOCK 3: 1950 – 1965 MHz (B)
- BLOCK 4: 1965 – 1970 MHz (E)
- BLOCK 5: 1970 – 1975 MHz (F)
- BLOCK 6: 1975 – 1990 MHz (C)

3.6 PCS - Mobile Frequency Blocks

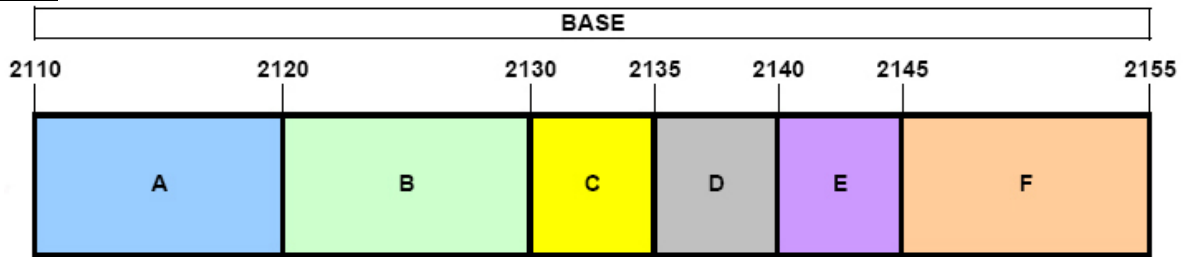
§24.229



- BLOCK 1: 1850 – 1865 MHz (A)
- BLOCK 2: 1865 – 1870 MHz (D)
- BLOCK 3: 1870 – 1885 MHz (B)
- BLOCK 4: 1885 – 1890 MHz (E)
- BLOCK 5: 1890 – 1895 MHz (F)
- BLOCK 6: 1895 – 1910 MHz (C)

3.7 AWS - Base Frequency Blocks

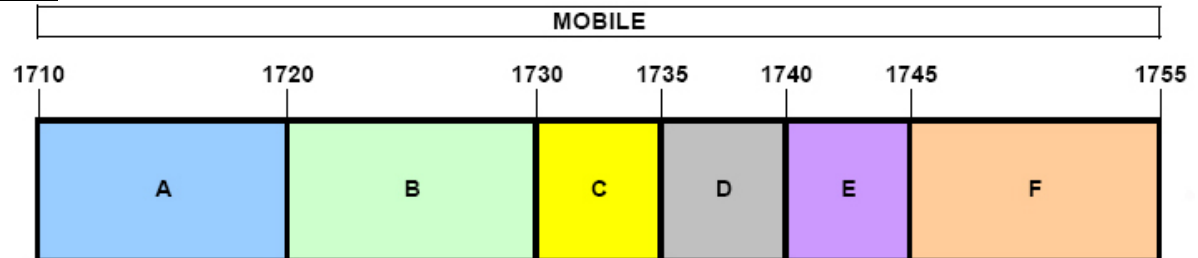
§27.5(h)



- BLOCK 1: 2110 – 2120 MHz (A)
- BLOCK 2: 2120 – 2130 MHz (B)
- BLOCK 3: 2130 – 2135 MHz (C)
- BLOCK 4: 2135 – 2140 MHz (D)
- BLOCK 5: 2140 – 2145 MHz (E)
- BLOCK 6: 2145 – 2155 MHz (F)

3.8 AWS - Mobile Frequency Blocks

§27.5(h)



- BLOCK 1: 1710 – 1720 MHz (A)
- BLOCK 2: 1720 – 1730 MHz (B)
- BLOCK 3: 1730 – 1735 MHz (C)
- BLOCK 4: 1735 – 1740 MHz (D)
- BLOCK 5: 1740 – 1745 MHz (E)
- BLOCK 6: 1745 – 1755 MHz (F)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset		Page 8 of 28

3.9 Radiated Power and Radiated Spurious Emissions

§2.1053 §22.913(a.2) §22.917(a) §24.232(c) §24.238(a) §27.50(c.10) §27.50(d.4) §27.53(g) §27.53(h)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 72.4cm high PVC support structure is placed on top of the turntable. A 3" (~7.6cm) sheet of high density polystyrene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.



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 v02r02.

Per the guidance of ANSI/TIA-603-D-2010, 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:

$$P_d \text{ [dBm]} = P_g \text{ [dBm]} - \text{cable loss [dB]} + \text{antenna gain [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_g \text{ [dBm]} - \text{cable loss [dB]}$.



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 $43 + 10\log_{10}(\text{Power [Watts]})$.

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 9 of 28	

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 data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (\pm dB)
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset		Page 10 of 28

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 C63.5-2006.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	7/11/2016	Annual	7/11/2017	RE1
Anritsu	MT8820C	Radio Communication Analyzer	4/14/2016	Annual	4/14/2017	6201240328
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	4/26/2016	Biennial	4/26/2018	125518
Mini Circuits	TVA-11-422	RF Power Amp	N/A			QA1317001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/4/2016	Annual	3/4/2017	11401010036
PCTEST	-	EMC Switch System	7/6/2016	Annual	7/6/2017	NM2
Rohde & Schwarz	CMW500	Radio Communication Tester	10/20/2016	Annual	10/20/2017	100976
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/15/2016	Annual	7/15/2017	100348
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	11/18/2015	Biennial	11/18/2017	91052523RX
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/2/2016	Biennial	3/2/2018	N/A

Table 5-1. Test Equipment

Notes:

Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.



FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 11 of 28	

6.0 SAMPLE CALCULATIONS

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd 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 analyzer. 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: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 12 of 28	

7.0 TEST RESULTS

7.1 Summary



Company Name: LG Electronics MobileComm U.S.A
 FCC ID: ZNFL59BL
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Result	Reference
22.913(a.2)	Effective Radiated Power (Band 5)	< 7 Watts max. ERP	RADIATED	PASS	Section 7.2
27.50(c.10)	Effective Radiated Power (Band 12)	< 3 Watts max. ERP		PASS	Section 7.2
24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	< 2 Watts max. EIRP		PASS	Section 7.2
27.50(d.4)	Equivalent Isotropic Radiated Power (Band 4 66)	< 1 Watts max. EIRP		PASS	Section 7.2
2.1053 22.917(a) 24.238(a) 27.53(g) 27.53(h)	Undesirable Emissions	> 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 7.3

Table 7-1. Summary of Test Results

Notes:

- All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 13 of 28	

7.2 Radiated Power (ERP/EIRP)
§22.913(a.2) §24.232(c.2) §27.50(c.10) §27.50(d.4)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.



Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.2.1

ANSI/TIA-603-D-2010 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer’s “channel power” measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to “free run” for signals with continuous operation with the sweep times set to “auto”.
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: ZNFL59BL		<p align="center">FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</p>		<p>Approved by: Quality Manager</p>
<p>Test Report S/N: 0Y1612191963.ZNF</p>	<p>Test Dates: 12/17/2016-12/27/2016</p>	<p>EUT Type: Portable Handset</p>	<p>Page 14 of 28</p>	

Test Setup

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

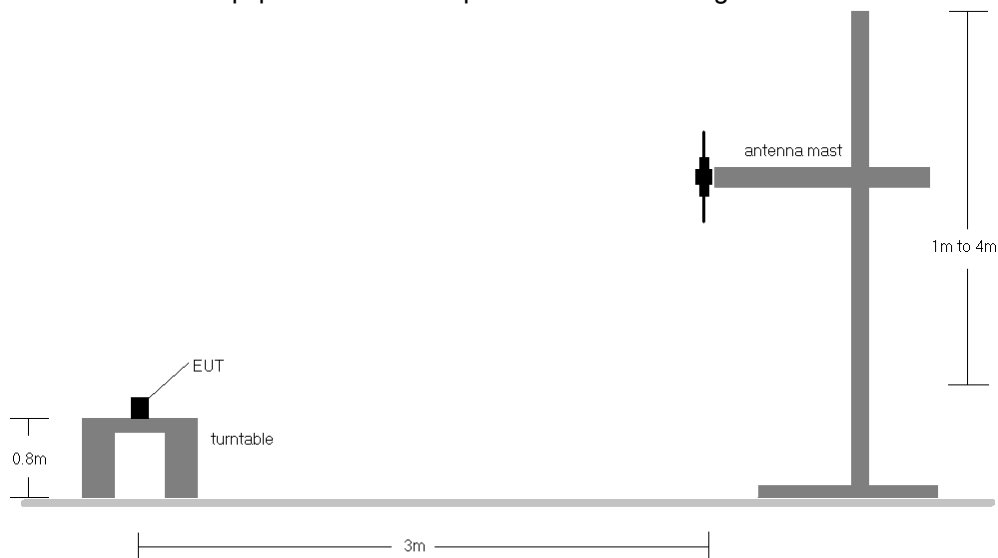


Figure 7-1. Radiated Test Setup <1GHz

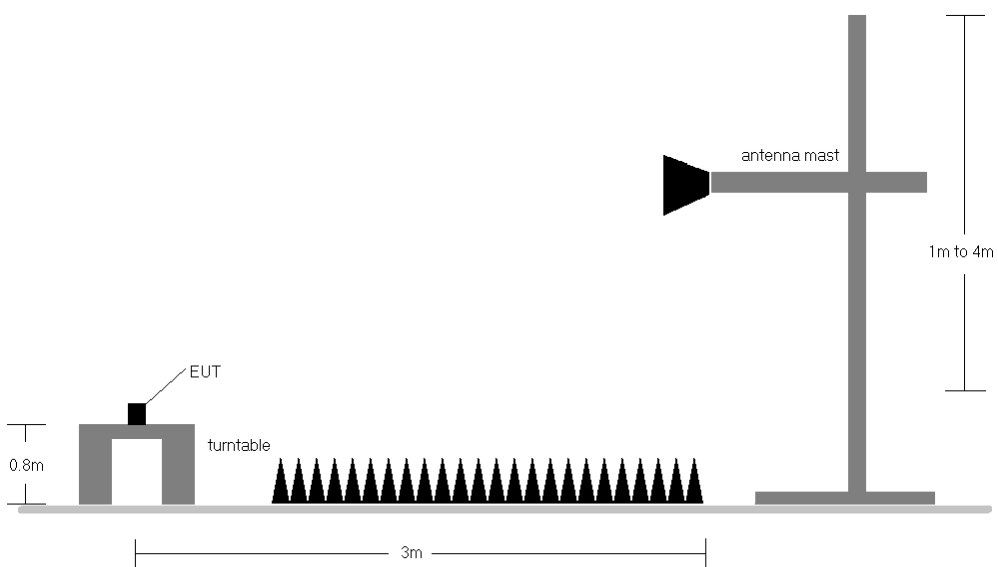




Figure 7-2. Radiated Test Setup >1GHz



Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 15 of 28	



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	308	178	1 / 0	15.53	2.56	18.09	34.77	-16.68
707.50	1.4	QPSK	H	290	204	1 / 5	16.38	2.56	18.94	34.77	-15.83
715.30	1.4	QPSK	H	262	184	1 / 5	16.17	2.60	18.77	34.77	-16.01
699.70	1.4	16-QAM	H	308	178	1 / 0	14.43	2.56	16.99	34.77	-17.78
707.50	1.4	16-QAM	H	290	204	1 / 5	15.54	2.56	18.10	34.77	-16.67
715.30	1.4	16-QAM	H	262	184	1 / 5	14.70	2.60	17.30	34.77	-17.48
700.50	3	QPSK	H	287	193	1 / 14	17.10	2.48	19.58	34.77	-15.19
707.50	3	QPSK	H	291	209	1 / 14	16.89	2.56	19.45	34.77	-15.32
714.50	3	QPSK	H	294	177	1 / 0	17.42	2.60	20.02	34.77	-14.75
700.50	3	16-QAM	H	287	193	1 / 14	15.18	2.48	17.66	34.77	-17.11
707.50	3	16-QAM	H	291	209	1 / 14	16.00	2.56	18.56	34.77	-16.21
714.50	3	16-QAM	H	294	177	1 / 0	15.59	2.60	18.19	34.77	-16.58
701.50	5	QPSK	H	282	179	1 / 24	17.99	2.49	20.48	34.77	-14.29
707.50	5	QPSK	H	288	189	1 / 0	18.22	2.56	20.78	34.77	-13.99
713.50	5	QPSK	H	267	190	1 / 24	17.47	2.60	20.07	34.77	-14.70
701.50	5	16-QAM	H	282	179	1 / 24	16.55	2.49	19.04	34.77	-15.73
707.50	5	16-QAM	H	288	189	1 / 0	16.38	2.56	18.94	34.77	-15.83
713.50	5	16-QAM	H	267	190	1 / 24	16.27	2.60	18.87	34.77	-15.90
704.00	10	QPSK	H	286	196	1 / 49	18.30	2.51	20.81	34.77	-13.96
707.50	10	QPSK	H	289	187	1 / 49	18.14	2.56	20.70	34.77	-14.07
711.00	10	QPSK	H	289	194	1 / 0	18.31	2.60	20.91	34.77	-13.87
704.00	10	16-QAM	H	286	196	1 / 49	16.86	2.51	19.37	34.77	-15.40
707.50	10	16-QAM	H	289	187	1 / 49	16.38	2.56	18.94	34.77	-15.83
711.00	10	16-QAM	H	289	194	1 / 0	15.72	2.60	18.32	34.77	-16.46
711.00	10	QPSK	V	176	235	1 / 74	15.48	3.02	18.50	34.77	-16.27

Table 7-2. ERP Data (Band 12)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 16 of 28	



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	400	196	1 / 5	13.94	5.51	19.45	38.45	-19.00
836.50	1.4	QPSK	H	400	193	1 / 5	14.64	5.14	19.78	38.45	-18.67
848.30	1.4	QPSK	H	400	154	1 / 0	13.91	4.68	18.59	38.45	-19.86
824.70	1.4	16-QAM	H	400	196	1 / 5	12.34	5.51	17.85	38.45	-20.60
836.50	1.4	16-QAM	H	400	193	1 / 5	13.36	5.14	18.50	38.45	-19.95
848.30	1.4	16-QAM	H	400	154	1 / 0	12.44	4.68	17.12	38.45	-21.33
825.50	3	QPSK	H	400	199	1 / 14	15.19	5.52	20.71	38.45	-17.74
836.50	3	QPSK	H	400	201	1 / 14	15.81	5.14	20.95	38.45	-17.50
847.50	3	QPSK	H	400	209	1 / 0	15.32	4.67	19.99	38.45	-18.46
825.50	3	16-QAM	H	400	199	1 / 14	13.55	5.52	19.07	38.45	-19.38
836.50	3	16-QAM	H	400	201	1 / 14	14.81	5.14	19.95	38.45	-18.50
847.50	3	16-QAM	H	400	209	1 / 0	13.40	4.67	18.07	38.45	-20.38
826.50	5	QPSK	H	400	185	1 / 24	16.09	5.51	21.60	38.45	-16.85
836.50	5	QPSK	H	400	206	1 / 24	16.42	5.14	21.56	38.45	-16.89
846.50	5	QPSK	H	400	204	1 / 0	16.17	4.66	20.83	38.45	-17.62
826.50	5	16-QAM	H	400	185	1 / 24	14.11	5.51	19.62	38.45	-18.83
836.50	5	16-QAM	H	400	206	1 / 24	14.48	5.14	19.62	38.45	-18.83
846.50	5	16-QAM	H	400	204	1 / 0	14.40	4.66	19.06	38.45	-19.39
829.00	10	QPSK	H	400	203	1 / 49	16.82	5.49	22.31	38.45	-16.14
836.50	10	QPSK	H	400	201	1 / 0	16.83	5.14	21.97	38.45	-16.48
844.00	10	QPSK	H	400	208	1 / 0	16.87	4.70	21.57	38.45	-16.88
829.00	10	16-QAM	H	400	203	1 / 49	15.37	5.49	20.86	38.45	-17.59
836.50	10	16-QAM	H	400	201	1 / 0	15.18	5.14	20.32	38.45	-18.13
844.00	10	16-QAM	H	400	208	1 / 0	15.19	4.70	19.89	38.45	-18.56
829.00	10	QPSK	V	100	0	1 / 74	14.36	5.30	19.66	38.45	-18.79

Table 7-3. ERP Data (Band 5)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 17 of 28	



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	V	100	265	1 / 5	13.07	9.44	22.51	30.00	-7.49
1732.50	1.4	QPSK	V	100	272	1 / 0	12.14	9.32	21.46	30.00	-8.54
1754.30	1.4	QPSK	V	100	270	1 / 0	13.32	9.19	22.51	30.00	-7.49
1710.70	1.4	16-QAM	V	100	265	1 / 5	11.63	9.44	21.07	30.00	-8.93
1732.50	1.4	16-QAM	V	100	272	1 / 0	10.75	9.32	20.07	30.00	-9.93
1754.30	1.4	16-QAM	V	100	270	1 / 0	12.04	9.19	21.23	30.00	-8.77
1711.50	3	QPSK	V	100	267	1 / 14	14.25	9.44	23.69	30.00	-6.31
1732.50	3	QPSK	V	100	266	1 / 0	13.65	9.32	22.97	30.00	-7.03
1753.50	3	QPSK	V	100	297	1 / 14	14.00	9.20	23.20	30.00	-6.80
1711.50	3	16-QAM	V	100	267	1 / 14	12.46	9.44	21.90	30.00	-8.10
1732.50	3	16-QAM	V	100	266	1 / 0	11.57	9.32	20.89	30.00	-9.11
1753.50	3	16-QAM	V	100	297	1 / 14	12.01	9.20	21.21	30.00	-8.79
1712.50	5	QPSK	V	100	270	1 / 24	15.28	9.43	24.71	30.00	-5.29
1732.50	5	QPSK	V	100	265	1 / 0	15.07	9.32	24.39	30.00	-5.61
1752.50	5	QPSK	V	100	266	1 / 24	15.27	9.20	24.47	30.00	-5.53
1712.50	5	16-QAM	V	100	270	1 / 24	13.43	9.43	22.86	30.00	-7.14
1732.50	5	16-QAM	V	100	265	1 / 0	12.40	9.32	21.72	30.00	-8.28
1752.50	5	16-QAM	V	100	266	1 / 24	13.42	9.20	22.62	30.00	-7.38
1715.00	10	QPSK	V	100	268	1 / 0	15.61	9.42	25.03	30.00	-4.97
1732.50	10	QPSK	V	100	269	1 / 0	15.07	9.32	24.39	30.00	-5.61
1750.00	10	QPSK	V	100	268	1 / 49	15.61	9.22	24.83	30.00	-5.17
1715.00	10	16-QAM	V	100	268	1 / 0	13.84	9.42	23.26	30.00	-6.74
1732.50	10	16-QAM	V	100	269	1 / 0	13.12	9.32	22.44	30.00	-7.56
1750.00	10	16-QAM	V	100	268	1 / 49	13.98	9.22	23.20	30.00	-6.80
1717.50	15	QPSK	V	100	263	1 / 0	15.30	9.40	24.70	30.00	-5.30
1732.50	15	QPSK	V	100	268	1 / 0	15.21	9.32	24.53	30.00	-5.47
1747.50	15	QPSK	V	100	268	1 / 74	15.49	9.23	24.72	30.00	-5.28
1717.50	15	16-QAM	V	100	263	1 / 0	13.25	9.40	22.65	30.00	-7.35
1732.50	15	16-QAM	V	100	268	1 / 0	13.03	9.32	22.35	30.00	-7.65
1747.50	15	16-QAM	V	100	268	1 / 74	13.69	9.23	22.92	30.00	-7.08
1720.00	20	QPSK	V	100	267	1 / 0	15.54	9.39	24.93	30.00	-5.07
1732.50	20	QPSK	V	100	268	1 / 0	15.43	9.32	24.75	30.00	-5.25
1745.00	20	QPSK	V	100	268	1 / 99	15.60	9.25	24.85	30.00	-5.15
1720.00	20	16-QAM	V	100	267	1 / 0	14.37	9.39	23.76	30.00	-6.24
1732.50	20	16-QAM	V	100	268	1 / 0	13.62	9.32	22.94	30.00	-7.06
1745.00	20	16-QAM	V	100	268	1 / 99	13.57	9.25	22.82	30.00	-7.18
1715.00	10	QPSK	H	100	127	1 / 99	13.73	9.60	23.33	30.00	-6.67

Table 7-4. EIRP Data (Band 4)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 18 of 28	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	V	135	283	1 / 0	12.67	8.97	21.64	33.01	-11.37
1880.00	1.4	QPSK	V	133	276	1 / 0	13.52	8.99	22.51	33.01	-10.50
1909.30	1.4	QPSK	V	110	264	1 / 0	13.24	8.98	22.22	33.01	-10.79
1850.70	1.4	16-QAM	V	135	283	1 / 0	11.58	8.97	20.55	33.01	-12.46
1880.00	1.4	16-QAM	V	133	276	1 / 0	10.41	8.99	19.40	33.01	-13.61
1909.30	1.4	16-QAM	V	110	264	1 / 0	11.18	8.98	20.16	33.01	-12.85
1851.50	3	QPSK	V	120	253	1 / 0	14.30	8.97	23.27	33.01	-9.74
1880.00	3	QPSK	V	116	257	1 / 0	14.49	8.99	23.48	33.01	-9.53
1908.50	3	QPSK	V	110	274	1 / 0	13.55	8.98	22.53	33.01	-10.48
1851.50	3	16-QAM	V	120	253	1 / 0	12.09	8.97	21.06	33.01	-11.95
1880.00	3	16-QAM	V	116	257	1 / 0	12.53	8.99	21.52	33.01	-11.49
1908.50	3	16-QAM	V	110	274	1 / 0	12.08	8.98	21.06	33.01	-11.95
1852.50	5	QPSK	V	110	93	1 / 0	15.30	8.97	24.27	33.01	-8.74
1880.00	5	QPSK	V	113	126	1 / 0	14.25	8.99	23.24	33.01	-9.77
1907.50	5	QPSK	V	110	124	1 / 0	13.74	8.99	22.73	33.01	-10.28
1852.50	5	16-QAM	V	110	93	1 / 0	13.34	8.97	22.31	33.01	-10.70
1880.00	5	16-QAM	V	113	126	1 / 0	12.35	8.99	21.34	33.01	-11.67
1907.50	5	16-QAM	V	110	124	1 / 0	12.02	8.99	21.01	33.01	-12.00
1855.00	10	QPSK	V	117	96	1 / 0	15.13	8.97	24.10	33.01	-8.91
1880.00	10	QPSK	V	113	126	1 / 0	14.34	8.99	23.33	33.01	-9.68
1905.00	10	QPSK	V	130	107	1 / 0	14.25	8.99	23.24	33.01	-9.77
1855.00	10	16-QAM	V	117	96	1 / 0	13.92	8.97	22.89	33.01	-10.12
1880.00	10	16-QAM	V	113	126	1 / 0	13.05	8.99	22.04	33.01	-10.97
1905.00	10	16-QAM	V	130	107	1 / 0	13.28	8.99	22.27	33.01	-10.74
1857.50	15	QPSK	V	110	93	1 / 0	15.18	8.97	24.15	33.01	-8.86
1880.00	15	QPSK	V	110	98	1 / 0	15.15	8.99	24.14	33.01	-8.87
1902.50	15	QPSK	V	110	122	1 / 0	13.63	9.00	22.63	33.01	-10.38
1857.50	15	16-QAM	V	110	93	1 / 0	13.95	8.97	22.92	33.01	-10.09
1880.00	15	16-QAM	V	110	98	1 / 0	13.80	8.99	22.79	33.01	-10.22
1902.50	15	16-QAM	V	110	122	1 / 0	12.91	9.00	21.91	33.01	-11.10
1860.00	20	QPSK	V	110	90	1 / 0	15.14	8.98	24.12	33.01	-8.89
1880.00	20	QPSK	V	110	94	1 / 0	14.88	8.99	23.87	33.01	-9.14
1900.00	20	QPSK	V	110	128	1 / 0	13.65	9.00	22.65	33.01	-10.36
1860.00	20	16-QAM	V	110	90	1 / 0	13.67	8.98	22.65	33.01	-10.36
1880.00	20	16-QAM	V	110	94	1 / 0	13.47	8.99	22.46	33.01	-10.55
1900.00	20	16-QAM	V	110	128	1 / 0	12.16	9.00	21.16	33.01	-11.85
1852.50	5	QPSK	H	187	134	1 / 0	10.36	9.12	19.48	33.01	-13.53

Table 7-5. EIRP Data (Band 2)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 19 of 28	

7.3 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(h)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.



Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

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

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 20 of 28	

Test Setup

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

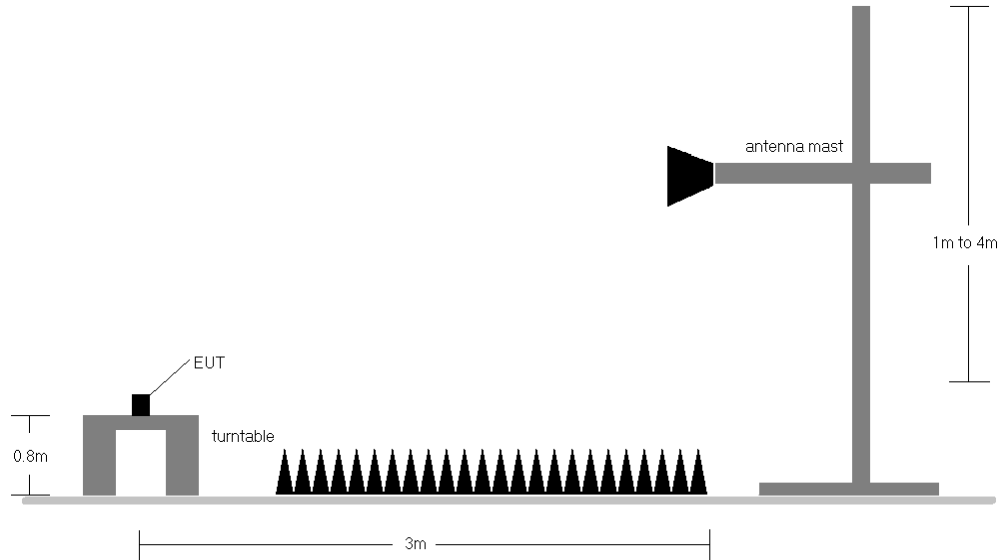




Figure 7-3. Test Instrument & Measurement Setup

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset		Page 21 of 28

OPERATING FREQUENCY: 704.00 MHz
 CHANNEL: 23060
 MEASURED OUTPUT POWER: 20.81 dBm = 0.121 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.81 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1408.00	H	100	62	-58.76	5.94	-52.82	73.6
2112.00	H	100	324	-57.63	6.82	-50.81	71.6
2816.00	H	-	-	-61.92	8.13	-53.79	74.6
3520.00	H	-	-	-56.97	7.76	-49.21	70.0

Table 7-6. Radiated Spurious Data (Band 12 – Low Channel)

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 20.70 dBm = 0.117 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.70 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1415.00	H	100	48	-56.73	5.96	-50.76	71.5
2122.50	H	100	326	-54.85	6.84	-48.01	68.7
2830.00	H	-	-	-60.41	8.13	-52.28	73.0
3537.50	H	-	-	-56.12	7.79	-48.33	69.0

Table 7-7. Radiated Spurious Data (Band 12 – Mid Channel)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 22 of 28	

OPERATING FREQUENCY: 711.00 MHz
 CHANNEL: 23130
 MEASURED OUTPUT POWER: 20.91 dBm = 0.123 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.91 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1422.00	H	100	60	-59.38	5.99	-53.39	74.3
2133.00	H	100	80	-55.33	6.87	-48.46	69.4
2844.00	H	-	-	-60.67	8.14	-52.53	73.4
3555.00	H	-	-	-56.22	7.82	-48.40	69.3

Table 7-8. Radiated Spurious Data (Band 12 – High Channel)

OPERATING FREQUENCY: 829.00 MHz
 CHANNEL: 20450
 MEASURED OUTPUT POWER: 22.31 dBm = 0.170 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 35.31 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1658.00	H	100	271	-59.21	6.26	-52.95	75.3
2487.00	H	100	150	-52.15	6.84	-45.31	67.6
3316.00	H	-	-	-63.14	7.17	-55.97	78.3
4145.00	H	-	-	-65.88	7.83	-58.06	80.4

Table 7-9. Radiated Spurious Data (Band 5 – Low Channel)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 23 of 28	

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 21.97 dBm = 0.157 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 34.97 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1673.00	H	100	262	-52.21	6.21	-46.00	68.0
2509.50	H	100	0	-63.61	6.86	-56.75	78.7
3346.00	H	-	-	-63.14	7.26	-55.87	77.8
4182.50	H	-	-	-66.09	8.07	-58.02	80.0

Table 7-10. Radiated Spurious Data (Band 5 – Mid Channel)

OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 20600
 MEASURED OUTPUT POWER: 21.57 dBm = 0.144 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W)$ 34.57 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1688.00	H	100	272	-51.88	6.15	-45.72	67.3
2532.00	H	100	0	-62.53	6.93	-55.60	77.2
3376.00	H	-	-	-61.88	7.35	-54.53	76.1
4220.00	H	-	-	-66.31	8.28	-58.04	79.6

Table 7-11. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 24 of 28	

OPERATING FREQUENCY: 1715.00 MHz
 CHANNEL: 20000
 MEASURED OUTPUT POWER: 25.03 dBm = 0.318 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 38.03 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3430.00	V	100	78	-63.94	9.70	-54.24	79.3
5145.00	V	100	87	-55.91	10.92	-44.99	70.0
6860.00	V	-	-	-61.31	10.83	-50.48	75.5
8575.00	V	-	-	-59.07	11.70	-47.37	72.4

Table 7-12. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 24.39 dBm = 0.275 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 37.39 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3465.00	V	100	80	-62.39	9.81	-52.57	77.0
5197.50	V	100	100	-54.16	10.81	-43.34	67.7
6930.00	V	-	-	-60.94	10.93	-50.00	74.4
8662.50	V	-	-	-58.96	11.86	-47.10	71.5

Table 7-13. Radiated Spurious Data (Band 4 – Mid Channel)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 25 of 28	

OPERATING FREQUENCY: 1750.00 MHz
 CHANNEL: 20350
 MEASURED OUTPUT POWER: 24.83 dBm = 0.304 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 37.83 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3500.00	V	100	93	-58.31	9.93	-48.39	73.2
5250.00	V	100	99	-51.02	10.91	-40.11	64.9
7000.00	V	-	-	-61.64	11.10	-50.54	75.4
8750.00	V	-	-	-58.85	12.02	-46.83	71.7

Table 7-14. Radiated Spurious Data (Band 4 – High Channel)

OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 18625
 MEASURED OUTPUT POWER: 24.27 dBm = 0.267 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 37.27 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3705.00	V	100	99	-50.36	10.07	-40.29	64.6
5557.50	V	100	93	-63.59	11.22	-52.37	76.6
7410.00	V	-	-	-60.36	10.89	-49.48	73.7
9262.50	V	-	-	-59.76	12.37	-47.40	71.7

Table 7-15. Radiated Spurious Data (Band 2 – Low Channel)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 26 of 28	

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 23.24 dBm = 0.211 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 36.24 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3760.00	V	100	90	-48.40	9.80	-38.60	61.8
5640.00	V	100	91	-62.04	11.37	-50.66	73.9
7520.00	V	-	-	-61.02	11.24	-49.79	73.0
9400.00	V	-	-	-59.57	12.35	-47.22	70.5

Table 7-16. Radiated Spurious Data (Band 2 – Mid Channel)

OPERATING FREQUENCY: 1907.50 MHz
 CHANNEL: 19175
 MEASURED OUTPUT POWER: 22.73 dBm = 0.187 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 35.73 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3815.00	V	100	91	-44.29	9.57	-34.72	57.4
5722.50	V	100	200	-55.69	11.45	-44.24	67.0
7630.00	V	-	-	-61.11	11.50	-49.61	72.3
9537.50	V	-	-	-59.23	12.39	-46.84	69.6

Table 7-17. Radiated Spurious Data (Band 2 – High Channel)

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 27 of 28	

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset** **FCC ID: ZNFL59BL** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

FCC ID: ZNFL59BL		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 0Y1612191963.ZNF	Test Dates: 12/17/2016-12/27/2016	EUT Type: Portable Handset	Page 28 of 28	