



PCTEST ENGINEERING LABORATORY, INC.

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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:

8/09/2017-8/30/2017

Test Site/Location:

PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:

1M1708030234-03-R2.ZNF

FCC ID : ZNFG011C

APPLICANT: LG ELECTRONICS MOBILECOMM U.S.A

Application Type: Class II Permissive Change

Models: G011C

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

Test Device Serial No.: identical prototype [S/N: 15073, 15081]

Class II Permissive Change: Please see FCC change document

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.

This test report S/N: 1M1708030234-03-R2.ZNF supersedes and replaces the previous version of this test report (S/N: 1M1708030234-03-R1.ZNF). Please discard the previous version of this test report appropriately.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.


Randy Ortanez
President



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Test Report S/N: 1M1708030234-03-R2.ZNF	Test Dates: 8/09/2017-8/30/2017	EUT Type: Portable Handset		Page 1 of 40

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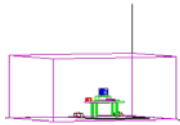
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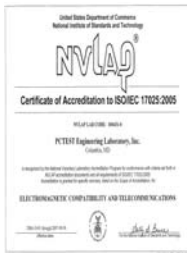
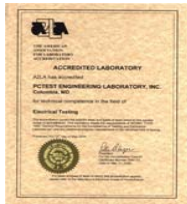


§2.1033 General Information

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: G011C
FCC ID: ZNFG011C
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: $\pm 0.00025\%$ (2.5 ppm)
Test Device Serial No.: 15073, 15081 ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST: 8/09/2017-8/30/2017
TEST REPORT S/N: 1M1708030234-03-R2.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.

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Mode	FCC Rule Part	Tx Frequency (MHz)	ERP/EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	
LTE Band 12	27	699.7 - 715.3	0.059	17.67	QPSK
LTE Band 12	27	699.7 - 715.3	0.052	17.16	16QAM
LTE Band 12	27	699.7 - 715.3	0.032	15.11	64QAM
LTE Band 12	27	700.5 - 714.5	0.057	17.55	QPSK
LTE Band 12	27	700.5 - 714.5	0.051	17.06	16QAM
LTE Band 12	27	700.5 - 714.5	0.033	15.20	64QAM
LTE Band 12/17	27	701.5 - 713.5	0.057	17.54	QPSK
LTE Band 12/17	27	701.5 - 713.5	0.053	17.20	16QAM
LTE Band 12/17	27	701.5 - 713.5	0.035	15.44	64QAM
LTE Band 12/17	27	704 - 711	0.057	17.57	QPSK
LTE Band 12/17	27	704 - 711	0.042	16.25	16QAM
LTE Band 12/17	27	704 - 711	0.037	15.66	64QAM
LTE Band 13	27	779.5 - 784.5	0.081	19.07	QPSK
LTE Band 13	27	779.5 - 784.5	0.062	17.90	16QAM
LTE Band 13	27	779.5 - 784.5	0.045	16.58	64QAM
LTE Band 13	27	782	0.076	18.80	QPSK
LTE Band 13	27	782	0.069	18.36	16QAM
LTE Band 13	27	782	0.063	17.99	64QAM
LTE Band 5/26	22H	824.7 - 848.3	0.045	16.49	QPSK
LTE Band 5/26	22H	824.7 - 848.3	0.039	15.92	16QAM
LTE Band 5/26	22H	824.7 - 848.3	0.026	14.07	64QAM
LTE Band 5/26	22H	825.5 - 847.5	0.047	16.71	QPSK
LTE Band 5/26	22H	825.5 - 847.5	0.041	16.14	16QAM
LTE Band 5/26	22H	825.5 - 847.5	0.027	14.39	64QAM
LTE Band 5/26	22H	826.5 - 846.5	0.045	16.54	QPSK
LTE Band 5/26	22H	826.5 - 846.5	0.039	15.94	16QAM
LTE Band 5/26	22H	826.5 - 846.5	0.021	13.22	64QAM
LTE Band 5/26	22H	829 - 844	0.047	16.74	QPSK
LTE Band 5/26	22H	829 - 844	0.040	16.03	16QAM
LTE Band 5/26	22H	829 - 844	0.035	15.44	64QAM
LTE Band 26	22H	831.5 - 841.5	0.048	16.79	QPSK
LTE Band 26	22H	831.5 - 841.5	0.038	15.84	16QAM
LTE Band 26	22H	831.5 - 841.5	0.033	15.14	64QAM
LTE Band 4/66	27	1710.7 - 1779.3	0.164	22.15	QPSK
LTE Band 4/66	27	1710.7 - 1779.3	0.121	20.83	16QAM
LTE Band 4/66	27	1710.7 - 1779.3	0.080	19.05	64QAM
LTE Band 4/66	27	1711.5 - 1778.5	0.185	22.67	QPSK
LTE Band 4/66	27	1711.5 - 1778.5	0.157	21.96	16QAM
LTE Band 4/66	27	1711.5 - 1778.5	0.091	19.59	64QAM
LTE Band 4/66	27	1712.5 - 1777.5	0.194	22.87	QPSK
LTE Band 4/66	27	1712.5 - 1777.5	0.159	22.01	16QAM
LTE Band 4/66	27	1712.5 - 1777.5	0.092	19.64	64QAM
LTE Band 4/66	27	1715 - 1775	0.188	22.74	QPSK
LTE Band 4/66	27	1715 - 1775	0.170	22.30	16QAM
LTE Band 4/66	27	1715 - 1775	0.094	19.74	64QAM
LTE Band 4/66	27	1717.5 - 1772.5	0.198	22.97	QPSK
LTE Band 4/66	27	1717.5 - 1772.5	0.161	22.08	16QAM
LTE Band 4/66	27	1717.5 - 1772.5	0.132	21.22	64QAM
LTE Band 4/66	27	1720 - 1770	0.207	23.15	QPSK
LTE Band 4/66	27	1720 - 1770	0.189	22.77	16QAM
LTE Band 4/66	27	1720 - 1770	0.145	21.61	64QAM

EUT Overview

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Mode	FCC Rule Part	Tx Frequency (MHz)	ERP/EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	
LTE Band 2/25	24E	1850.7 - 1914.3	0.173	22.38	QPSK
LTE Band 2/25	24E	1850.7 - 1914.3	0.135	21.29	16QAM
LTE Band 2/25	24E	1850.7 - 1914.3	0.086	19.36	64QAM
LTE Band 2/25	24E	1851.5 - 1913.5	0.162	22.09	QPSK
LTE Band 2/25	24E	1851.5 - 1913.5	0.132	21.22	16QAM
LTE Band 2/25	24E	1851.5 - 1913.5	0.087	19.39	64QAM
LTE Band 2/25	24E	1852.5 - 1912.5	0.179	22.52	QPSK
LTE Band 2/25	24E	1852.5 - 1912.5	0.156	21.92	16QAM
LTE Band 2/25	24E	1852.5 - 1912.5	0.074	18.66	64QAM
LTE Band 2/25	24E	1855 - 1910	0.178	22.51	QPSK
LTE Band 2/25	24E	1855 - 1910	0.140	21.47	16QAM
LTE Band 2/25	24E	1855 - 1910	0.103	20.15	64QAM
LTE Band 2/25	24E	1857.5 - 1907.5	0.128	21.08	QPSK
LTE Band 2/25	24E	1857.5 - 1907.5	0.087	19.38	16QAM
LTE Band 2/25	24E	1857.5 - 1907.5	0.069	18.42	64QAM
LTE Band 2/25	24E	1860 - 1905	0.115	20.63	QPSK
LTE Band 2/25	24E	1860 - 1905	0.099	19.94	16QAM
LTE Band 2/25	24E	1860 - 1905	0.074	18.72	64QAM
LTE Band 30	27	2307.5 - 2312.5	0.121	20.84	QPSK
LTE Band 30	27	2307.5 - 2312.5	0.112	20.50	16QAM
LTE Band 30	27	2307.5 - 2312.5	0.086	19.35	64QAM
LTE Band 30	27	2310	0.135	21.32	QPSK
LTE Band 30	27	2310	0.112	20.51	16QAM
LTE Band 30	27	2310	0.078	18.95	64QAM
LTE Band 7	27	2502.5 - 2567.5	0.157	21.95	QPSK
LTE Band 7	27	2502.5 - 2567.5	0.146	21.63	16QAM
LTE Band 7	27	2502.5 - 2567.5	0.124	20.92	64QAM
LTE Band 7	27	2505 - 2565	0.164	22.15	QPSK
LTE Band 7	27	2505 - 2565	0.143	21.55	16QAM
LTE Band 7	27	2505 - 2565	0.119	20.75	64QAM
LTE Band 7	27	2507.5 - 2562.5	0.169	22.28	QPSK
LTE Band 7	27	2507.5 - 2562.5	0.152	21.82	16QAM
LTE Band 7	27	2507.5 - 2562.5	0.125	20.98	64QAM
LTE Band 7	27	2510 - 2560	0.167	22.23	QPSK
LTE Band 7	27	2510 - 2560	0.138	21.41	16QAM
LTE Band 7	27	2510 - 2560	0.119	20.75	64QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.245	23.88	QPSK
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.185	22.66	16QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.144	21.59	64QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.249	23.96	QPSK
LTE Band 41 (PC2)	27	2501 - 2685	0.161	22.07	16QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.101	20.02	64QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.195	22.90	QPSK
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.122	20.85	16QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.115	20.59	64QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.177	22.48	QPSK
LTE Band 41 (PC2)	27	2506 - 2680	0.103	20.13	16QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.064	18.08	64QAM

EUT Overview

Note:

The Class II Permissive Change test results reported herein are within the expected measurement tolerances of the original certification test results. It has been determined that the radiated powers did not change.

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1.0 INTRODUCTION

1.1 Scope

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

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington 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.

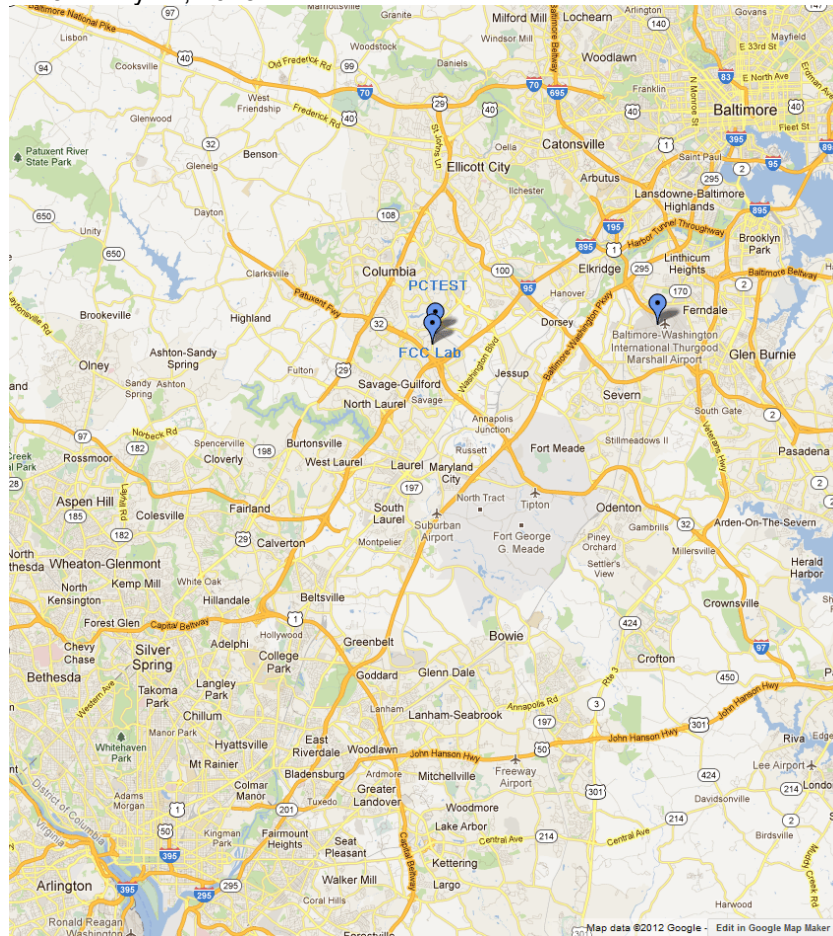


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFG011C**. 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 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ac WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC

This device uses a tuner circuit that dynamically updates the antenna impedance parameters to optimize antenna performance for certain bands and modes of operation. The tuner for this device was set to simulate a "free space" condition where the transmit antenna is matched to the medium into which it is transmitting and, thus, the power is at its maximum level.

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.

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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-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.

3.1 Block C Frequency Range

§27.5(b)(3)

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.

3.2 Block A Frequency Range

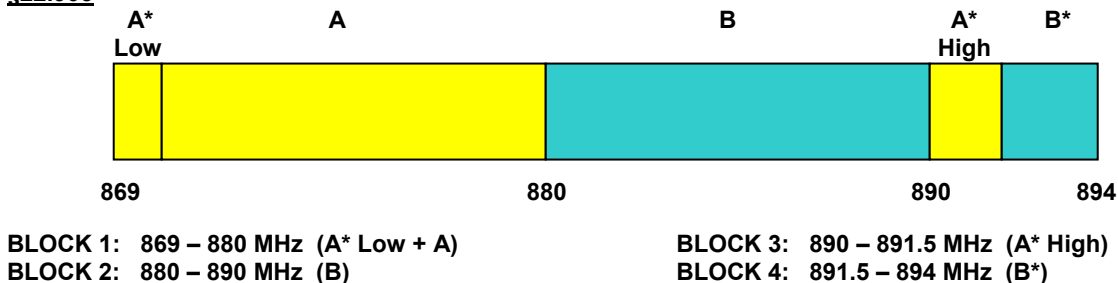
§27.5(c)

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

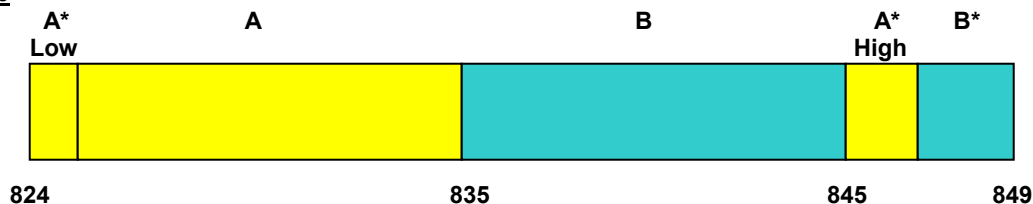
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3.4 Cellular - Mobile Frequency Blocks

§22.905



BLOCK 1: 824 – 835 MHz (A* Low + A)

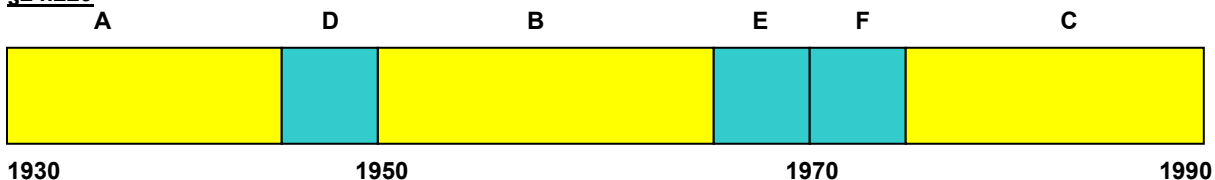
BLOCK 2: 835 – 845 MHz (B)

BLOCK 3: 845 – 846.5 MHz (A* High)

BLOCK 4: 846.5 – 849 MHz (B*)

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)

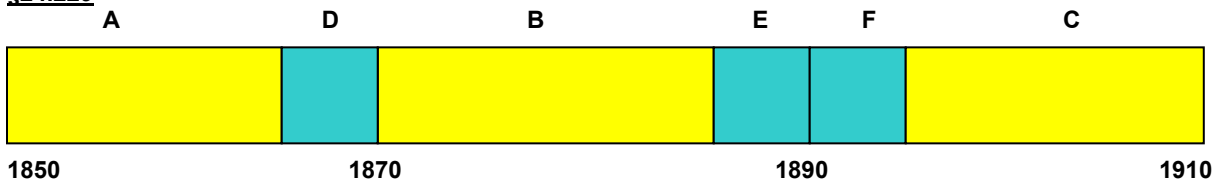
BLOCK 4: 1965 – 1970 MHz (E)

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)

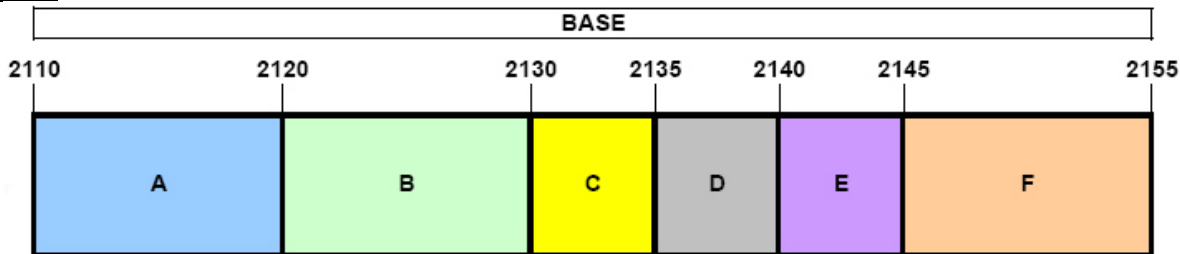
BLOCK 4: 1885 – 1890 MHz (E)

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)

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3.11 Radiated Power and Radiated Spurious Emissions

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

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 $43 + 10\log_{10}(\text{Power}_{\text{[Watts]}})$. For Band 7 and 41, the calculated P_d levels are compared to the absolute spurious emission limit of -25dBm which is equivalent to the required minimum attenuation of $55 + 10\log_{10}(\text{Power}_{\text{[Watts]}})$. For Band 30, the calculated P_d levels are compared to the absolute spurious emission limit of -40dBm which is equivalent to the required minimum attenuation of $70 + 10\log_{10}(\text{Power}_{\text{[Watts]}})$.

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4.0 MEASUREMENT UNCERTAINTY

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

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

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2006.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N9020A	MXA Signal Analyzer	10/28/2016	Annual	10/28/2017	US46470561
Agilent	N9038A	MXE EMI Receiver	4/26/2017	Annual	4/26/2018	MY51210133
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	6/21/2017	Annual	6/21/2018	441119
Emco	3115	Horn Antenna (1-18GHz)	3/10/2016	Biennial	3/10/2018	9704-5182
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/23/2016	Biennial	8/23/2018	135427
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	4/26/2016	Biennial	4/26/2018	128337
Mini Circuits	TVA-11-422	RF Power Amp		N/A		QA1317001
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/24/2017	Annual	3/24/2018	11401010036
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		11208010032
PCTEST	-	EMC Switch System	6/21/2017	Annual	6/21/2018	NM1
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		112347
Rohde & Schwarz	TS-PR18	1-18 GHz Pre-Amplifier	3/7/2017	Annual	3/7/2018	100071
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/11/2017	Annual	5/11/2018	100040
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	4/19/2017	Annual	4/19/2018	100342
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	3/30/2016	Biennial	3/30/2018	9105-2404
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/2/2016	Biennial	3/2/2018	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	3/14/2016	Biennial	3/14/2018	A051107

Table 5-1. Test Equipment

Notes:

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

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6.0 SAMPLE CALCULATIONS

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).

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7.0 TEST RESULTS

7.1 Summary

Company Name: LG Electronics MobileComm U.S.A
 FCC ID: ZNFG011C
 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 5/26)	< 7 Watts max. ERP	RADIATED	PASS	Section 7.2
27.50(b.10) 27.50(c.10)	Effective Radiated Power (Band 12/17, 13)	< 3 Watts max. ERP		PASS	Section 7.2
24.232(c) 27.50(h.2)	Equivalent Isotropic Radiated Power (Band 25, 7, 41)	< 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
27.50(a.3)	Equivalent Isotropic Radiated Power (Band 30)	< 0.25 Watts max. EIRP		PASS	Section 7.2
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions (Bands 5, 26, 12, 17, 13, 25, 4, 66)	> 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 7.3
27.53(f)	Undesirable Emissions (Band 13)	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 – 1610 MHz		PASS	Section 7.3
27.53(a)	Undesirable Emissions (Band 30)	> 70 + 10log ₁₀ (P[Watts])		PASS	Section 7.3
27.53(m)	Undesirable Emissions (Band 7, 41)	> 43 + 10log ₁₀ (P[Watts]) at channel edges > 55 + 10log ₁₀ (P[Watts]) at 5.5MHz away and beyond channel edges		PASS	Section 7.3

Table 7-1. Summary of Test Results

Notes:

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

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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7.2 Radiated Power (ERP/EIRP)

§22.913(a.2) §24.232(c.2) §27.50(h.2) §27.50(b.10) §27.50(c.10) §27.50(d.4) §27.50(a.3)

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

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Test Setup

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

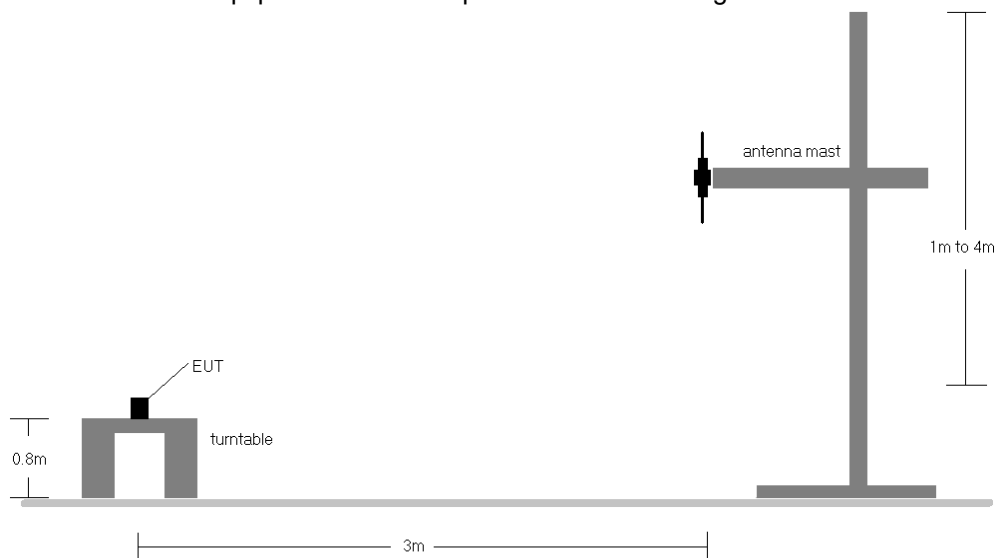


Figure 7-1. Radiated Test Setup <1GHz

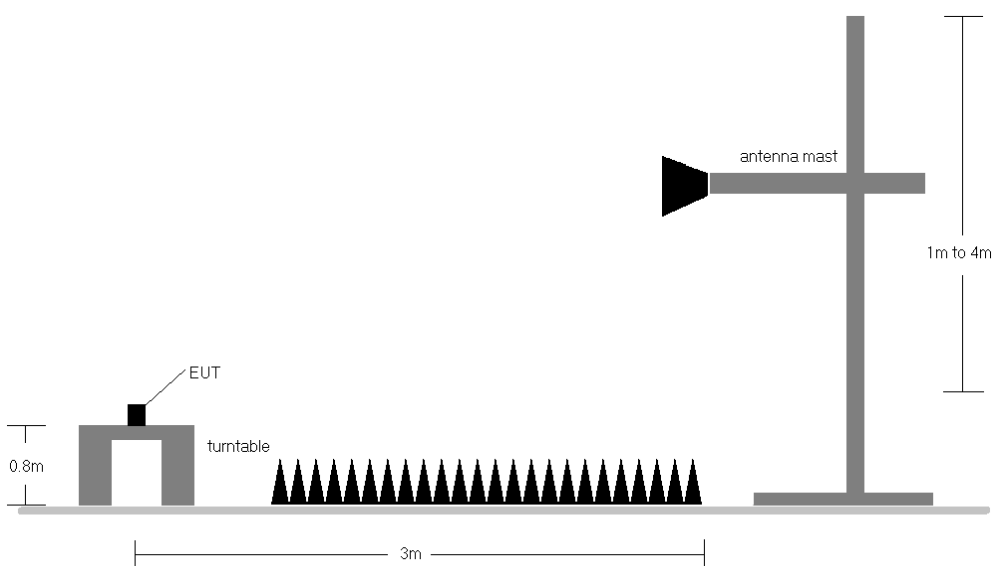


Figure 7-2. Radiated Test Setup >1GHz

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: ZNFG011C	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)	LG	Approved by: Quality Manager
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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	V	150	351	1 / 5	17.30	-1.05	16.25	34.77	-18.52
707.50	1.4	QPSK	V	150	6	1 / 0	17.39	-1.02	16.37	34.77	-18.40
715.30	1.4	QPSK	V	150	3	1 / 5	18.66	-0.99	17.67	34.77	-17.10
715.30	1.4	16-QAM	V	150	3	1 / 5	18.15	-0.99	17.16	34.77	-17.61
715.30	1.4	64-QAM	V	150	3	1 / 5	16.10	-0.99	15.11	34.77	-19.66
700.50	3	QPSK	V	150	353	1 / 14	18.03	-1.05	16.98	34.77	-17.79
707.50	3	QPSK	V	150	3	1 / 0	17.41	-1.02	16.39	34.77	-18.38
714.50	3	QPSK	V	150	7	1 / 14	18.54	-0.99	17.55	34.77	-17.22
714.50	3	16-QAM	V	150	7	1 / 14	18.05	-0.99	17.06	34.77	-17.71
714.50	3	64-QAM	V	150	7	1 / 14	16.19	-0.99	15.20	34.77	-19.57
715.30	1.4	QPSK	H	150	164	1 / 5	17.80	-0.99	16.81	34.77	-17.96

Table 7-2. ERP Data (Band 12)

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]
701.50	5	QPSK	V	150	5	1 / 24	17.84	-1.04	16.80	34.77	-17.98
707.50	5	QPSK	V	150	10	1 / 0	17.60	-1.02	16.58	34.77	-18.19
713.50	5	QPSK	V	150	358	1 / 24	18.54	-1.00	17.54	34.77	-17.23
713.50	5	16-QAM	V	150	358	1 / 24	18.20	-1.00	17.20	34.77	-17.57
713.50	5	64-QAM	V	150	358	1 / 24	16.44	-1.00	15.44	34.77	-19.33
704.00	10	QPSK	V	150	359	1 / 0	17.38	-1.03	16.35	34.77	-18.42
707.50	10	QPSK	V	150	359	1 / 49	18.05	-1.02	17.03	34.77	-17.74
711.00	10	QPSK	V	150	356	1 / 49	18.58	-1.01	17.57	34.77	-17.20
711.00	10	16-QAM	V	150	356	1 / 49	17.26	-1.01	16.25	34.77	-18.52
711.00	10	64-QAM	V	150	356	1 / 49	16.67	-1.01	15.66	34.77	-19.11

Table 7-3. ERP Data (Band 12/17)

FCC ID: ZNFG011C	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)					Approved by: Quality Manager
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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]
779.50	5	QPSK	H	150	7	3 / 2	19.39	-0.83	18.56	38.45	-19.89
782.00	5	QPSK	H	150	3	1 / 0	19.89	-0.82	19.07	38.45	-19.38
784.50	5	QPSK	H	150	358	1 / 5	19.72	-0.81	18.91	38.45	-19.54
782.00	5	16-QAM	H	150	3	1 / 0	18.72	-0.82	17.90	38.45	-20.55
782.00	5	64-QAM	H	150	3	1 / 0	17.40	-0.82	16.58	38.45	-21.87
782.00	10	QPSK	H	150	3	1 / 5	19.62	-0.82	18.80	38.45	-19.65
782.00	10	16-QAM	H	150	3	1 / 5	19.18	-0.82	18.36	38.45	-20.09
782.00	10	64-QAM	H	150	3	1 / 5	18.81	-0.82	17.99	38.45	-20.46
782.00	5	QPSK	V	150	350	1 / 0	17.63	-0.82	16.81	38.45	-21.64

Table 7-4. ERP Data (Band 13)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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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	150	301	3 / 2	16.96	-0.65	16.31	38.45	-22.14
836.50	1.4	QPSK	H	150	303	3 / 2	17.14	-0.65	16.49	38.45	-21.96
848.30	1.4	QPSK	H	150	299	3 / 2	16.82	-0.65	16.17	38.45	-22.28
836.50	1.4	16-QAM	H	150	303	3 / 2	16.57	-0.65	15.92	38.45	-22.53
836.50	1.4	64-QAM	H	150	303	3 / 2	14.72	-0.65	14.07	38.45	-24.38
825.50	3	QPSK	H	150	293	1 / 14	17.32	-0.65	16.67	38.45	-21.78
836.50	3	QPSK	H	150	291	1 / 0	17.36	-0.65	16.71	38.45	-21.74
847.50	3	QPSK	H	150	303	8 / 4	16.90	-0.65	16.25	38.45	-22.20
836.50	3	16-QAM	H	150	291	1 / 0	16.79	-0.65	16.14	38.45	-22.31
836.50	3	64-QAM	H	150	291	1 / 0	15.04	-0.65	14.39	38.45	-24.06
826.50	5	QPSK	H	150	304	1 / 0	17.13	-0.65	16.48	38.45	-21.97
836.50	5	QPSK	H	150	309	1 / 0	17.19	-0.65	16.54	38.45	-21.91
846.50	5	QPSK	H	150	307	1 / 0	17.09	-0.65	16.44	38.45	-22.01
836.50	5	16-QAM	H	150	309	1 / 0	16.59	-0.65	15.94	38.45	-22.51
836.50	5	64-QAM	H	150	309	1 / 0	13.87	-0.65	13.22	38.45	-25.23
829.00	10	QPSK	H	150	298	1 / 0	17.39	-0.65	16.74	38.45	-21.71
836.50	10	QPSK	H	150	293	25 / 12	17.37	-0.65	16.72	38.45	-21.73
844.00	10	QPSK	H	150	305	1 / 0	17.31	-0.65	16.66	38.45	-21.79
829.00	10	16-QAM	H	150	298	1 / 0	16.68	-0.65	16.03	38.45	-22.42
829.00	10	64-QAM	H	150	298	1 / 0	16.09	-0.65	15.44	38.45	-23.01

Table 7-5. ERP Data (Band 5/26)

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]
831.50	15	QPSK	H	150	303	36 / 18	17.32	-0.65	16.67	38.45	-21.78
836.50	15	QPSK	H	150	294	1 / 0	17.44	-0.65	16.79	38.45	-21.66
841.50	15	QPSK	H	150	306	36 / 18	17.13	-0.65	16.48	38.45	-21.97
836.50	15	16-QAM	H	150	294	1 / 0	16.49	-0.65	15.84	38.45	-22.61
836.50	15	64-QAM	H	150	294	1 / 0	15.79	-0.65	15.14	38.45	-23.31
836.50	15	QPSK	V	150	286	1 / 0	16.73	-0.65	16.08	38.45	-22.37

Table 7-6. ERP Data (Band 26)

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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	H	150	343	1 / 0	16.59	5.56	22.15	30.00	-7.85
1745.00	1.4	QPSK	H	150	345	1 / 0	15.69	5.32	21.01	30.00	-8.99
1779.30	1.4	QPSK	H	150	342	1 / 0	16.63	5.09	21.72	30.00	-8.28
1779.30	1.4	16-QAM	H	150	342	1 / 0	15.74	5.09	20.83	30.00	-9.17
1779.30	1.4	64-QAM	H	150	342	1 / 0	13.96	5.09	19.05	30.00	-10.95
1711.50	3	QPSK	H	150	336	1 / 0	17.12	5.55	22.67	30.00	-7.33
1745.00	3	QPSK	H	150	341	1 / 0	17.03	5.32	22.35	30.00	-7.65
1778.50	3	QPSK	H	150	346	1 / 0	16.54	5.10	21.64	30.00	-8.36
1711.50	3	16-QAM	H	150	336	1 / 0	16.41	5.55	21.96	30.00	-8.04
1711.50	3	64-QAM	H	150	336	1 / 0	14.04	5.55	19.59	30.00	-10.41
1712.50	5	QPSK	H	150	337	1 / 0	17.26	5.55	22.81	30.00	-7.19
1745.00	5	QPSK	H	150	335	1 / 24	17.55	5.32	22.87	30.00	-7.13
1777.50	5	QPSK	H	150	343	1 / 0	16.81	5.10	21.91	30.00	-8.09
1745.00	5	16-QAM	H	150	335	1 / 24	16.69	5.32	22.01	30.00	-7.99
1745.00	5	64-QAM	H	150	335	1 / 24	14.32	5.32	19.64	30.00	-10.36
1715.00	10	QPSK	H	150	331	1 / 0	17.21	5.53	22.74	30.00	-7.26
1745.00	10	QPSK	H	150	329	1 / 0	17.36	5.32	22.68	30.00	-7.32
1775.00	10	QPSK	H	150	337	1 / 0	16.53	5.12	21.65	30.00	-8.35
1715.00	10	16-QAM	H	150	331	1 / 0	16.77	5.53	22.30	30.00	-7.70
1715.00	10	64-QAM	H	150	331	1 / 0	14.21	5.53	19.74	30.00	-10.26
1717.50	15	QPSK	H	150	329	1 / 74	17.46	5.51	22.97	30.00	-7.03
1745.00	15	QPSK	H	150	334	1 / 74	17.24	5.32	22.56	30.00	-7.44
1772.50	15	QPSK	H	150	335	1 / 0	16.99	5.14	22.13	30.00	-7.87
1717.50	15	16-QAM	H	150	329	1 / 74	16.57	5.51	22.08	30.00	-7.92
1717.50	15	64-QAM	H	150	329	1 / 74	15.71	5.51	21.22	30.00	-8.78
1720.00	20	QPSK	H	150	345	1 / 0	16.31	5.49	21.80	30.00	-8.20
1745.00	20	QPSK	H	150	330	1 / 0	17.83	5.32	23.15	30.00	-6.85
1770.00	20	QPSK	H	150	343	1 / 0	16.48	5.15	21.63	30.00	-8.37
1745.00	20	16-QAM	H	150	330	1 / 0	17.45	5.32	22.77	30.00	-7.23
1745.00	20	64-QAM	H	150	330	1 / 0	16.29	5.32	21.61	30.00	-8.39
1745.00	20	QPSK	V	150	251	1 / 99	14.56	5.27	19.83	30.00	-10.17

Table 7-7. EIRP Data (Band 4/66)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-03-R2.ZNF	Test Dates: 8/09/2017-8/30/2017	EUT Type: Portable Handset	Page 21 of 40	

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	150	246	3 / 2	16.96	4.79	21.75	33.01	-11.26
1882.50	1.4	QPSK	V	150	250	3 / 2	17.53	4.85	22.38	33.01	-10.63
1914.30	1.4	QPSK	V	150	240	1 / 0	17.33	4.85	22.18	33.01	-10.83
1882.50	1.4	16-QAM	V	150	250	3 / 2	16.44	4.85	21.29	33.01	-11.72
1882.50	1.4	64-QAM	V	150	250	3 / 2	14.51	4.85	19.36	33.01	-13.65
1851.50	3	QPSK	V	150	255	1 / 0	16.32	4.79	21.11	33.01	-11.90
1882.50	3	QPSK	V	150	243	1 / 14	17.14	4.85	21.99	33.01	-11.02
1913.50	3	QPSK	V	150	238	1 / 0	17.24	4.85	22.09	33.01	-10.92
1913.50	3	16-QAM	V	150	238	1 / 0	16.37	4.85	21.22	33.01	-11.79
1913.50	3	64-QAM	V	150	238	1 / 0	14.54	4.85	19.39	33.01	-13.62
1852.50	5	QPSK	V	150	250	1 / 24	17.15	4.79	21.94	33.01	-11.07
1882.50	5	QPSK	V	150	243	1 / 0	16.49	4.85	21.34	33.01	-11.67
1912.50	5	QPSK	V	150	241	1 / 0	17.67	4.85	22.52	33.01	-10.49
1912.50	5	16-QAM	V	150	241	1 / 0	17.07	4.85	21.92	33.01	-11.09
1912.50	5	64-QAM	V	150	241	1 / 0	13.81	4.85	18.66	33.01	-14.35
1855.00	10	QPSK	V	150	242	1 / 0	17.71	4.80	22.51	33.01	-10.50
1882.50	10	QPSK	V	150	250	1 / 0	17.48	4.85	22.33	33.01	-10.68
1910.00	10	QPSK	V	150	245	1 / 0	17.61	4.86	22.47	33.01	-10.54
1855.00	10	16-QAM	V	150	242	1 / 0	16.67	4.80	21.47	33.01	-11.54
1855.00	10	64-QAM	V	150	242	1 / 0	15.35	4.80	20.15	33.01	-12.86
1857.50	15	QPSK	V	150	258	1 / 0	15.69	4.80	20.49	33.01	-12.52
1882.50	15	QPSK	V	150	256	1 / 0	16.23	4.85	21.08	33.01	-11.93
1907.50	15	QPSK	V	150	262	1 / 74	15.17	4.87	20.04	33.01	-12.97
1882.50	15	16-QAM	V	150	256	1 / 0	14.53	4.85	19.38	33.01	-13.63
1882.50	15	64-QAM	V	150	256	1 / 0	13.57	4.85	18.42	33.01	-14.59
1860.00	20	QPSK	V	150	254	1 / 0	15.82	4.81	20.63	33.01	-12.39
1882.50	20	QPSK	V	150	262	1 / 0	15.17	4.85	20.02	33.01	-12.99
1905.00	20	QPSK	V	150	257	1 / 0	15.16	4.87	20.03	33.01	-12.98
1860.00	20	16-QAM	V	150	254	1 / 0	15.13	4.81	19.94	33.01	-13.08
1860.00	20	64-QAM	V	150	254	1 / 0	13.91	4.81	18.72	33.01	-14.30
1912.50	5	QPSK	H	150	336	1 / 24	17.47	4.68	22.15	33.01	-10.86

Table 7-8. EIRP Data (Band 2/25)

FCC ID: ZNFG011C	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)				Approved by: Quality Manager
Test Report S/N: 1M1708030234-03-R2.ZNF	Test Dates: 8/09/2017-8/30/2017	EUT Type: Portable Handset			Page 22 of 40

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]
2307.50	5	QPSK	H	150	16	1 / 0	15.10	5.74	20.84	23.98	-3.14
2312.50	5	QPSK	H	150	20	1 / 0	14.91	5.74	20.65	23.98	-3.33
2307.50	5	16-QAM	H	150	16	1 / 0	14.76	5.74	20.50	23.98	-3.48
2307.50	5	64-QAM	H	150	16	1 / 0	13.61	5.74	19.35	23.98	-4.63
2310.00	10	QPSK	H	150	150	1 / 0	15.58	5.74	21.32	23.98	-2.66
2310.00	10	16-QAM	H	150	150	1 / 0	14.77	5.74	20.51	23.98	-3.47
2310.00	10	64-QAM	H	150	150	1 / 0	13.21	5.74	18.95	23.98	-5.03
2310.00	10	QPSK	V	150	310	1 / 0	13.61	5.57	19.18	23.98	-4.80

Table 7-9. EIRP Data (Band 30)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
Test Report S/N: 1M1708030234-03-R2.ZNF	Test Dates: 8/09/2017-8/30/2017	EUT Type: Portable Handset	Page 23 of 40	

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]
2502.50	5	QPSK	H	150	12	1 / 0	15.81	5.74	21.55	33.01	-11.46
2535.00	5	QPSK	H	150	8	1 / 0	15.67	5.86	21.53	33.01	-11.48
2567.50	5	QPSK	H	150	34	1 / 0	15.97	5.98	21.95	33.01	-11.06
2567.50	5	16-QAM	H	150	34	1 / 0	15.65	5.98	21.63	33.01	-11.38
2567.50	5	64-QAM	H	150	34	1 / 0	14.94	5.98	20.92	33.01	-12.09
2505.00	10	QPSK	H	150	10	1 / 0	16.27	5.75	22.02	33.01	-10.99
2535.00	10	QPSK	H	150	16	1 / 0	16.11	5.86	21.97	33.01	-11.04
2565.00	10	QPSK	H	150	5	1 / 0	16.18	5.97	22.15	33.01	-10.86
2565.00	10	16-QAM	H	150	5	1 / 0	15.58	5.97	21.55	33.01	-11.46
2565.00	10	64-QAM	H	150	5	1 / 0	14.78	5.97	20.75	33.01	-12.26
2507.50	15	QPSK	H	150	10	1 / 0	16.14	5.76	21.90	33.01	-11.11
2535.00	15	QPSK	H	150	16	1 / 0	16.42	5.86	22.28	33.01	-10.73
2562.50	15	QPSK	H	150	22	1 / 0	16.26	5.96	22.22	33.01	-10.79
2535.00	15	16-QAM	H	150	16	1 / 0	15.96	5.86	21.82	33.01	-11.19
2535.00	15	64-QAM	H	150	16	1 / 0	15.12	5.86	20.98	33.01	-12.03
2510.00	20	QPSK	H	150	25	1 / 0	16.27	5.77	22.04	33.01	-10.97
2535.00	20	QPSK	H	150	17	1 / 0	16.35	5.86	22.21	33.01	-10.80
2560.00	20	QPSK	H	150	32	1 / 0	16.28	5.95	22.23	33.01	-10.78
2560.00	20	16-QAM	H	150	32	1 / 0	15.46	5.95	21.41	33.01	-11.60
2560.00	20	64-QAM	H	150	32	1 / 0	14.80	5.95	20.75	33.01	-12.26
2535.00	15	QPSK	V	150	123	1 / 0	12.23	5.85	18.08	33.01	-14.93

Table 7-10. EIRP Data (Band 7)

FCC ID: ZNFG011C	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)				Approved by: Quality Manager
Test Report S/N: 1M1708030234-03-R2.ZNF	Test Dates: 8/09/2017-8/30/2017	EUT Type: Portable Handset			Page 24 of 40

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]
2498.50	5	QPSK	H	150	17	1 / 0	11.15	5.73	16.88	33.01	-16.13
2593.00	5	QPSK	H	150	17	1 / 0	16.62	6.07	22.69	33.01	-10.32
2687.50	5	QPSK	H	150	15	1 / 0	17.40	6.48	23.88	33.01	-9.13
2687.50	5	16-QAM	H	150	15	1 / 0	16.18	6.48	22.66	33.01	-10.35
2687.50	5	64-QAM	H	150	15	1 / 0	15.11	6.48	21.59	33.01	-11.42
2501.00	10	QPSK	H	150	6	1 / 49	12.32	5.73	18.05	33.01	-14.96
2593.00	10	QPSK	H	150	11	1 / 49	16.42	6.07	22.49	33.01	-10.52
2685.00	10	QPSK	H	150	12	1 / 0	17.49	6.47	23.96	33.01	-9.05
2685.00	10	16-QAM	H	150	12	1 / 0	15.60	6.47	22.07	33.01	-10.94
2685.00	10	64-QAM	H	150	12	1 / 0	13.55	6.47	20.02	33.01	-12.99
2503.50	15	QPSK	H	150	7	1 / 74	15.27	5.74	21.01	33.01	-12.00
2593.00	15	QPSK	H	150	9	1 / 0	15.93	6.07	22.00	33.01	-11.01
2682.50	15	QPSK	H	150	14	1 / 0	16.44	6.46	22.90	33.01	-10.11
2682.50	15	16-QAM	H	150	14	1 / 0	14.39	6.46	20.85	33.01	-12.16
2682.50	15	64-QAM	H	150	14	1 / 0	14.13	6.46	20.59	33.01	-12.42
2506.00	20	QPSK	H	150	11	1 / 99	14.73	5.75	20.48	33.01	-12.53
2593.00	20	QPSK	H	150	14	1 / 99	16.32	6.07	22.39	33.01	-10.62
2680.00	20	QPSK	H	150	16	1 / 0	16.03	6.45	22.48	33.01	-10.53
2506.00	20	16-QAM	H	150	11	1 / 99	14.38	5.75	20.13	33.01	-12.88
2506.00	20	64-QAM	H	150	11	1 / 99	12.33	5.75	18.08	33.01	-14.93
2685.00	10	QPSK	V	150	50	1 / 0	5.79	6.46	12.25	33.01	-20.76
2685.00	10	QPSK (PC3)	H	150	100	1 / 0	15.48	6.47	21.95	33.01	-11.06

Table 7-11. EIRP Data (Band 41)

Note:

The Class II Permissive Change test results reported herein are within the expected measurement tolerances of the original certification test results. It has been determined that the radiated powers did not change.

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7.3 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m) §27.53(a.4)

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.

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 $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

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

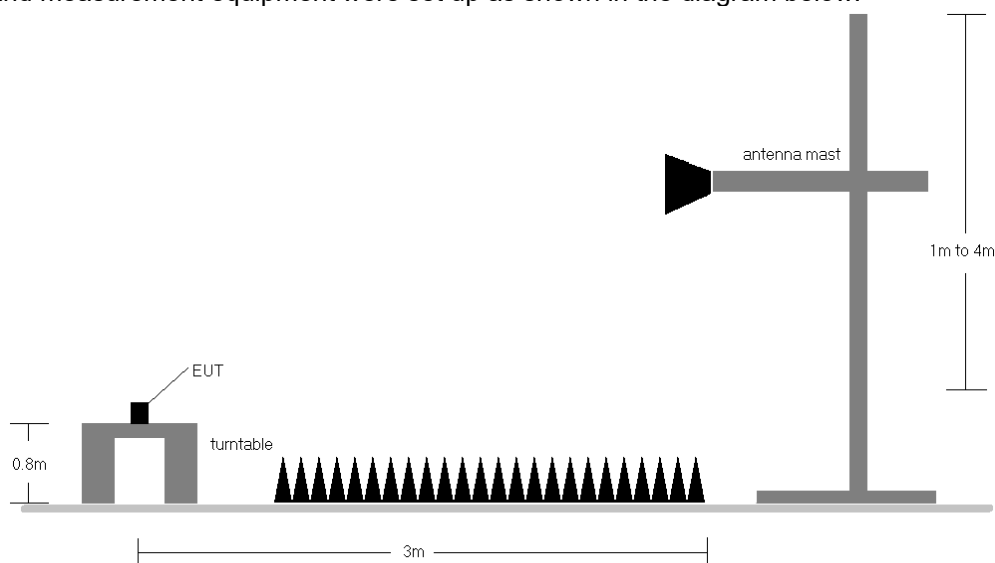


Figure 7-3. Test Instrument & Measurement Setup

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: ZNFG011C	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)	 LG	Approved by: Quality Manager
Test Report S/N: 1M1708030234-03-R2.ZNF	Test Dates: 8/09/2017-8/30/2017	EUT Type: Portable Handset		Page 27 of 40

OPERATING FREQUENCY: 699.70 MHz
 CHANNEL: 23017
 MEASURED OUTPUT POWER: 16.25 dBm = 0.042 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.25 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]
1399.40	H	-	-	-68.36	2.20	-66.17	82.4
2099.10	H	-	-	-65.12	3.10	-62.02	78.3

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

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 16.37 dBm = 0.043 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.37 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	-	-	-68.91	2.41	-66.50	82.9
2122.50	H	-	-	-65.44	3.16	-62.29	78.7

Table 7-13. Radiated Spurious Data (Band 12 – Mid Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 715.30 MHz
 CHANNEL: 23173
 MEASURED OUTPUT POWER: 17.67 dBm = 0.059 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 30.67 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]
1430.60	H	-	-	-69.14	2.62	-66.53	84.2
2145.90	H	-	-	-64.85	3.21	-61.64	79.3

Table 7-14. Radiated Spurious Data (Band 12 – High Channel)

OPERATING FREQUENCY: 779.50 MHz
 CHANNEL: 23205
 MEASURED OUTPUT POWER: 18.56 dBm = 0.072 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 31.56 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]
2338.50	H	-	-	-66.03	3.58	-62.45	81.0

Table 7-15. Radiated Spurious Data (Band 13 – Low Channel)

FCC ID: ZNFG011C	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)				Approved by: Quality Manager
Test Report S/N: 1M1708030234-03-R2.ZNF	Test Dates: 8/09/2017-8/30/2017	EUT Type: Portable Handset			Page 29 of 40

OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MEASURED OUTPUT POWER: 19.07 dBm = 0.081 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 32.07 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]
2346.00	H	-	-	-63.85	3.57	-60.27	79.3

Table 7-16. Radiated Spurious Data (Band 13 – Mid Channel)

OPERATING FREQUENCY: 784.50 MHz
 CHANNEL: 23255
 MEASURED OUTPUT POWER: 18.91 dBm = 0.078 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 31.91 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]
2353.50	H	-	-	-63.65	3.57	-60.08	79.0

Table 7-17. Radiated Spurious Data (Band 13 – High Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.00 MHz
 DISTANCE: 3 meters
 NARROWBAND EMISSION LIMIT: -50 dBm
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

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]	Margin [dB]
1559.00	H	-	-	-68.48	3.71	-64.76	-24.8
1564.00	H	-	-	-68.60	3.73	-64.87	-24.9
1569.00	H	-	-	-68.77	3.75	-65.02	-25.0

Table 7-18. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

OPERATING FREQUENCY: 829.00 MHz
 CHANNEL: 26840
 MEASURED OUTPUT POWER: 16.74 dBm = 0.047 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 29.74$ 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	-	-	-71.30	3.63	-67.67	84.4
2487.00	H	-	-	-66.61	3.58	-63.03	79.8

Table 7-19. Radiated Spurious Data (Band 5/26 – Low Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MEASURED OUTPUT POWER: 16.72 dBm = 0.047 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.72 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	-	-	-71.21	3.58	-67.64	84.4
2509.50	H	-	-	-66.66	3.62	-63.05	79.8

Table 7-20. Radiated Spurious Data (Band 5/26 – Mid Channel)

OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 26990
 MEASURED OUTPUT POWER: 16.66 dBm = 0.046 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.66 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	-	-	-70.89	3.52	-67.37	84.0
2532.00	H	-	-	-66.71	3.70	-63.01	79.7

Table 7-21. Radiated Spurious Data (Band 5/26 – High Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1720.00 MHz
 CHANNEL: 132072
 MEASURED OUTPUT POWER: 21.80 dBm = 0.151 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.80 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]
3440.00	H	-	-	-66.01	8.19	-57.82	79.6
5160.00	H	-	-	-65.55	10.25	-55.30	77.1

Table 7-22. Radiated Spurious Data (Band 4/66 – Low Channel)

OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 132322
 MEASURED OUTPUT POWER: 23.15 dBm = 0.207 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 36.15 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]
3490.00	H	-	-	-66.17	8.46	-57.71	80.9
5235.00	H	-	-	-64.82	10.28	-54.54	77.7

Table 7-23. Radiated Spurious Data (Band 4/66 – Mid Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1770.00 MHz
 CHANNEL: 132572
 MEASURED OUTPUT POWER: 21.63 dBm = 0.146 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.63 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]
3540.00	H	-	-	-66.38	8.52	-57.86	79.5
5310.00	H	-	-	-65.35	10.32	-55.03	76.7

Table 7-24. Radiated Spurious Data (Band 4/66 – High Channel)

OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 26065
 MEASURED OUTPUT POWER: 21.94 dBm = 0.156 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.94 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	H	-	-	-65.35	8.31	-57.04	79.0
5557.50	H	-	-	-65.42	10.54	-54.89	76.8

Table 7-25. Radiated Spurious Data (Band 2/25 – Low Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MEASURED OUTPUT POWER: 21.34 dBm = 0.136 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.34 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]
3765.00	H	271	317	-64.88	8.47	-56.41	77.7
5647.50	H	-	-	-65.97	10.60	-55.37	76.7

Table 7-26. Radiated Spurious Data (Band 2/25 – Mid Channel)

OPERATING FREQUENCY: 1912.50 MHz
 CHANNEL: 26665
 MEASURED OUTPUT POWER: 22.52 dBm = 0.179 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 35.52 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]
3825.00	H	210	208	-61.91	8.56	-53.35	75.9
5737.50	H	-	-	-65.39	10.66	-54.73	77.2

Table 7-27. Radiated Spurious Data (Band 2/25 – High Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2310.00 MHz
 CHANNEL: 27710
 MEASURED OUTPUT POWER: 21.32 dBm = 0.135 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $70 + 10 \log_{10}(W) =$ 61.32 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]
4620.00	V	-	-	-68.86	10.93	-57.94	79.3
6930.00	V	-	-	-61.21	11.76	-49.45	70.8

Table 7-28. Radiated Spurious Data (Band 30 – Mid Channel)

OPERATING FREQUENCY: 2507.50 MHz
 CHANNEL: 20825
 MEASURED OUTPUT POWER: 21.90 dBm = 0.155 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W) =$ 46.90 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]
5015.00	V	-	-	-64.70	10.14	-54.56	76.5
7522.50	V	-	-	-60.82	12.17	-48.65	70.5

Table 7-29. Radiated Spurious Data (Band 7 – Low Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2535.00 MHz
 CHANNEL: 21100
 MEASURED OUTPUT POWER: 22.28 dBm = 0.169 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 47.28 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]
5070.00	V	-	-	-64.75	10.27	-54.48	76.8
7605.00	V	-	-	-60.07	12.22	-47.85	70.1

Table 7-30. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY: 2562.50 MHz
 CHANNEL: 21375
 MEASURED OUTPUT POWER: 22.22 dBm = 0.167 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 47.22 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]
5125.00	V	-	-	-64.29	10.32	-53.97	76.2
7687.50	V	-	-	-60.16	12.33	-47.82	70.0

Table 7-31. Radiated Spurious Data (Band 7 – High Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2501.00 MHz
 CHANNEL: 39700
 MEASURED OUTPUT POWER: 18.05 dBm = 0.064 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 43.05 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]
5002.00	V	-	-	-64.60	10.10	-54.49	72.5
7503.00	V	-	-	-60.84	12.16	-48.68	66.7

Table 7-32. Radiated Spurious Data (Band 41 PC2– Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MEASURED OUTPUT POWER: 22.49 dBm = 0.178 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 47.49 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]
5186.00	V	120	270	-53.83	10.27	-43.57	66.1
7779.00	V	100	271	-60.13	12.34	-47.80	70.3
10372.00	V	-	-	-58.65	13.13	-45.53	68.0

Table 7-33. Radiated Spurious Data (Band 41 PC2– Mid Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2685.00 MHz
 CHANNEL: 41540
 MEASURED OUTPUT POWER: 23.96 dBm = 0.249 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 48.96 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]
5370.00	V	132	256	-56.04	10.46	-45.58	69.5
8055.00	V	137	258	-57.19	12.69	-44.50	68.5
10740.00	V	-	-	-59.02	13.12	-45.90	69.9

Table 7-34. Radiated Spurious Data (Band 41 PC2– High Channel)

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Quality Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFG011C** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

FCC ID: ZNFG011C		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Quality Manager
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