

MEASUREMENT REPORT

Part 96 LTE

Applicant Name:

LG Electronics USA, Inc.

1000 Sylvan Avenue

Englewood Cliffs, NJ 07632

United States

Date of Testing:

1/15/2019 - 2/7/2019

Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.:

1M1810250193-16-R1.ZNF

FCC ID:

ZNFG820UM

APPLICANT:

LG Electronics USA, Inc.

Application Type:

Class II Permissive Change

Model:

LM-G820UM

Additional Model(s):

LM-G820UM, LMG820UM, G820UM, LM-G820TM, LMG820TM, G820TM, LM-G820QM, LMG820QM, G820QM, LM-G820QM5, LMG820QM5, G820QM5, LM-G820QM6, LMG820QM6, G820QM6

EUT Type:

Portable Handset

FCC Classification:

Citizens Band End User Devices (CBE)

FCC Rule Part(s):

96

Test Procedure(s):

KDB 648474 D03 v01r04, KDB 940660 D01 v01, WINNF-TS-0122 V1.0.0

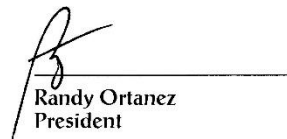
Class II Permissive Change:

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 revised Test Report (S/N: 1M1810250193-16-R1.ZNF) supersedes and replaces the previously issued test report (S/N: 1M1810250193-16.ZNF) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

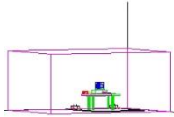


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T A B L E O F C O N T E N T S

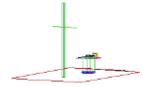
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FCC Part 96



Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
LTE Band 48	27	3552.5 - 3697.5	0.039	15.86	4M54G7D	QPSK
LTE Band 48	27	3552.5 - 3697.5	0.025	13.94	4M55W7D	16QAM
LTE Band 48	27	3552.5 - 3697.5	0.021	13.17	4M51W7D	64QAM
LTE Band 48	27	3555 - 3695	0.061	17.89	9M03G7D	QPSK
LTE Band 48	27	3555 - 3695	0.041	16.11	9M00W7D	16QAM
LTE Band 48	27	3555 - 3695	0.026	14.07	9M03W7D	64QAM
LTE Band 48	27	3557.5 - 3692.5	0.055	17.39	13M5G7D	QPSK
LTE Band 48	27	3557.5 - 3692.5	0.035	15.50	13M5W7D	16QAM
LTE Band 48	27	3557.5 - 3692.5	0.036	15.57	13M5W7D	64QAM
LTE Band 48	27	3560 - 3690	0.060	17.77	18M1G7D	QPSK
LTE Band 48	27	3560 - 3690	0.050	16.99	18M0W7D	16QAM
LTE Band 48	27	3560 - 3690	0.031	14.89	18M0W7D	64QAM

EUT Overview (B48 LTE)

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1.0 INTRODUCTION

1.1 Scope

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

1.2 PCTEST Test Location

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

1.3 Test Facility / Accreditations

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

- PCTEST is a CBRS Alliance (OnGo) Approved Test Lab
- PCTEST is a WinnForum Approved Test Lab
- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for CBRS Alliance Certification Test Plan and WinnForum Conformance and Performance Test Technical Standard.
- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISSED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISSED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFG820UM**. The test data contained in this report pertains only to the emissions due to the EUT's LTE Band 48 operation in the CBRS band.

Test Device Serial No.: 03864, 03856

2.2 Device Capabilities

This device contains the following capabilities:

800/850/1900 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

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT placed on an authorized wireless charging pad (WCP) Model: PWMA-W815A while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

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-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

3.2 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v03r01.

Per the guidance of ANSI/TIA-603-E-2016, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

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

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

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

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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)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	LTx3	Licensed Transmitter Cable Set	8/23/2018	Annual	8/23/2019	LTx3
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	2/24/2019	US46470561
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2017	Biennial	10/10/2019	121034
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	9/17/2018	Annual	9/17/2019	441119
Espec	ESX-2CA	Environmental Chamber	3/28/2018	Annual	3/28/2019	17620
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/28/2018	Biennial	3/28/2020	128337
Mini Circuits	TVA-11-422	RF Power Amp	N/A			QA1317001
Mini-Circuits	PWR-SEN-4RMS	USB Power Sensor	3/30/2018	Annual	3/30/2019	11210140001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Rohde & Schwarz	CMW500	Radio Communication Tester	6/8/2018	Annual	6/8/2019	112347
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	5/21/2018	Annual	5/21/2019	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	8/9/2018	Annual	8/9/2019	100348
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	6/18/2018	Annual	6/18/2019	102134
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	9/19/2018	Annual	9/19/2019	100040
Rohde & Schwarz	TS-PR40	26.5-40 GHz Pre-Amplifier	9/19/2018	Annual	9/19/2019	100037
Ruckus Wireless	Q710	SmartCell Q710 Access Point	N/A			511729000096
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	4/30/2018	Biennial	4/30/2020	9105-2404
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	4/30/2018	Biennial	4/30/2020	9105-2403
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	N/A
Sunol	DRH-118	Horn Antenna (1-18GHz)	8/11/2017	Biennial	8/11/2019	A050307
Sunol	DRH-118	Horn Antenna (1-18 GHz)	8/11/2017	Biennial	8/11/2019	A042511

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

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 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 USA, Inc.
 FCC ID: ZNFG820UM
 FCC Classification: Citizens Band End User Devices (CBE)
 Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
96.41(b)	Equivalent Isotropic Radiated Power (EIRP)	23 dBm/10MHz	RADIATED	PASS	Section 7.2
2.1053 96.41(e)	Undesirable Emissions	-40 dBm/MHz			Section 7.3

Table 7-1. Summary of Radiated Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "LTE Automation," Version 4.8.

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7.2 Radiated Power (EIRP)

§96.41(b)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating 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 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
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".
8. The integration bandwidth was set equal to 10MHz.
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.

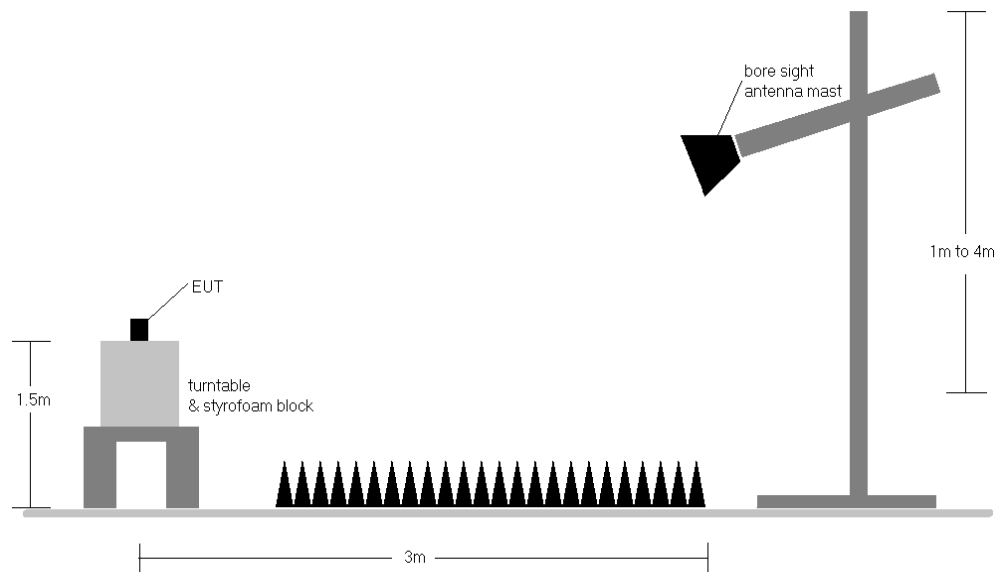


Figure 7-1. Radiated Test Setup >1GHz

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 worst case EIRP shown in this section is found with LTE operating only using 1RB. As such, the EIRP/10MHz and full channel EIRP values will be identical since 1RB is fully contained within all available channel bandwidths for LTE Band 48 (i.e. 5, 10, 15, 20MHz).

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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/10MHz]	EIRP [Watts]	EIRP Limit [dBm/10MHz]	Margin [dB]
3552.50	5	QPSK	H	246	6	1 / 24	6.42	6.59	13.01	0.020	23.00	-9.99
3625.00	5	QPSK	H	277	7	1 / 24	8.39	6.03	14.42	0.028	23.00	-8.58
3697.50	5	QPSK	H	268	13	1 / 24	10.37	5.49	15.86	0.039	23.00	-7.14
3697.50	5	16-QAM	H	268	13	1 / 24	8.45	5.49	13.94	0.025	23.00	-9.06
3697.50	5	64-QAM	H	268	13	1 / 24	7.68	5.49	13.17	0.021	23.00	-9.83
3555.00	10	QPSK	H	285	53	1 / 49	10.12	6.57	16.69	0.047	23.00	-6.31
3625.00	10	QPSK	H	277	57	1 / 49	11.47	6.03	17.50	0.056	23.00	-5.50
3695.00	10	QPSK	H	391	57	1 / 49	12.38	5.51	17.89	0.061	23.00	-5.11
3695.00	10	16-QAM	H	391	57	1 / 49	10.60	5.51	16.11	0.041	23.00	-6.89
3695.00	10	64-QAM	H	391	57	1 / 49	8.56	5.51	14.07	0.026	23.00	-8.93
3557.50	15	QPSK	H	269	49	1 / 0	10.27	6.55	16.82	0.048	23.00	-6.18
3625.00	15	QPSK	H	276	51	1 / 74	10.97	6.03	17.00	0.050	23.00	-6.00
3692.50	15	QPSK	H	115	326	1 / 74	11.86	5.53	17.39	0.055	23.00	-5.61
3692.50	15	16-QAM	H	115	326	1 / 74	9.97	5.53	15.50	0.035	23.00	-7.50
3692.50	15	64-QAM	H	115	326	1 / 74	10.04	5.53	15.57	0.036	23.00	-7.43
3560.00	20	QPSK	H	283	51	1 / 99	10.03	6.53	16.56	0.045	23.00	-6.44
3625.00	20	QPSK	H	277	57	1 / 0	10.94	6.03	16.97	0.050	23.00	-6.03
3690.00	20	QPSK	H	291	56	1 / 99	12.23	5.54	17.77	0.060	23.00	-5.23
3625.00	20	16-QAM	H	277	57	1 / 0	10.96	6.03	16.99	0.050	23.00	-6.01
3690.00	20	64-QAM	H	291	56	1 / 99	9.35	5.54	14.89	0.031	23.00	-8.11
3695.00	10	QPSK	V	102	290	1 / 49	10.32	6.57	16.89	0.049	23.00	-6.11
3695.00	10 (WCP)	QPSK	H	148	349	1 / 49	8.57	6.57	15.14	0.033	23.00	-7.86

Table 7-2. EIRP Data (Band 48)

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7.3 Radiated Spurious Emissions Measurements

§2.1053 §96.41(e)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using 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 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ 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.

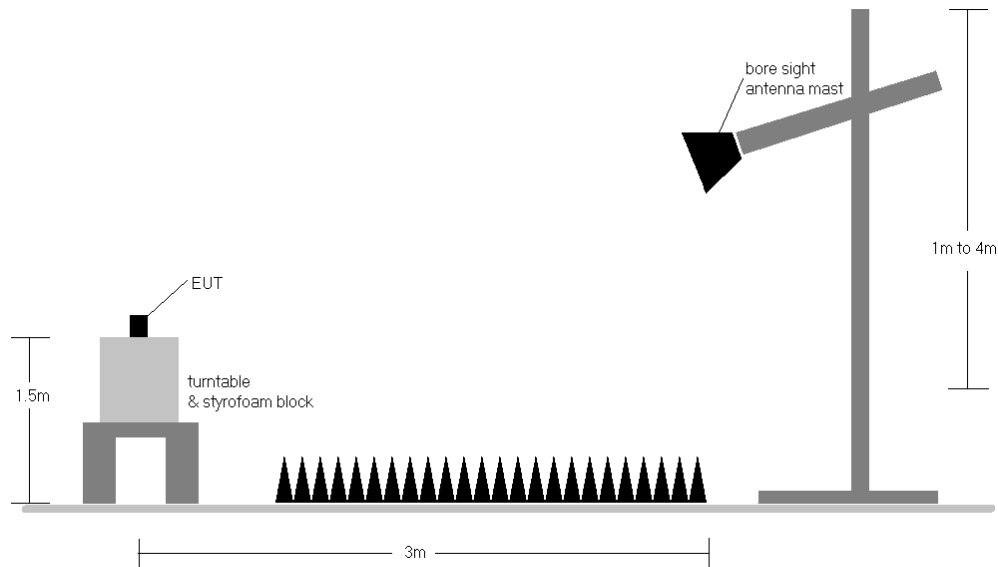


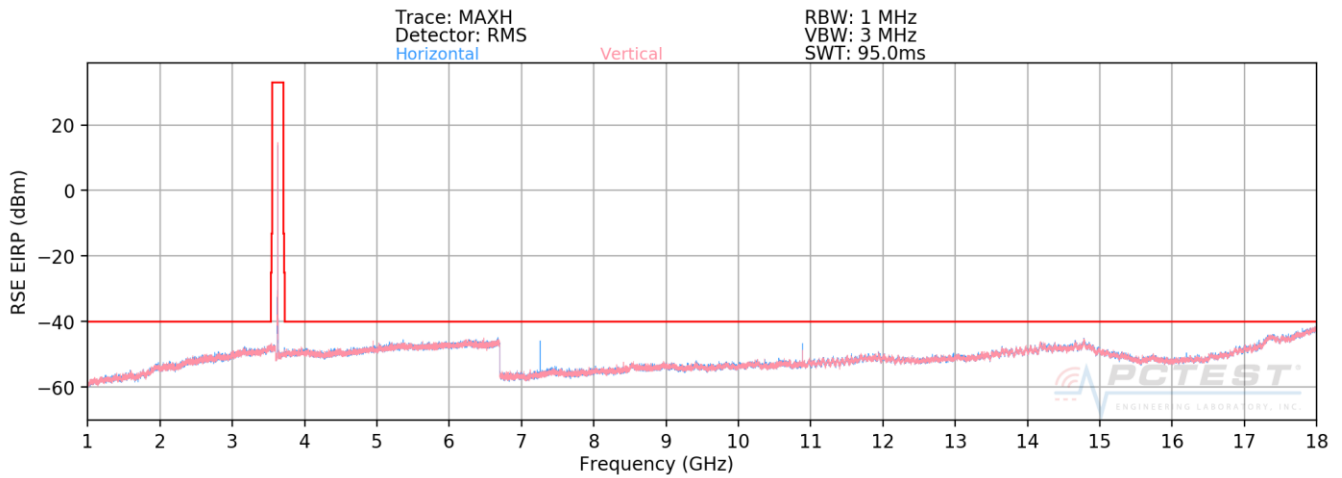
Figure 7-2. Test Instrument & Measurement Setup

Test Notes

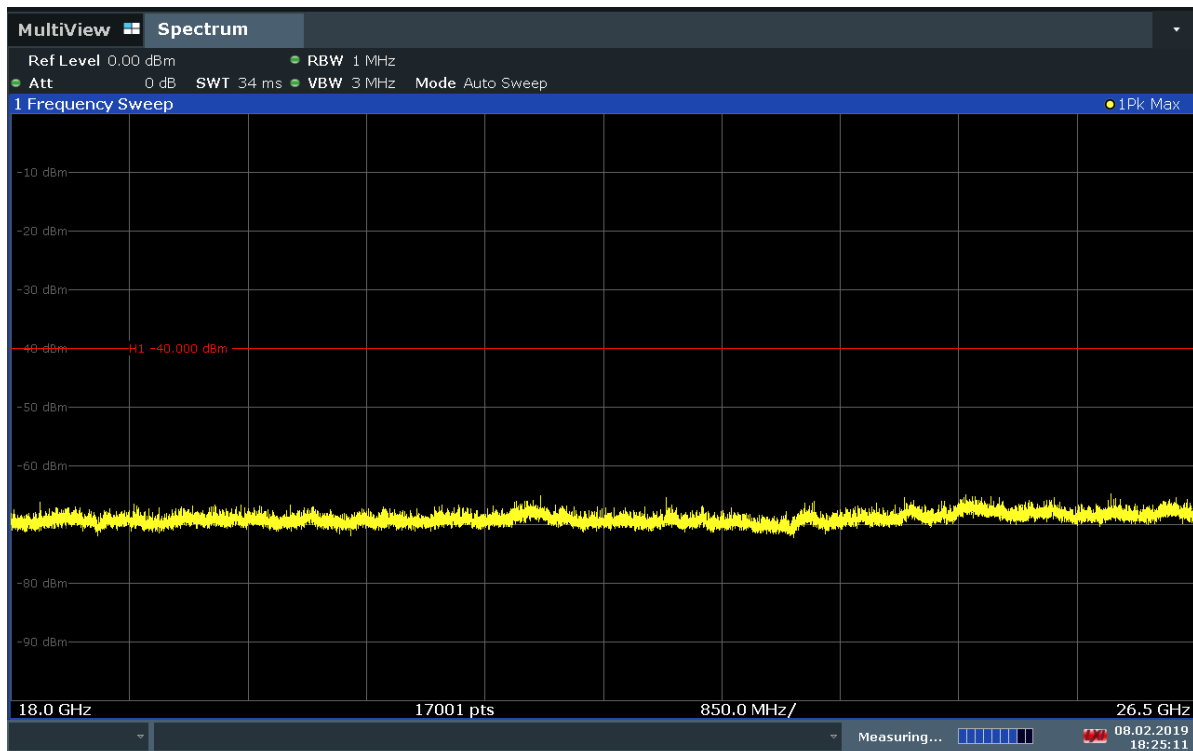
- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with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

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Band 48



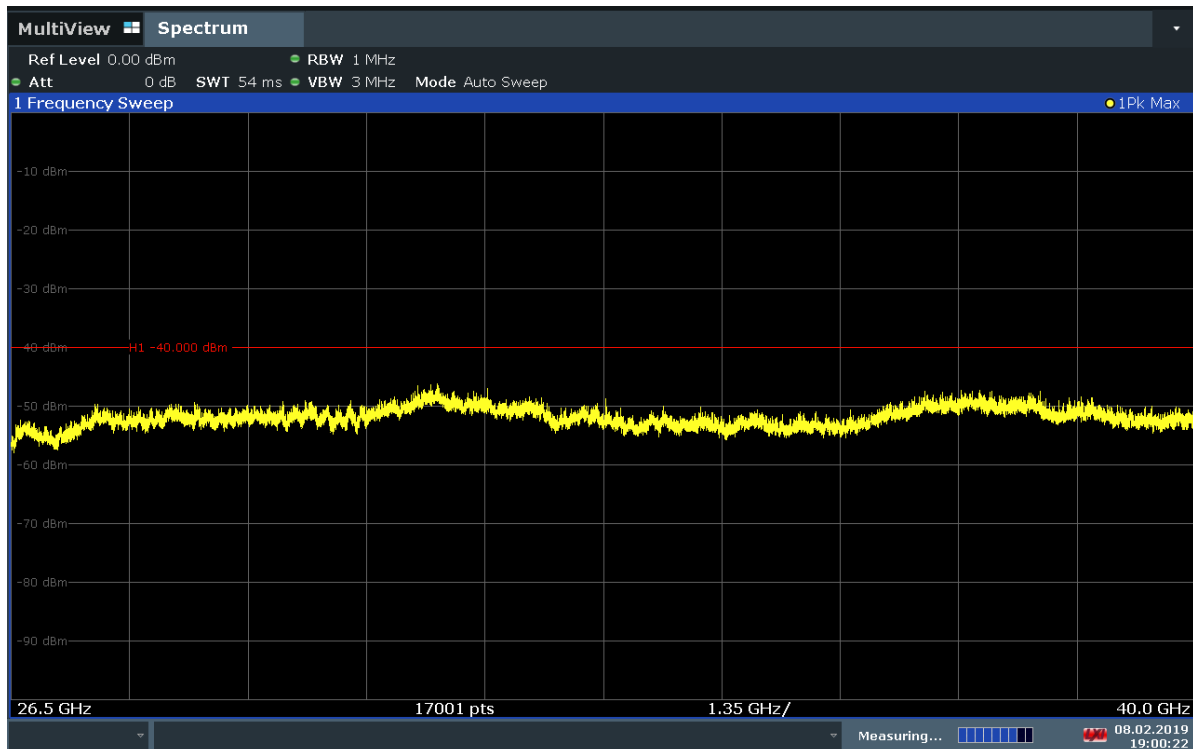
Plot 7-1. Radiated Spurious Plot 1GHz - 18GHz (Band 48)



18:25:12 08.02.2019

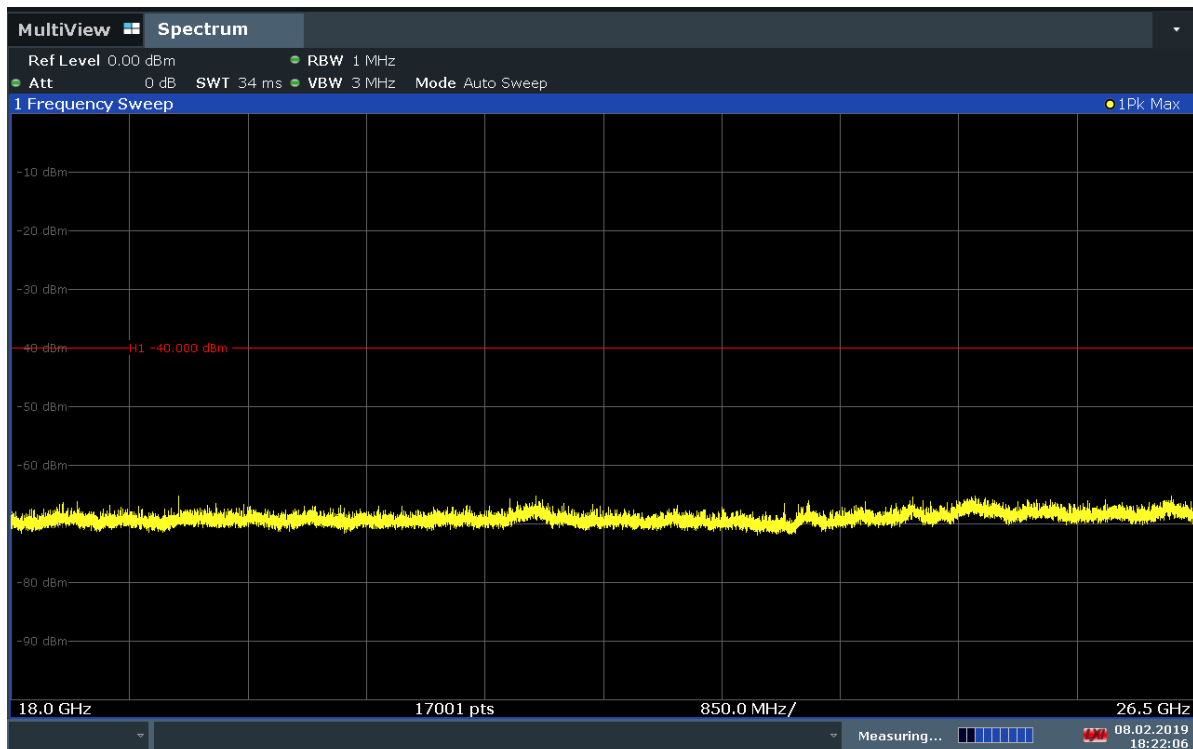
Plot 7-2. Radiated Spurious Plot 18GHz – 26.5GHz (Band 48) - H

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19:00:22 08.02.2019

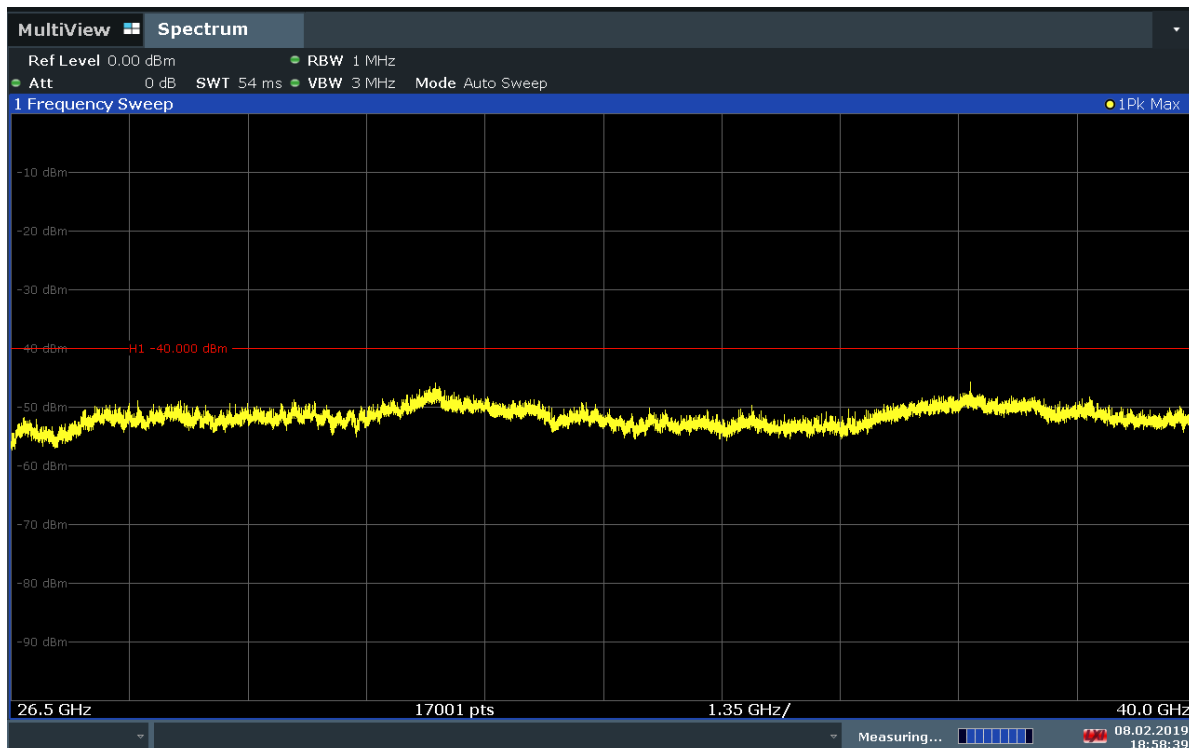
Plot 7-3. Radiated Spurious Plot 26.5GHz – 40GHz (Band 48) - V



18:22:07 08.02.2019

Plot 7-4. Radiated Spurious Plot 18GHz – 26.5GHz (Band 48) - H

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18:58:40 08.02.2019

Plot 7-5. Radiated Spurious Plot 26.5GHz – 40GHz (Band 48) - V

OPERATING FREQUENCY: 3555.00 MHz
 CHANNEL: 55290
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
7110.00	H	364	55	-66.99	11.73	-55.26	-15.3
10665.00	H	238	1	-64.56	12.56	-52.01	-12.0
14220.00	H	219	3	-60.81	11.37	-49.43	-9.4
17775.00	H	181	11	-57.72	10.28	-47.44	-7.4

Table 7-3. Radiated Spurious Data (Band 48 – Low Channel)

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OPERATING FREQUENCY: 3625.00 MHz
 CHANNEL: 55990
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
7250.00	H	253	70	-64.25	11.32	-52.94	-12.9
10875.00	H	218	8	-64.86	12.71	-52.15	-12.2
14500.00	H	173	12	-62.24	11.61	-50.63	-10.6

Table 7-4. Radiated Spurious Data (Band 48 – Mid Channel)

OPERATING FREQUENCY: 3695.00 MHz
 CHANNEL: 56690
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
7390.00	H	298	69	-64.01	10.96	-53.05	-13.1
11085.00	H	223	29	-67.13	12.72	-54.41	-14.4
14780.00	H	187	61	-61.75	12.10	-49.65	-9.6

Table 7-5. Radiated Spurious Data (Band 48 – High Channel)

FCC ID: ZNFG820UM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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OPERATING FREQUENCY: 3695.00 MHz
 CHANNEL: 56690
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
7390.00	H	207	1	-63.78	10.96	-52.82	-12.8
11085.00	H	286	322	-61.95	12.72	-49.23	-9.2
14780.00	H	133	254	-60.16	12.10	-48.06	-8.1

Table 7-6. Radiated Spurious Data with WCP (Band 48 – 56690 High Channel)

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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: ZNFG820UM** complies with all of the End User Device requirements of Part 96 of the FCC Rules for LTE operation only.

FCC ID: ZNFG820UM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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