PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. 410.290.6652 / Fax 410.290.6654
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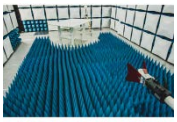

MEASUREMENT REPORT
LTE

Applicant Name:
LG Electronics USA, Inc.
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
3/21/2019-5/3/2019
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M1903070034-03-R1.ZNF

FCC ID:	**ZNFV450VM**
APPLICANT:	**LG Electronics USA, Inc.**

Application Type:	Class II Permissive Change
Model:	LM-V450VM
Additional Model(s):	LMV450VM, V450VM
EUT Type:	Portable Handset
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	22, 24, & 27
Test Procedure(s):	ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01, KDB 648474 D03 v01r04
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: 1M1903070034-03-R1.ZNF) supersedes and replaces the previously issued test report 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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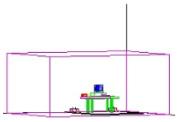
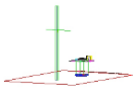


MEASUREMENT REPORT
FCC Part 22, 24, & 27



Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)	
LTE Band 13	27	779.5 - 784.5	0.074	18.66	0.121	20.81	QPSK
LTE Band 13	27	779.5 - 784.5	0.056	17.51	0.092	19.66	16QAM
LTE Band 13	27	779.5 - 784.5	0.040	15.99	0.065	18.14	64QAM
LTE Band 13	27	782	0.072	18.54	0.117	20.69	QPSK
LTE Band 13	27	782	0.052	17.19	0.086	19.34	16QAM
LTE Band 13	27	782	0.037	15.70	0.061	17.85	64QAM
LTE Band 5	22H	824.7 - 848.3	0.040	16.03	0.066	18.18	QPSK
LTE Band 5	22H	824.7 - 848.3	0.030	14.81	0.050	16.96	16QAM
LTE Band 5	22H	824.7 - 848.3	0.025	13.93	0.041	16.08	64QAM
LTE Band 5	22H	825.5 - 847.5	0.039	15.94	0.064	18.09	QPSK
LTE Band 5	22H	825.5 - 847.5	0.030	14.72	0.049	16.87	16QAM
LTE Band 5	22H	825.5 - 847.5	0.025	14.05	0.042	16.20	64QAM
LTE Band 5	22H	826.5 - 846.5	0.041	16.14	0.067	18.29	QPSK
LTE Band 5	22H	826.5 - 846.5	0.030	14.76	0.049	16.91	16QAM
LTE Band 5	22H	826.5 - 846.5	0.025	13.93	0.041	16.08	64QAM
LTE Band 5	22H	829 - 844	0.044	16.39	0.071	18.54	QPSK
LTE Band 5	22H	829 - 844	0.032	15.06	0.053	17.21	16QAM
LTE Band 5	22H	829 - 844	0.025	13.99	0.041	16.14	64QAM

EUT Overview (<1 GHz)

Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	
LTE Band 66/4	27	1710.7 - 1779.3	0.138	21.40	QPSK
LTE Band 66/4	27	1710.7 - 1779.3	0.124	20.95	16QAM
LTE Band 66/4	27	1710.7 - 1779.3	0.097	19.86	64QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.152	21.83	QPSK
LTE Band 66/4	27	1711.5 - 1778.5	0.137	21.36	16QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.106	20.26	64QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.171	22.34	QPSK
LTE Band 66/4	27	1712.5 - 1777.5	0.161	22.07	16QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.121	20.82	64QAM
LTE Band 66/4	27	1715 - 1775	0.170	22.31	QPSK
LTE Band 66/4	27	1715 - 1775	0.150	21.76	16QAM
LTE Band 66/4	27	1715 - 1775	0.121	20.84	64QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.165	22.19	QPSK
LTE Band 66/4	27	1717.5 - 1772.5	0.144	21.58	16QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.116	20.63	64QAM
LTE Band 66/4	27	1720 - 1770	0.175	22.43	QPSK
LTE Band 66/4	27	1720 - 1770	0.168	22.27	16QAM
LTE Band 66/4	27	1720 - 1770	0.134	21.27	64QAM
LTE Band 2	24E	1850.7 - 1909.3	0.307	24.87	QPSK
LTE Band 2	24E	1850.7 - 1909.3	0.261	24.16	16QAM
LTE Band 2	24E	1850.7 - 1909.3	0.224	23.51	64QAM
LTE Band 2	24E	1851.5 - 1908.5	0.299	24.75	QPSK
LTE Band 2	24E	1851.5 - 1908.5	0.262	24.19	16QAM
LTE Band 2	24E	1851.5 - 1908.5	0.210	23.23	64QAM
LTE Band 2	24E	1852.5 - 1907.5	0.296	24.72	QPSK
LTE Band 2	24E	1852.5 - 1907.5	0.248	23.94	16QAM
LTE Band 2	24E	1852.5 - 1907.5	0.205	23.12	64QAM
LTE Band 2	24E	1855 - 1905	0.308	24.89	QPSK
LTE Band 2	24E	1855 - 1905	0.249	23.96	16QAM
LTE Band 2	24E	1855 - 1905	0.219	23.40	64QAM
LTE Band 2	24E	1857.5 - 1902.5	0.284	24.54	QPSK
LTE Band 2	24E	1857.5 - 1902.5	0.245	23.89	16QAM
LTE Band 2	24E	1857.5 - 1902.5	0.202	23.05	64QAM
LTE Band 2	24E	1860 - 1900	0.284	24.54	QPSK
LTE Band 2	24E	1860 - 1900	0.244	23.88	16QAM
LTE Band 2	24E	1860 - 1900	0.210	23.23	64QAM

EUT Overview (Mid Bands)

1.0 INTRODUCTION

1.1 Scope

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

1.2 PCTEST Test Location

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

1.3 Test Facility / Accreditations

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

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFV450VM**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 05763, 05748, 05763, 05706

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ac WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC, 5G NR Bands n261/n260

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

2.3 Test Configuration

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

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 lying flat on an authorized wireless charging pad (WCP) FCC ID: EP-N5100 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.

3.0 DESCRIPTION OF TESTS

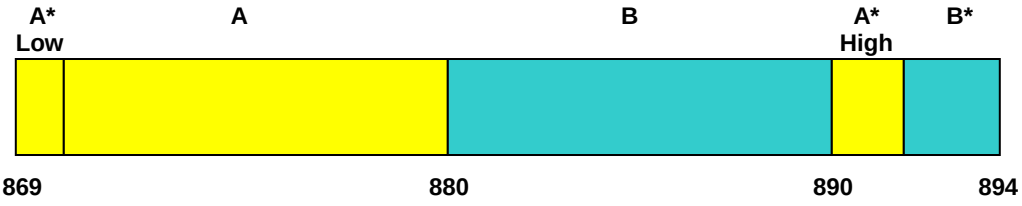
3.1 Measurement Procedure

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

3.2 Block C Frequency Range

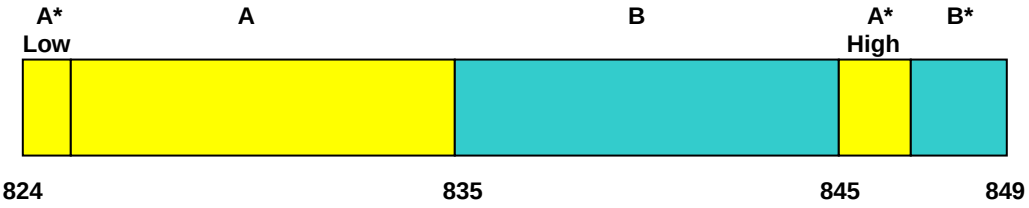
Two paired channels of 11 megahertz each are available for assignment in Block C in the 746-757 MHz and 776-787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results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

3.3 Cellular - Base Frequency Blocks



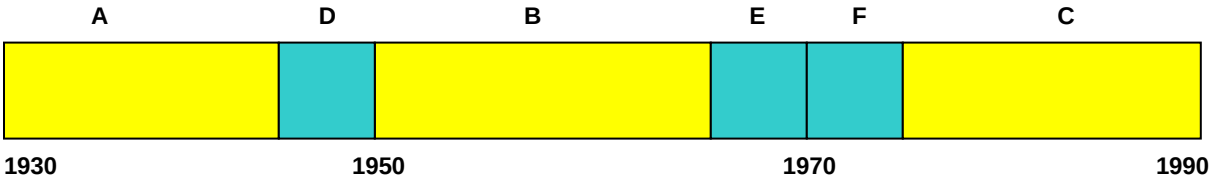
BLOCK 1: 869 – 880 MHz (A* Low + A)
BLOCK 2: 880 – 890 MHz (B)
BLOCK 3: 890 – 891.5 MHz (A* High)
BLOCK 4: 891.5 – 894 MHz (B*)

3.4 Cellular - Mobile Frequency Blocks



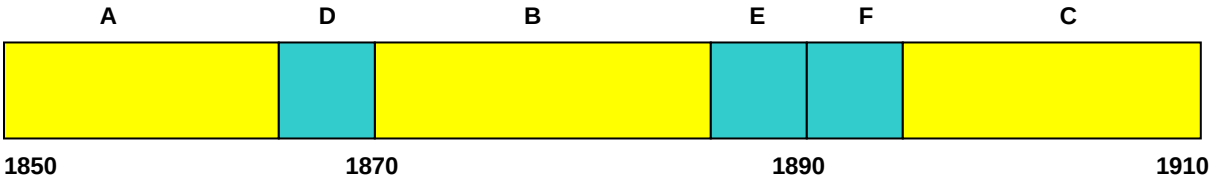
BLOCK 1: 824 – 835 MHz (A* Low + A)
BLOCK 2: 835 – 845 MHz (B)
BLOCK 3: 845 – 846.5 MHz (A* High)
BLOCK 4: 846.5 – 849 MHz (B*)

3.5 PCS - Base Frequency Blocks



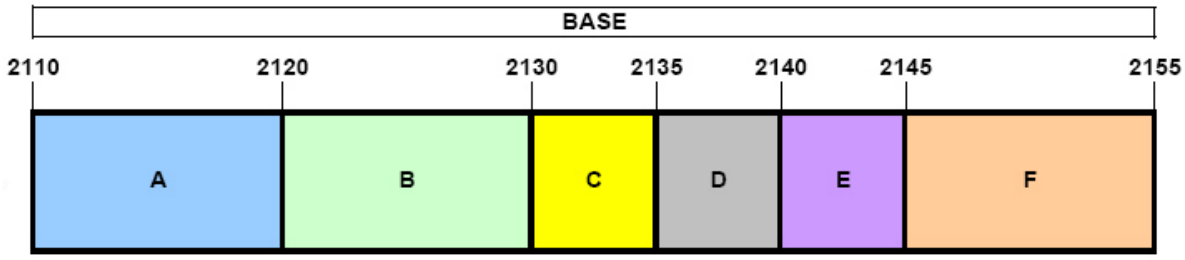
BLOCK 1: 1930 – 1945 MHz (A)
BLOCK 2: 1945 – 1950 MHz (D)
BLOCK 3: 1950 – 1965 MHz (B)
BLOCK 4: 1965 – 1970 MHz (E)
BLOCK 5: 1970 – 1975 MHz (F)
BLOCK 6: 1975 – 1990 MHz (C)

3.6 PCS - Mobile Frequency Blocks



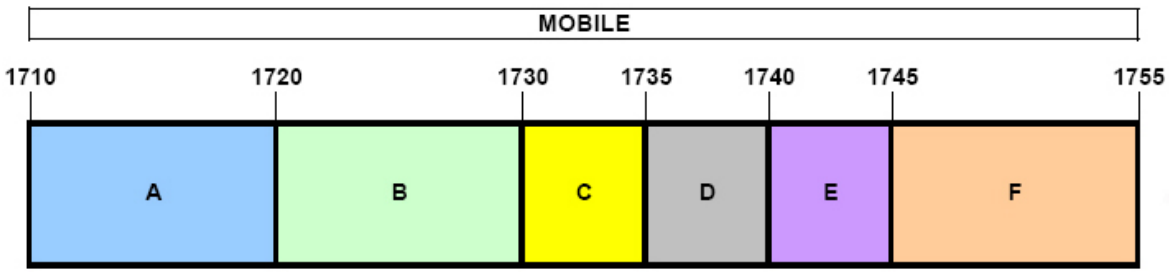
BLOCK 1: 1850 – 1865 MHz (A)
BLOCK 2: 1865 – 1870 MHz (D)
BLOCK 3: 1870 – 1885 MHz (B)
BLOCK 4: 1885 – 1890 MHz (E)
BLOCK 5: 1890 – 1895 MHz (F)
BLOCK 6: 1895 – 1910 MHz (C)

3.7 AWS - Base Frequency Blocks



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



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)

3.9 CBRS Band Frequency Range

The Citizens Broadband Radio Service (CBRS) is authorized in the 3550 – 3700 MHz frequency band. General Authorized Access Users may operate in the 3550 – 3700 MHz band, while Priority Access Users shall be authorized to use a 10 MHz channel in the 3550 – 3650 MHz band.

3.10 Radiated Power and Radiated Spurious Emissions

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

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

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

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]}$$

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 $P_{g\ [dBm]}$ – cable loss $_{[dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10 $\log_{10}$(Power $_{[Watts]}$). For Band 48, 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 $\log_{10}$(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.

4.0 MEASUREMENT UNCERTAINTY

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

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2017	Biennial	10/10/2019	121034
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/9/2018	Biennial	8/9/2020	135427
Espec	ESX-2CA	Environmental Chamber	4/28/2018	Annual	4/28/2019	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-4GHS	USB Power Sensor	4/30/2018	Annual	4/30/2019	11401010036
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Rohde & Schwarz	TC-TA18	Vivaldi Antenna	8/17/2018	Biennial	8/17/2020	101072
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	9/19/2018	Annual	9/19/2019	100040
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	CMW500	Radio Communication Tester	11/14/2018	Annual	11/14/2019	100976
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	6/18/2018	Annual	6/18/2019	102134
Sunol	DRH-118	Horn Antenna (1-18GHz)	8/11/2017	Biennial	8/11/2019	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107

Table 5-1. Test Equipment

Notes:

1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

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

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

7.0 TEST RESULTS

7.1 Summary

Company Name: LG Electronics USA, Inc.

FCC ID: ZNFV450VM

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 5)	< 7 Watts max. ERP	RADIATED	PASS	Section 7.2
27.50(b)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 13)	< 3 Watts max. ERP			Section 7.2
24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	< 2 Watts max. EIRP			Section 7.2
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 66/4)	< 1 Watts max. EIRP			Section 7.2
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(h)	Undesirable Emissions	> 43 + 10 $\log_{10}$ (P[Watts]) for all out-of-band emissions			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			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.

7.2 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally 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 ≥ 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

Test Setup

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

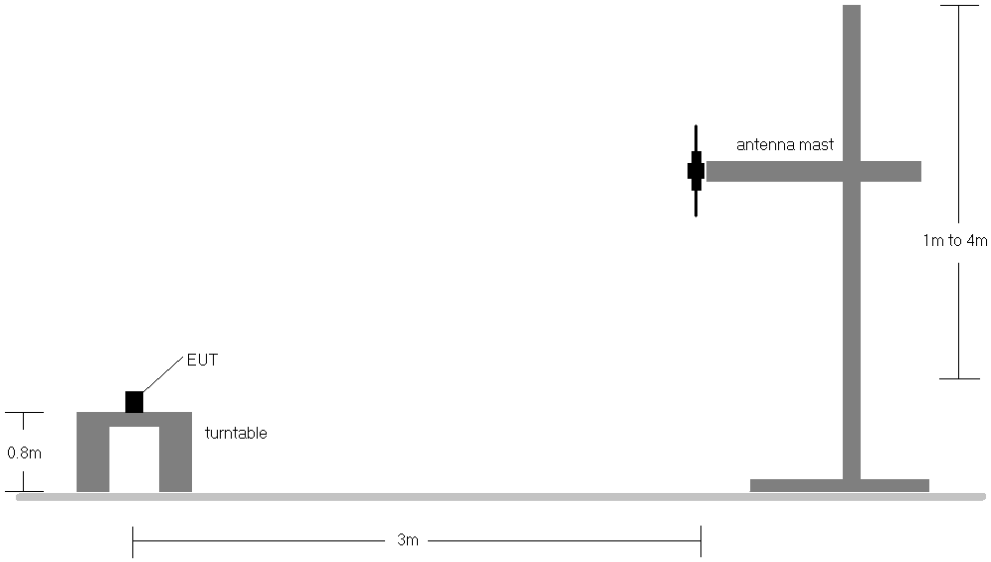


Figure 7-1. Radiated Test Setup <1GHz

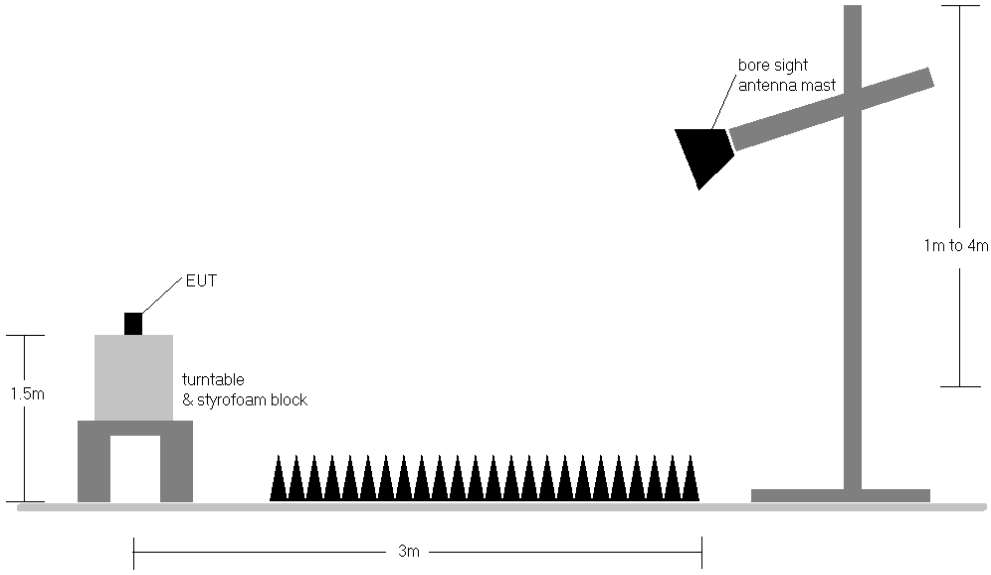


Figure 7-2. Radiated Test Setup >1GHz

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.

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
779.50	5 (WCP)	QPSK	H	240	328	1 / 0	14.72	6.09	18.66	0.073	34.77	-16.11
782.00	5 (WCP)	QPSK	H	223	381	1 / 0	14.68	6.13	**18.66**	**0.074**	34.77	-16.11
784.50	5 (WCP)	QPSK	H	220	108	1 / 0	14.58	6.18	18.61	0.073	34.77	-16.16
782.00	5 (WCP)	16-QAM	H	223	381	1 / 0	13.20	6.46	**17.51**	0.056	34.77	-17.26
782.00	5 (WCP)	64-QAM	H	223	381	1 / 0	12.01	6.13	**15.99**	0.040	34.77	-18.78
782.00	10 (WCP)	QPSK	H	249	120	1 / 0	14.56	6.13	**18.54**	0.072	34.77	-16.23
782.00	10 (WCP)	16-QAM	H	249	120	1 / 0	13.21	6.13	**17.19**	0.052	34.77	-17.58
782.00	10 (WCP)	64-QAM	H	249	120	1 / 0	11.72	6.13	**15.70**	0.037	34.77	-19.07
782.00	5 (WCP)	QPSK	V	108	251	1 / 0	11.17	6.46	15.48	0.035	34.77	-19.29
782.00	5	QPSK	H	226	108	1 / 0	13.11	6.13	17.09	0.051	34.77	-17.68

Table 7-2. ERP Data (Band 13)

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	200	128	1 / 5	11.29	6.89	**16.03**	0.040	38.45	-22.42
836.50	1.4	QPSK	H	208	138	1 / 0	10.99	7.08	15.92	0.039	38.45	-22.53
848.30	1.4	QPSK	H	211	130	1 / 0	10.54	7.28	15.67	0.037	38.45	-22.78
824.70	1.4	16-QAM	H	200	128	1 / 5	10.07	6.89	14.81	0.030	38.45	-23.64
824.70	1.4	64-QAM	H	200	128	1 / 5	9.19	6.89	13.93	0.025	38.45	-24.52
825.50	3	QPSK	H	200	153	1 / 14	11.19	6.90	**15.94**	0.039	38.45	-22.51
836.50	3	QPSK	H	198	128	1 / 0	10.97	7.08	15.90	0.039	38.45	-22.55
847.50	3	QPSK	H	208	137	1 / 0	10.57	7.26	15.68	0.037	38.45	-22.77
825.50	3	16-QAM	H	200	153	1 / 14	9.97	6.90	14.72	0.030	38.45	-23.73
825.50	3	64-QAM	H	200	153	1 / 14	9.30	6.90	14.05	0.025	38.45	-24.40
826.50	5	QPSK	H	200	138	1 / 24	11.37	6.92	**16.14**	0.041	38.45	-22.31
836.50	5	QPSK	H	205	128	1 / 0	11.20	7.08	16.13	0.041	38.45	-22.32
846.50	5	QPSK	H	207	129	1 / 0	10.67	7.25	15.77	0.038	38.45	-22.68
826.50	5	16-QAM	H	200	138	1 / 24	9.99	6.92	14.76	0.030	38.45	-23.69
826.50	5	64-QAM	H	200	138	1 / 24	9.16	6.92	13.93	0.025	38.45	-24.52
829.00	10	QPSK	H	208	129	1 / 49	11.58	6.96	**16.39**	**0.044**	38.45	-22.06
836.50	10	QPSK	H	216	119	1 / 0	11.36	7.08	16.29	0.043	38.45	-22.16
844.00	10	QPSK	H	217	122	1 / 0	10.95	7.21	16.01	0.040	38.45	-22.44
829.00	10	16-QAM	H	208	129	1 / 49	10.25	6.96	15.06	0.032	38.45	-23.39
829.00	10	64-QAM	H	208	129	1 / 49	9.18	6.96	13.99	0.025	38.45	-24.46
829.00	10	QPSK	V	159	102	1 / 0	10.43	7.20	15.48	0.035	38.45	-22.97
829.00	10 (WCP)	QPSK	H	101	87	1 / 49	11.55	6.96	16.36	0.043	38.45	-22.09

Table 7-3. ERP Data (Band 5)

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 [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	142	170	1 / 5	11.35	9.63	20.98	0.125	30.00	-9.02
1745.00	1.4	QPSK	H	149	156	1 / 5	11.91	9.49	**21.40**	0.138	30.00	-8.60
1779.30	1.4	QPSK	H	142	152	1 / 5	11.81	9.35	21.16	0.131	30.00	-8.84
1745.00	1.4	16-QAM	H	149	156	1 / 5	11.46	9.49	**20.95**	0.124	30.00	-9.05
1745.00	1.4	64-QAM	H	149	156	1 / 5	10.37	9.49	**19.86**	0.097	30.00	-10.14
1711.50	3	QPSK	H	149	165	1 / 14	11.45	9.62	21.07	0.128	30.00	-8.93
1745.00	3	QPSK	H	143	175	1 / 14	12.34	9.49	**21.83**	0.152	30.00	-8.17
1778.50	3	QPSK	H	148	170	1 / 0	12.41	9.35	21.76	0.150	30.00	-8.24
1745.00	3	16-QAM	H	143	175	1 / 14	11.87	9.49	**21.36**	0.137	30.00	-8.64
1745.00	3	64-QAM	H	143	175	1 / 14	10.77	9.49	**20.26**	0.106	30.00	-9.74
1712.50	5	QPSK	H	142	172	1 / 0	11.43	9.62	21.05	0.127	30.00	-8.95
1745.00	5	QPSK	H	145	174	1 / 24	12.43	9.49	21.92	0.155	30.00	-8.08
1777.50	5	QPSK	H	140	178	1 / 24	12.98	9.36	**22.34**	0.171	30.00	-7.66
1777.50	5	16-QAM	H	140	178	1 / 24	12.71	9.36	**22.07**	0.161	30.00	-7.93
1777.50	5	64-QAM	H	140	178	1 / 24	11.46	9.36	**20.82**	0.121	30.00	-9.18
1715.00	10	QPSK	H	152	173	1 / 0	11.57	9.61	21.18	0.131	30.00	-8.82
1745.00	10	QPSK	H	144	176	1 / 0	12.39	9.49	21.88	0.154	30.00	-8.12
1775.00	10	QPSK	H	140	185	1 / 49	12.94	9.37	**22.31**	0.170	30.00	-7.69
1775.00	10	16-QAM	H	140	185	1 / 49	12.39	9.37	**21.76**	0.150	30.00	-8.24
1775.00	10	64-QAM	H	140	185	1 / 49	11.47	9.37	**20.84**	0.121	30.00	-9.16
1717.50	15	QPSK	H	128	173	1 / 74	11.74	9.60	21.34	0.136	30.00	-8.66
1745.00	15	QPSK	H	139	166	1 / 0	12.46	9.49	21.95	0.157	30.00	-8.05
1772.50	15	QPSK	H	132	174	1 / 0	12.81	9.38	**22.19**	0.165	30.00	-7.81
1772.50	15	16-QAM	H	132	174	1 / 0	12.20	9.38	**21.58**	0.144	30.00	-8.42
1772.50	15	64-QAM	H	132	174	1 / 0	11.25	9.38	**20.63**	0.116	30.00	-9.37
1720.00	20	QPSK	H	137	158	1 / 99	12.13	9.59	21.72	0.149	30.00	-8.28
1745.00	20	QPSK	H	102	172	1 / 0	12.59	9.49	22.08	0.161	30.00	-7.92
1770.00	20	QPSK	H	139	173	1 / 99	13.04	9.39	**22.43**	**0.175**	30.00	-7.57
1770.00	20	16-QAM	H	139	173	1 / 99	12.88	9.39	**22.27**	0.168	30.00	-7.73
1770.00	20	64-QAM	H	139	173	1 / 99	11.88	9.39	**21.27**	0.134	30.00	-8.73
1770.00	20	QPSK	V	148	49	1 / 50	11.35	9.38	20.73	0.118	30.00	-9.27
1770.00	20 (WCP)	QPSK	H	123	37	1 / 50	12.73	9.39	22.12	0.163	30.00	-7.88

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

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 [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	V	211	306	1 / 2	15.58	9.06	24.64	0.291	33.01	-8.37
1880.00	1.4	QPSK	V	212	339	1 / 0	15.78	9.09	**24.87**	0.307	33.01	-8.14
1909.30	1.4	QPSK	V	200	327	1 / 2	14.49	9.16	23.65	0.232	33.01	-9.36
1880.00	1.4	16-QAM	V	212	339	1 / 0	15.07	9.09	**24.16**	0.261	33.01	-8.85
1880.00	1.4	64-QAM	V	212	339	1 / 0	14.42	9.09	**23.51**	0.224	33.01	-9.50
1851.50	3	QPSK	V	203	305	1 / 7	15.69	9.06	**24.75**	0.299	33.01	-8.26
1880.00	3	QPSK	V	204	308	1 / 7	15.55	9.09	24.64	0.291	33.01	-8.37
1908.50	3	QPSK	V	197	318	1 / 7	14.56	9.16	23.72	0.235	33.01	-9.29
1851.50	3	16-QAM	V	203	305	1 / 7	15.13	9.06	**24.19**	0.262	33.01	-8.82
1851.50	3	64-QAM	V	203	305	1 / 7	14.17	9.06	**23.23**	0.210	33.01	-9.78
1852.50	5	QPSK	V	203	309	1 / 12	15.53	9.06	24.59	0.288	33.01	-8.42
1880.00	5	QPSK	V	207	312	1 / 12	15.63	9.09	**24.72**	0.296	33.01	-8.29
1907.50	5	QPSK	V	199	317	1 / 12	14.64	9.15	23.79	0.239	33.01	-9.22
1880.00	5	16-QAM	V	207	312	1 / 12	14.85	9.09	23.94	0.248	33.01	-9.07
1880.00	5	64-QAM	V	207	312	1 / 12	14.03	9.09	**23.12**	0.205	33.01	-9.89
1855.00	10	QPSK	V	195	316	1 / 25	15.56	9.06	24.62	0.290	33.01	-8.39
1880.00	10	QPSK	V	203	301	1 / 25	15.80	9.09	**24.89**	**0.308**	33.01	-8.12
1905.00	10	QPSK	V	207	299	1 / 25	14.40	9.14	23.54	0.226	33.01	-9.47
1880.00	10	16-QAM	V	203	301	1 / 25	14.87	9.09	23.96	0.249	33.01	-9.05
1880.00	10	64-QAM	V	203	301	1 / 25	14.31	9.09	**23.40**	0.219	33.01	-9.61
1857.50	15	QPSK	V	203	205	1 / 36	15.31	9.07	24.38	0.274	33.01	-8.63
1880.00	15	QPSK	V	200	202	1 / 36	15.45	9.09	**24.54**	0.284	33.01	-8.47
1902.50	15	QPSK	V	189	234	1 / 36	14.34	9.12	23.46	0.222	33.01	-9.55
1880.00	15	16-QAM	V	200	202	1 / 36	14.80	9.09	23.89	0.245	33.01	-9.12
1880.00	15	64-QAM	V	200	202	1 / 36	13.96	9.09	23.05	0.202	33.01	-9.96
1860.00	20	QPSK	V	214	132	1 / 0	15.40	9.07	24.47	0.280	33.01	-8.54
1880.00	20	QPSK	V	142	356	1 / 0	15.45	9.09	**24.54**	0.284	33.01	-8.47
1900.00	20	QPSK	V	329	2	1 / 0	14.46	9.11	23.57	0.227	33.01	-9.44
1880.00	20	16-QAM	V	142	356	1 / 0	14.79	9.09	23.88	0.244	33.01	-9.13
1880.00	20	64-QAM	V	142	356	1 / 0	14.14	9.09	**23.23**	0.210	33.01	-9.78
1880.00	10	QPSK	H	113	178	1 / 99	15.33	9.15	24.48	0.281	33.01	-8.53
1880.00	10 (WCP)	QPSK	V	173	320	1 / 99	13.77	9.09	22.86	0.193	33.01	-10.15

Table 7-5. EIRP Data (Band 2)

7.3 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using 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 ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

Test Setup

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

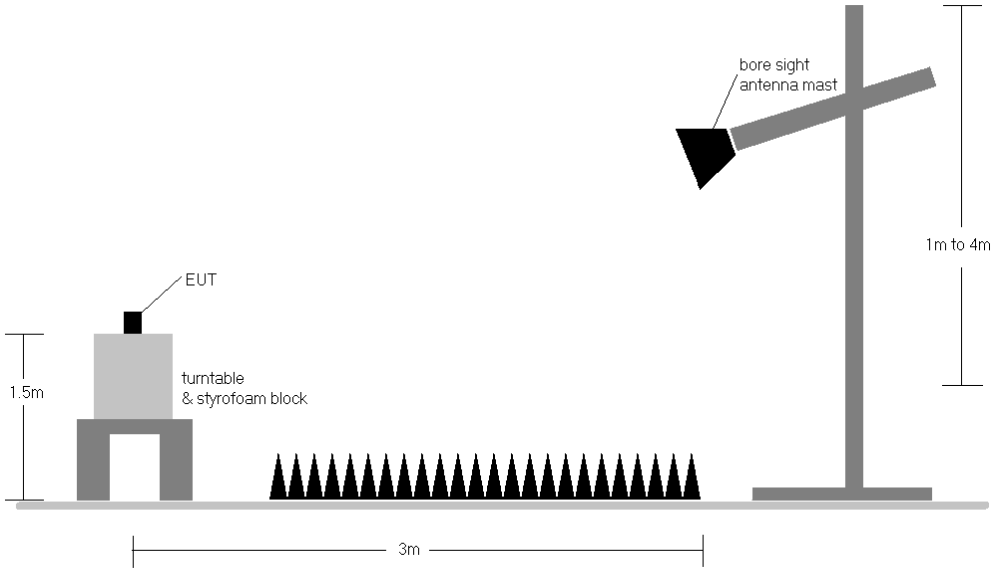


Figure 7-3. Test Instrument & Measurement Setup

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.

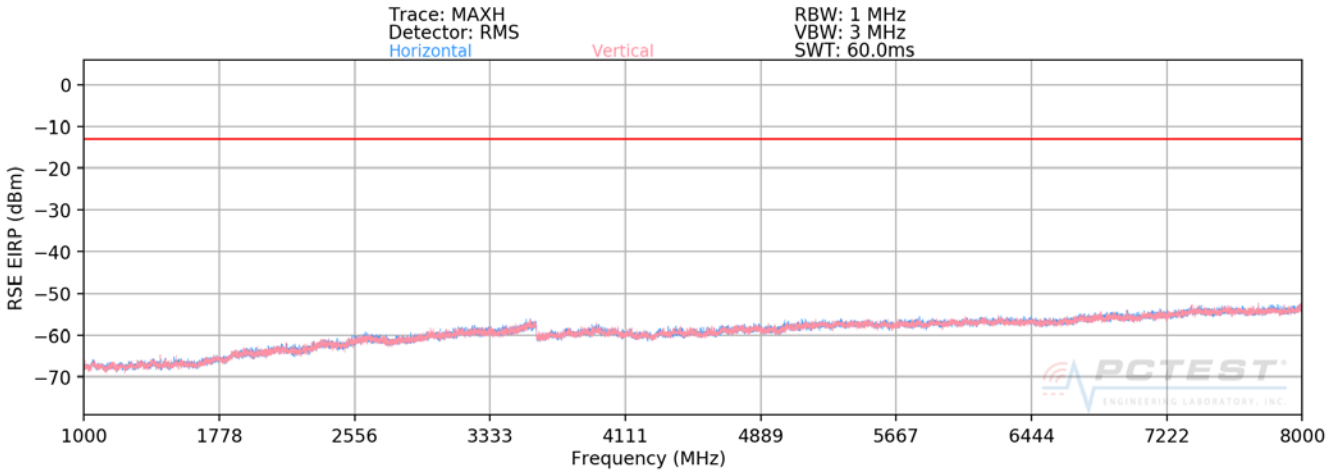
2) This unit was tested with its standard battery.

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.

Band 13



Plot 7-1. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY:	782.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	V	397	98	-60.74	6.00	-54.74	-41.7
3128.00	V	-	-	-60.11	7.20	-52.91	-39.9

Table 7-6. Radiated Spurious Data (Band 13 – Mid Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5 (WCP)	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 [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	V	-	-	-70.79	6.03	-64.77	-24.8

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

OPERATING FREQUENCY:	782.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5 (WCP)	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	V	108	21	-61.25	6.00	-55.25	-42.2
3128.00	V	-	-	-60.93	7.20	-53.73	-40.7

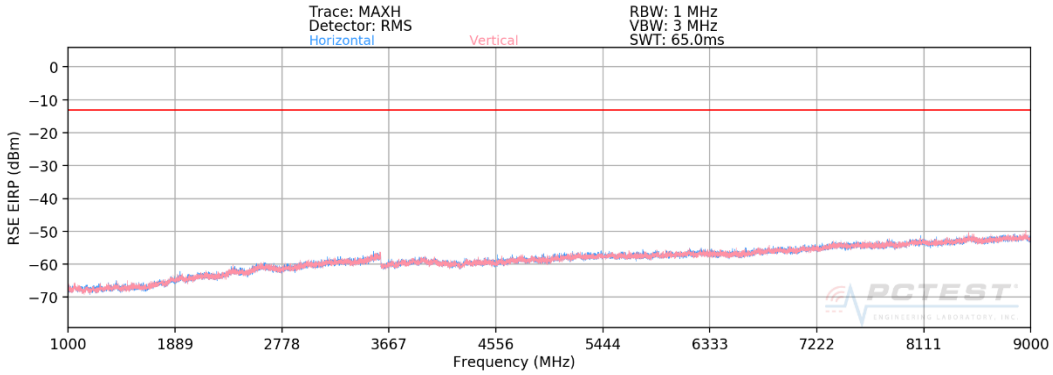
Table 7-8. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5 (WCP)	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 [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	V	123	150	-68.19	6.03	-62.17	-22.2

Table 7-9. Radiated Spurious Data with WCP(Band 13 – 1559-1610MHz Band)

Band 5



Plot 7-2. Radiated Spurious Plot above 1GHz (Band 5)

OPERATING FREQUENCY:	825.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1651.00	H	-	-	-72.00	6.03	-65.97	-53.0
2476.50	H	390	149	-67.52	5.78	-61.75	-48.7
3302.00	H	-	-	-66.90	7.66	-59.24	-46.2
4127.50	H	-	-	-71.01	9.13	-61.88	-48.9

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

OPERATING FREQUENCY:	836.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	-	-	-70.88	5.97	-64.91	-51.9
2509.50	H	130	237	-66.70	5.80	-60.90	-47.9
3346.00	H	-	-	-66.84	7.87	-58.96	-46.0
4182.50	H	-	-	-71.11	9.35	-61.76	-48.8

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

OPERATING FREQUENCY:	847.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1695.00	H	-	-	-71.70	5.91	-65.79	-52.8
2542.50	H	112	137	-64.64	5.91	-58.73	-45.7
3390.00	H	-	-	-66.55	8.06	-58.49	-45.5
4237.50	H	-	-	-71.38	9.45	-61.93	-48.9

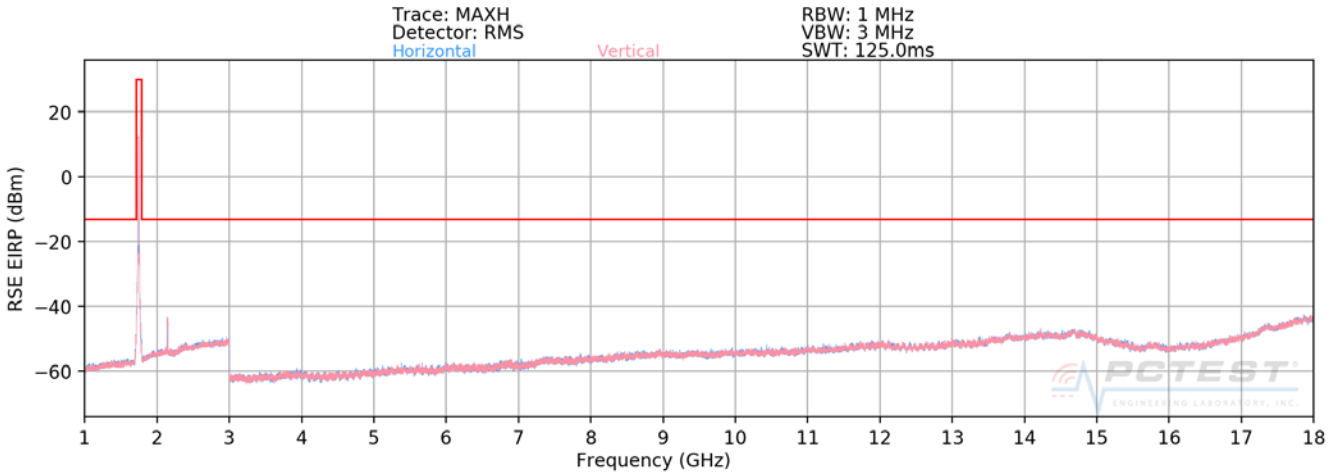
Table 7-12. Radiated Spurious Data (Band 5 – High Channel)

OPERATING FREQUENCY:	825.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1651.00	H	138	238	-71.09	6.03	-65.06	-52.1
2476.50	H	-	-	-69.21	5.78	-63.44	-50.4

Table 7-13. Radiated Spurious Data with WCP (Band 5 – Low)

Band 66/4



Plot 7-3. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY:	1720.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	H	-	-	-67.69	8.20	-59.49	-46.5
5160.00	H	-	-	-70.89	10.26	-60.63	-47.6

Table 7-14. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY:	1745.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	400	233	-66.99	8.32	-58.67	-45.7
5235.00	H	-	-	-71.12	10.39	-60.72	-47.7

Table 7-15. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1770.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	H	-	-	-66.52	8.37	-58.15	-45.2
5310.00	H	-	-	-70.69	10.32	-60.36	-47.4

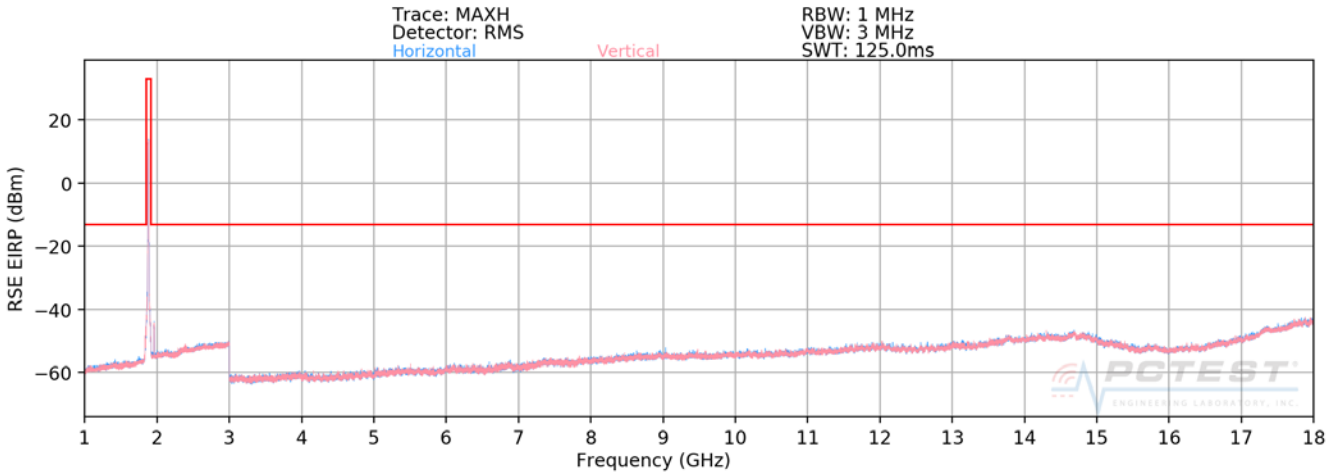
Table 7-16. Radiated Spurious Data (Band 66/4 – High Channel)

OPERATING FREQUENCY:	1745.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	-	-	-67.53	8.32	-59.21	-46.2
5235.00	H	-	-	-71.57	10.39	-61.17	-48.2

Table 7-17. Radiated Spurious Data with WCP (Band 66/4 – Mid Channel)

Band 2



Plot 7-4. Radiated Spurious Plot above 1GHz (Band 2)

OPERATING FREQUENCY:	1857.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3715.00	H	398	8	-69.35	8.55	-60.80	-47.8
5572.50	H	-	-	-69.67	10.56	-59.11	-46.1

Table 7-18. Radiated Spurious Data (Band 2 – Low Channel)

OPERATING FREQUENCY:	1880.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	396	219	-69.54	8.43	-61.11	-48.1
5640.00	H	-	-	-69.83	10.63	-59.20	-46.2

Table 7-19. Radiated Spurious Data (Band 2 – Mid Channel)

OPERATING FREQUENCY:	1902.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3805.00	H	400	211	-69.57	8.38	-61.19	-48.2
5707.50	H	-	-	-70.27	10.72	-59.56	-46.6

Table 7-20. Radiated Spurious Data (Band 2 – High Channel)

OPERATING FREQUENCY:	1880.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	158	207	-70.35	8.43	-61.92	-48.9
5640.00	H	-	-	-70.67	10.63	-60.04	-47.0

Table 7-21. Radiated Spurious Data with WCP (Band 2 – Mid Channel)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFV450VM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.