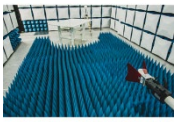
PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. 410.290.6652 / Fax 410.290.6654
http://www.pctest.com



MEASUREMENT REPORT
LTE

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

Date of Testing:
5/14 - 5/20/2019
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M1905140072-03-R1.ZNF

FCC ID:	**ZNFL322DL**
APPLICANT:	**LG Electronics USA, Inc.**

Application Type:	Class II Permissive Change
Model:	LG L322DL
Additional Model(s):	LGL322DL, L322DL, LM-X320WM, LMX320WM, X320WM, LM-X320QMG, LMX320QMG, X320QMG, LM-X320QML, LMX320QML, X320QML, LM-X320QM6, LMX320QM6, X320QM6
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
Class II Permissive Change:	Please see FCC change document
Original Grant Date:	6/5/2019

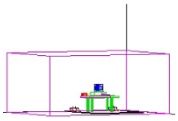
This revised Test Report (S/N: 1M1905140072-03-R1.ZNF) supersedes and replaces the previously issued test report (S/N: 1M1905140072-03.ZNF) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

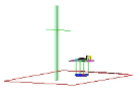
I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking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

Randy Ortanez
President

TABLE OF CONTENTS



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 71	27	665.5 - 695.5	0.062	17.90			QPSK
LTE Band 71	27	665.5 - 695.5	0.045	16.58			16QAM
LTE Band 71	27	668 - 693	0.061	17.88			QPSK
LTE Band 71	27	668 - 693	0.051	17.10			16QAM
LTE Band 71	27	670.5 - 690.5	0.062	17.90			QPSK
LTE Band 71	27	670.5 - 690.5	0.046	16.60			16QAM
LTE Band 71	27	673 - 688	0.065	18.15			QPSK
LTE Band 71	27	673 - 688	0.055	17.41			16QAM
LTE Band 12	27	699.7 - 715.3	0.051	17.07	0.084	19.22	QPSK
LTE Band 12	27	699.7 - 715.3	0.040	16.02	0.066	18.17	16QAM
LTE Band 12	27	700.5 - 714.5	0.050	16.97	0.082	19.12	QPSK
LTE Band 12	27	700.5 - 714.5	0.038	15.78	0.062	17.93	16QAM
LTE Band 12/17	27	701.5 - 713.5	0.049	16.94	0.081	19.09	QPSK
LTE Band 12/17	27	701.5 - 713.5	0.038	15.83	0.063	17.98	16QAM
LTE Band 12/17	27	704 - 711	0.050	16.95	0.081	19.10	QPSK
LTE Band 12/17	27	704 - 711	0.039	15.91	0.064	18.06	16QAM
LTE Band 13	27	779.5 - 784.5	0.095	19.77	0.156	21.92	QPSK
LTE Band 13	27	779.5 - 784.5	0.070	18.46	0.115	20.61	16QAM
LTE Band 13	27	782	0.096	19.83	0.158	21.98	QPSK
LTE Band 13	27	782	0.069	18.37	0.113	20.52	16QAM
LTE Band 5	22H	824.7 - 848.3	0.072	18.58	0.118	20.73	QPSK
LTE Band 5	22H	824.7 - 848.3	0.057	17.55	0.093	19.70	16QAM
LTE Band 5	22H	825.5 - 847.5	0.071	18.50	0.116	20.65	QPSK
LTE Band 5	22H	825.5 - 847.5	0.055	17.37	0.090	19.52	16QAM
LTE Band 5	22H	826.5 - 846.5	0.069	18.40	0.114	20.55	QPSK
LTE Band 5	22H	826.5 - 846.5	0.050	16.98	0.082	19.13	16QAM
LTE Band 5	22H	829 - 844	0.071	18.54	0.117	20.69	QPSK
LTE Band 5	22H	829 - 844	0.069	18.37	0.113	20.52	16QAM

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	0.308	24.89	QPSK
LTE Band 66/4	27	1710.7 - 1779.3	0.248	23.94	16QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.313	24.96	QPSK
LTE Band 66/4	27	1711.5 - 1778.5	0.238	23.76	16QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.310	24.92	QPSK
LTE Band 66/4	27	1712.5 - 1777.5	0.236	23.73	16QAM
LTE Band 66/4	27	1715 - 1775	0.301	24.78	QPSK
LTE Band 66/4	27	1715 - 1775	0.248	23.95	16QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.291	24.64	QPSK
LTE Band 66/4	27	1717.5 - 1772.5	0.236	23.72	16QAM
LTE Band 66/4	27	1720 - 1770	0.314	24.96	QPSK
LTE Band 66/4	27	1720 - 1770	0.212	23.27	16QAM
LTE Band 2	24E	1850.7 - 1914.3	0.352	25.46	QPSK
LTE Band 2	24E	1850.7 - 1914.3	0.288	24.60	16QAM
LTE Band 2	24E	1851.5 - 1913.5	0.341	25.33	QPSK
LTE Band 2	24E	1851.5 - 1913.5	0.290	24.62	16QAM
LTE Band 2	24E	1852.5 - 1912.5	0.340	25.31	QPSK
LTE Band 2	24E	1852.5 - 1912.5	0.263	24.20	16QAM
LTE Band 2	24E	1855 - 1910	0.359	25.55	QPSK
LTE Band 2	24E	1855 - 1910	0.290	24.63	16QAM
LTE Band 2	24E	1857.5 - 1907.5	0.368	25.66	QPSK
LTE Band 2	24E	1857.5 - 1907.5	0.298	24.74	16QAM
LTE Band 2	24E	1860 - 1905	0.373	25.72	QPSK
LTE Band 2	24E	1860 - 1905	0.332	25.21	16QAM

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: ZNFL322DL**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 63369, 63062, 63088, 63070

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC1), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n WLAN, Bluetooth (1x, EDR, LE)

LTE Band 12 (698 - 716 MHz) overlaps the entire frequency range of LTE Band 17 (704 - 716 MHz). Therefore, test data provided in this report covers Band 17 as well as Band 12.

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

2.3 Test Configuration

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

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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:

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

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 $_{[Watts]}$).

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)
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	6/3/2019	Annual	6/3/2020	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
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	4/19/2019	Annual	4/19/2020	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	CMW500	Radio Communication Tester	11/14/2018	Annual	11/14/2019	100976
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)	6/5/2019	Annual	6/5/2020	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	8/9/2018	Annual	8/9/2019	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	5/6/2019	Annual	5/6/2020	103200
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: ZNFL322DL

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) 27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 71, 13, 12/17)	< 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(g) 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.

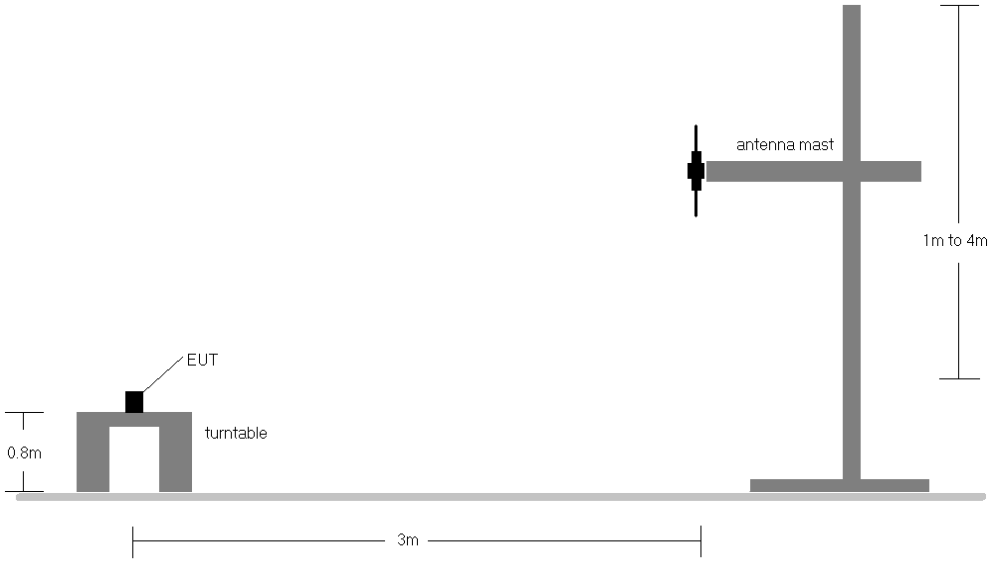


Figure 7-1. Radiated Test Setup <1GHz

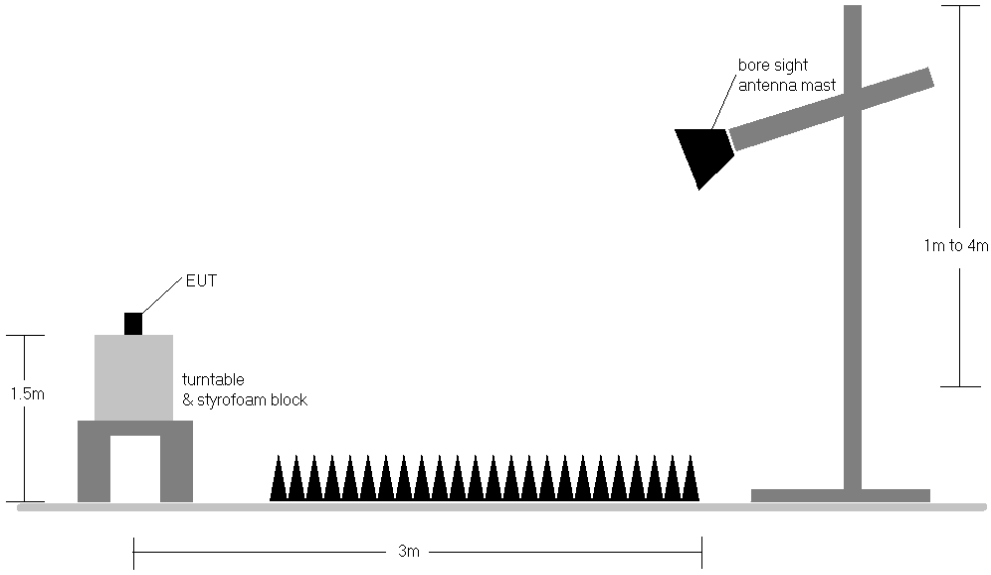


Figure 7-2. Radiated Test Setup >1GHz

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]
665.50	5	QPSK	V	102	241	1 / 24	16.12	3.75	17.72	0.059	34.77	-17.05
680.50	5	QPSK	V	100	234	1 / 0	15.78	4.20	17.83	0.061	34.77	-16.94
695.50	5	QPSK	V	100	237	1 / 0	15.55	4.50	**17.90**	**0.062**	34.77	-16.87
695.50	5	16-QAM	V	100	237	1 / 0	14.23	4.50	**16.58**	0.045	34.77	-18.19
668.00	10	QPSK	V	102	241	1 / 49	16.23	3.80	**17.88**	**0.061**	34.77	-16.89
680.50	10	QPSK	V	100	234	1 / 0	15.65	4.20	17.70	0.059	34.77	-17.07
693.00	10	QPSK	V	100	237	1 / 0	15.58	4.40	17.83	0.061	34.77	-16.94
693.00	10	16-QAM	V	100	237	1 / 0	14.85	4.40	**17.10**	0.051	34.77	-17.67
670.50	15	QPSK	V	102	241	1 / 74	16.15	3.90	**17.90**	**0.062**	34.77	-16.87
680.50	15	QPSK	V	100	234	1 / 0	15.76	4.20	17.81	0.060	34.77	-16.96
690.50	15	QPSK	V	100	237	1 / 0	15.63	4.40	17.88	0.061	34.77	-16.89
670.50	15	16-QAM	V	102	241	1 / 74	14.85	3.90	**16.60**	0.046	34.77	-18.17
673.00	20	QPSK	V	102	241	1 / 0	15.60	4.00	17.45	0.056	34.77	-17.32
680.50	20	QPSK	V	100	234	1 / 0	16.10	4.20	**18.15**	**0.065**	34.77	-16.62
688.00	20	QPSK	V	100	237	1 / 0	15.77	4.40	18.02	0.063	34.77	-16.75
688.00	20	16-QAM	V	100	237	1 / 0	15.16	4.40	**17.41**	0.055	34.77	-17.36
680.50	20	QPSK	H	179	80	1 / 0	14.69	4.20	16.74	0.047	34.77	-18.03

Table 7-2. ERP (Band 71)

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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	153	255	1 / 6	15.76	3.40	17.01	0.050	34.77	-17.76	19.16	0.082	36.99	-17.83
707.50	1.4	QPSK	H	160	251	1 / 6	15.57	3.65	**17.07**	**0.051**	34.77	-17.70	**19.22**	**0.084**	36.99	-17.77
715.30	1.4	QPSK	H	308	283	1 / 6	15.35	3.70	16.90	0.049	34.77	-17.87	19.05	0.080	36.99	-17.94
699.70	1.4	16-QAM	H	153	255	1 / 6	14.77	3.40	**16.02**	0.040	34.77	-18.75	**18.17**	0.066	36.99	-18.82
700.50	3	QPSK	H	153	255	1 / 14	15.37	3.40	16.62	0.046	34.77	-18.15	18.77	0.075	36.99	-18.22
707.50	3	QPSK	H	160	251	1 / 0	15.47	3.65	**16.97**	0.050	34.77	-17.80	**19.12**	0.082	36.99	-17.87
714.50	3	QPSK	H	308	283	1 / 14	14.94	3.70	16.49	0.045	34.77	-18.28	18.64	0.073	36.99	-18.35
707.50	3	16-QAM	H	160	251	1 / 0	14.28	3.65	**15.78**	0.038	34.77	-18.99	**17.93**	0.062	36.99	-19.06
707.50	1.4	QPSK	V	151	256	1 / 6	14.26	4.60	16.71	0.047	34.77	-18.06	18.86	0.077	36.99	-18.13

Table 7-3. ERP (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 [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
701.50	5	QPSK	H	153	255	1 / 24	15.43	3.40	16.68	0.047	34.77	-18.09	18.83	0.076	36.99	-18.16
707.50	5	QPSK	H	160	251	1 / 0	15.44	3.65	**16.94**	0.049	34.77	-17.83	**19.09**	0.081	36.99	-17.90
713.50	5	QPSK	H	308	283	1 / 24	14.75	3.70	16.30	0.043	34.77	-18.47	18.45	0.070	36.99	-18.54
707.50	5	16-QAM	H	160	251	1 / 0	14.33	3.65	**15.83**	0.038	34.77	-18.94	**17.98**	0.063	36.99	-19.01
704.00	10	QPSK	H	153	255	1 / 49	14.42	3.50	15.77	0.038	34.77	-19.00	17.92	0.062	36.99	-19.07
707.50	10	QPSK	H	160	251	1 / 0	14.67	3.65	16.17	0.041	34.77	-18.60	18.32	0.068	36.99	-18.67
711.00	10	QPSK	H	308	283	1 / 49	15.40	3.70	**16.95**	0.050	34.77	-17.82	**19.10**	0.081	36.99	-17.89
711.00	10	16-QAM	H	308	283	1 / 49	14.36	3.70	**15.91**	0.039	34.77	-18.86	**18.06**	0.064	36.99	-18.93
707.50	1.4	QPSK	V	151	256	1 / 6	14.26	4.60	16.71	0.047	34.77	-18.06	18.86	0.077	36.99	-18.13

Table 7-4. ERP (Band 12/17)

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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	H	157	301	1 / 24	15.19	5.80	18.84	0.077	34.77	-15.93	20.99	0.126	36.99	-16.00
782.00	5	QPSK	H	157	301	1 / 0	16.12	5.80	**19.77**	0.095	34.77	-15.00	**21.92**	0.156	36.99	-15.07
784.50	5	QPSK	H	157	301	1 / 24	15.84	5.90	19.59	0.091	34.77	-15.18	21.74	0.149	36.99	-15.25
782.00	5	16-QAM	H	157	301	1 / 0	14.81	5.80	**18.46**	0.070	34.77	-16.31	**20.61**	0.115	36.99	-16.38
782.00	10	QPSK	H	157	301	1 / 49	16.18	5.80	**19.83**	**0.096**	34.77	-14.94	**21.98**	**0.158**	36.99	-15.01
782.00	10	16-QAM	H	157	301	1 / 49	14.72	5.80	**18.37**	0.069	34.77	-16.40	**20.52**	0.113	36.99	-16.47
782.00	10	QPSK	V	280	254	1 / 49	14.44	5.90	18.19	0.066	34.77	-16.58	20.34	0.108	36.99	-16.65

Table 7-5. ERP (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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	272	348	1 / 6	14.10	6.30	18.25	0.067	38.45	-20.20	20.40	0.110	40.61	-20.21
836.50	1.4	QPSK	V	269	344	1 / 6	14.33	6.40	**18.58**	**0.072**	38.45	-19.87	**20.73**	**0.118**	40.61	-19.88
848.30	1.4	QPSK	V	266	329	1 / 6	13.67	6.50	18.02	0.063	38.45	-20.43	20.17	0.104	40.61	-20.44
836.50	1.4	16-QAM	V	269	344	1 / 6	13.30	6.40	**17.55**	0.057	38.45	-20.90	**19.70**	0.093	40.61	-20.91
825.50	3	QPSK	V	272	348	1 / 14	14.01	6.30	18.16	0.065	38.45	-20.29	20.31	0.107	40.61	-20.30
836.50	3	QPSK	V	269	344	1 / 14	14.25	6.40	**18.50**	0.071	38.45	-19.95	**20.65**	0.116	40.61	-19.96
847.50	3	QPSK	V	266	329	1 / 14	14.02	6.50	18.37	0.069	38.45	-20.08	20.52	0.113	40.61	-20.09
825.50	3	16-QAM	V	272	348	1 / 14	13.22	6.30	**17.37**	0.055	38.45	-21.08	**19.52**	0.090	40.61	-21.09
826.50	5	QPSK	V	272	348	1 / 24	14.25	6.30	**18.40**	0.069	38.45	-20.05	**20.55**	0.114	40.61	-20.06
836.50	5	QPSK	V	269	344	1 / 24	13.76	6.40	18.01	0.063	38.45	-20.44	20.16	0.104	40.61	-20.45
846.50	5	QPSK	V	266	329	1 / 24	13.87	6.50	18.22	0.066	38.45	-20.23	20.37	0.109	40.61	-20.24
846.50	5	16-QAM	V	266	329	1 / 24	12.63	6.50	**16.98**	0.050	38.45	-21.47	**19.13**	0.082	40.61	-21.48
829.00	10	QPSK	V	272	348	1 / 49	13.73	6.30	17.88	0.061	38.45	-20.57	20.03	0.101	40.61	-20.58
836.50	10	QPSK	V	269	344	1 / 49	14.07	6.40	18.32	0.068	38.45	-20.13	20.47	0.111	40.61	-20.14
844.00	10	QPSK	V	266	329	1 / 49	14.29	6.40	**18.54**	0.071	38.45	-19.91	**20.69**	0.117	40.61	-19.92
844.00	10	16-QAM	V	266	329	1 / 49	14.12	6.40	**18.37**	0.069	38.45	-20.08	**20.52**	0.113	40.61	-20.09
836.50	1.4	QPSK	H	100	302	1 / 6	12.04	6.60	16.49	0.045	38.45	-21.96	18.64	0.073	40.61	-21.97

Table 7-6. ERP (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	V	100	123	1 / 6	17.69	9.35	**24.89**	0.308	30.00	-5.11
1745.00	1.4	QPSK	V	100	116	1 / 6	17.60	9.11	24.56	0.286	30.00	-5.44
1779.30	1.4	QPSK	V	100	120	1 / 6	17.52	9.17	24.54	0.284	30.00	-5.46
1745.00	1.4	16-QAM	V	100	116	1 / 6	16.98	9.11	**23.94**	0.248	30.00	-6.06
1711.50	3	QPSK	V	100	123	1 / 14	17.77	9.34	**24.96**	0.313	30.00	-5.04
1745.00	3	QPSK	V	100	116	1 / 14	17.97	9.11	24.93	0.311	30.00	-5.07
1778.50	3	QPSK	V	100	120	1 / 14	17.92	9.17	24.94	0.312	30.00	-5.06
1778.50	3	16-QAM	V	100	120	1 / 14	16.74	9.17	**23.76**	0.238	30.00	-6.24
1712.50	5	QPSK	V	100	123	1 / 24	17.60	9.34	24.79	0.301	30.00	-5.21
1745.00	5	QPSK	V	100	116	1 / 24	17.96	9.11	**24.92**	0.310	30.00	-5.08
1777.50	5	QPSK	V	100	120	1 / 24	17.80	9.16	24.81	0.303	30.00	-5.19
1745.00	5	16-QAM	V	100	116	1 / 24	16.77	9.11	**23.73**	0.236	30.00	-6.27
1715.00	10	QPSK	V	100	123	1 / 49	17.58	9.32	24.75	0.299	30.00	-5.25
1745.00	10	QPSK	V	100	116	1 / 49	17.82	9.11	**24.78**	0.301	30.00	-5.22
1775.00	10	QPSK	V	100	120	1 / 49	17.64	9.16	24.65	0.292	30.00	-5.35
1745.00	10	16-QAM	V	100	116	1 / 49	16.99	9.11	**23.95**	0.248	30.00	-6.05
1717.50	15	QPSK	V	100	123	1 / 74	17.40	9.30	24.55	0.285	30.00	-5.45
1745.00	15	QPSK	V	100	116	1 / 74	17.61	9.11	24.57	0.286	30.00	-5.43
1772.50	15	QPSK	V	100	120	1 / 74	17.64	9.15	**24.64**	0.291	30.00	-5.36
1772.50	15	16-QAM	V	100	120	1 / 74	16.72	9.15	**23.72**	0.236	30.00	-6.28
1720.00	20	QPSK	V	100	123	1 / 99	15.68	9.28	**24.96**	**0.314**	30.00	-5.04
1745.00	20	QPSK	V	100	116	1 / 99	15.45	9.11	24.56	0.286	30.00	-5.44
1770.00	20	QPSK	V	100	120	1 / 99	15.12	9.14	24.26	0.267	30.00	-5.74
1720.00	20	16-QAM	V	100	123	1 / 99	13.99	9.28	**23.27**	0.212	30.00	-6.73
1720.00	20	QPSK	H	100	28	1 / 99	15.46	9.38	24.84	0.305	30.00	-5.16

Table 7-7. EIRP (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	144	56	1 / 0	17.55	9.88	25.28	0.337	33.01	-7.73
1882.50	1.4	QPSK	V	100	70	1 / 6	17.51	10.10	**25.46**	0.352	33.01	-7.55
1914.30	1.4	QPSK	V	102	74	1 / 0	17.29	10.31	25.45	0.351	33.01	-7.56
1882.50	1.4	16-QAM	V	100	70	1 / 6	16.65	10.10	**24.60**	0.288	33.01	-8.41
1851.50	3	QPSK	V	144	56	1 / 0	17.55	9.88	25.28	0.337	33.01	-7.73
1882.50	3	QPSK	V	100	70	1 / 14	17.38	10.10	**25.33**	0.341	33.01	-7.68
1913.50	3	QPSK	V	102	74	1 / 0	17.51	10.30	25.17	0.329	33.01	-7.84
1882.50	3	16-QAM	V	100	70	1 / 14	17.51	10.10	**24.62**	0.290	33.01	-8.39
1852.50	5	QPSK	V	144	56	1 / 0	17.51	9.89	**25.31**	0.340	33.01	-7.70
1882.50	5	QPSK	V	100	70	1 / 24	17.51	10.10	**25.31**	0.340	33.01	-7.70
1912.50	5	QPSK	V	102	74	1 / 0	17.51	10.30	25.16	0.328	33.01	-7.85
1912.50	5	16-QAM	V	102	74	1 / 0	17.51	10.30	**24.20**	0.263	33.01	-8.81
1855.00	10	QPSK	V	144	56	1 / 0	17.51	9.91	**25.55**	0.359	33.01	-7.46
1882.50	10	QPSK	V	100	70	1 / 49	17.51	10.10	25.50	0.355	33.01	-7.51
1910.00	10	QPSK	V	102	74	1 / 0	17.51	10.28	25.36	0.344	33.01	-7.65
1855.00	10	16-QAM	V	144	56	1 / 0	17.51	9.91	**24.63**	0.290	33.01	-8.38
1857.50	15	QPSK	V	144	56	1 / 0	17.51	9.93	**25.66**	0.368	33.01	-7.35
1882.50	15	QPSK	V	100	70	1 / 74	17.51	10.10	25.55	0.359	33.01	-7.46
1907.50	15	QPSK	V	102	74	1 / 0	17.51	10.27	25.33	0.341	33.01	-7.68
1882.50	15	16-QAM	V	100	70	1 / 74	17.51	10.10	**24.74**	0.298	33.01	-8.27
1860.00	20	QPSK	V	144	56	1 / 0	14.53	9.95	24.48	0.281	33.01	-8.53
1882.50	20	QPSK	V	100	70	1 / 99	15.28	10.10	25.38	0.345	33.01	-7.63
1905.00	20	QPSK	V	102	74	1 / 0	15.46	10.26	**25.72**	**0.373**	33.01	-7.29
1905.00	20	16-QAM	V	102	74	1 / 0	14.95	10.26	**25.21**	0.332	33.01	-7.80
1905.00	20	QPSK	H	109	19	10.26	15.40	10.18	25.58	0.361	33.01	-7.43

Table 7-8. EIRP (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.

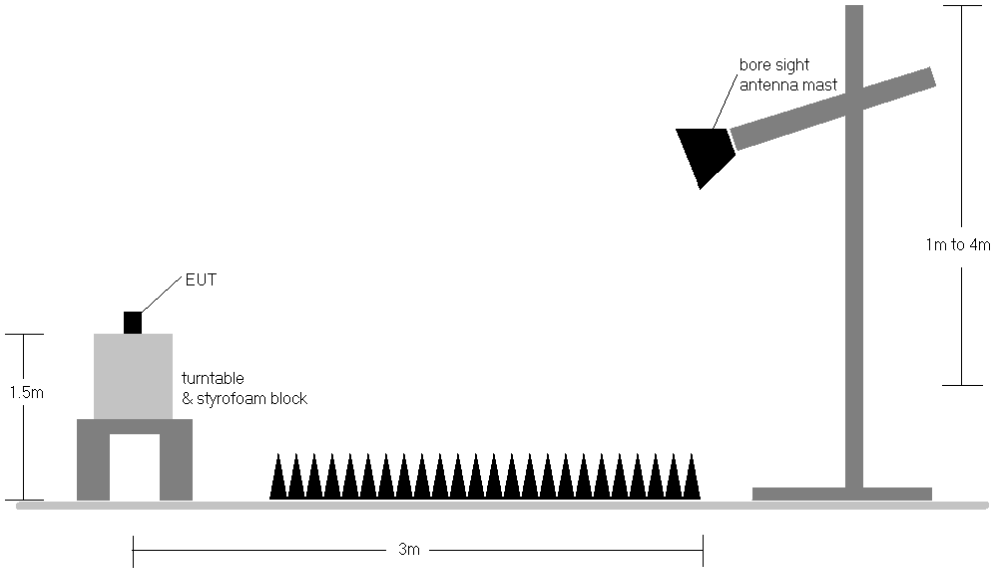


Figure 7-3. Test Instrument & Measurement Setup

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.

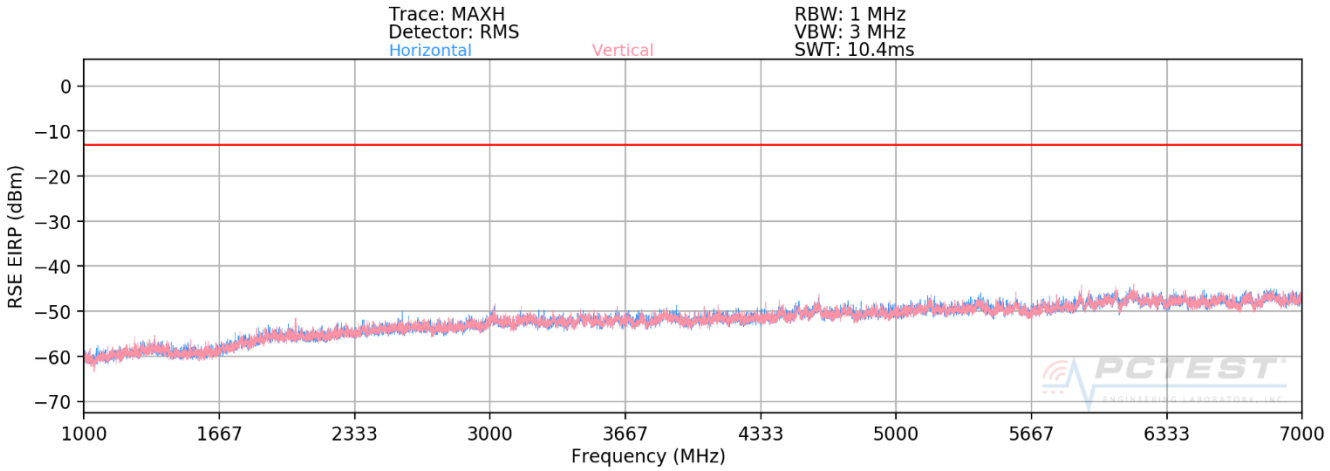
2) This unit was tested with its standard battery.

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 71



Plot 7-1. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY:	673.00	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]
1346.00	V	-	-	-79.00	7.47	-71.52	-58.5
2019.00	V	-	-	-77.61	8.68	-68.92	-55.9

Table 7-9. Radiated Spurious Data (Band 71 – Low Channel)

OPERATING FREQUENCY:	680.50	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]
1361.00	V	-	-	-79.48	7.48	-71.99	-59.0
2041.50	V	-	-	-78.39	8.76	-69.63	-56.6

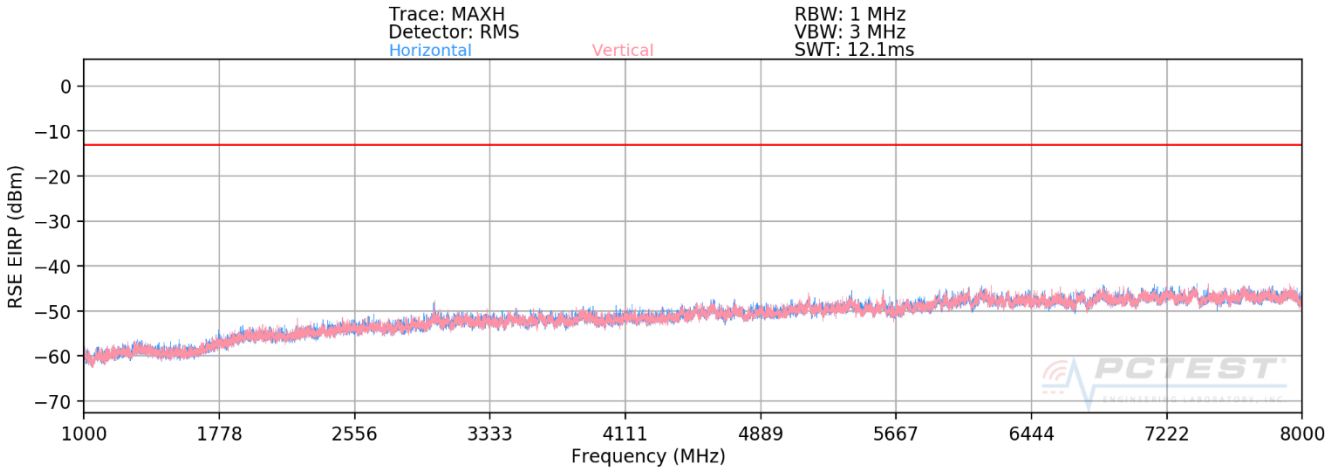
Table 7-10. Radiated Spurious Data (Band 71 – Mid Channel)

OPERATING FREQUENCY:	688.00	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]
1376.00	V	-	-	-78.95	7.46	-71.49	-58.5
2064.00	V	-	-	-78.21	8.80	-69.40	-56.4

Table 7-11. Radiated Spurious Data (Band 71 – High Channel)

Band 12/17



Plot 7-2. Radiated Spurious Plot above 1GHz (Band 12/17)

OPERATING FREQUENCY:	704.00	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]
1408.00	H	294	50	-77.58	7.54	-70.04	-57.0
2112.00	H	141	130	-68.55	8.85	-59.70	-46.7
2816.00	H	-	-	-78.39	10.12	-68.27	-55.3
3520.00	H	-	-	-75.51	9.91	-65.60	-52.6

Table 7-12. Radiated Spurious Data (Band 12/17 – Low Channel)

OPERATING FREQUENCY:	707.50	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]
1415.00	H	397	132	-78.58	7.63	-70.94	-57.9
2122.50	H	111	138	-67.91	8.86	-59.05	-46.0
2830.00	H	-	-	-77.75	10.10	-67.66	-54.7
3537.50	H	-	-	-74.72	9.90	-64.83	-51.8

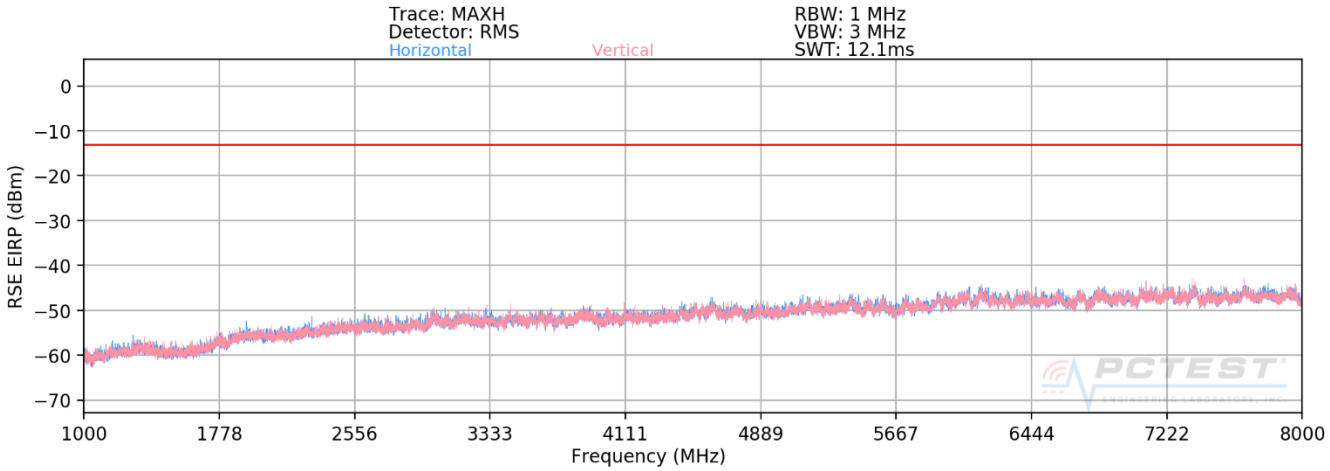
Table 7-13. Radiated Spurious Data (Band 12/17 – Mid Channel)

OPERATING FREQUENCY:	711.00	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]
1422.00	H	125	39	-78.18	7.72	-70.46	-57.5
2133.00	H	351	147	-68.66	8.87	-59.79	-46.8
2844.00	H	-	-	-77.82	10.07	-67.75	-54.7
3555.00	H	-	-	-74.82	9.89	-64.93	-51.9

Table 7-14. Radiated Spurious Data (Band 12/17 – High Channel)

Band 13



Plot 7-3. 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	H	112	322	-71.87	9.43	-62.43	-49.4
3128.00	H	-	-	-75.98	9.34	-66.64	-53.6
3910.00	H	-	-	-73.78	9.37	-64.41	-51.4

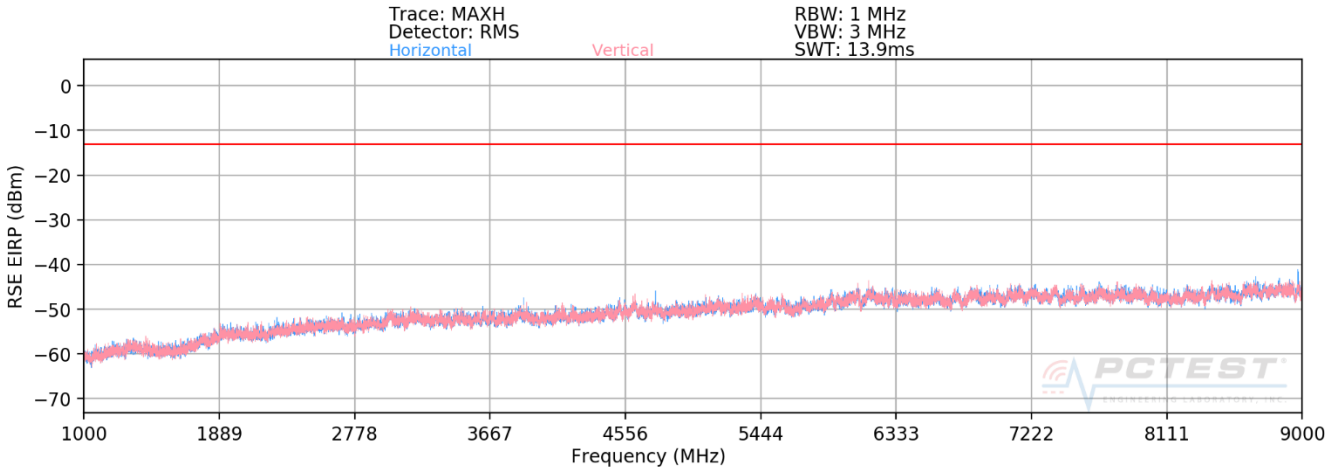
Table 7-15. Radiated Spurious Data (Band 13 – Mid Channel)

MODULATION SIGNAL:	782.00	
BANDWIDTH:	10.00	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 [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	400	326	-80.11	8.53	-71.58	-31.6

Table 7-16. Radiated Spurious Data (Band 13 – 1559-1610 MHz Band)

Band 5



Plot 7-4. Radiated Spurious Plot above 1GHz (Band 5)

OPERATING FREQUENCY:	829.00	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]
1658.00	H	347	163	-79.50	8.95	-70.55	-57.5
2487.00	H	286	184	-66.31	9.70	-56.61	-43.6
3316.00	H	-	-	-76.12	9.59	-66.53	-53.5
4145.00	H	-	-	-75.87	10.22	-65.65	-52.7

Table 7-17. Radiated Spurious Data (Band 5 – Low Channel)

OPERATING FREQUENCY:	836.50	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]
1673.00	H	343	201	-79.90	8.95	-70.95	-57.9
2509.50	H	327	171	-65.58	9.75	-55.83	-42.8
3346.00	H	-	-	-75.19	9.60	-65.58	-52.6
4182.50	H	-	-	-75.68	10.34	-65.34	-52.3

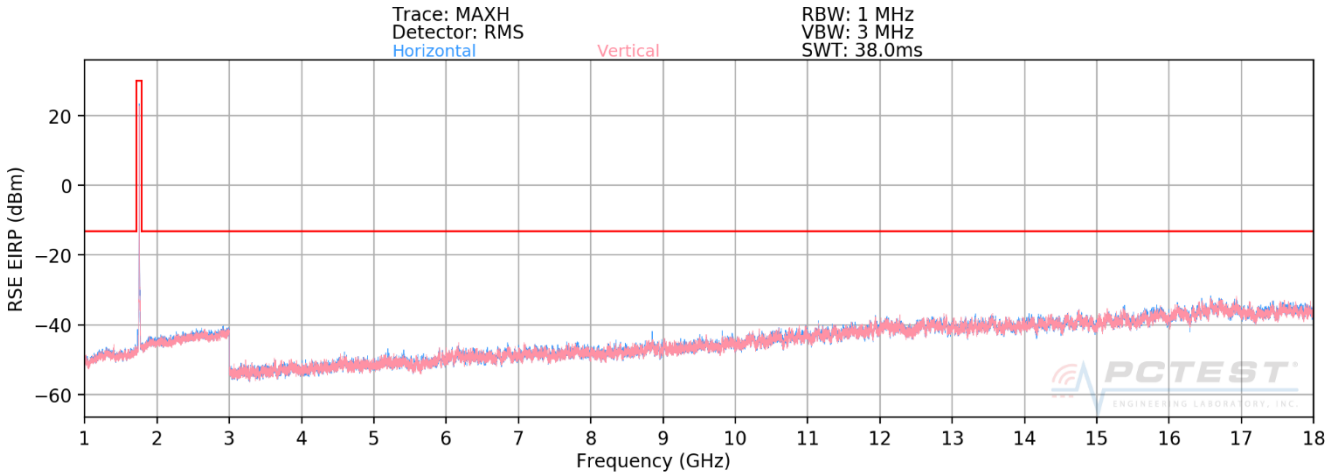
Table 7-18. Radiated Spurious Data (Band 5 – Mid Channel)

OPERATING FREQUENCY:	844.00	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]
1688.00	H	335	184	-78.51	8.95	-69.55	-56.6
2532.00	H	322	181	-65.60	9.75	-55.85	-42.9
3376.00	H	-	-	-75.77	9.71	-66.07	-53.1
4220.00	H	-	-	-75.91	10.48	-65.43	-52.4

Table 7-19. Radiated Spurious Data (Band 5 – High Channel)

Band 66/4



Plot 7-5. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY:	1720.00	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]
3440.00	H	113	25	-60.75	9.84	-50.90	-37.9
5160.00	H	-	-	-74.50	10.71	-63.79	-50.8
6880.00	H	-	-	-73.15	11.68	-61.47	-48.5

Table 7-20. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY:	1745.00	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]
3490.00	H	132	126	-67.23	9.91	-57.32	-44.3
5235.00	H	-	-	-74.17	10.73	-63.43	-50.4
6980.00	H	-	-	-73.90	11.82	-62.07	-49.1

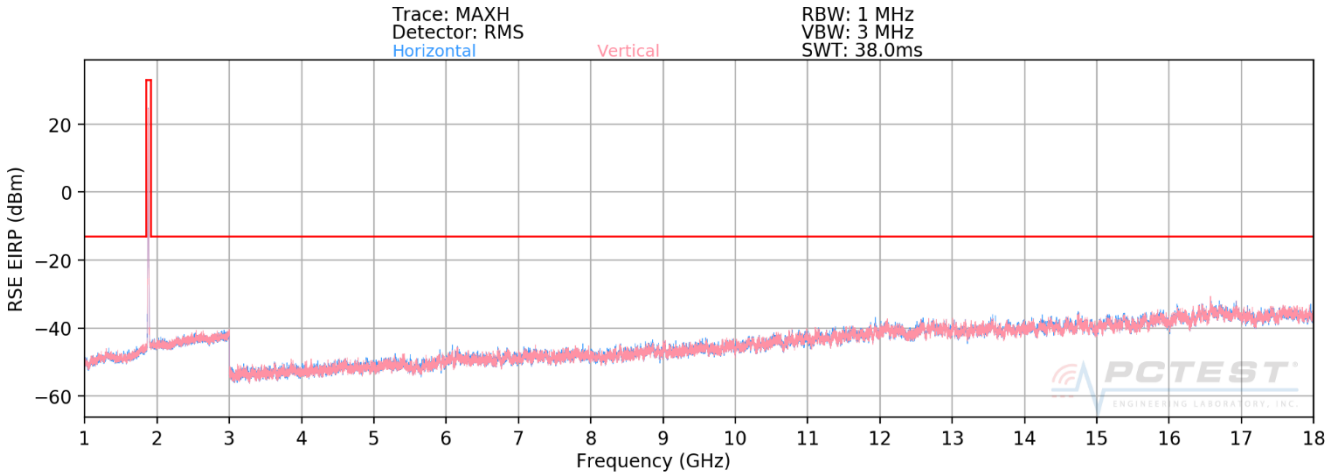
Table 7-21. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1770.00	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]
3540.00	H	346	118	-70.20	9.89	-60.30	-47.3
5310.00	H	-	-	-73.67	10.69	-62.98	-50.0
7080.00	H	-	-	-73.56	11.79	-61.77	-48.8

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

Band 2



Plot 7-6. Radiated Spurious Plot above 1GHz (Band 2)

OPERATING FREQUENCY:	1860.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	122	13	-62.54	6.58	-55.96	-43.0
5580.00	113	261	-63.67	8.74	-54.94	-41.9
7440.00	-	-	-65.49	8.41	-57.08	-44.1
9300.00	-	-	-64.47	9.33	-55.14	-42.1

Table 7-23. Radiated Spurious Data (Band 2 – Low Channel)

OPERATING FREQUENCY:	1880.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	160	166	-62.78	6.67	-56.11	-43.1
5640.00	125	263	-62.69	8.81	-53.88	-40.9
7520.00	-	-	-65.60	8.48	-57.11	-44.1
9400.00	-	-	-65.04	9.32	-55.72	-42.7

Table 7-24. Radiated Spurious Data (Band 2 – Mid Channel)

OPERATING FREQUENCY:	1900.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3800.00	105	30	-63.81	6.87	-56.93	-43.9
5700.00	120	199	-61.73	8.76	-52.97	-40.0
7600.00	-	-	-65.34	8.47	-56.86	-43.9
9500.00	-	-	-65.78	9.37	-56.41	-43.4

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

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFL322DL** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.