**FCC CFR47 PART 15 SUBPART C**

**CERTIFICATION TEST REPORT**

**FOR**

**GSM/WCDMA/LTE PHONE WITH BT + DTS WLAN b/g/n & NFC**

**MODEL NUMBER: LGK371, K371, LG-K371**

**FCC ID: ZNFK371**

**REPORT NUMBER: 16I22670-E5V3**

**ISSUE DATE: 2/24/2016**

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## Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| V1 | 2/16/2016 | Initial issue | D. CORONIA |
| V2 | 2/22/2016 | Updated Section 7.1.1 | D. CORONIA |
| V3 | 2/24/2016 | Updated Section 6, 7 (20dB OBW) and Radiated Emission data is now in Section 8 added KDB 937606 OATS Correlation Justification on page 13 | D. CORONIA |

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** LG ELECTRONICS MOBILE COMM U.S.A., INC

**EUT DESCRIPTION:** GSM/WCDMA/LTE PHONE WITH BT + DTS WLAN b/g/n & NFC

**MODEL:** LGK371, K371, LG-K371

**SERIAL NUMBER:** 512CYBD000389

**DATE TESTED:** JANUARY 27-FEBRUARY 10, 2016

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| CFR 47 Part 15 Subpart C | Pass |

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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WiSE LAB ENGINEER
UL VERIFICATION SERVICES INC

# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2014 FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

# 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 47173 Benicia Street | 47266 Benicia Street |
|---|---|
| ☐ Chamber A | ☐ Chamber D |
| ☒ Chamber B | ☐ Chamber E |
| ☐ Chamber C | ☐ Chamber F |
| | ☐ Chamber G |
| | ☐ Chamber H |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

# 4. CALIBRATION AND UNCERTAINTY

## 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

## 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

## 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER | UNCERTAINTY |
|---|---|
| Conducted Disturbance, 0.15 to 30 MHz | 3.52 dB |
| Radiated Disturbance, 9KHz to 30 MHz | 2.14 dB |
| Radiated Disturbance, 30 to 1000 MHz | 4.98 dB |
| Radiated Disturbance,1000 to 6000 MHz | 3.86 dB |
| Radiated Disturbance,6000 to 18000 MHz | 4.23 dB |
| Radiated Disturbance,18000 to 26000 MHz | 5.30 dB |
| Radiated Disturbance,26000 to 40000 MHz | 5.23 dB |

Uncertainty figures are valid to a confidence level of 95%.

# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE WITH BT + DTS WLAN b/g/n & NFC

## 5.2. MAXIMUM OUTPUT POWER

The testing was performed at 1 meter. The transmitter maximum E-field at 30m distance is 23.61 dBuV/m which convert from the 1 meter data.

## 5.3. WORST-CASE CONFIGURATION AND MODE

The NFC function was tested at its' fundamental and only operational frequency of 13.56 MHz. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that the Z-orientation was the worst-case orientation; therefore all final radiated testing was performed with the EUT in the Z-orientation while generating continuous emissions.

## 5.4. MODIFICATIONS

No modifications were made during testing.

## 5.5. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

**Radiated Emissions Above 30 MHz, AC Line Conducted Emissions and Frequency Stability:**

| Support Equipment List | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** | **FCC ID** |
| AC Adapter | LG | MCS-02WRE | N/A | N/A |
| Earphone | LG | N/A | N/A | N/A |

**I/O CABLES**

**Radiated Emissions above 30 MHz, AC Line Conducted Emissions:**

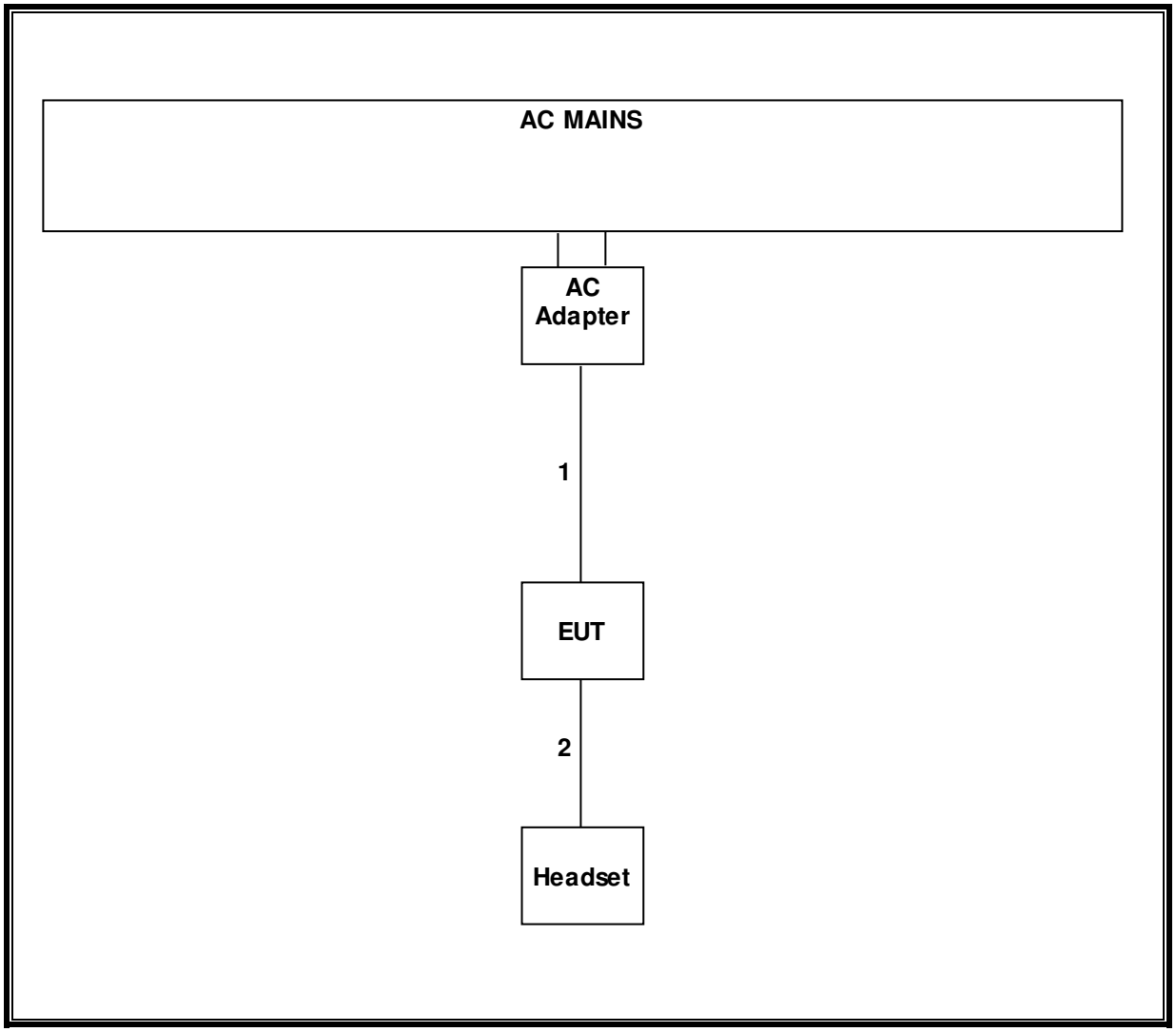
| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| **Cable No** | **Port** | **# of identical ports** | **Connector Type** | **Cable Type** | **Cable Length (m)** | **Remarks** |
| 1 | DC Power | 1 | Mini-USB | Shielded | 1.2m | N/A |
| 2 | Audio | 1 | Mini-Jack | Unshielded | 1m | N/A |

**TEST SETUP**

The EUT is a stand-alone device configured and tested in a worst-case setup.

**SETUP DIAGRAM FOR TESTS**

**Radiated Emissions Below 30 MHz:**



# 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Equipment List | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Asset** | **Cal Due** |
| Spectrum Analyzer, 44 GHz | Agilent / HP | E4446A | T123 | 10/22/16 |
| Antenna, Loop, 30 MHz | EMCO | 6502 | T35 | 02/20/16 |
| Antenna, Biconolog, 30MHz-1 GHz | Sunol Sciences | JB1 | T243 | 09/25/16 |
| Preamplifier, 1300 MHz | Keysight | 8447D | T64 | 08/14/16 |
| EMI Test Receiver, 9 KHz to | Rohde & Schwa | ECSI7 | T284 | 09/10/16 |
| Peak Power Meter | Agilent / HP | N1914A | T254 | 06/08/16 |
| Peak / Average Power Sens | Keysight | E9327A | T117 | 03/09/16 |
| LISN, 30 MHz | Solar | 8012-50-R-24- | T28 | 7/28/2016 |
| Temperature Chamber | CSZ | 2PHS-8-3 | T267 | 03/04/16 |

| Test Software List | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Version** |
| Radiated Software | UL | UL EMC | Ver 9.5, June 24, 2015 |
| Conducted Software | UL | UL EMC | Ver 9.5, May 26, 2015 |

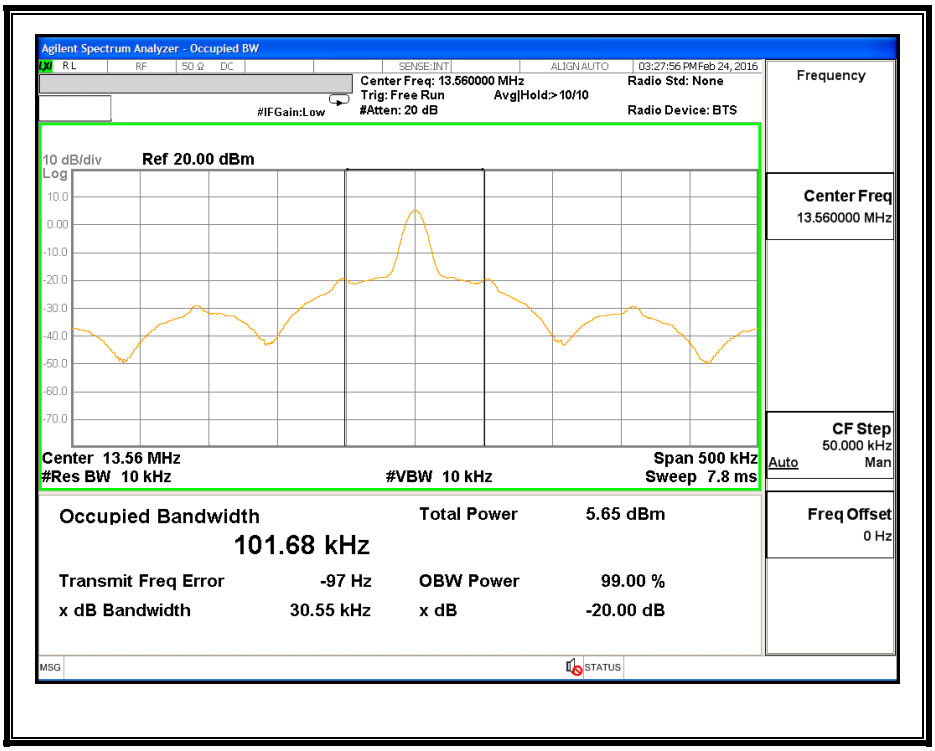
# 7. OCCUPIED BANDWIDTH

## LIMITS

For reporting purposes only

## RESULTS

| Channel | Frequency (KHz) | 99% Bandwidth (KHz) | 20dB Bandwidth (KHz) |
|---|---|---|---|
| Low | 13.56 | 101.68 | 30.55 |



# 8. RADIATED EMISSION TEST RESULTS

**LIMIT**

§15.225

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:
§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Limits for radiated disturbance of an intentional radiator | | |
|---|---|---|
| Frequency range (MHz) | Limits (µV/m) | Measurement Distance (m) |
| 0.009 – 0.490 | 2400 / F (kHz) | 300 |
| 0.490 – 1.705 | 24000 / F (kHz) | 30 |
| 1.705 – 30.0 | 30 | 30 |
| 30 – 88 | 100** | 3 |
| 88 - 216 | 150** | 3 |
| 216 – 960 | 200** | 3 |
| Above 960 | 500 | 3 |

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.
§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

In addition:

§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

## TEST PROCEDURE

ANSI C63.4-2014

The EUT is an intentional radiator that incorporates a digital device. The highest fundamental frequency generated or used in the device is 13.56 MHz. The frequency range was investigated from 0.15 MHz to the $10^{th}$ harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater (1000MHz)

## RESULTS

No non-compliance noted:

### KDB 937606 OATS and Chamber Correlation Justification

- Device is a Smart Phone.

- Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

# FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz)

**FCC Part 15, Subpart B & C** **3 Meter Distance Measurement At Emissions Chamber**

**Company:** LG
**Project #:** 16I22670
**Model #:** LG-K371
**Tester:** Jude semana
**Date:** 1/27/2016

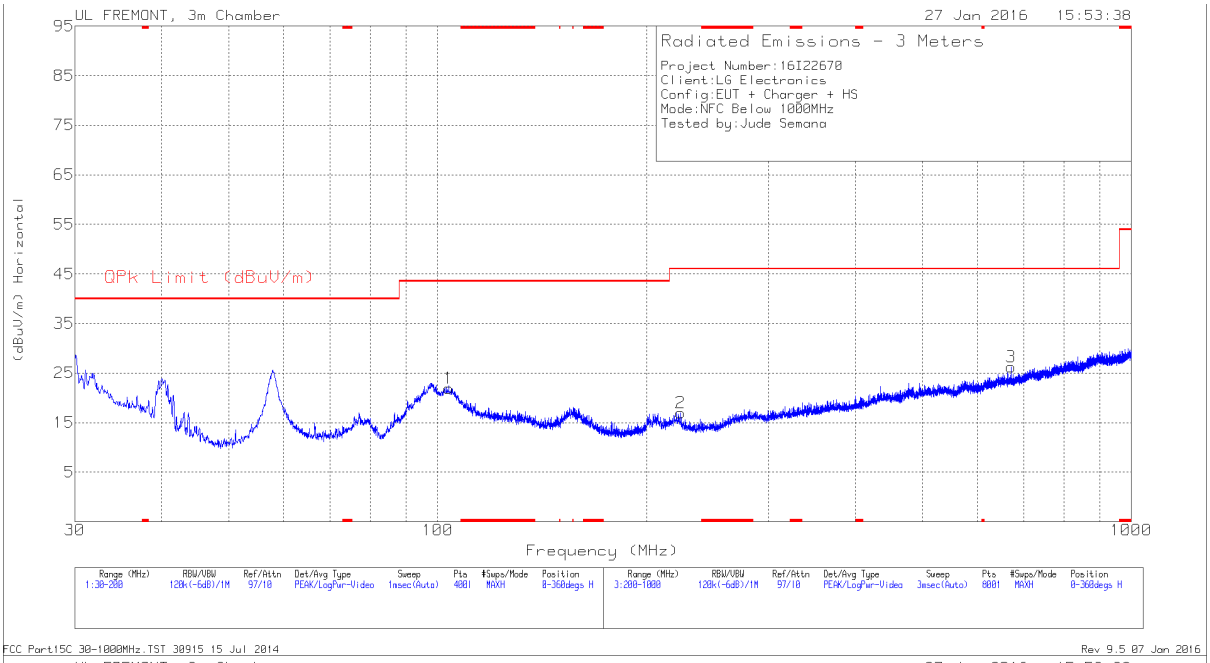
| Frequency (MHz) | PK (dBu/V) | QP (dBu/V) | AV (dBuV) | AF dB/m | Distance (m) | Distance Correction (dB) | PK Corrected Reading (dBuV/m) | AV Corrected Reading (dBuV/m) | QP Limit (dBuV/m) | AV Limit (dBuV/m) | PK Margin (dB) | AV Margin (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Loop Antenna Face On: Z-Position | | | | | | | | | | | | | |
| Fundamental Field Strength & Within Bands: | | | | | | | | | | | | | |
| 13.56 | 72.14 | | -- | 10.56 | 1 | -59.08 | 23.61 | -- | 84.00 | -- | -60.4 | -- | Fundamental @ 30m Dist |
| 13.41 | 24.89 | | -- | 10.54 | 1 | -59.08 | -23.65 | -- | 50.48 | -- | -74.1 | -- | 13.41-13.553MHz Sprious @ 30m |
| 13.553 | 57.91 | | -- | 10.56 | 1 | -59.08 | 9.38 | -- | 50.48 | -- | -41.1 | -- | 13.41-13.553MHz Sprious @ 30m |
| 13.567 | 61.32 | | -- | 10.56 | 1 | -59.08 | 12.79 | -- | 50.48 | -- | -37.7 | -- | 13.567-13.710MHz Spurious @ 30m |
| 13.664 | 39.66 | | -- | 10.57 | 1 | -59.08 | -8.86 | -- | 40.51 | -- | -49.4 | -- | 13.567-13.710MHz Spurious @ 30m |
| 13.349 | 14.67 | | -- | 10.53 | 1 | -59.08 | -33.88 | -- | 40.51 | -- | -74.4 | -- | 13.110-13.410MHz Spurious @ 30m |
| 13.772 | 44.82 | | -- | 10.58 | 1 | -59.08 | -3.69 | -- | 29.54 | -- | -33.2 | -- | 13.710-14.010MHz Spurious @ 30m |
| Loop Antenna Face Off: Z-Position | | | | | | | | | | | | | |
| Fundamental Field Strength & Within Bands: | | | | | | | | | | | | | |
| 13.56 | 68.79 | | -- | 10.56 | 1 | -59.08 | 20.26 | -- | 84.00 | -- | -63.7 | -- | Fundamental @ 30m Dist |
| 13.454 | 22.015 | | -- | 10.55 | 1 | -59.08 | -26.52 | -- | 50.48 | -- | -77.0 | -- | 13.41-13.553MHz Sprious @ 30m |
| 13.553 | 64.34 | | -- | 10.56 | 1 | -59.08 | 15.81 | -- | 50.48 | -- | -34.7 | -- | 13.41-13.553MHz Sprious @ 30m |
| 13.567 | 65.18 | | -- | 10.56 | 1 | -59.08 | 16.65 | -- | 50.48 | -- | -33.8 | -- | 13.567-13.710MHz Spurious @ 30m |
| 13.66 | 35.04 | | -- | 10.57 | 1 | -59.08 | -13.48 | -- | 40.51 | -- | -54.0 | -- | 13.567-13.710MHz Spurious @ 30m |
| 13.35 | 14.73 | | -- | 10.54 | 1 | -59.08 | -33.82 | -- | 40.51 | -- | -74.3 | -- | 13.110-13.410MHz Spurious @ 30m |
| 13.773 | 33.09 | | -- | 10.58 | 1 | -59.08 | -15.42 | -- | 29.54 | -- | -45.0 | -- | 13.710-14.010MHz Spurious @ 30m |
| Spurious Emissions 9kHz - 490kHz: | | | | | | | | | | | | | |
| 0.01 | 60.77 | -- | | 18.7 | 1 | -99.08 | -19.61 | -19.61 | 67.60 | 47.60 | -87.2 | -67.2 | 9kHz-10kHz Spurious @ 30m |
| 0.1 | 49.56 | -- | | 10.5 | 1 | -99.08 | -39.02 | -39.02 | 47.60 | 27.60 | -86.6 | -66.6 | 10kHz-100kHz Spurious @ 30m |
| 0.489 | 35.989 | -- | | 10.21 | 1 | -99.08 | -52.89 | -52.89 | 33.82 | 13.82 | -86.7 | -66.7 | 100kHz-489kHz Spurious @ 30m |
| Spurious Emissions 490kHz - 30MHz: | | | | | | | | | | | | | |
| 0.49 | 35.522 | | -- | 10.21 | 1 | -59.08 | -13.36 | -- | 33.80 | | -47.2 | -- | 489kHz-490kHz Spurious @ 30m |
| 1 | 29.71 | | -- | 10.3 | 1 | -59.08 | -19.07 | -- | 27.60 | | -46.7 | -- | 490kHz-1MHz Spurious @ 30m |
| 1.17 | 35.979 | | -- | 10.29 | 1 | -59.08 | -12.81 | -- | 26.24 | | -39.1 | -- | 1MHz-1.705MHz Spurious @ 30 m |
| 1.859 | 23.15 | | -- | 10.26 | 1 | -59.08 | -25.68 | -- | 29.54 | | -55.2 | -- | 1.705MHz-5MHz Spurious @ 30m |
| 7.037 | 25.921 | | -- | 10.2 | 1 | -59.08 | -22.96 | -- | 29.54 | | -52.5 | -- | 5-10MHz Spurious @ 30m |
| 29.83 | 33.123 | | -- | 8.72 | 1 | -59.08 | -17.24 | -- | 29.54 | | -46.8 | -- | 20-30MHz Spurious @ 30m |

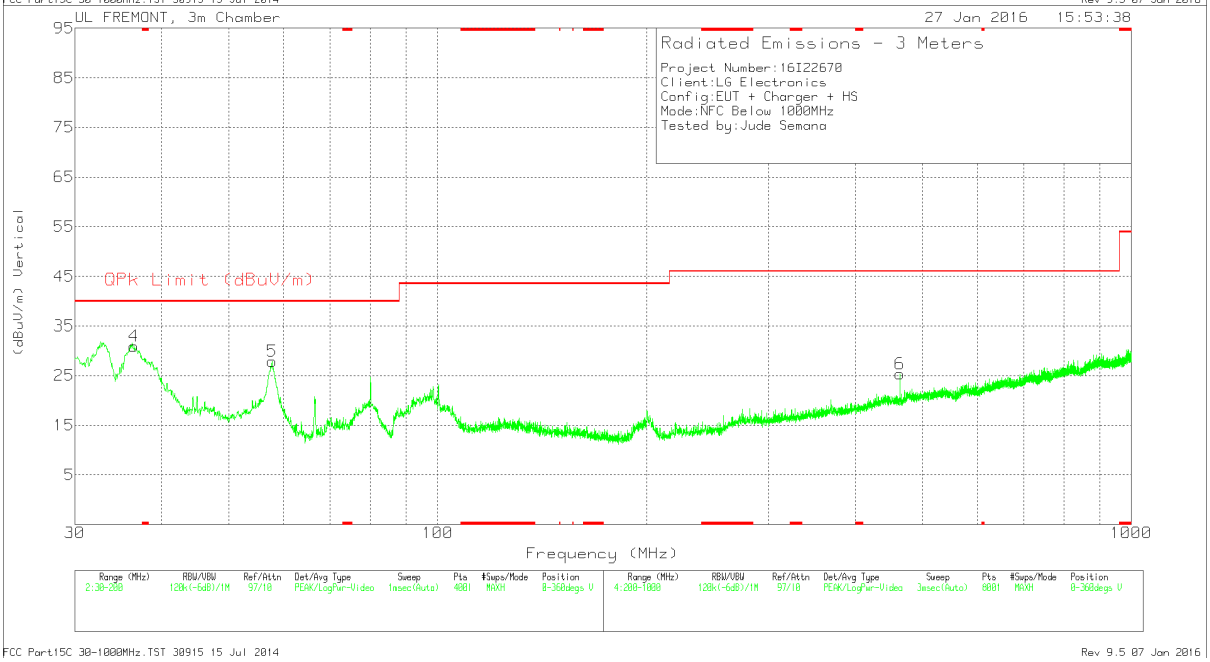
* No more emissions were found up to 30MHz

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

P.K. = Peak
Q.P. = Quasi Peak Readings
A.F. = Antenna factor

## 8.1.1. TX SPURIOUS EMISSION 30 TO 1000 MHz



## Trace Markers

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AF T185 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 36.5025 | 41.2 | Pk | 16.8 | -27.1 | 30.9 | 40 | -9.1 | 0-360 | 100 | V |
| 5 | 57.7525 | 47.58 | Pk | 7.2 | -26.9 | 27.88 | 40 | -12.12 | 0-360 | 100 | V |
| 1 | 103.78 | 37.55 | Pk | 10.7 | -26.3 | 21.95 | 43.52 | -21.57 | 0-360 | 200 | H |
| 2 | 224 | 31.16 | Pk | 10.7 | -24.9 | 16.96 | 46.02 | -29.06 | 0-360 | 100 | H |
| 6 | 463.7 | 33.76 | Pk | 16.6 | -25 | 25.36 | 46.02 | -20.66 | 0-360 | 100 | V |
| 3 | 671 | 31.13 | Pk | 19.4 | -24.3 | 26.23 | 46.02 | -19.79 | 0-360 | 400 | H |

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10Restricted Band

Pk - Peak detector

# 9. AC MAINS LINE CONDUCTED EMISSIONS

**LIMITS**

§15.207

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

| Frequency range (MHz) | Limits (dBµV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |
| Notes:<br>1. The lower limit shall apply at the transition frequencies<br>2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. | | |

**TEST PROCEDURE**

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

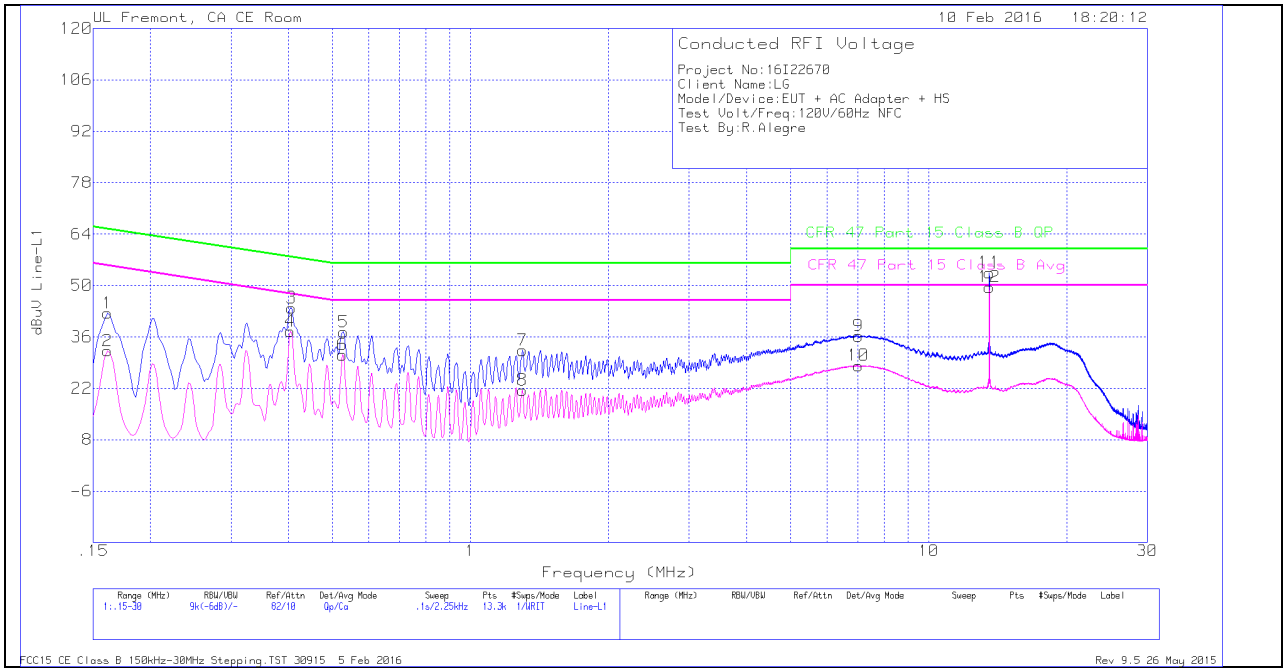
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

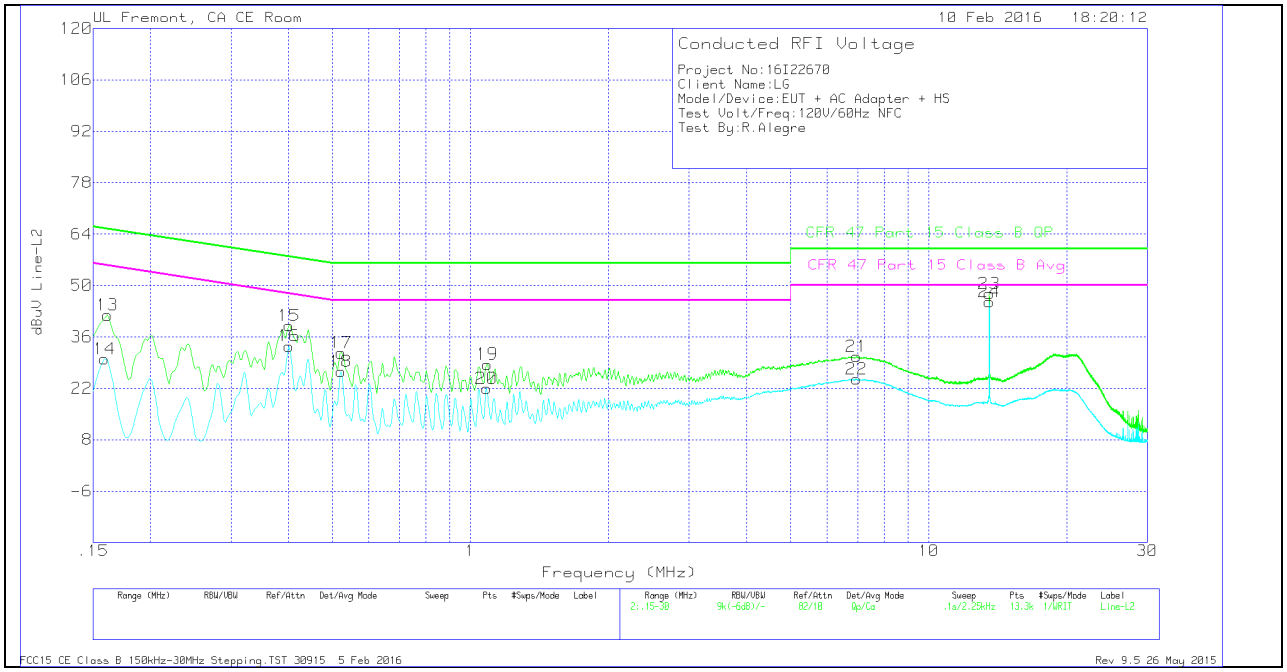
**RESULTS**

No non-compliance noted:

## LINE 1 PLOT



## LINE 2 PLOT



## LINE 1 & LINE 2 RESULTS

Trace Markers

Range 1: Line-L1 .15 - 30MHz

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | T1310 IL L1 | LC Cables 1&3 | 10dB Pad | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .16125 | 32.44 | Qp | 0 | 0 | 10 | 42.44 | 65.4 | -22.96 | - | - |
| 2 | .16125 | 22.22 | Ca | 0 | 0 | 10 | 32.22 | - | - | 55.4 | -23.18 |
| 3 | .4065 | 33.9 | Qp | 0 | 0 | 10 | 43.9 | 57.72 | -13.82 | - | - |
| 4 | .40425 | 27.54 | Ca | 0 | 0 | 10 | 37.54 | - | - | 47.77 | -10.23 |
| 5 | .528 | 27.32 | Qp | 0 | 0 | 10 | 37.32 | 56 | -18.68 | - | - |
| 6 | .52575 | 21.12 | Ca | 0 | 0 | 10 | 31.12 | - | - | 46 | -14.88 |
| 7 | 1.29975 | 22.34 | Qp | 0 | 0 | 10 | 32.34 | 56 | -23.66 | - | - |
| 8 | 1.2975 | 11.39 | Ca | 0 | .1 | 10 | 21.49 | - | - | 46 | -24.51 |
| 9 | 7.02825 | 26.16 | Qp | 0 | .1 | 10 | 36.26 | 60 | -23.74 | - | - |
| 10 | 7.026 | 18.1 | Ca | 0 | .1 | 10 | 28.2 | - | - | 50 | -21.8 |
| 11 | 13.56 | 43.17 | Qp | .1 | .2 | 10 | 53.47 | 60 | -6.53 | - | - |
| 12 | 13.56 | 39.27 | Ca | .1 | .2 | 10 | 49.57 | - | - | 50 | -.43 |

Qp - Quasi-Peak detector

Ca - CISPR average detection

Range 2: Line-L2 .15 - 30MHz

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | T1310 IL L2 | LC Cables 2&3 | 10dB Pad | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | .16125 | 31.91 | Qp | 0 | 0 | 10 | 41.91 | 65.4 | -23.49 | - | - |
| 14 | .159 | 20 | Ca | 0 | 0 | 10 | 30 | - | - | 55.52 | -25.52 |
| 15 | .402 | 29.05 | Qp | 0 | 0 | 10 | 39.05 | 57.81 | -18.76 | - | - |
| 16 | .402 | 23.5 | Ca | 0 | 0 | 10 | 33.5 | - | - | 47.81 | -14.31 |
| 17 | .52237 | 21.65 | Qp | 0 | 0 | 10 | 31.65 | 56 | -24.35 | - | - |
| 18 | .52125 | 16.57 | Ca | 0 | 0 | 10 | 26.57 | - | - | 46 | -19.43 |
| 19 | 1.08825 | 18.52 | Qp | 0 | 0 | 10 | 28.52 | 56 | -27.48 | - | - |
| 20 | 1.08375 | 11.91 | Ca | 0 | 0 | 10 | 21.91 | - | - | 46 | -24.09 |
| 21 | 6.9585 | 20.59 | Qp | 0 | .1 | 10 | 30.69 | 60 | -29.31 | - | - |
| 22 | 6.96075 | 14.43 | Ca | 0 | .1 | 10 | 24.53 | - | - | 50 | -25.47 |
| 23 | 13.56 | 37.5 | Qp | .1 | .2 | 10 | 47.8 | 60 | -12.2 | - | - |
| 24 | 13.56 | 35.22 | Ca | .1 | .2 | 10 | 45.52 | - | - | 50 | -4.48 |

Qp - Quasi-Peak detector

Ca - CISPR average detection

# 10. FREQUENCY STABILITY

**LIMIT**

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency, over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

**TEST PROCEDURE**

ANSI / TIA / EIA 603 Clause 2.3.1 and 2.3.2

**RESULTS**

No non-compliance noted.

| Reference Frequency: EUT Channel 13.560000 MHz @ 20ºC<br>Limit: ± 100 ppm : 1.356 kHz | | | | |
|---|---|---|---|---|
| Power Supply (Vdc) | Environment Temperature (ºC) | Frequency Deviation Measureed with Time Elapse | | |
| | | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.80 | 50 | 13.559991 | -0.366 | ± 100 |
| 3.80 | 40 | 13.559977 | 0.666 | ± 100 |
| 3.80 | 30 | 13.559978 | 0.579 | ± 100 |
| 3.80 | ***20*** | ***13.559986*** | ***0.000*** | ***± 100*** |
| 3.80 | 10 | 13.560024 | -2.778 | ± 100 |
| 3.80 | 0 | 13.560051 | -4.758 | ± 100 |
| 3.80 | -10 | 13.560065 | -5.833 | ± 100 |
| 3.80 | -20 | 13.560060 | -5.471 | ± 100 |
| 3.23 | 20 | 13.560024 | -2.753 | ± 100 |
| 4.37 | 20 | 13.559999 | -0.948 | ± 100 |