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MEASUREMENT REPORT FCC PART 15.407 UNII

Applicant Name: LG Electronics USA, Inc. 1000 Sylvan Avenue Englewood Cliffs, NJ 07632 United States Date of Testing: 02/20 - 03/13/2020 Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.: 1M2002170022-06.ZNF

FCC ID: ZNFQ730TM

APPLICANT: LG Electronics USA, Inc.

Application Type: Class II Permissive Change

Model: LM-Q730TM

Additional Model(s): LM-Q730MM, LMQ730TM, LMQ730MM, Q730TM, Q730MM

EUT Type: Portable Handset **Frequency Range:** 5180 – 5825MHz

Modulation Type: OFDM

FCC Classification: Unlicensed National Information Infrastructure (UNII)

FCC Rule Part(s): Part 15 Subpart E (15.407)

Test Procedure(s): ANSI C63.10-2013, KDB 789033 D02 v02r01

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 ANSI C63.10-2013 and KDB 789033 D02 v02r01. 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.







FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N: Test Dates:		EUT Type:	Dago 1 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 1 of 30



TABLE OF CONTENTS

			_
1.0	INTRO	ODUCTION	3
	1.1	Scope	3
	1.2	PCTEST Test Location	3
	1.3	Test Facility / Accreditations	3
2.0	PROD	DUCT INFORMATION	4
	2.1	Equipment Description	4
	2.2	Device Capabilities	4
	2.3	Test Configuration	5
	2.4	EMI Suppression Device(s)/Modifications	5
3.0	DESC	CRIPTION OF TESTS	6
	3.1	Evaluation Procedure	6
	3.2	Radiated Emissions	7
	3.3	Environmental Conditions	7
4.0	ANTE	ENNA REQUIREMENTS	8
5.0	MEAS	SUREMENT UNCERTAINTY	9
6.0	TEST	EQUIPMENT CALIBRATION DATA	10
7.0	TEST	RESULTS	11
	7.1	Summary	11
	7.2	Radiated Spurious Emission Measurements – Above 1GHz	12
		7.6.1 Radiated Spurious Emission Measurements	15
		7.6.2 Radiated Band Edge Measurements (20MHz BW)	24
		7.6.3 Radiated Band Edge Measurements (40MHz BW)	26
		7.6.4 Radiated Band Edge Measurements (80MHz BW)	28
8.0	CONC	CLUSION	30

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dog 2 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 2 of 30



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 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 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.

FCC ID: ZNFQ730TM	ZNFQ730TM		Approved by: Quality Manager
Test Report S/N: Test Dates:		EUT Type:	Dago 2 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 3 of 30



2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFQ730TM**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter.

Test Device Serial No.: 04948, 04955, 04963, 04971

2.2 Device Capabilities

This device contains the following capabilities:

800/850/1900 CDMA/EvDO (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC

	Band 1
Ch.	Frequency (MHz)
36	5180
:	:
42	5210
:	:
48	5240

Ch.	Frequency (MHz)
52	5260
	•
56	5280
:	:

Band 2A

5320

Band 2A

	Band 2C
Ch.	Frequency (MHz)
100	5500
:	• •
120	5600
:	• •
144	5720

Ch.	Frequency (MHz)
149	5745
• •	•
157	5785
:	:
165	5825

Band 3

Table 2-1. 802.11a / 802.11n / 802.11ac (20MHz) Frequency / Channel Operations

Ch.	Frequency (MHz)
38	5190
:	:
46	5230

Ch.	Frequency (MHz)
54	5270
:	:
62	5310

64

Ch.	Frequency (MHz)
102	5510
:	
118	5590
:	:
142	5710

Band 2C

Ch.	Frequency (MHz)
151	5755
:	:
159	5795

Band 3

Table 2-2. 802.11n / 802.11ac (40MHz BW) Frequency / Channel Operations

Band 1 Ch. Frequency (MHz) 42 5210

Balla 2/1		
Ch.	Frequency (MHz)	
58	5290	

Band 2A

D uu 1 0			
Ch. Frequency (MHz			
106	5530		
:	:		
138	5690		

Band 2C

Ch.	Frequency (MHz)
155	5775

Band 3

Table 2-3. 802.11ac (80MHz BW) Frequency / Channel Operations

FCC ID: ZNFQ730TM	Proud to be port of element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 4 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 4 of 30



Notes:

1. 5GHz NII operation is possible in 20MHz channel bandwidth. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of ANSI C63.10-2013 and KDB 789033 D02 v02r01. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

802.11 Mode/Band		Duty Cycle [%]
	а	96.8
5GHz	n (HT20)	96.6
	ac (HT20)	96.6
	n (HT40)	87.9
	ac (HT40)	88.0
	ac (HT80)	78.5

Table 2-4. Measured Duty Cycles

2.3 Test Configuration

The EUT was tested per the guidance of KDB 789033 D02 v02r01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing. See Section 3.2 for radiated emissions test setups.

2.4 EMI Suppression Device(s)/Modifications

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

FCC ID: ZNFQ730TM	Proud to be port of element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo F of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 5 of 30



3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 789033 D02 v02r01 were used in the measurement of the EUT.

Deviation from measurement procedure......None

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 6 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 6 of 30



3.2 Radiated 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. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

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.

3.3 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 7 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 7 of 30



4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antennas of the EUT are permanently attached.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

FCC ID: ZNFQ730TM	Proud to be port of element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dog 0 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 8 of 30
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5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. 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
Line Conducted Disturbance	3.09
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogg 0 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 9 of 30



TEST EQUIPMENT CALIBRATION DATA 6.0

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
- WL40-1		Conducted Cable Set (40GHz)	10/30/2019	Annual	10/30/2020	WL40-1
- WL25-1		Conducted Cable Set (25GHz)	10/30/2019	Annual	10/30/2020	WL25-1
Agilent	N9038A	MXE EMI Receiver	7/17/2019	Annual	7/17/2020	MY51210133
Agilent	N9030A	PXA Signal Analyzer (44GHz)	6/12/2019	Annual	6/12/2020	MY52350166
Anritsu	MA2411B	Pulse Power Sensor	8/14/2019	Annual	8/14/2020	1315051
Anritsu	ML2496A	Power Meter	11/6/2019	Annual	11/6/2020	1405003
Anritsu	MA2411B	Pulse Power Sensor	10/15/2019	Annual	10/15/2020	1339026
Anritsu	ML2495A	Power Meter	12/17/2019	Annual	12/17/2020	941001
Com-Power	AL-130R	Active Loop Antenna	8/22/2019	Annual	8/22/2020	121085
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	5/10/2019	Annual	5/10/2020	441112
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	6/7/2018	Triennial	6/7/2021	9203-2178
ETS-Lindgren	3816/2NM	Line Impedance Stabilization Network	6/18/2018	Biennial	6/18/2020	114451
Huber + Suhner	Sucoflex 102A	40GHz Radiated Cable Set	1/31/2019	Annual	2/31/2020	251425001
Pasternack	NMLC-2	Line Conducted Emissions Cable (NM)	6/3/2019	Annual	6/3/2020	NMLC-2
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	6/5/2019	Annual	6/5/2020	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/23/2019	Annual	9/23/2020	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	5/6/2019	Annual	5/6/2020	103200
Rohde & Schwarz SFUNIT-Rx		Shielded Filter Unit	7/11/2019	Annual	7/11/2020	102134
Rohde & Schwarz SFUNIT-Rx		Shielded Filter Unit	7/8/2019	Annual	7/8/2020	102133
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	1/31/2019	Annual	1/31/2020	100040
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107

Table 6-1. Annual Test Equipment Calibration Schedule

Note:

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.

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogg 10 of 20	
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 10 of 30	

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7.0 TEST RESULTS

7.1 Summary

Company Name: <u>LG Electronics USA, Inc.</u>

FCC ID: ZNFQ730TM

FCC Classification: Unlicensed National Information Infrastructure (UNII)

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(b.1), (2), (3), (4)	RSS-247 [6.2]	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 15.407(b) (RSS-247 [6.2])		PASS	Section 7.2
15.205, 15.407(b.1), (4), (5), (6)	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9])	RADIATED	PASS	Section 7.2, 7.3

Table 7-1. Summary of Test Results

Notes:

- 1) All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst case emissions.
- 2) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "Chamber Automation," Version 1.3.1.

FCC ID: ZNFQ730TM	Proud to be part of @ element.	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogg 11 of 20	
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 11 of 30	



7.2 Radiated Spurious Emission Measurements – Above 1GHz §15.407(b) §15.205 §15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW), 802.11n (40MHz BW), and 802.11ac (80MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

For transmitters operating in the 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-2 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-2. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5 KDB 789033 D02 v02r01 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = power average (RMS)
- Number of measurement points = 1001 (Number of points must be ≥ 2 x span/RBW)
- Averaging type = power (RMS)
- 7. Sweep time = auto couple

assembly of contents thereof, please contact INFO@PCTEST.COM

8. Trace was averaged over 100 sweeps

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 12 of 20	
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 12 of 30	



Peak Measurements above 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = peak
- 5. Sweep time = auto couple
- 6. Trace mode = max hold
- 7. Trace was allowed to stabilize

Peak Measurements below 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. Span was set greater than 1MHz
- 3. RBW = 120kHz
- 4. Detector = CISPR quasi-peak
- 5. Sweep time = auto couple
- 6. Trace was allowed to stabilize

Test Setup

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

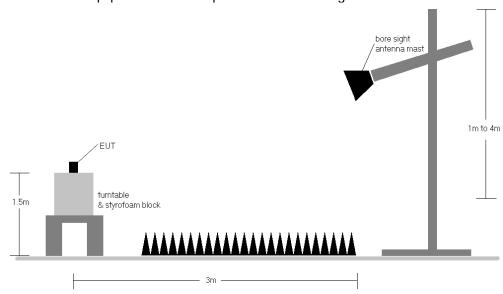


Figure 7-1. Test Instrument & Measurement Setup

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	_G	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	tes: EUT Type:		Daga 12 of 20	
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 13 of 30	
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Test Notes

- 1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-2.
- 2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-2. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
- 3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- 4. This unit was tested with its standard battery.
- 5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
- 6. 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.
- 7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
- 8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

- Field Strength Level [dBμV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dBμV/m] Limit [dBμV/m]

Radiated Band Edge Measurement Offset

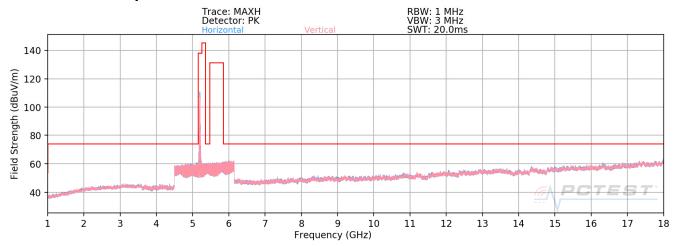
 The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:

Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) - Preamplifier Gain

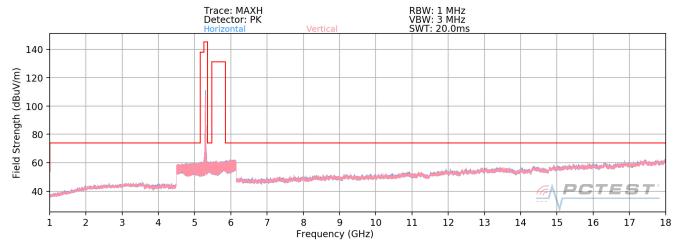
FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Page 14 of 30	
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 14 01 30	



7.6.1 Radiated Spurious Emission Measurements



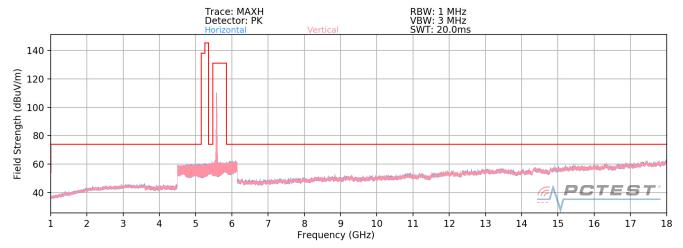
Plot 7-1. Radiated Spurious Plot above 1GHz (802.11a - U1 Ch. 40)



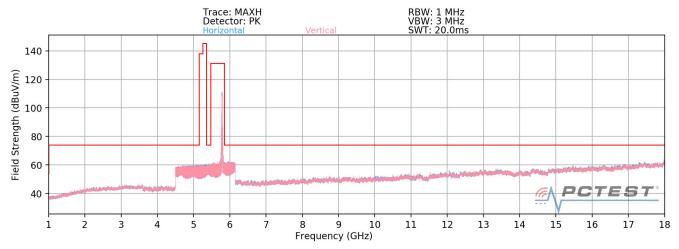
Plot 7-2. Radiated Spurious Plot above 1GHz (802.11a - U2A Ch. 56)

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 15 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Fage 15 01 50





Plot 7-3. Radiated Spurious Plot above 1GHz (802.11a - U2C Ch. 120)

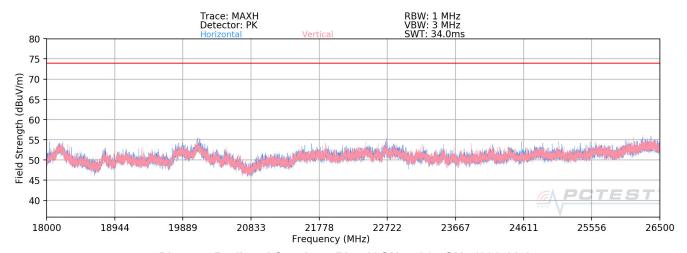


Plot 7-4. Radiated Spurious Plot above 1GHz (802.11a - U3 Ch. 157)

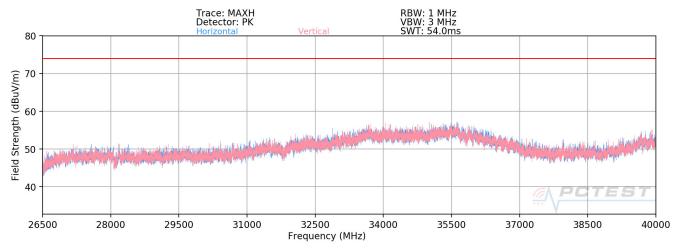
FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 16 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 10 01 30



Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-5. Radiated Spurious Plot 18GHz - 26.5GHz (802.11a)



Plot 7-6. Radiated Spurious Plot 26.5GHz - 40GHz (802.11a)

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 17 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Fage 17 01 30



Radiated Spurious Emission Measurements

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Channel:

20800.00

26000.00

Peak

Peak

Н

Н

Worst Case Mode: 802.11a Worst Case Transfer Rate: 6Mbps Distance of Measurements: 1 & 3 Meters Operating Frequency: 5180MHz Channel: 36

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	Peak	Н	100	299	-74.34	15.31	0.00	47.97	68.20	-20.23
*	15540.00	Average	Н	-	-	-84.67	26.04	0.00	48.37	53.98	-5.60
*	15540.00	Peak	Н	-	-	-77.27	26.04	0.00	55.77	73.98	-18.20
*	20720.00	Average	Н	-	-	-70.49	17.51	-9.54	44.48	53.98	-9.50
*	20720.00	Peak	Н	-	-	-65.13	17.51	-9.54	49.84	73.98	-24.14
	25900.00	Peak	Н	-	-	-64.51	19.88	-9.54	52.83	68.20	-15.37

Table 7-3. Radiated Measurements

Worst Case Mode: 802.11a Worst Case Transfer Rate: 6Mbps Distance of Measurements: 1 & 3 Meters Operating Frequency: 5200MHz

40

Distance **Turntable** Ant. Antenna **Analyzer** Field Frequency **AFCL** Limit Margin Correction Detector Pol. Height **Azimuth** Level Strength [dBµV/m] [MHz] [dB/m] [dB] **Factor** [H/V] [cm] [degree] [dBm] [dBµV/m] [dB] 10400.00 Peak Н 208 235 -75.50 15.38 0.00 46.88 68.20 -21.32 15600.00 -83.71 25.71 0.00 49.00 53.98 Average Н -4.98 15600.00 Н -77.40 25.71 0.00 55.31 73.98 Peak -18.67 20800.00 17.87 -9.54 45.65 53.98 Average Н -69.67-8.33

-64.37 **Table 7-4. Radiated Measurements**

-66.13

17.87

20.15

-9.54

-9.54

49.19

53.23

73.98

68.20

-24.79

-14.97

FCC ID: ZNFQ730TM	Provide to be port of (@ element)	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 18 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 16 01 30

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Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 1 & 3 Meters

Operating Frequency: 5240MHz

Channel: 48

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	Peak	Н	119	59	-75.99	16.36	0.00	47.37	68.20	-20.83
*	15720.00	Average	Н	-	-	-84.47	26.11	0.00	48.64	53.98	-5.34
*	15720.00	Peak	Н	-	-	-76.71	26.11	0.00	56.40	73.98	-17.58
*	20960.00	Average	Н	-	-	-69.03	18.06	-9.54	46.48	53.98	-7.49
*	20960.00	Peak	Н	-	-	-66.51	18.06	-9.54	49.00	73.98	-24.97
	26200.00	Peak	Н	-	-	-64.17	20.23	-9.54	53.52	68.20	-14.68

Table 7-5. Radiated Measurements

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 1 & 3 Meters

Operating Frequency: 5260MHz

Channel: 52

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10520.00	Peak	Н	218	258	-76.39	16.42	0.00	47.03	68.20	-21.17
*	15780.00	Average	Н	-	-	-84.35	26.08	0.00	48.73	53.98	-5.25
*	15780.00	Peak	Н	-	-	-77.31	26.08	0.00	55.77	73.98	-18.21
*	21040.00	Average	Н	-	-	-70.26	18.36	-9.54	45.55	53.98	-8.43
*	21040.00	Peak	Ι	ı	-	-66.10	18.36	-9.54	49.71	73.98	-24.27
	26300.00	Peak	Н	-	-	-64.55	20.96	-9.54	53.86	68.20	-14.34

Table 7-6. Radiated Measurements

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 19 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 19 01 30

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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 1 & 3 Meters

Operating Frequency: 5280MHz
Channel: 56

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10560.00	Peak	Н	101	183	-75.62	16.00	0.00	47.38	68.20	-20.82
*	15840.00	Average	Н	-	-	-83.32	26.12	0.00	49.80	53.98	-4.18
*	15840.00	Peak	Н	-	-	-77.43	26.12	0.00	55.69	73.98	-18.29
*	21120.00	Average	Н	-	-	-67.91	18.17	-9.54	47.71	53.98	-6.26
*	21120.00	Peak	Н	-	-	-63.01	18.17	-9.54	52.61	73.98	-21.36
	26400.00	Peak	Н	-	-	-64.22	20.65	-9.54	53.89	68.20	-14.31

Table 7-7. Radiated Measurements

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 1 & 3 Meters

Operating Frequency: 5320MHz

Channel: 64

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	10640.00	Average	Η	166	318	-77.43	15.73	0.00	45.30	53.98	-8.68
*	10640.00	Peak	Н	166	318	-75.52	15.73	0.00	47.21	73.98	-26.77
*	15960.00	Average	Н	-	-	-84.37	26.81	0.00	49.44	53.98	-4.54
*	15960.00	Peak	Н	-	-	-77.82	26.81	0.00	55.99	73.98	-17.99
*	21280.00	Average	Н	-	-	-69.12	18.57	-9.54	46.91	53.98	-7.07
*	21280.00	Peak	Н	-	-	-65.43	18.57	-9.54	50.60	73.98	-23.38
	26600.00	Peak	Н	-	-	-53.13	5.16	-9.54	49.49	68.20	-18.71

Table 7-8. Radiated Measurements

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	(LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 20 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 20 01 30



Worst Case Mode: 802.11a Worst Case Transfer Rate: 6Mbps Distance of Measurements: 1 & 3 Meters Operating Frequency: 5500MHz Channel: 100

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	Average	Н	341	202	-77.34	17.60	0.00	47.26	53.98	-6.72
*	11000.00	Peak	I	341	202	-74.91	17.60	0.00	49.69	73.98	-24.29
	16500.00	Peak	Н	-	-	-76.76	26.50	0.00	56.74	68.20	-11.46
	22000.00	Peak	Н	-	-	-63.47	19.12	-9.54	53.10	68.20	-15.10
	27500.00	Peak	Н	-	-	-52.63	3.98	-9.54	48.81	68.20	-19.39

Table 7-9. Radiated Measurements

Worst Case Mode: 802.11a Worst Case Transfer Rate: 6Mbps Distance of Measurements: 1 & 3 Meters Operating Frequency: 5600MHz Channel: 120

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11200.00	Average	Н	386	308	-78.15	15.91	0.00	44.76	53.98	-9.22
*	11200.00	Peak	Н	386	308	-75.76	15.91	0.00	47.15	73.98	-26.83
	16800.00	Peak	Н	-	-	-77.50	27.78	0.00	57.28	68.20	-10.92
*	22400.00	Average	Н	-	-	-68.25	19.90	-9.54	49.11	53.98	-4.87
*	22400.00	Peak	Н	-	-	-64.63	19.90	-9.54	52.73	73.98	-21.25
•	28000.00	Peak	Н	-	-	-54.14	4.37	-9.54	47.68	68.20	-20.52

Table 7-10. Radiated Measurements

FCC ID: ZNFQ730TM	Proud to be port of element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 24 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 21 of 30



Worst Case Mode: 802.11a Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 1 & 3 Meters

Operating Frequency: 5720 Channel: 144

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11440.00	Average	Н	372	41	-77.90	18.08	0.00	47.18	53.98	-6.80
*	11440.00	Peak	Н	372	41	-75.94	18.08	0.00	49.14	73.98	-24.84
	17160.00	Peak	Н	-	-	-76.27	27.62	0.00	58.35	68.20	-9.85
*	22880.00	Average	Н	-	-	-67.47	19.50	-9.54	49.49	53.98	-4.49
*	22880.00	Peak	Н	-	-	-65.29	19.50	-9.54	51.67	73.98	-22.31
•	28600.00	Peak	Ι	-	-	-53.14	5.14	-9.54	49.46	68.20	-18.74

Table 7-11. Radiated Measurements

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 1 & 3 Meters

5745MHz

Channel: 149

Operating Frequency:

Distance Ant. **Antenna** Turntable Field Analyzer **AFCL** Frequency Correction Limit Margin **Detector** Pol. Height **Azimuth** Level Strength [dBµV/m] [MHz] [dB/m] [dB] **Factor** [H/V] [degree] [dBm] [dBµV/m] [cm] [dB] 11490.00 359 47.06 Average Η 358 -77.79 17.85 0.00 53.98 -6.92 11490.00 Peak Н 359 358 -75.12 17.85 0.00 49.73 73.98 -24.25 17235.00 Н -76.45 27.70 0.00 58.25 68.20 -9.95 Peak 22980.00 Н -71.21 19.89 -9.54 46.13 53.98 -7.85 Average 52.16 22980.00 Peak Н -65.18 19.89 -9.54 73.98 -21.82 28725.00 Peak Н -52.62 4.66 -9.54 49.50 68.20 -18.70 _

Table 7-12. Radiated Measurements

FCC ID: ZNFQ730TM	Provide to be port of (@ element)	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 22 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 22 01 30



Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

1 & 3 Meters

Distance of Measurements:

5785MHz

Operating Frequency:

Channel:

157

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11570.00	Average	Н	228	134	-77.12	17.50	0.00	47.38	53.98	-6.60
*	11570.00	Peak	I	228	134	-75.36	17.50	0.00	49.14	73.98	-24.84
	17355.00	Peak	Н	-	-	-76.53	26.93	0.00	57.40	68.20	-10.80
	23140.00	Peak	Н	-	-	-65.81	19.59	-9.54	51.24	68.20	-16.96
	28925.00	Peak	Н	-	-	-53.75	4.43	-9.54	48.14	68.20	-20.06

Table 7-13. Radiated Measurements

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 1 & 3 Meters

Operating Frequency: 5825MHz

Channel: 165

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	Average	I	229	17	-77.37	18.48	0.00	48.11	53.98	-5.87
*	11650.00	Peak	Н	229	17	-75.74	18.48	0.00	49.74	73.98	-24.24
•	17475.00	Peak	Н	-	-	-76.76	28.62	0.00	58.86	68.20	-9.34
•	23300.00	Peak	Н	-	-	-65.75	18.93	-9.54	50.64	68.20	-17.56
	29125.00	Peak	Н	-	-	-52.27	3.48	-9.54	48.67	68.20	-19.53

Table 7-14. Radiated Measurements

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dags 22 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 23 of 30

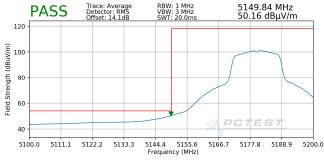
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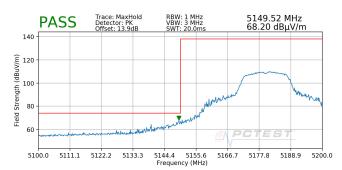
7.6.2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]; RSS-Gen [8.9]

Worst Case Mode: 802.11a Worst Case Transfer Rate: 6Mbps Distance of Measurements: 3 Meters Operating Frequency: 5180MHz Channel: 36

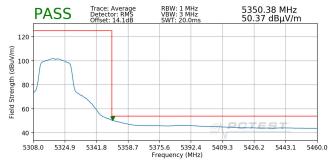


Plot 7-7. Radiated Lower Band Edge Plot (Average - UNII Band 1)

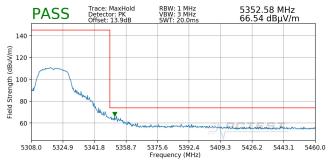


Plot 7-8. Radiated Lower Band Edge Plot (Peak -**UNII Band 1)**

Worst Case Mode: 802.11a Worst Case Transfer Rate: 6Mbps Distance of Measurements: 3 Meters Operating Frequency: 5320MHz Channel: 64



Plot 7-9. Radiated Upper Band Edge Plot (Average -**UNII Band 2A)**



Plot 7-10. Radiated Upper Band Edge Plot (Peak -**UNII Band 2A)**

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 24 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 24 01 30

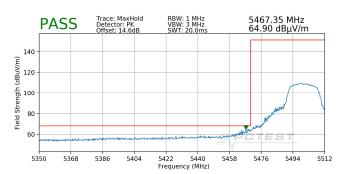


Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

802.11a
6Mbps
3 Meters
5500MHz
100

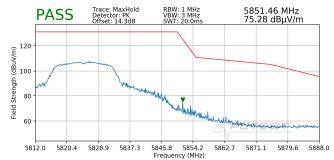


Plot 7-11. Radiated Lower Band Edge Plot (Average – UNII Band 2C)



Plot 7-12. Radiated Lower Band Edge Plot (Peak – UNII Band 2C)

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 5825MHz
Channel: 165



Plot 7-13. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

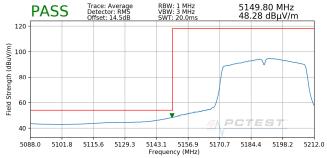
FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 25 of 20	
1M2002170022-06.ZNF 02/20 - 03/13/2020		Portable Handset	Page 25 of 30	



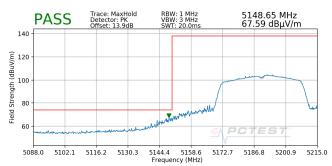
7.6.3 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

802.11ac
MCS0
3 Meters
5190MHz
38



Plot 7-14. Radiated Lower Band Edge Plot (Average – UNII Band 1)



Plot 7-15. Radiated Lower Band Edge Plot (Peak – UNII Band 1)

Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

802.11ac
MCS0
3 Meters
5310MHz
62



Plot 7-16. Radiated Upper Band Edge Plot (Average – UNII Band 2A)



Plot 7-17. Radiated Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 26 of 30
1M2002170022-06.ZNF 02/20 - 03/13/2020		Portable Handset		Page 20 01 30



Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

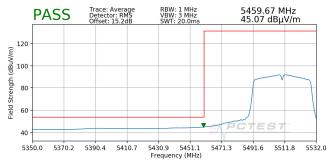
802.11ac

MCS0

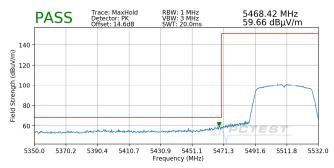
3 Meters

5510MHz

102



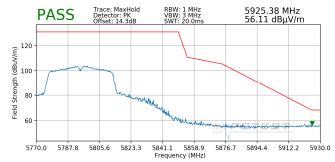
Plot 7-18. Radiated Lower Band Edge Plot (Average – UNII Band 2C)



Plot 7-19. Radiated Lower Band Edge Plot (Peak – UNII Band 2C)

Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

802.11ac
MCS0
3 Meters
5795MHz
159



Plot 7-20. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 27 of 30
1M2002170022-06.ZNF 02/20 - 03/13/2020		Portable Handset		Fage 27 of 30

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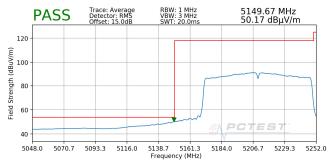
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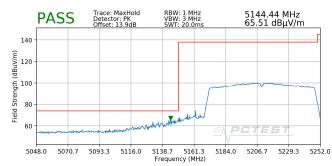
7.6.4 Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

802.11ac
MCS0
3 Meters
5210MHz
42



Plot 7-21. Radiated Lower Band Edge Plot (Average – UNII Band 1)



Plot 7-22. Radiated Lower Band Edge Plot (Peak – UNII Band 1)

Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

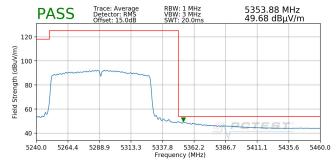
802.11ac

MCS0

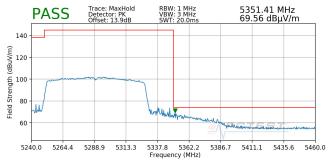
3 Meters

5290MHz

58



Plot 7-23. Radiated Upper Band Edge Plot (Average – UNII Band 2A)



Plot 7-24. Radiated Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: ZNFQ730TM	Proud to be port of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 20 of 20
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset		Page 28 of 30



Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

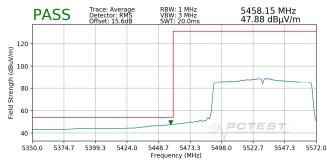
802.11ac

MCS0

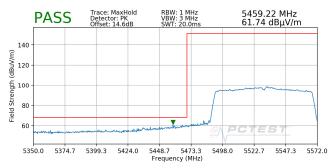
3 Meters

5530MHz

106



Plot 7-25. Radiated Lower Band Edge Plot (Average – UNII Band 2C)



Plot 7-26. Radiated Lower Band Edge Plot (Peak – UNII Band 2C)

Worst Case Mode:
Worst Case Transfer Rate:
Distance of Measurements:
Operating Frequency:
Channel:

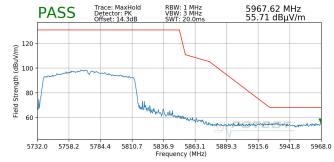
802.11ac

MCS0

3 Meters

5775MHz

155



Plot 7-27. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: ZNFQ730TM	Provide to be port of (@ element)	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager
Test Report S/N: Test Dates:		EUT Type:	Page 29 of 30
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Fage 29 01 30



8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFQ730TM** is in compliance with Part 15 Subpart E (15.407) of the FCC Rules.

FCC ID: ZNFQ730TM	Proud to be part of @ element	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 20 of 20	
1M2002170022-06.ZNF	02/20 - 03/13/2020	Portable Handset	Page 30 of 30	