

On your side



TEST REPORT

EMI Test for FCC Certification / ISED of LM-Q630UM Model

APPLICANT

LG Electronics USA, Inc.

REPORT NO.

HCT-EM-2003-FI004-R1

DATE OF ISSUE

April 02, 2020

HCT Co., Ltd.

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA

Tel. +82 31 645 6300 Fax. +82 31 645 6401



HCT Co., Ltd.

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Tel. +82 31 645 6300 Fax. +82 31 645 6401

TEST REPORT

EMI Test for
FCC Certification
/ ISCED

REPORT NO.

HCT-EM-2003-FI004-R1

DATE OF ISSUE

April 02, 2020

FCC ID / IC

ZNFQ630UM / 2703C-Q630UM

Applicant

LG Electronics USA, Inc.

1000 Sylvan Avenue, Englewood Cliffs NJ 07632 United States

Product Name

Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN, NFC

Model Name

LM-Q630UM

Series Model Name

Refer to the clause 1.1 Description of EUT

Travel Adaptor Information

Model name: MCS-V02WH

Manufacturer: PHIHONG

Date of Test

February 26, 2020 to February 28, 2020

Test Standard Used

FCC CFR 47 PART 15 Subpart B Class B / ICES-003 Issue 6 Class B
ANSI C63.4-2014

Test Results

Refer to the present document

Manufacturer

LG Electronics Inc.

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Tested by
Ki-Min Lee

(signature)

Technical Manager
Jeong-Hyun Choi

(signature)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	March 03, 2020	Initial Release
1	April 02, 2020	Revised the frequency band in clause 1.1

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2014. (See Test Report if any modifications were made for compliance)

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.

HCT certifies that no party to application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862

This Test Report is not related to the accredited test result by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA(American Association for Laboratory Accreditation), which signed the ILAC-MRA.

CONTENTS

1. GENERAL INFORMATION	5
1.1 Description of EUT	5
1.2 Tested System Details	5
1.3 Cable Description	7
1.4 Noise Suppression Parts on Cable. (I/O Cable)	7
1.5 Test Facility	8
1.6 Calibration of Measuring Instrument	8
1.7 Measurement Uncertainty	8
2. DESCRIPTION OF TEST	9
2.1 Measurement of Conducted Emission	9
2.2 Measurement of Radiated Emission	10
2.3 Configuration of Tested System	11
3. PRELIMINARY TEST	12
3.1 Conducted Emission	12
3.2 Radiated Emission	12
4. CONDUCTED EMISSION AND RADIATED EMISSION TEST SUMMARY	13
4.1 Conducted Emission	13
4.2 Radiated Emission Below 1 GHz	20
4.3 Radiated Emission Above 1 GHz	22
5. CONCLUSION	25
6. APPENDIX A. TEST SETUP PHOTO	26

1. GENERAL INFORMATION

1.1 Description of EUT

FCC ID	ZNFQ630UM
IC	2703C-Q630UM
Model Name	LM-Q630UM
Series Model Name	LMQ630UM, Q630UM
Product Name	Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN, NFC
TX Frequency	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900) 1 852.4 MHz to 1 907.6 MHz (WCDMA B2) 1712.4 MHz to 1752.6 MHz (WCDMA B4) 826.40 MHz to 846.60 MHz (WCDMA B5) 1 850 MHz to 1 910 MHz (LTE B2) 1 710 MHz to 1 755 MHz (LTE B4) 824 MHz to 849 MHz (LTE B5) 2 496 MHz to 2 570 MHz (LTE B7) 699 MHz to 716 MHz (LTE B12) 777 MHz to 787 MHz (LTE B13) 704 MHz to 716 MHz (LTE B17) 1 850 MHz to 1 915 MHz (LTE B25) 2 305 MHz to 2 315 MHz (LTE B30) 1 710 MHz to 1 780 MHz (LTE B66) 2 402 MHz to 2 480 MHz (Bluetooth) 2 412 MHz to 2 462 MHz (WiFi 2.4 GHz) 5 180 MHz to 5 240 MHz (WiFi 5 GHz_UNII 1) 5 260 MHz to 5 320 MHz (WiFi 5 GHz_UNII 2A) 5 500 MHz to 5 720 MHz (WiFi 5 GHz_UNII 2C) 5 745 MHz to 5 825 MHz (WiFi 5 GHz_UNII 3) 13.56 MHz (NFC)

RX Frequency	869.20 MHz to 893.80 MHz (GSM 850)
	1 930.20 MHz to 1 989.80 MHz (GSM 1 900)
	1 932.4 MHz to 1 987.6 MHz (WCDMA B2)
	2 112.4 MHz to 2 152.6 MHz (WCDMA B4)
	871.40 MHz to 891.60 MHz (WCDMA B5)
	1 930 MHz to 1 990 MHz (LTE B2)
	2 110 MHz to 2 155 MHz (LTE B4)
	869 MHz to 894 MHz (LTE B5)
	2 516 MHz to 2 690 MHz (LTE B7)
	729 MHz to 746 MHz (LTE B12)
	746 MHz to 756 MHz (LTE B13)
	734 MHz to 746 MHz (LTE B17)
	1 925 MHz to 1 990 MHz (LTE B25)
	717 MHz to 728 MHz (LTE B29)
	2 350 MHz to 2 360 MHz (LTE B30)
	2 110 MHz to 2 200 MHz (LTE B66)
	2 402 MHz to 2 480 MHz (Bluetooth)
	2 412 MHz to 2 462 MHz (WiFi 2.4 GHz)
	5 180 MHz to 5 240 MHz (WiFi 5 GHz_UNII 1)
	5 260 MHz to 5 320 MHz (WiFi 5 GHz_UNII 2A)
	5 500 MHz to 5 720 MHz (WiFi 5 GHz_UNII 2C)
	5 745 MHz to 5 825 MHz (WiFi 5 GHz_UNII 3)
	13.56 MHz (NFC)

1.2 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Device Type	Model Name	Serial Number	Manufacturer
EUT	LM-Q630UM	-	LG
Travel Adaptor	MCS-V02WH	-	PHIHONG
DATA Cable	EAD64746102	-	LUXSHARE
Earphone	EAB64468445	-	BUJEON
Micro SD Card	SAMSUNG EVO+ microSDXC CLASS10 UHS-I (256 GB)	-	SAMSUNG

1.3 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	USB Type C	Y	N/A	(P) 1.0
	Earphone	N/A	N	(D) 1.2

NOTE. The marked "(D)" means the data cable and "(P)" means the power cable.

1.4 Noise Suppression Parts on Cable (I/O Cable)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	USB Type C	N	N/A	Y	Both End
	Earphone	N	N/A	Y	EUT End

1.5 Test Facility

Test site is located at 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, South Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4-2014. The Normalized site attenuations (30 MHz to 1 GHz) and Site validation (1 GHz to 18 GHz) were performed in accordance with the standard in ANSI C63.4-2014

Measurement Facilities	Designation No.
Radiated Field strength measurement facility 3 m Semi Anechoic chamber	KR0032
Radiated Field strength measurement facility 10 m Semi Anechoic chamber #1	
Radiated Field strength measurement facility 10 m Semi Anechoic chamber #2	
Filing the EMI Measurement Facility (3 m Semi Anechoic Chamber and Shielded Room)	IC 5944A-4
Filing the EMI Measurement Facility (10 m Semi-Anechoic Chamber)	IC 5944A-2

1.6 Calibration of Measuring Instrument

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturers recommendations for utilizing calibration equipment, which is traceable to recognized national standards. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5:2017

1.7 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 data shown herein 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.

Parameter	Expanded Uncertainty
Conducted Emission (0.15 MHz to 30 MHz)	1.8 dB
3 m Radiated Emissions (30 MHz to 1 GHz)	4.8 dB
3 m Radiated Emissions (1 GHz to 18 GHz)	5.4 dB
3 m Radiated Emissions (18 GHz to 40 GHz)	5.7 dB

2. DESCRIPTION OF TEST

2.1 Measurement of Conducted Emission

The test procedure was in accordance with ANSI C63.4-2014, Clause 7.3

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN).
If the EUT is connected to the PC through USB, the AC power-line adapter of the PC is directly connected to a line impedance stabilization network (LISN).
Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration.
- c. The frequency range from 150 kHz to 30 MHz was searched.

Conducted Emission Limits

Frequency (MHz)	Resolution Bandwidth (kHz)	Class A		Class B	
		Quasi-Peak (dBμV)	Average (dBμV)	Quasi-Peak (dBμV)	Average (dBμV)
0.15 to 0.5	9	79	66	66 to 56*	56 to 46*
0.5 to 5	9	73	60	56	46
5 to 30	9	73	60	60	50

NOTE. Decreases with the logarithm of the frequency.

2.2 Measurement of Radiated Emission

The test procedure was in accordance with ANSI C63.4-2014, Clause 8.3

- The EUT was placed on the top of a turn table 0.8 meters above the ground at a semi-anechoic chamber.
The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 m to 4 m and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Quasi-Peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- The test-receiver system was set to Peak and Average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.
(1 GHz to 40 GHz)

Radiated Emission Limits

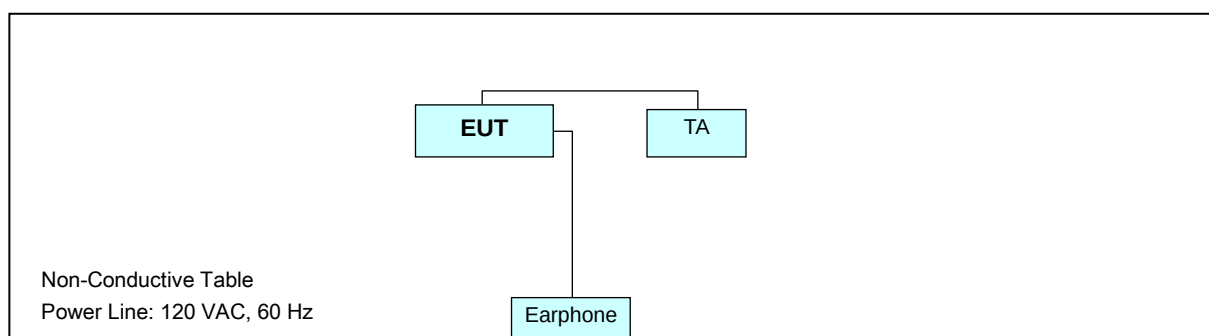
Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength (μV/m)	Quasi-Peak (dBμV/m)	Antenna Distance (m)	Field Strength (μV/m)	Quasi-Peak (dBμV/m)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	3	150	43.5
216 to 960	10	210	46.4	3	200	46.0
Above 960	10	300	49.5	3	500	54.0
Frequency (MHz)	Antenna Distance (m)	Class A		Class B		
		Peak (dBμV/m)	Average (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)	
Above 1 000	3	80	60	74	54	

2.2.1 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

2.3 Configuration of Tested System



3. PRELIMINARY TEST

3.1 Conducted Emission

It was tested the following operating mode, after connecting all peripheral devices.

Operating Modes: FRONT CAMERA & MP3 mode

REAR CAMERA & FM RADIO mode

IDLE mode

NOTE. The worst-case emissions are reported.

3.2 Radiated Emission

It was tested the following operating mode, after connecting all peripheral devices.

Operating Modes: FRONT CAMERA & MP3 mode

REAR CAMERA & FM RADIO mode

IDLE mode

NOTE. The worst-case emissions are reported.

4. CONDUCTED EMISSION AND RADIATED EMISSION TEST SUMMARY

4.1 Conducted Emission

4.1.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
☒	EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	06.18.2019
☒	LISN	Rohde & Schwarz	ENV216	102245	1 year	09.11.2019
☒	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.20.2019
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	Software	Rohde & Schwarz	EMC32	-	-	-

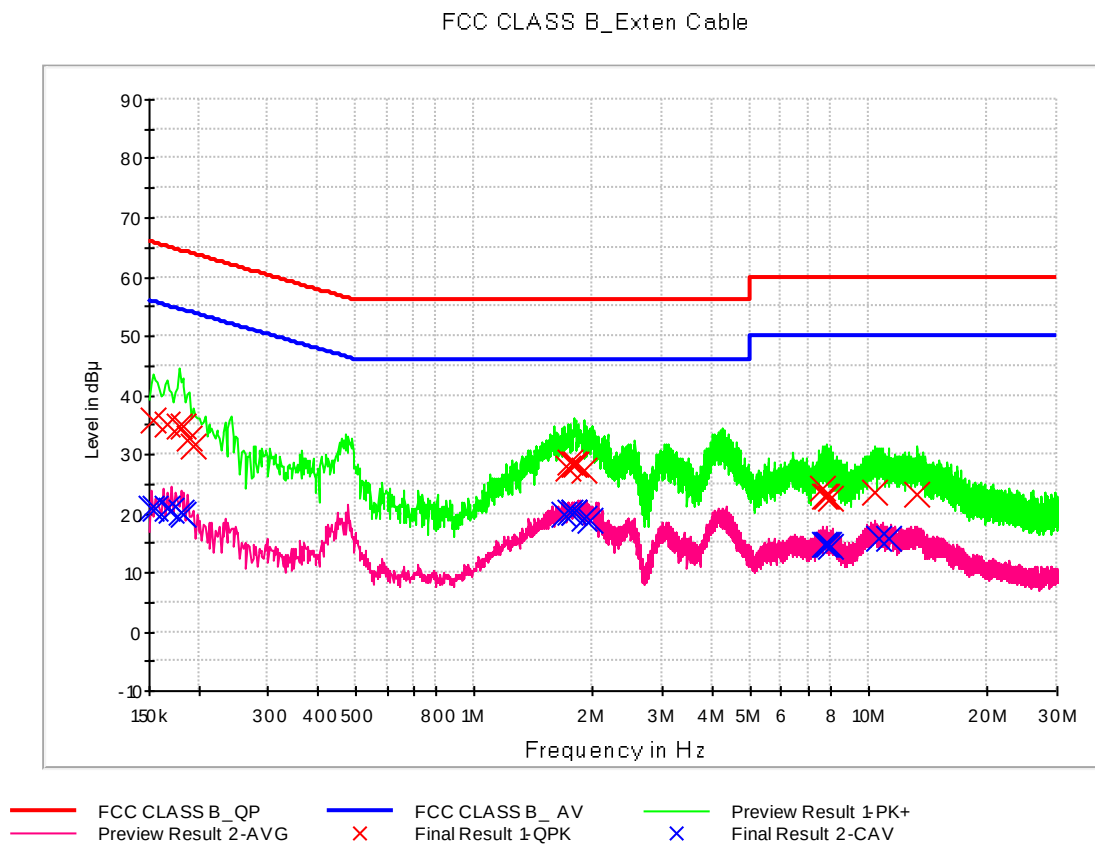
4.1.2 Operating Condition

The test results of conducted emission at mains ports provide the following information:

Test Standard Used	FCC CFR 47 PART 15 Subpart B Class B ICES-003 Issue 6 Class B ANSI C63.4-2014
Frequency Range	150 kHz to 30 MHz
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Worst Case of Operating Mode	FRONT CAMERA & MP3 mode
Kind of Test Site	EMI Shielded Room
Temperature	24.2 °C
Relative Humidity	42.5 %
Test Date	February 27, 2020

4.1.3 Measuring Data

Figure 1: Conducted Emission (150 kHz to 30 MHz), Line (L1)



QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154000	35.6	9.000	L1	9.8	30.1	65.8
0.166000	35.2	9.000	L1	9.8	30.0	65.2
0.178000	34.7	9.000	L1	9.8	29.8	64.6
0.182000	34.7	9.000	L1	9.8	29.7	64.4
0.190000	32.6	9.000	L1	9.8	31.5	64.0
0.194000	31.5	9.000	L1	9.8	32.4	63.9
1.728000	27.6	9.000	L1	9.9	28.4	56.0
1.744000	28.5	9.000	L1	9.9	27.5	56.0
1.790000	28.3	9.000	L1	9.9	27.7	56.0
1.796000	28.3	9.000	L1	9.9	27.7	56.0
1.802000	28.3	9.000	L1	9.9	27.7	56.0
1.896000	27.2	9.000	L1	9.9	28.8	56.0
7.628000	24.1	9.000	L1	10.1	35.9	60.0
7.752000	22.9	9.000	L1	10.1	37.1	60.0
7.858000	22.8	9.000	L1	10.1	37.2	60.0
8.040000	22.5	9.000	L1	10.1	37.5	60.0
10.314000	23.6	9.000	L1	10.2	36.4	60.0
13.294000	23.3	9.000	L1	10.3	36.7	60.0

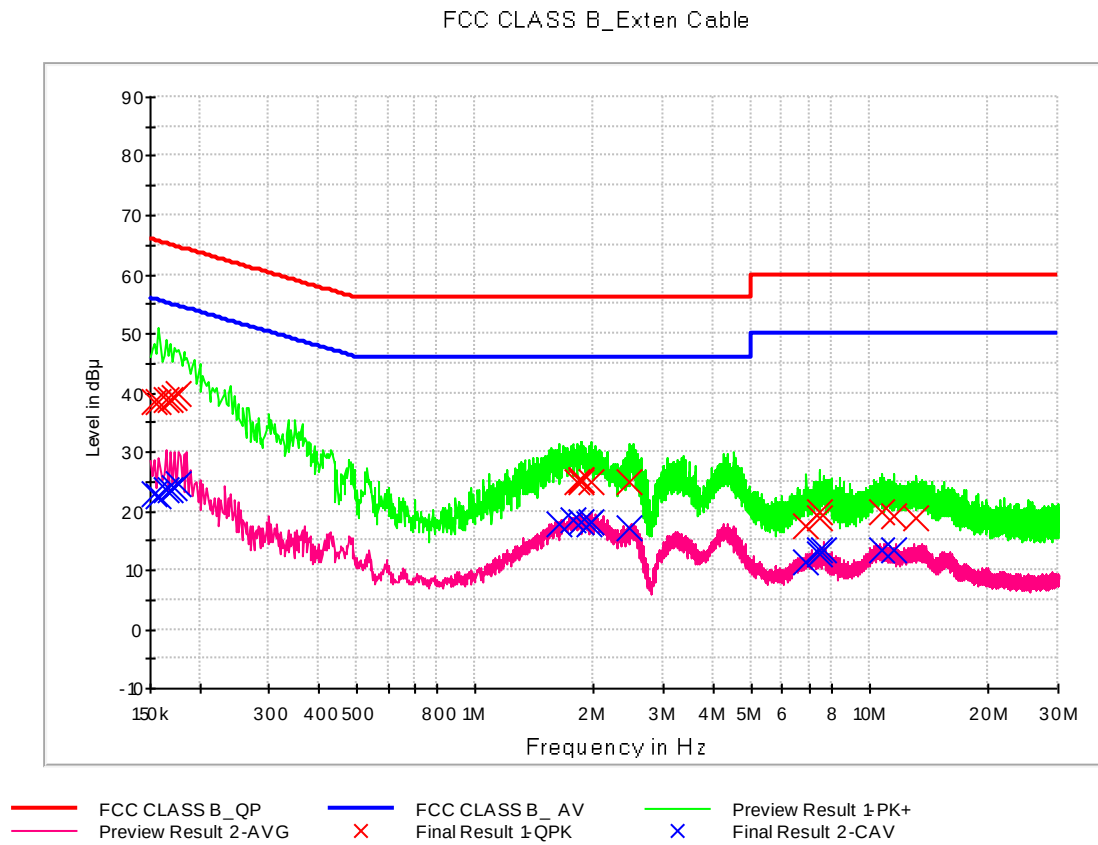
Calculation Formula:

1. Conductor L1 = Hot, Conductor N = Neutral
2. Corr. = LISN Factor + Cable Loss
3. QuasiPeak or CAverage= Receiver Reading + Corr.
4. Margin = Limit – QuasiPeak or CAverage

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.152000	20.9	9.000	L1	9.8	34.9	55.9
0.156000	20.9	9.000	L1	9.8	34.8	55.7
0.166000	20.7	9.000	L1	9.8	34.5	55.2
0.170000	20.7	9.000	L1	9.8	34.3	55.0
0.180000	20.2	9.000	L1	9.8	34.3	54.5
0.184000	19.9	9.000	L1	9.8	34.4	54.3
1.698000	19.9	9.000	L1	9.9	26.1	46.0
1.744000	20.1	9.000	L1	9.9	25.9	46.0
1.792000	20.3	9.000	L1	9.9	25.7	46.0
1.796000	20.2	9.000	L1	9.9	25.8	46.0
1.896000	19.1	9.000	L1	9.9	26.9	46.0
1.970000	18.9	9.000	L1	9.9	27.2	46.0
7.752000	14.9	9.000	L1	10.1	35.1	50.0
7.858000	14.9	9.000	L1	10.1	35.1	50.0
7.886000	14.9	9.000	L1	10.1	35.1	50.0
8.040000	14.6	9.000	L1	10.1	35.4	50.0
10.550000	15.6	9.000	L1	10.2	34.4	50.0
11.178000	15.7	9.000	L1	10.3	34.3	50.0

Figure 2: Conducted Emission (150 kHz to 30 MHz), Line (N)



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154000	38.5	9.000	N	9.8	27.2	65.8
0.158000	38.6	9.000	N	9.8	27.0	65.6
0.164000	38.7	9.000	N	9.8	26.6	65.3
0.168000	38.9	9.000	N	9.8	26.2	65.1
0.172000	39.3	9.000	N	9.8	25.6	64.9
0.176000	39.8	9.000	N	9.8	24.8	64.7
1.816000	25.0	9.000	N	9.9	31.0	56.0
1.846000	25.2	9.000	N	9.9	30.8	56.0
1.852000	25.2	9.000	N	9.9	30.8	56.0
1.860000	24.9	9.000	N	9.9	31.1	56.0
1.970000	25.0	9.000	N	9.9	31.0	56.0
2.460000	24.8	9.000	N	9.9	31.2	56.0
6.912000	17.5	9.000	N	10.1	42.5	60.0
7.420000	18.9	9.000	N	10.1	41.1	60.0
7.464000	19.7	9.000	N	10.1	40.3	60.0
10.766000	19.7	9.000	N	10.3	40.3	60.0
11.540000	19.3	9.000	N	10.3	40.7	60.0
13.050000	18.7	9.000	N	10.4	41.3	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154000	22.9	9.000	N	9.8	32.8	55.8
0.158000	22.7	9.000	N	9.8	32.9	55.6
0.164000	23.5	9.000	N	9.8	31.8	55.3
0.168000	23.7	9.000	N	9.8	31.4	55.1
0.172000	23.9	9.000	N	9.8	31.0	54.9
0.176000	24.7	9.000	N	9.8	30.0	54.7
1.624000	17.8	9.000	N	9.9	28.2	46.0
1.760000	18.4	9.000	N	9.9	27.6	46.0
1.852000	18.3	9.000	N	9.9	27.7	46.0
1.948000	17.9	9.000	N	9.9	28.1	46.0
1.970000	18.0	9.000	N	9.9	28.0	46.0
2.460000	17.2	9.000	N	9.9	28.8	46.0
6.912000	11.3	9.000	N	10.1	38.7	50.0
7.420000	12.7	9.000	N	10.1	37.3	50.0
7.464000	13.4	9.000	N	10.1	36.6	50.0
7.636000	13.5	9.000	N	10.1	36.5	50.0
10.766000	13.4	9.000	N	10.3	36.6	50.0
11.540000	13.4	9.000	N	10.3	36.6	50.0

4.2 Radiated Emission Below 1 GHz

4.2.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
☒	EMI test receiver	Rohde & Schwarz	ESU40	100524	1 year	05.17.2019
☒	Bi-Log antenna	Schwarzbeck	VULB 9168	255	2 year	03.26.2019
☒	Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
☒	Antenna master controller	INNCO Systems	CO3000	CO3000/870/ 35990515/L	N/A	-
☒	Turn Table	INNCO Systems	1060	-	N/A	-
☒	Turn table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
☒	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.20.2019
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	Software	Rohde & Schwarz	EMC32	-	-	-

4.2.2 Operating Condition

The test results of radiated emission provide the following information:

Used Test Standard	FCC CFR 47 PART 15 Subpart B Class B ICES-003 Issue 6 Class B ANSI C63.4-2014
Frequency Range	30 MHz to 1 000 MHz
Detector	Quasi-Peak
Bandwidth	120 kHz (6 dB)
Worst Case of Operating Mode	FRONT CAMERA & MP3 mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	23.1 °C
Relative Humidity	42.9 %
Test Date	February 28 , 2020

4.2.3 Measuring Data

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
44.504200	17.3	100.0	V	0.0	19.4	22.7	40.0
68.413800	24.2	274.8	V	0.0	18.3	15.8	40.0
97.885800	18.7	225.1	H	97.0	15.0	24.8	43.5
117.297200	18.6	119.8	V	123.0	17.1	24.9	43.5
160.700200	20.9	100.0	V	122.0	19.9	22.6	43.5
360.012000	20.5	307.8	V	307.0	21.9	25.5	46.0

- Calculation Formula:

1. POL. H = Horizontal, POL. V = Vertical
2. QuasiPeak = Reading (Receiver Reading) + Corr.
3. Corr. (Correction Factor) = Antenna Factor + Cable Loss
4. Margin = Limit - QuasiPeak

4.3 Radiated Emission Above 1 GHz

4.3.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
☒	EMI test receiver	Rohde & Schwarz	ESU40	100524	1 year	05.17.2019
☒	Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
☒	Antenna master controller	INNCO Systems	CO3000	CO3000/870/ 35990515/L	N/A	-
☒	Turn table	INNCO Systems	1060	-	N/A	-
☒	Turn table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
☒	Low noise amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.04.2019
☒	Low noise amplifier	TESTEK	TK-PA1840H	170030-L	1 year	02.13.2020
☒	Horn antenna	Schwarzbeck	BBHA 9120D	01836	1 year	07.19.2019
☒	Horn antenna	Schwarzbeck	BBHA 9170	BBHA9170786	1 year	12.03.2019
☒	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.20.2019
☒	Software	Rohde & Schwarz	EMC32	-	-	-

4.3.2 Operating Condition

The test results of radiated emission provide the following information:

Used Test Standard	FCC CFR 47 PART 15 Subpart B Class B ICES-003 Issue 6 Class B ANSI C63.4-2014
Detector	Peak mode: Peak (RBW: 1 MHz, VBW: 3 MHz) CISPR-Average mode: Peak (RBW: 1 MHz, VBW: 10 Hz)
Highest Frequency	5 825 MHz
Tested Frequency Range	1 GHz to 30 GHz
Worst Case of Operating Mode	FRONT CAMERA & MP3 mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	23.1 °C
Relative Humidity	43.7 %
Test Date	February 26, 2020

4.3.3 Measuring Data

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1370.915000	36.1	100.0	V	216.0	-26.2	37.9	74.0
4219.355000	36.8	292.5	V	74.0	-18.6	37.2	74.0
4983.225000	39.2	261.4	H	71.0	-15.8	34.8	74.0
7752.875000	45.2	230.4	H	0.0	-9.1	28.8	74.0
10659.490000	48.5	349.8	V	289.0	-3.0	25.5	74.0
14498.430000	48.8	350.0	V	42.0	0.7	25.2	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1370.915000	20.6	100.0	V	216.0	-26.2	33.4	54.0
4219.355000	23.9	292.5	V	74.0	-18.6	30.1	54.0
4983.225000	26.2	261.4	H	71.0	-15.8	27.8	54.0
7752.875000	32.5	230.4	H	0.0	-9.1	21.5	54.0
10659.490000	35.9	349.8	V	289.0	-3.0	18.1	54.0
14498.430000	36.2	350.0	V	42.0	0.7	17.8	54.0

- Calculation Formula:

1. POL. H = Horizontal, POL. V = Vertical
2. Peak or CAverage = Reading (Receiver Reading) + Corr.
3. Corr. (Correction Factor) = Antenna Factor+ Cable Loss –Amplifier Gain
4. Margin = Limit - Peak or CAverage

5. CONCLUSION

The data collected shows that the **Product Name: Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN, NFC and Model: LM-Q630UM** complies with §15.107 and §15.109 of the FCC rules and ICES-003 Issue 6 of the IC rules.

6. APPENDIX A. TEST SETUP PHOTO

Please refer to Appendix. A and test setup photo file no. as follows;

File No.	Date of Issue	Description
HCT-EM-2003-FI004-P	March 03, 2020	Initial Release

End of report