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HCT

TEST REPORT

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

APPLICANT

LG Electronics USA, Inc.

REPORT NO.

HCT-EM-2003-FI001-R1

DATE OF ISSUE

April 02, 2020

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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
Date of Test	February 21, 2020 to February 24, 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	7
1.3 Cable Description	8
1.4 Noise Suppression Parts on Cable. (I/O Cable)	8
1.5 Test Facility	9
1.6 Calibration of Measuring Instrument	9
1.7 Measurement Uncertainty	9
2. DESCRIPTION OF TEST	10
2.1 Measurement of Conducted Emission	10
2.2 Measurement of Radiated Emission	11
2.3 Configuration of Tested System	12
3. PRELIMINARY TEST	13
3.1 Conducted Emission	13
3.2 Radiated Emission	13
4. CONDUCTED EMISSION AND RADIATED EMISSION TEST SUMMARY	14
4.1 Conducted Emission	14
4.2 Radiated Emission Below 1 GHz	21
4.3 Radiated Emission Above 1 GHz	23
5. CONCLUSION	26
6. APPENDIX A. TEST SETUP PHOTO	27

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)
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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
Notebook PC	ProBook6560b	5CB2053MXF	HP
Notebook PC Adaptor	Series PPP009L-E	-	LITE-ON Technology (CHANGZHOU)
Gateway	DIR-806M	-	D-Link
Gateway Adaptor	AMS1-0501200FK	-	D-Link
Serial Mouse	Serial 2 Button mouse	02031069	Radio Shack
RJ45 cable	-	-	-
DATA Cable	EAD64746101	-	NINGBO BROAD
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	Y	(P,D) 1.0
	Earphone	N/A	N	(D) 1.2
Notebook PC	RJ 45	N/A	N	(D) 1.6
	Serial (Mouse)	N/A	Y	(D) 1.8
	DC IN	N	N/A	(P) 1.8
Gateway	DC IN	N	N/A	(P) 1.8

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
Notebook PC	RJ 45	N	N/A	N	N/A
	Serial (Mouse)	N	N/A	Y	Notebook PC 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
Radiated Emissions (30 MHz to 1 GHz)	4.8 dB
Radiated Emissions (1 GHz to 18 GHz)	5.4 dB
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 (dB μ V)	Average (dB μ V)	Quasi-Peak (dB μ V)	Average (dB μ V)
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

- a. 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.
- b. The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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.
- e. 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.
- f. 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.
- g. 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

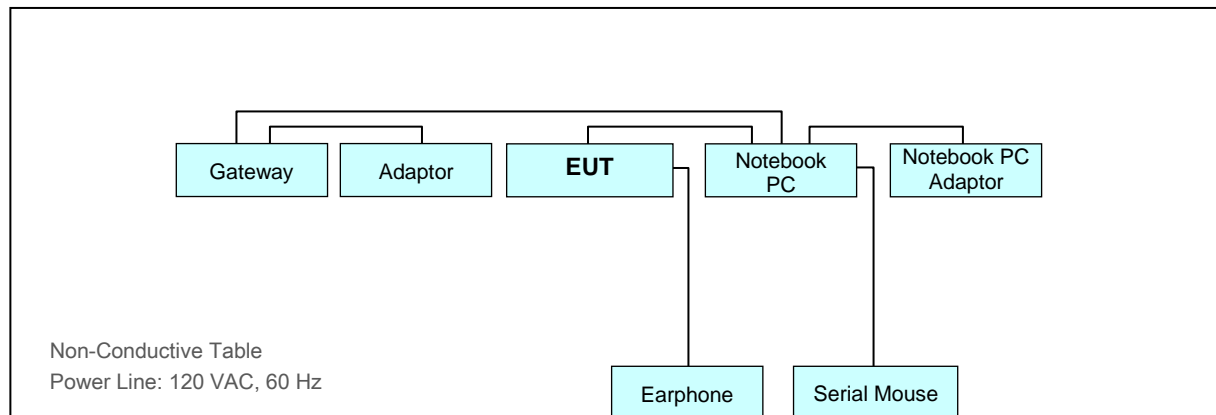
Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength ($\mu\text{V}/\text{m}$)	Quasi-Peak ($\text{dB}\mu\text{V}/\text{m}$)	Antenna Distance (m)	Field Strength ($\mu\text{V}/\text{m}$)	Quasi-Peak ($\text{dB}\mu\text{V}/\text{m}$)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	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 ($\text{dB}\mu\text{V}/\text{m}$)	Average ($\text{dB}\mu\text{V}/\text{m}$)	Peak ($\text{dB}\mu\text{V}/\text{m}$)	Average ($\text{dB}\mu\text{V}/\text{m}$)	
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: Data Communication mode

3.2 Radiated Emission

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

Operating Modes: Data Communication mode

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
<input checked="" type="checkbox"/>	EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	06.18.2019
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ENV216	102245	1 year	09.11.2019
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ENV216	100073	1 year	04.30.2019
<input checked="" type="checkbox"/>	Software	Rohde & Schwarz	EMC32	-	-	-

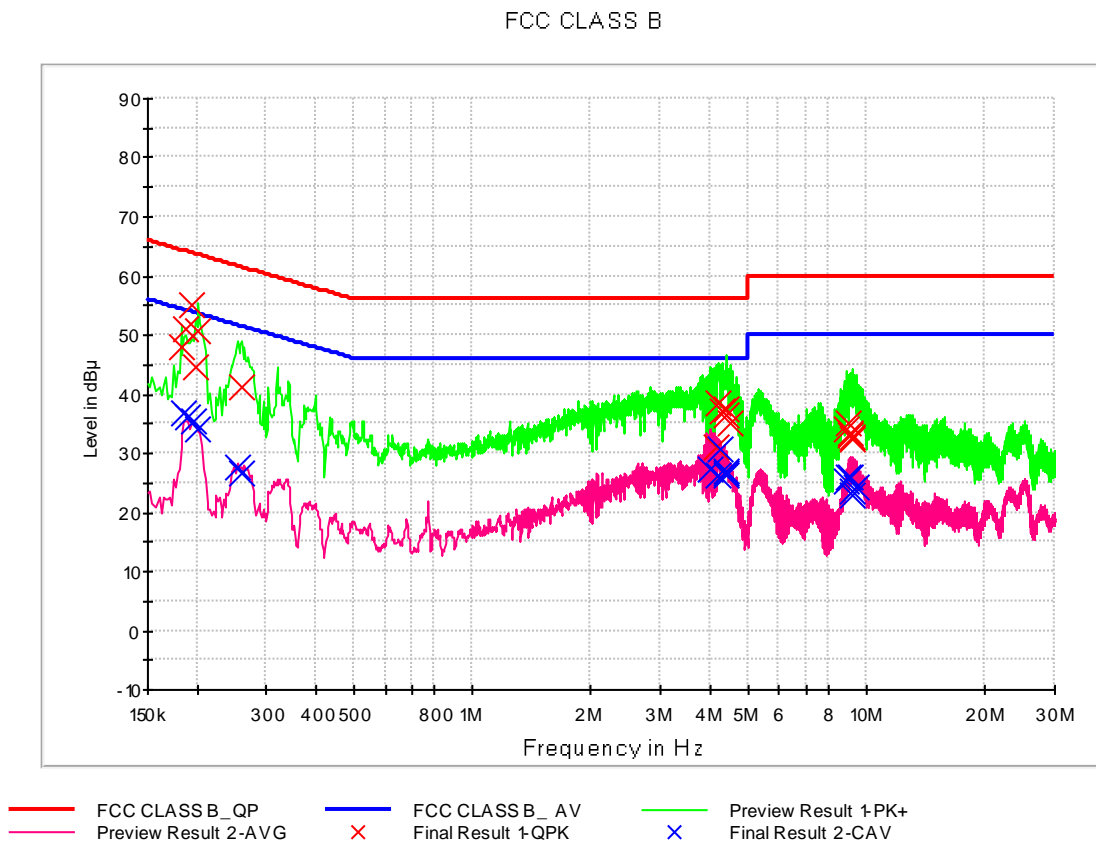
4.1.2 Operating Condition

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)
Operating Mode	Data Communication mode
Worst Case of Data Cable	LUXSHARE (EAD64746102)
Kind of Test Site	EMI Shielded Room
Temperature	23.8 °C
Relative Humidity	44.5 %
Test Date	February 21, 2020

4.1.3 Measuring Data

Figure 1: Conducted Emission, AC Main Port, Line (L1)



QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.182000	47.8	9.000	L1	9.7	16.6	64.4
0.188000	50.9	9.000	L1	9.7	13.2	64.1
0.194000	55.0	9.000	L1	9.7	8.9	63.9
0.198000	44.6	9.000	L1	9.7	19.1	63.7
0.202000	50.8	9.000	L1	9.7	12.7	63.5
0.260000	41.3	9.000	L1	9.7	20.1	61.4
4.154000	31.1	9.000	L1	9.8	24.9	56.0
4.206000	38.5	9.000	L1	9.8	17.5	56.0
4.284000	37.1	9.000	L1	9.8	18.9	56.0
4.400000	37.6	9.000	L1	9.8	18.4	56.0
4.410000	36.4	9.000	L1	9.8	19.6	56.0
4.522000	35.2	9.000	L1	9.8	20.8	56.0
8.932000	34.0	9.000	L1	9.9	26.0	60.0
9.038000	35.2	9.000	L1	9.9	24.8	60.0
9.098000	33.5	9.000	L1	9.9	26.5	60.0
9.104000	33.1	9.000	L1	9.9	26.9	60.0
9.234000	32.4	9.000	L1	9.9	27.6	60.0
9.242000	32.8	9.000	L1	9.9	27.2	60.0

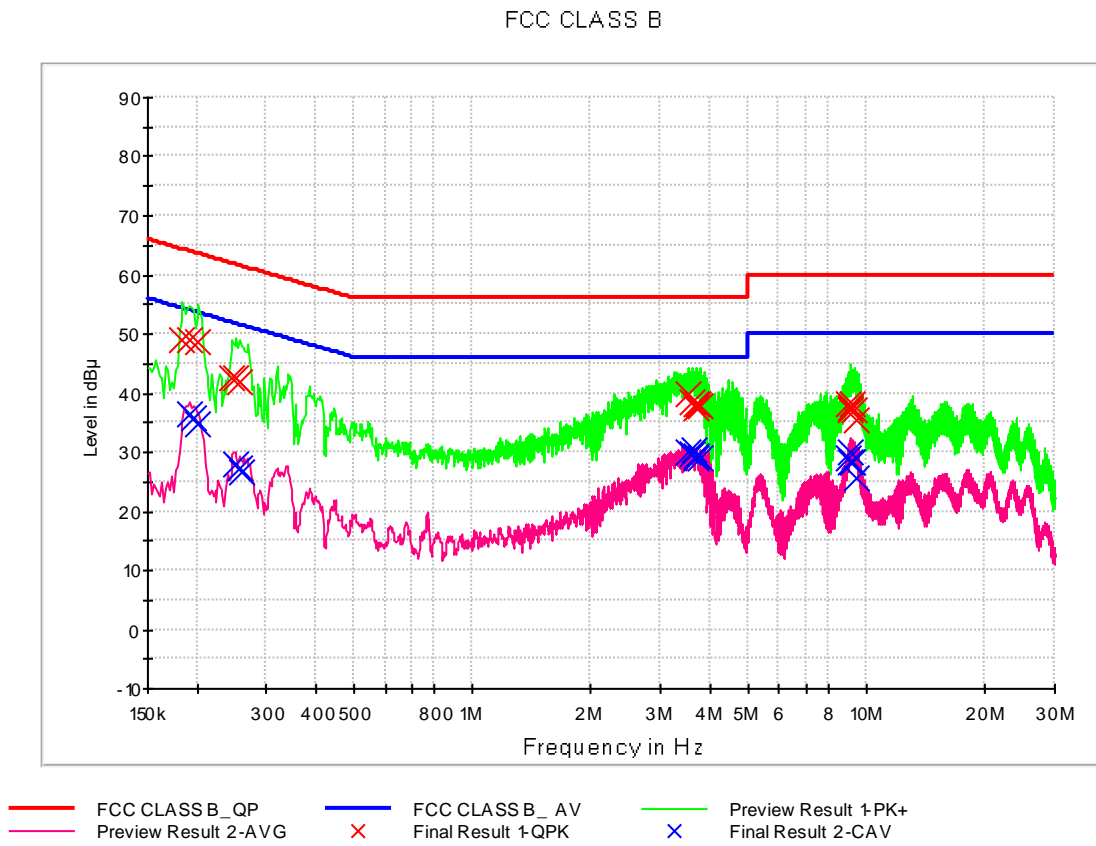
Calculation Formula:

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 (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.186000	36.9	9.000	L1	9.7	17.3	54.2
0.190000	36.2	9.000	L1	9.7	17.9	54.0
0.196000	35.6	9.000	L1	9.7	18.2	53.8
0.200000	34.0	9.000	L1	9.7	19.6	53.6
0.254000	27.7	9.000	L1	9.7	23.9	51.6
0.260000	26.7	9.000	L1	9.7	24.7	51.4
3.998000	27.4	9.000	L1	9.8	18.6	46.0
4.226000	26.2	9.000	L1	9.8	19.8	46.0
4.248000	30.8	9.000	L1	9.8	15.2	46.0
4.400000	26.8	9.000	L1	9.8	19.2	46.0
4.408000	26.9	9.000	L1	9.8	19.1	46.0
4.412000	26.4	9.000	L1	9.8	19.6	46.0
8.932000	25.4	9.000	L1	9.9	24.6	50.0
9.034000	25.8	9.000	L1	9.9	24.2	50.0
9.062000	25.9	9.000	L1	9.9	24.1	50.0
9.174000	22.8	9.000	L1	9.9	27.2	50.0
9.250000	23.4	9.000	L1	9.9	26.6	50.0
9.402000	24.2	9.000	L1	9.9	25.8	50.0

Figure 2: Conducted Emission, AC Main Port, Line (N)



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.184000	49.1	9.000	N	9.7	15.2	64.3
0.192000	49.0	9.000	N	9.7	15.0	63.9
0.202000	48.5	9.000	N	9.7	15.1	63.5
0.246000	42.5	9.000	N	9.7	19.4	61.9
0.252000	42.4	9.000	N	9.7	19.2	61.7
0.258000	41.8	9.000	N	9.7	19.7	61.5
3.542000	39.7	9.000	N	9.8	16.3	56.0
3.610000	38.6	9.000	N	9.8	17.4	56.0
3.678000	38.0	9.000	N	9.8	18.0	56.0
3.682000	37.3	9.000	N	9.8	18.7	56.0
3.722000	38.1	9.000	N	9.8	17.9	56.0
3.776000	37.6	9.000	N	9.8	18.4	56.0
9.020000	38.3	9.000	N	9.9	21.7	60.0
9.096000	37.6	9.000	N	9.9	22.4	60.0
9.142000	37.1	9.000	N	9.9	22.9	60.0
9.224000	38.0	9.000	N	9.9	22.0	60.0
9.336000	37.1	9.000	N	9.9	22.9	60.0
9.378000	35.4	9.000	N	9.9	24.6	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.192000	36.5	9.000	N	9.7	17.4	53.9
0.196000	35.9	9.000	N	9.7	17.9	53.8
0.202000	34.7	9.000	N	9.7	18.8	53.5
0.250000	27.9	9.000	N	9.7	23.8	51.8
0.256000	27.3	9.000	N	9.7	24.3	51.6
0.260000	26.5	9.000	N	9.7	24.9	51.4
3.540000	30.0	9.000	N	9.8	16.0	46.0
3.608000	29.7	9.000	N	9.8	16.3	46.0
3.638000	30.2	9.000	N	9.8	15.8	46.0
3.678000	29.0	9.000	N	9.8	17.0	46.0
3.682000	29.2	9.000	N	9.8	16.8	46.0
3.776000	28.9	9.000	N	9.8	17.1	46.0
9.020000	29.2	9.000	N	9.9	20.8	50.0
9.062000	29.9	9.000	N	9.9	20.1	50.0
9.142000	28.2	9.000	N	9.9	21.8	50.0
9.198000	28.2	9.000	N	9.9	21.8	50.0
9.224000	28.2	9.000	N	9.9	21.8	50.0
9.378000	25.6	9.000	N	9.9	24.4	50.0

4.2 Radiated Emission Below 1 GHz

4.2.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
<input checked="" type="checkbox"/>	EMI test receiver	Rohde & Schwarz	ESU40	100524	1 year	05.17.2019
<input checked="" type="checkbox"/>	Bi-Log Antenna	Schwarzbeck	VULB 9168	255	2 year	03.26.2019
<input checked="" type="checkbox"/>	Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
<input checked="" type="checkbox"/>	Antenna master controller	INNCO Systems	CO3000	CO3000/870/ 35990515/L	N/A	-
<input checked="" type="checkbox"/>	Turn Table	INNCO Systems	1060	-	N/A	-
<input checked="" type="checkbox"/>	Turn table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
<input checked="" type="checkbox"/>	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)
Operating Mode	Data Communication mode
Worst Case of Data Cable	LUXSHARE (EAD64746102)
Kind of Test Site	3 m semi anechoic chamber
Temperature	22.5 °C
Relative Humidity	43.1 %
Test Date	February 24, 2020

4.2.3 Measuring Data

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
30.052400	29.9	100.0	V	350.0	18.3	10.1	40.0
56.160000	21.3	100.0	V	124.0	19.6	18.7	40.0
85.728200	31.8	191.8	H	295.0	14.9	8.2	40.0
141.241400	22.2	100.0	V	133.0	19.1	21.3	43.5
265.547800	33.8	125.0	H	156.0	19.3	12.2	46.0
365.147000	27.7	100.0	H	341.0	22.1	18.3	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
<input checked="" type="checkbox"/>	EMI test receiver	Rohde & Schwarz	ESU40	100524	1 year	05.17.2019
<input checked="" type="checkbox"/>	Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
<input checked="" type="checkbox"/>	Antenna master controller	INNCO Systems	CO3000	CO3000/870/ 35990515/L	N/A	-
<input checked="" type="checkbox"/>	Turn table	INNCO Systems	1060	-	N/A	-
<input checked="" type="checkbox"/>	Turn table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
<input checked="" type="checkbox"/>	Low Noise amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.04.2019
<input checked="" type="checkbox"/>	Low Noise amplifier	TESTEK	TK-PA1840H	170030-L	1 year	02.13.2020
<input checked="" type="checkbox"/>	Horn antenna	Schwarzbeck	BBHA 9120D	01836	1 year	07.19.2019
<input checked="" type="checkbox"/>	Horn antenna	Schwarzbeck	BBHA 9170	BBHA9170786	1 year	12.03.2019
<input checked="" type="checkbox"/>	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
Operation Mode	Data Communication mode
Worst Case of Data Cable	LUXSHARE (EAD64746102)
Kind of Test Site	3 m semi anechoic chamber
Temperature	24.1 °C
Relative Humidity	42.5 %
Test Date	February 21, 2020

4.3.3 Measuring Data

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1332.340000	46.2	299.4	V	96.0	-26.3	27.8	74.0
1987.250000	50.5	100.0	V	56.0	-25.2	23.5	74.0
2597.495000	55.7	289.4	V	56.0	-22.9	18.3	74.0
4498.385000	45.2	201.6	V	0.0	-17.5	28.8	74.0
5994.115000	52.0	399.9	V	30.0	-14.7	22.0	74.0
15372.220000	47.2	379.8	H	357.0	-0.4	26.8	74.0

Frequency (MHz)	CAverage (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1332.340000	28.8	299.4	V	96.0	-26.3	25.2	54.0
1987.250000	35.3	100.0	V	56.0	-25.2	18.7	54.0
2597.495000	36.0	289.4	V	56.0	-22.9	18.0	54.0
4498.385000	29.1	201.6	V	0.0	-17.5	24.9	54.0
5994.115000	33.9	399.9	V	30.0	-14.7	20.1	54.0
15372.220000	34.5	379.8	H	357.0	-0.4	19.5	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-FI001-P	March 03, 2020	Initial Release

End of report