

EMI TEST REPORT

FCC CERTIFICATION / ISED

Applicant:

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

Date of Issue: February 20, 2019

Test Report No. HCT-EM-1901-FI007-R1

Test Site: HCT CO., LTD.

FCC ID
IC

ZNFG820UM
2703C-G820UM

Rule Part(s) / Standard(s) : FCC CFR 47 PART 15 Subpart B Class B
ICES-003 Issue 6 Class B
ANSI C63.4-2014

EUT Type : Multi-band CDMA/GSM/EDGE/WCDMA/LTE Phone with
WLAN, Bluetooth and RFID

Model Name : LM-G820UM

Additional Model Name : LMG820UM, G820UM, LM-G820TM, LMG820TM, G820TM,
LM-G820QM, LMG820QM, G820QM, LM-G820QM5,
LMG820QM5, G820QM5, LM-G820QM6, LMG820QM6,
G820QM6

Travel Adaptor Information : Model Name: MCS-H06WR / Manufacturer: SUNLIN

Date of Test : January 08, 2019 to January 15, 2019

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

Tested By



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REVISION HISTORY

The revision history for this document is shown in table.

Report No.	Issue Date	Information About Changes
HCT-EM-1901-FI007	January 18, 2019	Initial Release
HCT-EM-1901-FI007-R1	February 20, 2019	Revised FCC ID Added Additional Model



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1. GENERAL INFORMATION

1.1 Description of EUT

Its basic purpose is used for communications.

FCC ID	ZNFG820UM
IC	2703C-G820UM
Model	LM-G820UM
Additional Model Name	LMG820UM, G820UM, LM-G820TM, LMG820TM, G820TM, LM-G820QM, LMG820QM, G820QM, LM-G820QM5, LMG820QM5, G820QM5, LM-G820QM6, LMG820QM6, G820QM6
EUT Type	Multi-band CDMA/GSM/EDGE/WCDMA/LTE Phone with WLAN, Bluetooth and RFID
TX Frequency	824.70 MHz to 848.31 MHz (CDMA BC0) 1 851.25 MHz to 1 908.75 MHz (CDMA BC1) 817.90 MHz to 823.10 MHz (CDMA BC10) 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) 788 MHz to 798 MHz (LTE B14) 704 MHz to 716 MHz (LTE B17) 1 850 MHz to 1 915 MHz (LTE B25) 814 MHz to 849 MHz (LTE B26) 2 305 MHz to 2 315 MHz (LTE B30) 2 496 MHz to 2 690 MHz (LTE B41) 3550 MHz to 3700 MHz (LTE B48) 1 710 MHz to 1 780 MHz (LTE B66) 663 MHz to 698 MHz (LTE B71) 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 (RFID)



RX Frequency	869.70 MHz to 893.31 MHz (CDMA BC0) 1 931.25 MHz to 1 988.75 MHz (CDMA BC1) 862.00 MHz to 894.00 MHz (CDMA BC10) 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) 758 MHz to 768 MHz (LTE B14) 734 MHz to 746 MHz (LTE B17) 1 925 MHz to 1 990 MHz (LTE B25) 859 MHz to 894 MHz (LTE B26) 717 MHz to 728 MHz (LTE B29) 2 350 MHz to 2 360 MHz (LTE B30) 2 496 MHz to 2 690 MHz (LTE B41) 5 150 MHz to 5 925 MHz (LTE B46) 3550 MHz to 3700 MHz (LTE B48) 2 110 MHz to 2 200 MHz (LTE B66) 617 MHz to 652 MHz (LTE B71) 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 (RFID)
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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	FCC ID / DoC
EUT	LM-G820UM	-	LG	ZNFG820UM
Data Cable	EAD64746102	-	LUXSHARE	-
Earphone	EAB63728251	-	CRESYN	-
TA	MCS-H06WR	-	SUNLIN	-
Micro SD card	SAMSUNG EVO +microSDXC CLASS10 UHS-1 (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

* 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	Registration Number
Radiated Field strength measurement facility 3 m Semi Anechoic chamber	90661
Radiated Field strength measurement facility 10 m Semi Anechoic chamber	
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 equipments, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2006).

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 (dB)
Conducted Emission (0.15 MHz to 30 MHz)	1.82 dB
Radiated Emissions (30 MHz to 1 GHz)	5.20 dB
Radiated Emissions (1 GHz to 18 GHz)	5.24 dB
Radiated Emissions (18 GHz to 40 GHz)	5.40 dB



2. LIST OF TEST EQUIPMENT

<u>Type</u>	<u>Manufacturer</u>	<u>Model Name</u>	<u>Serial Number</u>	<u>Calibration Cycle</u>	<u>CAL Date</u>
<u>Conducted Emission</u>					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	06.25.2018
<input checked="" type="checkbox"/> LISN	Rohde & Schwarz	ENV216	102245	1 year	12.12.2018
<input type="checkbox"/> LISN	Rohde & Schwarz	ENV216	100073	1 year	05.03.2018
<input checked="" type="checkbox"/> Software	Rohde & Schwarz	EMC32 VER8.54.0	-	-	-
<u>Radiated Emission</u>					
-For measurement below 1 GHz					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	07.27.2018
<input checked="" type="checkbox"/> Trilog Antenna	Schwarzbeck	VULB 9168	760	2 year	04.06.2017
<input checked="" type="checkbox"/> Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
<input checked="" type="checkbox"/> Antenna master controller	INNCO Systems	CO 3000	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 type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU26	100241	1 year	08.14.2018
<input type="checkbox"/> Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
<input type="checkbox"/> Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
<input checked="" type="checkbox"/> Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-
-For measurement above 1 GHz					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	07.27.2018
<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"/> Horn Antenna	Schwarzbeck	BBHA 9120D	01836	2 year	05.14.2018
<input checked="" type="checkbox"/> Low Noise Amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.06.2018
<input checked="" type="checkbox"/> Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170#786	2 year	12.05.2017
<input checked="" type="checkbox"/> Power Amplifier	TESTEK	TK-PA1840H	170030-L	1 year	12.17.2018
<input type="checkbox"/> Antenna master controller	HD GmbH	HD 100	100/637	N/A	-
<input type="checkbox"/> Power Amplifier	CERNEX	CBLU1183540	21691	1 year	06.25.2018
<input type="checkbox"/> Antenna master	HD GmbH	MA240	240/520	N/A	-
<input type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU26	100241	1 year	08.14.2018
<input type="checkbox"/> Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
<input checked="" type="checkbox"/> Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-



3. DESCRIPTION OF TEST

3.1 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)	Quasi-Peak (dB(μV))	Average (dB(μV))
0.15 to 0.5	9	66 to 56*	56 to 46*
0.5 to 5	9	56	46
5 to 30	9	60	50

**Decreases with the logarithm of the frequency.*



3.2 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)	Antenna Distance (m)	Field Strength ($\mu\text{V}/\text{m}$)	Quasi-Peak ($\text{dB}(\mu\text{V}/\text{m})$)
30 to 88	3	100	40.0
88 to 216	3	150	43.5
216 to 960	3	200	46.0
Above 960	3	500	54.0
Frequency (MHz)	Antenna Distance (m)	Peak ($\text{dB}(\mu\text{V}/\text{m})$)	Average ($\text{dB}(\mu\text{V}/\text{m})$)
Above 1 000	3	74	54

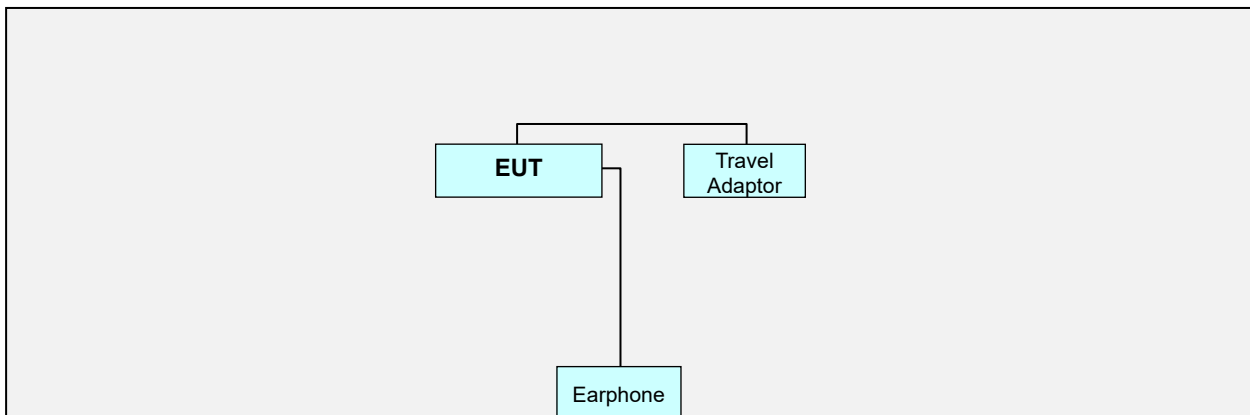


3.2.1 Frequency Range of Radiated Measurements

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	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

3.3 Configuration of Tested System



Non-Conductive Table
 Power Line: 120 VAC, 60 Hz



4. PRELIMINARY TEST

4.1 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
- ToF CAMERA mode
- IDLE mode

NOTE. The worst-case emissions are reported.

4.2 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
- ToF CAMERA mode
- IDLE mode

NOTE. The worst-case emissions are reported.



5. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

5.1 Conducted Emission

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

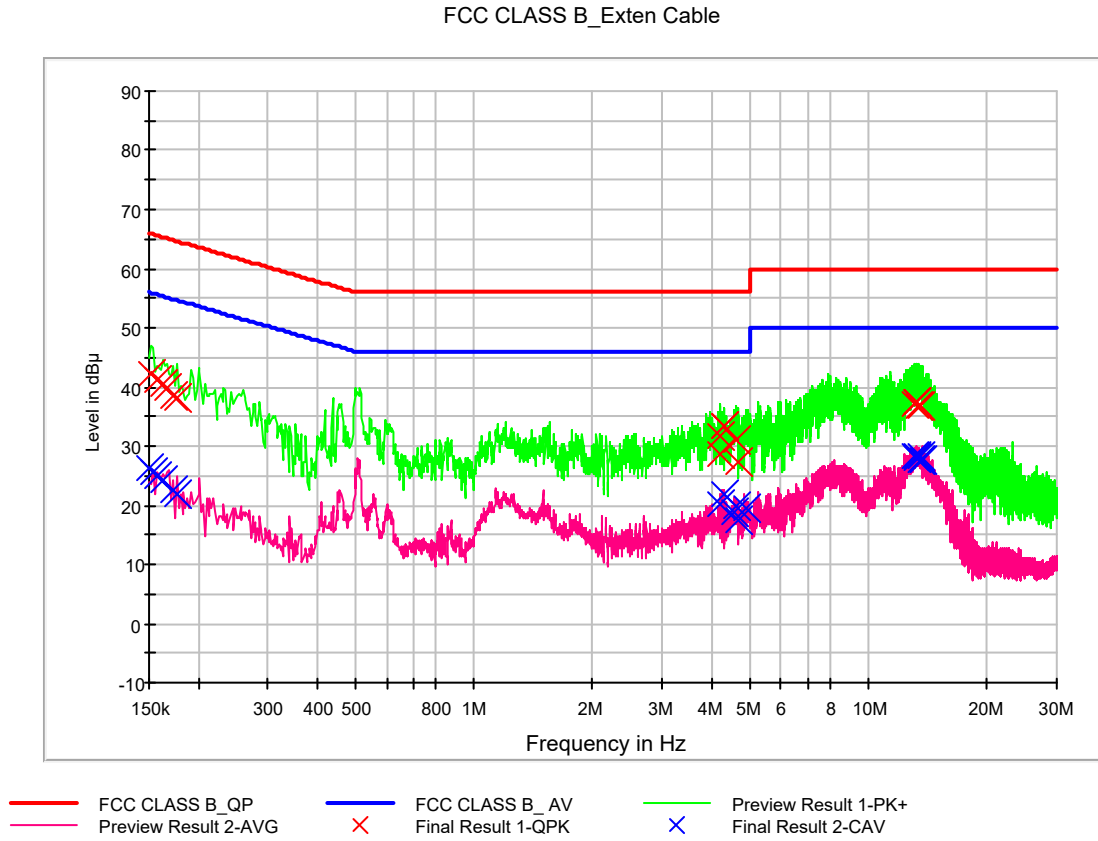
Rule Part / Standard	FCC PART 15 Subpart B Class B ICES-003 Issue 6 Class B ANSI C63.4-2014
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Operating Mode	REAR CAMERA & FM RADIO mode
Kind of Test Site	Shielded Room
Temperature	20.1 °C
Relative Humidity	43.2 %
Test Date	January 11, 2019

- 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



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





QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	42.1	9.000	L1	9.7	23.8	65.9
0.158000	41.0	9.000	L1	9.7	24.5	65.6
0.162000	40.5	9.000	L1	9.7	24.9	65.4
0.166000	39.7	9.000	L1	9.7	25.5	65.2
0.172000	38.5	9.000	L1	9.7	26.3	64.9
0.176000	38.0	9.000	L1	9.7	26.7	64.7
4.214000	28.7	9.000	L1	10.0	27.3	56.0
4.226000	31.6	9.000	L1	10.0	24.4	56.0
4.286000	33.5	9.000	L1	10.0	22.5	56.0
4.290000	33.2	9.000	L1	10.0	22.8	56.0
4.600000	30.9	9.000	L1	10.0	25.1	56.0
4.674000	27.4	9.000	L1	10.0	28.6	56.0
13.050000	37.2	9.000	L1	10.3	22.8	60.0
13.212000	37.4	9.000	L1	10.3	22.6	60.0
13.216000	37.6	9.000	L1	10.3	22.4	60.0
13.264000	37.4	9.000	L1	10.3	22.6	60.0
13.352000	36.9	9.000	L1	10.4	23.1	60.0
13.602000	36.7	9.000	L1	10.4	23.3	60.0

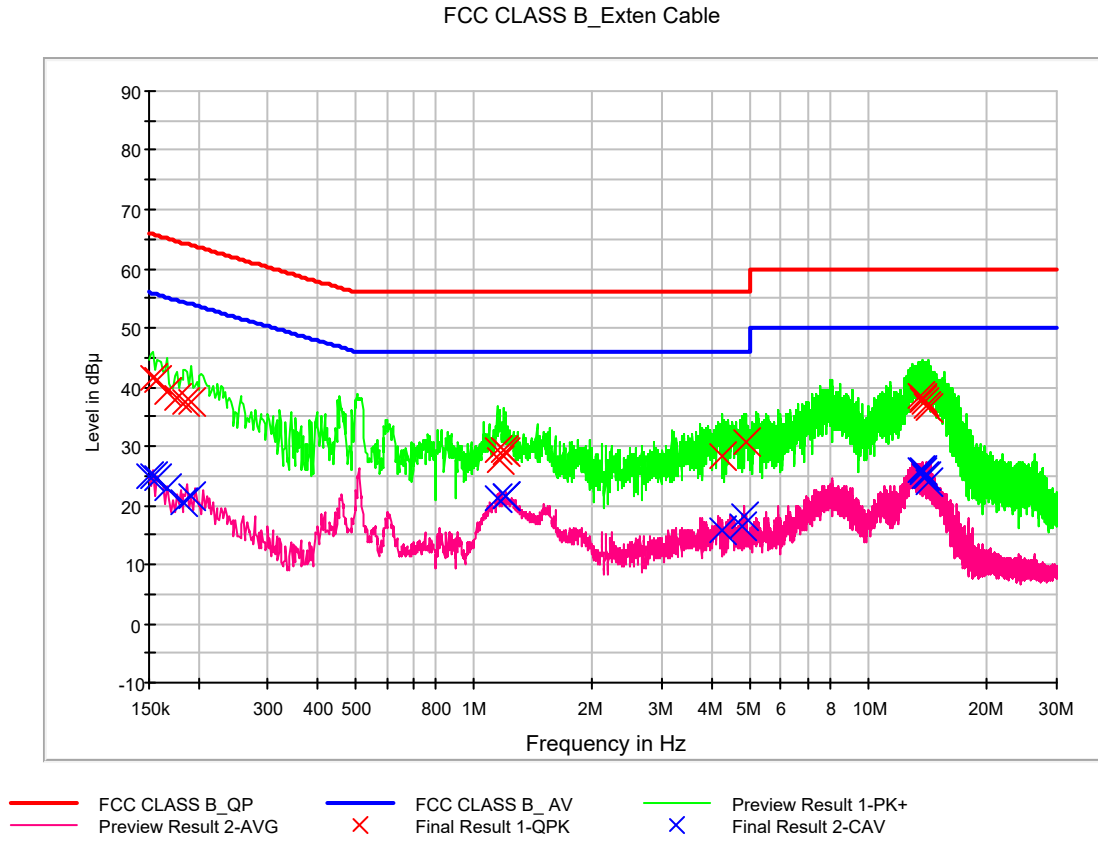


CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	26.1	9.000	L1	9.7	29.9	56.0
0.154000	25.7	9.000	L1	9.7	30.1	55.8
0.158000	25.0	9.000	L1	9.7	30.6	55.6
0.162000	24.3	9.000	L1	9.7	31.1	55.4
0.172000	22.4	9.000	L1	9.7	32.5	54.9
0.176000	22.0	9.000	L1	9.7	32.7	54.7
4.226000	20.3	9.000	L1	10.0	25.7	46.0
4.288000	21.8	9.000	L1	10.0	24.2	46.0
4.562000	18.8	9.000	L1	10.0	27.2	46.0
4.600000	19.7	9.000	L1	10.0	26.3	46.0
4.674000	17.3	9.000	L1	10.0	28.7	46.0
4.906000	19.5	9.000	L1	10.0	26.5	46.0
13.016000	28.3	9.000	L1	10.3	21.7	50.0
13.212000	28.0	9.000	L1	10.3	22.0	50.0
13.264000	28.2	9.000	L1	10.3	21.8	50.0
13.490000	28.4	9.000	L1	10.4	21.6	50.0
13.602000	27.6	9.000	L1	10.4	22.4	50.0
13.642000	27.7	9.000	L1	10.4	22.3	50.0



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





QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	41.4	9.000	N	9.8	24.4	65.8
0.158000	41.3	9.000	N	9.8	24.3	65.6
0.166000	39.2	9.000	N	9.8	26.0	65.2
0.176000	38.0	9.000	N	9.8	26.6	64.7
0.186000	37.6	9.000	N	9.8	26.6	64.2
0.192000	37.4	9.000	N	9.8	26.5	63.9
1.142000	29.3	9.000	N	10.0	26.7	56.0
1.162000	27.8	9.000	N	10.0	28.2	56.0
1.192000	29.4	9.000	N	10.0	26.6	56.0
1.196000	29.1	9.000	N	10.0	26.9	56.0
4.236000	28.3	9.000	N	10.2	27.7	56.0
4.878000	30.6	9.000	N	10.2	25.4	56.0
13.580000	38.3	9.000	N	10.6	21.7	60.0
13.636000	38.3	9.000	N	10.6	21.7	60.0
13.696000	37.7	9.000	N	10.6	22.3	60.0
13.790000	37.4	9.000	N	10.6	22.6	60.0
13.988000	36.8	9.000	N	10.6	23.2	60.0
14.180000	36.3	9.000	N	10.6	23.7	60.0



CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	25.0	9.000	N	9.8	31.0	56.0
0.154000	24.9	9.000	N	9.8	30.8	55.8
0.158000	24.5	9.000	N	9.8	31.1	55.6
0.166000	23.0	9.000	N	9.8	32.1	55.2
0.184000	20.6	9.000	N	9.8	33.7	54.3
0.192000	21.4	9.000	N	9.8	32.5	53.9
1.142000	21.1	9.000	N	10.0	24.9	46.0
1.196000	21.6	9.000	N	10.0	24.4	46.0
1.204000	21.6	9.000	N	10.0	24.4	46.0
4.236000	15.8	9.000	N	10.2	30.2	46.0
4.762000	16.3	9.000	N	10.2	29.7	46.0
4.830000	18.2	9.000	N	10.2	27.8	46.0
13.580000	25.9	9.000	N	10.6	24.1	50.0
13.636000	25.9	9.000	N	10.6	24.1	50.0
13.696000	25.7	9.000	N	10.6	24.3	50.0
13.790000	25.0	9.000	N	10.6	25.0	50.0
13.988000	24.9	9.000	N	10.6	25.1	50.0
14.180000	23.7	9.000	N	10.6	26.3	50.0



5.2 Radiated Emission

The test results of radiated emission provide the following information:

For Measurement Below 1 GHz

Rule Part / Standard	FCC PART 15 Subpart B Class B ICES-003 Issue 6 Class B ANSI C63.4-2014
Detector	Quasi-Peak
Bandwidth	120 kHz (6 dB)
Operating Mode	REAR CAMERA & FM RADIO mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	22.3 °C
Relative Humidity	40.9 %
Test Date	January 08, 2019

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)
39.266400	19.0	100.0	V	77.0	19.6	21.0	40.0
59.213600	20.2	274.9	V	30.0	19.8	19.8	40.0
87.393600	20.8	400.0	H	314.0	14.7	19.2	40.0
114.572800	21.4	225.1	V	199.0	17.2	22.1	43.5
155.211200	18.2	225.1	V	302.0	20.1	25.3	43.5
800.457600	30.0	174.9	V	328.0	30.2	16.0	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



For Measurement Above 1 GHz

Rule Part / Standard	FCC 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	5 925 MHz
Tested Frequency Range	1 GHz to 30 GHz
Operating Mode	REAR CAMERA & FM RADIO mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	22.3 / 23.3 °C
Relative Humidity	43.3 / 44.2 %
Test Date	January 14 / January 15, 2019

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2061.945000	31.9	245.4	H	154.0	-26.5	42.1	74.0
4062.845000	35.3	199.4	V	261.0	-20.7	38.7	74.0
5519.355000	36.3	249.9	V	129.0	-17.8	37.7	74.0
7381.035000	41.4	149.5	V	50.0	-13.1	32.6	74.0
9861.020000	43.5	138.8	H	168.0	-9.5	30.5	74.0
13420.265000	45.2	140.8	V	81.0	-3.9	28.8	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2061.945000	19.2	245.4	H	154.0	-26.5	34.8	54.0
4062.845000	22.9	199.4	V	261.0	-20.7	31.2	54.0
5519.355000	23.6	249.9	V	129.0	-17.8	30.4	54.0
7381.035000	28.5	149.5	V	50.0	-13.1	25.5	54.0
9861.020000	30.8	138.8	H	168.0	-9.5	23.2	54.0
13420.265000	32.2	140.8	V	81.0	-3.9	21.8	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



6. CONCLUSION

The data collected shows that the **EUT Type: Multi-band CDMA/GSM/EDGE/WCDMA/LTE Phone with WLAN, Bluetooth and RFID, Model: LM-G820UM** complies with §15.107 and §15.109 of the FCC rules and ICES-003 Issue 6 of the IC rules.



7. APPENDIX A. TEST SETUP PHOTOGRAPHS

Please refer to Appendix A