

On your side

HCT

TEST REPORT

EMI Test for FCC Certification of LM-K420TM Model

APPLICANT

LG Electronics USA, Inc.

REPORT NO.

HCT-EM-2012-FC013

DATE OF ISSUE

December 18, 2020

Tested by

Yeong-Moo Kim

(signature)

Technical Manager

Jeong-Hyun Choi

(signature)

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

REPORT NO.

HCT-EM-2012-FC013

DATE OF ISSUE

December 18, 2020

FCC ID.

ZNFK420TM

Applicant

LG Electronics USA, Inc.

111 Sylvan Avenue, North Building , Englewood Cliffs NJ 07632 United States

Product Name

Multi-band GSM/CDMA/WCDMA/LTE Phone with WLAN, Bluetooth

Model Name

LM-K420TM

Series Model Name

Refer to the clause 1.1 Description of EUT

Travel Adaptor Information

Model name: MCS-V02WR

Manufacturer: SUNLIN

Date of Test

December 03, 2020 to December 18, 2020

Test Standard Used

FCC CFR 47 PART 15 Subpart B 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.

This test results were applied only to the test methods required by the standard

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	December 18, 2020	Initial Release

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation), which signed the ILAC-MRA.

* The report shall not be reproduced except in full (only partly) without approval of the laboratory.

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	24
6. APPENDIX A. TEST SETUP PHOTO	25

1. GENERAL INFORMATION

1.1 Description of EUT

FCC ID	ZNFK420TM
Model Name	LM-K420TM
Series Model Name	LMK420TM, K420TM, LM-K420MM, LMK420MM, K420MM, LM-K420PM, LMK420PM, K420PM, LG L560DL, LGL560DL, L560DL, LM-K420QM, LMK420QM, K420QM, LM-K420QM5, LMK420QM5, K420QM5, LM-K420QM6, LMK420QM6, K420QM6, LM-K420QA, LMK420QA, K420QA
Product Name	Multi-band GSM/CDMA/WCDMA/LTE Phone with WLAN, Bluetooth
Frequency Range TX	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) 699 MHz to 716 MHz (LTE B12) 777 MHz to 787 MHz (LTE B13) 1 850 MHz to 1 915 MHz (LTE B25) 814 MHz to 849 MHz (LTE B26) 2 496 MHz to 2 690 MHz (LTE B41) 2 496 MHz to 2 690 MHz (LTE B41 HPUE) 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)

**Frequency Range
RX**

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)
729 MHz to 746 MHz (LTE B12)
746 MHz to 756 MHz (LTE B13)
1 925 MHz to 1 990 MHz (LTE B25)
859 MHz to 894 MHz (LTE B26)
2 496 MHz to 2 690 MHz (LTE B41)
2 496 MHz to 2 690 MHz (LTE B41 HPUE)
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)

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-K420TM	-	LG
Data Cable	EAD64746101 (EAD64746103)	-	NINGBO
Earphone	EAB64468444	-	CRESYN
Travel Adaptor	MCS-V02WR	-	SUNLIN
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, 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.
Our laboratories are accredited and designated in accordance with the provisions of Radio Waves ACT and International Standard ISO/IEC 17025:2017. (National Radio Research Agency, Designation No. KR0032)

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)	1.58 dB
3 m Radiated Emissions (30 MHz to 1 GHz)	4.86 dB
3 m Radiated Emissions (1 GHz to 18 GHz)	4.58 dB
3 m Radiated Emissions (18 GHz to 40 GHz)	5.54 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

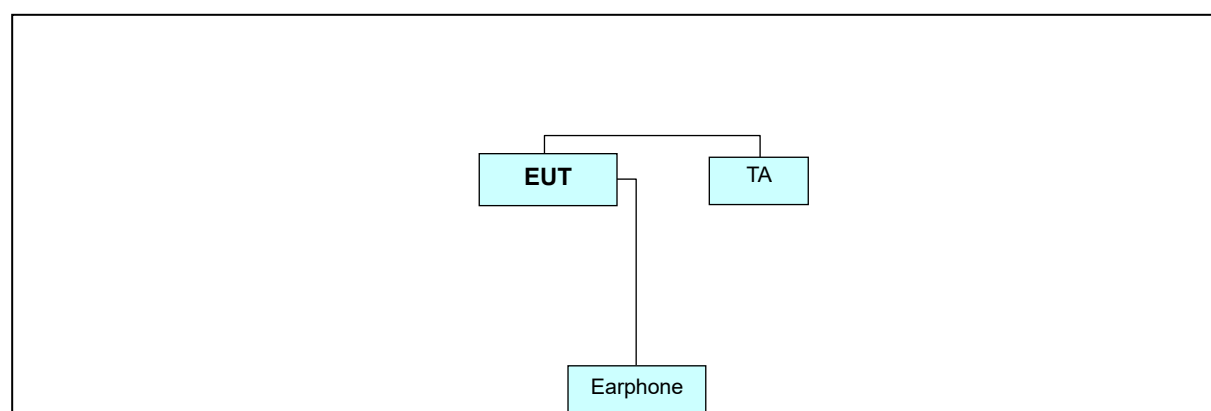
Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength ($\mu\text{V/m}$)	Quasi-Peak (dB $\mu\text{V/m}$)	Antenna Distance (m)	Field Strength ($\mu\text{V/m}$)	Quasi-Peak (dB $\mu\text{V/m}$)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	3	150	43.5
216 to 960	10	210	46.4	3	200	46.0
Above 960	10	300	49.5	3	500	54.0
Frequency (MHz)	Antenna Distance (m)	Class A		Class B		
		Peak (dB $\mu\text{V/m}$)	Average (dB $\mu\text{V/m}$)	Peak (dB $\mu\text{V/m}$)	Average (dB $\mu\text{V/m}$)	
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



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

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	ESR7	101910	1 year	09.16.2020
☒	LISN	Rohde & Schwarz	ENV216	102245	1 year	09.04.2020
☒	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.19.2020
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	USLP 9142-200	-	-
☒	Software	Rohde & Schwarz	EMC32	-	-	-

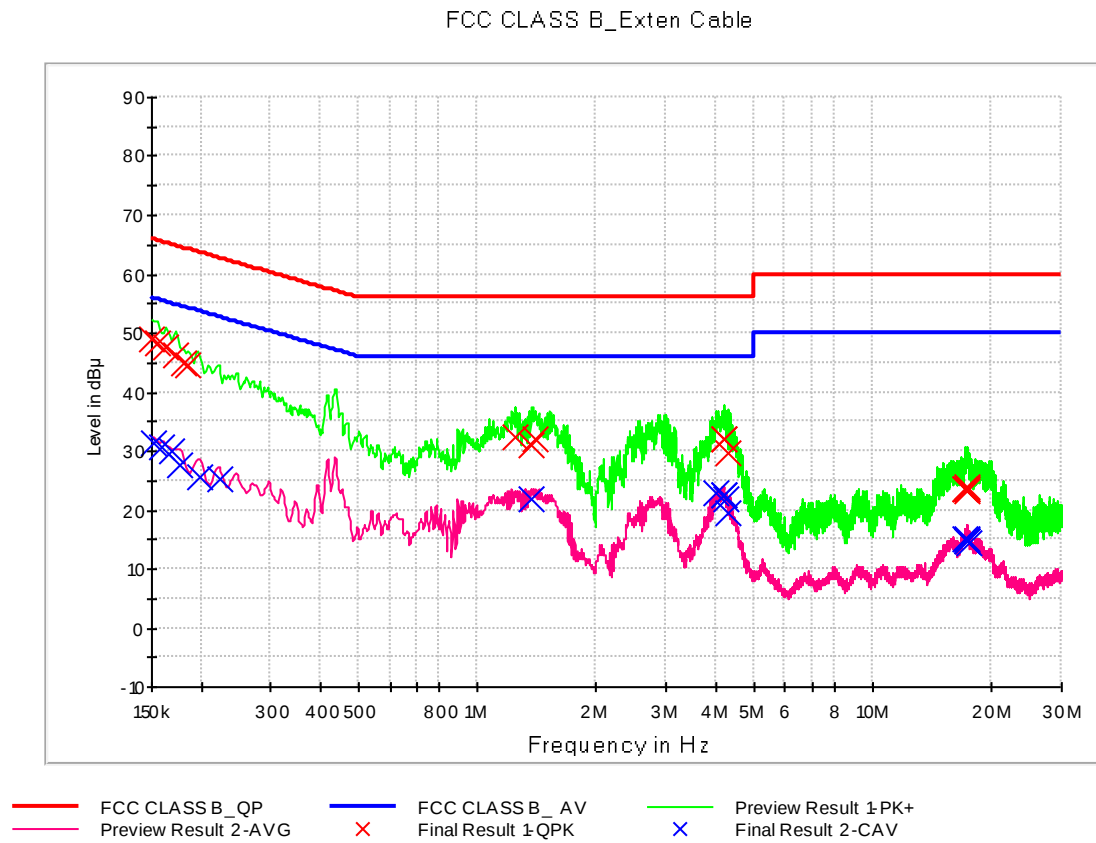
4.1.2 Operating Condition

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 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	21.8 °C
Relative Humidity	45.1 %
Test Date	December 17, 2020

4.1.3 Measuring Data

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



QuasiPeak Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	49.1	9.000	L1	9.8	16.9	66.0
0.154500	48.4	9.000	L1	9.8	17.3	65.8
0.163500	47.8	9.000	L1	9.8	17.5	65.3
0.172500	46.2	9.000	L1	9.8	18.7	64.8
0.181500	44.8	9.000	L1	9.8	19.6	64.4
0.186000	44.6	9.000	L1	9.8	19.6	64.2
1.249250	32.4	9.000	L1	9.8	23.6	56.0
1.375250	30.9	9.000	L1	9.8	25.1	56.0
1.402250	32.0	9.000	L1	9.8	24.0	56.0
4.181000	32.0	9.000	L1	10.0	24.0	56.0
4.208000	32.0	9.000	L1	10.0	24.0	56.0
4.329500	29.7	9.000	L1	10.0	26.3	56.0
17.199500	23.6	9.000	L1	10.4	36.4	60.0
17.204000	23.5	9.000	L1	10.4	36.5	60.0
17.222000	23.7	9.000	L1	10.4	36.3	60.0
17.228750	23.4	9.000	L1	10.4	36.6	60.0
17.237750	23.1	9.000	L1	10.4	36.9	60.0
17.262500	23.4	9.000	L1	10.4	36.6	60.0

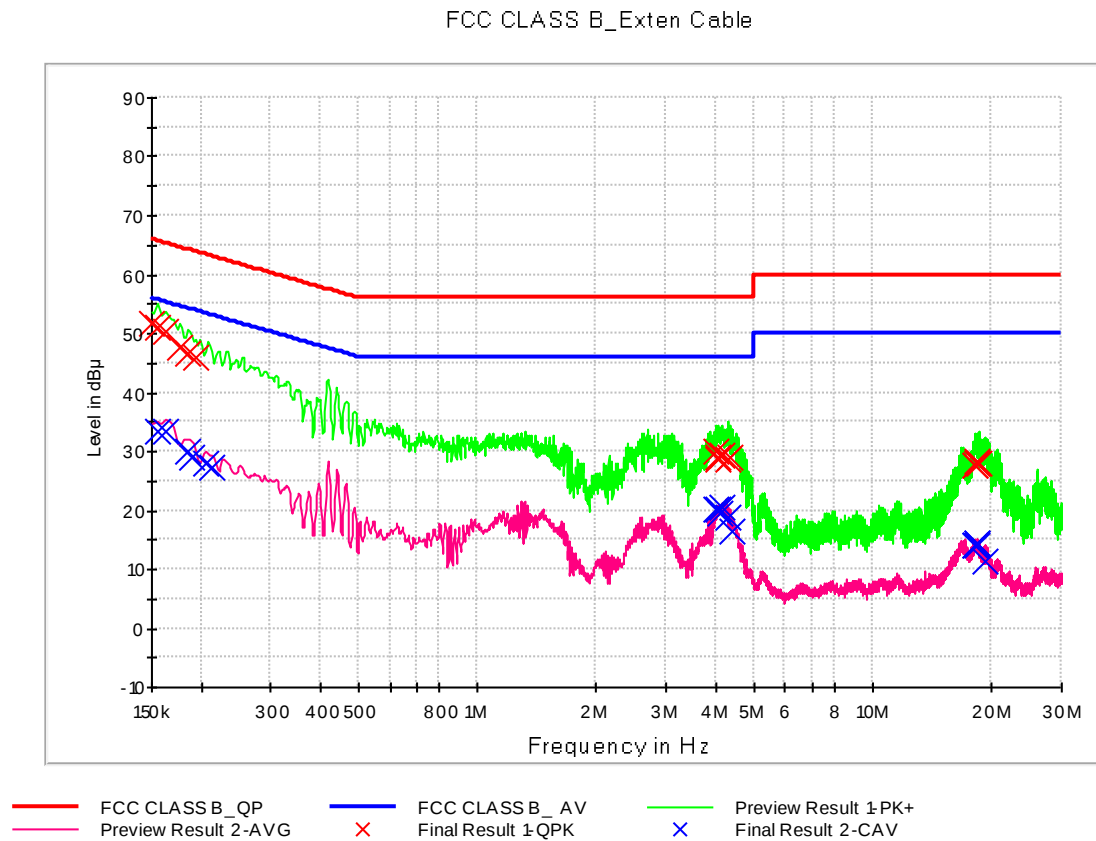
Calculation Formula:

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

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.152250	31.4	9.000	L1	9.8	24.5	55.9
0.159000	30.5	9.000	L1	9.8	25.0	55.5
0.168000	30.0	9.000	L1	9.8	25.0	55.1
0.177000	27.7	9.000	L1	9.8	27.0	54.6
0.199500	25.5	9.000	L1	9.8	28.1	53.6
0.222000	25.2	9.000	L1	9.8	27.5	52.7
1.375250	21.8	9.000	L1	9.8	24.2	46.0
4.030250	22.8	9.000	L1	10.0	23.2	46.0
4.183250	22.6	9.000	L1	10.0	23.4	46.0
4.208000	22.4	9.000	L1	10.0	23.6	46.0
4.232750	21.7	9.000	L1	10.0	24.3	46.0
4.329500	19.7	9.000	L1	10.0	26.3	46.0
17.199500	14.9	9.000	L1	10.4	35.1	50.0
17.219750	14.9	9.000	L1	10.4	35.1	50.0
17.226500	14.8	9.000	L1	10.4	35.2	50.0
17.264750	14.8	9.000	L1	10.4	35.2	50.0
17.287250	14.9	9.000	L1	10.4	35.1	50.0
17.420000	14.4	9.000	L1	10.4	35.6	50.0

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



QuasiPeak Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	51.8	9.000	N	9.8	14.2	66.0
0.154500	51.1	9.000	N	9.8	14.7	65.8
0.163500	50.4	9.000	N	9.8	14.9	65.3
0.177000	47.6	9.000	N	9.8	17.1	64.6
0.186000	46.8	9.000	N	9.8	17.5	64.2
0.195000	45.8	9.000	N	9.8	18.1	63.8
4.010000	30.1	9.000	N	10.0	25.9	56.0
4.046000	29.1	9.000	N	10.0	26.9	56.0
4.061750	28.7	9.000	N	10.0	27.3	56.0
4.151750	29.4	9.000	N	10.0	26.6	56.0
4.320500	28.7	9.000	N	10.0	27.3	56.0
4.352000	29.1	9.000	N	10.0	26.9	56.0
18.176000	27.7	9.000	N	10.6	32.3	60.0
18.196250	27.6	9.000	N	10.6	32.4	60.0
18.250250	27.9	9.000	N	10.6	32.1	60.0
18.362750	28.1	9.000	N	10.6	31.9	60.0
18.459500	28.3	9.000	N	10.6	31.7	60.0
18.551750	27.9	9.000	N	10.6	32.1	60.0

CAverage Final Result

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	33.3	9.000	N	9.8	22.4	55.8
0.163500	33.3	9.000	N	9.8	22.0	55.3
0.186000	30.0	9.000	N	9.8	24.2	54.2
0.190500	28.8	9.000	N	9.8	25.2	54.0
0.206250	27.9	9.000	N	9.8	25.4	53.4
0.213000	27.2	9.000	N	9.8	25.9	53.1
4.007750	20.0	9.000	N	10.0	26.0	46.0
4.050500	20.1	9.000	N	10.0	25.9	46.0
4.084250	19.6	9.000	N	10.0	26.4	46.0
4.174250	20.4	9.000	N	10.0	25.6	46.0
4.320500	18.8	9.000	N	10.0	27.2	46.0
4.385750	16.6	9.000	N	10.0	29.4	46.0
18.153500	14.0	9.000	N	10.6	36.0	50.0
18.173750	14.0	9.000	N	10.6	36.0	50.0
18.268250	14.3	9.000	N	10.6	35.7	50.0
18.326750	14.3	9.000	N	10.6	35.7	50.0
18.459500	14.2	9.000	N	10.6	35.8	50.0
19.217750	11.5	9.000	N	10.6	38.5	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	05.12.2020
☒	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	08.19.2020
☒	Antenna (for communication)	Schwarzbeck	USLP9142	USLP 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 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	22.2 / 24.5 / 23.7 °C
Relative Humidity	46.5 / 45.1 / 45.2 %
Test Date	December 03 / December 15 / December 16, 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)
34.220920	20.4	116.7	V	179.0	18.6	19.6	40.0
45.766280	19.9	116.7	V	49.0	19.5	20.1	40.0
114.518920	18.7	174.9	V	112.0	16.8	24.8	43.5
190.268920	17.5	100.0	V	0.0	17.5	26.0	43.5
493.241600	24.1	274.8	H	152.0	25.0	21.9	46.0
675.089320	28.2	100.0	V	228.0	28.4	17.8	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	05.12.2020
☒	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	08.19.2020
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	USLP 9142-200	-	-
☒	Low noise amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.03.2020
☒	Low noise amplifier	TESTEK	TK-PA1840H	170030-L	1 year	02.13.2020
☒	Horn antenna	Schwarzbeck	BBHA 9120D	01836	1 year	07.23.2020
☒	Horn antenna	Schwarzbeck	BBHA 9170	BBHA9170#786	1 year	11.18.2020
☒	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 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	22.4 / 24.1 °C
Relative Humidity	44.7 / 43.5 %
Test Date	December 17 / December 18, 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)
3112.795000	33.6	190.4	H	239.0	-22.4	40.4	74.0
5536.125000	35.9	290.4	V	20.0	-17.1	38.1	74.0
7416.395000	41.1	199.4	V	101.0	-12.2	32.9	74.0
9893.320000	42.8	226.5	H	153.0	-8.7	31.2	74.0
14357.735000	46.6	100.0	H	334.0	-0.8	27.4	74.0
17996.605000	55.7	149.5	H	19.0	9.6	18.3	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3112.795000	20.8	190.4	H	239.0	-22.4	33.2	54.0
5536.125000	23.3	290.4	V	20.0	-17.1	30.7	54.0
7416.395000	28.2	199.4	V	101.0	-12.2	25.8	54.0
9893.320000	30.5	226.5	H	153.0	-8.7	23.5	54.0
14357.735000	33.8	100.0	H	334.0	-0.8	20.2	54.0
17996.605000	43.1	149.5	H	19.0	9.6	10.9	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/CDMA/WCDMA/LTE Phone with WLAN, Bluetooth, Model: LM-K420TM** complies with §15.107 and §15.109 of the FCC 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-2012-FC013-P	December 18, 2020	Initial Release

End of report