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HCT

TEST REPORT

EMI Test for FCC Certification of LM-K420TM Model

APPLICANT

LG Electronics USA, Inc.

REPORT NO.

HCT-EM-2101-FC022

DATE OF ISSUE

January 22, 2021

Tested by
Geon-Hee Jeon

(signature)



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<h1 style="margin: 0;">TEST REPORT</h1> <p style="margin: 0;">EMI Test for FCC Certification</p>	<p>REPORT NO. HCT-EM-2101-FC022</p> <p>DATE OF ISSUE January 22, 2021</p> <p>FCC ID. ZNFK420TM</p>
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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-V02WA2 Manufacturer: AOHAI
Date of Test	January 13, 2021 to January 19, 2021
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	January 22, 2021	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.

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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)
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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-K420TM	-	LG
Data Cable	EAD64746101 (EAD64746103)	-	NINGBO
Earphone	EAB64468444	-	CRESYN
Travel Adaptor	MCS-V02WA2	-	AOHAI
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.

Test Item	Test Site (Chamber)	Expanded Uncertainty
Conducted Emission (0.15 MHz to 30 MHz)	EMI Shield Room	1.6 dB
Radiated Emissions (30 MHz to 1 GHz)	3 m Semi Anechoic Chamber #1	4.9 dB
Radiated Emissions (1 GHz to 18 GHz)	3 m Semi Anechoic Chamber #1	4.6 dB
Radiated Emissions (18 GHz to 40 GHz)	3 m Semi Anechoic Chamber #1	5.6 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

- 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

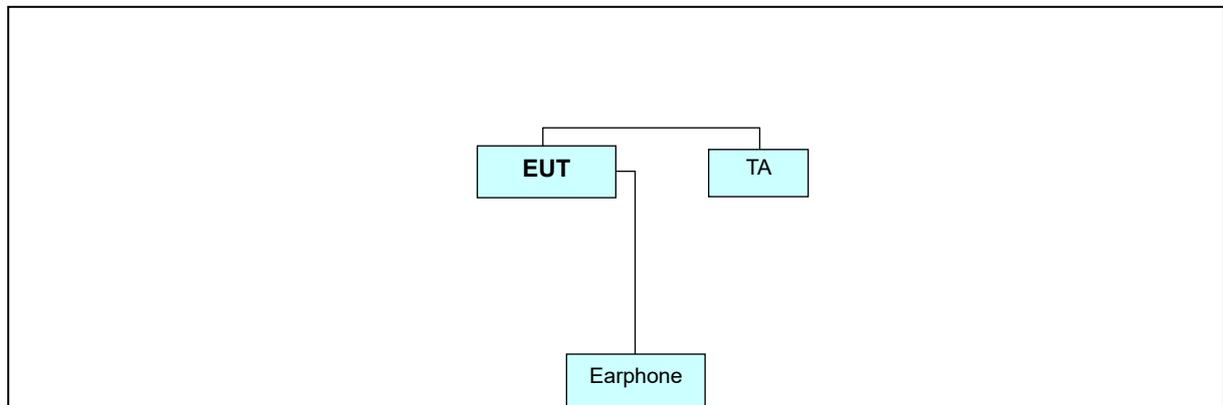
Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength ($\mu\text{V/m}$)	Quasi-Peak ($\text{dB}\mu\text{V/m}$)	Antenna Distance (m)	Field Strength ($\mu\text{V/m}$)	Quasi-Peak ($\text{dB}\mu\text{V/m}$)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	3	150	43.5
216 to 960	10	210	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 ($\text{dB}\mu\text{V/m}$)	Average ($\text{dB}\mu\text{V/m}$)	Peak ($\text{dB}\mu\text{V/m}$)	Average ($\text{dB}\mu\text{V/m}$)	
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
<input checked="" type="checkbox"/>	EMI Test Receiver	Rohde & Schwarz	ESR7	101910	1 year	09.16.2020
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ENV216	102245	1 year	09.04.2020
<input checked="" type="checkbox"/>	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.19.2020
<input checked="" type="checkbox"/>	Antenna (for Communication)	Schwarzbeck	USLP9142	USLP 9142-200	-	-
<input checked="" type="checkbox"/>	Software	Rohde & Schwarz	EMC32	-	-	-

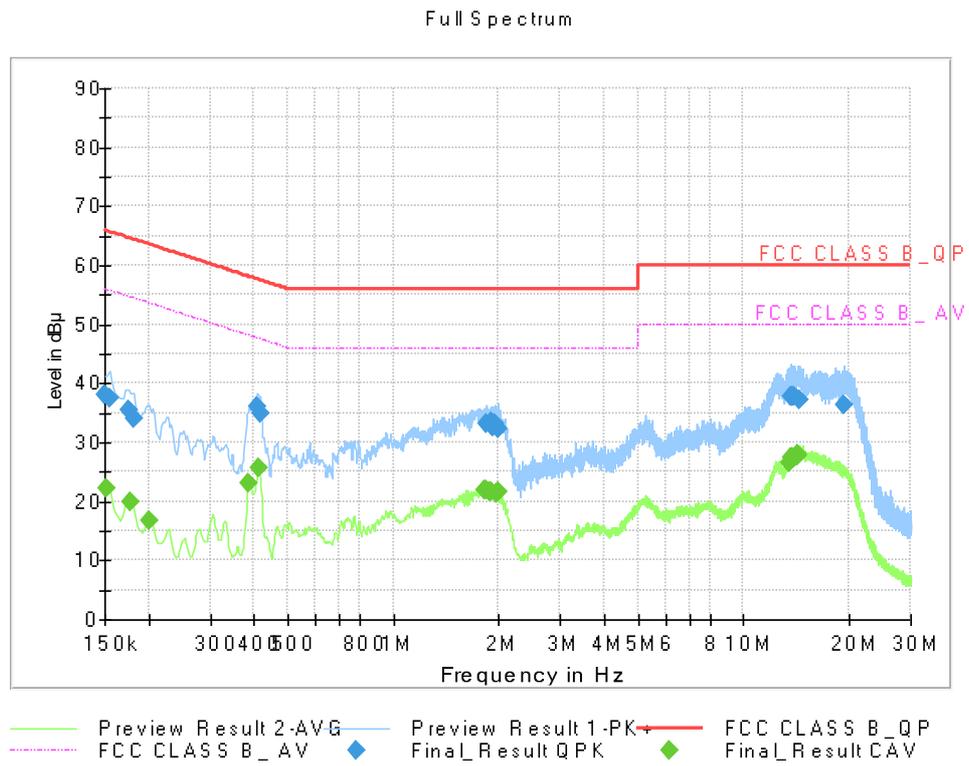
4.1.2 Operating Condition

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 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	REAR CAMERA & FM RADIO mode
Test Site	EMI Shielded Room
Temperature	23.9 °C
Relative Humidity	45.7 %
Test Date	January 19, 2021

4.1.3 Measuring Data

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



QuasiPeak Final Result

Frequency (MHz)	QuasiPeak (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	38.20	66.00	27.80	9.000	L1	9.7
0.154500	37.50	65.75	28.25	9.000	L1	9.6
0.174750	35.36	64.73	29.37	9.000	L1	9.6
0.181500	33.90	64.42	30.52	9.000	L1	9.6
0.408750	36.16	57.67	21.52	9.000	L1	9.6
0.415500	34.83	57.54	22.70	9.000	L1	9.6
1.852250	33.19	56.00	22.81	9.000	L1	9.7
1.899500	33.36	56.00	22.64	9.000	L1	9.7
1.915250	32.77	56.00	23.23	9.000	L1	9.7
1.926500	32.60	56.00	23.40	9.000	L1	9.7
1.958000	33.04	56.00	22.96	9.000	L1	9.7
1.989500	32.42	56.00	23.58	9.000	L1	9.7
13.709750	37.65	60.00	22.35	9.000	L1	10.2
13.763750	37.65	60.00	22.35	9.000	L1	10.2
13.802000	37.71	60.00	22.29	9.000	L1	10.2
13.903250	37.67	60.00	22.33	9.000	L1	10.2
14.369000	37.26	60.00	22.74	9.000	L1	10.2
19.332500	36.42	60.00	23.58	9.000	L1	10.4

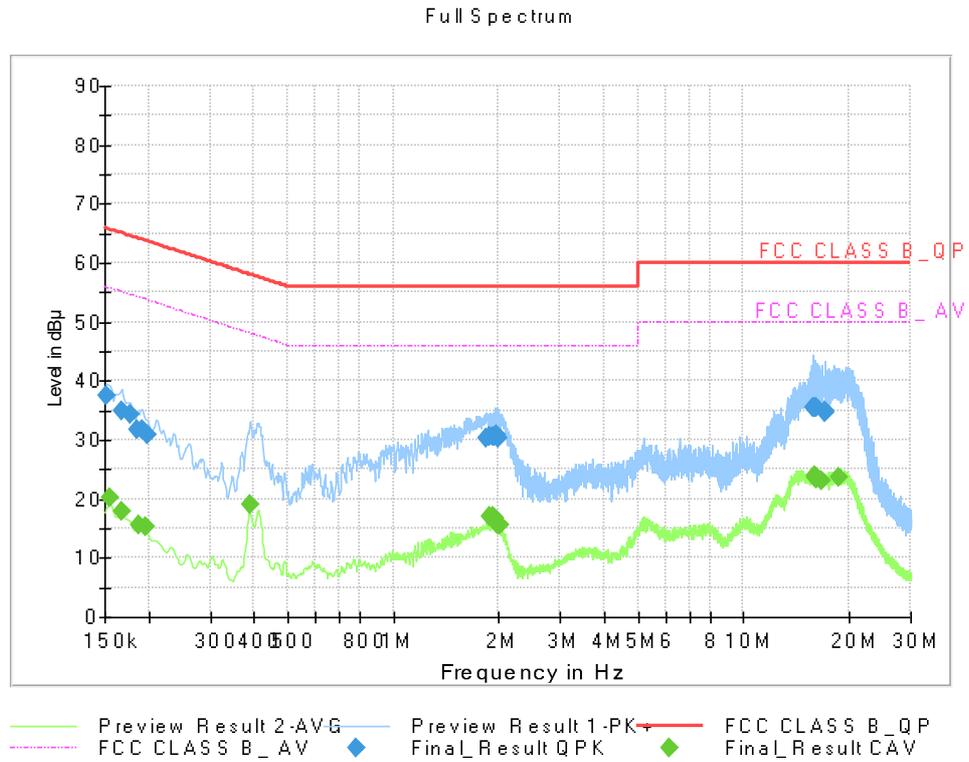
Calculation Formula:

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 (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.152250	22.07	55.88	33.80	9.000	L1	9.6
0.177000	19.97	54.63	34.65	9.000	L1	9.6
0.201750	16.77	53.54	36.77	9.000	L1	9.6
0.386250	23.12	48.14	25.02	9.000	L1	9.6
0.411000	25.68	47.63	21.95	9.000	L1	9.6
1.816250	21.78	46.00	24.22	9.000	L1	9.7
1.852250	21.81	46.00	24.19	9.000	L1	9.7
1.877000	21.73	46.00	24.27	9.000	L1	9.7
1.913000	21.67	46.00	24.33	9.000	L1	9.7
1.962500	21.45	46.00	24.55	9.000	L1	9.7
1.991750	21.65	46.00	24.35	9.000	L1	9.7
13.516250	26.58	50.00	23.42	9.000	L1	10.2
13.709750	27.27	50.00	22.73	9.000	L1	10.2
13.736750	27.35	50.00	22.65	9.000	L1	10.2
13.802000	27.33	50.00	22.67	9.000	L1	10.2
13.903250	27.48	50.00	22.52	9.000	L1	10.2
14.312750	27.75	50.00	22.25	9.000	L1	10.2
14.339750	27.86	50.00	22.14	9.000	L1	10.2

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



QuasiPeak Final Result

Frequency (MHz)	QuasiPeak (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.152250	37.49	65.88	28.39	9.000	N	9.6
0.168000	34.80	65.06	30.26	9.000	N	9.6
0.177000	34.26	64.63	30.36	9.000	N	9.6
0.186000	31.65	64.21	32.57	9.000	N	9.6
0.192750	31.67	63.92	32.25	9.000	N	9.6
0.199500	30.83	63.63	32.80	9.000	N	9.6
1.841000	30.19	56.00	25.81	9.000	N	9.7
1.895000	30.49	56.00	25.51	9.000	N	9.7
1.919750	30.50	56.00	25.50	9.000	N	9.7
1.946750	30.64	56.00	25.36	9.000	N	9.7
1.973750	30.95	56.00	25.05	9.000	N	9.7
2.003000	30.16	56.00	25.84	9.000	N	9.7
15.872000	35.60	60.00	24.40	9.000	N	10.4
15.908000	35.46	60.00	24.54	9.000	N	10.4
15.941750	35.42	60.00	24.58	9.000	N	10.4
16.076750	35.48	60.00	24.52	9.000	N	10.4
17.024000	34.73	60.00	25.27	9.000	N	10.4
17.062250	34.89	60.00	25.11	9.000	N	10.4

CAverage Final Result

Frequency (MHz)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	20.10	55.75	35.65	9.000	N	9.6
0.168000	17.87	55.06	37.19	9.000	N	9.6
0.188250	15.45	54.11	38.67	9.000	N	9.6
0.197250	15.31	53.73	38.42	9.000	N	9.6
0.388500	18.96	48.10	29.14	9.000	N	9.6
1.895000	17.13	46.00	28.87	9.000	N	9.7
1.922000	17.00	46.00	29.00	9.000	N	9.7
1.949000	16.75	46.00	29.25	9.000	N	9.7
1.973750	15.99	46.00	30.01	9.000	N	9.7
2.000750	15.62	46.00	30.38	9.000	N	9.7
2.021000	15.55	46.00	30.45	9.000	N	9.7
15.905750	23.71	50.00	26.29	9.000	N	10.4
15.939500	23.82	50.00	26.18	9.000	N	10.4
16.076750	23.66	50.00	26.34	9.000	N	10.4
16.180250	23.63	50.00	26.37	9.000	N	10.4
16.216250	23.41	50.00	26.59	9.000	N	10.4
16.639250	23.16	50.00	26.84	9.000	N	10.4
18.677750	23.56	50.00	26.44	9.000	N	10.5

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	05.12.2020
<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"/> Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.19.2020
<input checked="" type="checkbox"/> Antenna (for communication)	Schwarzbeck	USLP9142	USLP 9142-200	-	-
<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 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	REAR CAMERA & FM RADIO mode
Test Site	3 m Semi Anechoic Chamber #1
Temperature	21.5 °C
Relative Humidity	43.7 %
Test Date	January 13, 2021

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)
30.765400	19.6	209.9	V	240.0	18.4	20.4	40.0
65.221720	20.1	100.0	V	332.0	18.7	19.9	40.0
94.033360	19.0	207.9	H	93.0	14.6	24.5	43.5
114.490200	20.9	209.9	V	26.0	16.8	22.6	43.5
324.444320	20.3	100.0	V	279.0	21.1	25.7	46.0
682.224320	29.0	274.8	V	26.0	28.5	17.0	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

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	05.12.2020
<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"/>	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.19.2020
<input checked="" type="checkbox"/>	Antenna (for Communication)	Schwarzbeck	USLP9142	USLP 9142-200	-	-
<input checked="" type="checkbox"/>	Low noise amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.03.2020
<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	07.23.2020
<input checked="" type="checkbox"/>	Horn antenna	Schwarzbeck	BBHA 9170	BBHA9170#786	1 year	11.18.2020
<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 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	REAR CAMERA & FM RADIO mode
Test Site	3 m Semi Anechoic Chamber #1
Temperature	23.1 / 22.7 °C
Relative Humidity	45.2 / 44.6 %
Test Date	January 16 / January 18, 2021

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)
2402.825000	32.4	276.6	V	92.0	-24.5	41.6	74.0
5566.250000	35.9	215.4	H	79.0	-17.0	38.1	74.0
7373.365000	40.5	138.8	H	117.0	-12.3	33.5	74.0
11320.375000	45.0	126.6	H	123.0	-4.5	29.0	74.0
14370.785000	47.0	100.0	H	12.0	-0.8	27.0	74.0
17978.742720	55.4	150.0	H	34.0	9.3	18.6	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)
2402.825000	19.7	276.6	V	92.0	-24.5	34.3	54.0
5566.250000	23.4	215.4	H	79.0	-17.0	30.6	54.0
7373.365000	27.8	138.8	H	117.0	-12.3	26.2	54.0
11320.375000	32.3	126.6	H	123.0	-4.5	21.7	54.0
14370.785000	33.8	100.0	H	12.0	-0.8	20.2	54.0
17978.742720	42.8	150.0	H	34.0	9.3	11.2	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-2101-FC022-P	January 22, 2021	Initial Release

End of report