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HCT

TEST REPORT

EMI Test for FCC Certification of LM-G900TM Model

APPLICANT

LG Electronics USA, Inc.

REPORT NO.

HCT-EM-2007-FC011

DATE OF ISSUE

July 15, 2020

Tested by

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(signature)

Technical Manager

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TEST REPORT

EMI Test for
FCC Certification

REPORT NO.
HCT-EM-2007-FC011

DATE OF ISSUE
July 15, 2020

FCC ID.
ZNFG900TM

Applicant	LG Electronics USA, Inc. 111 Sylvan Avenue, North Building , Englewood Cliffs NJ 07632 United States
Product Name	Multi-band CDMA/GSM/EDGE/WCDMA/LTE/5G NR Phone with WLAN, BT and RFID
Model Name	LM-G900TM
Series Model Name	Refer to the clause 1.1 Description of EUT
Travel Adaptor Information	Model name: MCS-H06WA Manufacturer: AOHA1
Date of Test	July 06, 2020 to July 14, 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	July 15, 2020	Initial Release

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), which signed the ILAC-MRA.

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

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1. GENERAL INFORMATION

1.1 Description of EUT

FCC ID	ZNFG900TM	
Model Name	LM-G900TM	
Series Model Name	LMG900TM, G900TM	
Product Name	Multi-band CDMA/GSM/EDGE/WCDMA/LTE/5G NR Phone with WLAN, BT and RFID	
Frequency Range	RX Frequency	TX Frequency
CDMA BC0	869.70 MHz to 893.31 MHz	824.70 MHz to 848.31 MHz
CDMA BC1	1 931.25 MHz to 1 988.75 MHz	1 851.25 MHz to 1 908.75 MHz
CDMA BC10	862.00 MHz to 894.00 MHz	817.90 MHz to 823.10 MHz
GSM 850	869.20 MHz to 893.80 MHz	824.20 MHz to 848.80 MHz
GSM 1 900	1 930.20 MHz to 1 989.80 MHz	1 850.20 MHz to 1 909.80 MHz
WCDMA B2	1 932.4 MHz to 1 987.6 MHz	1 852.4 MHz to 1 907.6 MHz
WCDMA B4	2 112.4 MHz to 2 152.6 MHz	1712.4 MHz to 1752.6 MHz
WCDMA B5	871.40 MHz to 891.60 MHz	826.40 MHz to 846.60 MHz
LTE B2	1 930 MHz to 1 990 MHz	1 850 MHz to 1 910 MHz
LTE B4	2 110 MHz to 2 155 MHz	1 710 MHz to 1 755 MHz
LTE B5	869 MHz to 894 MHz	824 MHz to 849 MHz
LTE B12	729 MHz to 746 MHz	699 MHz to 716 MHz
LTE B13	746 MHz to 756 MHz	777 MHz to 787 MHz
LTE B17	734 MHz to 746 MHz	704 MHz to 716 MHz
LTE B25	1 925 MHz to 1 990 MHz	1 850 MHz to 1 915 MHz
LTE B26	859 MHz to 894 MHz	814 MHz to 849 MHz
LTE B41	2 496 MHz to 2 690 MHz	2 496 MHz to 2 690 MHz
LTE B66	2 110 MHz to 2 200 MHz	1 710 MHz to 1 780 MHz
LTE B71	617 MHz to 652 MHz	663 MHz to 698 MHz
Bluetooth	2 402 MHz to 2 480 MHz	2 402 MHz to 2 480 MHz
WiFi 2.4 GHz	2 412 MHz to 2 462 MHz	2 412 MHz to 2 462 MHz
WiFi 5 GHz_UNII 1	5 180 MHz to 5 240 MHz	5 180 MHz to 5 240 MHz
WiFi 5 GHz_UNII 2A	5 260 MHz to 5 320 MHz	5 260 MHz to 5 320 MHz
WiFi 5 GHz_UNII 2C	5 500 MHz to 5 720 MHz	5 500 MHz to 5 720 MHz
WiFi 5 GHz_UNII 3	5 745 MHz to 5 825 MHz	5 745 MHz to 5 825 MHz
NFC	13.56 MHz	13.56 MHz
5G NR n25	1 930 MHz to 1 995 MHz	1 850 MHz to 1 915 MHz
5G NR n41	2 496 MHz to 2 690 MHz	2 496 MHz to 2 690 MHz
5G NR n66	2 110 MHz to 2 200 MHz	1 710 MHz to 1 780 MHz
5G NR n71	617 MHz to 652 MHz	663 MHz to 698 MHz

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-G900TM	-	LG
LED Monitor	27UD88	-	LG
Monitor Adapter	LCAP31	-	LG
DP Cable	CDP2DPMM1MW	-	STARTECH
Wireless Charger	F7U082	-	belkin
Micro USB Cable	-	-	belkin
Wireless Charger TA	DSA-18QFB	-	belkin
Dual Screen Cover	LM-G906N	-	LG
Dual Screen Gender	EBX64329001	-	CRESYN
Data Cable	EAD64746102	-	LUXSHARE
Earphone	EAB64468445	-	BUJEON
Travel Adaptor	MCS-H06WA	-	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 (Data Cable)	Y	N/A	(P) 1.0
	USB Type C (Display Cable)	N/A	Y	(D) 1.0
	Earphone	N/A	N	(D) 1.2
LED Monitor	DC IN	N	N/A	(P) 1.8
	DP port	N/A	Y	(D) 1.2
Wireless Charger	Micro USB	Y	N/A	(P) 1.3
Dual Screen Cover	Pogo Gender	N/A	N	(D) 0.09

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 (Data Cable)	N	N/A	Y	Both End
	USB Type C (Display Cable)	N	N/A	Y	Both End
	Earphone	N	N/A	Y	EUT End
LED Monitor	DP port	N	N/A	Y	Both End
Wireless Charger	Micro USB	N	N/A	Y	Both End
Dual Screen Cover	Pogo Gender	N	N/A	Y	Both 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	

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

- 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

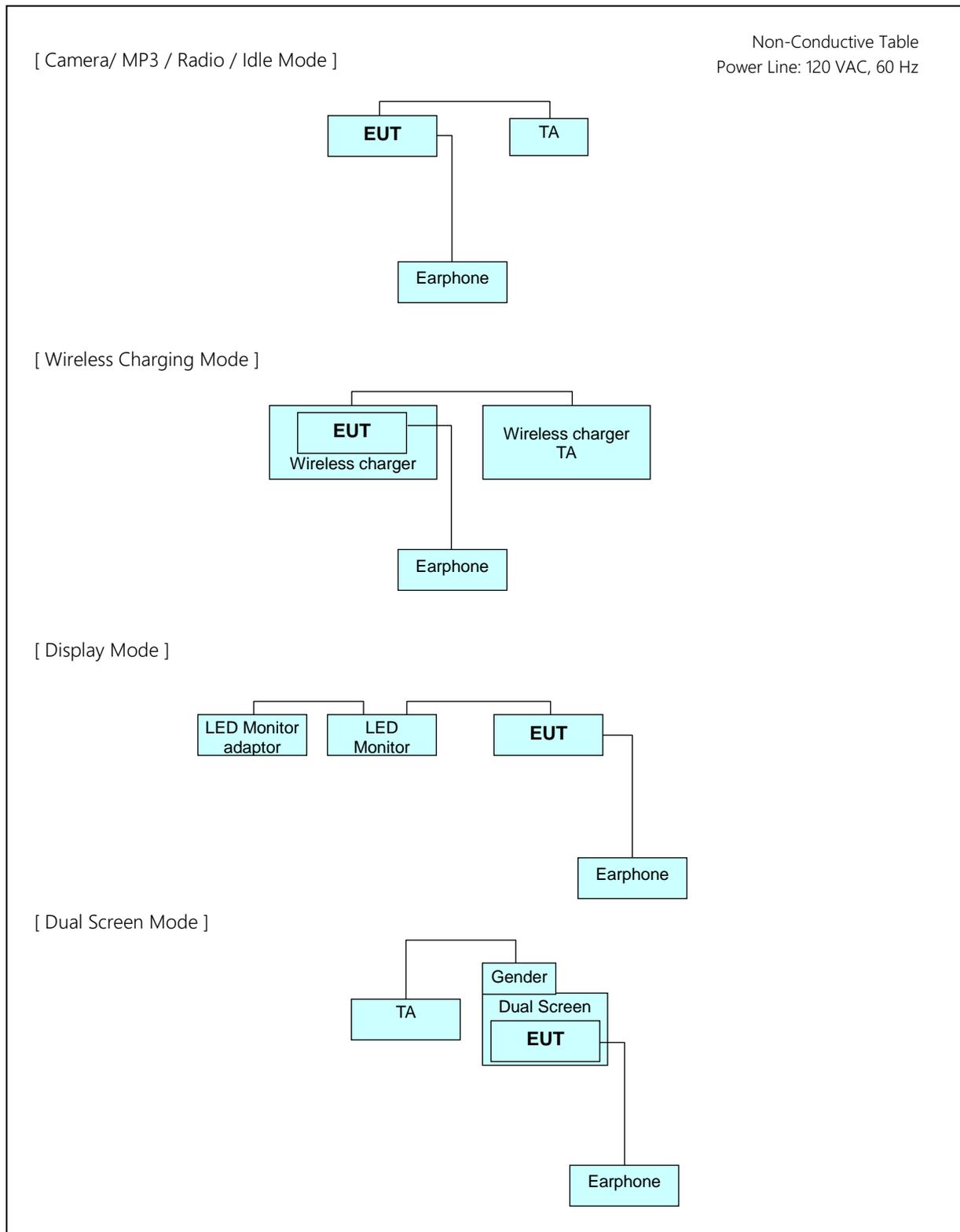
Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength ($\mu\text{V}/\text{m}$)	Quasi-Peak ($\text{dB}\mu\text{V}/\text{m}$)	Antenna Distance (m)	Field Strength ($\mu\text{V}/\text{m}$)	Quasi-Peak ($\text{dB}\mu\text{V}/\text{m}$)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	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: FRONT CAMERA & MP3 mode

REAR CAMERA & FM RADIO mode

IDLE mode

Dual Screen 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

WIRELESS CHARGING mode

DISPLAY mode

Dual Screen 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	ESCI	100584	1 year	06.10.2020
<input checked="" type="checkbox"/>	EMI test receiver	Rohde & Schwarz	ESCI	100033	1 year	06.05.2020
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ENV216	102245	1 year	09.11.2019
<input checked="" type="checkbox"/>	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.20.2019
<input checked="" type="checkbox"/>	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
<input checked="" type="checkbox"/>	Software	Rohde & Schwarz	EMC32	-	-	-

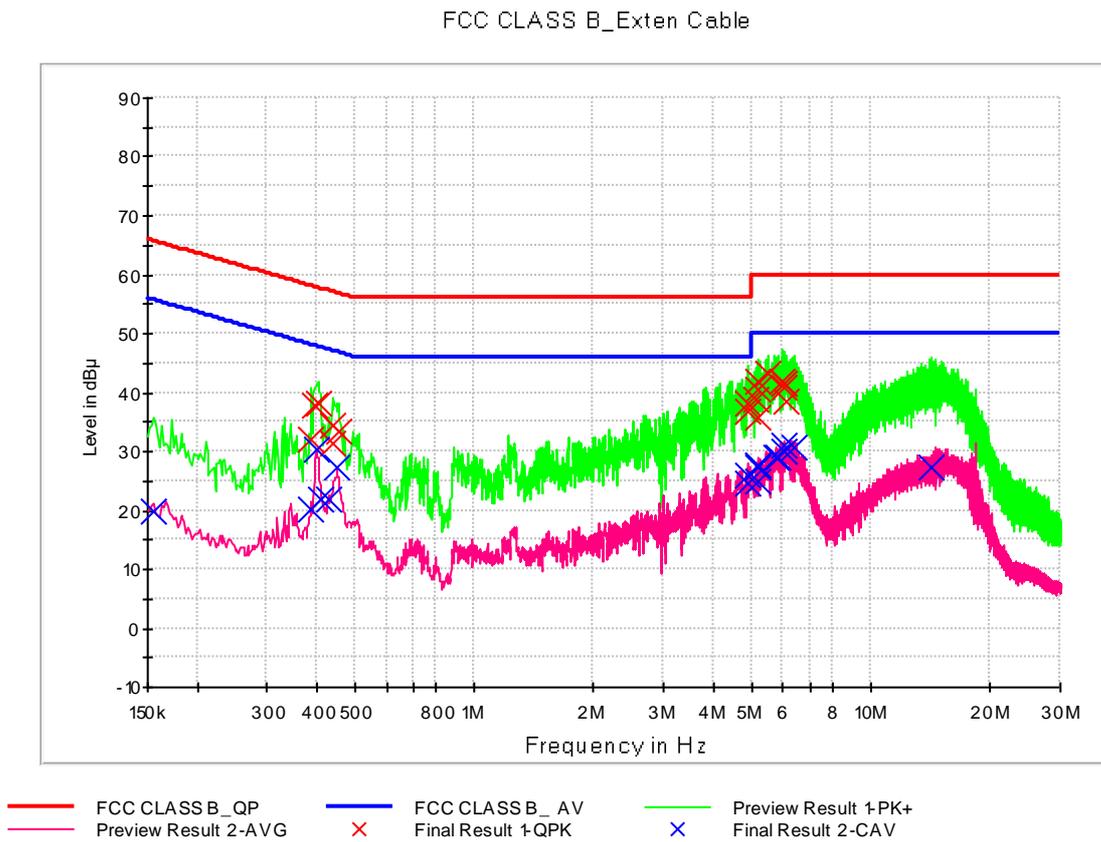
4.1.2 Operating Condition

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	FRONT CAMERA & MP3 mode Dual Screen mode
Kind of Test Site	EMI Shielded Room
Temperature	23.5 / 23.6 / 22.2 °C
Relative Humidity	45.4 / 45.7 / 46.8 %
Test Date	July 06 / July 09 / July 13, 2020

4.1.3 Measuring Data

Figure 1: Conducted Emission (150 kHz to 30 MHz), FRONT CAMERA & MP3 mode, Line (L1)



QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.388000	32.1	9.000	L1	9.8	26.0	58.1
0.394000	37.9	9.000	L1	9.8	20.1	58.0
0.404000	38.0	9.000	L1	9.8	19.8	57.8
0.438000	31.5	9.000	L1	9.8	25.6	57.1
0.442000	34.5	9.000	L1	9.8	22.6	57.0
0.456000	33.4	9.000	L1	9.8	23.4	56.8
4.870000	36.8	9.000	L1	10.0	19.2	56.0
4.908000	38.2	9.000	L1	10.0	17.8	56.0
5.110000	38.9	9.000	L1	10.0	21.1	60.0
5.170000	42.0	9.000	L1	10.0	18.0	60.0
5.178000	40.6	9.000	L1	10.0	19.4	60.0
5.188000	35.9	9.000	L1	10.0	24.1	60.0
5.530000	43.4	9.000	L1	10.0	16.6	60.0
5.958000	41.9	9.000	L1	10.0	18.1	60.0
6.008000	41.6	9.000	L1	10.1	18.4	60.0
6.020000	41.7	9.000	L1	10.1	18.3	60.0
6.028000	40.8	9.000	L1	10.1	19.2	60.0
6.088000	38.6	9.000	L1	10.1	21.4	60.0

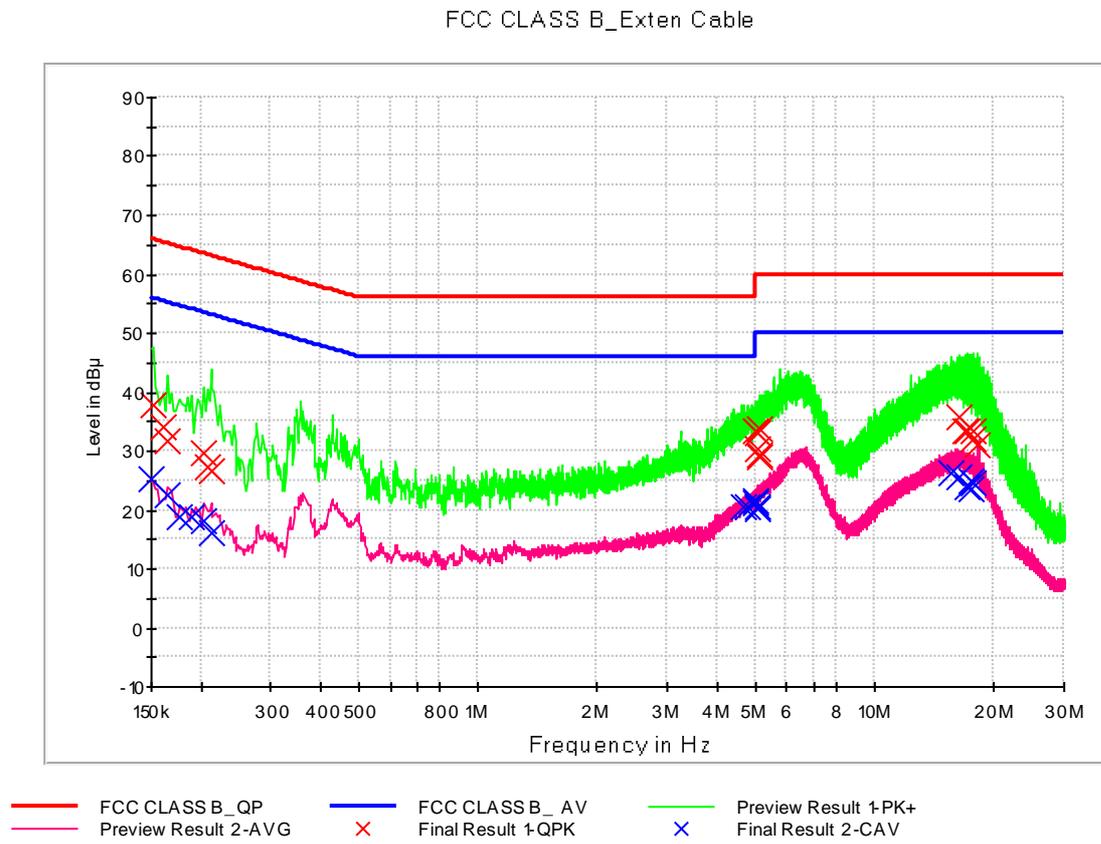
Calculation Formula:

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)
0.156000	19.8	9.000	L1	9.8	35.9	55.7
0.388000	20.1	9.000	L1	9.8	28.0	48.1
0.400000	30.3	9.000	L1	9.8	17.6	47.9
0.412000	22.0	9.000	L1	9.8	25.6	47.6
0.430000	21.8	9.000	L1	9.8	25.5	47.3
0.450000	27.4	9.000	L1	9.8	19.5	46.9
4.870000	24.7	9.000	L1	10.0	21.3	46.0
4.906000	25.8	9.000	L1	10.0	20.2	46.0
5.166000	27.8	9.000	L1	10.0	22.2	50.0
5.174000	27.5	9.000	L1	10.0	22.5	50.0
5.178000	27.4	9.000	L1	10.0	22.6	50.0
5.188000	25.0	9.000	L1	10.0	25.0	50.0
5.778000	29.0	9.000	L1	10.0	21.0	50.0
5.818000	29.1	9.000	L1	10.0	20.9	50.0
6.008000	30.1	9.000	L1	10.1	19.9	50.0
6.020000	31.0	9.000	L1	10.1	19.0	50.0
6.382000	30.6	9.000	L1	10.1	19.4	50.0
14.184000	27.1	9.000	L1	10.3	22.9	50.0

Figure 2: Conducted Emission (150 kHz to 30 MHz), FRONT CAMERA & MP3 mode, Line (N)



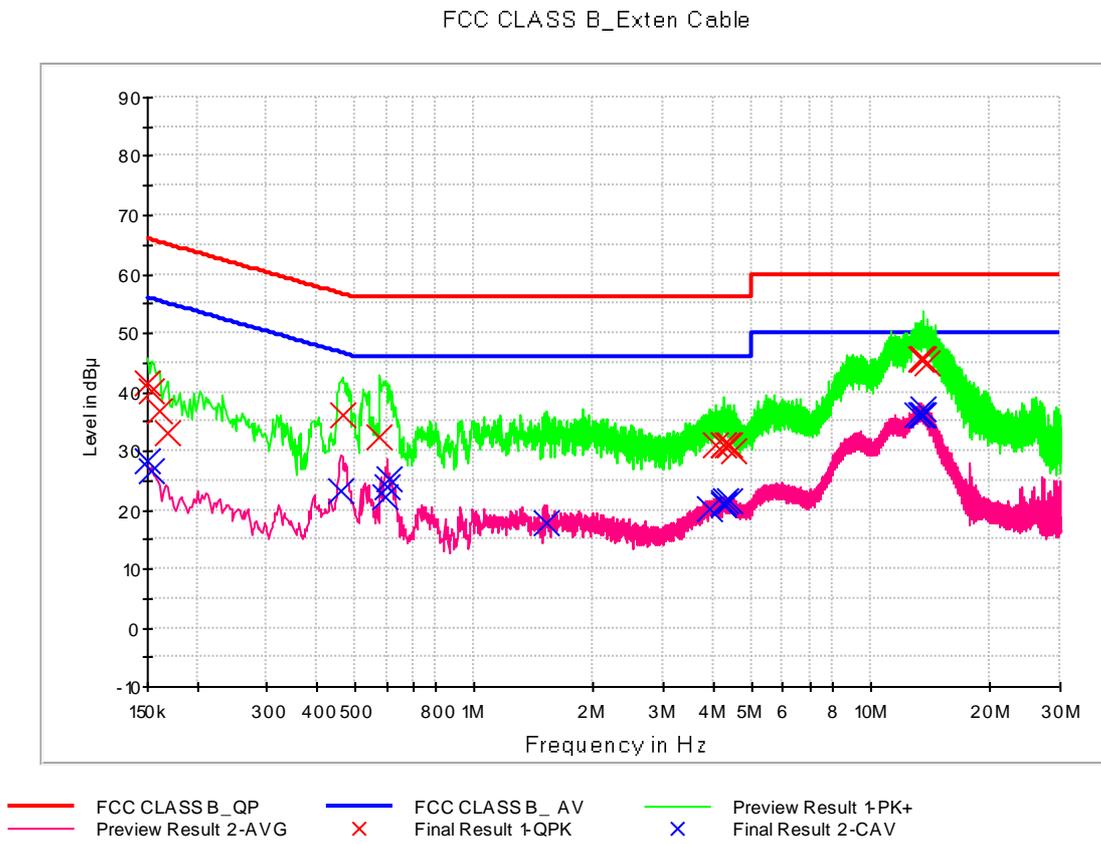
QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.152000	37.7	9.000	N	9.8	28.2	65.9
0.160000	34.1	9.000	N	9.8	31.4	65.5
0.164000	31.5	9.000	N	9.8	33.7	65.3
0.204000	29.6	9.000	N	9.8	33.8	63.4
0.208000	27.2	9.000	N	9.8	36.1	63.3
0.212000	26.5	9.000	N	9.8	36.6	63.1
5.030000	33.3	9.000	N	10.0	26.7	60.0
5.066000	30.4	9.000	N	10.0	29.6	60.0
5.096000	33.1	9.000	N	10.0	26.9	60.0
5.134000	28.9	9.000	N	10.0	31.1	60.0
5.140000	29.4	9.000	N	10.0	30.6	60.0
5.150000	33.6	9.000	N	10.0	26.4	60.0
16.300000	35.8	9.000	N	10.5	24.2	60.0
17.010000	33.5	9.000	N	10.5	26.5	60.0
17.186000	33.5	9.000	N	10.5	26.5	60.0
17.644000	33.4	9.000	N	10.6	26.6	60.0
17.774000	32.2	9.000	N	10.6	27.8	60.0
18.194000	31.0	9.000	N	10.6	29.0	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	25.2	9.000	N	9.8	30.8	56.0
0.164000	22.4	9.000	N	9.8	32.8	55.3
0.176000	18.9	9.000	N	9.8	35.8	54.7
0.190000	18.7	9.000	N	9.8	35.3	54.0
0.204000	18.2	9.000	N	9.8	35.2	53.4
0.212000	16.2	9.000	N	9.8	37.0	53.1
4.654000	20.6	9.000	N	10.0	25.4	46.0
4.756000	20.6	9.000	N	10.0	25.4	46.0
4.988000	21.1	9.000	N	10.0	24.9	46.0
5.030000	21.4	9.000	N	10.0	28.6	50.0
5.066000	20.3	9.000	N	10.0	29.7	50.0
5.096000	20.6	9.000	N	10.0	29.4	50.0
15.558000	26.3	9.000	N	10.5	23.7	50.0
16.300000	25.7	9.000	N	10.5	24.3	50.0
17.186000	23.9	9.000	N	10.5	26.1	50.0
17.464000	24.9	9.000	N	10.5	25.1	50.0
17.578000	23.7	9.000	N	10.5	26.3	50.0
17.644000	24.5	9.000	N	10.6	25.5	50.0

Figure 3: Conducted Emission (150 kHz to 30 MHz), Dual Screen mode, Line (L1)



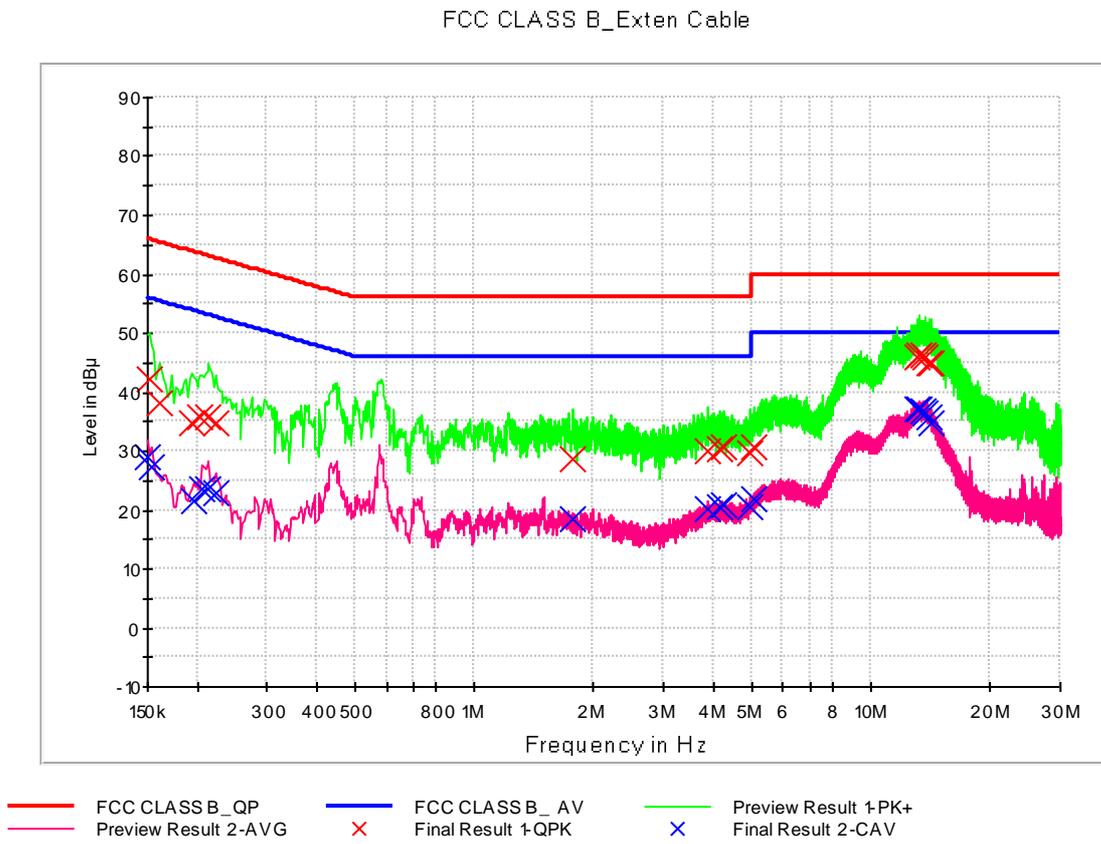
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	41.6	9.000	L1	9.8	24.4	66.0
0.154000	40.0	9.000	L1	9.8	25.8	65.8
0.160000	36.7	9.000	L1	9.8	28.7	65.5
0.168000	33.1	9.000	L1	9.8	31.9	65.1
0.464000	35.9	9.000	L1	9.8	20.7	56.6
0.578000	32.2	9.000	L1	9.8	23.8	56.0
4.042000	31.1	9.000	L1	10.0	24.9	56.0
4.254000	30.9	9.000	L1	10.0	25.1	56.0
4.260000	31.0	9.000	L1	10.0	25.0	56.0
4.374000	31.0	9.000	L1	10.0	25.0	56.0
4.384000	31.0	9.000	L1	10.0	25.0	56.0
4.500000	30.0	9.000	L1	10.0	26.0	56.0
13.396000	45.6	9.000	L1	10.3	14.4	60.0
13.460000	45.6	9.000	L1	10.3	14.4	60.0
13.468000	45.7	9.000	L1	10.3	14.3	60.0
13.512000	45.6	9.000	L1	10.3	14.4	60.0
13.600000	45.5	9.000	L1	10.3	14.5	60.0
13.804000	45.1	9.000	L1	10.3	14.9	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	28.3	9.000	L1	9.8	27.7	56.0
0.154000	26.5	9.000	L1	9.8	29.2	55.8
0.460000	23.1	9.000	L1	9.8	23.6	46.7
0.596000	22.3	9.000	L1	9.8	23.7	46.0
0.604000	23.8	9.000	L1	9.8	22.2	46.0
0.610000	25.2	9.000	L1	9.8	20.8	46.0
1.528000	17.6	9.000	L1	9.9	28.4	46.0
3.918000	20.2	9.000	L1	10.0	25.8	46.0
4.254000	21.0	9.000	L1	10.0	25.0	46.0
4.260000	21.2	9.000	L1	10.0	24.8	46.0
4.294000	21.5	9.000	L1	10.0	24.5	46.0
4.384000	21.5	9.000	L1	10.0	24.5	46.0
13.100000	36.3	9.000	L1	10.3	13.7	50.0
13.454000	36.2	9.000	L1	10.3	13.8	50.0
13.460000	36.1	9.000	L1	10.3	13.9	50.0
13.468000	36.2	9.000	L1	10.3	13.8	50.0
13.476000	36.2	9.000	L1	10.3	13.8	50.0
13.512000	37.0	9.000	L1	10.3	13.0	50.0

Figure 4: Conducted Emission (150 kHz to 30 MHz), Dual Screen mode, Line (N)



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.152000	42.3	9.000	N	9.8	23.6	65.9
0.160000	38.2	9.000	N	9.8	27.2	65.5
0.194000	34.7	9.000	N	9.8	29.1	63.9
0.204000	35.9	9.000	N	9.8	27.6	63.4
0.214000	35.8	9.000	N	9.8	27.3	63.0
0.222000	34.8	9.000	N	9.8	28.0	62.7
1.774000	28.8	9.000	N	9.9	27.2	56.0
3.892000	29.8	9.000	N	10.0	26.2	56.0
4.134000	30.2	9.000	N	10.0	25.8	56.0
4.276000	30.7	9.000	N	10.0	25.3	56.0
4.966000	29.8	9.000	N	10.0	26.2	56.0
5.072000	30.7	9.000	N	10.0	29.3	60.0
13.146000	46.0	9.000	N	10.4	14.0	60.0
13.210000	46.2	9.000	N	10.4	13.8	60.0
13.552000	46.2	9.000	N	10.4	13.8	60.0
13.724000	46.1	9.000	N	10.4	13.9	60.0
14.040000	45.0	9.000	N	10.4	15.0	60.0
14.176000	44.8	9.000	N	10.4	15.2	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	29.0	9.000	N	9.8	27.0	56.0
0.154000	27.2	9.000	N	9.8	28.6	55.8
0.196000	21.7	9.000	N	9.8	32.1	53.8
0.206000	23.4	9.000	N	9.8	29.9	53.4
0.214000	23.5	9.000	N	9.8	29.5	53.0
0.222000	22.9	9.000	N	9.8	29.9	52.7
1.774000	18.4	9.000	N	9.9	27.6	46.0
3.892000	20.3	9.000	N	10.0	25.7	46.0
4.134000	20.6	9.000	N	10.0	25.4	46.0
4.276000	20.9	9.000	N	10.0	25.1	46.0
4.966000	20.7	9.000	N	10.0	25.3	46.0
5.072000	21.8	9.000	N	10.0	28.2	50.0
13.146000	37.0	9.000	N	10.4	13.0	50.0
13.210000	37.0	9.000	N	10.4	13.0	50.0
13.574000	36.8	9.000	N	10.4	13.2	50.0
13.724000	36.5	9.000	N	10.4	13.5	50.0
14.040000	35.7	9.000	N	10.4	14.3	50.0
14.176000	34.8	9.000	N	10.4	15.2	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	05.12.2020
<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	08.20.2019
<input checked="" type="checkbox"/>	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
<input type="checkbox"/>	Radio communication test station	ANRITSU	MT8000A	6262036812	1 year	01.06.2020
<input type="checkbox"/>	Radio communication analyzer	ANRITSU	MT8821C	6262044720	1 year	01.06.2020
<input checked="" type="checkbox"/>	UXM 5G wireless test platform	KEYSIGHT	E7515B	MY58300756	1 year	01.07.2020
<input checked="" type="checkbox"/>	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-201	-	-
<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	FRONT CAMERA & MP3 mode DISPLAY mode WIRELESS CHARGING mode DUAL SCREEN mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	23.6 / 22.1 °C
Relative Humidity	45.2 / 48.3 %
Test Date	July 07 / July 14, 2020

- 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

4.2.3 Measuring Data

FRONT CAMERA & MP3 mode

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)
52.489400	22.0	100.0	V	44.0	19.7	18.0	40.0
99.978440	15.3	274.8	H	79.0	15.1	28.2	43.5
160.528640	20.5	100.0	V	98.0	19.8	23.0	43.5
489.964200	24.0	174.9	H	0.0	25.0	22.0	46.0
679.386560	28.3	225.2	V	3.0	28.4	17.7	46.0
939.811600	31.9	100.0	H	125.0	31.8	14.1	46.0

DISPLAY mode

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)
40.441080	20.4	274.9	V	27.0	19.0	19.6	40.0
88.628480	21.6	191.8	H	340.0	14.4	21.9	43.5
193.584200	25.1	125.1	H	303.0	17.2	18.4	43.5
306.575360	25.8	100.0	H	302.0	20.7	20.2	46.0
396.347080	32.6	100.0	H	221.0	22.7	13.4	46.0
700.417560	28.6	274.7	V	305.0	28.7	17.4	46.0

WIRELESS CHARGING mode

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)
55.981320	24.3	125.0	V	346.0	19.6	15.7	40.0
66.957000	27.2	207.8	V	2.0	18.4	12.8	40.0
139.397600	24.9	100.0	V	134.0	18.9	18.6	43.5
213.352840	25.5	100.0	V	104.0	17.2	18.0	43.5
266.672840	28.2	100.0	H	1.0	19.3	17.8	46.0
734.333520	30.1	191.8	V	265.0	29.2	15.9	46.0

DUAL SCREEN mode

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)
42.726920	22.8	100.0	V	60.0	19.2	17.2	40.0
65.946760	26.2	125.0	V	1.0	18.6	13.8	40.0
186.777280	35.8	174.7	H	334.0	17.7	7.7	43.5
210.759960	38.9	118.0	H	0.0	17.1	4.6	43.5
330.803760	36.5	100.0	H	271.0	21.2	9.5	46.0
564.012520	39.2	174.8	H	269.0	26.6	6.8	46.0

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"/>	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"/>	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.20.2019
<input checked="" type="checkbox"/>	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
<input type="checkbox"/>	Radio communication test station	ANRITSU	MT8000A	6262036812	1 year	01.06.2020
<input type="checkbox"/>	Radio communication analyzer	ANRITSU	MT8821C	6262044720	1 year	01.06.2020
<input type="checkbox"/>	UXM 5G wireless test platform	E7515B	KEYSIGHT	MY58300756	1 year	01.07.2020
<input type="checkbox"/>	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-201	-	-
<input checked="" type="checkbox"/>	Horn antenna	Schwarzbeck	BBHA 9120D	01836	1 year	07.19.2019
<input checked="" type="checkbox"/>	Horn antenna	Schwarzbeck	BBHA 9170	BBHA9170#786	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
Worst Case of Operating Mode	FRONT CAMERA & MP3 mode DISPLAY mode WIRELESS CHARGING mode DUAL SCREEN mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	21.4 / 22.1 °C
Relative Humidity	47.9 / 48.3 %
Test Date	July 13 / July 14, 2020

- 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

4.3.3 Measuring Data

FRONT CAMERA & MP3 mode

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
2433.815000	32.3	149.5	H	0.0	-24.4	41.7	74.0
4012.345000	34.4	276.6	V	220.0	-20.4	39.6	74.0
5336.780000	36.0	249.9	H	21.0	-17.4	38.0	74.0
10930.510000	44.9	230.4	H	81.0	-5.5	29.1	74.0
14481.375000	47.2	199.5	V	71.0	-1.1	26.8	74.0
17986.748620	55.3	149.6	H	0.0	9.4	18.7	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)
2433.815000	19.6	149.5	H	0.0	-24.4	34.4	54.0
4012.345000	21.9	276.6	V	220.0	-20.4	32.1	54.0
5336.780000	23.3	249.9	H	21.0	-17.4	30.7	54.0
10930.510000	32.3	230.4	H	81.0	-5.5	21.7	54.0
14481.375000	34.6	199.5	V	71.0	-1.1	19.4	54.0
17986.748620	42.6	149.6	H	0.0	9.4	11.4	54.0

DISPLAY mode

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1644.625000	42.5	100.0	H	259.0	-27.5	31.5	74.0
1763.825000	42.6	139.8	H	154.0	-27.2	31.4	74.0
2176.315000	36.6	150.0	H	252.0	-25.7	37.4	74.0
2399.430000	42.9	321.4	H	141.0	-24.6	31.1	74.0
5399.605000	46.8	100.0	H	133.0	-17.3	27.2	74.0
17995.507640	55.1	150.0	V	62.0	9.6	18.9	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)
1644.625000	29.0	100.0	H	259.0	-27.5	25.0	54.0
1763.825000	28.7	139.8	H	154.0	-27.2	25.3	54.0
2176.315000	23.6	150.0	H	252.0	-25.7	30.4	54.0
2399.430000	29.6	321.4	H	141.0	-24.6	24.4	54.0
5399.605000	41.8	100.0	H	133.0	-17.3	12.2	54.0
17995.507640	42.7	150.0	V	62.0	9.6	11.3	54.0

WIRELESS CHARGING mode

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
2627.840000	32.7	176.5	V	106.0	-23.8	41.3	74.0
3551.485000	33.3	337.7	V	29.0	-21.8	40.7	74.0
4923.170000	37.4	150.0	H	279.0	-18.0	36.6	74.0
7355.095000	40.5	336.7	H	120.0	-12.5	33.5	74.0
11008.450000	45.0	249.8	H	30.0	-5.3	29.0	74.0
17987.029720	55.8	199.4	V	45.0	9.4	18.2	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)
2627.840000	19.7	176.5	V	106.0	-23.8	34.3	54.0
3551.485000	20.5	337.7	V	29.0	-21.8	33.5	54.0
4923.170000	23.6	150.0	H	279.0	-18.0	30.4	54.0
7355.095000	27.8	336.7	H	120.0	-12.5	26.2	54.0
11008.450000	32.3	249.8	H	30.0	-5.3	21.7	54.0
17987.029720	42.6	199.4	V	45.0	9.4	11.4	54.0

DUAL SCREEN mode

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1147.105000	44.1	274.4	H	135.0	-29.0	29.9	74.0
1421.595000	47.3	137.6	H	168.0	-28.1	26.7	74.0
2696.735000	41.6	125.6	H	0.0	-23.6	32.4	74.0
5399.220000	41.5	299.7	V	320.0	-17.3	32.5	74.0
11019.450000	44.9	149.6	H	219.0	-5.3	29.1	74.0
17976.827340	55.3	199.4	V	0.0	9.3	18.7	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)
1147.105000	33.4	274.4	H	135.0	-29.0	20.6	54.0
1421.595000	34.3	137.6	H	168.0	-28.1	19.7	54.0
2696.735000	24.9	125.6	H	0.0	-23.6	29.1	54.0
5399.220000	24.6	299.7	V	320.0	-17.3	29.4	54.0
11019.450000	32.2	149.6	H	219.0	-5.3	21.8	54.0
17976.827340	42.6	199.4	V	0.0	9.3	11.4	54.0

5. CONCLUSION

The data collected shows that the **Product Name: Multi-band CDMA/GSM/EDGE/WCDMA/LTE/5G NR Phone with WLAN, BT and RFID, Model Name: LM-G900TM** 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-2007-FC011-P	July 15, 2020	Initial Release

End of report