On your side

HCT

TEST REPORT

EMI Test for FCC Certification of LM-G900VM Model

APPLICANT
LG Electronics USA, Inc.

REPORT NO.
HCT-EM-2007-FC007-R2

DATE OF ISSUE
August 20, 2020

Tested by
Ki-Min Lee (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-2007-FC007-R2

DATE OF ISSUE
August 20, 2020

FCC ID.
ZNFG900VM

Applicant	**LG Electronics USA, Inc.** 111 Sylvan Avenue, North Building , Englewood Cliffs NJ 07632 United States
Product Name Model Name Series Model Name	Multi-band CDMA/GSM/WCDMA/LTE/5G NR Phone with WLAN, Bluetooth and NFC LM-G900VM Refer to the clause 1.1 Description of EUT
Travel Adaptor Information	Model name: MCS-P02WR Manufacturer: SUNLIN
Date of Test	June 30, 2020 to July 07, 2020 / July 28, 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 13, 2020	Initial Release
1	July 31, 2020	Revised the Frequency Range Revised the Display mode
2	August 20, 2020	Revised the Display mode

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 denial the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862

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

CONTENTS

1. GENERAL INFORMATION

1.1 Description of EUT

FCC ID	ZNFG900VM	
Model Name	LM-G900VM	
Series Model Name	LM-G900VM, LMG900VM, G900VM, LM-G900QM6, LMG900QM6, G900QM6, LM-G902V, LMG902V, G902V	
Product Name	Multi-band CDMA/GSM/WCDMA/LTE/5G NR Phone with WLAN, Bluetooth and NFC	
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
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 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 B46	5 150 MHz to 5 925 MHz	-
LTE B48	3 550 MHz to 3 700 MHz	3 550 MHz to 3 700 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 n2	1 930 MHz to 1 990 MHz	1 850 MHz to 1 910 MHz
5G NR n5	869 MHz to 894 MHz	824 MHz to 849 MHz
5G NR n66	2 110 MHz to 2 200 MHz	1 710 MHz to 1 780 MHz
5G NR n260	-	37 000 MHz to 40 000 MHz
5G NR n261	-	27 500 MHz to 28 350 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-G900VM	-	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 Electronics
Dual Screen Gender	EBX64329001	-	CRESYN
Data Cable	EAD65830101	-	LUXSHARE
Earphone	EAB63728252	-	BUJEON
TA	MCS-P02WR	-	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 (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 ac cordance 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 (μV/m)	Quasi-Peak (dBμV/m)	Antenna Distance (m)	Field Strength (μV/m)	Quasi-Peak (dBμV/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 (dBμV/m)	Average (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)
Above 1 000	3	80	60	74	54

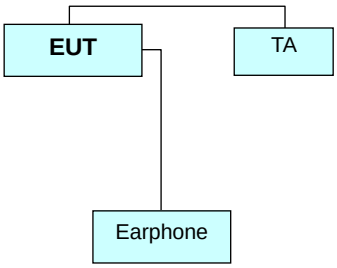
2.2.1 Frequency Range of Radiated Measurements

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

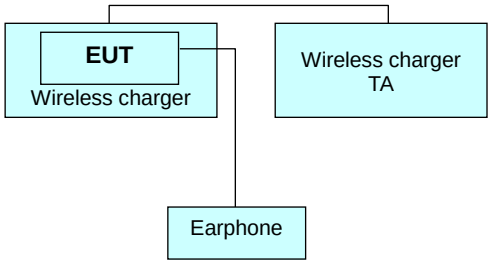
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5th harmonic of the highest frequency or 40 ㎓, whichever is lower

2.3 Configuration of Tested System

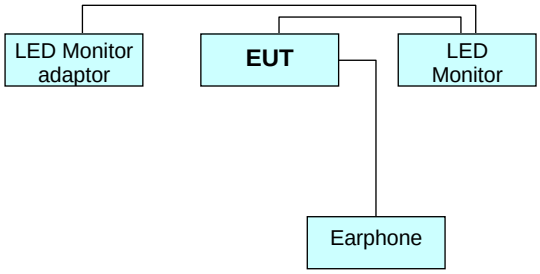
[Camera/ MP3 / Radio / Idle Mode]



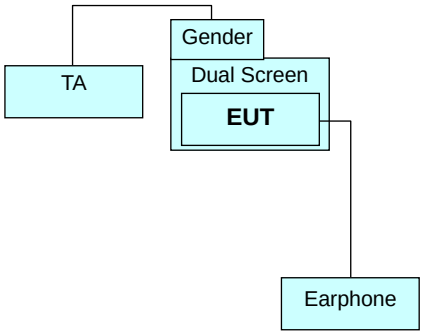
[Wireless Charging Mode]



[Display Mode]



[Dual Screen Mode]



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
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
☒	EMI test receiver	Rohde & Schwarz	ESCI	100584	1 year	06.10.2020
☒	LISN	Rohde & Schwarz	ENV216	102245	1 year	09.11.2019
☐	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.20.2019
☐	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58300756	1 year	01.07.2020
☒	ANTENNA (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-201	-	-
☒	Software	Rohde & Schwarz	EMC32	-	-	-

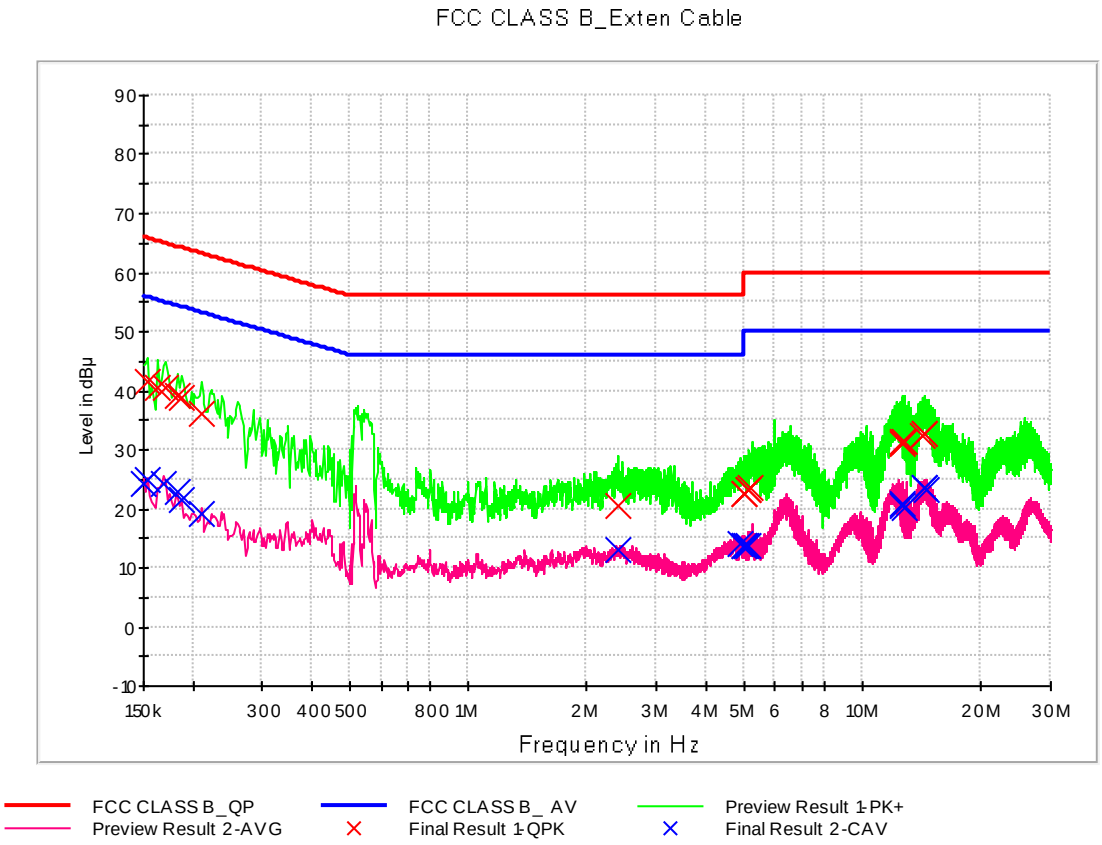
4.1.2 Operating Condition

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 Dual Screen mode
Kind of Test Site	EMI Shielded Room
Temperature	23.7 / 23.5 °C
Relative Humidity	44.8 / 45.4 %
Test Date	July 01 / July 06, 2020

4.1.3 Measuring Data

Figure 1: Conducted Emission (150 kHz to 30 MHz), REAR CAMERA & FM RADIO mode, **Line (L1)**



QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154000	41.4	9.000	L1	9.8	24.4	65.8
0.162000	40.4	9.000	L1	9.8	25.0	65.4
0.170000	40.7	9.000	L1	9.8	24.3	65.0
0.184000	39.2	9.000	L1	9.8	25.1	64.3
0.188000	38.9	9.000	L1	9.8	25.3	64.1
0.210000	36.1	9.000	L1	9.8	27.1	63.2
2.394000	20.7	9.000	L1	9.9	35.3	56.0
5.002000	22.7	9.000	L1	10.0	37.3	60.0
5.024000	22.7	9.000	L1	10.0	37.3	60.0
5.142000	23.1	9.000	L1	10.0	36.9	60.0
5.160000	23.3	9.000	L1	10.0	36.7	60.0
5.170000	23.7	9.000	L1	10.0	36.3	60.0
12.606000	31.3	9.000	L1	10.3	28.7	60.0
12.684000	30.9	9.000	L1	10.3	29.1	60.0
12.754000	31.3	9.000	L1	10.3	28.7	60.0
14.268000	32.5	9.000	L1	10.3	27.5	60.0
14.280000	32.6	9.000	L1	10.3	27.4	60.0
14.382000	32.7	9.000	L1	10.4	27.3	60.0

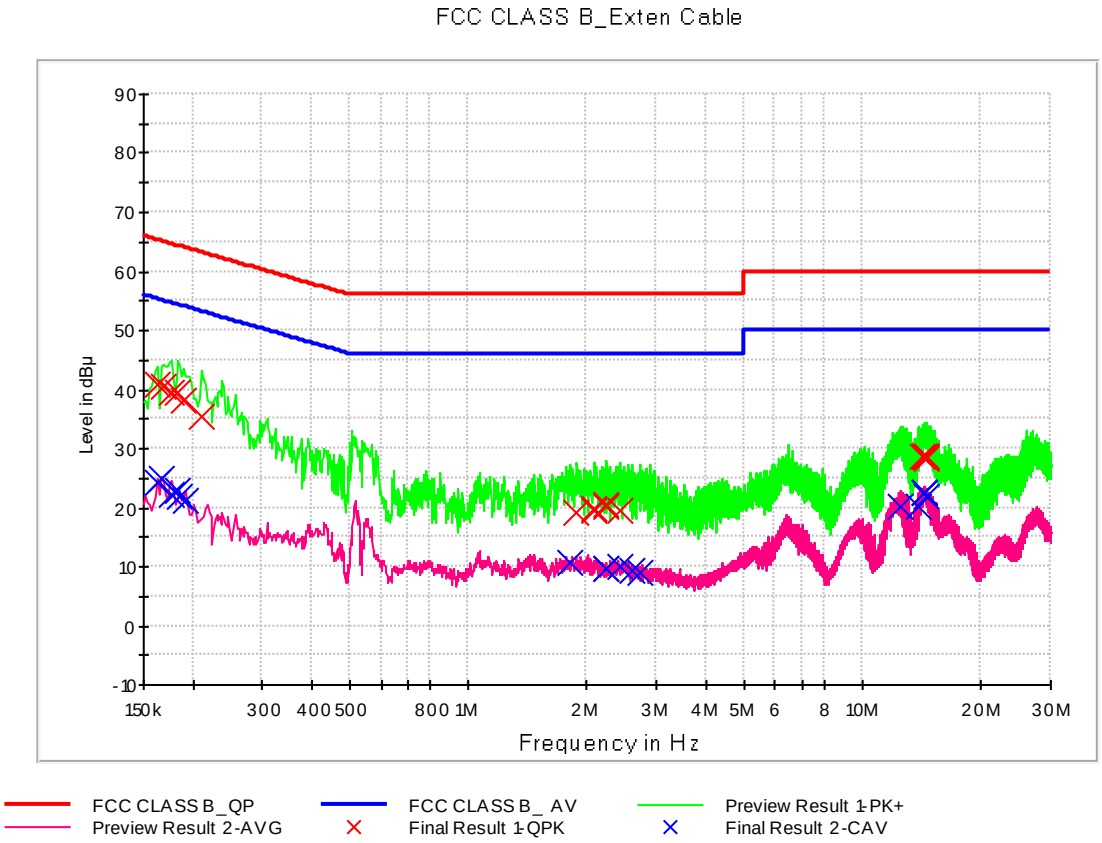
Calculation Formula:

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 (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	24.3	9.000	L1	9.8	31.7	56.0
0.154000	25.0	9.000	L1	9.8	30.8	55.8
0.168000	24.1	9.000	L1	9.8	31.0	55.1
0.182000	23.0	9.000	L1	9.8	31.4	54.4
0.188000	21.6	9.000	L1	9.8	32.5	54.1
0.210000	19.1	9.000	L1	9.8	34.1	53.2
2.394000	13.1	9.000	L1	9.9	32.9	46.0
4.904000	14.1	9.000	L1	10.0	31.9	46.0
5.002000	13.8	9.000	L1	10.0	36.2	50.0
5.024000	13.8	9.000	L1	10.0	36.2	50.0
5.098000	13.7	9.000	L1	10.0	36.3	50.0
5.102000	13.8	9.000	L1	10.0	36.2	50.0
12.606000	21.0	9.000	L1	10.3	29.0	50.0
12.684000	20.6	9.000	L1	10.3	29.4	50.0
12.754000	20.0	9.000	L1	10.3	30.0	50.0
14.280000	23.5	9.000	L1	10.3	26.5	50.0
14.382000	23.5	9.000	L1	10.4	26.5	50.0
14.582000	23.1	9.000	L1	10.4	26.9	50.0

Figure 2: Conducted Emission (150 kHz to 30 MHz), REAR CAMERA & FM RADIO mode, **Line (N)**



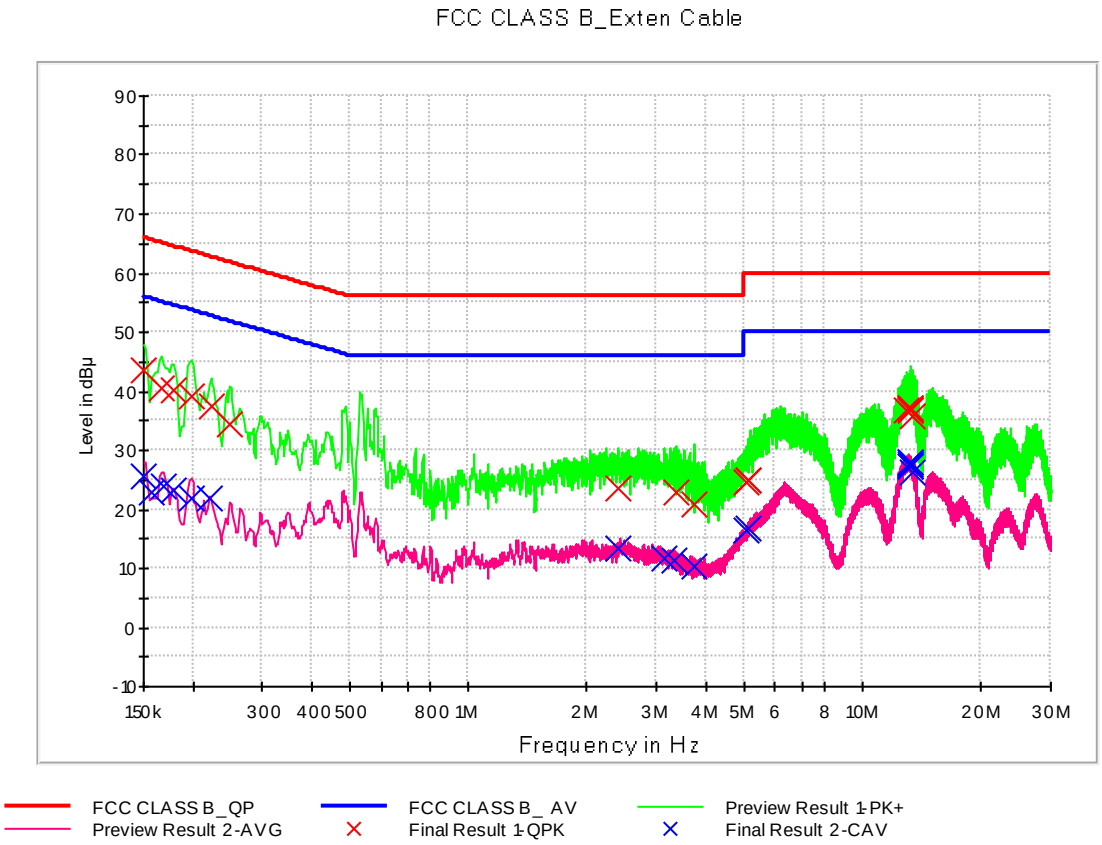
QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162000	40.8	9.000	N	9.8	24.6	65.4
0.168000	40.4	9.000	N	9.8	24.7	65.1
0.176000	39.5	9.000	N	9.8	25.2	64.7
0.184000	39.6	9.000	N	9.8	24.7	64.3
0.190000	38.2	9.000	N	9.8	25.9	64.0
0.210000	35.4	9.000	N	9.8	27.8	63.2
1.886000	19.2	9.000	N	9.9	36.8	56.0
2.084000	19.8	9.000	N	9.9	36.2	56.0
2.090000	19.7	9.000	N	9.9	36.3	56.0
2.232000	20.2	9.000	N	9.9	35.8	56.0
2.246000	20.7	9.000	N	9.9	35.3	56.0
2.438000	19.6	9.000	N	9.9	36.4	56.0
14.230000	28.8	9.000	N	10.4	31.2	60.0
14.356000	28.7	9.000	N	10.4	31.3	60.0
14.406000	28.6	9.000	N	10.4	31.4	60.0
14.498000	28.6	9.000	N	10.4	31.4	60.0
14.512000	28.7	9.000	N	10.4	31.3	60.0
14.588000	28.2	9.000	N	10.4	31.8	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162000	24.2	9.000	N	9.8	31.2	55.4
0.166000	25.1	9.000	N	9.8	30.1	55.2
0.176000	22.3	9.000	N	9.8	32.4	54.7
0.182000	22.9	9.000	N	9.8	31.5	54.4
0.186000	21.8	9.000	N	9.8	32.4	54.2
0.192000	21.2	9.000	N	9.8	32.7	53.9
1.806000	10.5	9.000	N	9.9	35.5	46.0
2.232000	9.7	9.000	N	9.9	36.4	46.0
2.246000	9.6	9.000	N	9.9	36.4	46.0
2.438000	9.9	9.000	N	9.9	36.1	46.0
2.602000	9.4	9.000	N	9.9	36.6	46.0
2.736000	9.1	9.000	N	9.9	36.9	46.0
12.524000	20.3	9.000	N	10.4	29.7	50.0
13.806000	20.1	9.000	N	10.4	29.9	50.0
14.350000	22.6	9.000	N	10.4	27.4	50.0
14.356000	22.5	9.000	N	10.4	27.5	50.0
14.406000	22.5	9.000	N	10.4	27.5	50.0
14.588000	22.0	9.000	N	10.4	28.0	50.0

Figure 3: Conducted Emission (150 kHz to 30 MHz), DUAL SCREEN mode, **Line (L1)**



QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.4	9.000	L1	9.8	22.6	66.0
0.166000	40.7	9.000	L1	9.8	24.5	65.2
0.178000	40.1	9.000	L1	9.8	24.5	64.6
0.198000	39.1	9.000	L1	9.8	24.6	63.7
0.222000	37.5	9.000	L1	9.8	25.2	62.7
0.248000	34.4	9.000	L1	9.8	27.4	61.8
2.390000	23.6	9.000	L1	9.9	32.4	56.0
3.382000	22.8	9.000	L1	9.9	33.2	56.0
3.734000	20.9	9.000	L1	10.0	35.1	56.0
5.060000	24.6	9.000	L1	10.0	35.4	60.0
5.112000	25.0	9.000	L1	10.0	35.0	60.0
5.118000	25.0	9.000	L1	10.0	35.0	60.0
12.950000	36.8	9.000	L1	10.3	23.2	60.0
13.162000	37.2	9.000	L1	10.3	22.8	60.0
13.208000	36.9	9.000	L1	10.3	23.1	60.0
13.260000	36.8	9.000	L1	10.3	23.2	60.0
13.272000	37.1	9.000	L1	10.3	22.9	60.0
13.414000	35.9	9.000	L1	10.3	24.1	60.0

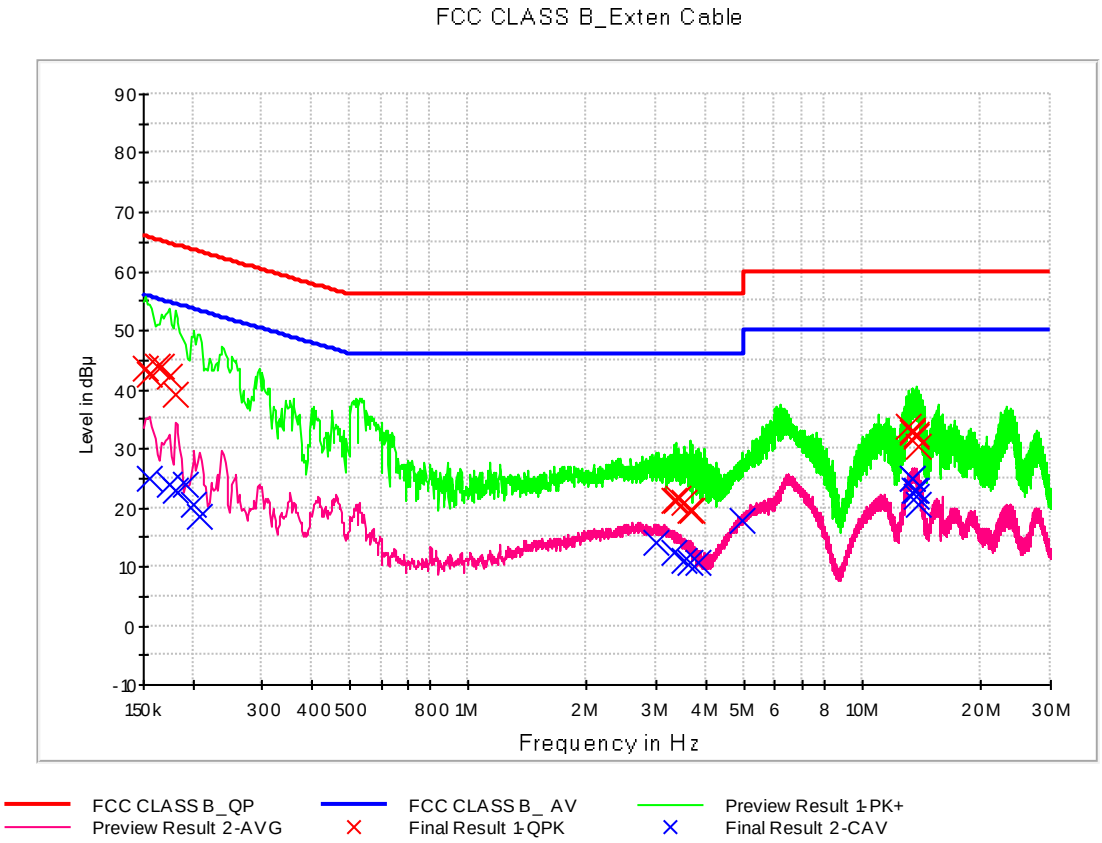
Calculation Formula:

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 (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	25.7	9.000	L1	9.8	30.3	56.0
0.158000	23.0	9.000	L1	9.8	32.6	55.6
0.168000	23.9	9.000	L1	9.8	31.1	55.1
0.178000	23.3	9.000	L1	9.8	31.3	54.6
0.198000	22.0	9.000	L1	9.8	31.7	53.7
0.220000	21.9	9.000	L1	9.8	30.9	52.8
2.390000	13.3	9.000	L1	9.9	32.7	46.0
3.124000	11.9	9.000	L1	9.9	34.1	46.0
3.330000	11.3	9.000	L1	9.9	34.7	46.0
3.734000	10.5	9.000	L1	10.0	35.6	46.0
5.060000	16.5	9.000	L1	10.0	33.5	50.0
5.112000	16.7	9.000	L1	10.0	33.3	50.0
13.172000	28.0	9.000	L1	10.3	22.0	50.0
13.208000	27.9	9.000	L1	10.3	22.1	50.0
13.260000	27.8	9.000	L1	10.3	22.2	50.0
13.272000	27.2	9.000	L1	10.3	22.8	50.0
13.280000	27.3	9.000	L1	10.3	22.7	50.0
13.414000	26.1	9.000	L1	10.3	23.9	50.0

Figure 4: Conducted Emission (150 kHz to 30 MHz), DUAL SCREEN mode, **Line (N)**



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	43.5	9.000	N	9.8	22.4	65.9
0.156000	42.7	9.000	N	9.8	23.0	65.7
0.162000	43.8	9.000	N	9.8	21.5	65.4
0.166000	43.9	9.000	N	9.8	21.2	65.2
0.174000	42.1	9.000	N	9.8	22.7	64.8
0.180000	39.0	9.000	N	9.8	25.5	64.5
3.330000	21.3	9.000	N	9.9	34.7	56.0
3.348000	21.2	9.000	N	9.9	34.8	56.0
3.424000	21.5	9.000	N	9.9	34.5	56.0
3.538000	20.7	9.000	N	10.0	35.3	56.0
3.646000	19.6	9.000	N	10.0	36.4	56.0
3.698000	19.4	9.000	N	10.0	36.6	56.0
13.132000	33.7	9.000	N	10.4	26.3	60.0
13.410000	33.0	9.000	N	10.4	27.0	60.0
13.456000	32.8	9.000	N	10.4	27.2	60.0
13.626000	32.2	9.000	N	10.4	27.8	60.0
13.660000	32.1	9.000	N	10.4	27.9	60.0
13.834000	30.3	9.000	N	10.4	29.7	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156000	25.0	9.000	N	9.8	30.7	55.7
0.174000	23.8	9.000	N	9.8	30.9	54.8
0.180000	22.9	9.000	N	9.8	31.6	54.5
0.192000	23.7	9.000	N	9.8	30.2	53.9
0.202000	20.6	9.000	N	9.8	32.9	53.5
0.208000	18.5	9.000	N	9.8	34.8	53.3
2.978000	14.0	9.000	N	9.9	32.0	46.0
3.330000	12.2	9.000	N	9.9	33.8	46.0
3.538000	11.1	9.000	N	10.0	34.9	46.0
3.650000	10.7	9.000	N	10.0	35.3	46.0
3.842000	10.8	9.000	N	10.0	35.2	46.0
4.934000	17.8	9.000	N	10.0	28.2	46.0
13.364000	25.0	9.000	N	10.4	25.0	50.0
13.410000	24.8	9.000	N	10.4	25.2	50.0
13.584000	23.0	9.000	N	10.4	27.0	50.0
13.660000	22.7	9.000	N	10.4	27.3	50.0
13.736000	22.0	9.000	N	10.4	28.0	50.0
13.834000	20.6	9.000	N	10.4	29.4	50.0

4.2 Radiated Emission Below 1 GHz

4.2.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
☒	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	08.20.2019
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58300756	1 year	01.07.2020
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-201	-	-
☒	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 DISPLAY mode WIRELESS CHARGING mode Dual Screen mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	24.1 / 23.5 / 23.6 / 22.7 °C
Relative Humidity	48.5 / 47.2 / 45.2 / 47.5 %
Test Date	July 01 / July 02 / July 07 / July 28, 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

REAR CAMERA & FM RADIO mode

Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
31.629387	25.4	100.0	V	337.0	18.4	14.6	40.0
59.468000	21.1	100.0	V	0.0	19.4	18.9	40.0
83.274000	22.1	225.1	H	316.0	15.3	17.9	40.0
165.829000	24.8	174.7	H	294.0	19.4	18.7	43.5
305.514200	23.9	100.0	H	0.0	20.6	22.1	46.0
579.890000	26.3	274.7	H	86.0	26.9	19.7	46.0

DISPLAY mode

Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.301800	19.0	100.0	V	150.0	18.8	21.0	40.0
83.395560	33.0	100.0	V	130.0	15.2	7.0	40.0
165.941360	39.2	174.9	H	245.0	19.4	4.3	43.5
298.830720	28.6	100.0	H	293.0	20.5	17.4	46.0
425.126040	34.5	174.8	H	178.0	23.4	11.5	46.0
931.498920	34.4	100.0	H	149.0	31.7	11.6	46.0

WIRELESS CHARGING mode

Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
52.459000	22.5	100.0	V	288.0	19.7	17.5	40.0
69.056400	29.1	100.0	V	306.0	18.2	10.9	40.0
86.652800	23.3	225.3	H	125.0	14.7	16.7	40.0
160.017200	28.8	100.0	V	176.0	19.8	14.7	43.5
213.357800	26.1	100.0	V	345.0	17.2	17.4	43.5
266.700400	28.1	125.3	H	235.0	19.3	17.9	46.0

DUAL SCREEN mode

Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.207400	25.3	100.0	V	347.0	18.6	14.7	40.0
79.100600	23.1	225.0	H	109.0	16.0	16.9	40.0
142.576000	21.9	100.0	V	213.0	19.1	21.6	43.5
210.694000	31.6	100.0	H	332.0	17.0	11.9	43.5
294.253800	21.1	100.0	H	71.0	20.3	24.9	46.0
584.322800	26.5	100.0	V	268.0	27.0	19.5	46.0

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	-
☒	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	07.19.2019
☒	Horn antenna	Schwarzbeck	BBHA 9170	BBHA9170#786	1 year	12.03.2019
☐	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.20.2019
☐	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58300756	1 year	01.07.2020
☒	ANTENNA (for Communication)	USLP9142	Schwarzbeck	VSLP 9142-201	-	-
☒	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	40 000 MHz
Tested Frequency Range	1 GHz to 40 GHz
Worst Case of Operating Mode	REAR CAMERA & FM RADIO mode DISPLAY mode WIRELESS CHARGING mode DUAL SCREEN mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	23.5 / 23.5 / 22.4 / 24.3 / 23.6 / 22.7 °C
Relative Humidity	46.7 / 47.2 / 46.8 / 45.7 / 45.2 / 47.5 %
Test Date	June 30 / July 02 / July 03 / July 06 / July 07 / July 28, 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

REAR CAMERA & FM RADIO mode

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2192.405000	31.4	111.4	V	129.0	-25.6	42.6	74.0
3554.375000	33.8	100.0	V	303.0	-21.8	40.2	74.0
5599.035000	36.4	188.4	V	62.0	-17.1	37.6	74.0
7141.910000	39.7	278.5	H	280.0	-12.9	34.3	74.0
14510.845000	47.6	264.4	H	227.0	-1.1	26.4	74.0
17970.977600	55.3	100.0	V	56.0	9.2	18.7	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2192.405000	18.3	111.4	V	129.0	-25.6	35.7	54.0
3554.375000	20.7	100.0	V	303.0	-21.8	33.3	54.0
5599.035000	23.8	188.4	V	62.0	-17.1	30.2	54.0
7141.910000	27.1	278.5	H	280.0	-12.9	26.9	54.0
14510.845000	34.6	264.4	H	227.0	-1.1	19.4	54.0
17970.977600	42.8	100.0	V	56.0	9.2	11.2	54.0

DISPLAY mode

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1857.655000	41.4	150.0	H	133.0	-26.5	32.6	74.0
2401.975000	41.1	100.0	H	142.0	-24.4	32.9	74.0
5399.950000	48.9	306.4	H	134.0	-17.3	25.1	74.0
9809.075000	43.1	158.7	H	285.0	-9.0	30.9	74.0
14143.510000	47.1	100.0	V	0.0	-1.6	26.9	74.0
17968.485000	55.8	249.9	H	137.0	9.6	18.2	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1857.655000	27.5	150.0	H	133.0	-26.5	26.5	54.0
2401.975000	27.8	100.0	H	142.0	-24.4	26.2	54.0
5399.950000	46.5	306.4	H	134.0	-17.3	7.5	54.0
9809.075000	30.0	158.7	H	285.0	-9.0	24.0	54.0
14143.510000	34.2	100.0	V	0.0	-1.6	19.8	54.0
17968.485000	43.0	249.9	H	137.0	9.6	11.0	54.0

WIRELESS CHARGING mode

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1387.780000	31.7	150.0	V	46.0	-28.2	42.3	74.0
3383.330000	32.9	100.0	H	210.0	-22.1	41.1	74.0
5274.435000	36.3	350.0	H	155.0	-17.5	37.7	74.0
11243.585000	45.0	189.6	V	50.0	-4.8	29.0	74.0
14493.030000	48.1	125.8	V	194.0	-1.1	25.9	74.0
17998.778610	55.6	160.5	V	264.0	9.6	18.4	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1387.780000	18.6	150.0	V	46.0	-28.2	35.4	54.0
3383.330000	20.4	100.0	H	210.0	-22.1	33.6	54.0
5274.435000	23.7	350.0	H	155.0	-17.5	30.3	54.0
11243.585000	32.4	189.6	V	50.0	-4.8	21.6	54.0
14493.030000	34.6	125.8	V	194.0	-1.1	19.4	54.0
17998.778610	42.8	160.5	V	264.0	9.6	11.2	54.0

DUAL SCREEN mode

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1214.360000	35.9	230.5	V	28.0	-28.8	38.1	74.0
1372.585000	37.5	216.4	H	351.0	-28.3	36.5	74.0
4658.795000	35.8	189.6	H	34.0	-18.7	38.2	74.0
11313.870000	45.4	150.0	V	141.0	-4.7	28.6	74.0
14295.345000	46.4	150.0	V	180.0	-1.5	27.6	74.0
17979.085180	55.9	290.4	V	347.0	9.3	18.1	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1214.360000	22.9	230.5	V	28.0	-28.8	31.1	54.0
1372.585000	25.0	216.4	H	351.0	-28.3	29.0	54.0
4658.795000	23.0	189.6	H	34.0	-18.7	31.0	54.0
11313.870000	32.4	150.0	V	141.0	-4.7	21.6	54.0
14295.345000	33.8	150.0	V	180.0	-1.5	20.2	54.0
17979.085180	42.7	290.4	V	347.0	9.3	11.3	54.0

5. CONCLUSION

The data collected shows that the **Product Name: Multi-band CDMA/GSM/WCDMA/LTE/5G NR Phone with WLAN, Bluetooth and NFC, Model Name: LM-G900VM** 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-FC007-P	July 13, 2020	Initial Release
HCT-EM-2007-FC007-R1-P	July 31, 2020	Revised the Display mode
HCT-EM-2007-FC007-R2-P	August 20, 2020	Revised the Display mode

End of report