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HCT

TEST REPORT

EMI Test for FCC Certification / ISED of LM-G900UM Model

APPLICANT
LG Electronics USA, Inc.

REPORT NO.
HCT-EM-2006-FI004

DATE OF ISSUE
June 18, 2020

Tested by
Ki-Min Lee (signature)

Technical Manager
Kyoung-Hee Yoon (signature)

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TEST REPORT

EMI Test for FCC Certification / ISED

REPORT NO.
HCT-EM-2006-FI004

DATE OF ISSUE
June 18, 2020

FCC ID / IC
ZNFG900UM / 2703C-G900UM

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 GSM/CDMA/WCDMA/LTE Phone with WLAN, Bluetooth and NFC LM-G900UM Refer to the clause 1.1 Description of EUT
Travel Adaptor Information	Model name: MCS-H06WR Manufacturer: SUNLIN
Date of Test	May 16, 2020 to June 08, 2020
Test Standard Used	FCC CFR 47 PART 15 Subpart B Class B ICES-003 Issue 6 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	June 18, 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 denial 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) / A2LA(American Association for Laboratory Accreditation), which signed the ILAC-MRA.

CONTENTS

1. GENERAL INFORMATION

1.1 Description of EUT

FCC ID	ZNFG900UM	
IC	2703C-G900UM	
Model Name	LM-G900UM	
Series Model Name	LM-G900UM, LMG900UM, G900UM, LM-G900QM, LMG900QM, G900QM, LM-G901V, LMG901V, G901V	
Product Name	Multi-band GSM/CDMA/WCDMA/LTE 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 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 B7	2 516 MHz to 2 690 MHz	2 496 MHz to 2 570 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 B14	758 MHz to 768 MHz	788 MHz to 798 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 B29	717 MHz to 728 MHz	-
LTE B30	2 350 MHz to 2 360 MHz	2 305 MHz to 2 315 MHz
LTE B41	2 496 MHz to 2 690 MHz	2 496 MHz to 2 690 MHz
LTE B46	5 150 MHz to 5 925 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 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 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-G900UM	-	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-G905N	-	Suntel VINA
Dual Screen Gender	EBX64329001	-	CRESYN
Data Cable	EAD64746102	-	LUXSHARE
Earphone	EAB63728252	-	BUJEON
Travel Adaptor	MCS-H06WR	-	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	
Filing the EMI Measurement Facility (3 m Semi Anechoic Chamber and Shielded Room)	IC 5944A-4
Filing the EMI Measurement Facility (10 m Semi-Anechoic Chamber)	IC 5944A-2

1.6 Calibration of Measuring Instrument

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in 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

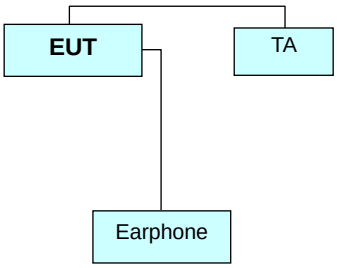
An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

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 GHz, whichever is lower

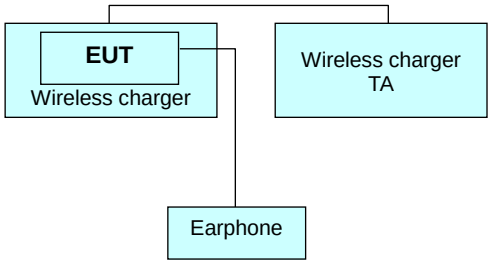
2.3 Configuration of Tested System

[Camera/ MP3 / Radio / Idle Mode]

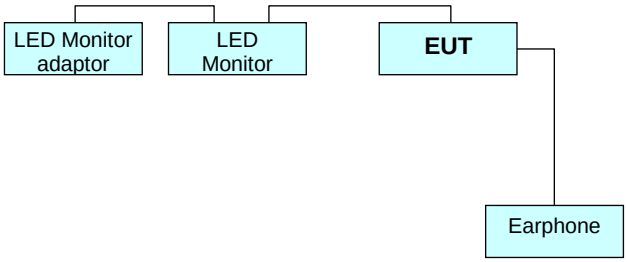
Non-Conductive Table
Power Line: 120 VAC, 60 Hz



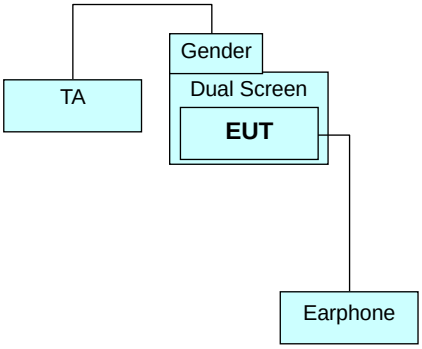
[Wireless Charging Mode]



[Display Mode]



[Dual Screen Mode]



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	06.18.2019
☒	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	-	-
☒	Software	Rohde & Schwarz	EMC32	-	-	-

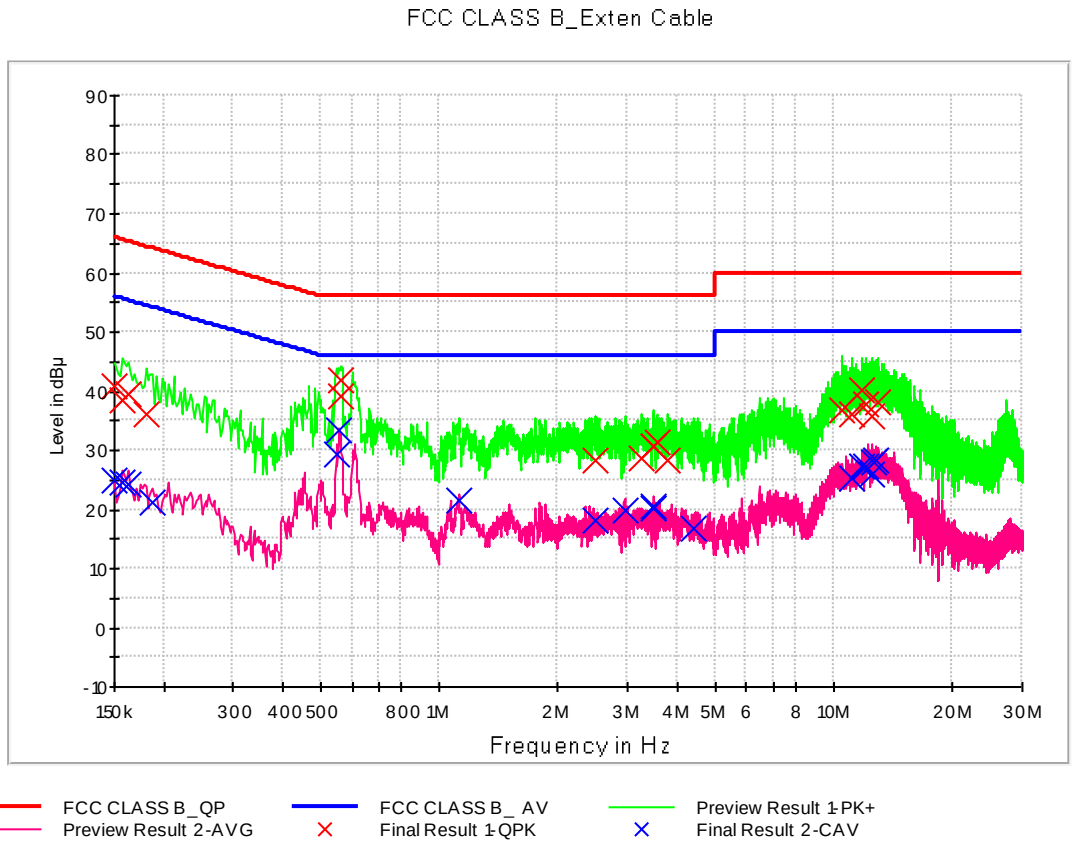
4.1.2 Operating Condition

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 ICES-003 Issue 6 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	23.7 / 24.7 / 24.1°C
Relative Humidity	43.2 / 44.7 / 47.3 %
Test Date	May 21 / June 04 / June 08, 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 (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	40.8	9.000	L1	9.8	25.2	66.0
0.158000	38.3	9.000	L1	9.8	27.3	65.6
0.162000	39.6	9.000	L1	9.8	25.8	65.4
0.180000	36.2	9.000	L1	9.8	28.3	64.5
0.560000	41.8	9.000	L1	9.8	14.2	56.0
0.564000	39.3	9.000	L1	9.8	16.7	56.0
2.480000	28.3	9.000	L1	9.9	27.7	56.0
3.236000	28.7	9.000	L1	9.9	27.3	56.0
3.482000	30.6	9.000	L1	9.9	25.4	56.0
3.492000	30.8	9.000	L1	9.9	25.2	56.0
3.550000	31.3	9.000	L1	9.9	24.7	56.0
3.792000	28.3	9.000	L1	10.0	27.7	56.0
10.440000	36.9	9.000	L1	10.2	23.1	60.0
11.050000	36.0	9.000	L1	10.3	24.0	60.0
11.830000	40.3	9.000	L1	10.3	19.7	60.0
12.078000	38.0	9.000	L1	10.3	22.0	60.0
12.478000	35.8	9.000	L1	10.3	24.2	60.0
12.876000	38.3	9.000	L1	10.3	21.7	60.0

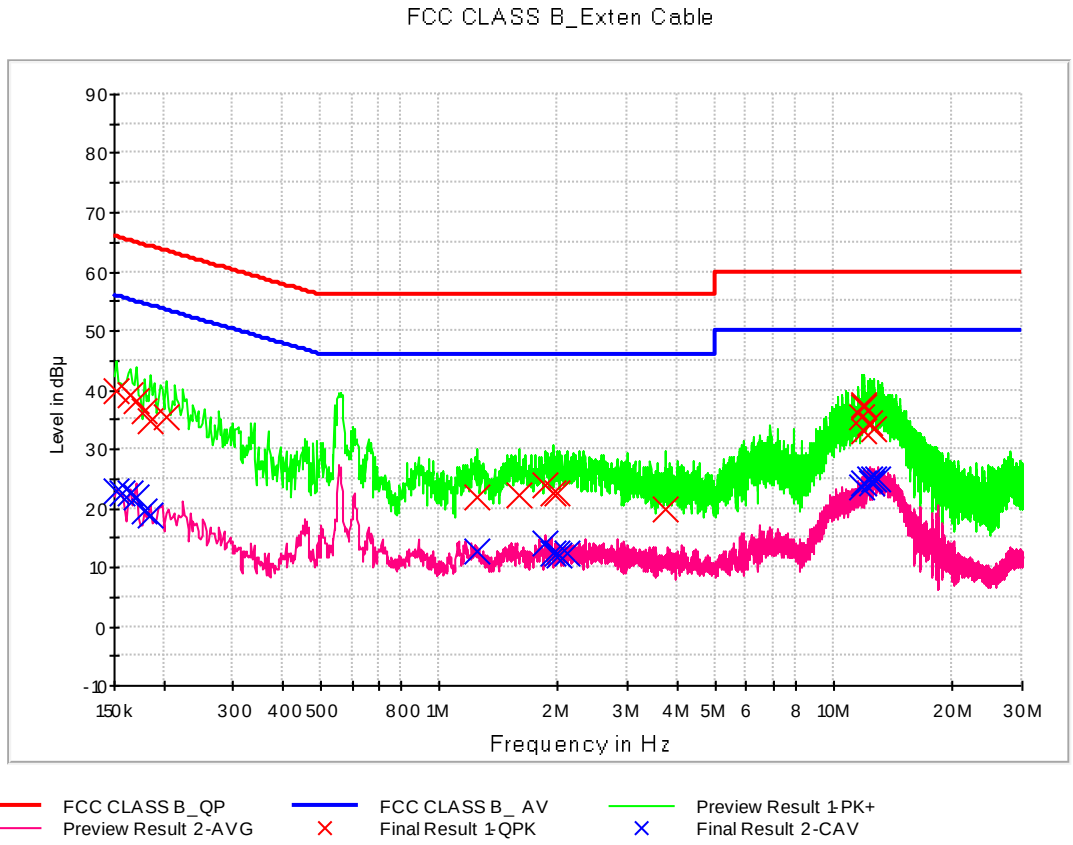
Calculation Formula:

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	24.8	9.000	L1	9.8	31.2	56.0
0.158000	24.5	9.000	L1	9.8	31.0	55.6
0.162000	24.2	9.000	L1	9.8	31.2	55.4
0.188000	21.1	9.000	L1	9.8	33.0	54.1
0.550000	29.3	9.000	L1	9.8	16.7	46.0
0.558000	33.4	9.000	L1	9.8	12.6	46.0
1.116000	21.6	9.000	L1	9.8	24.4	46.0
2.480000	18.0	9.000	L1	9.9	28.0	46.0
2.948000	19.9	9.000	L1	9.9	26.1	46.0
3.482000	20.4	9.000	L1	9.9	25.6	46.0
3.492000	20.1	9.000	L1	9.9	25.9	46.0
4.406000	16.7	9.000	L1	10.0	29.3	46.0
11.050000	25.2	9.000	L1	10.3	24.8	50.0
11.830000	27.4	9.000	L1	10.3	22.6	50.0
12.078000	27.2	9.000	L1	10.3	22.8	50.0
12.478000	26.0	9.000	L1	10.3	24.0	50.0
12.584000	27.9	9.000	L1	10.3	22.1	50.0
12.810000	28.3	9.000	L1	10.3	21.7	50.0

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



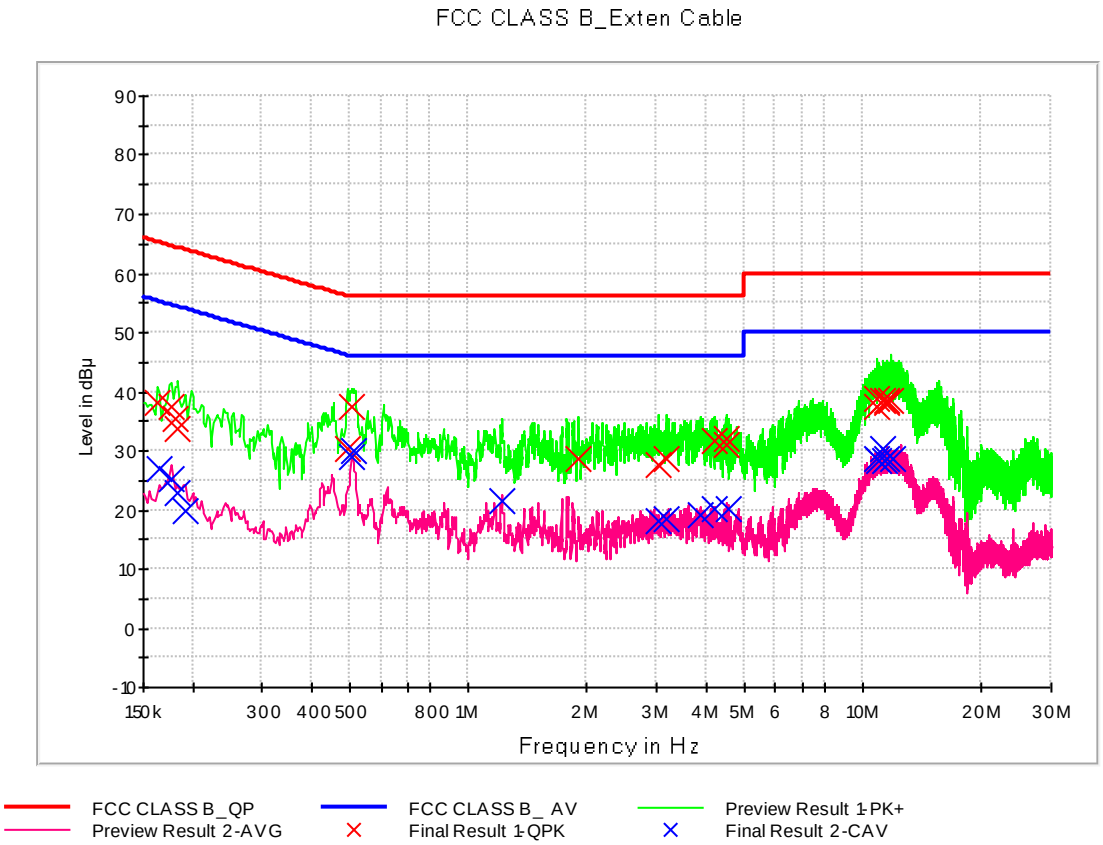
QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	39.7	9.000	N	9.8	26.2	65.9
0.164000	39.1	9.000	N	9.8	26.2	65.3
0.170000	38.0	9.000	N	9.8	26.9	65.0
0.178000	36.4	9.000	N	9.8	28.2	64.6
0.186000	34.6	9.000	N	9.8	29.6	64.2
0.204000	35.3	9.000	N	9.8	28.2	63.4
1.248000	22.0	9.000	N	9.8	34.0	56.0
1.590000	22.2	9.000	N	9.9	33.8	56.0
1.858000	23.8	9.000	N	9.9	32.2	56.0
1.948000	22.4	9.000	N	9.9	33.6	56.0
1.984000	22.6	9.000	N	9.9	33.4	56.0
3.758000	19.8	9.000	N	10.0	36.2	56.0
11.826000	35.5	9.000	N	10.3	24.5	60.0
11.886000	37.2	9.000	N	10.3	22.8	60.0
11.890000	37.5	9.000	N	10.3	22.5	60.0
11.952000	32.9	9.000	N	10.3	27.1	60.0
12.280000	34.2	9.000	N	10.3	25.8	60.0
12.588000	33.2	9.000	N	10.4	26.8	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	22.9	9.000	N	9.8	33.0	55.9
0.158000	22.7	9.000	N	9.8	32.9	55.6
0.164000	22.4	9.000	N	9.8	32.8	55.3
0.170000	22.0	9.000	N	9.8	33.0	55.0
0.178000	19.6	9.000	N	9.8	35.0	54.6
0.186000	18.8	9.000	N	9.8	35.4	54.2
1.248000	12.8	9.000	N	9.8	33.2	46.0
1.858000	14.0	9.000	N	9.9	32.0	46.0
1.948000	12.3	9.000	N	9.9	33.7	46.0
1.984000	12.5	9.000	N	9.9	33.5	46.0
2.012000	12.1	9.000	N	9.9	33.9	46.0
2.108000	12.5	9.000	N	9.9	33.5	46.0
11.826000	23.7	9.000	N	10.3	26.3	50.0
11.952000	24.1	9.000	N	10.3	25.9	50.0
12.280000	25.0	9.000	N	10.3	25.0	50.0
12.526000	24.3	9.000	N	10.4	25.7	50.0
12.588000	24.8	9.000	N	10.4	25.2	50.0
12.888000	25.0	9.000	N	10.4	25.0	50.0

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



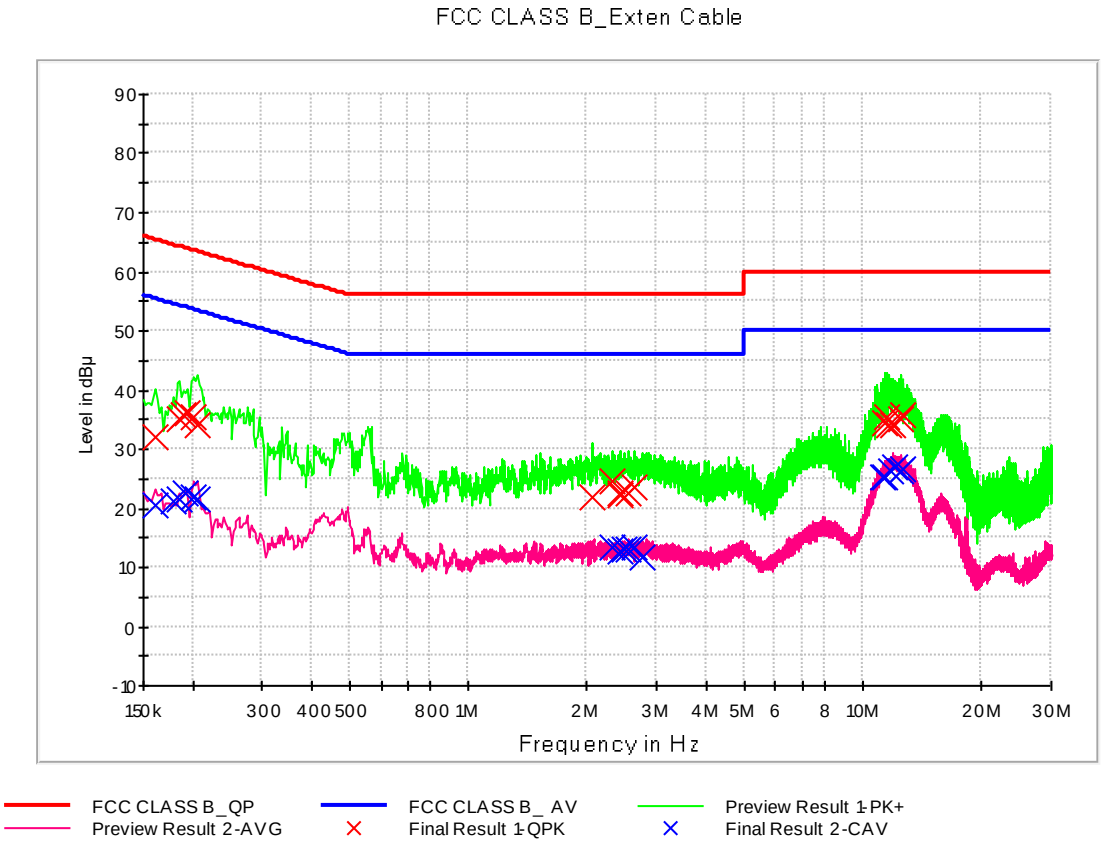
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162000	38.1	9.000	L1	9.8	27.3	65.4
0.176000	37.6	9.000	L1	9.8	27.1	64.7
0.180000	35.3	9.000	L1	9.8	29.2	64.5
0.184000	33.6	9.000	L1	9.8	30.7	64.3
0.492000	30.4	9.000	L1	9.8	25.7	56.1
0.506000	37.6	9.000	L1	9.8	18.4	56.0
1.900000	28.8	9.000	L1	9.9	27.2	56.0
3.046000	27.7	9.000	L1	9.9	28.3	56.0
3.170000	28.8	9.000	L1	9.9	27.2	56.0
4.208000	31.7	9.000	L1	10.0	24.3	56.0
4.486000	31.0	9.000	L1	10.0	25.0	56.0
4.498000	32.1	9.000	L1	10.0	23.9	56.0
10.794000	38.9	9.000	L1	10.2	21.1	60.0
10.818000	37.6	9.000	L1	10.2	22.4	60.0
11.200000	38.6	9.000	L1	10.3	21.4	60.0
11.448000	38.2	9.000	L1	10.3	21.8	60.0
11.456000	38.5	9.000	L1	10.3	21.5	60.0
11.798000	38.5	9.000	L1	10.3	21.5	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.164000	27.1	9.000	L1	9.8	28.2	55.3
0.176000	25.3	9.000	L1	9.8	29.4	54.7
0.182000	23.1	9.000	L1	9.8	31.3	54.4
0.192000	19.7	9.000	L1	9.8	34.3	53.9
0.508000	29.0	9.000	L1	9.8	17.0	46.0
0.512000	29.9	9.000	L1	9.8	16.1	46.0
1.214000	21.5	9.000	L1	9.8	24.5	46.0
3.046000	18.1	9.000	L1	9.9	27.9	46.0
3.170000	18.5	9.000	L1	9.9	27.5	46.0
3.860000	19.1	9.000	L1	10.0	26.9	46.0
4.212000	20.3	9.000	L1	10.0	25.7	46.0
4.552000	20.0	9.000	L1	10.0	26.0	46.0
10.818000	28.6	9.000	L1	10.2	21.4	50.0
10.932000	28.2	9.000	L1	10.2	21.8	50.0
11.200000	30.2	9.000	L1	10.3	19.8	50.0
11.400000	28.4	9.000	L1	10.3	21.6	50.0
11.448000	28.6	9.000	L1	10.3	21.4	50.0
11.870000	28.6	9.000	L1	10.3	21.4	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)
0.160000	32.2	9.000	N	9.8	33.3	65.5
0.186000	35.1	9.000	N	9.8	29.1	64.2
0.190000	35.9	9.000	N	9.8	28.1	64.0
0.194000	36.0	9.000	N	9.8	27.8	63.9
0.202000	35.4	9.000	N	9.8	28.2	63.5
0.206000	34.2	9.000	N	9.8	29.2	63.4
2.056000	21.9	9.000	N	9.9	34.1	56.0
2.324000	24.4	9.000	N	9.9	31.6	56.0
2.424000	22.2	9.000	N	9.9	33.8	56.0
2.428000	22.6	9.000	N	9.9	33.4	56.0
2.532000	22.5	9.000	N	9.9	33.5	56.0
2.622000	23.5	9.000	N	9.9	32.5	56.0
11.332000	34.3	9.000	N	10.3	25.7	60.0
11.536000	35.5	9.000	N	10.3	24.5	60.0
11.668000	34.0	9.000	N	10.3	26.0	60.0
11.934000	34.2	9.000	N	10.3	25.8	60.0
12.536000	35.1	9.000	N	10.4	24.9	60.0
12.552000	35.7	9.000	N	10.4	24.3	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.160000	20.5	9.000	N	9.8	35.0	55.5
0.178000	21.3	9.000	N	9.8	33.3	54.6
0.186000	21.7	9.000	N	9.8	32.5	54.2
0.192000	22.7	9.000	N	9.8	31.3	53.9
0.202000	21.9	9.000	N	9.8	31.7	53.5
0.206000	21.5	9.000	N	9.8	31.9	53.4
2.324000	13.5	9.000	N	9.9	32.5	46.0
2.428000	12.8	9.000	N	9.9	33.2	46.0
2.492000	13.2	9.000	N	9.9	32.8	46.0
2.534000	13.0	9.000	N	9.9	33.0	46.0
2.622000	13.5	9.000	N	9.9	32.5	46.0
2.766000	11.8	9.000	N	9.9	34.2	46.0
11.292000	25.3	9.000	N	10.3	24.7	50.0
11.332000	25.2	9.000	N	10.3	24.8	50.0
11.834000	26.4	9.000	N	10.3	23.6	50.0
12.102000	27.0	9.000	N	10.3	23.0	50.0
12.536000	26.4	9.000	N	10.4	23.6	50.0
12.552000	26.5	9.000	N	10.4	23.5	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	08.20.2019
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	Radio communication test station	ANRITSU	MT8000A	6262036812	1 year	01.06.2020
☒	Radio communication analyzer	ANRITSU	MT8821C	6262044720	1 year	01.06.2020
☒	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 ICES-003 Issue 6 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	22.9 / 22.6 / 23.7 / 24.1 / 24.5 °C
Relative Humidity	43.1 / 44.1 / 42.5 / 43.9 / 45.7 %
Test Date	May 16 / May 25 / May 26 / May 27 / June 06, 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 (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.675400	23.2	100.0	V	351.0	18.3	16.8	40.0
81.518600	21.7	274.9	H	294.0	15.5	18.3	40.0
114.544200	19.9	274.7	V	145.0	16.8	23.6	43.5
312.949600	21.9	100.0	H	174.0	20.8	24.1	46.0
638.814200	27.8	100.0	H	255.0	27.9	18.2	46.0
938.065400	31.8	100.0	V	346.0	31.7	14.2	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)
41.859400	27.4	100.0	V	293.0	19.1	12.6	40.0
87.213400	27.3	225.0	H	309.0	14.6	12.7	40.0
174.939600	38.9	150.0	H	280.0	18.7	4.6	43.5
189.140600	39.3	130.0	H	317.7	17.5	4.2	43.5
293.321600	32.8	100.0	H	79.0	20.3	13.2	46.0
415.139400	32.9	100.0	H	55.0	23.2	13.1	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)
66.331800	21.4	100.0	V	292.0	18.5	18.6	40.0
85.638200	26.8	225.0	H	85.0	14.9	13.2	40.0
160.034800	25.6	100.0	V	129.0	19.8	17.9	43.5
266.678600	29.8	307.7	H	27.0	19.3	16.2	46.0
765.685400	29.6	274.8	V	25.0	29.7	16.4	46.0
911.295200	31.5	174.9	H	30.0	31.6	14.5	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)
31.161118	21.9	100.0	V	16.0	18.4	18.1	40.0
65.218400	21.9	100.0	V	10.0	18.7	18.1	40.0
143.802400	19.8	100.0	V	173.0	19.1	23.7	43.5
210.764400	34.3	125.1	H	0.0	17.1	9.2	43.5
306.766400	38.1	100.0	H	240.0	20.7	7.9	46.0
634.904000	28.0	325.0	V	130.0	27.8	18.0	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	-	-
☐	Radio communication test station	ANRITSU	MT8000A	6262036812	1 year	01.06.2020
☐	Radio communication analyzer	ANRITSU	MT8821C	6262044720	1 year	01.06.2020
☐	Antenna (for Communication)	Schwarzbeck	USLP9142	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	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	22.9 / 24.2 / 23.1 / 24.1 / 24.5 °C
Relative Humidity	43.1 / 41.8 / 42.7 / 43.9 / 45.7 %
Test Date	May 16 / May 18 / May 21 / May 27 / June 06, 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 (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2011.390000	31.6	175.6	V	257.0	-26.5	42.4	74.0
3865.425000	34.4	216.4	H	50.0	-20.8	39.6	74.0
5223.750000	36.9	248.5	H	128.0	-17.5	37.1	74.0
9838.480000	42.9	199.6	V	28.0	-9.1	31.1	74.0
14752.165000	47.3	113.3	H	222.0	-1.2	26.7	74.0
17986.666020	56.3	139.5	V	213.0	9.4	17.7	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2011.390000	18.7	175.6	V	257.0	-26.5	35.3	54.0
3865.425000	21.8	216.4	H	50.0	-20.8	32.2	54.0
5223.750000	24.0	248.5	H	128.0	-17.5	30.0	54.0
9838.480000	30.5	199.6	V	28.0	-9.1	23.5	54.0
14752.165000	34.7	113.3	H	222.0	-1.2	19.3	54.0
17986.666020	43.2	139.5	V	213.0	9.4	10.8	54.0

DISPLAY mode

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1685.915000	30.8	189.5	H	166.0	-27.4	43.2	74.0
2412.985000	41.0	321.7	H	154.0	-24.5	33.0	74.0
3260.235000	37.2	336.7	H	160.0	-22.3	36.8	74.0
5405.185000	49.7	245.0	H	194.0	-17.3	24.3	74.0
10856.210000	44.4	199.5	V	306.0	-5.8	29.6	74.0
17972.878400	55.9	149.6	V	116.0	9.2	18.1	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1685.915000	18.2	189.5	H	166.0	-27.4	35.8	54.0
2412.985000	28.4	321.7	H	154.0	-24.5	25.6	54.0
3260.235000	24.5	336.7	H	160.0	-22.3	29.5	54.0
5405.185000	47.1	245.0	H	194.0	-17.3	6.9	54.0
10856.210000	32.0	199.5	V	306.0	-5.8	22.0	54.0
17972.878400	42.8	149.6	V	116.0	9.2	11.2	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)
2901.885000	33.2	100.0	V	209.0	-23.0	40.8	74.0
4696.260000	36.1	150.0	V	60.0	-18.6	37.9	74.0
7659.105000	41.4	249.9	V	181.0	-12.0	32.6	74.0
10863.030000	44.8	150.0	V	69.0	-5.7	29.2	74.0
14707.730000	47.6	100.0	V	3.0	-1.1	26.4	74.0
17942.635000	56.1	291.4	H	49.0	8.7	17.9	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2901.885000	20.5	100.0	V	209.0	-23.0	33.5	54.0
4696.260000	23.3	150.0	V	60.0	-18.6	30.7	54.0
7659.105000	28.5	249.9	V	181.0	-12.0	25.5	54.0
10863.030000	32.1	150.0	V	69.0	-5.7	21.9	54.0
14707.730000	34.2	100.0	V	3.0	-1.1	19.8	54.0
17942.635000	42.8	291.4	H	49.0	8.7	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)
1089.365000	37.4	299.6	H	309.0	-29.2	36.6	74.0
2553.915000	32.3	150.0	V	309.0	-24.0	41.7	74.0
4175.900000	34.9	321.5	V	223.0	-20.0	39.1	74.0
6707.565000	38.7	248.5	V	155.0	-14.2	35.3	74.0
14500.975000	47.0	149.9	V	312.0	-1.1	27.0	74.0
17999.841600	55.8	249.9	H	132.0	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)
1089.365000	24.6	299.6	H	309.0	-29.2	29.4	54.0
2553.915000	19.2	150.0	V	309.0	-24.0	34.8	54.0
4175.900000	21.9	321.5	V	223.0	-20.0	32.1	54.0
6707.565000	25.8	248.5	V	155.0	-14.2	28.2	54.0
14500.975000	34.6	149.9	V	312.0	-1.1	19.4	54.0
17999.841600	42.9	249.9	H	132.0	9.6	11.1	54.0

5. CONCLUSION

The data collected shows that the **Product Name: Multi-band GSM/CDMA/WCDMA/LTE Phone with WLAN, Bluetooth and NFC and Model: LM-G900UM** complies with §15.107 and §15.109 of the FCC rules and ICES-003 Issue 6 of the IC 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-2006-FI004-P	June 18, 2020	Initial Release

End of report