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TEST REPORT

FCC/ISED MPE Test for LAMWBD1
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2212-FI005

DATE OF ISSUE
December 9, 2022

Tested by
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Jong Seok Lee

Accredited by KOLAS, Republic of KOREA

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Additional Model

-

Applicant

LG Electronics Inc.

170, Seongsanpaechong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do,
51533, Republic of Korea

Eut Type
Model Name

RF Module
LAMWBD1

FCC ID

BEJ-LAMWBD1

Frequency range

2 402 MHz ~ 2 480 MHz (Bluetooth)
2 412 MHz ~ 2 462 MHz (WLAN)
5 180 MHz ~ 5 825 MHz (UNII)

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

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

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	December 09, 2022	Initial Release

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance

KOLAS Statement:

The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (KOLAS Accreditation No. KT197)

If this report is required to confirmation of authenticity, please contact to www.hct.co.kr

RF Exposure Statement

1. Limit

According to § 1.1310, § 2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength (V/m)	Magnetic field Strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
0.3 - 1.34	614	1.63	*(100)	30
1.34 - 30	824/f	2.19/f	*(180/ f ²)	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	f/1500	30
1500 - 100.000	1.0	30

F = frequency in MHz

* = Plane-wave equivalent power density

2. Maximum Permissible Exposure Prediction

Prediction of MPE limit at a given distance

$$S = PG/4\pi R^2$$

S = Power density

P = Power input to antenna

G = Power gain to the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

3. RESULTS

3-1. Bluetooth

Max Average output Power at antenna input terminal	8.00	dBm
Max Average output Power at antenna input terminal	6.31	mW
Prediction distance	20.00	cm
Prediction frequency	2402 – 2480	MHz
Antenna Gain(typical)	-0.10	dBi
Antenna Gain(numeric)	0.977	-
Power density at prediction frequency(S)	0.0012	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

2.1091

EIRP	7.90	(dBm)
ERP	5.75	(dBm)
ERP	0.004	(W)
ERP Limit	3.00	(W)
MARGIN	29.02	(dB)

3-1. BT LE

Max Average output Power at antenna input terminal	4.50	dBm
Max Average output Power at antenna input terminal	2.82	mW
Prediction distance	20.00	cm
Prediction frequency	2402 – 2480	MHz
Antenna Gain(typical)	-0.10	dBi
Antenna Gain(numeric)	0.977	-
Power density at prediction frequency(S)	0.0005	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

2.1091

EIRP	4.40	(dBm)
ERP	2.25	(dBm)
ERP	0.002	(W)
ERP Limit	3.00	(W)
MARGIN	32.52	(dB)

3-1. DTS

Max Average output Power at antenna input terminal	18.50	dBm
Max Average output Power at antenna input terminal	70.79	mW
Prediction distance	20.00	cm
Prediction frequency	2412 – 2462	MHz
Directional Gain (typical)	1.18	dBi
Directional Gain (numeric)	1.312	-
Power density at prediction frequency(S)	0.0185	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

2.1091

EIRP	19.68	(dBm)
ERP	17.53	(dBm)
ERP	0.057	(W)
ERP Limit	3.00	(W)
MARGIN	17.24	(dB)

3-1. UNII

Max Average output Power at antenna input terminal	15.00	dBm
Max Average output Power at antenna input terminal	31.62	mW
Prediction distance	20.00	cm
Prediction frequency	5180 – 5825	MHz
Directional Gain (typical)	1.40	dBi
Directional Gain (numeric)	1.380	-
Power density at prediction frequency(S)	0.0087	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

2.1091

EIRP	16.40	(dBm)
ERP	14.25	(dBm)
ERP	0.027	(W)
ERP Limit	3.00	(W)
MARGIN	20.52	(dB)

Worst Case: Simultaneous MPE 20cm is

$$2.4G \text{ WLAN } (0.0185) + \text{BT } (0.0012) = 0.0197 < 1$$

$$5G \text{ WLAN } (0.0087) + \text{BT } (0.0012) = 0.0099 < 1$$