

TEST REPORT

FCC MPE Test for LGSBWAC94
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-1908-FI004-R1

DATE OF ISSUE
August 08, 2019

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TEST REPORT

FCC MPE Test for
LGSBWAC94

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FCC ID
BEJLGSBWAC94

Applicant LG Electronics Inc.
222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713, Korea

Eut Type RF Module
Model Name LGSBWAC94

Date of Receipt July 12, 2019

Frequency range 2402 MHz - 2480 MHz (Bluetooth, BT LE)
2 412 MHz ~ 2 462 MHz (WLAN)
5180 MHz - 5825 MHz (UNII)

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

Tested by
Se Wook Park

(signature)

Technical Manager
Jong Seok Lee

(signature)

HCT CO., LTD.

Soo Chan Lee

SooChan Lee / CEO
Accredited by KOLAS, Republic of KOREA

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	August 02, 2019	Initial Release
1	August 08, 2019	

The measurements shown in this report were made in accordance with the procedures specified in § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S. C. 853(a)

This laboratory is not accredited for the test results marked *.

The above testing certificate is the accredited test result by KOLAS(Korea Laboratory Accreditation Scheme) / A2LA(American Association for Laboratory Accreditation)

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

Average output Power at antenna input terminal	10.00	dBm
Average output Power at antenna input terminal	10.00	mW
Prediction distance	20.00	cm
Prediction frequency	2402 – 2480	MHz
Antenna Gain(typical)	1.500	dBi
Antenna Gain(numeric)	1.413	-
Power density at prediction frequency(S)	0.0028	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm ²

2.1091

EIRP	11.5 (dBm)
ERP	9.35 (dBm)
ERP	0.009 (W)
ERP Limit	3.00 (W)
MARGIN	25.42 (dB)

3-1. BT LE

Average output Power at antenna input terminal	8.50	dBm
Average output Power at antenna input terminal	7.08	mW
Prediction distance	20.00	cm
Prediction frequency	2402 – 2480	MHz
Antenna Gain(typical)	1.50	dBi
Antenna Gain(numeric)	1.413	-
Power density at prediction frequency(S)	0.0020	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm ²

2.1091

EIRP	10.0 (dBm)
ERP	7.85 (dBm)
ERP	0.006 (W)
ERP Limit	3.00 (W)
MARGIN	26.92 (dB)

3-1. DTS

Average output Power at antenna input terminal	19.00	dBm
Average output Power at antenna input terminal	79.43	mW
Prediction distance	20.00	cm
Prediction frequency	2412 – 2462	MHz
Antenna Gain(typical)	4.50	dBi
Antenna Gain(numeric)	2.818	-
Power density at prediction frequency(S)	0.0445	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm ²

2.1091

EIRP	23.5 (dBm)
ERP	21.35 (dBm)
ERP	0.136 (W)
ERP Limit	3.00 (W)
MARGIN	13.42 (dB)

3-1. UNII

Average output Power at antenna input terminal	21.00	dBm
Average output Power at antenna input terminal	125.89	mW
Prediction distance	20.00	cm
Prediction frequency	5180 - 5825	MHz
Antenna Gain(typical)	4.49	dBi
Antenna Gain(numeric)	2.812	-
Power density at prediction frequency(S)	0.0704	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm ²

2.1091

EIRP	25.49 (dBm)
ERP	23.34 (dBm)
ERP	0.216 (W)
ERP Limit	3.00 (W)
MARGIN	11.43 (dB)

Worst Case: Simultaneous MPE 20cm is

$$5G \text{ WLAN } (0.0704) + BT (0.0028) = 0.0732 < 1$$