

EMF TEST REPORT

Test Report No. : OT-239-RWD-034

Reception No. : 2307002349

Applicant : LG Electronics USA, Inc.

Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States

Manufacturer : LG Electronics Inc.

Address : 84, Wanam-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea

Type of Equipment : Wired Remote Controller

FCC ID. : BEJ-PREMTA201

Model Name : PREMTA201

Serial number : N/A

Total page of Report : 7 pages (including this page)

Date of Incoming : August 09, 2023

Date of issue : September 25, 2023

SUMMARY

The equipment complies with the regulation; *FCC CFR 47 PART 1.1310*

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.



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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-239-RWD-034	September 25, 2023	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : LG Electronics USA, Inc.
 Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States
 Contact Person : Eunk yung Lee
 Telephone No. : +82-10-8353-2260
 FCC ID : BEJ-PREMTA201
 Model Name : PREMTA201
 Brand Name : -
 Serial Number : N/A
 Date : September 25, 2023

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	Wired Remote Controller
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	KDB 447498 D01 General RF Exposure Guidance v06
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
Modifications on the Equipment to Achieve Compliance	None

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. GENERAL INFORMATION

2.1 Product Description

The LG Electronics USA, Inc., Model PREMTA201 (referred to as the EUT in this report) is a Wired Remote Controller. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Wired Remote Controller
Temperature Range	0 °C ~ 40 °C
OPERATING FREQUENCY	2 412 MHz ~ 2 462 MHz (802.11b/g/n(HT20))
MODULATION TYPE	802.11b: DSSS Modulation(DBPSK/DQPSK/CCK) 802.11g/n(HT20): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)
RF OUTPUT POWER	14.71 dBm(802.11b) 13.98 dBm(802.11g) 12.78 dBm(802.11n_HT20)
ANTENNA TYPE	Chip Antenna
ANTENNA GAIN	3.0 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	24 MHz, 32 MHz

2.2 Alternative type(s)/model(s); also covered by this test report.

-. None

3. EUT MODIFICATIONS

-. None

4. MAXIMUM PERMISSIBLE EXPOSURE

4.1 RF Exposure Calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment are $f/1500$ mW/cm² for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm² for the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm² exposure is calculated as follows:

$$E = \sqrt{(30 * P * G)} / d, \text{ and } S = E^2 / Z = E^2 / 377, \text{ because } 1 \text{ mW/cm}^2 = 10 \text{ W/m}^2$$

Where

S = Power density in mW/cm², Z = Impedance of free space, 377 Ω

E = Electric field strength in V/m, G = Numeric antenna gain, and d = distance in meter

Combining equations and rearranging the terms to express the distance as a function of the remaining variable

$$d = \sqrt{(30 * P * G) / (377 * 10 S)}$$

Changing to units of mW and cm, using $P \text{ (mW)} = P \text{ (W)} / 1\,000$, $d \text{ (cm)} = 0.01 * d \text{ (m)}$

$$d = 0.282 * \sqrt{(P * G) / S}$$

Where

d = distance in cm, P = Power in mW, G = Numeric antenna gain, and S = Power density in mW/cm²

4.2 EUT Description

Kind of EUT	Wired Remote Controller
Device Category	<input type="checkbox"/> Portable (< 20 cm separation) <input checked="" type="checkbox"/> Mobile (> 20 cm separation) <input type="checkbox"/> Others
Exposure Evaluation Applied	<input checked="" type="checkbox"/> MPE <input type="checkbox"/> SAR <input type="checkbox"/> N/A

4.3 Calculated MPE Safe Distance for WLAN

According to above equation, the following result was obtained.

Operating Freq. Band (MHz)	Operating Mode	Target Power W/tolerance (dBm)	Max tune up power		Antenna Gain		Safe Distance (cm)	Power Density (mW/cm ²) @ 20 cm Separation	Limit (mW/cm ²)
			(dBm)	(mW)	Log	Linear			
2 400 ~ 2 483.5	802.11b	14.71 ± 1.0	15.71	37.24	3.00	1.995	2.431	0.014 78	1.00
	802.11g	13.98 ± 1.0	14.98	31.48			2.235	0.012 49	1.00
	802.11n_ HT20	12.77 ± 1.0	13.77	23.88			1.946	0.009 48	1.00

According to above table, for 2 400 ~ 2483.5 MHz Band(802.11 b), safe distance,

$$D = 0.282 * \sqrt{(37.24 * 1.995)/1.00} = 2.431 \text{ cm.}$$

For getting power density at 20 cm separation in above table, following formula was used.

$$S = P * G / (4\pi * R^2) = 37.24 * 1.995 / (4 * \pi * 20^2) = 0.014 78$$

Where:

S = Power Density,

P = Power input to the external antenna (Output power from the EUT antenna port (dBm) – cable loss (dB)),

G = Gain of Transmit Antenna (linear gain), R = Distance from Transmitting Antenna