

# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

**Test Report No.** : OT-213-RWD-016

**Reception No.** : 2012005330

**Applicant** : LG Electronics USA

**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** : Residential Remote Controller

**FCC ID.** : BEJ-PREMTA200

**Model Name** : PREMTA200

**Serial number** : N/A

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

**Date of Incoming** : January 13, 2021

**Date of issue** : March 04, 2021

## SUMMARY

The equipment complies with the regulation; *FCC PART 15 SUBPART C Section 15.247*

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

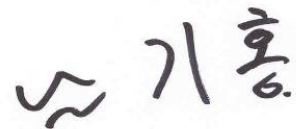
It is not a generally valid assessment of the features of the respective products of the mass-production.



Tested by  
Hyung-Kwon, Oh / Manager  
ONETECH Corp.



Reviewed by  
Tae-Ho, Kim / Senior Manager  
ONETECH Corp.



Approved by  
Ki-Hong, Nam / General Manager  
ONETECH Corp.

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**Revision History**

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-213-RWD-016	March 04, 2021	Initial Release	All

## 1. VERIFICATION OF COMPLIANCE

Applicant : LG Electronics USA  
 Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States  
 Contact Person : Choi young min / Research Engineer  
 Telephone No. : +82-10-4699-9873  
 FCC ID : BEJ-PREMTA200  
 Model Name : PREMTA200  
 Brand Name : -  
 Serial Number : N/A  
 Date : March 04, 2021

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	Residential Remote Controller
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2020
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. 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, Model PREMTA200 (referred to as the EUT in this report) is a Residential Remote Controller. The product specification described herein was obtained from product data sheet or user’s manual.

DEVICE TYPE	Residential 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	12.80 dBm(802.11b) 11.99 dBm(802.11g) 11.85 dBm(802.11n_HT20)
ANTENNA TYPE	Chip Antenna
ANTENNA GAIN	3.0 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	32.768 kHz, 24 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/cm<sup>2</sup> for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm<sup>2</sup> for the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm<sup>2</sup> 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/cm<sup>2</sup>, 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/cm<sup>2</sup>

### 4.2 EUT Description

Kind of EUT	Residential Remote Controller
Device Category	<input type="checkbox"/> Portable (< 20 cm separation) <input type="checkbox"/> Mobile (> 20 cm separation) <input checked="" 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 <sup>2</sup> ) @ 20 cm Separation	Limit (mW/cm <sup>2</sup> )
			(dBm)	(mW)	Log	Linear			
2 400 ~ 2 483.5	802.11b	12.5 ± 1.0	13.50	22.39	3.00	2.00	1.88	0.008 9	1.00
	802.11g	11.5 ± 1.0	12.50	17.78			1.68	0.007 1	1.00
	802.11n_HT20	11.5 ± 1.0	12.50	17.78			1.68	0.007 1	1.00

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

$$D = 0.282 * \sqrt{(22.39 * 2.00)/1.00} = 1.88 \text{ cm.}$$

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

$$S = P * G / (4\pi * R^2) = 22.39 * 2.00 / (4 * \pi * 20^2) = 0.008 9$$

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