

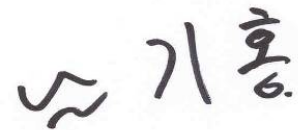
ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No. : OT-20D-RWD-002
Reception No. : 2011004289
Applicant : LG Electronics USA
Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States
Manufacturer : LG Electronics Inc.
Address : 20, Yeouido-dong, Yeongdeungpo-gu, Seoul, Korea
Type of Equipment : Premium Magic Remote
FCC ID. : BEJPM21GA
Model Name : PM21GA
Multiple Model Name : N/A
Serial number : N/A
Total page of Report : 7 pages (including this page)
Date of Incoming : November 24, 2020
Date of issue : December 01, 2020

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
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 ONETECH Corp.

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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-20D-RWD-002	December 01, 2020	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 : Dae Woong, Kim / Director, Regulatory and Environmental Affairs
 Telephone No. : +201-266-2215
 FCC ID : BEJPM21GA
 Model Name : PM21GA
 Brand Name : -
 Serial Number : N/A
 Date : December 01, 2020

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	Premium Magic Remote
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
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 PM21GA (referred to as the EUT in this report) is a Premium Magic Remote. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Premium Magic Remote
Temperature Range	0 °C ~ 40 °C
OPERATING FREQUENCY	2 402 MHz ~ 2 480 MHz
MODULATION TYPE	GFSK
RF OUTPUT POWER	6.38 dBm (Packet Length: 37 Byte)
	7.32 dBm (Packet Length: 255 Byte)
ANTENNA TYPE	Chip Antenna
ANTENNA GAIN	-2.81 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	40 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	Premium Magic Remote
Device Category	<input checked="" type="checkbox"/> Portable (< 20 cm separation) <input type="checkbox"/> Mobile (> 20 cm separation) <input type="checkbox"/> Others
Exposure Evaluation Applied	<input type="checkbox"/> MPE <input type="checkbox"/> SAR <input checked="" type="checkbox"/> N/A

4.3 Calculated MPE Safe Distance for Bluetooth LE

According to the procedure, KDB 447498 D01, the standalone SAR test exclusion threshold is

$$[(\text{Max. Power of channel, including tune-up tolerance, mW})/(\text{Min. test separation distance, mm})] \times [\sqrt{f(\text{GHz})}] < 3$$

$$= (3.69/5) \times \sqrt{2.480} = 1.16$$

Conclusion: The SAR test exclusion threshold is less than 3, so the device meets the RF Exposure Requirement and are excluded from SAR Test.

Operating Mode	Frequency (MHz)	Target Power W/tolerance (dBm)	Max tune up power (dBm)	Max tune up power (mW)	Separation distance (mm)	RF exposure
37 Byte	2 402.00	6.0 ± 1.0	7.00	5.01	5.00	1.55
255 Byte	2 480.00	7.0 ± 1.0	8.00	6.31	5.00	1.99