
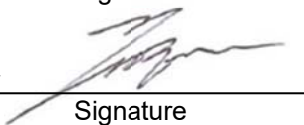


FCC MPE TEST REPORT

Project Number : EA1902C-008
Test Report Number : TR-W1903-004
Type of Equipment : Digital Door Lock
Model Name : CDL-107U
FCC ID : CCECDL-107U
ISED ID : 22254-CDL107U
Multiple Model Name : N/A
Applicant : COMMAX Co., Ltd.
Address : 494 Dunchon-Daero, Jungwon-Gu, Seongnam-si, Gyeonggi-do, South Korea
Manufacturer : COMMAX Co., Ltd.
Address : 494 Dunchon-Daero, Jungwon-Gu, Seongnam-si, Gyeonggi-do, South Korea
Regulation : FCC Part 15 Subpart C Section 15.247, ISED RSS-247 Issue2
Total page of Report : 5 Pages
Date of Receipt : 2019-01-24
Date of Issue : 2019-03-05
Test Result : PASS

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.

Prepared by	Song, In-young / Senior Engineer		2019-03-05
		Signature	Date
Reviewed by	Choi, Yeong-min / Technical Manager		2019-03-05
		Signature	Date

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Release Control Record

Issue Report No.	Issued Date	Revisions	Effect Section
TR-W1903-004	2019-03-05	Initial Release	All

1. EUT (Equipment Under Test) INFORMATION

1.1 General Description

The COMMAX Co., Ltd., Model CDL-107U (referred to as the EUT in this report) is a Digital Door Lock. The EUT has RF functions for 13.56 MHz RFID, Z-Wave and Bluetooth LE. The product specification described herein was obtained from product data sheet or user's manual.

Operating Frequency	RFID: 13.56 MHz Z-Wave: 908.4 MHz, 916 MHz Bluetooth LE: 2402 MHz ~ 2480 MHz
Kind of Class	DXX - Part 15 Low Power Communication Device Transmitter, Rx Verified DTS – Digital Transmission System
Generated or used Freq. in EUT	32.768 kHz, 13.56 MHz, 16 MHz, 32 MHz
Operating Temperature	-25 °C ~ + 50 °C
Normal Test Voltage	DC 6.0 V
Electrical Rating	DC 6.0 V
External Port(s)	N/A
Software Version	1.0
Hardware Version	1.0

1.2 Additional Model

None

2. TEST RESULT

2.1 Measured RF Output Level

Operating Mode	Radiated Emission Level (dBuV/m)	Conducted Output Power (dBm)	Antenna Gain (dBi)	EIRP (mW)
Bluetooth LE	86.78	- 6.65	- 7.45	0.04
Z-Wave	85.7	N/A	- 2.70	0.004
RFID	41.74	N/A	N/A	N/A

Note: N/A means Not Applicable.

2.2 MPE Evaluation

According to above table, maximum radiated emission level is generated at Bluetooth LE function, so Bluetooth LE function was evaluated as below.

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE sample calculation for this exposure is shown below.

$$S = \text{EIRP} / (4 \times R^2 \times \pi)$$

$$= 0.04 / (4 \times 20^2 \times \pi)$$

$$= 0.000\ 008\ \text{mW/cm}^2$$

Note: S= Power density (mW/cm²)

EIRP= Equivalent Isotropic Radiated Power (mW)

R= Distance to the center of the radiation of the antenna

$\pi \approx 3.1416$

Limits for Maximum Permissible Exposure (MPE)

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 – 1 500			f / 1500	30
1 500 – 100 000			1.0	30