Ningbo Royalux Lighting Co., Ltd

MPE ASSESSMENT REPORT

Report Type:
FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

Model:
22515

REPORT NUMBER:
180602499SHA-003

ISSUE DATE:
March 15, 2019

DOCUMENT CONTROL NUMBER:
TTRFFCCMPE-01_V1 © 2018 Intertek

Intertek Testing Services Shanghai
Building No.86, 1198 Qinzhou Road (North)
Caohejing Development Zone
Shanghai 200233, China

Telephone: 86 21 6127 8200
www.intertek.com

Total Quality. Assured.

TEST REPORT

Report no.: 180602499SHA-003

Applicant:	**Ningbo Royalux Lighting Co., Ltd** **Xiaobai Industrial Park, Dongwu, Yinzhou, Ningbo, China 315113**
Manufacturer:	**Ningbo Royalux Lighting Co., Ltd** **Xiaobai Industrial Park, Dongwu, Yinzhou, Ningbo, China 315113**
Manufacturing site:	**Ningbo Royalux Lighting Co., Ltd** **Xiaobai Industrial Park, Dongwu, Yinzhou, Ningbo, China 315113**
FCC ID:	**2APD8-RYL22515**

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:
KDB447498 D01 General RF Exposure Guidance v06 FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:	**REVIEWED BY:**
Wade zhang	Danny
Project Engineer Wade Zhang	Reviewer Daniel Zhao

Total Quality. Assured.

TEST REPORT

Revision History

Report No.	Version	Description	Issued Date
180602499SHA-003	Rev. 01	Initial issue of report	March 15, 2019

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Portable luminaires
Type/Model:	22515
Description of EUT:	The product covered by this report is a portable luminaire for wet location use, with USB output, bluetooth loudspeaker, and has only one model.
Rating:	3.7VDC, 6W; USB: 5Vdc, 1A, Audio: 2W with class II adaptor Adaptor input: 100-240V~, 50/60Hz, 0.6A Max Output:5VDC, 1.0A
EUT type:	☒ Table top ☐ Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	June 14, 2018
Date of test:	June 14, 2018~ December 20, 2018

1.2 Technical Specification

Frequency Range:	2400MHz to 2483.5MHz
Support Standards:	Bluetooth Low Energy
Operating Frequency:	2402MHz to 2480MHz
Type of Modulation:	GFSK
Channel Number:	40
Channel Separation:	2MHz
Antenna Information:	PCB antenna, 0dBi max

Frequency Range:	2400MHz ~ 2483.5MHz
Support Standards:	Bluetooth BR+EDR
Operating Frequency:	2402MHz to 2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Type of Modulation:	GFSK, π/4-DQPSK, 8DPSK
Channel Number:	79 (0 - 78)
Channel Separation:	1 MHz
Antenna:	PCB Antenna, 0dBi

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab CAB identifier.: CN0051
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m^2)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	250/f	4/f	5/f	-
0,8-3 kHz	250/f	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	0,73/f	0,92/f	-
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

2.2 Assessment Results

Power density (S) is calculated according to the formula:

$S = PG / (4\pi R^2)$

Where S = power density in mW/cm^2

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

EUT Specification

EUT	Outdoor portable lamp
Frequency band (Operating)	☒ BT3.0: 2.402GHz ~ 2.480GHz ☒ BT4.0: 2.402GHz ~ 2.480GHz
Device category	☐Portable (<20cm separation) ☒Mobile (>20cm separation)
Max. output power for 2.4G Band	BT3.0: 2.21 dBm (1.66mW) BT4.0: 2.37dBm (1.73mW)
Antenna gain (Max)	0 dBi for 2.4G Band

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Mode	Frequency band	Max Power	Antenna Gain	R	S	Limits
	(MHz)	dBm	dBi	(cm)	(mW/cm2)	(mW/cm2)
Bluetooth 3.0	2402 -2480	2.21	0	20	0.0003	1
Bluetooth 4.0	2402 -2480	2.37	0	20	0.0003	1

Note: 1 mW/cm2 from 1.310 Table 1

For the device can support simultaneous transmission, according to 447498 D01 General RF Exposure Guidance v06,
For the device consider simultaneous transmission of WiFi and Bluetooth:
The worst MPE = 0.0003 mW/cm2 < 1 mW/cm2.

TEST REPORT

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

********** END **********