

TEST REPORT

Product Name : RC LIGHT UP BOAT
Model Number : VRC5181-BLU
FCC ID : 2BDKM-VRC5181

Prepared for : HONG KONG YOUTEK INNOVATIONS LIMITED
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Table of Contents

1. TEST RESULT CERTIFICATION	3
2. EUT SPECIFICATION	5
3. TEST REQUIREMENT	6
4. MEASUREMENT RESULT	7



1. TEST RESULT CERTIFICATION

Applicant : HONG KONG YOUTEK INNOVATIONS LIMITED

Address : UNIT 1507C,15/F., EASTCORE,398 KWUN TONG ROAD, KWUN TONG,KOWLOON,HONG KONG

Manufacturer : HONG KONG YOUTEK INNOVATIONS LIMITED

Address : UNIT 1507C,15/F., EASTCORE,398 KWUN TONG ROAD, KWUN TONG,KOWLOON,HONG KONG

EUT : RC LIGHT UP BOAT

Model Name : VRC5181-BLU

Trademark : N/A

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
§ 1.1307(b), § 2.1093	PASS

The above equipment was tested by EMTEK(DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules FCC § 1.1307(b), § 2.1093.

The test results of this report relate only to the tested sample identified in this report

Date of Test : November 15, 2023 to November 28, 2023

Prepared by :

Warren Deng

Warren Deng /Editor

Reviewer :

Tim Dong

Tim Dong /Supervisor

Approve & Authorized Signer :

Sam Lv

Sam Lv /Manager

Modified History

Version	Report No.	Revision Date	Summary
	EDG2311130099E00202R	/	Original Report



2. EUT Specification

Characteristics	Description
Product:	RC LIGHT UP BOAT
Model Number:	VRC5181-BLU
Sample:	2#
Modulation:	GFSK
Operating Frequency Range(s) :	2410MHz-2470MHz
Number of Channels:	31 Channels
Transmit Power Max:	73.72 dBuV@3m
Antenna Gain:	0.59 dBi
Power supply:	DC 4.5V from battery
Evaluation applied:	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> SAR Evaluation

3. Test Requirement

RF EXPOSURE EVALUATION

According to KDB 447498 and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,²⁴ where

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation²⁵
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval. One antenna is available for the EUT. The minimum separation distance is 5mm.

According to ANSI C63.10-2013

9.5 Equations to calculate EIRP

Calculate the EIRP from the radiated field strength in the far field using Equation (22):

$$\text{EIRP} = E + 20\log(d) - 104.7 \quad (22)$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E is the field strength of the emission at the measurement distance, in dB μ V/m

d is the measurement distance, in m

Calculate the EIRP from the conducted power using Equation (23):

$$\text{EIRP} = P - G \quad (23)$$

where

EIRP is the equivalent isotropically radiated power, in dBm

P is the measured power at feedpoint of the EUT antenna, in dBm

G is the gain of the EUT radiating element (antenna), in dBi

By combining Formula (22) and Formula (23), the result is

$$P = E + 20\log(d) - 104.7 + G$$

4. Measurement Result

Antenna gain:0.59 dBi

When a single module works, the measurement results are as follows:

2.4G

Channel Freq. (MHz)	Max Field Strength (dBuV/m)	peak output power (dBm)	Tune upPower (dBm)	Max tune up power(dBm)	Calculation Result	1-g SAR
2410	71.25	-23.9076	-24±1	-23	0.00155610	3
2442	73.72	-21.4376	-22±1	-21	0.00248258	3
2470	71.77	-23.3876	-24±1	-23	0.00157536	3

According to KDB 447498, no stand-alone required for Integrated antenna, and no simultaneous SAR measurement is required.

*** End of Report ***