

TEST REPORT

Reference No...... : WTN23D08180934W002
FCC ID : 2AVFRRE-23BX
Applicant..... : Oriental Recreational Products(Shanghai)Co.,Ltd
Address..... : 1699 Daye Road, Fengxian, Shanghai, China
Manufacturer : Oriental Recreational Products(Shanghai)Co.,Ltd
Address..... : 1699 Daye Road, Fengxian, Shanghai, China
Product..... : BLUEDRIVE X REPEATER
Model(s) : RE-23BX
Standards..... : FCC 47CFR Part 2 Subpart J Section 2.1093
Date of Receipt sample : 2023-08-23
Date of Test : 2023-09-05 to 2023-09-08
Date of Issue..... : 2023-11-02
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Testing Group Co., Ltd.

Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China

Tel: +86-769-2267 6998

Fax: +86-769-2267 6828

Compiled by:

Estel Qian

Estel Qian/ Project Engineer

Approved by:



Deval Qin / Designated Reviewer

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3. Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTN23D08180934W002	2023-08-23	2023-09-05 to 2023-09-08	2023-11-02	Original	-	Valid

4. General Information

4.1. General Description of E.U.T.

Product Name: BLUEDRIVE X REPEATER
Model No.: RE-23BX
Model description: N/A
Hardware Version: REV.1
Software Version: REV.1

4.2. Details of E.U.T.

Frequency Range: 433.91MHz
Type of Modulation: GFSK
Antenna installation: Spring Antenna
Antenna Gain: 2.0dBi

Note:

#: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, WALTEK lab has not verified the authenticity of its information.

Ratings: DC 3.7V from battery
Battery: Charge Voltage: DC5V 1A
Rated Voltage: DC3.7V
Rated Capacity: 450mAh

4.3. Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

Yes No

If Yes, list the related test items and lab information:

Test Lab: N/A
Lab address: N/A
Test items: N/A

4.4. Abnormalities from Standard Conditions

None.

4.5. Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration number 523476, September 10, 2019.

5. Test Summary

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	FCC Part 2.1093	PASS

6. RF Exposure

Test Requirement: FCC 47CFR Part 2 Subpart J Section 2.1093
Evaluation Method: FCC 47CFR Part 1 Subpart I Section 1.1307,
KDB 447498 D01 General RF Exposure Guidance v06

6.1. Procedures and Requirements

According to §2.1093(b),

A portable device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimeters of the body of the user.

According to §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.

According to KDB 447498 D01 General RF Exposure Guidance v06 clause 4.3,

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) 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.

6.2. MPE Calculation Method

$$\text{Result} = P\sqrt{F} / D$$

P= Maximum turn-up power in mW

F= Channel frequency in GHz

D= Minimum test separation distance in mm

6.3. Radio Frequency Radiation Exposure Evaluation

According to KDB 412172 D01 Determining ERP and EIRP v01r01,
Field Strength Approach (linear terms):

$$\text{eirp} = p_t \times g_t = (E \times d)^2/30$$

where:

- p_t = transmitter output power in watts,
- g_t = numeric gain of the transmitting antenna (unitless),
- E = electric field strength in V/m,
- d = measurement distance in meters (m).

$$\text{erp} = \text{eirp}/1.64 = (E \times d)^2/(30 \times 1.64)$$

where all terms are as previously defined.

E dB μ V/m	E V/m	d m	eirp W	eirp dBm
78.08	0.00802	3.0	0.00002	-17.15

Note: $V/m = 10^{(((\text{dB}\mu\text{V}/\text{m}) - 120) / 20)}$

A distance of 5mm normally can be maintained between the user and the device.

Frequency (GHz)	Max. Power (dBm)	Max Tune-up Power (dBm)	Max Tune-up Power (mW)	Distance (mm)	Result	Limit
0.43391	-19.15	-18.15	0.01531	5	0.00484	3

Note:

1. Max. Power (dBm) = EIRP (dBm) – Gain = -17.15(dBm) – 2.0(dBi) = -19.15(dBm)
2. Chose the maximum power to do MPE analysis.

Conclusion:

SAR test exclusion, RF exposure is FCC compliant.

=====End of Report=====