RF EXPOSURE REPORT

Report No.: DDT-B24042312-2E03

Applicant	**:**	Rhino Sp. z o o
Address	**:**	Strzegomska 140A，54-429 Wrocław，Poland
Equipment under Test	**:**	Smart Metering Pulse Expansion Module
Model No.	**:**	Rhino ED DI
Trade Mark	**:**	N/A
FCC ID	**:**	2BE63EDDI915V14
Manufacturer	**:**	Rhino Sp. z o o
Address	**:**	Strzegomska 140A，54-429 Wrocław，Poland

Issued By: Tianjin Dongdian Testing Service Co., Ltd.

Address: Building D-1, No. 19, Weisi Road, Microelectronics Industrial Park Development Area, Tianjin, China

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TEST REPORT DECLARE

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Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Tianjin Dongdian Testing Service Co., Ltd and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Tianjin Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No:	DDT-B24042312-2E03		
Date of Receipt:	Jul. 03, 2024	**Date of Test:**	Jul. 03, 2024~ Jul. 11, 2024

Prepared By: ***Approved By:***

Novak Wei Aaron Zhang

Novak Wei/Engineer ***Aaron Zhang/Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Tianjin Dongdian Testing Service Co., Ltd.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Jul. 11, 2024	

1. General information

1.1. Description of Equipment

EUT* Name	:	Smart Metering Pulse Expansion Module
Model Number	:	Rhino ED DI
EUT function description	:	Please reference user manual of this device
Power supply	:	Built-in battery 3.6 v
Radio Specification	:	ISM
Operation Frequency	:	902 MHz - 928 MHz
Modulation	:	2GFSK
Data Rate	:	19.2 kbps
Antenna Type	:	sucker antenna with maximum PK gain: 3 dBi
Exposure category	:	General population/uncontrolled environment
Device Type	:	Mobile Device
target power and tolerance	:	14±1dBm

1.2. Assess laboratory

Tianjin Dongdian Testing Service Co., Ltd.
Address: Building D-1, No. 19, Weisi Road, Microelectronics Industrial Park Development Area, Tianjin, China.
Tel: +86-22-58038033, http://www.ddttest.com, Email: ddt@dgddt.com
NVLAP (National Voluntary Laboratory Accreditation Program) CODE: 500036-0
CNAS (China National Accreditation Service for Conformity Assessment) CODE: L13402
FCC Designation Number: CN5004; FCC Test Firm Registration Number: 368676
ISED (Innovation, Science and Economic Development Canada) Company Number: 27768
Conformity Assessment Body Identifier: CN0125
VCCI Facility Registration Number: C-20089, T-20093, R-20125, G-20122

2. RF Exposure Evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR 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.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$,$|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. Calculation method

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } S(mW/cm^2) = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (mW)
G = EUT Antenna numeric gain (numeric)=
d = Separation distance between radiator and human body (m)
The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.

758.4

2.3. Estimation result

Worst Mode	Max. Tune UP power (dBm)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm^2)	MPE Limit (mW/cm^2)
2GFSK	15.00	20	3	2	0.012	1

Note: The estimation distance is 20 cm

Conclusion: The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

END OF REPORT