



RF EXPOSURE REPORT

Applicant	:	Guangdong A-OK Technology Grand Development Co., Ltd.
Address of Applicant	:	Hexing Road South Side, Sanhe Economic Development, Zone, Huiyang, 516213 Huizhou, Guangdong, PEOPLE'S REPUBLIC OF CHINA
Manufacturer	:	Guangdong A-OK Technology Grand Development Co., Ltd.
Address of Manufacturer	:	Hexing Road South Side, Sanhe Economic Development, Zone, Huiyang, 516213 Huizhou, Guangdong, PEOPLE'S REPUBLIC OF CHINA
Equipment under Test	:	Smart Tubular Motor
Model No.	:	AM25-1/25-ES-EB, AM25-1.8/30-ES-EB, AM25-1.2/30-ES-EB, AM25-1/30-ES-EB, AM28-1.8/30-ES-EB, AM28-1.8/25-ES-EB
FCC ID	:	2AVVD-AM25B
Test Standard(s)	:	KDB447498 D01 General RF Exposure Guidance v06
Report No.	:	DDT-RE24072522-1E02
Issue Date	:	2024/10/26
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

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Test Standard Used:

KDB447498 D01 General RF Exposure Guidance v06

We Declare:

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

Report No.:	DDT-RE24072522-1E02		
Date of Receipt:	2024/07/31	Date of Test:	2024/07/31 - 2024/10/26

Prepared By:Johnson Huang/Engineer**Approved By:**Damon Hu/EMC Manager

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

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	2024/10/26	

1. General Test Information

1.1. Description of EUT

EUT Name	: Smart Tubular Motor
Model Number	: AM25-1/25-ES-EB, AM25-1.8/30-ES-EB, AM25-1.2/30-ES-EB, AM25-1/30-ES-EB, AM28-1.8/30-ES-EB, AM28-1.8/25-ES-EB
Difference of model number	: All the models are electrical identical including the same hardware design (i.e., circuit design, PCB Layout, RF module/circuit, antenna type(s) and antenna location, components on PCB, etc.), the difference are the rotational speed, therefore the test performed on the model AM25-1/25-ES-EB.
EUT Function Description	: Please reference user manual of this device
Power Supply	: DC 5V from external AC Adapter DC 7.4V 2600mAh Polymer Li-ion built-in battery

Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

“☑” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note applies to entire report.

1.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
/	/	/	/

1.3. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2. RF Exposure evaluation for FCC

2.1. Assessment procedure

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

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
1500-100000			1.0	30

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

Calculation method

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

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.

2.2. Assess result

Mode	Output power (dBm)	Output power (mW)	tune up power (dBm)	tune up power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm^2)	MPE Limit (mW/cm^2)
BLE	9.90	9.77	10.0	10	-4.10	0.39	0.00077	1

Note1: The estimation distance is 20 cm

Conclusion: MPE evaluation required since transmitter power is below FCC threshold

-----End Report-----