EMC TEST REPORT

Product	:	Stepper Motor
Trade mark	:	BKA
Model/Type reference	:	BKA30
Serial Number	:	N/A
Ratings	:	DC 10V
Report Number	:	EED32N812084
Date of Issue	:	Nov. 26, 2021
Regulations	:	See below

Test Standards	Results
☒ EN 55014-1:2017+A11:2020	PASS
☒ EN 55014-2:2015	PASS

Prepared for:

Shenzhen Bactrianus motor co.,ltd
Floor 5 of No.1 Building, Huihuang Industrial Zoon, Xitian Community, Gongming Subdistrict, Guangming New District, Shenzhen City, Guangdong Province, China

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Compiled by: Steven.pang Reviewed by: Alan-chen

Approved by: David Wang Date of Issue: Nov. 26, 2021

David Wang Check No.:5937171121

TABLE OF CONTENTS

(Note: N/A means not applicable)

1. GENERAL INFORMATION

Applicant:	Shenzhen Bactrianus motor co.,ltd Floor 5 of No.1 Building, Huihuang Industrial Zoon, Xitian Community, Gongming Subdistrict, Guangming New District, Shenzhen City, Guangdong Province, China
Manufacturer:	Shenzhen Bactrianus motor co.,ltd Floor 5 of No.1 Building, Huihuang Industrial Zoon, Xitian Community, Gongming Subdistrict, Guangming New District, Shenzhen City, Guangdong Province, China
EMC Directive:	2014/30/EU
Product:	Stepper Motor
Trade mark:	BKA
Model/Type reference:	BKA30
Serial Number:	N/A
Report Number:	EED32N812084
State of Sample(s):	Normal
Sample Received Date:	Nov. 18, 2021
Sample tested Date:	Nov. 18, 2021 to Nov. 25, 2021

Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

2. TEST SUMMARY

The Product has been tested according to the following specifications:

EMISSION		
Standard	**Test Item**	**Test**
EN 55014-1	Terminal disturbance voltages	N/A[4]
EN 55014-1	Discontinuous disturbance (Clicks)	N/A[1]
EN 55014-1	Disturbance power	Yes
EN 55014-1	Radiated disturbance	N/A[2]
EN 55014-1	Radiated disturbances in the frequency range 9KHz to 30MHz	N/A[3]

IMMUNITY (EN 55014-2)		
Standard	**Test Item**	**Test**
IEC 61000-4-2	Electrostatic discharge	N/A[5]

IEC 61000-4-3	Radio frequency electromagnetic fields	N/A[5]
IEC 61000-4-4	Fast transients	N/A[5]
IEC 61000-4-5	Surges	N/A[5]
IEC 61000-4-6	Injected currents	N/A[5]
IEC 61000-4-11	Voltage dips and interruptions	N/A[5]

Remark:
1. The Product has no switching operations, automatic programme or other electrically controlled or operated functions
2. The Product shall be evaluated for emissions in the 30 MHz to 1 000 MHz range by testing in accordance with method a as described in clause 4.1.2.3.2 of EN 55014-1.
3. It only apply to induction cooking appliances.
4. The Product is powered by DC 10V.
5. The Product is belong to category I.

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Terminal disturbance voltages(150KHz-30MHz）	3.1
Disturbance power	4.3

4. PRODUCT INFORMATION AND TEST SETUP

4.1 PRODUCT INFORMATION

Product Classification: Mains operated appliance(EN 55014-1)
Category I (EN 55014-2)

Ratings: DC 10V

4.2 TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

4.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer’s requirements and conditions for the intended use.

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACLITY

All measurement facilities used to collect the measurement data are located at Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.
The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.
Equipment used during the tests:

Shielding Room No. 1 - PE Test				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Due Date**
Receiver	R&S	ESCI	100435	04/14/2022
Clamp	R&S	MDS-21	100794	08/23/2022

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. DISTURBANCE POWER

6.1 LIMITS

TABLE-1 For household and similar appliances

Frequency range (MHz)	Limits dB(pW)	
	Quasi-peak	Average
30 to 300	45 to 55	35 to 45

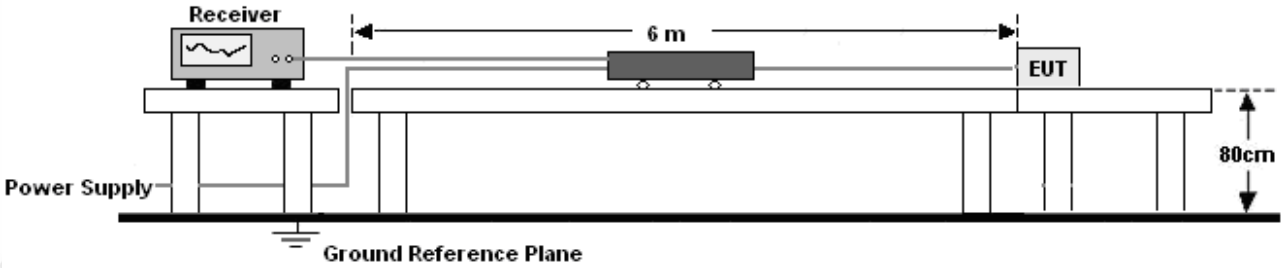
NOTE: The limit Increasing linearly with the frequency from 30 to 300 MHz.

TABLE-2 Margin when performing disturbance power Measurement in the frequency range 30 MHz to 300 MHz

Frequency range (MHz)	Margin Quasi-peak dB(pW)
	Household and similar appliances / Tools
200 to 300	0 to 10

NOTE: The limit Increasing linearly with the frequency from 200 to 300 MHz.

6.2 BLOCK DIAGRAM OF TEST SETUP

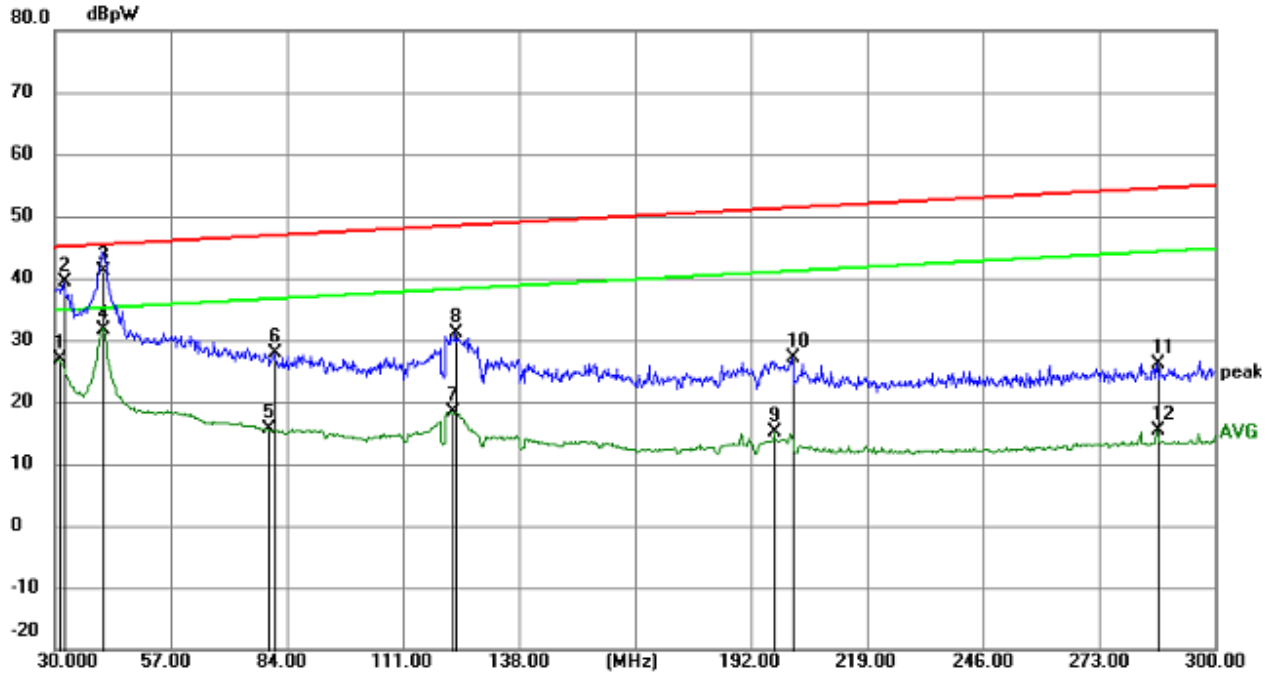


6.3 TEST PROCEDURE

a. The absorbing clamp was placed around the lead to be measured, with its current transformer towards the equipment under test.
b. All connectors having a connected lead shall be terminated in a manner representative of use.
c. The absorbing clamp was applied successively to all leads whose length is 25cm or longer, unscreened or screened, which may be connected to the individual units of the equipment under test.
d. The Product was placed on a nonconductive table of 0.8 m of height above the floor and at least 0.8m from other metallic objects and from any person. The lead to be measured shall be stretched in a straight horizontal line for length sufficient to accommodate the absorbing clamp.
e. A test at about 50 MHz shall be made over a range of 0.9 to 1.1 times the rated voltage in order to check whether the level of disturbance varies considerably with the supply voltage; in which case, the measurements are to be made at the voltage that causes maximum disturbance.
f. Pre-scans were performed with a quasi-peak detector and an average detector.
g. At each test frequency the absorbing clamp shall be moved along the lead until the maximum value is found between a position adjacent to the equipment under test and a distance of about a half wavelength from it.

6.4 GRAPHS AND DATA

Product	:	Stepper Motor			
Model/Type reference	:	BKA30			
Power	:	DC 10V	**Temperature**	:	24℃
Mode	:	Running	**Humidity**	:	52%
Port	:	AC mains	**Press**	:	101kPa



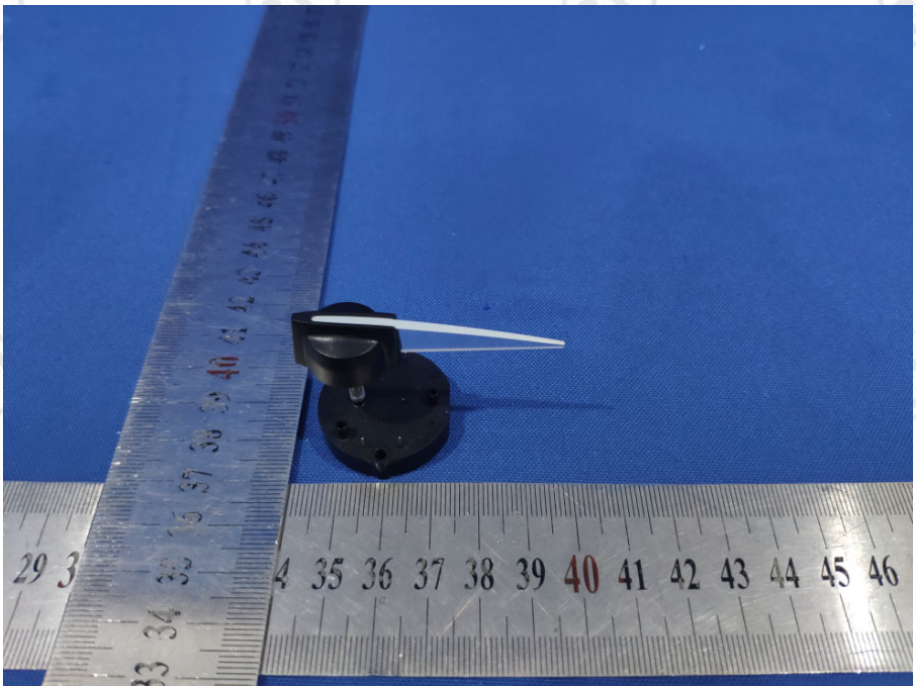
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBpW	dBpW	dB	Detector	Comment
1		31.0200	18.82	8.00	26.82	35.04	-8.22	AVG	
2		31.9200	31.26	8.04	39.30	45.07	-5.77	QP	
3		41.1600	32.40	8.83	41.23	45.41	-4.18	QP	
4	*	41.1600	22.90	8.83	31.73	35.41	-3.68	AVG	
5		79.6800	7.56	7.96	15.52	36.84	-21.32	AVG	
6		81.2400	20.07	7.89	27.96	46.90	-18.94	QP	
7		122.4600	12.13	6.33	18.46	38.42	-19.96	AVG	
8		123.3000	24.79	6.27	31.06	48.46	-17.40	QP	
9		197.5200	9.81	5.26	15.07	41.20	-26.13	AVG	
10		201.4800	21.83	5.33	27.16	51.35	-24.19	QP	
11		286.6200	19.92	6.10	26.02	54.50	-28.48	QP	
12		286.6200	9.17	6.10	15.27	44.50	-29.23	AVG	

Note:
1. Margin=Measurement-Limit.
2. Measurement=Reading_Level+Correct Factor.
3. Correct Factor=Ant Factor+Cable loss.
4.The maximum clock frequency of the Product is less than 30 MHz and all emission readings from the Product are lower than the applicable limits (Table 2) reduced by the margin, So, Appliances are deemed to comply in the frequency range from 300 MHz to 1000 MHz.

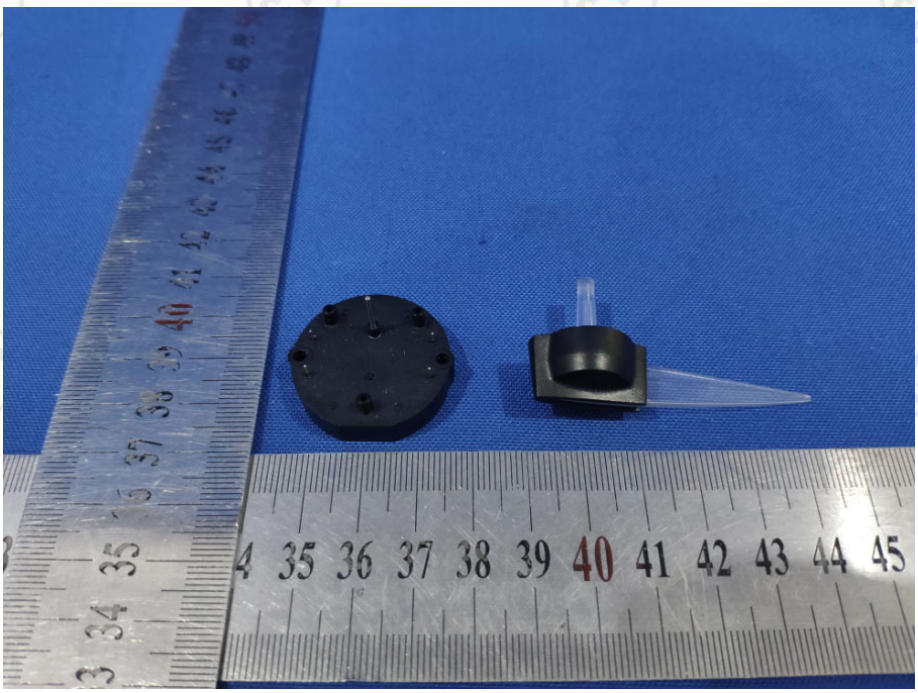
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

DISTURBANCE POWER TEST SETUP

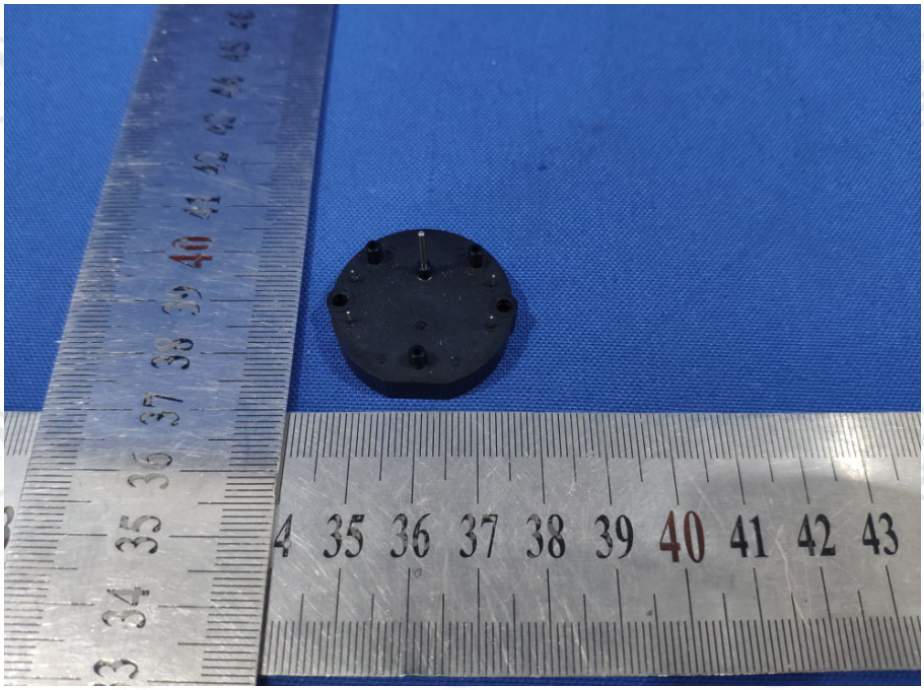
APPENDIX 2 PHOTOGRAPHS OF PRODUCT



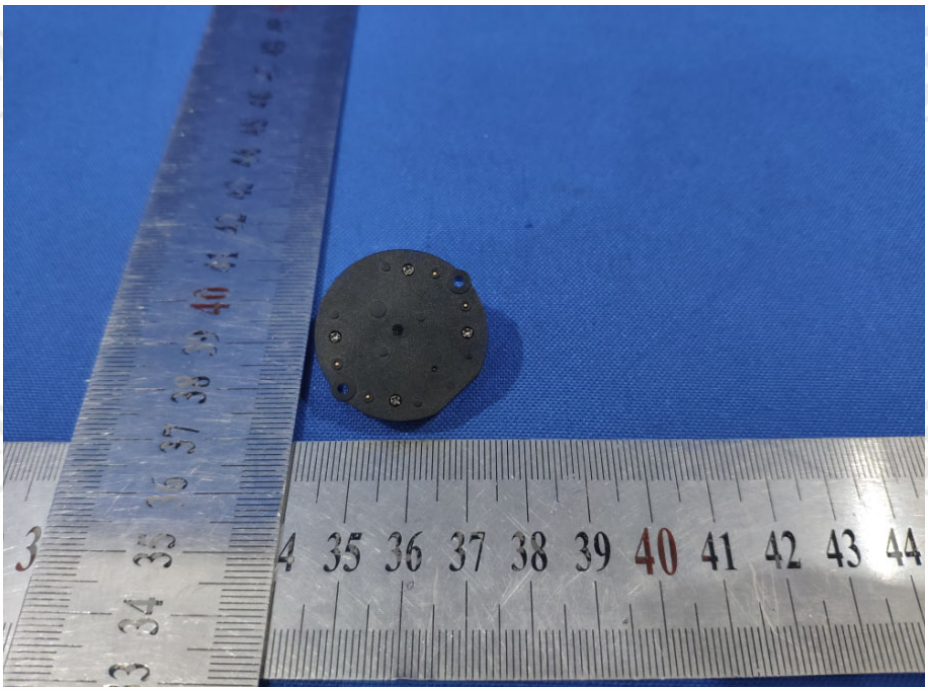
View of Product-1



View of Product-2



View of Product-3



View of Product-4

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***