TEST REPORT

On Behalf of

Prepared For :	**ZHEJIANG JINGHONG ELECTRIC CO., LTD .** No.221.Wei shijiu Road,Yueqing economic&development Zone,325600,Zhejiang,China.
Trade Mark :	N/A
Product Name :	**terminal block**
Model(s) :	**UKK-80,** UKK-125, UKK-160, UKK-250, UKK-400, UKK-500
Prepared By:	**Shenzhen ZTS Testing Service Co., Ltd.** 808, Building 1, 7th Industrial Zone, Yulv Community, Yutang Street, Guangming District, Shenzhen, Guangdong, China Tel: 400-8788-298 Tel:0755-23245950 Email: zts@zts-test.com Web: www.zts-test.com
Test Date:	**Oct. 29, 2021- Nov. 04, 2021**
Date of Report:	**Nov. 04, 2021**
Report No. :	**ZTS21102903VRS**

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen ZTS Testing Service Co., Ltd.

TEST REPORT

EN 60947-7-1:2009
Low-voltage switchgear and controlgear -- Part 7-1:
Ancillary equipment - Terminal blocks for copper conductors

Reference No. ..... :	ZTS21102903VRS
Date of issue ..... :	Nov. 04, 2021
Contents ..... :	16 Pages

Testing laboratory

Name ..... :	Shenzhen ZTS Testing Service Co., Ltd.
Address……..……..:	808, Building 1, 7th Industrial Zone, Yulv Community, Yutang Street, Guangming District, Shenzhen, Guangdong, China
Testing location ..... :	Same as above

Client

Name.....:	ZHEJIANG JINGHONG ELECTRIC CO., LTD .
Address…… ..:	No.221.Wei shijiu Road,Yueqing economic&development Zone,325600,Zhejiang,China.

Test specification

Standard ..... :	EN 60947-7-1:2009
Test procedure ..... :	Type Approval
Non-standard test method ..... :	N.A.

Test item

Description.....:	terminal block
Trademark ..... :	N/A
Model and/or type reference..... :	UKK-80
Manufacturer ..... :	ZHEJIANG JINGHONG ELECTRIC CO., LTD .
Address……..:	No.221.Wei shijiu Road,Yueqing economic&development Zone,325600,Zhejiang,China.
Rating(s)..... :	AC 690 V, 50/60Hz, 55.2 KW max

Testing procedure and testing location

Laboratory name……	:	Shenzhen ZTS Testing Service Co., Ltd.
Testing location/address:	:	808, Building 1, 7th Industrial Zone, Yulv Community, Yutang Street, Guangming District, Shenzhen, Guangdong, China
Testing Iprocedure	:	TL ☒ RMT ☐ SMT ☐ WMT ☐ TMP ☐
Prepared by (Engineer)	:	Wilson Bin
Reviewed By (Supervisor)		Jeffrey Wang
Reviewer by (Quality Manager)	:	Tony mo

POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object.....	N (N/A)
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
TESTING:	
Date of receipt of test item.....	Oct. 29, 2021
Date (s) of performance of tests.....	Oct. 29, 2021- Nov. 04, 2021

General remarks

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

“(see remark #)” refers to a remark appended to the report.

“(see appended table)” refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

Remark:

Copy of marking plate:

Hot Dog Spit Toaster
Model : UKK-80
Rating : AC690V, 50/60Hz, 55.2 KW max

ZHEJIANG JINGHONG ELECTRIC CO., LTD .

Made in China

Summary of testing:

This product was tested and found to compliance with requirement of
EN 60947-7-1:2009

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict
5	**PRODUCT INFORMATION**		P
5.1	**Marking**		P
	A terminal block shall be marked in a durable and legible manner with the following:		--
	a) the name of the manufacturer or a trade mark by which the manufacturer can be readily identified;		P
	b) a type reference permitting its identification in order to obtain relevant information from the manufacturer or his catalogue.		P
5.2	**Additional information**		P
	The following information shall be stated by the manufacturer, if applicable, e.g. in the manufacturer's data sheet or his catalogue or on the packing unit:		--
	a) IEC 60947-7-1, if the manufacturer claims compliance with this standard;	IEC 60947-7-1	P
	b) the rated cross-section;	2.5mm^2	P
	c) the rated connecting capacity, if different from Table 2, including the number of conductors simultaneously connectable;		N
	d) the rated insulation voltage (Ui);	690V	P
	e) the rated impulse withstand voltage (Uimp), when determined;		N
	f) service conditions, if different from those of Clause 6;		N
	g) conventional free air thermal current (Ith).		P
6	**Normal service, mounting and transport conditions**		P
6.1	**Normal service conditions**		P
	Equipment shall be capable of operating		P
6.1.1	**Ambient air temperature**		P
	The ambient air temperature does not exceed +40℃		P
	The lower limit of the ambient air temperature is -5℃		P
6.1.2	**Altitude**		P
	The altitude of the site of installation does not exceed 2000m		P
6.1.3	**Atmospheric conditions**		P
6.1.3.1	**Humidity**		P
	The relative humidity of the air does not exceed 50% at a maximum temperature of +40℃. Higher relative humiditles may be permitted at lower temperatures e.g. 90% at +20℃		P
6.1.3.2	**Pollution degree**		P
	The pollution degree (see 2.5.58) refer to the		P

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict
	environmental conditions		
	Pollution degree 1: No pollution.		N
	Pollution degree 2 .a temporary conductivity caused by condensation may be expected		N
	Pollution degree 3 Conductive pollution occurs.due to condensation		P
	Pollution degree 4 The pollution generates. by conductive dust or by rain		N
	Equipment for industrial applications is generally for use in pollution degree 3 environment		P
	Equipment for household and similar applications is generally for use in pollution degree 2 enviroment		N
6.1.4	**Shock and vibration**		N
	Under consideration		N
6.2	**Conditions during transport and storage**		P
	The following temperature range applies during transport and storage: between -25℃ and +55℃ and for short periods not exceeding 24h up to +70℃		P
6.3	**Mounting**		P
	The equipment shall be mounted in accordance with the manufacture's instructions.		P
7.	**CONSTRUCTIONAL AND PERFORMANCE REQUIREMENTS**		P
7.1	**Constructional requirements**		P
7.1.1	**Clamping units**		P
	Subclause 7.1.8.1 of IEC 60947-1 applies		P
	The clamping units shall allow the conductors to be connected by means ensuring that a reliable mechanical linkage and electrical contact is properly maintained.		P
	The clamping units shall be able to withstand the forces that can be applied through the connected conductors.		P
7.1.2	**Mounting**		P
	Terminal blocks shall be provided with means that allow them to be securely attached to a rail or a mounting surface.		P
	Tests shall be made in accordance with 8.3.2.	See clause 8.3.2	P
7.1.3	**Clearances and creepage distances**		P
	For equipment tested according to 8.3.3.4 of this standard, minimum values are given in tables 13	See clause 8.4.2	P

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict
	and 15 of IEC 60947-1.		
	In case Uimp is not indicated, clearances and creepage distances in according with Annex H of IEC 60947-1.		P
	Electrical requirements are given in 7.2.2		P
7.1.4	**Terminal identification and marking**		P
	Terminals shall be clearly and permanently identified in accordance with IEC 60445 and Annex L of IEC 60947-1.		P
	Terminals intended exclusively for the neutral conductor shall be identified by the letter "N", in accordance with IEC 60445.		N
	The protective earth terminal shall be identified in accordance with 7.1.10.3 of IEC 60947-1.		N
	A terminal block shall have provision, or at least space, for identification marks or numbers for each clamping unit or terminal assembly related to the circuit of which it forms a part.		P
	For the identification of the terminal blocks the colour combination green-yellow is not allowed.		P
7.1.5	**Resistance to abnormal heat and fire**		P
	The insulation materials of terminal blocks shall not be adversely affected by abnormal heat and fire.		P
	Compliance is checked by the needle flame test according to IEC 60695-11-5 as specified in 8.5 of this standard.		P
7.1.6	**Rated cross-section and rated connecting capacity**		P
	Terminal blocks shall be so designed that conductors of the rated cross-section and the rated connecting capacity,		P
	Compliance is checked by the test described in 8.3.3.4.	See clause 8.3.3.4	P
	The verification of the rated cross-section may be performed by the special test according to 8.3.3.5.		P
7.2	**Performance requirements**		P
7.2.1	**Temperature rise**		P
	Terminal blocks shall be tested in accordance with 8.4.5. The temperature-rise of the terminals shall not exceed 45 K.	See clause 8.4.5	P
7.2.2	**Dielectric properties**		P
	If the manufacturer has declared a value of the rated impulse withstand voltage (Uimp) (see 4.3.1.3 of IEC 60947-1),Subclause 7.2.3 and	See clause 8.4.3	P

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict
	7.2.3.1 of IEC 60947-1 applies		
8.3.2	**Attachment of the terminal block on its support**		P
	The test shall be made on two clamping units at the centre terminal block out of five terminal blocks mounted as in normal use on the appropriate support according to the manufacturer´s instructions.	Φ1mm 1N	P
	During the test, no terminal block shall work free from its rail or support, nor suffer any other damage.		P
8.3.3	**Mechanical properties of clamping units**		P
8.3.3.1	**Test of mechanical strength of clamping units**		P
	Subclauses 8.2.4.1 and 8.2.4.2 of IEC 60947-1 apply		P
	At the end of the test, the terminal blocks shall pass the voltage drop test according to 8.4.4		P
	before the test of mechanical strength of clamping units	Ud =0.82mV	P
	the voltage drop shall not exceed 3,2 mV		P
	after the test of mechanical strength of clamping units	Ud =0.86mV	P
	the voltage drop shall not exceed 150 % of the values measured before the test		P
8.3.3.2	**Testing for damage to and accidental loosening of conductors of a terminal block (flexion test)**		P
	Subclauses 8.2.4.1 and 8.2.4.3 of IEC 60947-1 apply		P
	The tightening torque shall be in accordance with Table 4 of IEC 60947-1 or alternatively in accordance with the higher torque value stated by the manufacturer.		P
	conductor of the largest and smallest cross-sectional area (mm²) .....:	2.5 and 1.0 mm^2	--
	number of conductor of the smallest cross sectional, number of conductor of the largest cross sectional .....:	3/1	--
	diameter of bushing hole (mm) .....:	9.5mm	--
	height between the equipment and the platen (mm) .....:	279mm	--
	mass at the conductor(s) (kg) .....:	0.05kg	--
	135 continuous revolutions: the conductor shall neither slip out of the terminal nor break near the clamping unit		P
8.3.3.3	**Pull-out test**		P
	Subclause 8.2.4.4 of IEC 60947-1.		P

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.2.4.4.1	Round copper conductors		P
	force (N) .....:	50 N	P
	1 min, the conductor shall neither slip out of the terminal nor break near the clamping unit		P
8.2.4.4.2	Flat copper conductors		N
	A suitable length of conductor shall be secured in the terminal and the pulling force given in Table 6 applied without jerks for 1 min in a direction opposite to that of the insertion of the conductor.		N
	During the test, the conductor shall neither slip out of the terminal nor break near the clamping unit.		N
8.3.3.4	**Verification of rated cross-section and rated connecting capacity**		P
	The test shall be carried out on each clamping unit of one terminal block.		P
	Theoretical diameter of the largest conductor is given in Table 7a of IEC 60947-1.		P
8.3.3.5	**Verification of rated cross-section (special test with gauges)**		P
	Subclause 8.2.4.5 of IEC 60947-1 applies		P
	The test shall be carried out on each clamping unit of one terminal block.		P
8.4.2	**Verification of clearances and creepage distances**		P
8.4.2.1	**General**		P
	The verification is made between two adjacent terminal blocks and between a terminal block and the metal support to which the terminal blocks are attached.		P
8.4.2.2	**Clearances**		P
	The measured values of clearances shall be higher than the values given in Table 13 of IEC 60947-1 for case B – homogeneous field (see 7.2.3.3 of IEC 60947-1)	(see appended table)	P
8.4.2.3	**Creepage distances**		
	The measured creepage distances shall be not less than the values given in table 15 of IEC 60947-1	(see appended table)	
8.4.3	**Dielectric tests**		P
	a) If the manufacturer has declared a value for the rated impulse withstand voltage Uimp, the impulse withstand voltage test shall be made in accordance with 8.3.3.4.1, item 2), of IEC 60947-1, except item 2) c) which does not apply.		N
	b) The power-frequency withstand verification of solid insulation shall be made in accordance with 8.3.3.4.1, item 3), of IEC 60947-1. The value of the test voltage shall be as stated in Table 12A of IEC 60947-1 (see 8.3.3.4.1, item 3) b) i), of IEC 60947-1).	(see appended table)	P

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Each test shall be carried out on five adjacent terminal blocks wired and installed on a metal support under conditions a), b) and c) indicated in 8.4.2.1.		P
	The test voltage shall be applied first between the adjacent terminal blocks and then between all terminal blocks connected together and the support to which the terminal blocks are attached.		P
8.4.4	**Verification of the voltage drop**		P
	a) before and after the test of mechanical strength of clamping units (see 8.3.3.1);		P
	b) before and after the temperature-rise test (see 8.4.5);		P
	c) before and after the short-time withstand current test (see 8.4.6);		P
	d) before, during and after the ageing test (see 8.4.7).		P
	The verification is made as specified in 8.3.3.1, 8.4.5, 8.4.6 and 8.4.7.		P
	Before the tests according to a), b), c) and d) above, the voltage drop shall not exceed 3,2 mV,		P
	After the tests according to a), b) and c), the voltage drop shall not exceed 150 % of the values measured before the test.		P
	During and after the test according to d), the voltage drop measured shall not exceed the values specified in 8.4.7.		P
8.4.5	**Temperature-rise test**		P
	- ambient temperature 20±5 ℃ :	22℃	--
	- test current(A):	80 A	--
	- Rated cross-section (mm²) :	2.5mm^2 /_____AWG	--
	The temperature-rise of any part of the centrally located terminal block shall not exceed the limit given in 7.2.1	29.8K	P
	before the temperature-rise test	Ud =0.85mV	P
	the voltage drop shall not exceed 3,2 mV		P
	after the temperature-rise test	Ud =0.88V	P
	the voltage drop shall not exceed 150 % of the temperature-rise test		P
8.4.6	**Short-time withstand current test**		P
	The test is performed on one terminal block installed according to the manufacturer's instructions.		N
	the value and the duration of the test current shall be in accordance with 7.2.3.	300A 1S	P
	At the end of the test, continuity shall exist on the		P

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict
	test sample assembly and the terminal blocks shall not show any cracking, breakage or other critical damage.		
	before the short-time withstand current test	Ud =0.86mV	P
	the voltage drop shall not exceed 3,2 mV		P
	after the short-time withstand current test	Ud =0.90V	P
	the voltage drop shall not exceed 150 % of the short-time withstand current test		P
8.4.7	**Ageing test (for screwless-type terminal blocks only)**		N
	The terminal blocks are submitted to 192 temperature cycles as follows.	screw-type terminal blocks	N
	After this test, a visual inspection shall show no changes impairing further use such as cracks, deformations or the like.		N
	before the ageing test		N
	the voltage drop shall not exceed 3,2 mV		N
	after the ageing test		N
	the voltage drop shall not exceed 150 % of the ageing test		N
8.5	**Verification of thermal characteristics**		P
	The thermal characteristics are checked by the needle flame test.		P
8.6	**Verification of EMC characteristics**		N
8.6.1	**Immunity**		N
	Terminal blocks within the scope of this standard are not sensitive to electromagnetic disturbances and therefore no immunity tests are necessary.		N
8.6.2	**Emission**		N
	Terminal blocks within the scope of this standard do not generate electromagnetic disturbances and therefore no emission tests are necessary.		N

EN 60947-7-1			
Clause	Requirement - Test	Result - Remark	Verdict

8.4.2.2	TABLE: Clearance			P
Clearance (cl) at/of/between:	U imp (V)	Required cl (mm)	cl (mm)	
Two adjacent terminal blocks	8000	3	14.2	
Terminal block and the metal support	8000	3	13.6	
Supplementary information:				

8.4.2.3	TABLE: creepage distance					P
creepage distance (cr) at/of/between:	U i (V)	Material group	Pollution degree	Required cr (mm)	cr (mm)	
Two adjacent terminal blocks	800	IIIa	3	12.5	15.3	
Terminal block and the metal support	800	IIIa	3	12.5	14.8	
Supplementary information:						

8.4.3	TABLE: Dielectric tests	P
Test voltage applied between:	Voltage (V)	Breakdown (Yes/No)
Two adjacent terminal blocks	2000	No
Terminal block and the metal support	2000	No

ATTACHMENTS: REAL PHOTOS

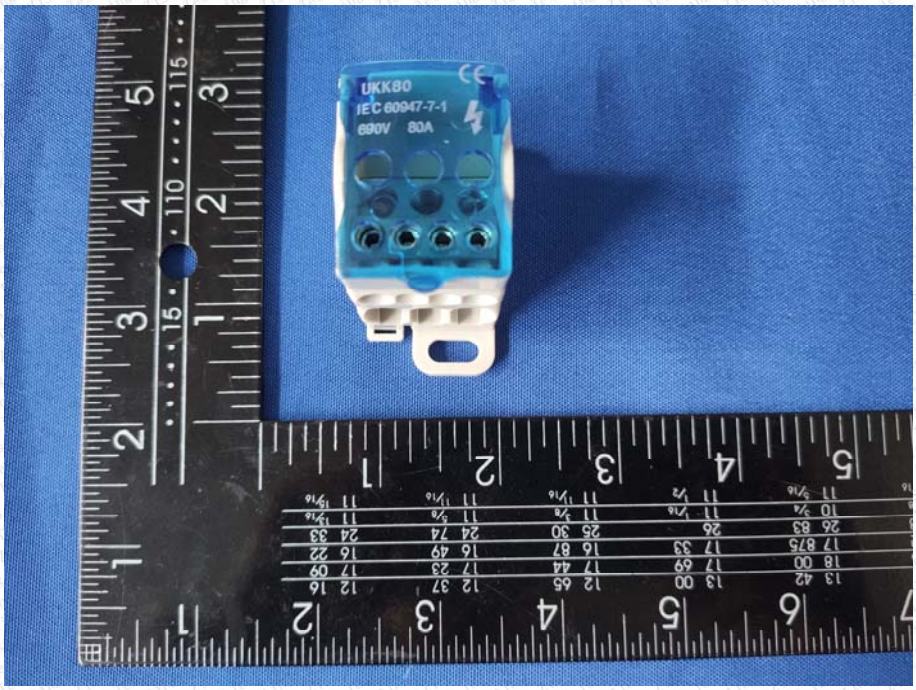

Photo 1

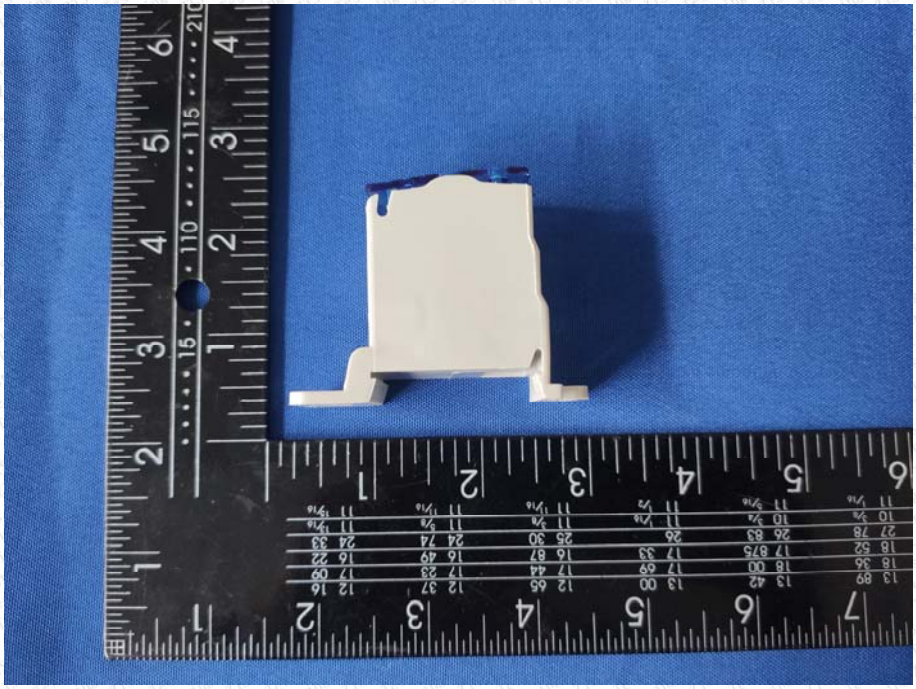

Photo 2

Photo 3

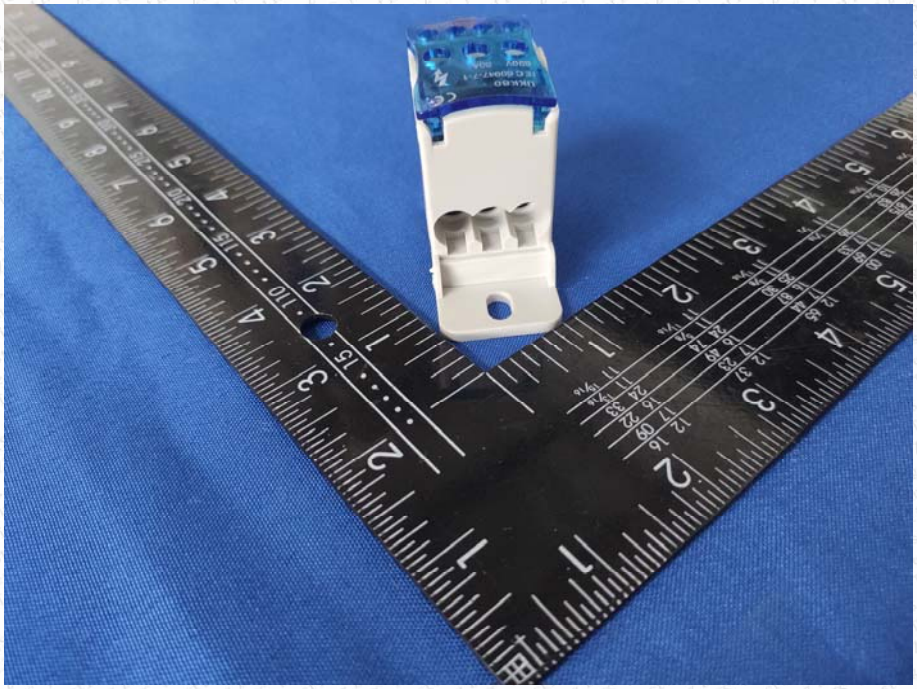

Photo 4

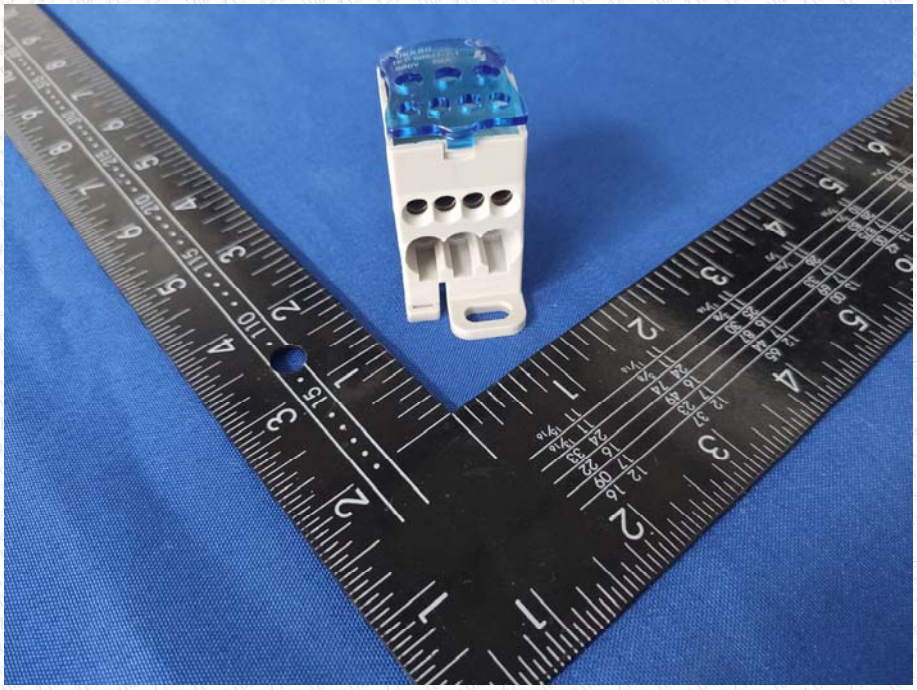

Photo 5

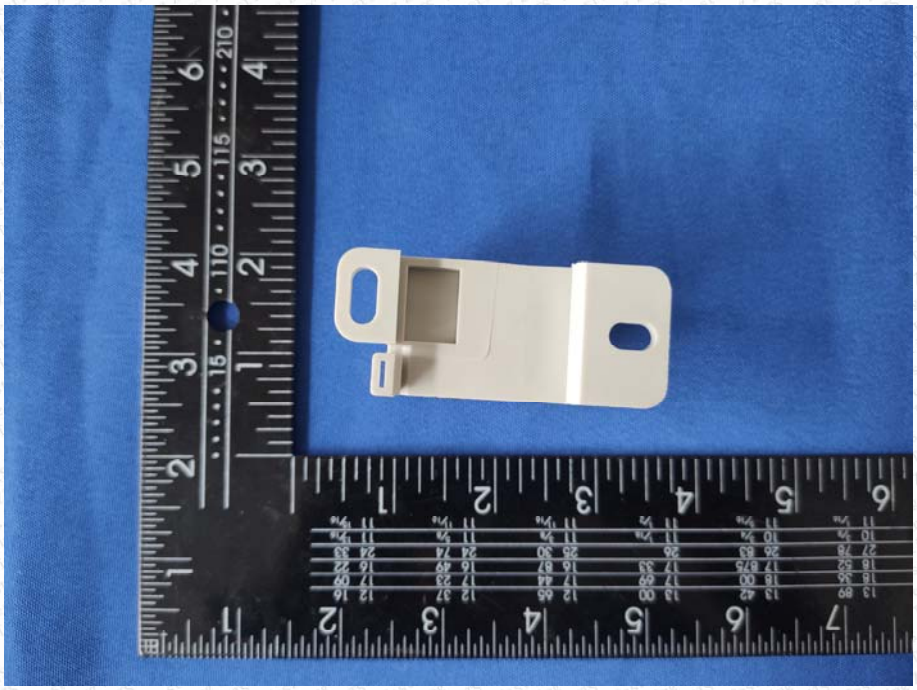

Photo 6

End of the report