Test Report No.: 48.400.23.1087.01-00/02

Rev.: 00

Dated: 2023-10-30

Applicant:	Jiangsu Acrel Electrical Manufacturing. Co., Ltd.
Address:	No. 5, Dongmeng Road, Nanzha Street, Jiangyin, Jiangsu, P. R. China
Attn:	Han Zhonghua
Sample Description:	Current transformer
Model No.:	AKH-0.66 30I
Sample Received Date:	2023-10-12
Test Period:	2023-10-12~2023-10-27
Test Location:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch, SHA Chemical Lab.
Purpose of examination:	Verification of RoHS (Restriction of Hazardous Substances) directive 2011/65/EU and its amendment (EU) 2015/863 on submitted samples
Test Results:	Refer to following page(s)
Remark:	- The result relates only to the items tested. - The reference model(s) was declared by client. - The test sample(s) and item(s) was specified by client.

TüV SüD Certification and Testing (China) Co., Ltd.
TüV SüD Group

Prepared by: Reviewed by:

Mr. Yiwei CHEN Mr. Feng ZHANG

Disclaimer Measurement Uncertainty:Unless otherwise agreed upon, Pass or Fail verdicts are given base on the measured values without any considerations of measurement uncertainties.Please note, every test method has a measurement uncertainty which has been evaluated by the laboratory according to ISO/IEC 17025 requirements. By taking measurement uncertainties into account it might happen that measured values can neither be assessed as Pass nor as FailAny use for advertising purposes must be granted in writing. This test report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4.

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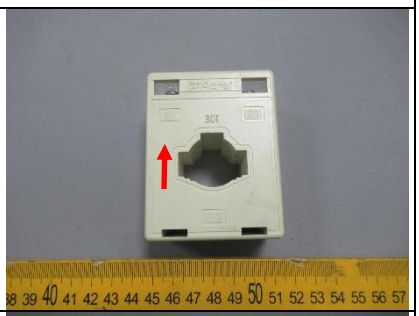
SUMMARY OF TEST RESULTS

No.	Test Requested	Conclusion	Remarks
1.	Heavy Metal (Pb, Cd, Hg and Cr VI) Content	**PASS**	
2.	Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) Content	**PASS**	
3.	Phthalates (DEHP, BBP, DBP and DIBP) Content	**PASS**	

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1. TESTED SUBJECT DESCRIPTION

Sample No.	Description (Material, colour)	Photograph/Location
01	Beige hard plastic shell	
02	Silvery metal piece	
03	Silvery metal nut	
04	Silvery metal cushion	
05	Silvery metal cushion	

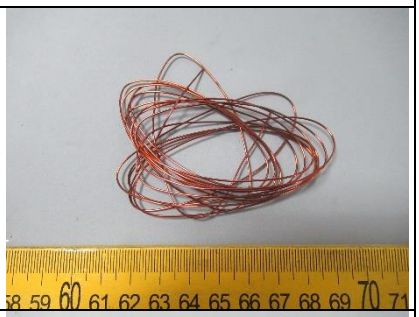
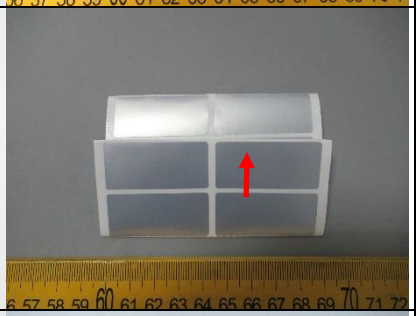
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Sample No.	Description (Material, colour)	Photograph/Location
06	Silvery metal cushion	
07	Silvery metal nut	
08	Beige hard plastic cover	
09	Transparent hard plastic cover	
10	Silvery metal Iron core	

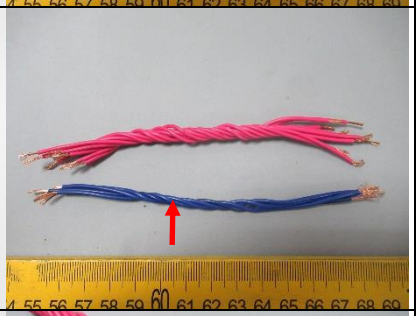
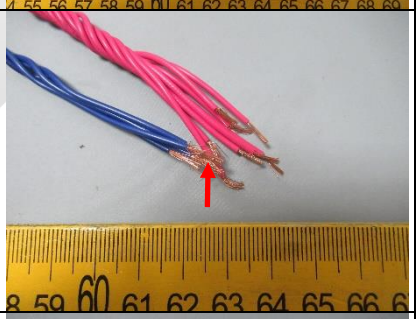
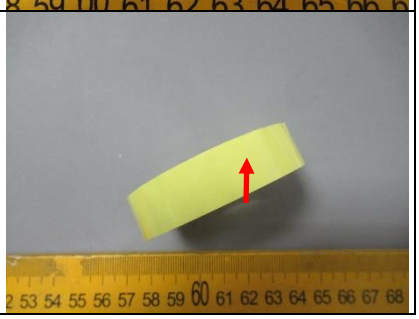
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Sample No.	Description (Material, colour)	Photograph/Location
11	Golden metal wire	
12	Black rubber sheath	
13	Silvery soft plastic label	
14	Yellow paper slice	
15	Black sponge piece	

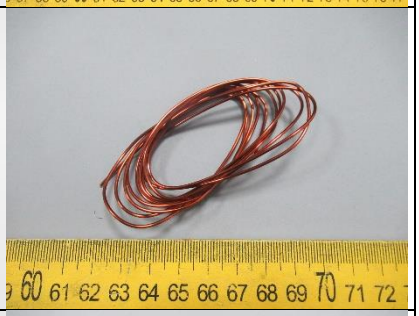
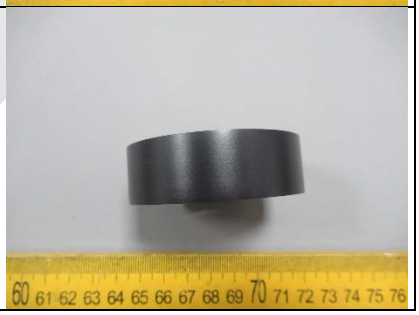
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Sample No.	Description (Material, colour)	Photograph/Location
16	Silvery metal screw	
17	Red soft plastic wire jacket	
18	Blue soft plastic wire jacket	
19	Golden metal wire	
20	Yellow soft plastic adhesive tape	

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Sample No.	Description (Material, colour)	Photograph/Location
21	Silver metal solder	
22	Black hard plastic shell	
23	Golden metal wire	
24	Black soft plastic adhesive tape (yongle)	

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2. TEST RESULT(S)

2.1 SCREENING TEST

Test method: With reference to EN 62321-1:2013, EN IEC 62321-2:2021, EN 62321-3-1:2014 and EN 62321-8:2017.
For Heavy Metals and Flame Retardants, analyzed by Energy Dispersive X-ray Fluorescence Spectrometer (XRF); for phthalates, analyzed by Gas Chromatography and Mass Spectrometer (GC-MS).

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
01	BL	BL	BL	BL	Inc.[(a)]	BL	BL	BL	BL
02	BL	BL	BL	BL	NA	NA	NA	NA	NA
03	BL	BL	BL	BL	NA	NA	NA	NA	NA
04	BL	BL	BL	Inc.[(a)]	NA	NA	NA	NA	NA
05	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
06	BL	BL	BL	BL	NA	NA	NA	NA	NA
07	BL	BL	BL	BL	NA	NA	NA	NA	NA
08	BL	BL	BL	BL	BL	BL	BL	BL	BL
09	BL	BL	BL	BL	BL	BL	BL	BL	BL
10	BL	BL	BL	Inc.[(a)]	NA	NA	NA	NA	NA
11	BL	BL	BL	BL	NA	NA	NA	NA	NA
12	BL	BL	BL	BL	BL	BL	BL	BL	BL
13	BL	BL	BL	BL	BL	BL	BL	BL	BL
14	BL	BL	BL	BL	BL	BL	BL	BL	BL
15	BL	BL	BL	BL	BL	BL	BL	BL	BL
16	BL	BL	BL	Inc.[(a)]	NA	NA	NA	NA	NA
17	BL	BL	BL	BL	BL	BL	BL	BL	BL
18	BL	BL	BL	BL	BL	BL	BL	BL	BL
19	BL	BL	BL	BL	NA	NA	NA	NA	NA
20	BL	BL	BL	BL	BL	BL	BL	BL	BL

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Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
21	BL	BL	BL	BL	NA	NA	NA	NA	NA
22	BL	BL	BL	BL	BL	BL	BL	BL	BL
23	BL	BL	BL	BL	NA	NA	NA	NA	NA
24	BL	BL	BL	BL	BL	BL	BL	BL	BL

Remark:

- "BL" denotes below limit
- "OL" denotes over limit
- "Inc." denotes inconclusive
- "NA" denotes not applicable
- "(a)" denotes further confirmation test was conducted, results are listed in 2.2 and 2.3.
- XRF screening limits in mg/kg for regulated elements in various matrices

ELEMENT	POLYMER		
	BL	INCONCLUSIVE	OL
Cd	X≤(70-3σ)	(70-3σ)<X<(130+3σ)	X≥(130+3σ)
Pb	X≤(700-3σ)	(700-3σ)<X<(1300+3σ)	X≥(1300+3σ)
Hg	X≤(700-3σ)	(700-3σ)<X<(1300+3σ)	X≥(1300+3σ)
Br	X≤(300-3σ)	X>(300-3σ)	NA
Cr	X≤(700-3σ)	X>(700-3σ)	NA

ELEMENT	METAL		
	BL	INCONCLUSIVE	OL
Cd	X≤(70-3σ)	(70-3σ)<X<(130+3σ)	X≥(130+3σ)
Pb	X≤(700-3σ)	(700-3σ)<X<(1300+3σ)	X≥(1300+3σ)
Hg	X≤(700-3σ)	(700-3σ)<X<(1300+3σ)	X≥(1300+3σ)
Cr	X≤(700-3σ)	X>(700-3σ)	NA

ELEMENT	COMPLEX MATERIAL		
	BL	INCONCLUSIVE	OL
Cd	X≤(50-3σ)	(50-3σ)<X<(150+3σ)	X≥(150+3σ)
Pb	X≤(500-3σ)	(500-3σ)<X<(1500+3σ)	X≥(1500+3σ)
Hg	X≤(500-3σ)	(500-3σ)<X<(1500+3σ)	X≥(1500+3σ)
Br	X≤(250-3σ)	X>(250-3σ)	NA
Cr	X≤(500-3σ)	X>(500-3σ)	NA

- Screening limits in mg/kg for regulated phthalates in various matrices

PHTHALATES	BL	INCONCLUSIVE
DEHP	X<600	X≥ 600
BBP	X<600	X≥ 600
DBP	X<600	X≥ 600
DIBP	X<600	X≥ 600

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2.2 HEAVY METAL CONTENT

Test method: With reference to EN 62321-4:2014 /A1:2017, EN 62321-5:2014, EN 62321-7-1:2015 and EN 62321-7-2:2017, analyzed by Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES) and Ultraviolet–visible spectrophotometer (UV-Vis).
[Reporting Limit: 2.0 mg/kg for Cadmium; 5.0 mg/kg or 0.10 μg/cm² for Hexavalent Chromium, 10.0 mg/kg for Lead and Mercury.]

Sample No.	Result(s)				
	Total Cadmium	Hexavalent Chromium	Hexavalent Chromium	Total Mercury	Total Lead
04	--	/	Negative	--	--
05	--	/	--	--	**23197.0[(c)]**
10	--	/	Negative	--	--
16	--	/	Negative	--	--
Unit	mg/kg	mg/kg	μg/cm²	mg/kg	mg/kg
RoHS Requirement	100	1000	Negative[#]	1000	1000

Remark:

- "mg/kg" denotes milligram per kilogram
- "μg/cm²" denotes micrograms per square centimeter
- "<" denotes less than
- "Positive" denotes the absorbance value of sample is > 0.13 μg/cm², the sample is considered to be positive for Hexavalent Chromium.
- "Inconclusive" denotes the absorbance value of sample is ≥ 0.10 μg/cm² and ≤ 0.13 μg/cm², the sample is considered to be Inconclusive for Hexavalent Chromium.
- "Negative" denotes the absorbance value of sample is < 0.10 μg/cm², the sample is considered to be negative for Hexavalent Chromium.
- "#" According to DIRECTIVE 2011/65/EU Article 4(1) and Annex II. While, positive means the presence of CrVI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1) and Annex II.
- "--" denotes tested by XRF, result is listed in 2.1
- "(c)" denotes the exempt item according to DIRECTIVE 2011/65/EU Annex III item 6(c) Copper alloy containing up to 4 % lead by weight".

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2.3 POLYBROMINATED BIPHENYLS (PBBs) AND POLYBROMINATED DIPHENYL ETHERS (PBDEs) CONTENT

Test Method: With reference to EN 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometer (GC-MS). [Reporting Limit : 5 mg/kg]

Test Item		Result(s) [mg/kg]	RoHS Requirement [mg/kg]
		01	
PBBs	Monobromobiphenyl	<5	-
	Dibromobiphenyl	<5	-
	Tribromobiphenyl	<5	-
	Tetrabromobiphenyl	<5	-
	Pentabromobiphenyl	<5	-
	Hexabromobiphenyl	<5	-
	Heptabromobiphenyl	<5	-
	Octabromobiphenyl	<5	-
	Nonabromobiphenyl	<5	-
	Decabromobiphenyl	<5	-
	Sum of detected PBBs	<50	1000
PBDEs	Monobromodiphenyl ether	<5	-
	Dibromodiphenyl ether	<5	-
	Tribromodiphenyl ether	<5	-
	Tetrabromodiphenyl ether	<5	-
	Pentabromodiphenyl ether	<5	-
	Hexabromodiphenyl ether	<5	-
	Heptabromodiphenyl ether	<5	-
	Octabromodiphenyl ether	<5	-
	Nonabromodiphenyl ether	<5	-
	Decabromodiphenyl ether	<5	-
	Sum of detected PBDEs	<50	1000

Remark:

- "mg/kg" denotes milligram per kilogram
- "<" denotes less than

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APPENDIX I: Product Model

Product: Current transformer	Test model: AKH-0.66 30I
	
Additional models: AKH-0.66 20I, AKH-0.66 40I, AKH-0.66 60I, AKH-0.66 80I, AKH-0.66 30II, AKH-0.66 40II, AKH-0.66 50II, AKH-0.66 60II, AKH-0.66 80II, AKH-0.66 100II, AKH-0.66 60*50II, AKH-0.66 80*50II, AKH-0.66 100*50II, AKH-0.66 100*50II, AKH-0.66 100*50II-H, AKH-0.66 100*50II-B, AKH-0.66 100*80II, AKH-0.66 100*80II-H, AKH-0.66 120*50II, AKH-0.66 120*80II, AKH-0.66 120*80II-H, AKH-0.66 130*50II, AKH-0.66 150*50II, AKH-0.66 170*100II, AKH-0.66 180*50II, AKH-0.66 200*50II, AKH-0.66 220*50II, AKH-0.66 260*50II/ AKH-0.66 260*100II, AKH-0.66 60III, AKH-0.66 80III, AKH-0.66 100III, AKH-0.66 130III, AKH-0.66 G-30I/45/65/85, AKH-0.66 G-30*30I, AKH-0.66 G-40I, AKH-0.66 G-60I, AKH-0.66 G-80I, AKH-0.66 G-40II/50II, AKH-0.66 G-60II, AKH-0.66 G-80II, AKH-0.66 G-100II, AKH-0.66 G-60*50II, AKH-0.66 G-80*50II, AKH-0.66G-100*50II, AKH-0.66 G-100*50II-H, AKH-0.66 G-100*80II, AKH-0.66 G-100*80II-H, AKH-0.66 G-120*50II, AKH-0.66 G-120*80II-H, AKH-0.66 G-130*50II, AKH-0.66 G-150*50II, AKH-0.66 G-170*100II, AKH-0.66 G-180*50II, AKH-0.66 G-200*50II, AKH-0.66 G-220*50II, AKH-0.66 G-260*50II, AKH-0.66 P-40II, AKH-0.66 P-60II, AKH-0.66 P-80II, AKH-0.66 P-60III, AKH-0.66 P-80III, AKH-0.66 P-100III, AKH-0.66 P-130III, AKH-0.66 P-60*50II, AKH-0.66 P-80*50II, AKH-0.66 P-100*50II, AKH-0.66 P-120*50II-H, AKH-0.66 P-130*50II, AKH-0.66 P-200*50II/P-220*50II, AKH-0.66 Z-60III, AKH-0.66 Z-3*Φ35, AKH-0.66 Z-3*Φ20, AKH-0.66 Z-2*Φ10, AKH-0.66 Z-2*Φ36, AKH-0.66 MP-60*50, AKH-0.66 MP-80*50, AKH-0.66 MP-100*50, AKH-0.66MP-130*50, AKH-0.66S-30I/S-40I/S-50II/S-60II/S-80II/S-100II/S-120II/S-200II, AKH-0.66 SM-50I, SM-60II/SM-80II/SM-100II/SM-120II/SM-200II/, AKH-0.66 100II-HT, AKH-0.66 P-100X50II-HT, AKH-0.66 P-130X50II-HT, AKH-0.66-50II-HT, AKH-0.66-120X50II-HT	

Remark:
1. The report covers material testing on specified samples.
2. The tested materials covered by the report were declared by the manufacturer to be used on the additional model.

--END OF REPORT--

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