



XRF Screening and Chemical Confirmation Test Report

Number: 150501784SHA-001(R1)

Applicant: Shanghai DADA Electric CO.,Ltd.
No 171,Yezhuang Road, Zhuanghang, Fengxian, Shanghai,
China

Date: Aug 10, 2015

Sample Description:

One (1) piece of submitted sample said to be
Item Name : **Moulded Case Circuit Breaker**
Testing Model : DAM1-250
Reference Model : DAM1-125, DAM1-160, DAM1-400, DAM1-630, DAM1-800,
DAM1-1600



Tests Conducted:

As Requested By the Applicant, For Details Refer To Attached Page(s)

Remark:

This is to supersede report No. 150501784SHA-001 dated in Jul 23, 2015

Conclusion:

<u>Tested sample</u>	<u>Standard</u>	<u>Result</u>
Tested component of Submitted sample	Screening by XRF spectroscopy and chemical confirmation test for RoHS Directive 2011/65/EU.	Pass

To be continued

Authorized By:
For Intertek Testing Services Ltd., Shanghai

Berlin Duan



Intertek Testing Services Ltd., Shanghai

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

上海天祥質量技術服務有限公司

上海市宜山路801號金陵商務廣場B座 200233

Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

www.intertek.com www.intertek.com.cn



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Manager

Intertek Testing Services Ltd., Shanghai
Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233
上海天祥質量技術服務有限公司
上海市宜山路801號金陵商務廣場B座 200233
Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740
www.intertek.com www.intertek.com.cn



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Tests Conducted

Determination of levels of regulated substances in electrotechnical products, elements of Cadmium (Cd), Lead (Pb), Mercury (Hg), Chromium (Cr) and Bromine (Br) contents were measured by XRF Spectroscopy and chemical confirmation test for RoHS restricted substances.

(A) Results:

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
1	COVER (WHITE PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
2	BASE (WHITE PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
3	PLATE (BLACK NONMETAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	X	PBBs=ND, PBDEs=ND	
4	STENT (WHITE PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
5	CAP (GREY PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
6	CAP (GREY PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
7	STUDE (GREY PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
8	STENT (GREY PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	X	PBBs=ND, PBDEs=ND	
9	ROD (BLACK PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
10	FOOT (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
11	GREY PLASTIC	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
12	BASE (GREY PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	X	PBBs=ND, PBDEs=ND	
13	FIXED PLATE (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
14	SCREW (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
15	BOLT (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
16	SCREW (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
17	WASHER (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
18	MAPLE LEAF (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
19	RING (GOLD METAL)	/	Cd	P	/	PASS
			Pb	X	Pb=18590ppm#1	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
20	PLATE (YELLOW PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	X	PBBs=ND, PBDEs=ND	
21	PLATE (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
22	SPRING (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
23	FIXED PLATE (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	X	Cr ⁶⁺ = Negative	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
24	STENT (GOLD METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
25	TAP (WHITE PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
26	GLUG ROD (BLACK PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	X	PBBs=ND, PBDEs=ND	
27	KNOB (WHITE PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
28	PLATE (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
29	PLATE (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
30	PLATE (WHITE PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	X	PBBs=ND, PBDEs=ND	
31	COVER (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
32	SCREW (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
33	SCREW (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
34	GREY PLASTIC	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
35	WIRING BOARD (GOLD METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
36	PLATE (BLACK PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
37	SPRING (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
38	WIRE (COPPER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
39	WIRING FIXED BOARD (GOLD METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
40	WHITE PLASTIC	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
41	PILLAR (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	Negative	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
42	PILLAR (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
43	STUDE (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
44	PIN (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	X	Cr ⁶⁺ = Negative	
			Br	NA	/	
45	SPRING (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
46	BIG SPRING (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
47	SPRING (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
48	FIXED PLATE (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
49	FIXED BOARD (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
50	FIXED BOARD (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
51	FIXED BOARD (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
52	FIXED BOARD (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
53	STUDE (COPPER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
54	PLATE (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
55	PILLAR (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
56	PLATE (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
57	STENT (BLACK PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
58	FRAME (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
59	PLATE (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
60	WASHER (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
61	PILLAR (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
62	SMALL PILLAR (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
63	NUT (GOLD METAL)	/	Cd	X	Cd=81ppm	PASS
			Pb	X	Pb=33260ppm#1	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
64	STOPPER METAL (GOLD METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
65	FIXED STENT (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

To be continued

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
66	PLATE (BLACK METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
67	FIXED FRAME (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
68	PUSH ROD (WHITE PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
69	PILLAR (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
70	LONG PILLAR (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
71	BROEN PLASTIC	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	

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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Chemical Confirmation Result	Conclusion on RoHs
72	SCREW (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
73	NUT (SILVER METAL)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	NA	/	
74	WHITE PLASTIC	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
75	COVER (GREY PLASTIC)	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	P	/	
D1	GREY PLASTIC	/	Cd	P	/	PASS
			Pb	P	/	
			Hg	P	/	
			Cr	P	/	
			Br	X	PBBs=ND, PBDEs=ND	

Remark: P = Pass (Below the lower screening limit of table (B))
 X = Inconclusive result (Further chemical test was suggested (see table (B).)
 NA = Not applicable
 ND = Not detected
 ppm = Parts per million = mg/kg
 Negative = A negative test result indicated above positive observation was not found at the time of testing.
 When the spot-test showed a negative result, the boiling-water-extraction procedure shall be used to verify the result.
 (#1) = As claimed by the declaration submitted by the client, the Lead content of the components is coming from the copper alloy, the limit for Lead is 40,000ppm.

To be continued



(B) XRF screening limits in mg/kg for regulated elements in various matrices.

Element	Polymer materials	Metallic materials	Composite materials
Cd	$P \leq 70 < X < 130 \leq F$	$P \leq 70 < X < 130 \leq F$	$P \leq 70 < X < 150 \leq F$
Pb	$P \leq 700 < X < 1300 \leq F$	$P \leq 700 < X < 1300 \leq F$	$P \leq 500 < X < 1500 \leq F$
Hg	$P \leq 700 < X < 1300 \leq F$	$P \leq 700 < X < 1300 \leq F$	$P \leq 500 < X < 1500 \leq F$
Cr	$P \leq 700 < X$	$P \leq 700 < F$	$P \leq 500 < X$
Br	$P \leq 300 < X$	Not applicable	$P \leq 250 < X$

(C) Estimated detection limits in mg/kg for regulated elements in various matrices.

Element	Polymer materials	Metallic materials	Composite materials
Cd	50	70	70
Pb	100	200	200
Hg	100	200	200
Cr	100	200	200
Br	200	Not applicable	200

Disclaimers:

This XRF screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes. The results shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis is required to obtain quantitative data.

(D) Chemical confirmation test methods:

Testing item	Testing method	Reporting limit
Cadmium (Cd) content	With reference to IEC 62321-5 edition 1.0: 2013, by acid digestion and determined by ICP - OES	2 ppm
Lead (Pb) content	With reference to IEC 62321-5 edition 1.0: 2013, by acid digestion and determined by ICP - OES	2 ppm
Mercury (Hg) content	With reference to IEC 62321-4 edition 1.0: 2013, by acid digestion and determined by ICP - OES	2 ppm
Chromium (VI) (Cr ⁶⁺) content (for non-metal)	With reference to IEC 62321 edition 1.0: 2008, by alkaline digestion and determined by UV-VIS spectrophotometer	1 ppm
Chromium (VI) (Cr ⁶⁺) content (for metal)	With reference to IEC 62321 edition 1.0: 2008, by boiling water extraction and determined by UV-VIS spectrophotometer	Positive/Negative (Threshold of 0.02mg/kg with 50cm ²)
Polybrominated biphenyls (PBBs)	With reference to IEC 62321 edition 1.0: 2008, by solvent extraction and determined by GC/MS and HPLC	5 ppm
Polybrominated diphenyl ethers (PBDEs)	With reference to IEC 62321 edition 1.0: 2008, by solvent extraction and determined by GC/MS and HPLC	5 ppm

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(E) RoHS requirement

Restricted substances	Limits
Cadmium (Cd)	0.01% (100 ppm)
Lead (Pb)	0.1% (1000 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 ppm)
Polybrominated biphenyls (PBBs)	0.1% (1000 ppm)
Polybrominated diphenyl ethers (PBDEs)	0.1% (1000 ppm)

The above limits were quoted from RoHS Directive 2011/65/EU.

Date sample received: May 25, 2015

Testing period: May 25, 2015 to Jun 10, 2015; Jun 18, 2015 to Jun 23, 2015; Jul 10, 2015 to Jul 16, 2015

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Intertek Testing Services Ltd., Shanghai

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

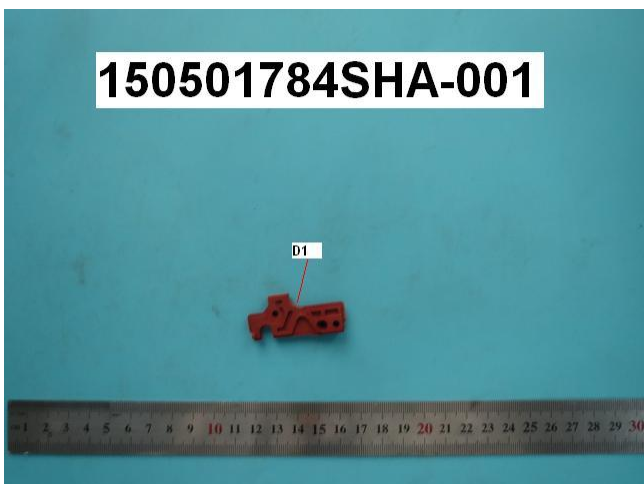
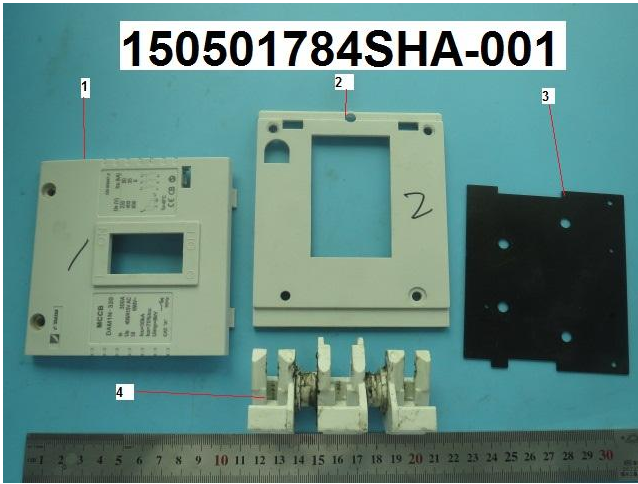
上海天祥質量技術服務有限公司

上海市宜山路801號金陵商務廣場B座 200233

Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

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Sample disassembling Photo(s)



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上海市宜山路801號金陵商務廣場B座 200233

Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

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