



XRF Screening and Chemical Confirmation Test Report

Number: GZHH00138558

Applicant:

Date: Oct 10, 2013

Attn: U QUAN

Sample Description:

Three (3) pieces of submitted sample said to be :

Item Name : **Hair Curler**
 Item No. : **SD-603-1, SD-607-2**
 Reference No. : SD-601,SD-602,SD-603-2,SD-603-3,SD-605-1,SD-605-2,SD-606-1,
 SD-606-2,SD-606-3,SD-607-1,SD-607-3,SD-609,SD-611-1,SD-611-2,
 SD-612-1,SD-612-2
 Country of Origin : China



Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

Conclusion:

<u>Tested Samples</u>	<u>Standard</u>	<u>Result</u>
Screened components of submitted samples	Screening by XRF spectroscopy and chemical confirmation test for RoHS Directive (2011/65/EU)	Pass

Remark : As requested by the applicant, only listed components were selected to conduct the test in this report. Other components were not tested.

Authorized by:
For Intertek Testing Services Shenzhen Ltd.
Guangzhou Branch, Toys & Hardlines Division

Ben N.L. Lin
General Manager





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Screening Test by XRF Spectroscopy

Cadmium (Cd), Lead (Pb), Mercury (Hg), Chromium (Cr) and Bromine (Br) content were measured by XRF spectroscopy and chemical confirmation test for RoHS restricted substances.

(A) Results:

Screened Components	XRF Results		Chemical Confirmation Result
(1)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Detected	
(2)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(3)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Detected	
(4)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Detected	
(5)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(6)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	





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Screened Components	XRF Results		Chemical Confirmation Result
(7)	Cd	ND	Cr ⁶⁺ : Negative (<0.02 mg/kg with 50 cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
(8)	Cd	ND	Cr ⁶⁺ : Negative (<0.02 mg/kg with 50 cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
(9)	Cd	ND	Cr ⁶⁺ : Negative (<0.02 mg/kg with 50 cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
(10)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(11)	Cd	ND	Cr ⁶⁺ : Negative (<0.02 mg/kg with 50 cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
(12)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(13)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	





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Screened Components	XRF Results		Chemical Confirmation Result
(14)	Cd	ND	Pb: 28500mg/kg ^{#1}
	Pb	>1300mg/kg	
	Hg	ND	
	Cr	ND	
	Br	NT	
(15)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : See Appendix
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(16)	Cd	ND	Cd: 89mg/kg Pb: 29000mg/kg ^{#1}
	Pb	>1300mg/kg	
	Hg	ND	
	Cr	ND	
	Br	NT	
(17)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(18)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Detected	
(19)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(20)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	





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Screened Components	XRF Results		Chemical Confirmation Result
(21)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(22)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(23)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(24)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(25)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(26)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(27)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	





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Screened Components	XRF Results		Chemical Confirmation Result
(28)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(29)	Cd	ND	NT
	Pb	>1500mg/kg ^{#2}	
	Hg	ND	
	Cr	ND	
	Br	ND	
(30)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(31)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(32)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(33)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(34)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	





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Screened Components	XRF Results		Chemical Confirmation Result
(35)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(36)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(37)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(38a)	Cd	ND	NT
	Pb	>1500mg/kg ^{#3}	
	Hg	ND	
	Cr	ND	
	Br	ND	
(38b)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(39)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(40)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	





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Screened Components	XRF Results		Chemical Confirmation Result
(41a)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	>1500mg/kg ^{#4}	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(41b)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(42)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(43a)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(43b)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(44a)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(44b)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	



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Screened Components	XRF Results		Chemical Confirmation Result
(44c)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(44d)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(44e)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(44f)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(44g)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(45a)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(45b)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	



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Screened Components	XRF Results		Chemical Confirmation Result
(45c)	Cd	ND	NT
	Pb	Detected	
	Hg	ND	
	Cr	ND	
	Br	ND	
(45d)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(46)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(47)	Cd	ND	Cr ⁶⁺ : Negative (<0.02 mg/kg with 50 cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	ND	
(48)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(49)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(50)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	



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Screened Components	XRF Results		Chemical Confirmation Result
(51)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(52)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
(53)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(54)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
(55)	Cd	ND	PBBs : ND(<5mg/kg) PBDEs : ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
(56)	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	

Detected = Below the lower screening limit of table (B) and pass

ND = Not detected

NT = Not tested

mg/kg with 50cm² = milligram per kilogram with 50 square centimetre



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Positive = A positive test result indicated the presence of Cr(VI) at the time of testing, equal to or greater than threshold of 1 mg/kg for spot test procedure or 0.02 mg/kg for boiling-water-extraction procedures with a sample surface area of 50cm² used. However, it shall not be interpreted as the Cr(VI) concentration in the coating layer of the sample and should not be used as a method detection limit for this qualitative test.

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.

Remark:

(#1) = As claimed by the declaration submitted from the applicant, the Lead content of the component comes from Copper alloy only. According to EU RoHS Directive (2011/65/EU), Lead in Copper alloy containing up to 4% (40,000 mg/kg) Lead by weight can be exempted.

(#2) = As claimed by the declaration submitted from the applicant, the Lead content of the component comes from the constituent of ceramic of the electrical and electronic component (other than dielectric ceramic in capacitors) only. According to EU RoHS Directive (2011/65/EU), Lead in ceramic of the component can be exempted.

(#3) = As claimed by the declaration submitted from the applicant, the Lead content of the component comes from the constituent of glass used in electrical and electronic component only. According to EU RoHS Directive (2011/65/EU), Lead in glass of the component can be exempted.

(#4) = As claimed by the declaration submitted from the applicant, the Lead content of the component comes from the constituent of high melting temperature type solders (i.e. Lead-based alloys containing 85% by weight or more Lead) only. According to EU RoHS Directive (2011/65/EU), Lead in high melting temperature type solders of the component can be exempted.



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Appendix

Testing Item	Result
	(15)
Polybrominated Biphenyls (PBBs)(mg/kg)	
Monobromobiphenyl (MonoBB)	ND
Dibromobiphenyl (DiBB)	ND
Tribromobiphenyl (TriBB)	ND
Tetrabromobiphenyl (TetraBB)	ND
Pentabromobiphenyl (PentaBB)	ND
Hexabromobiphenyl (HexaBB)	ND
Heptabromobiphenyl (HeptaBB)	ND
Octabromobiphenyl (OctaBB)	ND
Nonabromobiphenyl (NonaBB)	ND
Decabromobiphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND
Dibromodiphenyl Ether (DiBDE)	ND
Tribromodiphenyl Ether (TriBDE)	ND
Tetrabromodiphenyl Ether (TetraBDE)	ND
Pentabromodiphenyl Ether (PentaBDE)	ND
Hexabromodiphenyl Ether (HexaBDE)	ND
Heptabromodiphenyl Ether (HeptaBDE)	ND
Octabromodiphenyl Ether (OctaBDE)	ND
Nonabromodiphenyl Ether (NonaBDE)	ND
Decabromodiphenyl Ether (DecaBDE)	127



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(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	$P \leq 700 < X$	$P \leq 700 < X$	$P \leq 500 < X$
Br	$P \leq 300 < X$	Not applicable	$P \leq 250 < X$

P = Pass

X = Inconclusive result

F = Fail

mg/kg = milligram per kilogram = ppm

(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 and Chemical Confirmation Test 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 and Chemical Confirmation Test Report is sufficient for its/his/her purposes.

The results shown in this XRF Screening and Chemical Confirmation Test 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.





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(D) Chemical Confirmation Test Methods:

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0:2008, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI) (Cr ⁶⁺) Content	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) & Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 Edition 1.0:2008, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg

(E) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)

The above limits were quoted from 2011/65/EU for homogeneous material.

Screened Components:

- (1) Bright black plastic (up,down handle&panel of handle&holder&clamp button).
- (2) Transparent plastic (indicator cover).
- (3) Black plastic with silver color coating (decorations).
- (4) Black plastic (end caps& swich).
- (5) Black plastic (connection head).
- (6) Black plastic (swich).
- (7) Silver color metal (iron tube&curling iron clamp).
- (8) Silver color metal (spring holder).
- (9) Silver color metal (clamp spring).
- (10) Silver color metal (spring holder screw).
- (11) Silver color metal (clamp).
- (12) Black plastic (external wire covering of power cord).
- (13) Black soft plastic (plug of power wiring connection).
- (14) Silver color metal pin (plug of power wiring connection).
- (15) White plastic (plug of power wiring connection).



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Screened Components:

- (16) Silver color metal pin (power cord).
- (17) Silver color metal sheet (power cord).
- (18) Black plastic (power cord).
- (19) Black soft plastic (power cord).
- (20) Copper color metal wire (internal wiring).
- (21) Sky blue plastic (wire covering of internal wiring).
- (22) Pale brown plastic (wire covering of internal wiring).
- (23) Silver color metal (PTC heating element).
- (24) Gold color metal (PTC heating element).
- (25) Transparent brown plastic sheet (PTC Set).
- (26) Silver color metal sheet (PTC Set).
- (27) Transparent soft plastic (internal wiring).
- (28) Black plastic (wire covering of internal wiring).
- (29) Ceramic with silver color material (PTC Set).
- (30) Red plastic (wire covering of internal wiring).
- (31) Silver color metal wire (internal wiring).
- (32) Blue plastic (wire covering of internal wiring).
- (33) Gold color metal (connector of internal wiring).
- (34) Transparent white plastic(internal wiring).
- (35) Transparent brown adhesive plastic sheet (NTC Set).
- (36) White woven (fiber tube).
- (37) White plastic (fiber tube).
- (38) Diode (NTC Set).
 - a) Transparent glass body.
 - b) Silver color metal (lead).
- (39) Conformal coating with green solder mask & copper color metal pad & fiberboard (PCB).
- (40) Solder (PCB).
- (41) Triode (PCB).
 - a) Black plastic.
 - b) Silver color metal.
- (42) Black plastic with silver color metal (IC of PCB Set).
- (43) LED (PCB Set).
 - a) Transparent red plastic body.
 - b) Silver color metal (Led).
- (44) Capacitor.
 - a) Black plastic with white printing.
 - b) Silver color metal (case).
 - c) Beige paper (electrolytic paper).
 - d) Dull silver-grey metal sheet (electrolytic paper).
 - e) Bright silver-grey metal sheet (electrolytic paper).
 - f) Black soft plastic.
 - g) Silver color metal (lead).



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Screened Components:

- (45) Capacitor.
 - a) Yellow plastic with black printing.
 - b) Transparent/silver color electrolytic paper.
 - c) Bright yellow plastic.
 - d) Silver color metal (lead).
- (46) Beige plastic (power wiring connection).
- (47) Silver color metal (clamp spring screw).
- (48) Silver color metal (end caps screw).
- (49) Black metal (screw of handle).
- (50) Black plastic (brush).
- (51) Dull sky blue plastic(wire covering of internal wiring).
- (52) Copper color metal wire (internal wiring).
- (53) Light brown plastic (wire covering of internal wiring).
- (54) Black plasit with white printing (power cord).
- (55) Dark beige plastic (power wiring connection seat).
- (56) Silver color metal (clamp spring screw).

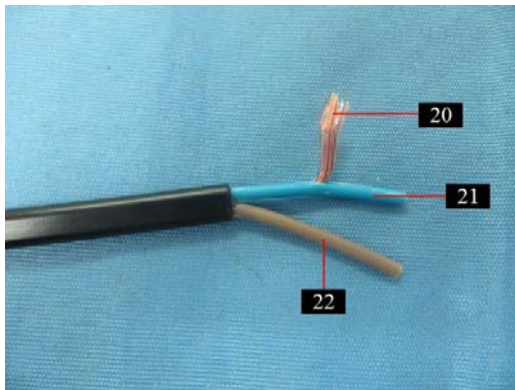
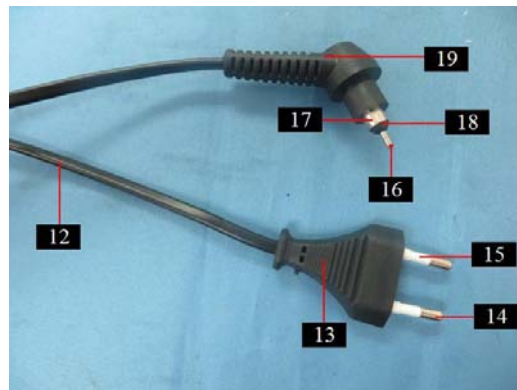
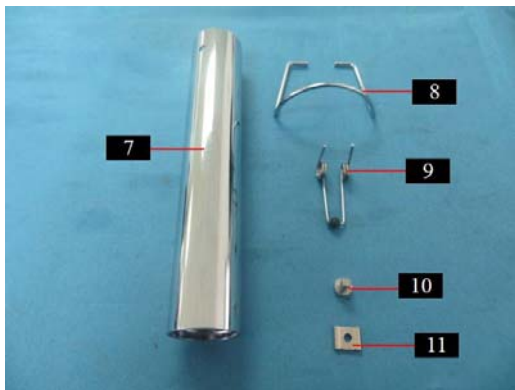
Date sample received: Sep 17, 2013, Sep 29, 2013 & Oct 09, 2013

Testing period: Sep 17, 2013 to Oct 09, 2013



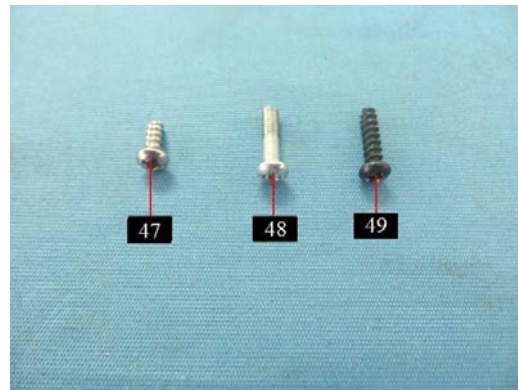
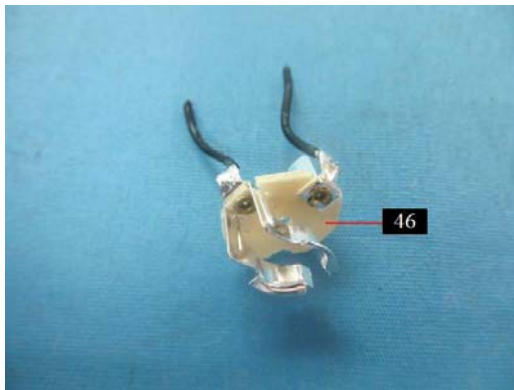
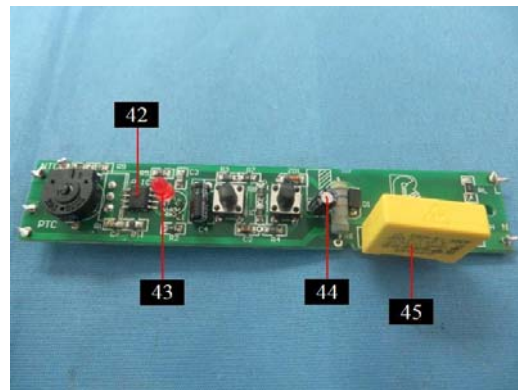
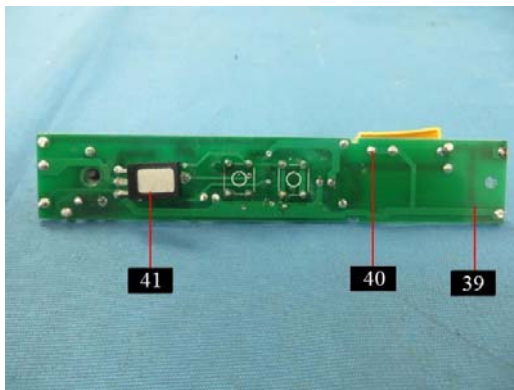
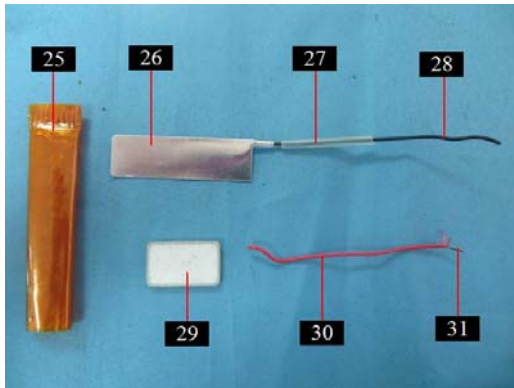
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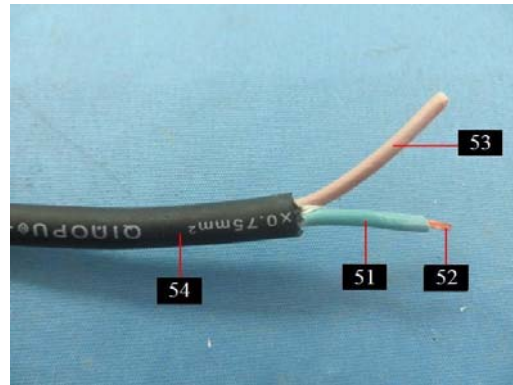
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End of report

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