Test Report Report No.: 201106009SZN-001 Issue date: Dec. 14, 2020

Applicant:

Sample Description:

Test item description……..…: Fast Charger

Date of Sample Received..……..…..: Nov. 06, 2020 & Dec. 09, 2020

Testing Period ……..……..…..…..: Nov. 06, 2020 to Dec. 11, 2020

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Tests conducted:

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

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Conclusion:

Tested samples	Standard	Result
Screened components of submitted sample	Screening by XRF spectroscopy and chemical confirmation test for RoHS Directive (2011/65/EU) and amendment Commission Delegated Directive (EU) 2015/863	Pass

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Authorized by:
For Intertek Testing Services
Shenzhen Ltd.

Navy Wang
Engineer

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◆ RoHS Test

(A) Screening Test by XRF Spectroscopy

Cadmium (Cd), Lead (Pb), Mercury (Hg), Chromium (Cr) and Bromine (Br) content were measured with reference to IEC 62321-3-1 Edition 1.0：2013 by XRF spectroscopy and chemical confirmation test for RoHS restricted substances.

Screened Components	XRF Results		Chemical Confirmation Result
1	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
2	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
3	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
4a	Cd	ND	Cr^{6+}: Negative(<0.10μg/cm^2)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
4b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
4c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	

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Screened Components	XRF Results		Chemical Confirmation Result
5a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
5b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
5c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
6	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
7a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
7b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
7c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	

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Screened Components	XRF Results		Chemical Confirmation Result
7d	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
7e	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
7f	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
7g	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
8a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
8b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
8c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	

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Screened Components	XRF Results		Chemical Confirmation Result
8d	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
8e	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
8f	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
8g	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
8h	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
8i	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
9a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	

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Screened Components	XRF Results		Chemical Confirmation Result
9b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
9c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
9d	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
9e	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
9f	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
9g	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
10	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	

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Screened Components	XRF Results		Chemical Confirmation Result
11a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
11b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
11c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
11d	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
11e	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
12	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
13	Cd	ND	Cr^{6+}: ND(<10mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	ND	

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Screened Components	XRF Results		Chemical Confirmation Result
14a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
14b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
14c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
14d	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
14e	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
14f	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
14g	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	

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Screened Components	XRF Results		Chemical Confirmation Result
15a	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
15b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
15c	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
16	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
17	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
18	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
19	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	

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Screened Components	XRF Results		Chemical Confirmation Result
20	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
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	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
24	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
25	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
26	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	>1500mg/kg #2	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	

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Screened Components	XRF Results		Chemical Confirmation Result
27	Cd	ND	Cr^{6+}: ND(<10mg/kg)
	Pb	Inconclusive #1	
	Hg	ND	
	Cr	Inconclusive	
	Br	ND	
28	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
29	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
30	Cd	ND	NT
	Pb	Inconclusive #1	
	Hg	ND	
	Cr	Detected	
	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	ND	

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- Detected = Below the lower screening limit of table (C) and pass
- ND = Not detected
- NT = Not tested

- Positive = A positive test result indicated the concentration of Cr(VI) is greater than threshold of 0.13µg/cm^2 for boiling-water-extraction procedures by visual comparison / by UV-VIS Spectrophotometer analysis. The sample coating is considered to contain Cr(VI).

- Negative = A negative test result indicated the concentration of Cr(VI) is less than threshold of 0.10µg/cm^2 for boiling-water-extraction procedures by UV-VIS Spectrophotometer analysis. The coating is considered a non-Cr(VI) based coating.

- #1 = As claimed by the declaration submitted from the applicant, the Lead content of the component comes from the constituent of glass or ceramic (other than dielectric ceramic in capacitors) in electrical and electronic component only, e.g. piezoelectronic devices, or in a glass or ceramic compound. According to EU RoHS Directive (2011/65/EU), Lead in ceramic or glass of the component can be exempted.

- #2 = 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.

(B) Phthalate Content Test:

Test item	Result (mg/kg)θ
	(2+7c+9c+14c), (3+4c+5c), (6+7b+7g+8a+8b+8e+8f+8h+8i), (9a+9f+10+11a+11b+11c+14a+15a+16), (14f+17+18), (19+20+21+22+23+24), (25+26+28+29+32+33)
Dibutyl phthalate (DBP)	ND
Di-(2-ethyl hexyl) phthalate (DEHP)	ND
Benzyl butyl phthalate (BBP)	ND
Di-(iso-butyl) phthalate (DIBP)	ND

- ND = Not detected
- θ = Single result for each test component/group

(C) XRF Screening Limits in mg/kg for Regulated Elements in Various Matrices:

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

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Remark:
- P = Pass.
- X = Inconclusive result.
- **F = Fail**
- mg/kg = milligram per kilogram = ppm

(D) 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

(E) Chemical Confirmation Test Methods:

Testing Item	Testing Method	Reporting Limit
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321-6Edition 1.0:2015, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg
Chromium (VI) (Cr^{6+}) Content	With reference to IEC 62321-7-1Edition 1.0:2015, by boiling water extraction and determined by UV-VIS Spectrophotometer	0.10μg/cm^2
Chromium (VI)(Cr^{6+}) Content	With reference to IEC 62321-7-2 Edition 1.0:2017, Hexavalent chromium – Determination of hexavalent chromium (Cr(VI) in polymers and electronics by the colorimetric method	10 mg/kg
Dibutyl phthalate (DBP) & Di-(2-ethyl hexyl) phthalate (DEHP) & Benzyl butyl phthalate (BBP) & Di-(iso-butyl) phthalate (DIBP)	With reference to IEC 62321-8 Edition 1.0:2017, by Gas Chromatographic-Mass Spectrometric (GC-MS) analysis	50mg/kg

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(F) 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)
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Di-(2-ethyl hexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di-(iso-butyl) phthalate (DIBP)	0.1% (1000 mg/kg)
The above limits were quoted from 2011/65/EU and amendment Commission Delegated Directive (EU) 2015/863 for homogeneous material.	

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.

Screened Components:

(1) Silver color metal pin.
(2) White plastic.
(3) White paper with black printing and adhesive.
(4) a. Silver color metal plate.
b. Silver color metal pin.
c. Black plastic.
(5) a. Silver color metal plate.
b. Silver color metal pin.
c. Green plastic.
(6) Blue plastic.
(7) (a) Silver color metal with red printing.
(b) Transparent adhesive plastic tape.
(c) Grey-white paper.
(d) Silver-grey metal sheet.
(e) Dull silver-grey metal sheet.
(f) Silver color metal.

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Screened Components(Cont'):

(g) Black soft plastic.

(8) (a) Transparent plastic with black printing and adhesive.
(b) Yellow plastic tape with adhesive.
(c) Copper color enamelled wire.
(d) Grey-black magnet.
(e) Black plastic with terebinth.
(f) Semi-transparent yellow adhesive plastic tape.
(g) Silver color metal lead with solder.
(h) Transparent soft plastic tube.
(i) Black soft plastic tube.

(9) (a) Black plastic with grey printing.
(b) Silver color metal.
(c) Beige paper.
(d) Dull silver-grey metal sheet.
(e) Bright silver-grey metal sheet.
(f) Black soft plastic.
(g) Silver color metal.

(10) Black plastic.

(11) (a) coffee color plastic with beige printing.
(b) Black color plastic.
(c) White fiber.
(d) Silver color metal.
(e) Silver color metal (spring)

(12) Silver color metal.

(13) Green ceramic with silver color metal.

(14) (a) Black plastic with grey printing.
(b) Silver color metal.
(c) Beige paper.
(d) Dull silver-grey metal sheet.
(e) Bright silver-grey metal sheet.
(f) Black soft plastic.
(g) Silver color metal.

(15) a. Black soft plastic with grey printing.
b. Black magnet.
c. Copper color metal wire.

(16) White glue.

(17) Conformal coating with green solder mask & copper color metal pad & fibreboard & solder.

(18) Conformal coating with green solder mask & copper color metal pad & fibreboard & solder.

(19) Black plastic with silver color metal.

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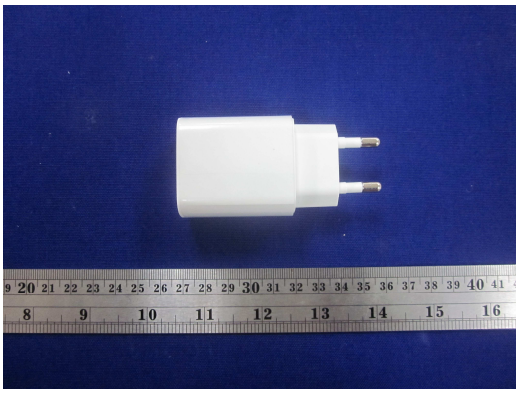
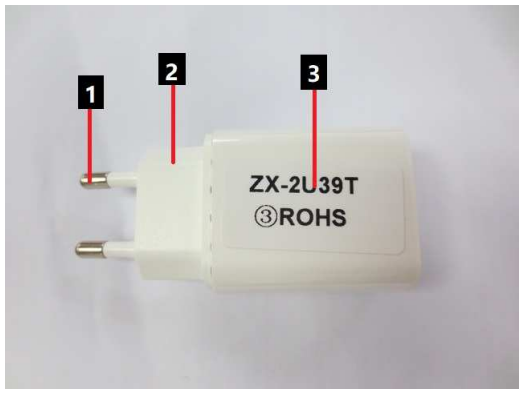
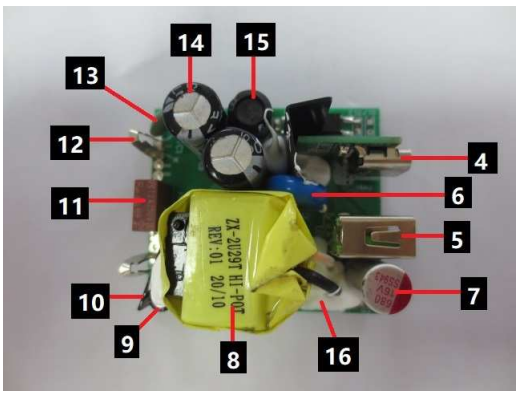
Screened Components(Cont'):

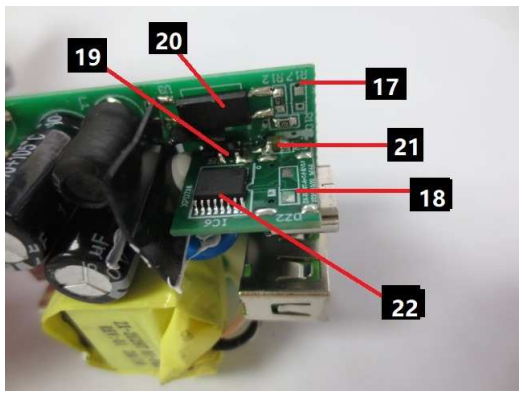
(20) Black plastic with silver color metal.
(21) Dull brown plastic with silver color metal.
(22) Black plastic with silver color metal.
(23) Black plastic with silver color metal.
(24) Brown plastic with silver color metal.
(25) Black plastic with silver color metal.
(26) Black plastic with silver color metal.
(27) White ceramic with black material and silver color metal.
(28) Brown plastic with silver color metal.
(29) Black plastic with silver color metal.
(30) White ceramic with black material and silver color metal.
(31) Silver color solder.
(32) Black plastic with silver color metal.
(33) Black plastic with silver color metal.

Photos for Test Sample:









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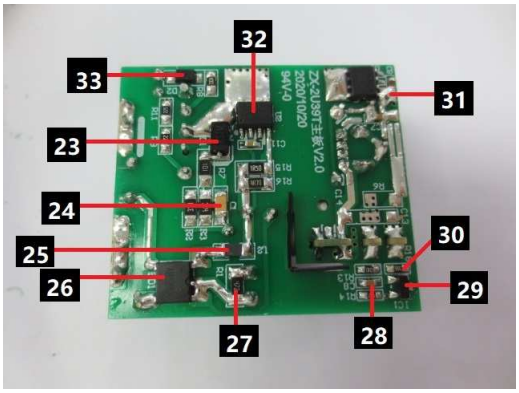
Photos for Test Sample(Cont'):



********** End of Report **********

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