Test Report Number: SZHH01587810

Applicant: SHENZHEN LIOWN ELECTRONICS CO., LTD
13F, FINANCE CENTRE BUILDING, NO. 22,
TAIZI ROAD, SHEKOU, NANSHAN DISTRICT,
SHENZHEN, GUANGDONG, CHINA 518067

Date: Jul 15, 2021

Attn: JESSICA/KIKI

Sample Description:

One (1) piece of submitted sample said to be:

Item Name	:	**2AA Battery Operated Moving Flame Candle**
Item No.	:	**LU5076, 994442, LU5074, LU5075, LU5674T-L, LU5675T-L, LU5676T-L, 994440/994441/994448/994449/994450/1600-115/1601-115/1602-115**
Manufacturer	:	Shenzhen Liown Electronics Co., Ltd
Country of Origin	:	China
Date Sample Received	:	Jun 24, 2021
Testing Period	:	Jun 24, 2021~ Jul 09, 2021

Tests conducted:

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

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司

West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层

Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Conclusion:

Tested Sample	Standard/Testing Item	Result
Tested components of submitted sample	Restriction of the use of certain hazardous substance in electrical and electronic equipment (RoHS Directive 2011/65/EU and amendment Commission Delegated Directive (EU) 2015/863)	Pass

Authorized by:
For Intertek Testing Services Shenzhen Ltd.

Rachel L. Guo
General Manager

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司

West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层

Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted

1 RoHS Chemical 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.

Components	Screening (mg/kg)					Confirmation
	Cd	Pb	Hg	Cr	Br	
1	ND	ND	ND	ND	ND	NT
2	ND	ND	ND	ND	ND	NT
3	ND	ND	ND	ND	ND	NT
4	ND	ND	ND	ND	ND	NT
5	ND	ND	ND	ND	ND	NT
6	ND	ND	ND	ND	ND	NT
7	ND	ND	ND	ND	ND	NT
8	ND	ND	ND	Inconclusive	NT	Cr(VI): Negative
9	ND	ND	ND	ND	Inconclusive	PBDEs: ND PBBs: ND
10	ND	ND	ND	ND	ND	NT
11	ND	ND	ND	ND	NT	NT
12	ND	ND	ND	ND	ND	NT
13	ND	ND	ND	ND	ND	NT
14	ND	ND	ND	ND	NT	NT
15	ND	ND	ND	Inconclusive	NT	Cr(VI): Negative
16	ND	ND	ND	ND	NT	NT
17	ND	ND	ND	ND	NT	NT
18	ND	ND	ND	ND	NT	NT
19	ND	ND	ND	ND	NT	NT
20	ND	ND	ND	ND	ND	NT
21	ND	ND	ND	ND	ND	NT
22	ND	ND	ND	ND	ND	NT
23	ND	ND	ND	ND	ND	NT
24	ND	ND	ND	ND	ND	NT
25	ND	ND	ND	ND	ND	NT
26	ND	ND	ND	ND	NT	NT
27	ND	ND	ND	ND	ND	NT
28	ND	ND	ND	ND	NT	NT
29	ND	ND	ND	ND	ND	NT
30	ND	ND	ND	ND	NT	NT
31	ND	ND	ND	ND	ND	NT
32	ND	ND	ND	ND	NT	NT
33	ND	ND	ND	ND	ND	NT
34	ND	ND	ND	ND	NT	NT
35	ND	ND	ND	ND	NT	NT
36	ND	ND	ND	ND	ND	NT
37	ND	ND	ND	ND	NT	NT

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司

West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层

Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted

38	ND	ND	ND	ND	Inconclusive	PBDEs: ND PBBs: ND
39	ND	ND	ND	ND	NT	NT
40	ND	ND	ND	ND	Inconclusive	PBDEs: ND PBBs: ND
41	ND	ND	ND	ND	NT	NT
42	ND	ND	ND	ND	ND	NT
43	ND	ND	ND	ND	NT	NT
44	ND	ND	ND	ND	NT	NT
45	ND	ND	ND	ND	ND	NT
46	ND	ND	ND	ND	NT	NT
47	ND	ND	ND	ND	ND	NT
48	ND	ND	ND	ND	ND	NT
49	ND	Inconclusive#	ND	Inconclusive	ND	Cr(VI): ND
50	ND	Detected	ND	Inconclusive	ND	Cr(VI): ND
51	ND	ND	ND	ND	ND	NT
52	ND	ND	ND	ND	ND	NT
53	ND	ND	ND	ND	ND	NT
54	ND	ND	ND	ND	ND	NT
55	ND	ND	ND	ND	ND	NT
56	ND	ND	ND	ND	ND	NT
57	ND	ND	ND	ND	NT	NT
58	ND	ND	ND	ND	NT	NT
59	ND	ND	ND	ND	NT	NT

(B) Phthalate Content Test

Non-Toys

Components	Screening				Confirmation (mg/kg)			
	DBP	DEHP	BBP	DIBP	DBP	DEHP	BBP	DIBP
2+4+61	P	P	P	P	-	-	-	-
3+20+21	P	P	P	P	-	-	-	-
5+6+7	P	P	P	P	-	-	-	-
9+10+12	P	P	P	P	-	-	-	-
13+27+31	P	P	P	P	-	-	-	-
22+23+24	P	P	P	P	-	-	-	-
25+36	P	P	P	P	-	-	-	-
38+42+48	P	P	P	P	-	-	-	-
55+56	P	P	P	P	-	-	-	-
60	P	P	P	P	-	-	-	-
62	P	P	P	P	-	-	-	-

The result(s) of tested component (62) was based on dry weight of testing sample
Detected = Below the lower screening limit of table (C) and pass
ND = Not detected
NT = Not tested
P = Pass

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司
West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层
Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted

Positive = A positive test result indicated the concentration of Cr(VI) is greater than threshold of 0.13 µg/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 0.10 µg/cm^2 for boiling-water-extraction procedures by UV-VIS Spectrophotometer analysis. The coating is considered a non-Cr(VI) based coating.

= 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 elec~~tronic 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.

(C) Screening Limits

(C1) 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

~~P = Pass~~
X = Inconclusive result
~~**F = Fail**~~
~~mg/kg = milligram per kilogram = ppm~~

~~(C2) Preliminary Screening limits in mg/kg for phthalates test~~

~~(D) Estimated Detection Limits in mg/kg for Regulated Elements in Various Matrices~~

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司
West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层
Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted

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 and Chemical Confirmation Test 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.

(E) Chemical Test Methods:

Testing Item	Testing Method	Reporting Limit
Chromium (VI) (Cr(VI)) 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
Chromium (VI) (Cr(VI)) Content	With reference to IEC 62321-7-1 Edition 1.0:2015 by boiling water extraction and determined by UV-VIS Spectrophotometer	0.10 μg/cm^2
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321-6 Edition 1.0:2015 by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 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	50 mg/kg

(F) 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(VI))	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)

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司
West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层
Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted

Di-(iso-butyl) phthalate (DIBP)	0.1% (1000 mg/kg)

The above limits were quoted from Directive 2011/65/EU and amendment Commission Delegated Directive (EU) 2015/863 for homogeneous material.

Tested components: See component list in the last section of this report

Component List

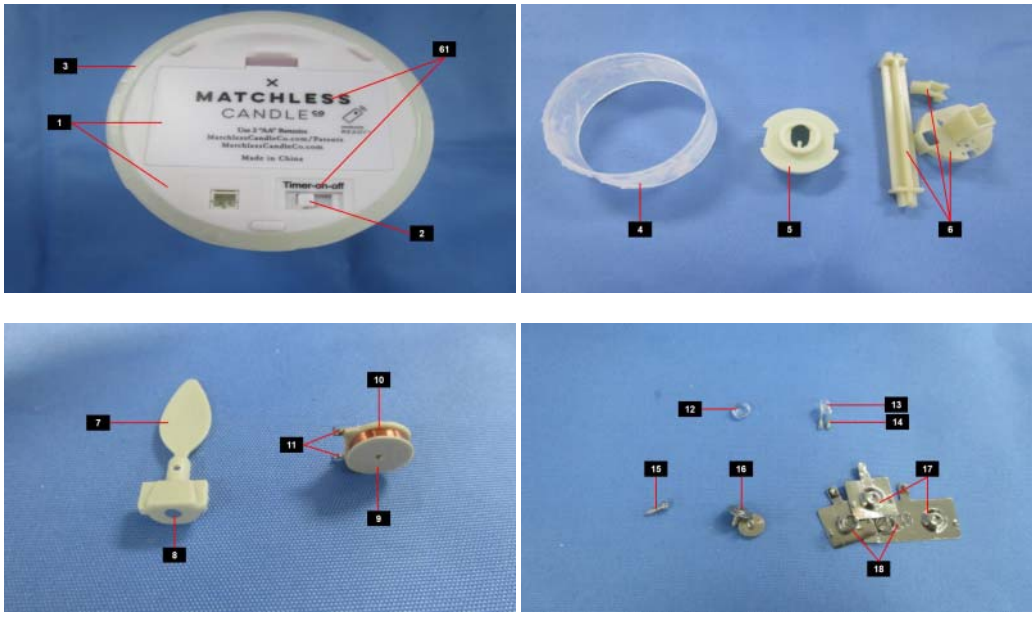
No.	Test Component Description(s)
(1)	White plastic with black coating (bottom battery case).
(2)	White plastic (switch).
(3)	White wax (body).
(4)	Transparent plastic (inner body).
(5)	Beige plastic (holer wick).
(6)	Dull beige plastic (support fastener holder of lens).
(7)	Bright beige plastic (wick).
(8)	Silver color magnet (inner wick).
(9)	Beige plastic.
(10)	Copper color enamelled wire.
(11)	Silver color metal (lead).
(12)	Transparent plastic (lens).
(13)	Transparent plastic (LED).
(14)	Silver color metal (lead of LED).
(15)	Silver color metal (screw).
(16)	Silver color metal (cap screw).
(17)	Silver color metal (battery lead plate).
(18)	Silver color metal (spring of battery lead plate).
(19)	Silver color metal (core wire).
(20)	Black plastic with grey printing (wire covering).
(21)	Red plastic with black printing (wire covering).
(22)	White plastic with black printing (wire covering).
(23)	Black/white plastic (wire covering).
(24)	Black plastic (wire covering).
(25)	Green plastic with black printing (wire covering).
(26)	Silver color metal (connector of wire).
(27)	White plastic (case plug of wire).
(28)	Silver color metal (lead).
(29)	Silver color metal & quartz & green material (body of Crystal).
(30)	Silver color metal (lead of Crystal).
(31)	Black plastic with white printing (Capacitor).
(32)	Silver color metal (case of Capacitor).
(33)	Beige paper (electrolytic paper of Capacitor).
(34)	Dull silver-grey metal sheet (electrolytic paper of Capacitor).
(35)	Bright silver-grey metal sheet (electrolytic paper of Capacitor).
(36)	Black soft plastic (Capacitor).
(37)	Silver color metal (lead of Capacitor).

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司
West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层
Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted

(38)	Black plastic (Triode).
(39)	Silver color metal (lead of Triode).
(40)	Conformal coating with green solder mask & copper color metal pad & fibreboard (PCB).
(41)	Silver color solder.
(42)	Black plastic (IC).
(43)	Silver color metal (lead of IC).
(44)	Silver color solder.
(45)	Black plastic (small IC).
(46)	Silver color metal (lead of small IC).
(47)	Black magnet with black printing.
(48)	Copper color enamelled wire.
(49)	White ceramic with black material & white printing & silver color metal (SMD resistor).
(50)	White ceramic with white material & silver color metal (SMD resistor).
(51)	Brown ceramic with silver color metal (SMD capacitor).
(52)	Grey-brown ceramic with silver color metal (SMD capacitor).
(53)	White ceramic with silver color metal (SMD capacitor).
(54)	Dull brown ceramic with silver color metal (SMD capacitor).
(55)	Black plastic (Switch).
(56)	Light brown plastic with red glue (Switch).
(57)	Silver color metal (case of Switch).
(58)	Silver color metal.
(59)	Light silver color metal (lead of Switch).
(60)	Conformal coating with green solder mask & copper color metal pad & fibreboard with & small plastic part on PCB board (PCB & small IC & SMD capacitor).
(61)	White plastic (bottom battery case).
(62)	Black wet paint (lettering on battery case switch).



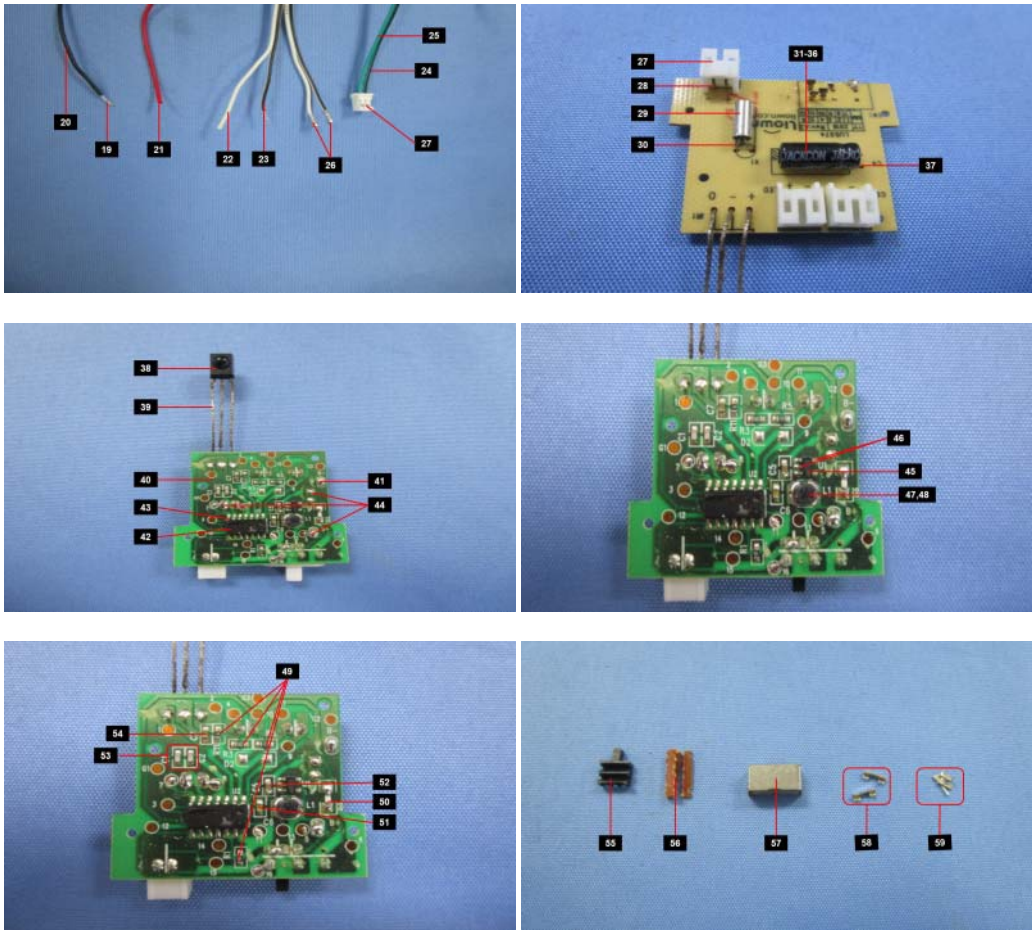
Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司

West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层

Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted



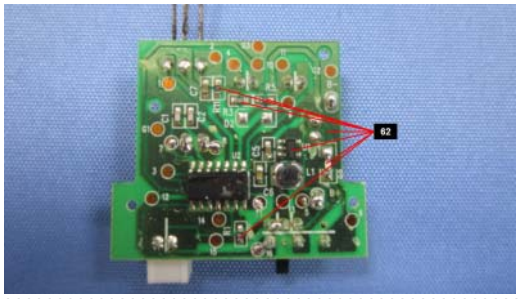
Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司

West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层

Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com

Test Report Number: SZHH01587810

Tests Conducted



****

End of report

*The statements of conformity reported have considered the decision rule agreed, namely that Intertek have taken account of measurement uncertainty as calculated by Intertek, and applied according to ILAC-G8/09:2019 (Non-binary acceptance based on guard band **w** = **U**) except designation from the customer, regulation or test specification.This decision rule only applies to the numeric test results.*

The sample(s) and sample information hereto are provided by the client who shall be solely responsible for the authenticity and integrity thereof. The results shown in this report relate only to the sample(s) tested.It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct. This report shall not be reproduced unless with prior written approval from Intertek Testing Services Shenzhen Ltd.

Intertek Testing Services Shenzhen Ltd.
深圳天祥质量技术服务有限公司

West Side of 1/F and 3,4,5/F of Bldg. 1, 1-5/F of Bldg. 3, Yuanzheng Science and Technology Industrial Park, No.4012, Wuhe Ave. North, Bantian Street, Longgang District, Shenzhen
深圳市龙岗区坂田街道五和大道北 4012 号元征科技工业园 1 号楼 3、4、5 层及 1 楼西侧半层和 3 号楼整栋 1-5 层

Tel:+86755 26020111
Fax:+86755 35377118\9
www.intertek.com.cn
www.intertek.com