

TEST REPORT

REPORT No.: R2DG19103118268E

Date: December 11, 2019

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BAREBONES SYSTEMS, LLC.
1215 East Wilmington Avenue-Ste. 140 Salt Lake City, UT 84106

Report on the submitted samples said to be:

Sample Name : Mini Edison Lantern Ant Bronze, Mini Edison Lantern Red, Mini Edison Lantern Copper
Style/Item No. : LIV-273, LIV274, LIV275
Country of Origin : China
Sample Receiving Date : November 4, 2019
Testing Period : From November 4, 2019 to December 11, 2019
Results : Please refer to next page(s).

Summary of Test Results:

TEST REQUEST

CONCLUSION

A RoHS Directive 2011/65/EU and its amendment directives

XRF screening test and Wet Chemical Testing (Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs content)

Pass

Phthalates(DBP, BBP, DEHP, DIBP)content

Pass

Signed for and on behalf of BACL

Checked by:

Jame

Jane Xu
Technical Supervisor

Approved by:

Bensen

Bensen Huang
Laboratory Manager

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Results:

A. RoHS Directive 2011/65/EU and its amendment directives

XRF screening test

Test method: With reference to IEC62321-3-1:2013 screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	Black plastic (battery cover, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
2	Silvery metal with black coating(screw, Mini Edison Lantern Red)	BL	BL	BL	BL	---
3	Silvery metal(screw, Mini Edison Lantern Red)	BL	BL	BL	BL	---
4	Silvery metal(nut, Mini Edison Lantern Red)	BL	BL	BL	BL	---
5	Silvery metal(gasket, Mini Edison Lantern Red)	BL	BL	BL	BL	---
6	Transparent double faced adhesive tape(fixed, gasket, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
7	Black plastic (battery warehouse, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
8	Pink soft plastic(gasket, battery warehouse, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
9	Silvery metal(plate, battery warehouse, Mini Edison Lantern Red)	BL	BL	BL	BL	---
10	Silvery solder (gasket, battery warehouse, Mini Edison Lantern Red)	BL	BL	BL	BL	---
11	Silvery metal(spring, battery warehouse, Mini Edison Lantern Red)	BL	BL	BL	BL	---
12	Not coating silvery metal(lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	---
13	Red coating(lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
14	White plastic(inside, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
15	Black soft plastic(button, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
16	Black soft plastic(dust cover, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
17*	Green PCB("XZL-1902B"PCB, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	IN
18	Silvery solder("XZL-1902B"PCB, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	---
19	Silvery metal (shell, switch, "XZL-1902B"PCB, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	---
20	Black plastic (button, switch, "XZL-1902B"PCB, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	BL
21	Copper metal(plate, switch, "XZL-1902B"PCB, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	---
22	Silvery metal (button Contacts, switch, "XZL-1902B"PCB, lower cover, Mini Edison Lantern Red)	BL	BL	BL	BL	---

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Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
23	Black plastic(base, switch, "XZL-1902B"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
24	Black soft plastic(wire jacket,"XZL-1902B"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
25	Red soft plastic(wire jacket,"XZL-1902B"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
26	Copper metal(wire,"XZL-1902B"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
27	Green PCB("XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
28	Silvery solder("XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
29	Brown body(capacitor, "XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
30	Black body(triode, "XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
31	Black body with white printing(resistor, "XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
32	Black body(IC, "XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
33	Black body(inductor,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
34	Black magnet(core, diode,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
35	Copper metal(coil, diode,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
36	Silvery metal(shell,USB socket,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
37	Black plastic(socket,USB socket,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
38	Golden metal(pin,USB socket,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
39	Black soft plastic(wire jacket,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
40	Red soft plastic(wire jacket,"XZL-PL02"PCB,lower cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
41	Transparent plastic(LED cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
42	Black plastic with silvery plating(inside,LED cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
43	Silvery metal with black coating(bracket,Mini Edison Lantern Red)	BL	BL	BL	BL	---
44	Silvery metal with black coating(nut,Mini Edison Lantern Red)	BL	BL	BL	BL	---
45	White plastic(inside,LED bracket,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
46	Green PCB("XZL-1902A"PCB,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
47	Silvery solder("XZL-1902A"PCB,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
48	Yellow soft plastic(cover, LED,"XZL-1902A"PCB,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
49	White ceramic(core, LED,"XZL-1902A"PCB,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
50	Silvery metal(pin, LED,"XZL-1902A"PCB,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
51	Blue soft plastic(wire jacket,"XZL-1902A"PCB,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
52	Red soft plastic(wire jacket,"XZL-1902A"PCB,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
53	Not coating silvery metal(top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
54	Silvery metal with black coating(pothook,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
55	Silvery metal with black coating(label,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
56	Copper metal(rivet,label,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	---
57	Black plastic(nut,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
58	Black plastic(bracket,pothook,top cover,Mini Edison Lantern Red)	BL	BL	BL	BL	BL
59	Gray soft plastic(gasket,battery warehouse,Mini Edison Lantern Ant Bronze)	BL	BL	BL	BL	BL
60	Silvery metal with black/copper coating(top cover,Mini Edison Lantern Ant Bronze)	BL	BL	BL	BL	---
61	Silvery metal with copper coating(bracket,Mini Edison Lantern Ant Bronze)	BL	BL	BL	BL	---
62	Silvery metal with copper coating(top cover,Mini Edison Lantern Copper)	BL	BL	BL	BL	---

- The test result of sample (58) is shown retest result, and the retest sample was provided by client on December 9, 2019.

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Remark:

(1)

--- = Not Conducted

* = Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC62321-3-1:2013.

Element	Unit	Polymers	Metal	Composite Material
Cd	mg/kg	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$LOD < X < 150 + 3\sigma \leq OL$
Pb	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Hg	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Cr	mg/kg	$BL \leq 700 - 3\sigma < X$	$BL \leq 700 - 3\sigma < X$	$BL \leq 500 - 3\sigma < X$
Br	mg/kg	$BL \leq 300 - 3\sigma < X$	---	$BL \leq 250 - 3\sigma < X$

BL = Below Limit

OL = Over Limit

IN = Inconclusive

LOD = Limit of Detection

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(2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(3) The maximum permissible limit is quoted from RoHS directive 2011/65/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium(Cd)	100
Lead(Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominate ddiphenylethers (PBDEs)	1000

(4) As requested by applicant, only components shown in this report were screened by XRF spectroscopy for 2011/65/EU and its amendment directives, other components were not screened included in this report.

(5) Photo appendix is included.

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 result 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 are required to obtain quantitative data.

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Wet Chemical Testing:

Test method:

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

1) The test results of PBBs & PBDEs

Item	Unit	MDL	Results	Limit
			17	
Polybrominated Biphenyls				
Monobromobiphenyl	mg/kg	5	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	
Total content	mg/kg	/	N.D.	1000
Polybrominated Diphenylethers				
Monobromodiphenyl ether	mg/kg	5	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	
Total content	mg/kg	/	N.D.	1000
Conclusion	/	/	Pass	/

Note:

- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- The results less than MDL are not taken into account while calculating the sum contents.
- mg/kg = ppm
- Photo is included.

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Phthalates(DBP、BBP、DEHP、DIBP)content

Test method: With reference to IEC 62321-8:2017, by gas chromatographic-mass spectrometer (GC-MS)

Item	Unit	MDL	Results			Limit
			1+7	6+29+30	8+13	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Conclusion	/	/	Pass	Pass	Pass	/

Item	Unit	MDL	Results			Limit
			14+20+23	15+16	17+27+46	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Conclusion	/	/	Pass	Pass	Pass	/

Item	Unit	MDL	Results			Limit
			24+25	31+32+33	34+37+49	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Conclusion	/	/	Pass	Pass	Pass	/

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Item	Unit	MDL	Results			Limit
			39+40	41+42+45	48+51+52	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Conclusion	/	/	Pass	Pass	Pass	/

Item	Unit	MDL	Results			Limit
			57	58	59	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Conclusion	/	/	Pass	Pass	Pass	/

Note:

- The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- mg/kg = ppm
- The test result of sample (58) is shown retest result, and the retest sample was provided by client on December 9, 2019.
- "+"= Mixed, The admixture of specimen is tested as a whole(part) which according to the applicant's request, the result of report as average value because of the whole specimen is regarded as constituting from the homogeneous material. If the testing of specimen may have the obvious difference, and the result may exceed the number in this report. The applicant will undertake all differences and risk.
- Photo is included.

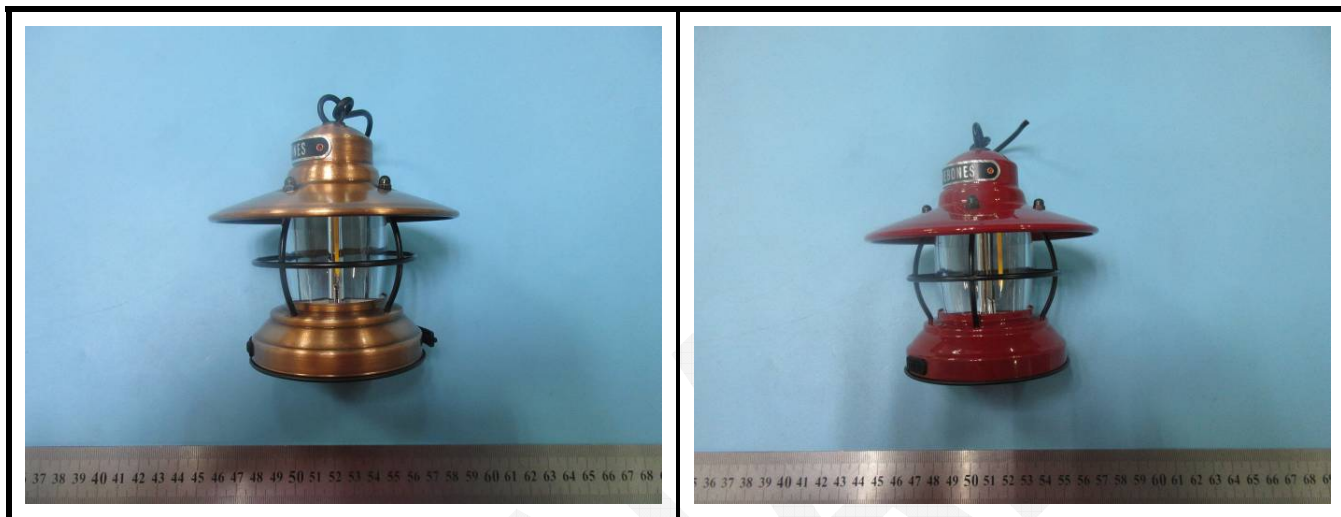
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Photograph of Sample



BACL authenticate the photo on original report only

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Directions:

1. This report cannot be reproduced except in full, without prior written approval of the Company.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.
3. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The information which provided by the applicant, such as sample description, sample name ,material component, style/item No. , P.O. No. , manufacture, age phase, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
6. The test samples were in good condition before testing.
7. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

*** End of Report ***