

**Test Report** No. A151222009001 Date: Dec 31, 2015 Page 1 of 11

SHENZHEN REYHEM INDUSTRIAL CO.,LTD 4F,A BUILDING, SHILONG BLVD NO. 60, THE SECOND INDUSTRIAL ZONE, SHUITIAN COMMUNITY, SHIYAN SUB-DISTRICT OF BAO'AN DISTRICT IN SHENZHEN CITY, GUANGDONG PROVINCE, CHINA

LI-ION BATTERY BT-001 Sample Description: Trademark: Style No(s): PO No.: Rating: M/N for main: Batch No.: Age Grade: Product End Use: Vendor: Retest No.: Manufacturer: Supplier Reference: Buyer: Country of Origin: Test Period: From Dec 22, 2015 to Dec 31, 2015 Country of Destination:

#### SUMMARY OF TEST RESULTS

TEST REQUESTED	CONCLUSION	REMARK
European Council Directive 2011/65/EU on the Restriction of the		
Use of Certain Hazardous Substances in Electrical and Electronic	PASS	-
Equipment (RoHS)		

Signed for and on behalf of ANNRAY Test Co., Ltd.

Tony Tang Assistant Manager, Laboratory

www.annraytest.com

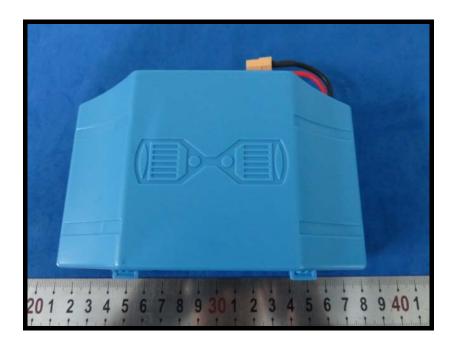
ustrial Zone, Houjie, Dongguan, Guangdong, China 523945 邮编: 523945

t (86-769) 8258 9333 f (86-769) 8583 6617



No. A151222009001 Date: Dec 31, 2015 Page 2 of 11

### **Photo of the Submitted Sample**





No. A151222009001

Date: Dec 31, 2015

Page 3 of 11

## **Test Item Description and Photo List**

Test		Test Item Description and Fnoto List		
Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
001		Transparent yellow adhesive tape	Таре	
002	8 9 30 1 2 3 4 5 6 7 8 9	Deep green paper with adhesive	Paper	-
003	4 5 6 7 8 9 30 1 2 3 4 5 6 7	Black foam with adhesive	Foam	-
004		Yellow plastic frame	Connector	
005	004~005	Gold metal	Connector	-
006		White printed black soft plastic	a.	
007		Black printed red soft plastic	Sleeve	
008	008~010	Black soft plastic jacket		-
009	006~007	Red soft plastic jacket	Wire	
010	8 9 30 1 2 3 4 5 6 7 8 9 40 1	Silvery metal core		
011	011~012	Silvery metal plate	Connector	
012	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Silvery solder	Solder	-

www.annraytest.com

Is made base on the Conditions of Testing as posted at the date of issuance of this report at <a href="http://www.annraytest.com">http://www.annraytest.com</a>. Any copying or replication of this report to or for any other partity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. It is set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless and expressly noted. Our report includes all of the tests requested by you and the results there of based upon the information that you provided to us.



**Test Report** No. A151222009001 Date: Dec 31, 2015 Page 4 of 11

	_			C
Test	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
Item(s)		1	- (-)	<b>U</b> - (-)
013	30 1 2 3 4 5 6 7	Silvery metal	Screw	-
014	014	Coppery metal	Nut	
015	016	Silvery metal plate	Heat sink	-
016	015	Grey soft plastic	Silica gel	
017		White plastic frame		
018	017~018	Silvery metal	Connector	-
019		Black soft plastic jacket		
020	019~024	Yellow soft plastic jacket		
021	9: 1835	White soft plastic jacket	Wire	
022		Red soft plastic jacket	wire	-
023		Blue soft plastic jacket		
024	201 2 3 4 5 6 7 8 9 30 1 2 3	Silvery metal core		
025	025 027	White printed black body with silvery edge	Resistor, PCB	-
026	023~027	Brown body with silvery metal edge	Capacitor, PCB	
027	028	Black body with pin	Audion, PCB	
028	028	Black body with pin	Diode, PCB	
029		Black ceramic body		
030	029~031	Coppery metal plate with silvery solder	Diode, PCB	-
031	4 5 6 7 8 9 30 1 2 3	Silvery metal pin		

### www.annraytest.com

This report is made base on the Conditions of Testing as posted at the date of issuance of this report at <a href="http://www.annraytest.com">http://www.annraytest.com</a>. Any copying or replication of this report to or for any other person or entity or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results there of based upon the information that you provided to us.

Industrial Zone, Houjie, Dongguan, Guangdong, China 523945

t (86-769) 8258 9333

f (86-769) 8583 6617



**Test Report** No. A151222009001 Date: Dec 31, 2015 Page 5 of 11

Test	Sample Photo	mple Photo Item / Component Description(s)		Style(s)
Item(s)	05			
032	4 5 6 7 8 9 30 1 2 3	White printed black body with silvery metal edge	Resistor, PCB	-
033	0 1 1 1	Silvery solder	Solder, PCB	
034	4 5 6 7 8 9 30 1 2 3	Green PCB	РСВ	
035	SKALL ROOM	Blue plastic cover		
036		White plastic ring	<b>D</b>	
037		Silvery metal cover	Battery	-
038	9 20 1 2 3 4 5 6 7 8 9 30 1 2 3 4 5 6 7 8 9 40	Silvery metal anode		
039		Transparent yellow plastic	Stopper of anode, Batter	
040		Shiny silvery metal		
041	A Back	Silvery metal	Anode, Battery	-
042	0 000	Transparent plastic ring	Alloue, Battery	
043	5 6 7 8 9 30 1 2 3 4 5	White fabric		
044	1994 P. S.	Purple plastic	Sticker, Battery	
045	044~048	White plastic	Film ,Battery	
046		Coppery metal with carbon	Dada battama	-
047		Silvery metal with carbon	Body, battery	
048	1 2 3 4 5 6 7 8 9 30 1 2	Yellow plastic	Sticker, Battery	

www.annraytest.com

t (86-769) 8258 9333



**Test Report** No. A151222009001 Date: Dec 31, 2015 Page 6 of 11

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
049	201 2 3 4 5 6 7 8 9 201 2 3 4 3 6 7 8 9 401	Blue plastic	Cover, Battery	-



No. A151222009001 Date: Dec 31, 2015 Page 7 of 11

### TEST RESULT

<u>European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)</u>

**Test Method** : See Appendix.

### See Analytes and their corresponding Maximum Allowable Limit in Appendix

Parameter	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs	PBDEs	Conclusion
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Test Item(s)	-	-	-	-	-	-	-
001	ND	ND	ND	ND	ND	ND	PASS
002	ND	ND	ND	ND	ND	ND	PASS
003	ND	ND	ND	ND	ND	ND	PASS
004	ND	ND	ND	ND	ND	ND	PASS
005	27566#	ND	ND	ND	NA	NA	EXEMPTED
006	ND	ND	ND	ND	ND	ND	PASS
007	ND	ND	ND	ND	ND	ND	PASS
008	ND	ND	ND	ND	ND	ND	PASS
009	ND	ND	ND	ND	ND	ND	PASS
010	ND	ND	ND	ND	ND	ND	PASS
011	ND	ND	ND	ND	ND	ND	PASS
012☆	ND	ND	ND	ND	NA	NA	PASS
013	ND	ND	ND	ND	NA	NA	PASS
014	34891#	ND	ND	ND	NA	NA	EXEMPTED
015	ND	ND	ND	ND	NA	NA	PASS
016	ND	ND	ND	ND	ND	ND	PASS
017	ND	ND	ND	ND	ND	ND	PASS
018	ND	ND	ND	ND	NA	NA	PASS
019	ND	ND	ND	ND	ND	ND	PASS
020	ND	ND	ND	ND	ND	ND	PASS
021	ND	ND	ND	ND	ND	ND	PASS
022	ND	ND	ND	ND	ND	ND	PASS

www.annraytest.com

report is made base on the Conditions of Testing as posted at the date of issuance of this report at <a href="http://www.annraytest.com">http://www.annraytest.com</a>. Any copying or replication of this report to or for any other son or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein.

The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless officially and expressly noted. Our report includes all of the tests requested by you and the results there of based upon the information that you provided to us.

t (86-769) 8258 9333

Industrial Zone, Houjie, Dongguan, Guangdong, China 523945

大道高新科技园

f (86-769) 8583 6617



**Test Report** No. A151222009001 Date: Dec 31, 2015 Page 8 of 11

Parameter	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs	PBDEs	Conclusion
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Test Item(s)	-	-	-	-	-	-	-
023	ND	ND	ND	ND	ND	ND	PASS
024	ND	ND	ND	ND	NA	NA	PASS
025	57024##	ND	ND	ND	ND	ND	EXEMPTED
026	15996##	ND	ND	ND	ND	ND	EXEMPTED
027	18831##	ND	ND	ND	ND	ND	EXEMPTED
028	120	ND	ND	ND	ND*	ND*	PASS
029	ND	ND	ND	ND	ND*	ND*	PASS
030	23332&	ND	ND	ND	NA	NA	EXEMPTED
031	33*	ND	ND	ND	NA	NA	PASS
032	11956##	ND	ND	ND	ND*	ND*	EXEMPTED
033☆	ND	ND	ND	ND	NA	NA	PASS
034	ND	ND	ND	ND	ND*	ND*	PASS
035	ND	ND	ND	ND*	ND	ND	PASS
036	ND	ND	ND	ND	ND	ND	PASS
037	ND	ND	ND	ND	NA	NA	PASS
038	ND	ND	ND	ND	NA	NA	PASS
039	ND	ND	ND	ND	ND	ND	PASS
040	ND	ND	ND	ND	NA	NA	PASS
041	ND	ND	ND	ND	NA	NA	PASS
042	ND	ND	ND	ND	ND	ND	PASS
043	ND	ND	ND	ND	ND	ND	PASS
044	ND	ND	ND	ND	ND	ND	PASS
045	ND	ND	ND	ND	ND	ND	PASS
046	ND	ND	ND	ND	ND	ND	PASS
047	ND	ND	ND	ND	ND	ND	PASS
048	ND*	ND	ND	ND*	ND	ND	PASS
049	ND	ND	ND	ND	ND	ND	PASS

Note / Key:

ND = Not detected ">" = Greater than

NA=Not Applicable mg/kg = milligram(s) per kilogram = ppm = part(s) per million

% = percent 10000 mg/kg = 1 %

Detection Limit : See Appendix.

www.annraytest.com

eport is made base on the Conditions of Testing as posted at the date of issuance of this report at <a href="http://www.annraytest.com">http://www.annraytest.com</a>. Any copying or replication of this report to or for any other in or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. esuits set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless lically and expressly noted. Our report includes all of the tests requested by you and the results there of based upon the information that you provided to us.

Industrial Zone, Houjie, Dongguan, Guangdong, China 523945

t (86-769) 8258 9333 f (86-769) 8583 6617



No. A151222009001 Date: Dec 31, 2015 Page 9 of 11

#### **RESULTS:**

#### Remark:

- The testing approach is listed in table of Appendix.
- Result(s) of Cr VI for metallic material(s) was (were) expressed in term of positive and negative. Negative means the absence of Cr VI on the tested areas and the result(s) was (were) regarded as in compliance with European Council Directive 2011/65/EU, Article 4(1). While, positive means the presence of Cr VI on tested areas and the result(s) was (were) regarded as in conflict with European Council Directive 2011/65/EU, Article 4(1).
- \*denotes as reported result(s) was (were) performed by wet chemistry method. Others were screened by XRF. For XRF screening, the result(s) of Cr VI was (were) reported as total chromium and the result(s) of PBBs and PBDEs was (were) reported as total bromine. Also, the XRF result(s) may be different to the actual content based on various factors including, but not limit to, sample size, thickness, area, non-uniformity composition, surface flatness.
- Only selected example(s) is (are) indicated on the photograph(s) in Comment.
- According to European Council Directive 2011/65/EU, Article 5 "Adaptation of the Annexes to scientific and technical progress", exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.
- #According to Annex III of European Council Directive 2011/65/EU, exemptions were granted a few materials and Clause 6(c) is reiterated here "Copper alloy containing up to 4 % lead by weight.". Test Item(s) < 005, 014> was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.
- ##According to Annex III of European Council Directive 2011/65/EU, exemptions were granted a few materials and Clause 7(c)-I is reiterated here "Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.". Test Item(s) < 025,026,027,032 > was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.
- &According to Annex III of European Council Directive 2011/65/EU, exemptions were granted a few materials and Clause 7(a) is reiterated here "Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).". Test Item(s) <030> was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.
- ☆The test items(012, 033) were semi-product and provided by client dated on Dec 30,2015.

ANNRAY

www.annraytest.com



**Test Report** No. A151222009001 Date: Dec 31, 2015 Page 10 of 11

**RESULTS:** 

## APPENDIX

			<b>Detection Li</b>			
No.	Name of Analytes	X-ray	fluorescence (	XRF) <sup>[a]</sup>		Maximum Allowable Limit
No.	Name of Analytes	Plastic	Metallic / glass / ceramic	Others	Wet Chemistry	(mg/kg)
1	Lead (Pb)	100	200	200	10 <sup>[b]</sup>	1000
2	Cadmium (Cd)	50	50	50	10 <sup>[b]</sup>	100
3	Mercury (Hg)	100	200	200	10 <sup>[c]</sup>	1000
4	Chromium (Cr)	100	200	200	NA	NA
5	Chromium VI (Cr VI)	NA	NA	NA	3 <sup>[g]</sup> /10 <sup>[d]</sup> See <sup>[e, i]</sup>	1000 / Negative
6	Bromine (Br)	200	NA	200	NA	NA
7	Polybromobiphenyls (PBBs) - Bromobiphenyl (MonoBB) - Dibromobiphenyl (DiBB) - Tribromobiphenyl (TriBB) - Tetrabromobiphenyl (TetraBB) - Pentabromobiphenyl (PentaBB) - Hexabromobiphenyl (HexaBB) - Heptabromobiphenyl (HeptaBB) - Octabromobiphenyl (OctaBB) - Nonabromobiphenyl (NonaBB) - Decabromobiphenyl (DecaBB)	NA	NA	NA	Each 50 <sup>[f]</sup>	Sum 1000
8	Polybromodiphenyl ethers (PBDEs) - Bromodiphenyl ether (MonoBDE) - Dibromodiphenyl ether (DiBDE) - Tribromodiphenyl ether (TriBDE) - Tetrabromodiphenyl ether (TetraBDE) - Pentabromodiphenyl ether (PentaBDE) - Hexabromodiphenyl ether (HexaBDE) - Heptabromodiphenyl ether (HeptaBDE) - Octabromodiphenyl ether (OctaBDE) - Nonabromodiphenyl ether (NonaBDE) - Decabromodiphenyl ether (DecaBDE)	NA	NA	NA	Each 50 <sup>[f]</sup>	Sum 1000

ANNRAY

www.annraytest.com

It is made base on the Conditions of Testing as posted at the date of issuance of this report at <a href="http://www.annraytest.com">http://www.annraytest.com</a>. Any copying or replication of this report to or for any other entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. Its set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless and expressly noted. Our report includes all of the tests requested by you and the results there of based upon the information that you provided to us.

t (86-769) 8258 9333

Industrial Zone, Houjie, Dongguan, Guangdong, China 523945

大道高新科技园

f (86-769) 8583 6617



**Test Report** No. A151222009001 Date: Dec 31, 2015 Page 11 of 11

#### **RESULTS:**

XRF screening limits for different materials:					
3.5 4 1 3			Concentration (mg/kg	<u>(</u> )	
Materials	Cd	Cr	Pb	Hg	Br
Metal	P≤70 <x<130≤f< th=""><th>P≤700<x< th=""><th>P≤700<x<1300≤f< th=""><th>P≤700<x<1300≤f< th=""><th>N.A.</th></x<1300≤f<></th></x<1300≤f<></th></x<></th></x<130≤f<>	P≤700 <x< th=""><th>P≤700<x<1300≤f< th=""><th>P≤700<x<1300≤f< th=""><th>N.A.</th></x<1300≤f<></th></x<1300≤f<></th></x<>	P≤700 <x<1300≤f< th=""><th>P≤700<x<1300≤f< th=""><th>N.A.</th></x<1300≤f<></th></x<1300≤f<>	P≤700 <x<1300≤f< th=""><th>N.A.</th></x<1300≤f<>	N.A.
Polymers	P≤70 <x<130≤f< th=""><th>P≤700<x< th=""><th>P≤700<x<1300≤f< th=""><th>P≤700<x<1300≤f< th=""><th>P≤300<x< th=""></x<></th></x<1300≤f<></th></x<1300≤f<></th></x<></th></x<130≤f<>	P≤700 <x< th=""><th>P≤700<x<1300≤f< th=""><th>P≤700<x<1300≤f< th=""><th>P≤300<x< th=""></x<></th></x<1300≤f<></th></x<1300≤f<></th></x<>	P≤700 <x<1300≤f< th=""><th>P≤700<x<1300≤f< th=""><th>P≤300<x< th=""></x<></th></x<1300≤f<></th></x<1300≤f<>	P≤700 <x<1300≤f< th=""><th>P≤300<x< th=""></x<></th></x<1300≤f<>	P≤300 <x< th=""></x<>
Composite material	P≤50 <x<150≤f< th=""><th>P≤500<x< th=""><th>P≤500<x<1500≤f< th=""><th>P≤500<x<1500≤f< th=""><th>P≤250<x< th=""></x<></th></x<1500≤f<></th></x<1500≤f<></th></x<></th></x<150≤f<>	P≤500 <x< th=""><th>P≤500<x<1500≤f< th=""><th>P≤500<x<1500≤f< th=""><th>P≤250<x< th=""></x<></th></x<1500≤f<></th></x<1500≤f<></th></x<>	P≤500 <x<1500≤f< th=""><th>P≤500<x<1500≤f< th=""><th>P≤250<x< th=""></x<></th></x<1500≤f<></th></x<1500≤f<>	P≤500 <x<1500≤f< th=""><th>P≤250<x< th=""></x<></th></x<1500≤f<>	P≤250 <x< th=""></x<>

P=Pass; F=Fail; X=Inconclusive result

List of Analytes and their Corresponding Test Methods, Detection Limit and Maximum Allowable Limit	[for European Council
Directive 2011/65/EU ] :	

NΛ	= Not	ann	lica	hle
11//	- 1101	ann	nca	וחכ

- [a] Test method with reference to IEC 62321-3-1:2013.
- [b] Test method with reference to IEC 62321-5:2013.
- [c] Test method with reference to IEC 62321-4:2013.
- [d] Polymers and Electronic-Test method with reference to European standard IEC 62321:2008 Annex C.
- [e] Metal-Test method with reference to European standard IEC 62321:2008 Annex B<sup>[h]</sup>.
- [f] Test method with reference to European standard IEC 62321:2008 Annex A.
- Leather-Test method International standard ISO 17075:2007 [g]
- The principle of this method was evaluated and supported by two studies organized by IEC TC 111 WG3. These studies were [h] focused on detecting the presence of Cr VI in the corrosion protection coatings on metallic samples.
- Result(s) of Cr VI for metallic material(s) was (were) expressed in term of positive and negative. Negative means the absence of Cr VI on the tested areas and the result(s) was (were) regarded as in compliance with European Council Directive 2011/65/EU, [i] Article 4(1). While, positive means the presence of Cr VI on tested areas and the result(s) was (were) regarded as in conflict with European Council Directive 2011/65/EU, Article 4(1).

Testing	Testing Approach [ Compliance Test for European Council Directive 2011/65/EU ] :					
The tes	The testing approach was with reference to the following document(s).					
1	International standards IEC 62321-1:2013 and IEC 62321-2:2013					
2	"RoHS Enforcement Guidance Document Version 1" by EU RoHS Enforcement Authorities Informal Network. (May 2006)					
2	"RoHS Regulations - Government Guidance Notes" by United Kingdom Department for Business Innovation & Skills.					
3	(February 2011)					
4	"Final Report to RoHS substances (Hg, Pb, Cr(VI), Cd, PBB and PBDE) in electrical and electronic equipment in Belgium" by					
4	Belgium Federal Public Service Health, Food Chain Safety and Environment. (November 2005)					

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

t (86-769) 8258 9333

de base on the Conditions of Testing as posted at the date of issuance of this report at http://www.annraytest.com. Any copying or replication of this report to or for any other se of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless sly noted. Our report includes all of the tests requested by you and the results there of based upon the information that you provided to us.

> 邮编: 523945 Annray Test Co.,Ltd