HUAK TESTING

TEST REPORT

Prepared for:

Zhengzhou Datou Hardware Products Co., Ltd.

Room 101, Building 30, Xingyang Equipment Manufacturing Industrial Park, No. 1 Keji 2nd Road, Wulong Industrial Cluster District, Xingyang City, Zhengzhou City, Henan Province

Product Name:	**LiFePO4 Battery**
Model No.:	**12V100Ah**
Trade Mark:	**N/A**
Date of Test:	**From December 11, 2024 to December 24, 2024**
Date of Report:	**January 15, 2025**
Report Number:	**HK24121122137-1RR**

Prepared by:

Shenzhen HUAK Testing Technology Co., LTD.

1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

TEST REPORT

Applicant:	**Zhengzhou Datou Hardware Products Co., Ltd.**
Address:	**Room 101, Building 30, Xingyang Equipment Manufacturing Industrial Park, No. 1 Keji 2nd Road, Wulong Industrial Cluster District, Xingyang City, Zhengzhou City, Henan Province**
Manufacturer:	**Zhengzhou Datou Hardware Products Co., Ltd.**
Address:	**Room 101, Building 30, Xingyang Equipment Manufacturing Industrial Park, No. 1 Keji 2nd Road, Wulong Industrial Cluster District, Xingyang City, Zhengzhou City, Henan Province**

The following sample was submitted and identified by/on behalf of the client as:

Product Name:	LiFePO4 Battery
Model No.:	12V100Ah
Trade Mark:	N/A
Sample Receiving Date:	December 11, 2024
Testing Period:	From December 11, 2024 to December 24, 2024
Results:	Please refer to next page(s).

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Summary of Test Results:

Test Requested:	According to customer's requirements, Split the sample and determine the Pb, Cd, Hg, Cr(VI), PBBs & PBDEs, DBP, BBP, DEHP, DIBP content of the parts.
Conclusion:	Base upon the performed tests by submitted sample, the test results comply with the limits as set by Directive SI 2012 No.3032

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Signed for and on behalf of HUAK

Approved by: Jason

Lab Manager

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Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

TEST REPORT

Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization：

A2LA Accreditation Code is 4781.01.

FCC Designation Number is CN1229.

Canada IC CAB identifier is CN0045.

CNAS Registration Number is L9589.

CPSC Certification Number is 1710.

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Test Method:

1. Sample prepared with reference to BS EN 62321-2:2021
2. Sample Screening testing with reference to BS EN 62321-3-1:2013
3. Wet Chemical Test Method
   a. Determination of Lead, Cadmium by ICP-OES with reference to BS EN 62321-5:2013
   b. Determination of Mercury by ICP-OES with reference to BS EN 62321-4:2013+AMD1:2017
   c. Determination of Hexavalent Chromium incolourless and coloured corrosion-protected coatings on metals by UV-VIS methodreference to BS EN 62321-7-1:2015
   d. Determination of Hexavalent Chromium in polymers and electronics by UV-Vis Method with reference to BS EN 62321-7-2:2017.
   e. Determination of PBBs and PBDEs by GC-MS with reference to BS EN 62321-6:2015
   f. Determination of DBP, BBP, DEHP and DIBP by GC-MS with reference to BS EN 62321-8:2017

TEST REPORT

Test Results:

Part No.	Part Name	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
1	Black plastic case	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	N.D.	Comply
		BBP	---	N.D.	Comply
		DEHP	---	N.D.	Comply
		DIBP	---	N.D.	Comply
2	Black cloth	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	N.D.	Comply
		BBP	---	N.D.	Comply
		DEHP	---	N.D.	Comply
		DIBP	---	N.D.	Comply
3	Silver metal	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	IN	N.D.	Comply
		PBBs	---	---	NA
		PBDEs	---	---	NA
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA

TEST REPORT

Part No.	Part Name	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
4	Red wire cover	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	N.D.	Comply
		BBP	---	N.D.	Comply
		DEHP	---	N.D.	Comply
		DIBP	---	N.D.	Comply
5	Black wire cover	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	N.D.	Comply
		BBP	---	N.D.	Comply
		DEHP	---	N.D.	Comply
		DIBP	---	N.D.	Comply
6	Silver metal core	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	---	---	NA
		PBDEs	---	---	NA
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA

TEST REPORT

Part No.	Part Name	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
7	Silver metal	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	IN	N.D.	Comply
		PBBs	---	---	NA
		PBDEs	---	---	NA
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA
8	Silver screw	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	---	---	NA
		PBDEs	---	---	NA
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA
9	Black IC	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA

TEST REPORT

Part No.	Part Name	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
10	Black triode	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA
11	Green PCB board	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	N.D.	Comply
		BBP	---	N.D.	Comply
		DEHP	---	N.D.	Comply
		DIBP	---	N.D.	Comply
12	Silver metal solder joints	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	---	---	NA
		PBDEs	---	---	NA
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA

TEST REPORT

Part No.	Part Name	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
13	Silver metal	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	---	---	NA
		PBDEs	---	---	NA
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA
14	Black resistance	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA
15	Black diode	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA

TEST REPORT

Part No.	Part Name	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
16	Black patch resistor	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DBP	---	---	NA
		BBP	---	---	NA
		DEHP	---	---	NA
		DIBP	---	---	NA

Remark:

(1) (a) When conducting the test for PBBs&PBDEs, XRF was introducedto screen Br Exclusively,
When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
(b)Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to BS EN 62321-3-1:2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL≤(70-3σ)<X<(130+3σ) ≤OL	BL≤(70-3σ)<X<(130+3σ) ≤OL	LOD<X<(150+3σ) ≤OL
Pb	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(500-3σ)<X<(1500+3σ) ≤OL
Hg	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(500-3σ)<X<(1500+3σ) ≤OL
Br	BL≤(300-3σ)<X	--	BL≤(250-3σ)<X
Cr	BL≤(700-3σ)<X	BL≤(700-3σ)<X	BL≤(500-3σ)<X

(c) BL = Below warning value, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection,
-- = Not Regulated, NA = Not Applicable.
(d) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(2) (a) 1mg/kg = 1ppm = 0.0001%, N.D.= Not Detected (<MDL), --- = Not Conducted.
(b) Unit and Method Detection Limit (MDL) in wet chemical test

Test Items	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	2	2	2	50	50	50	50

The MDL for single compound of PBBs & PBDEs is 5 mg/kg, MDL of Cr(VI) for polymer & composite sample is 8 mg/kg and MDL of DBP, BBP, DEHP and DIBP is 50mg/kg.

(d) When Cr(VI) for metal sample is testing according to BS EN 62321-7-1:2015, the unit is μg/cm^2, and the MDL is 0,10 μg/cm^2. When the Cr (VI) concentration is > the 0,13 μg/cm^2, the sample is positive for Cr(VI) and considered to contain Cr(VI); when the Cr (VI) concentration is N.D.(< the 0,10 μg/cm^2), the sample is negative for Cr(VI) and considered a non-Cr(VI) based coating; when the Cr (VI) concentration is ≥ the 0,10 μg/cm^2 and ≤ the 0,13 μg/cm^2, the result is considered to be inconclusive - Unavoidable coating variations may influence the determination.

(d) For necessary wet chemistry measurements (flame retardants, phthalates) components with a weight of less than 0.1 grams are not considered for testing and rating due to technical measurement reasons.

(3) The maximum permissible limit is quoted from the Directive SI 2012 No.3032.

RoHS Restricted Substances	**Maximum Concentration Value (by weight in homogenous materials)**
Lead (Pb)	0.1%
Cadmium (Cd)	0.01%
Mercury (Hg)	0.1%
Hexavalent Chromium (Cr VI)	0.1%
Polybrominated biphenyls (PBBs)	0.1%
Polybrominated diphenylethers (PBDEs)	0.1%
Dibutyl Phthalate (DBP)	0.1%
Benzylbutyl Phthalate (BBP)	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	0.1%
Diisobutyl Phthalate (DIBP)	0.1%

RoHS Exemptions

Exemptions	
RoHS Directive SI 2012 No.3032	
Exemption Items	**Expires Date**
1, Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
1(a), For general lighting purposes < 30 W:3,5 mg	Expires on 24 February 2023
1(b), For general lighting purposes≥ 30 W and < 50W:3,5mg	Expires on 24 February 2023
1(c), For general lighting purposes ≥ 50 W and < 150 W: 5 mg	Expires on 24 February 2023
1(d), For general lighting purposes ≥ 150 W: 15 mg	Expires on 24 February 2023
1(e), For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm: 7 mg	Expires on 24 February 2023
1(f)-I,For lamps designed to emit mainly light in the ultraviolet spectrum: 5 mg	Expires on 24 February 2027
1(f)-II,For special purposes: 5 mg	Expires on 24 February 2025
1(g),For general lighting purposes < 30 W with a lifetime equal or above 20000 h: 3,5 mg	Expires on 24 August 2023
2(a),Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	
2(a)(1),Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 4 mg	Expires on 24 February 2023
2(a)(2),Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 3 mg	Expires on 24 August 2023
2(a)(3),Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8):3.5mg	Expires on 24 August 2023
2(a)(4),Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg	Expires on 24 February 2023
2(a)(5),Tri-band phosphor with long lifetime (≥ 25 000 h): 5 mg	Expires on 24 February 2023
2(b), Mercury in other fluorescent lamps not exceeding (per lamp):	
2(b)(1),Linearhalophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg	Expires on 13 April 2012
2(b)(2),Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2(b)(3),Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9):15mg	Expires on 24 February 2023; 10 mg may be used per lamp from 25 February 2023 until 24 February 2025
2(b)(4) -I, Lamps for other general lighting and special purposes (e.g. induction lamps): 15 mg	Expires on 24 February 2025
2(b)(4) -II, Lamps emitting mainly light in the ultraviolet spectrum: 15 mg	Expires on 24 February 2027
2(b)(4) -III, Emergency lamps: 15 mg	Expires on 24 February 2027
3, Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes used in EEE placed on the market before 24 February 2022 not exceeding (per lamp):	
3(a), Short length (≤500 mm):3.5mg	Expires on 24 February 2025
3(b), Medium length (> 500 mm and ≤ 1 500 mm):5mg	Expires on 24 February 2025
3(c), Long length (> 1 500 mm):13mg	Expires on 24 February 2025
4(a), Mercury in other low pressure discharge lamps (per lamp):15mg	Expires on 24 February 2023

Exemptions	
RoHS Directive SI 2012 No.3032	
Exemption Items	**Expires Date**
4(a)-I,Mercury in low pressure non-phosphor coated discharge lamps, where the application requires the main range of the lamp-spectral output to be in the ultraviolet spectrum: up to 15 mg mercury may be used per lamp	Expires on 24 February 2027
4(b), Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 80: P ≤ 105 W: 16 mg may be used per burner	Expires on 24 February 2027
4(b) -I,rendering indexRa > 60:P ≤155 W:30mg	Expires on 24 February 2023
4(b) -II,rendering index Ra > 60:155 W < P ≤ 405 W:40mg	Expires on 24 February 2023
4(b) -III,rendering index Ra > 60: P > 405 W:40mg	Expires on 24 February 2023
4(c),Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	
4(c)-I,P ≤ 155 W:20mg	Expires on 24 February 2027
4(c)-II,155 W < P ≤ 405 W:25mg	Expires on 24 February 2027
4(c)-III,P> 405 W:25mg	Expires on 24 February 2027
4(d),Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
4(e),Mercury in metal halide lamps (MH)	Expires on 24 February 2027
4(f)-I,Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	Expires on 24 February 2025
4(f)-II,Mercury in high pressure mercury vapour lamps used in projectors where an output ≥ 2000 lumen ANSI is required	Expires on 24 February 2027
4(f)-III,Mercury in high pressure sodium vapour lamps used for horticulture lighting	Expires on 24 February 2027
4(f)-IV,Mercury in lamps emitting light in the ultraviolet spectrum	Expires on 24 February 2027
4(g),Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (a) 20 mg per electrode pair + 0,3 mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 °C; (b) 15 mg per electrode pair + 0,24 mg per tube length in cm, but not more than 80 mg, for all other indoor applications.	Expires on 31 December 2018
5(a), Lead in glass of cathode ray tubes	
5(b), Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	
6(a), Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0,35 % lead by weight	
6(a)-I,Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in batch hot dip galvanised steel components containing up to 0,2 % lead by weight	
6(b),Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(b)-I, Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(b)-II, Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(c), Copper alloy containing up to 4 % lead by weight	

Exemptions	
RoHS Directive SI 2012 No.3032	
Exemption Items	**Expires Date**
7(a), Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead)	
7(b), Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
7(c)-I, 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	
7(c)-II, Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7(c)-III, Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
7(c)-IV, Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors	Expires on: -21 July 2021 for categories 1-7 and 10; -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
8(a), Cadmium and its compounds in one shot pellet type thermal cut-offs	Expires on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
8(b), Cadmium and its compounds in electrical contacts	
8(b)-I,Cadmium and its compounds in electrical contacts used in: - circuit breakers, - thermal sensing controls, - thermal motor protectors (excluding hermetic thermal motor protectors), - AC switches rated at: 6 A and more at 250 V AC and more, or 12 A and more at 125 V AC and more, - DC switches rated at 20 A and more at 18 V DC and more, and - switches for use at voltage supply frequency ≥ 200 Hz	
9, Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution	
9(a)-I,Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators (including minibars) designed to operate fully or partly with electrical heater, having an average utilizedpower input < 75 W at constant running conditions	Applies to categories 1-7 and 10 and expires on 5 March 2021.
9(a)-II,Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators: - designed to operate fully or partly with electrical heater, having an average utilised power input ≥ 75 W at constant running conditions, - designed to fully operate with nonelectrical heater.	Applies to categories 1-7 and 10 and expires on 21 July 2021.
9(a)-III,Up to 0,7 % hexavalent chromium by weight, used as an anticorrosion agent in the working fluid of the carbon steel sealed circuit of gas absorption heat pumps for space and water heating	Applies to category 1 and expires on 31 December 2026.

Exemptions	
RoHS Directive SI 2012 No.3032	
Exemption Items	**Expires Date**
9(b), Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	Applies to categories 8, 9 and 11; expires on: - 21 July 2023 for category 8 in vitro diagnostic medical devices, - 21 July 2024 for category 9 industrial monitoring and control instruments and for category 11, - 21 July 2021 for other subcategories of categories 8 and 9.
9(b)-(I),Lead in bearing shells and bushes for refrigerant-containing hermetic scroll compressors with a stated electrical power input equal or below 9 kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications	Applies to category 1; expires on 21 July 2019.
11(a), Lead used in C-press compliant pin connector systems	May be used in spare parts for EEE placed on the market before 24 September 2010
11(b), Lead used in other than C-press compliant pin connector systems	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
12, Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for EEE placed on the market before 24 September 2010
13(a), Lead in white glasses used for optical applications	Applies to all categories; expires on: - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; - 21 July 2021 for all other categories and subcategories
13(b), Cadmium and lead in filter glasses and glasses used for reflectance standards	Applies to categories 8, 9 and 11; expires on: - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; - 21 July 2021 for other subcategories of categories 8 and 9
13(b)- (I),Lead in ion coloured optical filter glass types	
13(b)- (II),Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex	
13(b)- (III),Cadmium and lead in glazes used for reflectance standards	
14, Lead in solders consisting of more than two elements for the connection between the pins and the package of micropro-cessors with a lead content of more than 80 % and less than 85 % by weight	Expired on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011
15, Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	Applies to categories 8, 9 and 11 and expires on: - 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
15(a),Lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages where at least one of the following criteria applies:- a semiconductor technology node of 90 nm or larger; - a single die of 300 mm2 or larger in any semiconductor technology node; - stacked die packages with die of 300 mm2 or larger, or silicon interposers of 300 mm2 or larger	Applies to categories 1 to 7 and 10 and expires on 21 July 2021.
16, Lead in linear incandescent lamps with silicate coated tubes	Expires on 1 September 2013

Exemptions	
RoHS Directive SI 2012 No.3032	
Exemption Items	**Expires Date**
17, Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	
18(a), Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as speciality lamps for diazoprinting reprography, lithography, insect traps,photochemical and curing processes containing phosphors such as SMS ((Sr,Ba)2MgSi2O7:Pb)	
18(b), Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP ($BaSi_2O_5$:Pb)	Expires on: - 21 July 2021 for categories 1-7 and 10; - 21 July 2021 for categories 8 and 9 other than in vitro diagnosticmedical devices and industrial monitoring and control instruments; - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
18(b)-I,Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lampscontaining phosphors such as BSP (BaSi2O5:Pb) when used in medical phototherapy equipment	Applies to categories 5 and 8, excluding applications covered byentry 34 of Annex IV, and expires on 21 July 2021.
19,Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSnHg as auxiliary amalgam in very compact energy saving lamps (ESL)	Expires on 1 June 2011
20,Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	Expires on 1 June 2011
21, Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	Applies to categories 8, 9 and 11 and expires on: - 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
21(a),Cadmium when used in colour printed glass to provide filtering functions, used as a component in lighting applications installed in displays and control panels of EEE	Applies to categories 1 to 7 and 10 except applications covered by entry 21(b) or entry 39 and expires on 21 July 2021
21(b),Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	Applies to categories 1 to 7 and 10 except applications covered by entry 21(a) or 39 and expires on 21 July 2021.
21(c),Lead in printing inks for the application of enamels on other than borosilicate glasses	Applies to categories 1 to 7 and 10 and expires on 21 July 2021.
23, Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less	May be used in spare parts for EEE placed on the market before 24 September 2010
24, Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	Expires on: - 21 July 2021 for categories 1-7 and 10, - 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, - 21 July 2023 for category 8 in vitro diagnostic medical devices,- 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
25, Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	
26,Lead oxide in the glass envelope of black light blue lamps	Expires on 1 June 2011
27,Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers	Expired on 24 September 2010

Exemptions	
RoHS Directive SI 2012 No.3032	
Exemption Items	**Expires Date**
29, Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC (1)	Expires on: - 21 July 2021 for categories 1-7 and 10; - 21 July 2021 for categories 8 and 9 other than in vitro diagnosticmedical devices and industrial monitoring and ontrol instruments; - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
30, Cadmium alloys as electrical/mechanical solder joints to elec-trical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	
31, Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)	
32, Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	Expires on: - 21 July 2021 for categories 1-7 and 10, - 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, - 21 July 2023 for category 8 in vitro diagnostic medical devices, - 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
33, Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	
34, Lead in cermet-based trimmer potentiometer elements	Applies to all categories; expires on: - 21 July 2021 for categories 1-7 and 10, - 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, - 21 July 2023 for category 8 in vitro diagnostic medical devices, - 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
36, Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display	Expired on 1 July 2010
37, Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	Expires on: - 21 July 2021 for categories 1-7 and 10; - 21 July 2021 for categories 8 and 9 other than in vitro diagnosticmedical devices and industrial monitoring and control instruments; - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
38, Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	
39(a), Cadmium selenide in downshifting cadmiumbased semiconductor nanocrystal quantum dots for use in display lighting applications (< 0,2 µg Cd per mm2 of display screen area)	Expires for all categories on 31 October 2019

Exemptions	
RoHS Directive SI 2012 No.3032	
Exemption Items	**Expires Date**
40, Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013
41, Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in thecrankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council (2))	Applies to all categories and expires on: - 31 March 2022 for categories 1 to 7, 10 and 11; - 21 July 2021 for categories 8 and 9 other than in vitro diagnosticmedical devices and industrial monitoring and control instruments; - 21 July 2023 for category 8 in vitro diagnostic medical devices; - 21 July 2024 for category 9 industrial monitoring and control instruments.
42,Lead in bearings and bushes of diesel or gaseous fuel powered internal combustion engines applied in non-road professional use equipment:- with engine total displacement ≥ 15 litres; or - with engine total displacement < 15 litres and the engine is designed to operate in applications where the time between signal to start and full load is required to be less than 10 seconds; or regular maintenance is typically performed in a harsh and dirty outdoor environment, such as mining, construction, and agriculture applications	Applies to category 11, excluding applications covered by entry 6(c) of this Annex. Expires on 21 July 2024.
43,Bis(2-ethylhexyl) phthalate in rubber components in engine systems, designed for use in equipment that is not intended solely for consumer use and provided that no plasticised material comes into contact with human mucous membranes or into prolonged contact with human skin and the concentration value of bis(2-ethylhexyl) phthalate does not exceed: (a) 30 % by weight of the rubber for (i) gasket coatings; (ii) solid-rubber gaskets; or (iii) rubber components included in assemblies of at least three components using electrical, mechanical or hydraulic energy to do work, and attached to the engine (b) 10 % by weight of the rubber for rubbercontaining components not referred to in point (a). For the purposes of this entry, 'prolonged contact with human skin' means continuous contact of more than 10 minutes duration or intermittent contact over a period of 30 minutes, per day	Applies to category 11 and expires on 21 July 2024
44,Lead in solder of sensors, actuators, and engine control units of combustion engines within the scope of Regulation (EU) 2016/1628 of the European Parliament and of the Council (4), installed in equipment used at fixed positions while in operation which is designed for professionals, but also used by non-professional users	Applies to category 11 and expires on 21 July 2024.
45,Leaddiazide, lead styphnate, lead dipicramate, orange lead (lead tetroxide), lead dioxide in electric and electronic initiators of explosives for civil (professional) use and barium chromate in long time pyrotechnic delay charges of electric initiators of explosives for civil (professional) use	Applies to category 11 and expires on 20 April 2026
Note: 1. OJ L 174 1.7.2011, p.88.	

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** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	2024/12/24	Jason Zhou
Revision 2.0	All test data were obtained from: HK24121122133-1RR	2025/01/15	Jason Zhou

TEST REPORT

Photo(s) of the sample(s)

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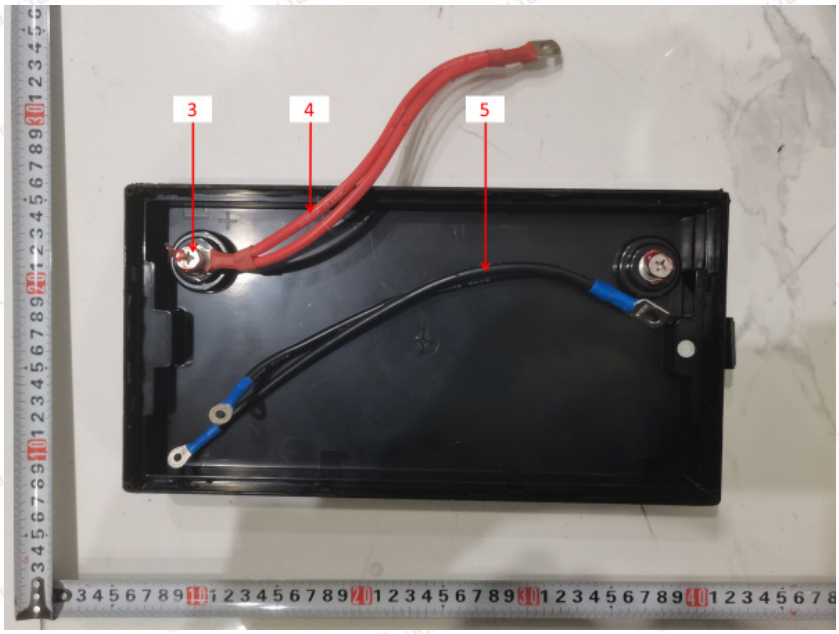
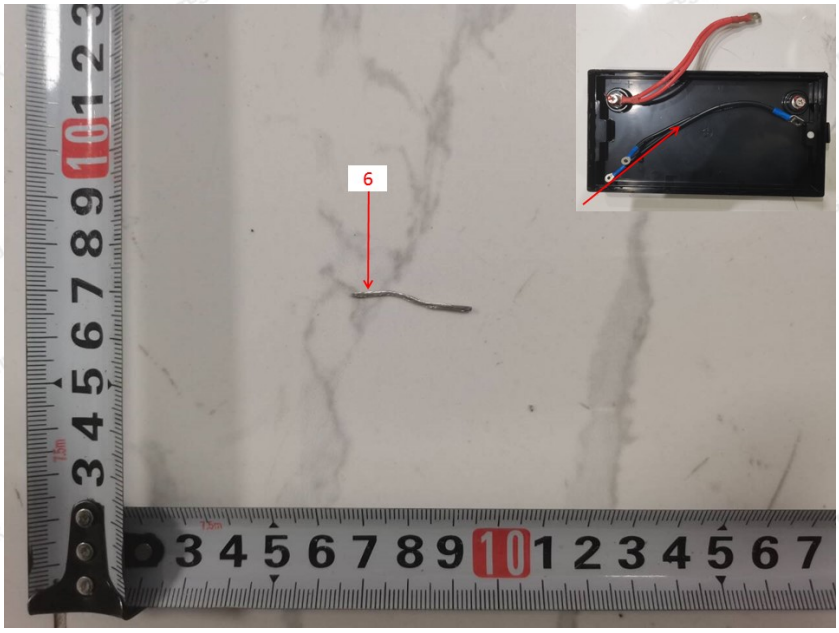
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China





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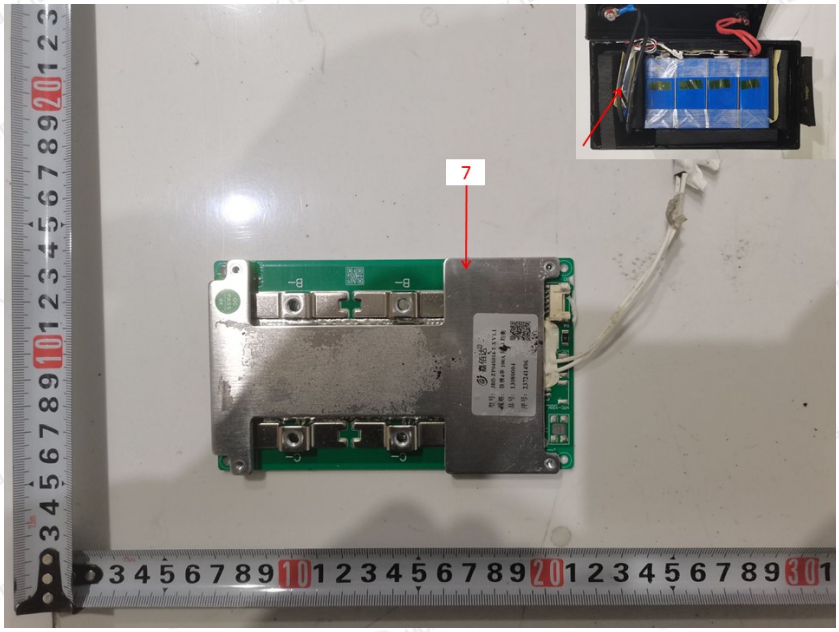

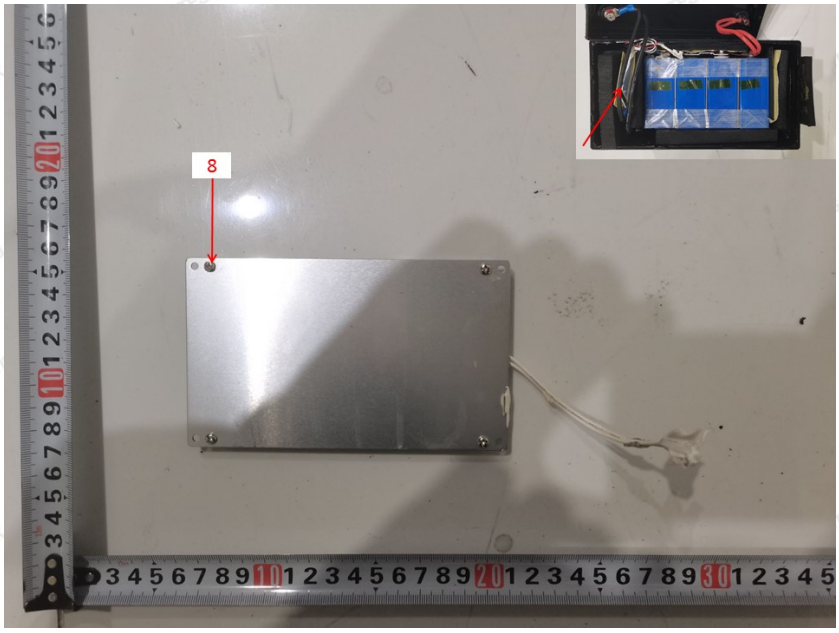

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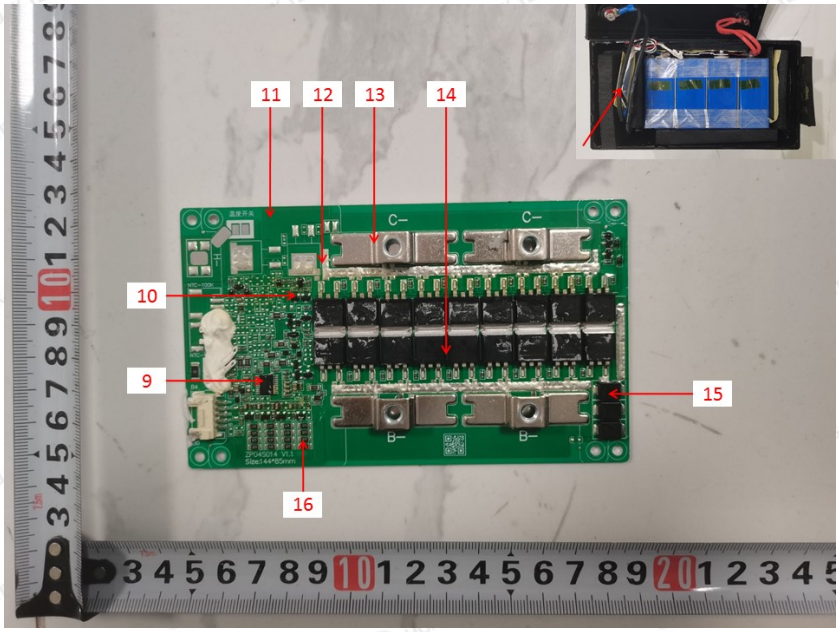
TEST REPORT



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

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