



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 1 of 11

Applicant : Shenzhen Honcell Energy Co., Ltd.
Address : 612B, Bldg. A, Weidonglong Industrial Zone, Meilong Ave.194#, Longhua New District, Shenzhen, 518109, China.
Manufacturer : Shenzhen Honcell Energy Co., Ltd.
Address : 612B, Bldg. A, Weidonglong Industrial Zone, Meilong Ave.194#, Longhua New District, Shenzhen, 518109, China.
Sample Name : Lithium-ion polymer battery
Sample Model : HCP782536NFC
Trade Name : HC
Receiving Date : Jan 10, 2022
Testing Period : Jan 10, 2022 to Jan 15, 2022
Test Requested : 1. According to customer's requirement, Lead (Pb), Cadmium (Cd), Mercury (Hg), Chromium (Cr) and Bromine (Br) in submitted material were screened by XRF.
2. According to customer's requirement, when the screening results exceed the XRF screening limit of IEC 62321-3-1:2013, Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium [Cr(VI)], Polybrominated biphenyls (PBBs) and Polybrominated diphenyl ethers (PBDEs) in the submitted material are further tested by chemical methods according to IEC 62321-4:2013/AMD 1:2017, IEC 62321-5:2013, IEC 62321-6:2015, IEC 62321-7-1:2015, IEC 62321-7-2:2017.
3. According to customer's requirement, Diisobutyl phthalate (DIBP), Dibutyl Phthalate (DBP), Benzyl butyl phthalate (BBP) and Bis(2-ethylhexyl) phthalate (DEHP) in the submitted material are tested by chemical methods according to IEC 62321-8:2017.
4. The test points selected in this report are designated by the applicant.
Test Methods : Please refer to next page(s)
Test Results : Please refer to next page(s)

Conclusion :	The limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.	PASS
--------------	--	------



Edited by: Lynda Ai Reviewed by: Morgan Li Approved by: Terry Cao



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 2 of 11

Test Methods

a) XRF scanning testing

Test method: IEC 62321-3-1:2013.

Element	Screening limits in mg/kg for regulated elements in various matrices			MDL (mg/kg)	
	Polymers	Metals	Composite material	Polymers	Other materials
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	10	50
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq LOD < X < (150+3\sigma) \leq OL$	10	50
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	10	50
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$	10	50
Br	$BL \leq (300-3\sigma) < X$	---	$BL \leq (250-3\sigma) < X$	10	50

Remark: 1. BL — Below limit, 2. OL — Over limit, need to chemical test,
3. X — Inconclusive, need to chemical test, 4. 3σ — The repeatability of the XRF,
5. MDL — Method detection limit, 6. LOD = MDL.

b) Chemical testing

Test items	Test methods	Instruments	MDL	Limit
Pb	IEC 62321-5:2013	ICP-OES	2 mg/kg	1000 mg/kg
Cd	IEC 62321-5:2013	ICP-OES	2 mg/kg	100 mg/kg
Hg	IEC 62321-4:2013/AMD 1:2017	ICP-OES	2 mg/kg	1000 mg/kg
Cr(VI)	IEC 62321-7-1:2015	UV-Vis	See Remark	1000 mg/kg
	IEC 62321-7-2:2017	UV-Vis	10 mg/kg	1000 mg/kg
PBBs	IEC 62321-6:2015	GC-MS	30 mg/kg	1000 mg/kg
PBDEs	IEC 62321-6:2015	GC-MS	30 mg/kg	1000 mg/kg
DIBP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg
DBP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg
BBP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg
DEHP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 3 of 11

Test Results

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
1	Al-plastic film	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
2	Yellow tape	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
3	White plastic	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
4	Silvery metal	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 4 of 11

Test Results

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
5	Black resistance	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
6	Green PCB	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
7	Tin solder	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
8	Black plastic electric wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 5 of 11

Test Results

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
9	Yellow plastic electric wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
10	Red plastic electric wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
11	Silvery metal wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
12	Silvery metal	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 6 of 11

Test Results

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
13	Yellow tape	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
14	Green tape	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
15	White plastic film	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
16	Aluminum foil	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 7 of 11

Test Results

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
17	Positive electrode material	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		DEHP	---	ND	
18	Copper foil	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		DEHP	---	---	
19	Negative electrode material	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		DEHP	---	ND	

Remark:

1. There are the results on total Br while test items on restricted substances are PBBs and PBDEs. There is the result on total Cr while test item on restricted substances is Cr(VI).
2. Results are obtained by XRF for primary screening, and chemical testing by ICP-OES (for Pb, Cd, 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 IEC 62321-3-1:2013.
3. ND = Not detected (<MDL), mg/kg = ppm = 0.0001%.
4. “---” = Not conducted.
5. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 $\mu\text{g}/\text{cm}^2$, the sample coating is considered to contain Cr(VI). The sample is negative for Cr(VI) if the Cr(VI) concentration is less than 0.10 $\mu\text{g}/\text{cm}^2$, the sample is considered a non-Cr(VI) based coating. The result between 0.10 $\mu\text{g}/\text{cm}^2$ and



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 8 of 11

0.13 $\mu\text{g}/\text{cm}^2$ is considered to be inconclusive, unavoidable coating variations may influence the determination.



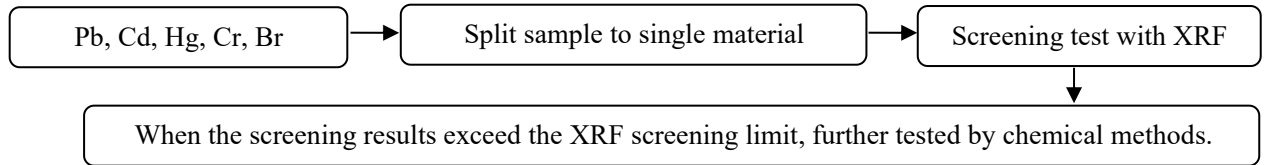
Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City,
Guangdong Province.

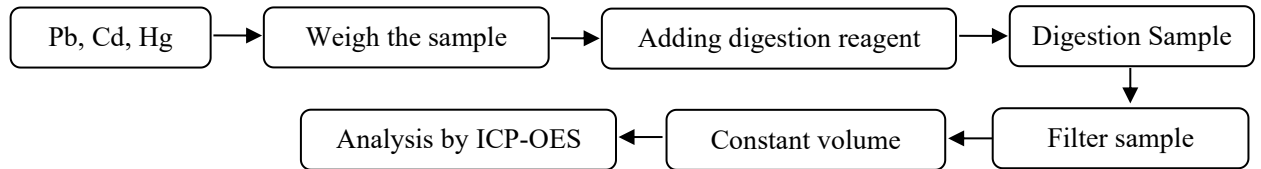
Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com

Test Flow Chart

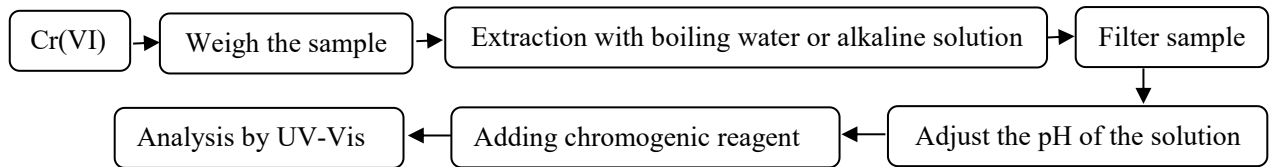
1. Pb, Cd, Hg, Cr, Br (XRF test method)



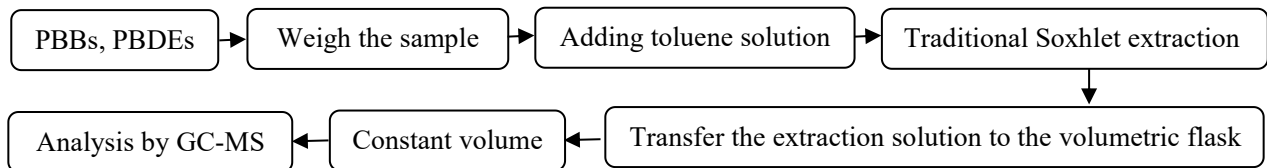
2. Pb, Cd, Hg (ICP-OES test method)



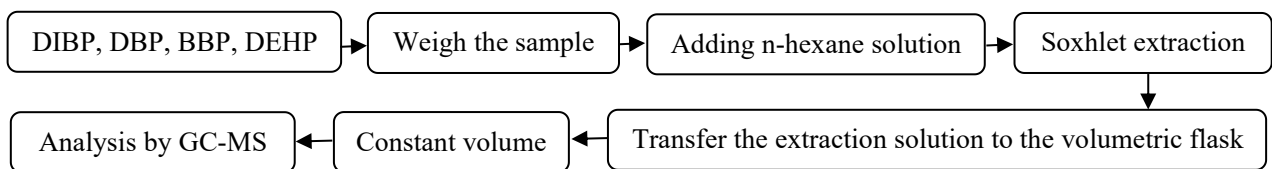
3. Cr(VI) (UV-Vis test method)



4. PBBs, PBDEs (GC-MS test method)



5. DIBP, DBP, BBP, DEHP (GC-MS test method)

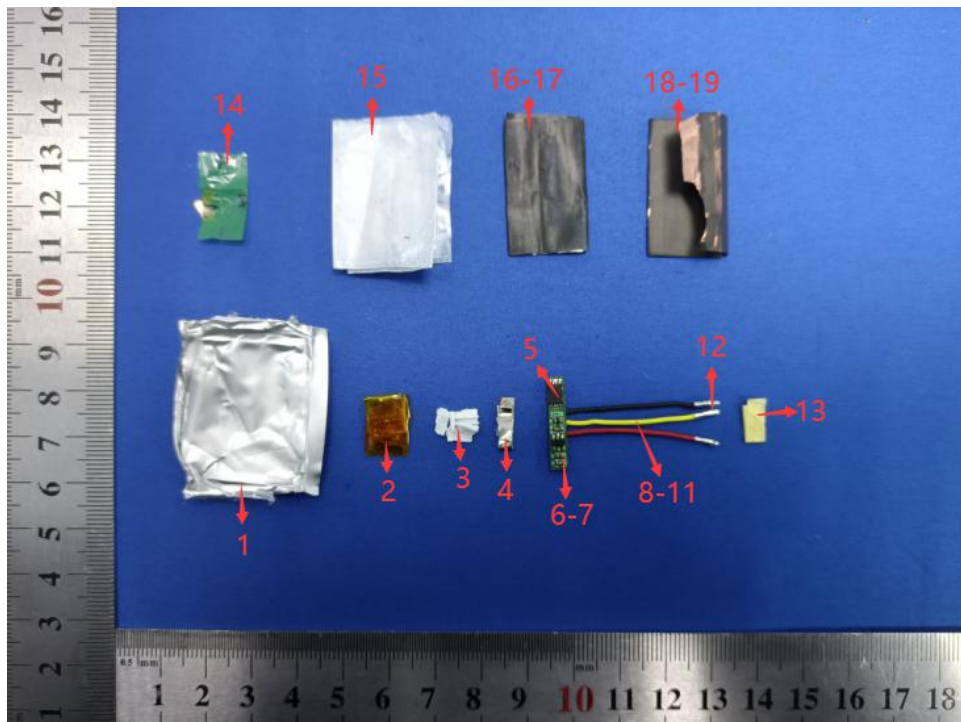
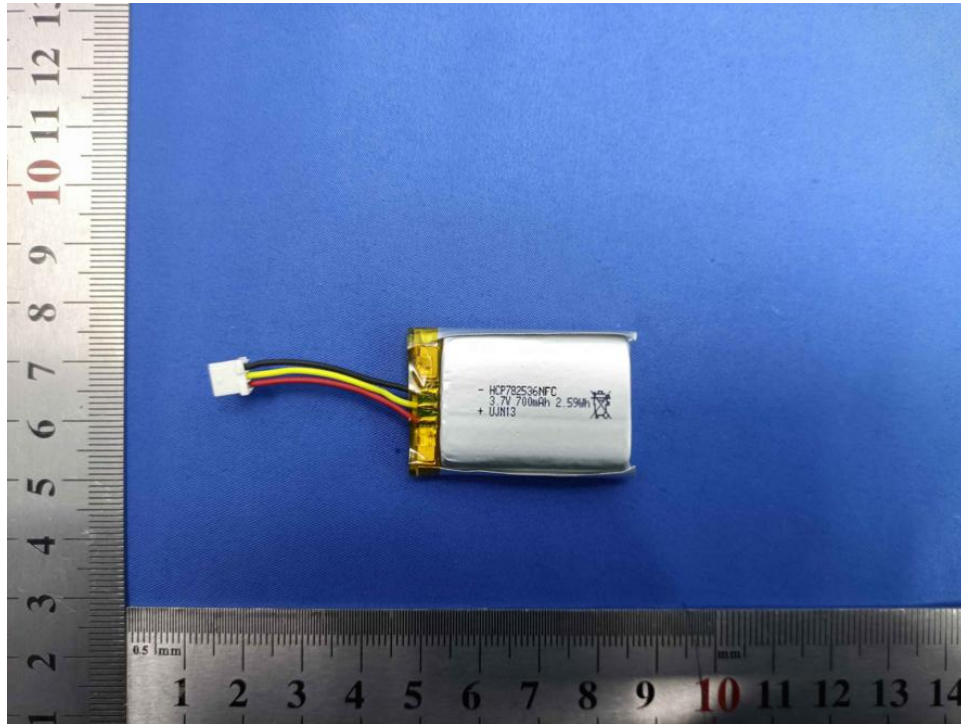


Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com

Sample Photo(s)



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com



Test Report

Report No.: ZKS220100882-1

Date: Jan 15, 2022

Page 11 of 11

Statement

1. Report is invalid without the editor, the reviewer or the approver signature, or altered, or additions and deletions, or not stamped with a special seal.
2. This test report is only responsible for the sample of this acceptance.
3. If the applicant does not raise any objection within 15 working days after receiving the report, it shall be deemed to approve the report result.
4. If you want to check the report, please scan the QR code.

* * * End of report * * *



Dongguan ZRLK Testing Technology Co., Ltd.

Address: Building 2, No. 1, Technology 10th Road, Songshan Lake Park, Dongguan City, Guangdong Province.

Telephone: +86-0769-26621775-8002 Email: terry@zrlklab.com Website: www.zrlklab.com