RoHS TEST REPORT

Applicant:	GUANGZHOU ZHANFENG SMART CARD TECHNOLOGY CO., LTD.
Address:	5/F, Building A5, NO.11, Kaiyuan Road, Science City, High-tech Industrial Development Zone, Huangpu District, Guangzhou, China.
Manufacturer:	GUANGZHOU ZHANFENG SMART CARD TECHNOLOGY CO., LTD.
Address:	5/F, Building A5, NO.11, Kaiyuan Road, Science City, High-tech Industrial Development Zone, Huangpu District, Guangzhou, China.
Product:	RFID CARD
Model:	RFID CARD
Trade mark	ZF CARD
Test standard:	IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013,IEC 62321-6:2015, IEC 62321-7-1:2015,IEC 62321-7-2:2017, IEC 62321-8:2017 2011/65/EU
Conclusion:	The product tested conforms to the standards listed above.
Test date:	Nov 28-30,2024
Issue date:	Nov 30,2024
Reviewed by:	
Approved by :	
Prepared by:	OCT TECHNOLOGY TESTING CO., LTD.

Oct Technology Testing Co., Ltd.
1414, Building 3, No.41, Jinlong Road, Nansha District, Guangzhou City, Guangdong Province
TEL:020-85822824,888@oucetesting.com
www.oucetesting.com

Notice

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3. This report shall be invalidation without tester signature, reviewer signature and approver signature.

4. This altered report shall be invalidation.

5. Client shall put forward demurrer within 15days after received report. The testing laboratory shall refuse disposal if exceeded the time limit.

6. The test results presented in this report relate only to the object tested.

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1. Pb, Cd, Cr(VI), Hg,

PBBs&PBDEs Test Method:

Disassembly, disjointment and mechanical sample preparation
—Ref. to IEC 62321-2:2021, Disassembly, disjointment and mechanical sample preparation.
With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.
Screening – Lead, mercury, cadmium, total chromium and total bromine
— Ref. to IEC 62321-3-1:2013, Screening for Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry.
Wet chemical test method

Test Item(s)	Test Method	Test Equipment	Unit	MDL	Limit
Pb	IEC62321-5:2013	ICP-AES	mg/kg	2	1000
Cd	IEC62321-5:2013	ICP-AES	mg/kg	2	100
Hg	IEC 62321-4:2013/AMD1:2017	ICP-AES	mg/kg	2	1000
Cr(VI) (Metal)	IEC62321-7-1:2015	UV-Vis	$\mu g/cm^2$	0.1	0.13
Cr(VI) (Nonmetal)	IEC62321-7-2:2017	UV-Vis	mg/kg	8	1000
PBBs	IEC62321-6:2015	GC-MS	mg/kg	5	1000
PBDEs	IEC62321-6:2015	GC-MS	mg/kg	5	1000

PBBs		PBDEs	
Monobromobiphenyl	Hexabromobiphenyl	Monobromodiphenyl ether	Hexabromodiphenyl ether
Dibromobiphenyl	Heptabromobiphenyl	Dibromodiphenyl ether	Heptabromodiphenyl ether
Tribromobiphenyl	Octabromobiphenyl	Tribromodiphenyl ether	Octabromodiphenyl ether
Tetrabromobiphenyl	Nonabromobiphenyl	Tetrabromodiphenyl ether	Nonabromodiphenyl ether
Pentabromobiphenyl	Decabromobiphenyl	Pentabromodiphenyl ether	Decabromodiphenyl ether

Sample Description:

Sample No.	Sample Description
1.	Enclosure
2	chip

Test result(s):

Sample No.	Results of XRF					Chemical confirmation results (mg/kg)	Conclusion
	Pb	Cd	Hg	Cr	Br		
2	BL	BL	BL	BL	BL	---	Pass

Remark:

a. It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).

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

c. Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-AES (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 warming value according to IEC 62321-3-1:2013.

d. PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment(EU) 2015/863.

Attached table 1, XRF screening limits in mg/kg for regulated elements in various matrices:

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

XRF detection limits in mg/kg for regulated elements in various material

Element	Polymer Material	Metallic Material	Composite Material
Pb	10	50	50
Cd	10	50	50
Hg	10	50	50
Cr	10	50	50
Br	10	50	50

Note：

-BL = Under the XRF screening limit
-OL = Furture chemical test will be conducted while result is above the screening limit
-X = inconclusive, the region where need further chemical testing by ICP-AES (for Pb, Cd, Hg), UV-VIS (for Cr(VI)) and GC-MS (for PBBs, PBDEs).
-3σ=The reproducibility of analytical instruments
-LOD=Detection limit
"---" = Not Applicable
- mg/kg=0.0001%
N.D.=Not Detected(<MDL)
MDL = Method Detection Limit
-Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm2 sample surface area used.
-*=According to 2011/65/EU Annex,point *Lead as an alloying element is steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy, containing up to 4% lead by weight can be exempted.

2. Phthalates—DBP, BBP, DEHP & DIBP

Test Item(s)	Test Method	Test Equipment	Unit	MDL	Limit
Dibutyl Phthalate(DBP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000
Benzylbutyl Phthalate (BBP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000
Di-(2-ethylhexyl)Phthalate (DEHP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000
Diisobutyl phthalate(DIBP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000

Test result(s):

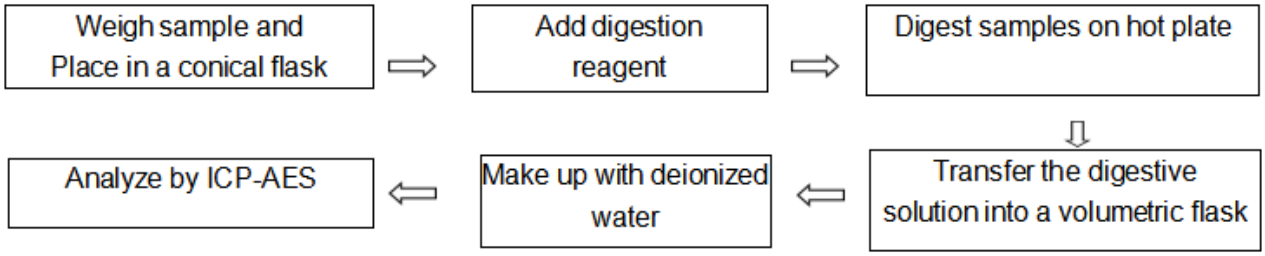
Part No.	Test Item (mg/kg)				Conclusion
	DBP	BBP	DEHP	DIBP	
1	N.D.	N.D.	N.D.	N.D.	Pass

Note： - mg/kg=0.0001%

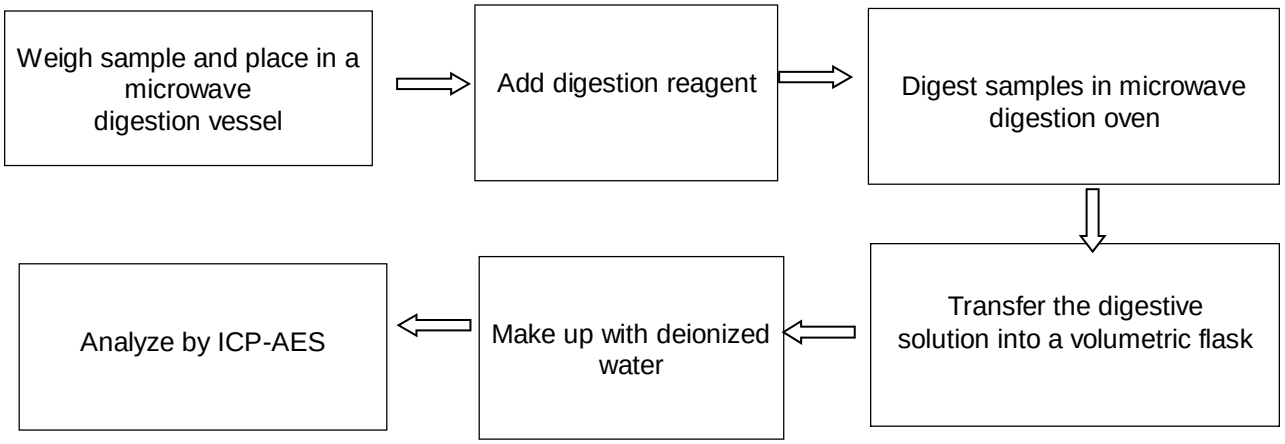
-N.D.=Not Detected(<MDL)

Chemical Test Process:

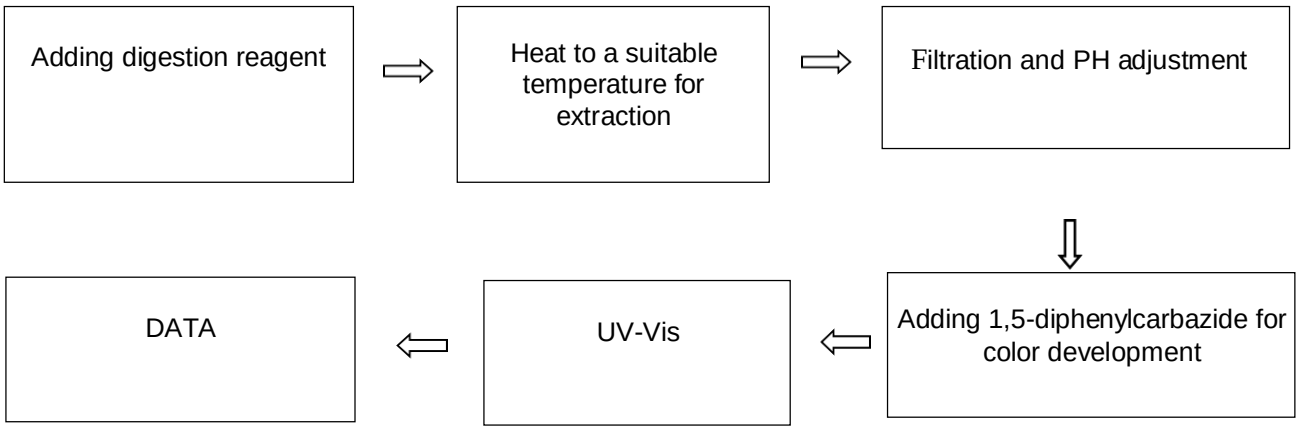
1. Test for Cd/Pb Content



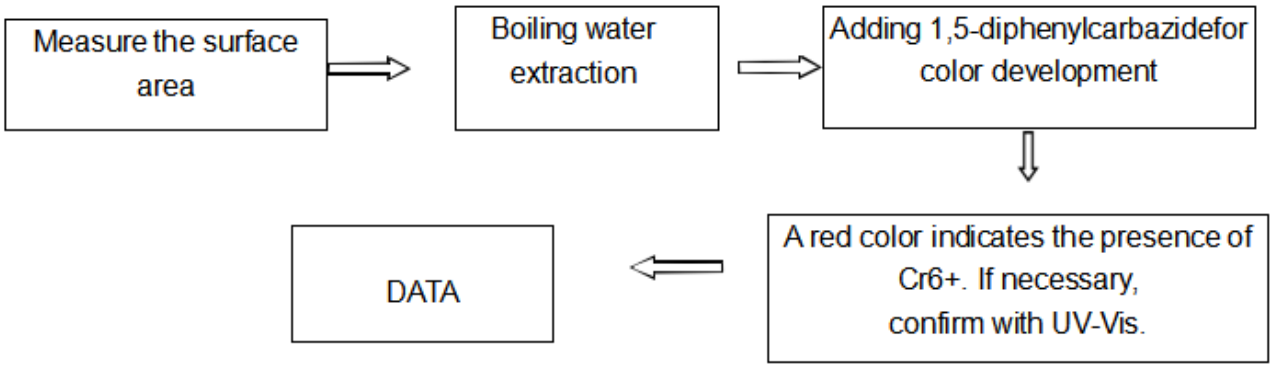
2. Test for Hg Content



3.Test for Chromium (VI) Content
Nonmetal material



Metal material



4.Test for DBP, BBP, DEHP, DIBP, PBB, PBDE Content

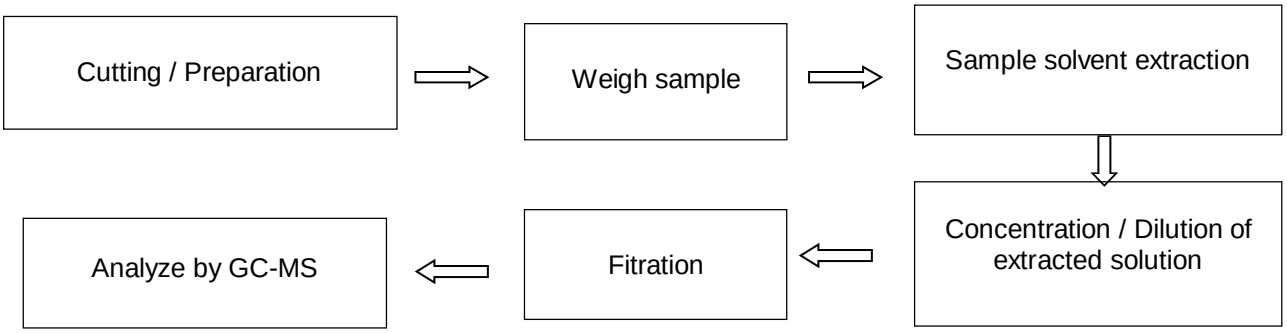
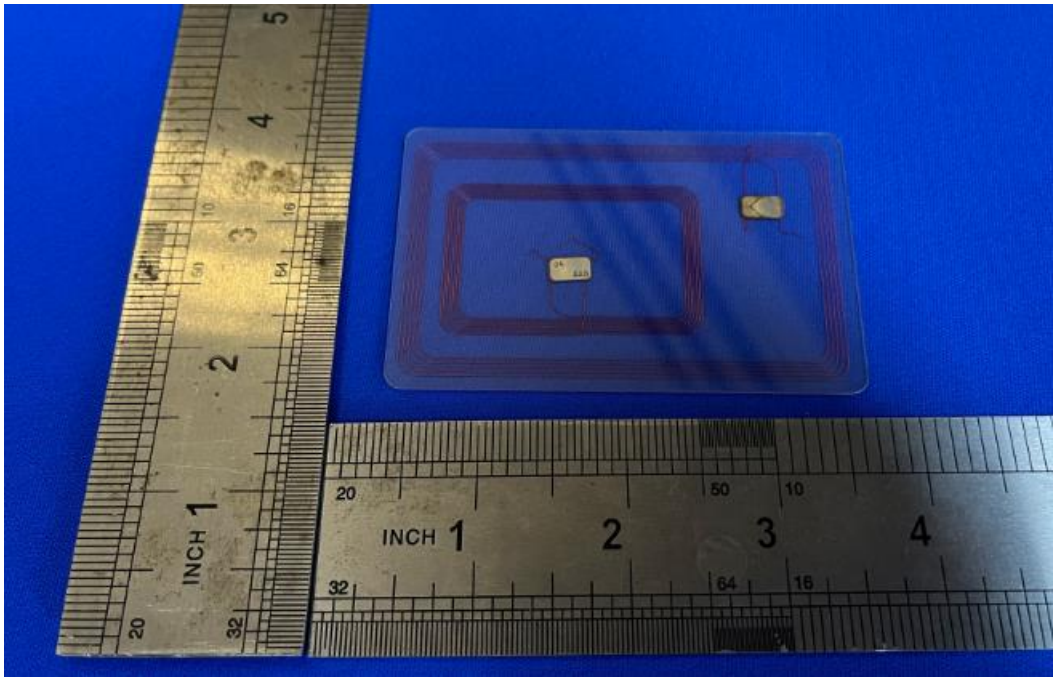


Photo of the sample



*** End of report ***

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