Test Report

Applicant: Guangzhou Xingyi Electronic Technology Co., Ltd

Contact information: Room 805-808, Room 801, Building 4, No. 1, 3, and 5, Kesheng Road, Guangzhou Private Science and Technology Park, No. 1633 Beitai Road, Baiyun District, Guangzhou City

The following sample(s) was (were) submitted and identified by client as:

Sample Name	:	RK3568 Industrial core board
Model No.	:	ATK-CLRK3568B
Trade mark	:	正点原子
Factory	:	Dongguan Zhichen Electronic Technology Co., Ltd
Address	:	301, Building 1, No. 16 Xingui Road, Lincun, Tangxia Town, Dongguan City, Guangdong Province
Manufacturer	:	Guangzhou Xingyi Electronic Technology Co., Ltd
Address	:	Room 805-808, Room 801, Building 4, No. 1, 3, and 5, Kesheng Road, Guangzhou Private Science and Technology Park, No. 1633 Beitai Road, Baiyun District, Guangzhou City
Received Date	:	Aug. 8, 2024
Testing Period	:	From Aug. 8, 2024 to Aug. 13, 2024
Test Request	:	Please refer to next page(s).
Test Result(s)	:	Please refer to next page(s).

Shen Zhen UONE Test Co., LTD.

Prepared by	Checked by	Approved by
Max	Thea	Hedy
Max Wu	Thea Ye	Hedy Xu

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Summary of Test Results :

TEST REQUEST	CONCLUSION
RoHS Directive 2011/65/EU and its subsequent amendments Directive (EU) 2015/863	
(1) To determine Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs) content by screening test and chemical test	**PASS**
(2) To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test	**PASS**

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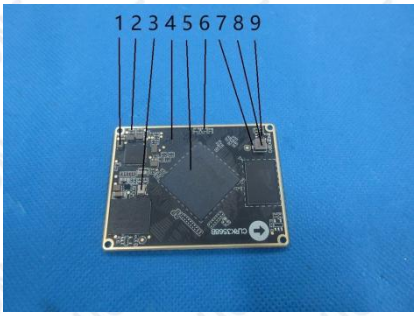
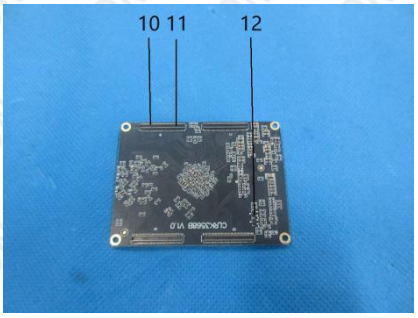
Test Material List

Material No.	Description (Location)	Photo(s) of tested materials
1	Grey body(inductor)	
2	Brown body(capacitor)	
3	Silvery body(crystal oscillator)	
4	Black PCB	
5	Black body(IC)	
6	Black body(inductor)	
7	Silvery metal(pin)	
8	Grey body(inductor)	
9	Black body(IC)	
10	Golden metal(pin)	
11	Black plastic(base)	
12	Black body(triode)	

Test Result(s):

(1) Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)

Test Method: IEC62321-3-1: 2013, IEC62321-4: 2013+A1:2017, IEC62321-5: 2013, IEC62321-6: 2015,IEC 62321-7-1:2015, IEC 62321-7-2: 2017, analyzed by EDXRF & ICP-OES & GC-MS & UV-Vis.

No.	EDXRF Result (1)					Chemical Result (2) (mg/kg)	Remark(3)	Conclusion
	Pb	Cd	Hg	Cr	Br			
1	BL	BL	BL	BL	BL	—	—	PASS
2	BL	BL	BL	BL	BL	—	—	PASS
3	BL	BL	BL	BL	BL	—	—	PASS
4	BL	BL	BL	BL	X	PBBs: N.D. PBDEs: N.D.	—	PASS
5	BL	BL	BL	BL	BL	—	—	PASS
6	BL	BL	BL	BL	BL	—	—	PASS
7	BL	BL	BL	BL	NA	—	—	PASS
8	BL	BL	BL	BL	BL	—	—	PASS
9	BL	BL	BL	BL	BL	—	—	PASS
10	BL	BL	BL	BL	NA	—	—	PASS
11	BL	BL	BL	BL	BL	—	—	PASS
12	BL	BL	BL	BL	BL	—	—	PASS

Remark:

(1) ①Results are obtained by EDXRF for primary screening, and further wet 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 an inconclusive result was found (as "X" in below table) (unit: mg/kg).

②OL = Over Limit, BL = Below Limit, X = Inconclusive, NA = Not Applicable.

③The EDXRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

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	NA	BL ≤ (250-3σ)< X
Cr	BL ≤ (700-3σ)< X	BL ≤ (700-3σ)< X	BL ≤ (500-3σ)< X

Units and limits in EU RoHS Directive 2011/65/EU:

Element	Pb	Cd	Hg	Cr(VI)	PBBs(single)	PBDEs(single)
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit	1000	100	1000	1000	1000	1000

(2) ① mg/kg = ppm = 0.0001%, N.D. = Not Detected (Less than MDL).

②Unit and MDL (Method detection limit) in wet chemical test.

Element	Pb	Cd	Hg	Cr(VI)	PBBs(single)	PBDEs(single)
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	2	2	2	8	5	5

③According to IEC 62321-7-1:2015, result on Cr(VI) for metal sample is shown as Positive/Negative. Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating.
Storage condition and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

④ According to IEC 62321-3-1:2013, this column represents the results of wet chem test.

(3) This column represents the exempted decoration of material or other related testing sample's information.

(2) Phthalates (DBP, BBP, DEHP, DIBP) content

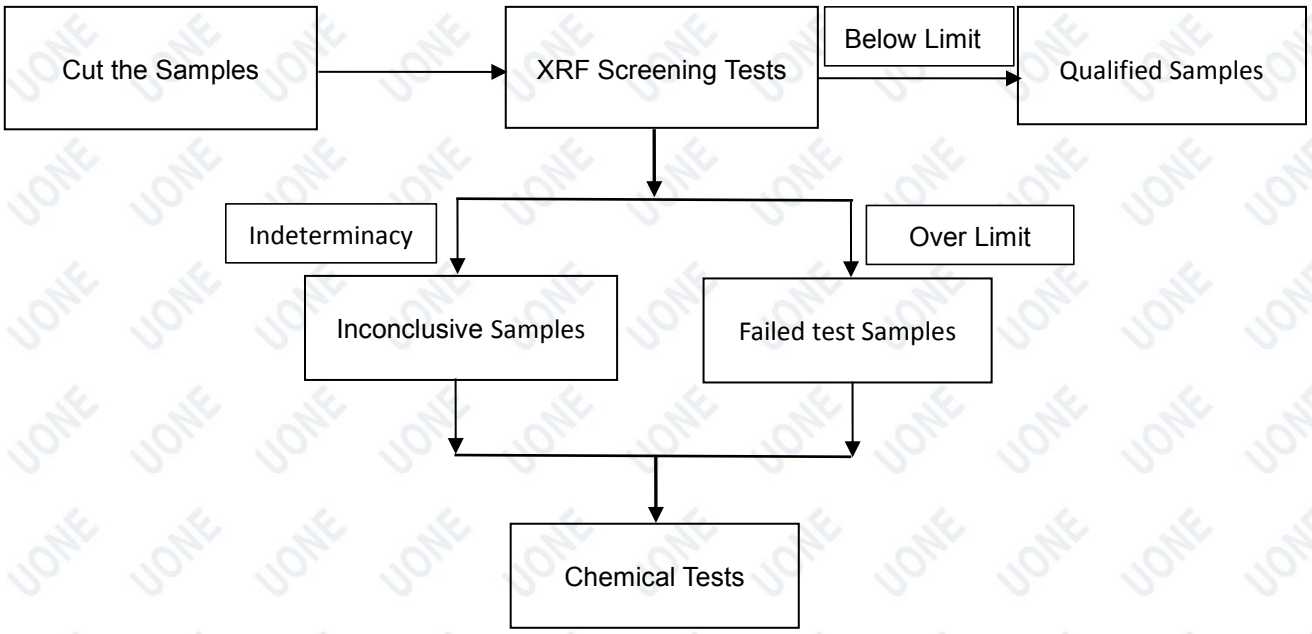
Test Method: IEC 62321-8: 2017, analyzed by gas chromatographic- mass spectrometer (GC-MS).

Substances	DBP	BBP	DEHP	DIBP	Conclusion
CAS No.	84-74-2	85-68-7	117-81-7	84-69-5	
Limit (mg/kg)	1000	1000	1000	1000	
MDL (mg/kg)	20	20	20	20	
Material No.	Result (mg/kg)				
1	N.D.	N.D.	N.D.	N.D.	PASS
2	N.D.	N.D.	N.D.	N.D.	PASS
3	N.D.	N.D.	N.D.	N.D.	PASS
4	N.D.	N.D.	N.D.	N.D.	PASS
5	N.D.	N.D.	N.D.	N.D.	PASS
6	N.D.	N.D.	N.D.	N.D.	PASS
8	N.D.	N.D.	N.D.	N.D.	PASS
9	N.D.	N.D.	N.D.	N.D.	PASS
11	N.D.	N.D.	N.D.	N.D.	PASS
12	N.D.	N.D.	N.D.	N.D.	PASS

Note:
1. mg/kg = milligram per kilogram (ppm).
2. MDL= method detection limit.
3. N.D.=not detected(less than MDL).

Test Process Flow

1. XRF scan



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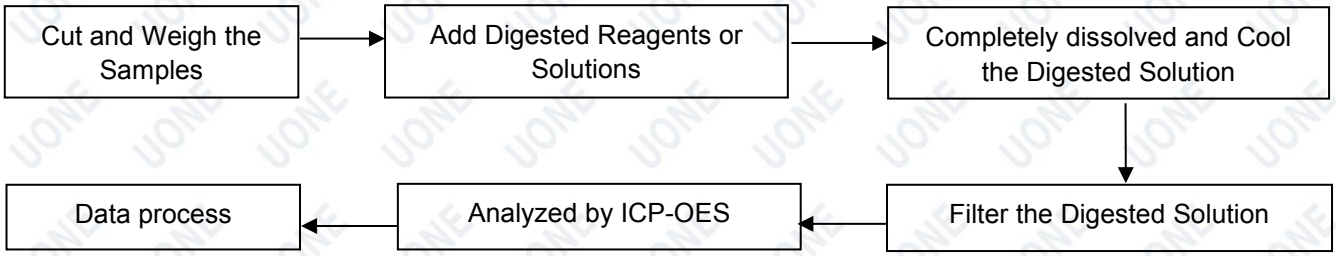
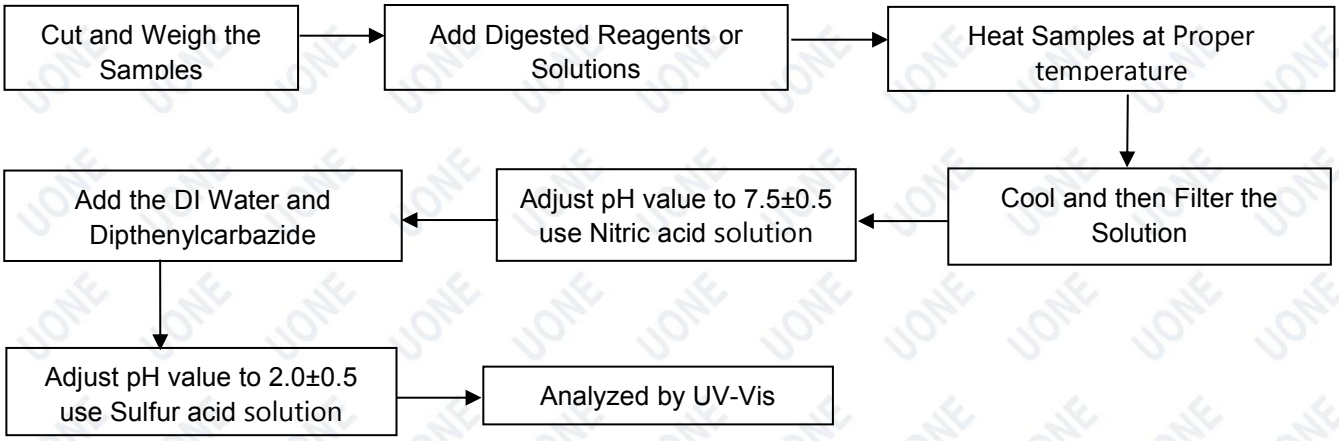
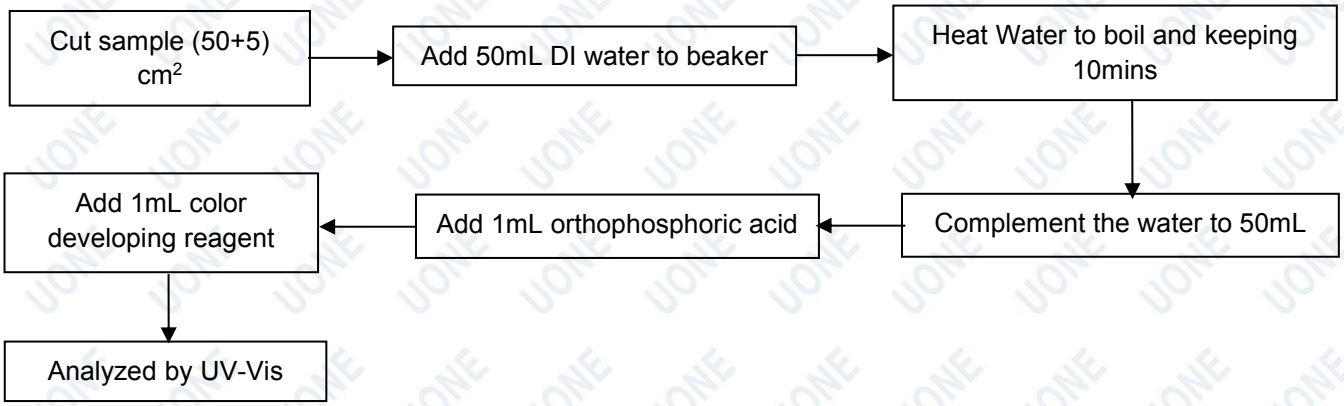
2. Lead, Cadmium, Mercury



3. Hexavalent Chromium (Non-metal)



Hexavalent Chromium (Metal)



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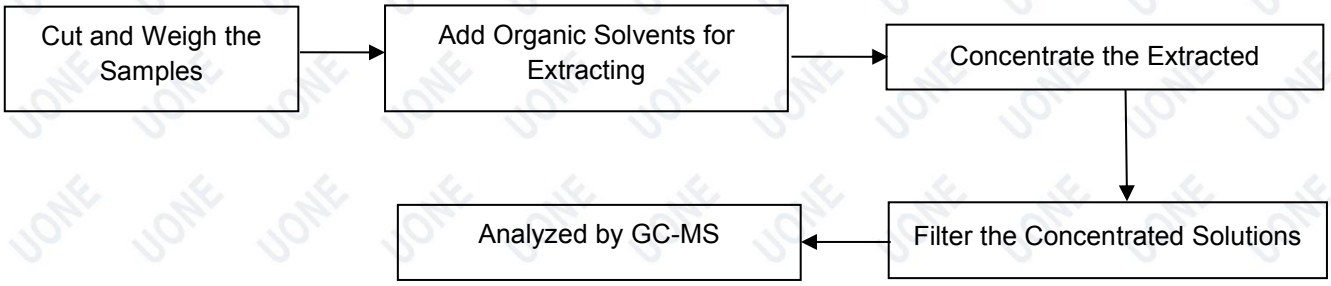
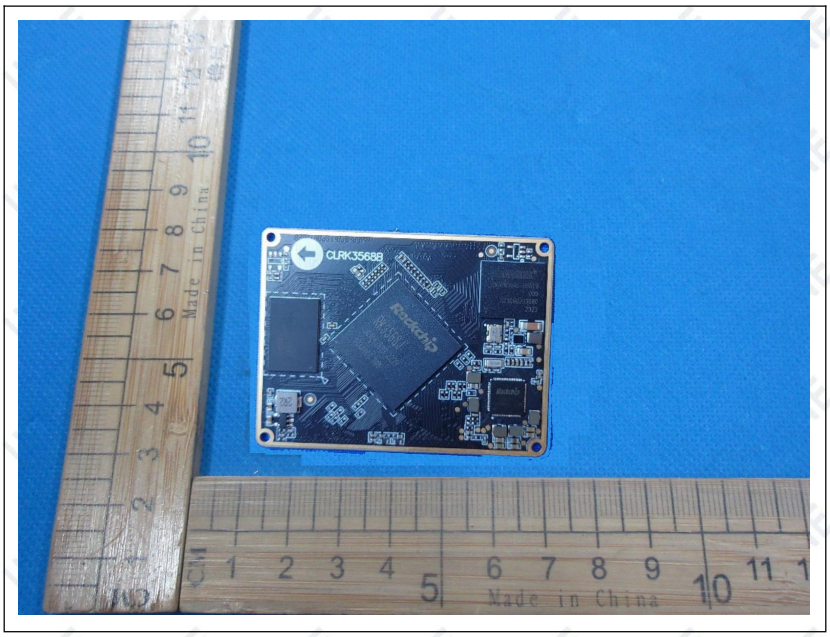
4. PBBs & PBDEs, Phthalates



Photo(s) of Sample:



End of Report

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Statement

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