



中国认可  
国际互认  
检测  
TESTING  
CNAS L3572

REPORT No.: SZ23040196R01

# TEST REPORT

**Applicant** : Shenzhen lingchengxin Electronics Co., Ltd

**Product Name** : RF IC

**Model Name** : LR690L

**Client Reference Info.** : FB1527, FJ1527, LT4455, LR680H, LR680J, LR670

**Brand Name** : FNRF

**Test Request** : With reference to RoHS Directive 2015/863/EU amending 2011/65/EU

**Receipt Date** : 2023-04-12

**Test Date** : 2023-04-12 to 2023-04-17

**Issue Date** : 2023-04-18

**Conclusion** : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis (2-ethylhexyl) phthalate (DEHP), Dibutyl phthalate (DBP), Butyl benzyl Phthalate (BBP), Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Edited by : Tao Qing  
Tao Qing (Rapporteur)

Approved by : Kimoon Sun  
Kimoon Sun (Supervisor)

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**MORLAB**

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## 1. Applicant Information

**Applicant** : Shenzhen lingchengxin Electronics Co., Ltd  
**Applicant Address** : 515, block D, Huayuan science and Technology Innovation Park,  
Baoyuan Road, Xixiang street, Bao'an District, Shenzhen, Guangdong  
**Manufacturer** : Shenzhen lingchengxin Electronics Co., Ltd  
**Manufacturer Address** : 515, block D, Huayuan science and Technology Innovation Park,  
Baoyuan Road, Xixiang street, Bao'an District, Shenzhen, Guangdong

## 2. Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	IEC 62321-5-2013	AAS or ICP-OES
Cadmium (Cd)	IEC 62321-5:2013	AAS
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017	UV-Vis
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers(PBDEs)	IEC 62321-6:2015	GC-MS
Bis (2-ethylhexyl) phthalate (DEHP)	IEC 62321-8:2017	GC-MS
Dibutyl phthalate (DBP)	IEC 62321-8:2017	GC-MS
Benzyl butyl phthalate (BBP)	IEC 62321-8:2017	GC-MS
Diisobutyl phthalate(DIBP)	IEC 62321-8:2017	GC-MS

## 3. Component Description

Part No.	Sample No.	Sample Name	Sample Material
1	A-1	Black IC	Composite



## 4. Test Results

Item	Unit	MDL	Results	Limit
			A-1	
Lead (Pb)	mg/kg	2	200	1000
Cadmium (Cd)	mg/kg	2	N.D.	100
Mercury (Hg)	mg/kg	2	N.D.	1000
Hexavalent Chromium (Cr(VI))	mg/kg	8	N.D.	1000
<b>Sum of PBBs</b>	mg/kg	-	N.D.	1000
Monobromobiphenyl	mg/kg	5	N.D.	-
Dibromobiphenyl	mg/kg	5	N.D.	-
Tribromobiphenyl	mg/kg	5	N.D.	-
Tetrabromobiphenyl	mg/kg	5	N.D.	-
Pentabromobiphenyl	mg/kg	5	N.D.	-
Hexabromobiphenyl	mg/kg	5	N.D.	-
Heptabromobiphenyl	mg/kg	5	N.D.	-
Octabromobiphenyl	mg/kg	5	N.D.	-
Nonabromodiphenyl	mg/kg	5	N.D.	-
Decabromodiphenyl	mg/kg	5	N.D.	-
<b>Sum of PBDEs</b>	mg/kg	-	N.D.	1000
Monobromodiphenyl ether	mg/kg	5	N.D.	-
Dibromodiphenyl ether	mg/kg	5	N.D.	-
Tribromodiphenyl ether	mg/kg	5	N.D.	-
Tetrabromodiphenyl ether	mg/kg	5	N.D.	-
Pentabromodiphenyl ether	mg/kg	5	N.D.	-
Hexabromodiphenyl ether	mg/kg	5	N.D.	-
Heptabromodiphenyl ether	mg/kg	5	N.D.	-
Octabromodiphenyl ether	mg/kg	5	N.D.	-
Nonabromodiphenyl ether	mg/kg	5	N.D.	-
Decabromodiphenyl ether	mg/kg	5	N.D.	-
Bis (2-ethylhexyl) phthalate (DEHP)	mg/kg	50	N.D.	1000
Dibutyl phthalate (DBP)	mg/kg	50	N.D.	1000
Benzyl butyl phthalate (BBP)	mg/kg	50	N.D.	1000
Diisobutyl phthalate (DIBP)	mg/kg	50	N.D.	1000

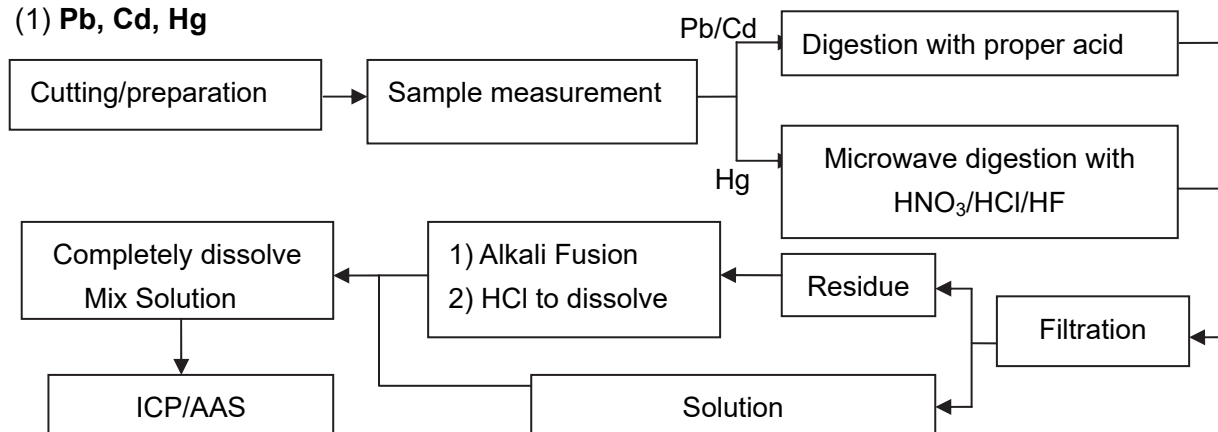
**Remark:**

- 1) mg/kg = ppm
- 2) N.D. = Not Detected (<MDL)
- 3) MDL = Method Detection Limit.

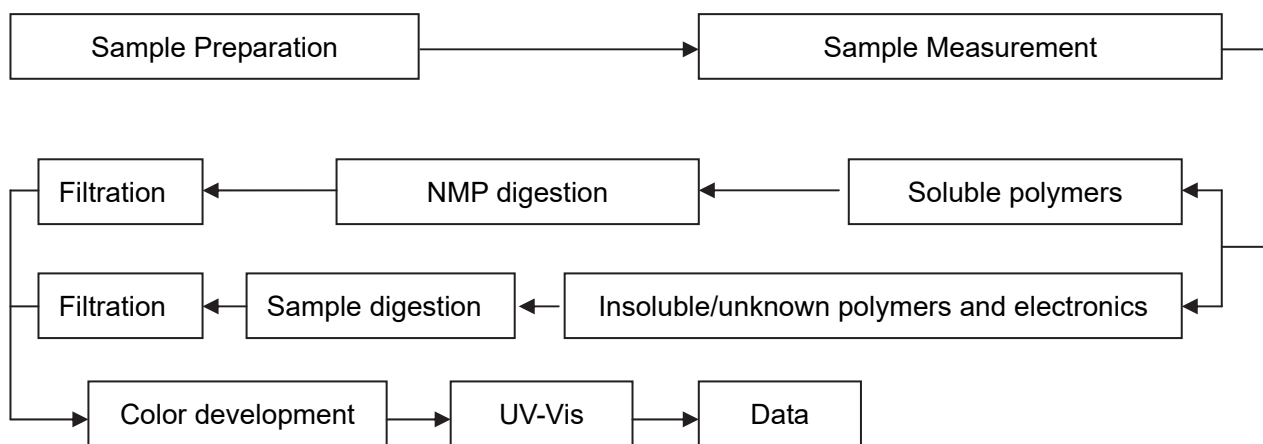
- 4) The highest content of restricted substance in the homogeneous material refers to the directive 2011/65/EU Annex II and amending directive (EU)2015/863
- 5) When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

## 5. Test process

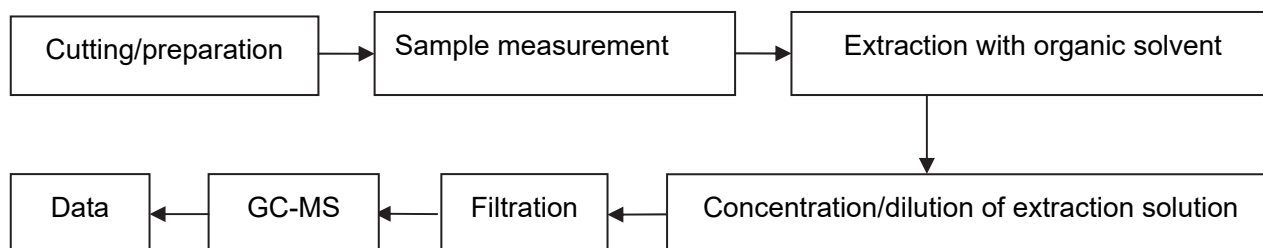
### (1) Pb, Cd, Hg



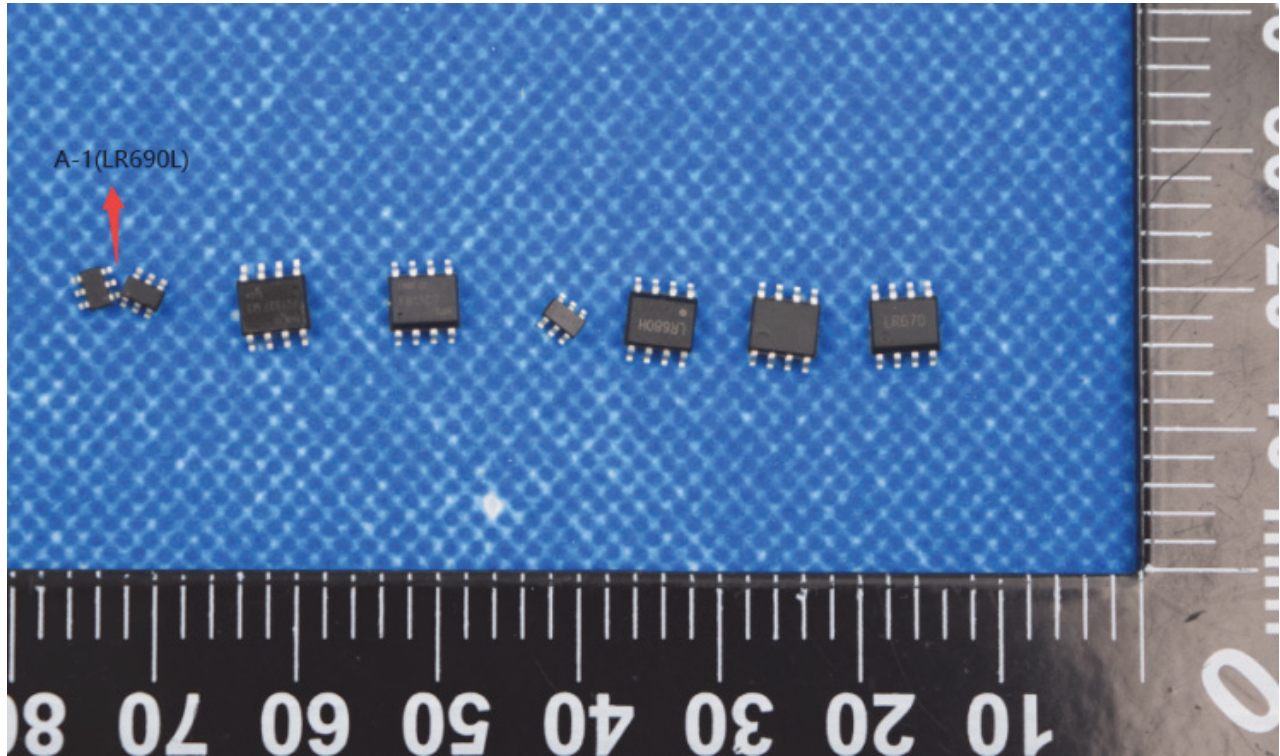
### Cr(VI) in polymers and electronics



### (3) Phthalates ,PBBs&PBDEs



## 6. Photo of Sample





## Annex A General Information

### 1.1 Identification of the Responsible Testing Laboratory

Laboratory Name	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

### 1.2 Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road,Block 67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

### 1.3 Change History

Change History		
Version	Date	Reason for change
1.0	2023-04-18	First edition

\*\*\*\*\* END OF REPORT \*\*\*\*\*