

Applicant: Shenzhen Lanrry Technology Co.,Ltd

Contact information: Floor 3, Building 2, Hongfa Industrial park, Longxin community, Shiyan street, Bao'an

district, Shenzhen

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

Sample Description : Embedded industrial motherboard

Model No. : PCM-4403

Manufacturer : Shenzhen Lanrry Technology Co.,Ltd

Address : Floor 3, Building 2, Hongfa Industrial park, Longxin community, Shiyan street,

Bao'an district, Shenzhen

Sample Received Date : Apr. 26, 2020

Testing Period : From Apr. 26, 2020 to Apr. 29, 2020

Test Request : Please refer to next page(s).

Test Result(s) : Please refer to next page(s).

Signed for and on behalf of Shen Zhen UONE Test Co., LTD.

Prepared by

Checked by

Approved by

Ally Chi

Nora Deng

Levent Liang



Repoi	rt No.: U01601200426301E	Query Password: QW7552	Date: Apr. 29, 2020	Page 2 of 12
Sumn	nary of test results:			
TEST	REQUEST			CONCLUSION
(1) i	To determine Lead (Pb), Cadmid	ubsequent amendments & Directivum(Cd), Mercury(Hg), Hexavalent s) and Polybrominated DiphenylEthemical test	Chromium(Cr(VI)),	PASS
(2)	To determine Phthalates (DBP, I	BBP, DEHP, DIBP) content by cher	mical test	PASS



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Test Material List

Material No.	Description (Location)	Photo(s) of tested materials
10h 1 10h	White plastic (terminal housing)	10 H 10 H 10 H 10 H
2	White paper with black print	
3	Silver metal (USB)	10 July 10 Jul
4	Yellow plastic (lamp shade)	0, 0, 0, 0,
5	Green plastic (lamp shade)	THE THE THE THE
6	Copper metal (pin)	2, 10, 10, 10,
<u>%</u> 7 <u> </u>	Black plastic (jack)	
8	Black plastic (socket)	1012, 11012, 11012, 11012
9	Copper metal (pin)	.6 .6 .6 .6
0 10	Black plastic (jack)	901. IMOI. IMOI. IMOI
11	Black inner plastic	1 0 7 0 0 10 10 14 17 10 01 00 00
12	Copper metal (pin)	1 2-7 8 9 10-13 14-17 18-21 22 23
13	Silver metal (USB)	
14	Silver metal (nut)	41
15	Silver sheet metal	
16	Copper metal (pin)	
17 (0)	Blue plastic (base)	24 25 26 27 28 33 34 35 36 37 38 39 4
18	Blue inside plastic	1. 1. 1.
19	Black inner plastic	10 ME 10 ME 10 ME 10 ME
20	Silver metal (USB)	0. 0. 0.
21	Copper metal (pin)	THE THE THE THE
22	Gold metal (pin)	2, 10, 10, 10,
23	Black body (diode, PCB)	is the the the
24	Black plastic (terminal housing)	10, 10, 10, 10,
25	Beige plastic (terminal housing)	4. 4. 4. 4
26	Black plastic (socket)	10 Mr. 110 Mr. 110 Mr. 110 M
27	Gold metal (nut)	0 0

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Material No.	Description (Location)	Photo(s) of tested materials
28	Black plastic (case, buzzer)	JE JE JE J
29	Black magnetic ring (buzzer)	10, 10, 10, 10,
30	Silver metal (patch, buzzer)	4. 4. 4. 3
31	Copper metal (coil, buzzer)	10 July 10 Jul
32	Silver metal (shaft, buzzer)	1 2-7 8 9 10-13 14-17 18-21 22 23
33	Silver metal (connector, buzzer)	
34	Black body (integrated circuit, PCB)	41
35	Black body (triode, PCB)	
36	Black plastic (card slot)	
37	Black sheet glass	24 25 26 27 28-33 34 35 36 37 38 39 4
38	Black body (fuse, PCB)	10 P. 10 P. 10 P. 10
39	Brown body (capacitance, PCB)	6 6 6
40	White plastic (terminal housing)	10, 140, 140, 140, 140,
41	Black body (resistance, PCB)	0 0 0
42	Green PCB	THE ONE ONE OF
43	Black body (diode, PCB)	2, 110, 110, 110
44	Black body (resistance, PCB)	40 40 44 45 46 47 40 40 50 51 51
45	Black body (integrated circuit, PCB)	42 43 44 45 46 47 48 49 50 51 52
46	Grey body (inductance, PCB)	
47	Black body (EC, PCB)	
48	Silver metal (solder)	
49	Silver metal body (crystal vibration, PCB)	
50	Black body (resistance, PCB)	
51	Brown body (capacitance, PCB)	ME ME ME OF
52	Black body (triode, PCB)	20, 110, 110, 110



Test Result(s):

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

<u>Test Method:</u> 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.

10/11	101	EDX	(RF Resu	ılt ⁽¹⁾	10/11/	Chemical Result (2)	1 (2)	10 MIL 10 MIL
No.	Pb	Cd	Hg	Cr	Br	(mg/kg)	Remark ⁽³⁾	Conclusion
1	BL	BL	BL	BL	BL	OHE OHE	Mr. Wr.	PASS
2	BL	BL	BL	BL	BL	20 20 2	100	PASS
3	BL	BL	BL	BL	NA	alt -alt	<u> </u>	PASS
4	BL	BL	BL	BL	BL	10, 10, 11), 170,	PASS
5	BL	BL	BL	BL	BL	de - de	& -&	PASS
6	BL	BL	BL	BL	NA	1012 TO12 11	12 12 12 12 12 12 12 12 12 12 12 12 12 1	PASS
7	BL	BL	BL	BL	BL	4 - 4	4 - 4	PASS
8	BL	BL	BL	BL	BL	10 HOT TONE 16	Mr. 10Mr.	PASS
9	BL	BL	BL	BL	NA	0 0	2	PASS
10	BL	BL	BL	BL	BL	WE -WE	ME -ME	PASS
11	BL	BL	BL	BL	BL	20 70 11	1100	PASS
12	BL	BL	BL	BL	NA	16 - 16		PASS
13	BL	BL	BL	BL	NA	10, 70, 11	1, 170,	PASS
14	BL	BL	BL	BL	NA	30 - 30	44.	PASS
15	BL	BL	BL	BL	NA	10pp, 120pp, 11	14. 11. 11.	PASS
16	BL	BL	BL	BL	NA	/ - /		PASS
17	BL	BL	BL	BL	X	PBBs: N.D. PBDEs: 77	Mr. 10Mr.	PASS
18	BL	BL	BL	BL	BL			PASS
19	BL	BL	BL	BL	BL	OHE OHE	MrMr	PASS
20	BL	BL	BL	BL	NA	200 200 11	200	PASS
21	BL	BL	BL	BL	NA	- AF	ale -ale	PASS
22	BL	BL	BL	BL	NA	10, 70, 11	, 10,	PASS

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110.	110	EDX	(RF Resi	ult ⁽¹⁾	10	Chemical Result (2)	D (3)	10 110
No.	Pb	Cd	Hg	Cr	Br	(mg/kg)	Remark ⁽³⁾	Conclusion
23	BL	BL	BL	BL	BL	10, 90, 11	1, 10, 1	PASS
24	BL	BL	BL	BL	BL	4 4.	JJ.	PASS
25	BL	BL	BL	BL	BL	II) INDIA ITOPI ITO	Na 1 O lar	PASS
26	BL	BL	BL	BL	BL			PASS
27	OL	BL	BL	BL	NA	Pb: 28000#	Copper alloy	PASS
28	BL	BL	BL	BL	BL	0 0 0	0	PASS
29	BL	BL	BL	BL	BL	- NE - NE	<u> </u>	PASS
30	BL	BL	BL	BL	NA	110, 70, 11	, 170, '	PASS
31	BL	BL	BL	BL	NA	& - &	& -&	PASS
32	BL	BL	BL	BL	NA	10, 20, 11	Jr 1:01 ,	PASS
33	BL	BL	BL	BL	NA	4 - 4	4 - 4	PASS
34	BL	BL	BL	BL	BL	11. THOT. THOIL	Mr. Holling	PASS
35	BL	BL	BL	BL	BL	3 - 3		PASS
36	BL	BL	BL	BL	BL	WE WE	11 - 11 E	PASS
37	BL	BL	BL	BL	BL	22 22 2	- 2	PASS
38	BL	BL	BL	BL	BL	- AF	<u> </u>	PASS
39	BL	BL	BL	BL	BL	10, 20, 11	, 10, 1	PASS
40	BL	BL	BL	BL	BL	30 - 30	& -&	PASS
41	BL	BL	BL	BL	BL	110 20 11	12 12 12 1	PASS
42	BL	BL	BL	BL	BL	/ /.	n	PASS
43	BL	BL	BL	BL	BL	10 THO	Mr. 10Mr.	PASS
44	BL	BL	BL	BL	BL	0 0	2	PASS
45	BL	BL	BL	BL	BL	ONE - WE	Mr -Mr	PASS
46	BL	BL	BL	BL	BL	12 72 11	10,	PASS
47	BL	BL	BL	BL	BL	Jr - Jr	JE -JE	PASS
48	BL	BL	BL	BL	NA	10, 20, 11	, 10, 1	PASS
49	BL	BL	BL	BL	NA	4 - 4	4 - 4	PASS



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110		EDXRF Result (1)				Chemical Result (2)	(3)	100
No.	Pb	Cd	Hg	Cr	Br	(mg/kg)	Remark ⁽³⁾	Conclusion
50	BL	BL	BL	BL	BL	10, 70, 10	10,	PASS
51	BL	BL	BL	BL	BL	J J.	JJ.	PASS
52	BL	BL	BL	BL	BL	10 HO 170 HO 110	in 10 lan	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
OFF	BL ≤(700-3σ)< X <(1300+3σ)≤	BL ≤(700-3σ)< X <(1300+3σ)≤	BL ≤(500-3σ)< X
Pb	OL	OL	<(1500+3σ)≤ OL
4.	BL ≤(700-3σ)< X <(1300+3σ)≤	BL ≤(700-3σ)< X <(1300+3σ)≤	BL ≤(500-3σ)< X
Hg	OL O	OL	<(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 C	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 RL).

2 Unit and RL (Report 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
RL	2	2	2	2	5	5

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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)

- 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.
 - ①According to the declaration from the client, Lead in specimen(s) is exempted by EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863 base on:
 - # Copper alloy containing up to 4 % lead by weight.

represent status of the sample at the time of testing.

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

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

Substances	DBP	ВВР	DEHP	DIBP	ME ME
CAS No.	84-74-2	85-68-7	117-81-7	84-69-5	10 10
Limit (mg/kg)	1000	1000	1000	1000	Conclusion
RL (mg/kg)	30	30	30	30	101, 101,
Material No.	4. 4	Result	t (mg/kg)	4. 4.	4. 4.
11019 11019	N.D.	N.D.	N.D.	N.D.	PASS
2	N.D.	N.D.	N.D.	N.D.	PASS
0 4 0 1	N.D.	N.D.	N.D.	N.D.	PASS
5	N.D.	N.D.	N.D.	N.D.	PASS
7	N.D.	N.D.	N.D.	N.D.	PASS
8	N.D.	N.D.	N.D.	N.D.	PASS
10	N.D.	N.D.	N.D.	N.D.	PASS
11/10/	N.D.	N.D.	N.D.	N.D.	PASS
17	N.D.	N.D.	N.D.	N.D.	PASS
18	N.D.	N.D.	N.D.	N.D.	PASS
19	N.D.	N.D.	N.D.	N.D.	PASS
23	N.D.	N.D.	N.D.	N.D.	PASS
24	N.D.	N.D.	N.D.	N.D.	PASS

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Substances	DBP	ВВР	DEHP	DIBP	12 12
CAS No.	84-74-2	85-68-7	117-81-7	84-69-5	all a
Limit (mg/kg)	1000	1000	1000	1000	Conclusion
RL (mg/kg)	30	30	30	30	de s
Material No.	104, 104,	Result	(mg/kg)	10H1 10H1	1011 10
25	N.D.	N.D.	N.D.	N.D.	PASS
26	N.D.	N.D.	N.D.	N.D.	PASS
28	N.D.	N.D.	N.D.	N.D.	PASS
29	N.D.	N.D.	N.D.	N.D.	PASS
34	N.D.	N.D.	N.D.	N.D.	PASS
35	N.D.	N.D.	N.D.	N.D.	PASS
36	N.D.	N.D.	N.D.	N.D.	PASS
37	N.D.	N.D.	N.D.	N.D.	PASS
38	N.D.	N.D.	N.D.	N.D.	PASS
39	N.D.	N.D.	N.D.	N.D.	PASS
40	N.D.	N.D.	N.D.	N.D.	PASS
41	N.D.	N.D.	N.D.	N.D.	PASS
42	N.D.	N.D.	N.D.	N.D.	PASS
43	N.D.	N.D.	N.D.	N.D.	PASS
44	N.D.	N.D.	N.D.	N.D.	PASS
45	N.D.	N.D.	N.D.	N.D.	PASS
46	N.D.	N.D.	N.D.	N.D.	PASS
47	N.D.	N.D.	N.D.	N.D.	PASS
50	N.D.	N.D.	N.D.	N.D.	PASS
51	N.D.	N.D.	N.D.	N.D.	PASS
52	N.D.	N.D.	N.D.	N.D.	PASS



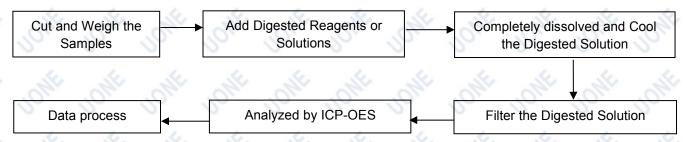
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Note:

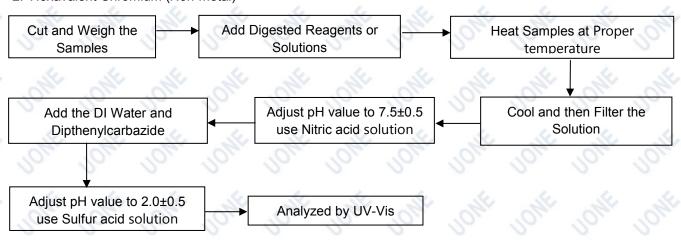
- mg/kg = milligram per kilogram (ppm).
- 2. RL = report limit.
- 3. N.D.=not detected(less than RL).

Test Process Flow

1. Lead, Cadmium, Mercury



2. Hexavalent Chromium (Non-metal)

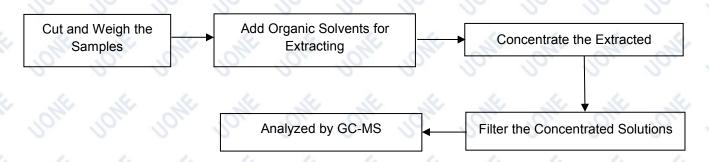




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Cut sample (50+5) and 50mL DI water to beaker 10mins Add 1mL color developing reagent Add 1mL orthophosphoric acid Add 1mL orthophosphoric acid Add 1mL orthophosphoric acid

3. PBBs & PBDEs, Phthalates





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Photo(s) of Sample:



End of Report

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