



# Test Report

**Applicant** : Mixtile Limited

**Address** : Haisong Building Tower B Suite 1101, Tairan 9th Road, Futian District, Shenzhen

**Report on the submitted samples said to be:**

**Sample Name(s)** : Mixtile Cluster Box

**Trade Mark** : N/A

**Part No.** : MC-CLUSTERBOX

**Sample Received Date** : September 06, 2023

**Testing Period** : September 06, 2023 ~ September 14, 2023  
September 20, 2023 ~ September 21, 2023

**Date of Report** : September 21, 2023

**Testing Location** : 901, No.40 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong, China

**Results** : Please refer to next page(s).

TEST REQUEST	CONCLUSION
As specified by client, based on the performed tests on submitted sample, the result of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, Dibutyl Phthalate(DBP), Butylbenzyl Phthalate(BBP), Di-2-ethylhexyl Phthalate(DEHP) and Diisobutyl phthalate(DIBP) content comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.	<b>PASS</b>

Signed for and on behalf of LCS

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**A. EU RoHS Directive 2011/65/EU and its amendment directives**

Test method: Refer to IEC 62321-1:2013&IEC 62321-2:2021&IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF).

Test result(s):

Sample No.	Sample Description	Screening Result(s)						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr <sup>▼</sup>	Br <sup>▼</sup>		
						PBBs	PBDEs	
1	Black rubber pad	BL	BL	BL	BL	BL	BL	2023-09-06
2	Black metal shell	BL	BL	BL	BL	/	/	2023-09-06
3	Silver metal column	BL	BL	BL	BL	/	/	2023-09-06
4	Silver metal nut	BL	BL	BL	BL	/	/	2023-09-06
5	Silver metal screw	BL	BL	BL	BL	/	/	2023-09-06
6	Silver metal spring	BL	BL	BL	BL	/	/	2023-09-06
7	Silver metal seat	BL	BL	BL	BL	/	/	2023-09-06
8	Yellow tape	BL	BL	BL	BL	BL	BL	2023-09-06
9	Silver metal heat dissipation plate	BL	BL	BL	BL	/	/	2023-09-06
10	Silver metal screw	BL	BL	BL	BL	/	/	2023-09-06
11	Silver metal screw	BL	BL	BL	BL	/	/	2023-09-06
12	Red plastic ring	BL	BL	BL	BL	BL	BL	2023-09-06
13	Black metal screw	BL	BL	BL	BL	/	/	2023-09-06
14	Gold metal pillar	BL	BL	BL	BL	/	/	2023-09-06
15	Silver metal mesh	BL	BL	BL	BL	/	/	2023-09-06
16	Black plastic frame	BL	BL	BL	BL	BL	BL	2023-09-06
17	Black and white labels	BL	BL	BL	BL	BL	BL	2023-09-06
18	Black plastic fan leaf	BL	BL	BL	BL	BL	BL	2023-09-06
19	Silver metal ring	BL	BL	BL	BL	/	/	2023-09-06
20	Black metal soft magnetic coil	BL	BL	BL	BL	/	/	2023-09-06
21	Silver metal silicon steel sheet	BL	BL	BL	BL	/	/	2023-09-06
22	Copper metal coil	BL	BL	BL	BL	/	/	2023-09-06
23	Green plastic PCB	BL	BL	BL	BL	BL	BL	2023-09-06
24	Silver metal solder	BL	BL	BL	BL	/	/	2023-09-06
25	Black plastic chip	BL	BL	BL	BL	BL	BL	2023-09-06
26	Brown plastic patch capacitor	BL	BL	BL	BL	BL	BL	2023-09-06
27	Black plastic diode	BL	BL	BL	BL	BL	BL	2023-09-06
28	Black plastic patch resistor	BL	BL	BL	BL	BL	BL	2023-09-06



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Sample No.	Sample Description	Screening Result(s)						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr▼	Br▼		
						PBBs	PBDEs	
29	Silver metal rod	BL	BL	BL	BL	/	/	2023-09-06
30	Silver metal bearings	BL	BL	BL	BL	/	/	2023-09-06
31	Silver Metal Card	BL	BL	BL	BL	/	/	2023-09-06
32	Silver metal spring	BL	BL	BL	BL	/	/	2023-09-06
33	Black plastic wire cover	BL	BL	BL	BL	BL	BL	2023-09-06
34	Red plastic wire cover	BL	BL	BL	BL	BL	BL	2023-09-06
35	Yellow plastic wire cover	BL	BL	BL	BL	BL	BL	2023-09-06
36	Blue plastic wire cover	BL	BL	BL	BL	BL	BL	2023-09-06
37	Silver metal wire core	BL	BL	BL	BL	/	/	2023-09-06
38	Beige plastic terminal	BL	BL	BL	BL	BL	BL	2023-09-06
39	Silver metal contact piece	BL	BL	BL	BL	/	/	2023-09-06
40	Black plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
41	Silver metal stylus	BL	BL	BL	BL	/	/	2023-09-06
42	Silver metal sheet	BL	BL	BL	BL	/	/	2023-09-06
43	Silver metal shell	BL	BL	BL	BL	/	/	2023-09-06
44	Black plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
45	Gold metal stylus	BL	BL	BL	BL	/	/	2023-09-06
46	Green plastic lamp body	BL	BL	BL	BL	BL	BL	2023-09-06
47	Yellow plastic lamp body	BL	BL	BL	BL	BL	BL	2023-09-06
48	Grey plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
49	Silver metal contact piece	BL	BL	BL	BL	/	/	2023-09-06
50	Black plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
51	Silver metal contact piece	BL	BL	BL	BL	/	/	2023-09-06
52	Black plastic sleeve	BL	BL	BL	BL	BL	BL	2023-09-06
53	Black plastic buttons	BL	BL	BL	BL	BL	BL	2023-09-06
54	White plastic sheet	BL	BL	BL	BL	BL	BL	2023-09-06
55	Silver metal shrapnel	BL	BL	BL	BL	/	/	2023-09-06
56	Black plastic base	BL	BL	BL	BL	BL	BL	2023-09-06
57	Silver metal contact piece	BL	BL	BL	BL	/	/	2023-09-06
58	Transparent plastic lamp body	BL	BL	BL	BL	BL	BL	2023-09-06



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Sample No.	Sample Description	Screening Result(s)						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr <sup>▼</sup>	Br <sup>▼</sup>		
						PBBs	PBDEs	
59	Silver metal pins	BL	BL	BL	BL	/	/	2023-09-06
60	Black metal magnetic core	BL	BL	BL	BL	/	/	2023-09-06
61	Copper metal coil	BL	BL	BL	BL	/	/	2023-09-06
62	Black plastic PCB	BL	BL	BL	BL	BL	BL	2023-09-06
63	Silver metal solder	BL	BL	BL	BL	/	/	2023-09-06
64	Beige plastic interface	BL	BL	BL	BL	BL	BL	2023-09-06
65	Silver metal stylus	BL	BL	BL	BL	/	/	2023-09-06
66	Black plastic interface	BL	BL	BL	BL	BL	BL	2023-09-06
67	Gold metal contact	BL	BL	BL	BL	/	/	2023-09-06
68	Grey plastic interface	BL	BL	BL	BL	BL	BL	2023-09-06
69	Gold metal contact	BL	BL	BL	BL	/	/	2023-09-06
70	Black plastic PCB	BL	BL	BL	BL	BL	BL	2023-09-06
71	Black plastic outer cover	BL	BL	BL	BL	BL	BL	2023-09-20
72	Black soft rubber	BL	BL	BL	BL	BL	BL	2023-09-06
73	Silver metal plug	BL	BL	BL	BL	/	/	2023-09-06
74	Silver metal sheet	BL	BL	BL	BL	/	/	2023-09-06
75	Black plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
76	Black plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
77	Black Magic Paste	BL	BL	BL	BL	BL	BL	2023-09-06
78	Black plastic outer cover	BL	BL	BL	BL	BL	BL	2023-09-06
79	Black soft rubber	BL	BL	BL	BL	BL	BL	2023-09-06
80	Silver metal shell	BL	BL	BL	BL	/	/	2023-09-06
81	Yellow label	BL	BL	BL	BL	BL	BL	2023-09-06
82	Black label	BL	BL	BL	BL	BL	BL	2023-09-06
83	Black plastic sheet	BL	BL	BL	BL	BL	BL	2023-09-06
84	Gold metal sheet	BL	BL	BL	BL	/	/	2023-09-06
85	Yellow tape	BL	BL	BL	BL	BL	BL	2023-09-06
86	Black plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
87	Silver metal plate	BL	BL	BL	BL	/	/	2023-09-06
88	Brown plastic shell	BL	BL	BL	BL	BL	BL	2023-09-06
89	Yellow tape	BL	BL	BL	BL	BL	BL	2023-09-06
90	Green plastic PCB	BL	BL	BL	BL	BL	BL	2023-09-06
91	Black plastic chip	BL	BL	BL	BL	BL	BL	2023-09-06



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Sample No.	Sample Description	Screening Result(s)						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr▼	Br▼		
						PBBs	PBDEs	
92	Silver metal solder	BL	BL	BL	BL	/	/	2023-09-06

Note:

1. Results were obtained by XRF for primary screening, and further chemical testing by ICP(for Cd, Pb, Hg), UV-Vis(for Cr(VI)) and GC-MS(for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013(Unit: mg/kg).

Element	Polymers	Metals	Composite material
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	N/A	$BL \leq (250-3\sigma) < X$

Remark:

- BL= Below Limit
  - OL= Over Limit
  - X= The range of needing to do further testing
  - $3\sigma$ = The reproducibility of analytical instruments
  - N/A= Not applicable
  - LOD= Detection limit
2. The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
  3. The maximum permissible limit is quoted from the document RoHS Directive 2011/65/EU with amendment (EU) 2015/863.
  4. ▼=For restricted substances PBBs and PBDEs, the results show the total Br content, the restricted substance was Cr(VI), and the results showed the total Cr content.







RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium(Cd)	100
Lead(Pb)	1000
Mercury(Hg)	1000
Hexavalent Chromium(Cr(VI))	1000
Polybrominated biphenyls(PBBs)	1000
Polybrominated diphenylethers(PBDEs)	1000
Dibutyl Phthalate(DBP)	1000
Butylbenzyl Phthalate(BBP)	1000
Di-(2-ethylhexyl) Phthalate(DEHP)	1000
Diisobutyl phthalate(DIBP)	1000

**Disclaimers:**

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes. The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.



**B. EU RoHS Directive 2011/65/EU with amendment (EU) 2015/863 on Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, DBP, BBP, DEHP & DIBP content**

Test method:

Lead(Pb) & Cadmium(Cd) Content:

Refer to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma optical emission spectrometer (ICP-OES) or atomic absorption spectrometer (AAS).

Mercury(Hg) Content:

Refer to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma optical emission spectrometer (ICP-OES).

Hexavalent Chromium(Cr(VI)) Content:

Refer to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, analysis was performed by UV-visible spectrophotometer (UV-Vis).

PBBs & PBDEs Content:

Refer to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatography-mass spectrometer (GC-MS).

Phthalates(DBP, BBP, DEHP & DIBP) Content:

Refer to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatography-mass spectrometer (GC-MS).

Test result(s):

**1) Phthalates(DBP, BBP, DEHP & DIBP)**

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)				Limit (mg/kg)
		1	33	34	35	
Dibutyl Phthalate(DBP) Content	50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	N.D.	N.D.	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	N.D.	N.D.	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)				Limit (mg/kg)
		36	71	72	78	
Dibutyl Phthalate(DBP) Content	50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	N.D.	N.D.	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	N.D.	N.D.	N.D.	1000



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Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		79	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		8+12+16+17+18+23	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		25+26+27+28+38+40	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		44+46+47+48+50+52	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000



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Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		53+54+56+58+62+64	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		66+68+70+75+76+77	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		81+82+83+85+86+88	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)	Limit (mg/kg)
		89+90+91	
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000



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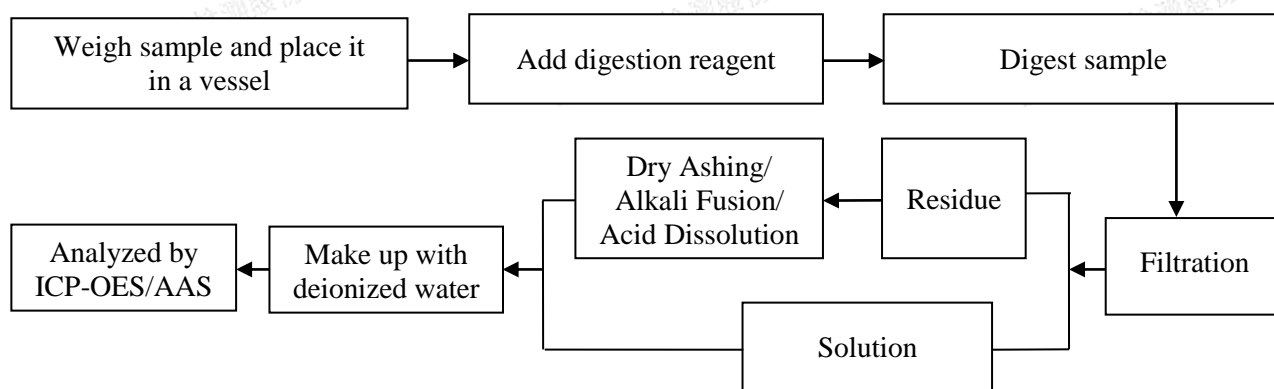


## Note:

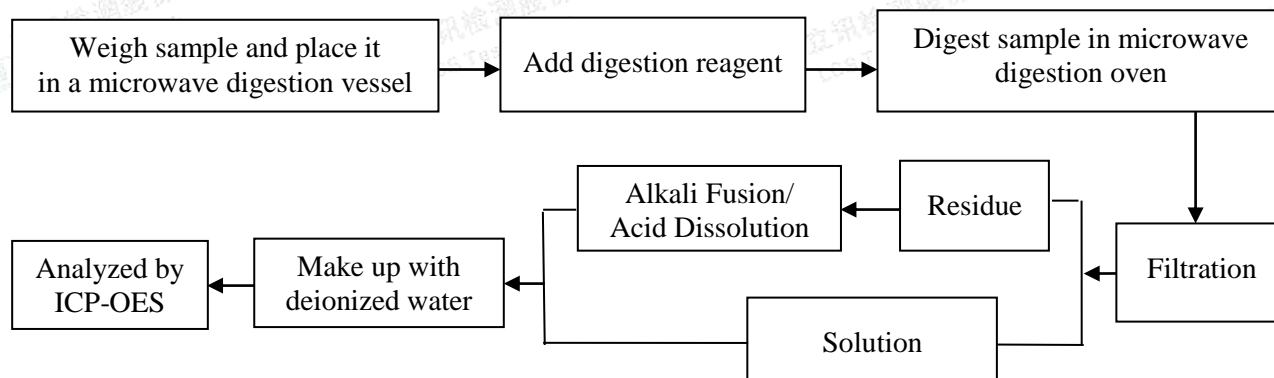
- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg= milligram
- According to customer's requirement, only the appointed materials have been tested.

## Test Process

### 1. Lead(Pb) & Cadmium(Cd): IEC 62321-5:2013

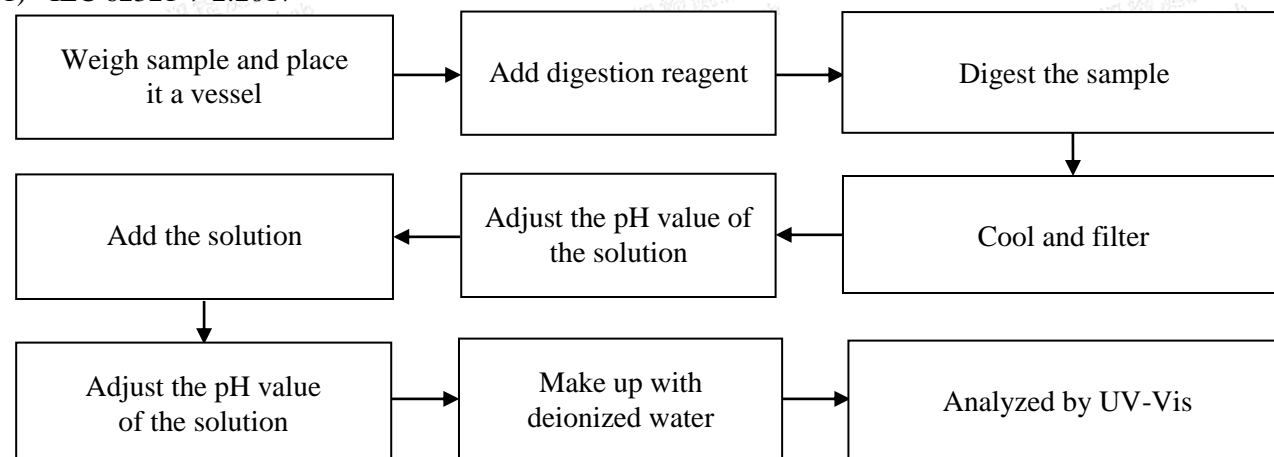


### 2. Mercury(Hg): IEC 62321-4:2013+AMD1:2017 CSV



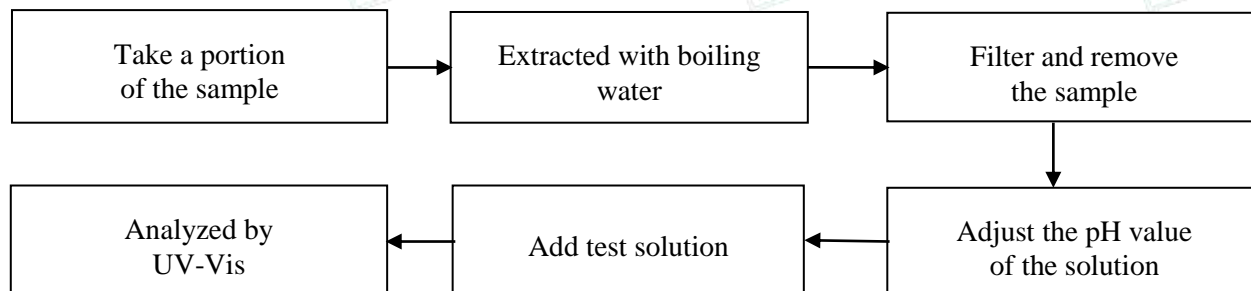
### 3. Hexavalent Chromium(Cr(VI))

#### 1) IEC 62321-7-2:2017

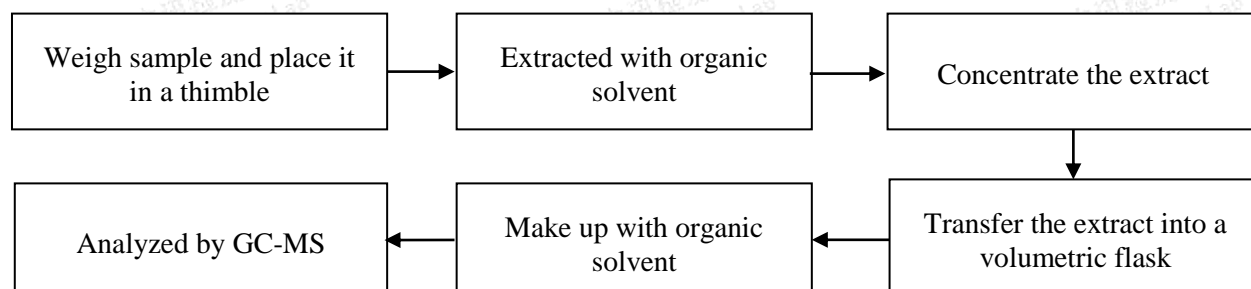




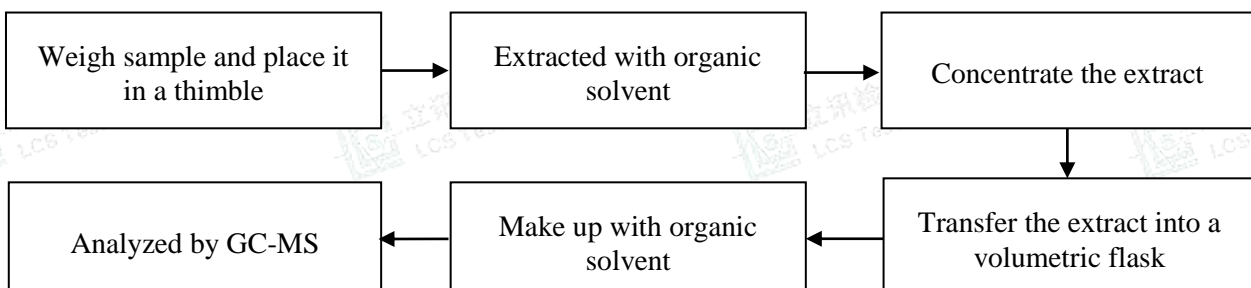
## 2) IEC 62321-7-1:2015



## 4. Polybrominated Biphenyls(PBBs) &amp; Polybrominated Diphenyl Ethers(PBDEs) : IEC 62321-6:2015



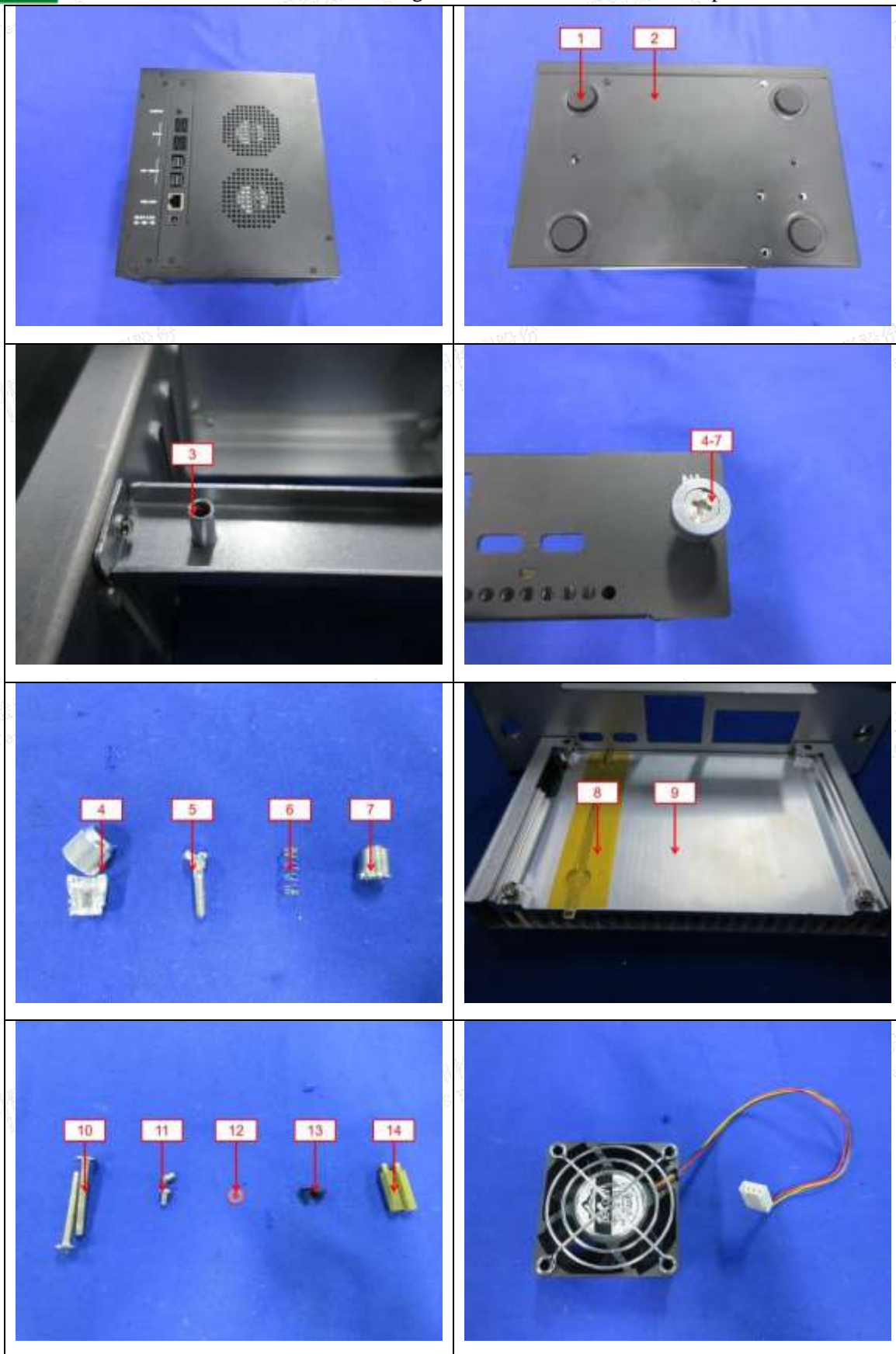
## 5. Phthalates(DBP, BBP, DEHP &amp; DIBP) : IEC 62321-8:2017



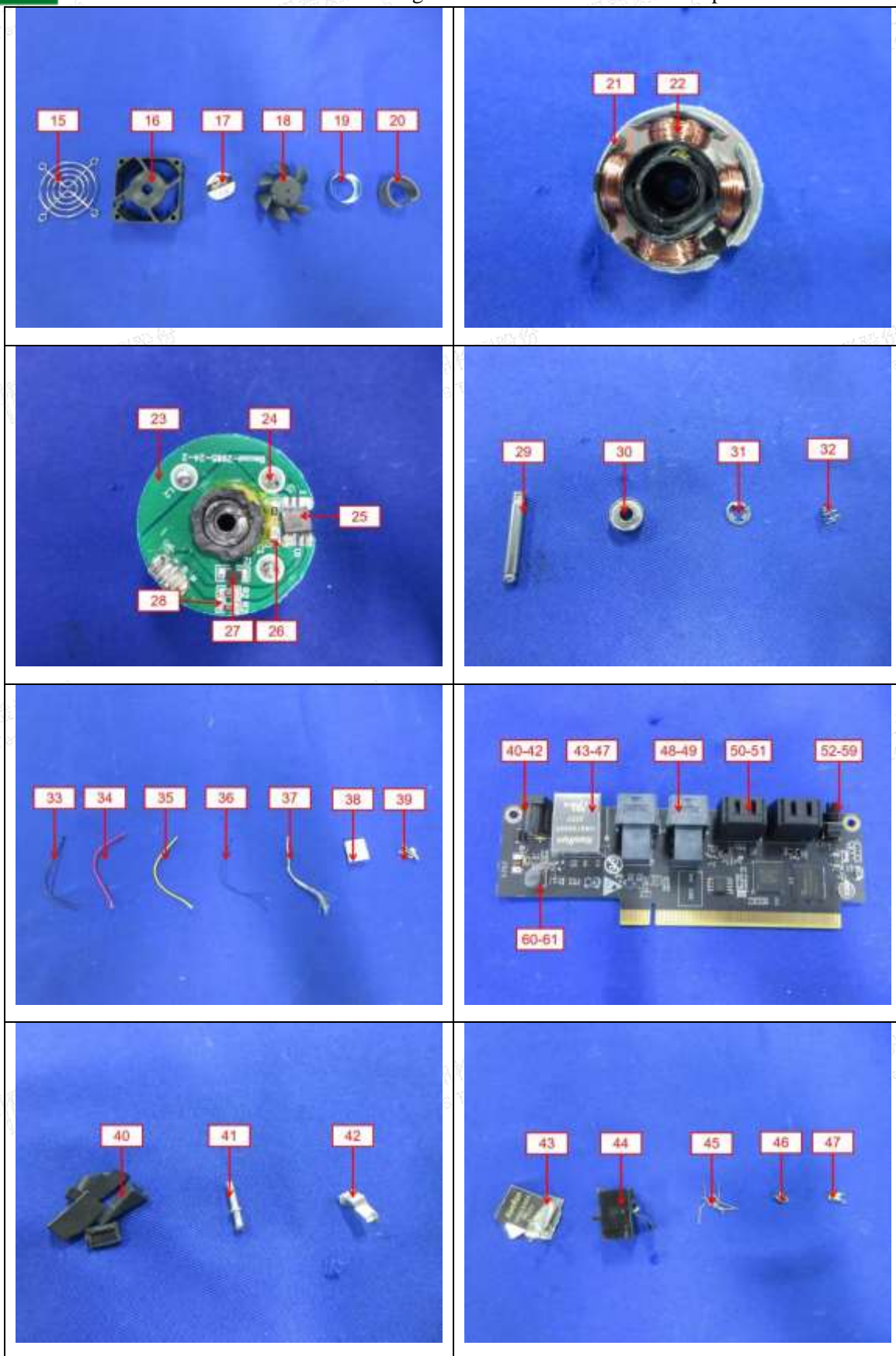


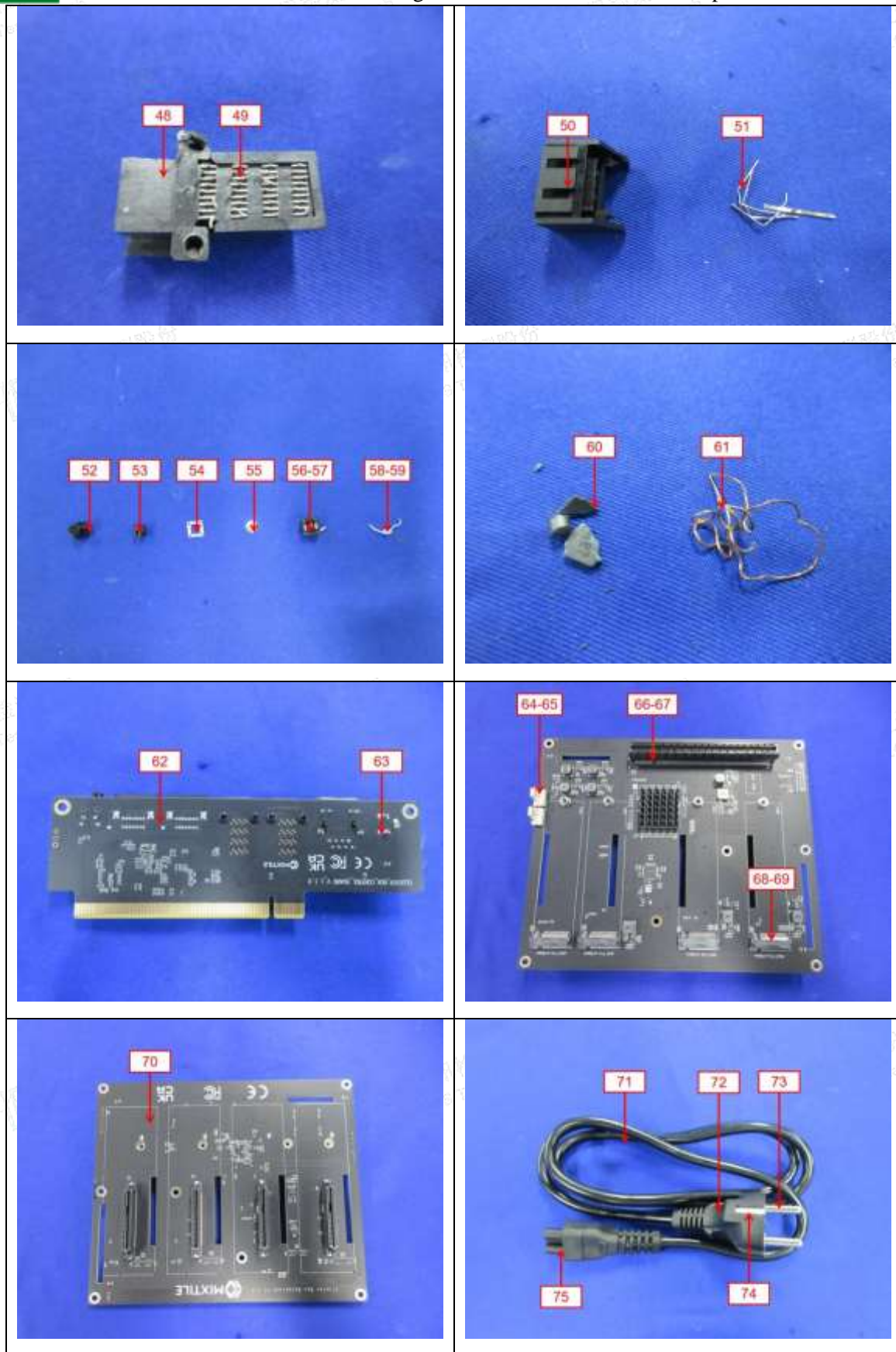
## The photo(s) of the sample











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2. The company name, address and sample information shown on the report were provided by the applicant who should be responsible for the authenticity which are not verified by LCS;
3. The test results in this report are only responsible for the tested samples;
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\*\*\* End of Report \*\*\*



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