



Verification Report

Applicant : Mid Ocean Brands B.V.
Address : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

Report on the submitted samples said to be:

Sample Name(s) : Power bank with solar panel
Trade Mark : N/A
Part No. : MO6841
Sample Received Date : November 17, 2022
Testing Period : November 17, 2022 ~ November 23, 2022
Date of Report : November 23, 2022
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.	PASS

Signed for and on behalf of LCS

Young/Laboratory Manager



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

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

Sample No.	Sample Description	Results						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr▼	Br▼		
						PBBs	PBDEs	
1	Black plastic shell	BL	BL	BL	BL	BL	BL	2022-11-17
2	Black foam	BL	BL	BL	BL	BL	BL	2022-11-17
3	Tin solder	BL	BL	BL	BL	/	/	2022-11-17
4	Black plastic trough	BL	BL	BL	BL	BL	BL	2022-11-17
5	Translucent plastic	BL	BL	BL	BL	BL	BL	2022-11-17
6	Black plastic	BL	BL	BL	BL	BL	BL	2022-11-17
7	Ferrous metal screw	BL	BL	BL	BL	/	/	2022-11-17
8	Silver metal screw	BL	BL	BL	BL	/	/	2022-11-17
9	Silver tinsel	BL	BL	BL	BL	/	/	2022-11-17
10	Black plastic thread leather	BL	BL	BL	BL	BL	BL	2022-11-17
11	Red plastic thread leather	BL	BL	BL	BL	BL	BL	2022-11-17
12	White plastic socket	BL	BL	BL	BL	BL	BL	2022-11-17
13	Silver metal core	BL	BL	BL	BL	/	/	2022-11-17
14	Black body diode	BL	BL	BL	BL	BL	BL	2022-11-17
15	Grey metal	BL	BL	BL	BL	/	/	2022-11-17
16	Copper wire	BL	BL	BL	BL	/	/	2022-11-17
17	Black plastic button	BL	BL	BL	BL	BL	BL	2022-11-17
18	Silver metal frame	BL	BL	BL	BL	/	/	2022-11-17
19	Gold metal sheet	BL	BL	BL	BL	/	/	2022-11-17
20	Black plastic trough	BL	BL	BL	BL	BL	BL	2022-11-17
21	Silver metal pins	BL	BL	BL	BL	/	/	2022-11-17
22	Solder	BL	BL	BL	BL	/	/	2022-11-17
23	Black body IC	BL	BL	BL	BL	BL	BL	2022-11-17
24	Yellow print green plastic skin	BL	BL	BL	BL	BL	BL	2022-11-17
25	Silver metal case	BL	BL	BL	BL	/	/	2022-11-17
26	Black plastic stopper	BL	BL	BL	BL	BL	BL	2022-11-17
27	Silver metal pins	BL	BL	BL	BL	/	/	2022-11-17
28	Brown wet paper	BL	BL	BL	BL	BL	BL	2022-11-17
29	Dark silver metallic aluminum foil	BL	BL	BL	BL	/	/	2022-11-17



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Sample No.	Sample Description	Results						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr▼	Br▼		
						PBBs	PBDEs	
30	Bright silver metallic foil	BL	BL	BL	BL	/	/	2022-11-17
31	White plastic trough	BL	BL	BL	BL	BL	BL	2022-11-17
32	Silver metal pin	BL	BL	BL	BL	/	/	2022-11-17
33	Silver metal	BL	BL	BL	BL	/	/	2022-11-17
34	White plastic	BL	BL	BL	BL	BL	BL	2022-11-17
35	Silver metal core	BL	BL	BL	BL	/	/	2022-11-17
36	Brown chip capacitor	BL	BL	BL	BL	BL	BL	2022-11-17
37	Black body transistors	BL	BL	BL	BL	BL	BL	2022-11-17
38	Silver metal	BL	BL	BL	BL	/	/	2022-11-17
39	Black plastic	BL	BL	BL	BL	BL	BL	2022-11-17
40	Gold metal core	BL	BL	BL	BL	/	/	2022-11-17
41	Black body diode	BL	BL	BL	BL	BL	BL	2022-11-17
42	Green PCB board	BL	BL	BL	BL	BL	BL	2022-11-17
43	White plastic gears	BL	BL	BL	BL	BL	BL	2022-11-17
44	Off-white plastic gears	BL	BL	BL	BL	BL	BL	2022-11-17
45	Grey metal gears	BL	BL	BL	BL	/	/	2022-11-17
46	Silver metal	BL	BL	BL	BL	/	/	2022-11-17
47	Silver metal	BL	BL	BL	BL	/	/	2022-11-17
48	Black metal magnet	BL	BL	BL	BL	/	/	2022-11-17
49	Silver plastic skin	BL	BL	BL	BL	BL	BL	2022-11-17
50	Green slip	BL	BL	BL	BL	BL	BL	2022-11-17
51	Yellow translucent tape	BL	BL	BL	BL	BL	BL	2022-11-17
52	Silver metal	BL	BL	BL	BL	/	/	2022-11-17
53	Ferrous metal	BL	BL	BL	BL	/	/	2022-11-17
54	Black plastic thread leather	BL	BL	BL	BL	BL	BL	2022-11-17
55	Black plastic joint	BL	BL	BL	BL	BL	BL	2022-11-17
56	Silver metal	BL	BL	BL	BL	/	/	2022-11-17
57	Pink plastic thread leather	BL	BL	BL	BL	BL	BL	2022-11-17
58	White plastic thread	BL	BL	BL	BL	BL	BL	2022-11-17
59	Yellow plastic thread	BL	BL	BL	BL	BL	BL	2022-11-17
60	Green plastic thread leather	BL	BL	BL	BL	BL	BL	2022-11-17
61	Black plastic thread leather	BL	BL	BL	BL	BL	BL	2022-11-17



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Sample No.	Sample Description	Results						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr [▼]	Br [▼]		
						PBBs	PBDEs	
62	Green PCB board	BL	BL	BL	BL	BL	BL	2022-11-17
63	Dark grey plastic	BL	BL	BL	BL	BL	BL	2022-11-17
64	Gold metal core	BL	BL	BL	BL	/	/	2022-11-17
65	Dark grey plastic	BL	BL	BL	BL	BL	BL	2022-11-17
66	Silver metal core	BL	BL	BL	BL	/	/	2022-11-17

Note:

- 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
 - 3σ = The reproducibility of analytical instruments
 - N/A= Not applicable
 - LOD= Detection limit
- The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
 - The maximum permissible limit is quoted from the document RoHS Directive 2011/65/EU with amendment (EU) 2015/863.
 - ▼=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:

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

Mercury(Hg) Content:

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

Hexavalent Chromium(Cr(VI)) Content:

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

PBBs & PBDEs Content:

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

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

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

1) The test results of Phthalates(DBP, BBP, DEHP & DIBP)

Tested Items	MDL (mg/kg)	Results (mg/kg)				Limit (mg/kg)
		10	11	54	57	
Dibutyl Phthalate(DBP) Content	100	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	100	N.D.	N.D.	N.D.	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	100	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP) Content	100	N.D.	N.D.	N.D.	N.D.	1000

Tested Items	MDL (mg/kg)	Results (mg/kg)				Limit (mg/kg)
		58	59	60	61	
Dibutyl Phthalate(DBP) Content	100	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	100	N.D.	N.D.	N.D.	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	100	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP) Content	100	N.D.	N.D.	N.D.	N.D.	1000





Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		1+2+4+5+6+12	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		14+17+20+23+24+26	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		28+31+34+36+37+39	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		41+42+43+44+49+50	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000





Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		51+55+62+63+65	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Note:

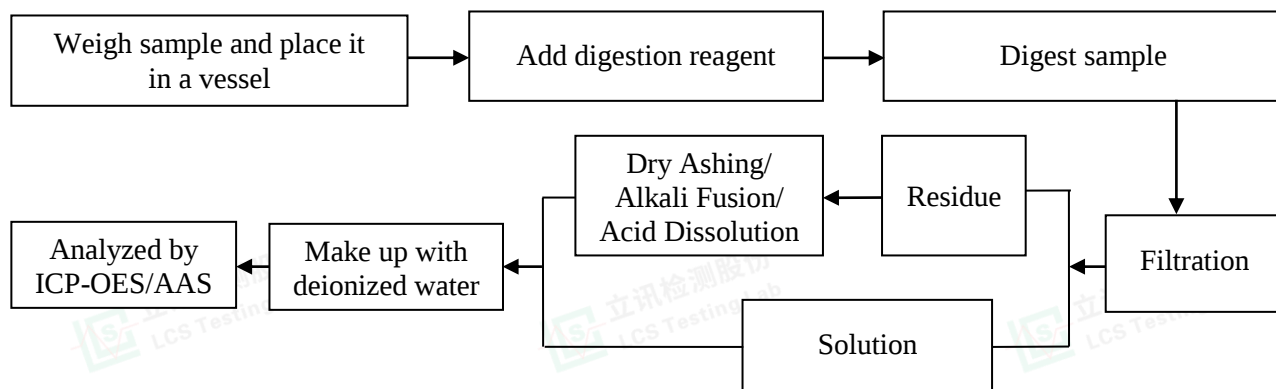
- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = milligrams per kilogram
- According to customer's requirement, only the appointed materials have been tested.



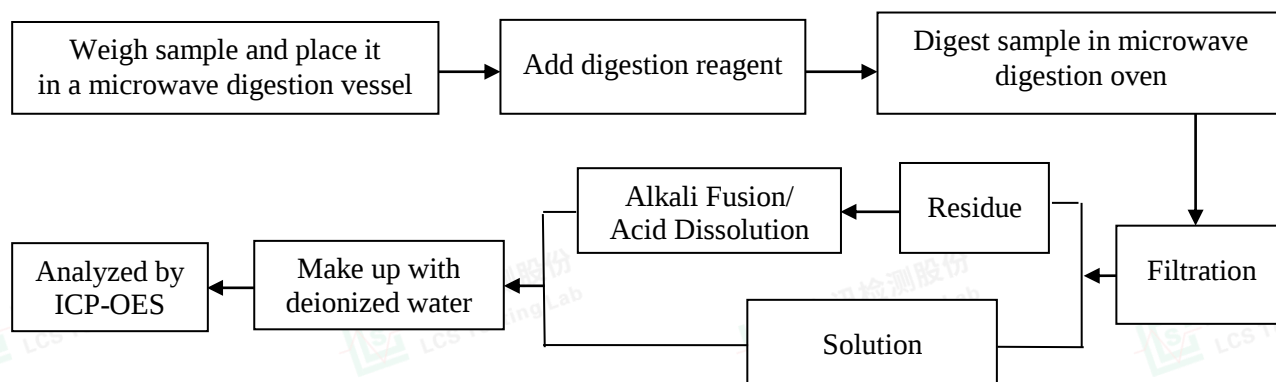


Test Process

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

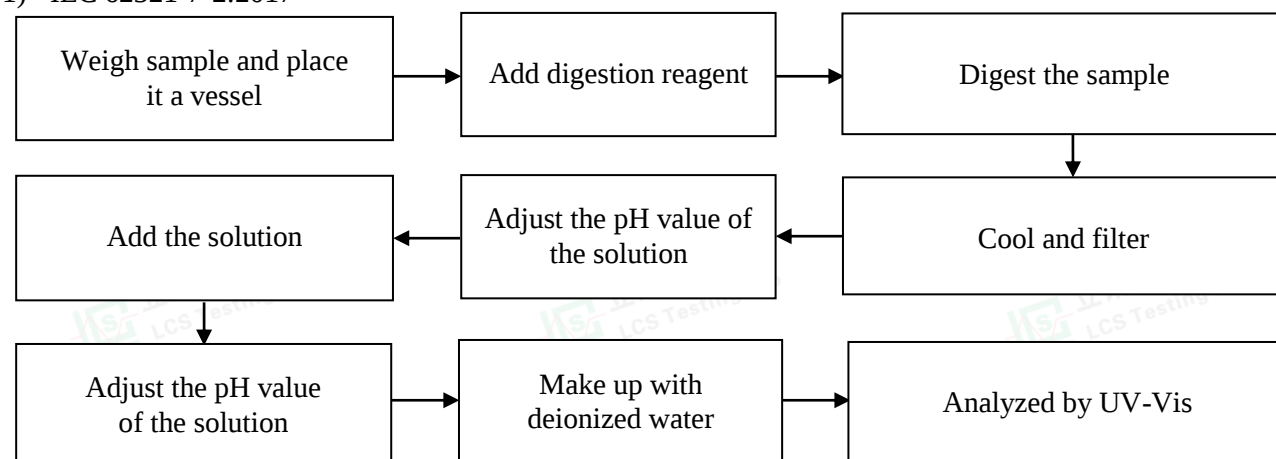


2. Mercury(Hg): IEC 62321-4:2013+AMD1:2017 CSV



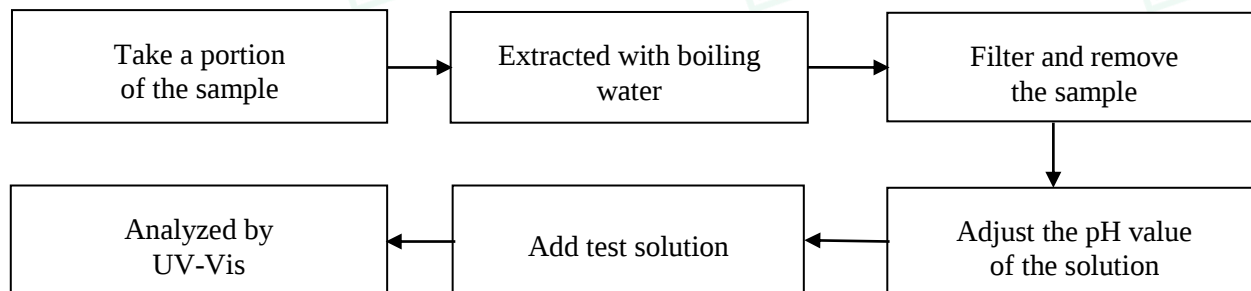
3. Hexavalent Chromium(Cr(VI))

1) IEC 62321-7-2:2017

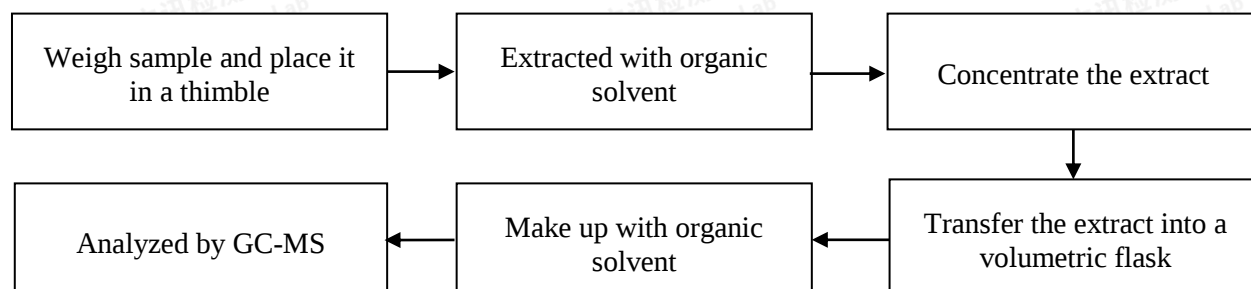




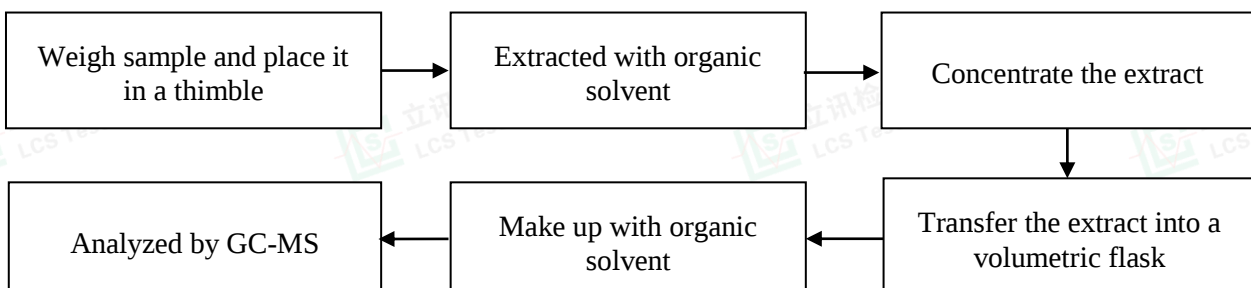
2) IEC 62321-7-1:2015



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



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





The photo(s) of the sample

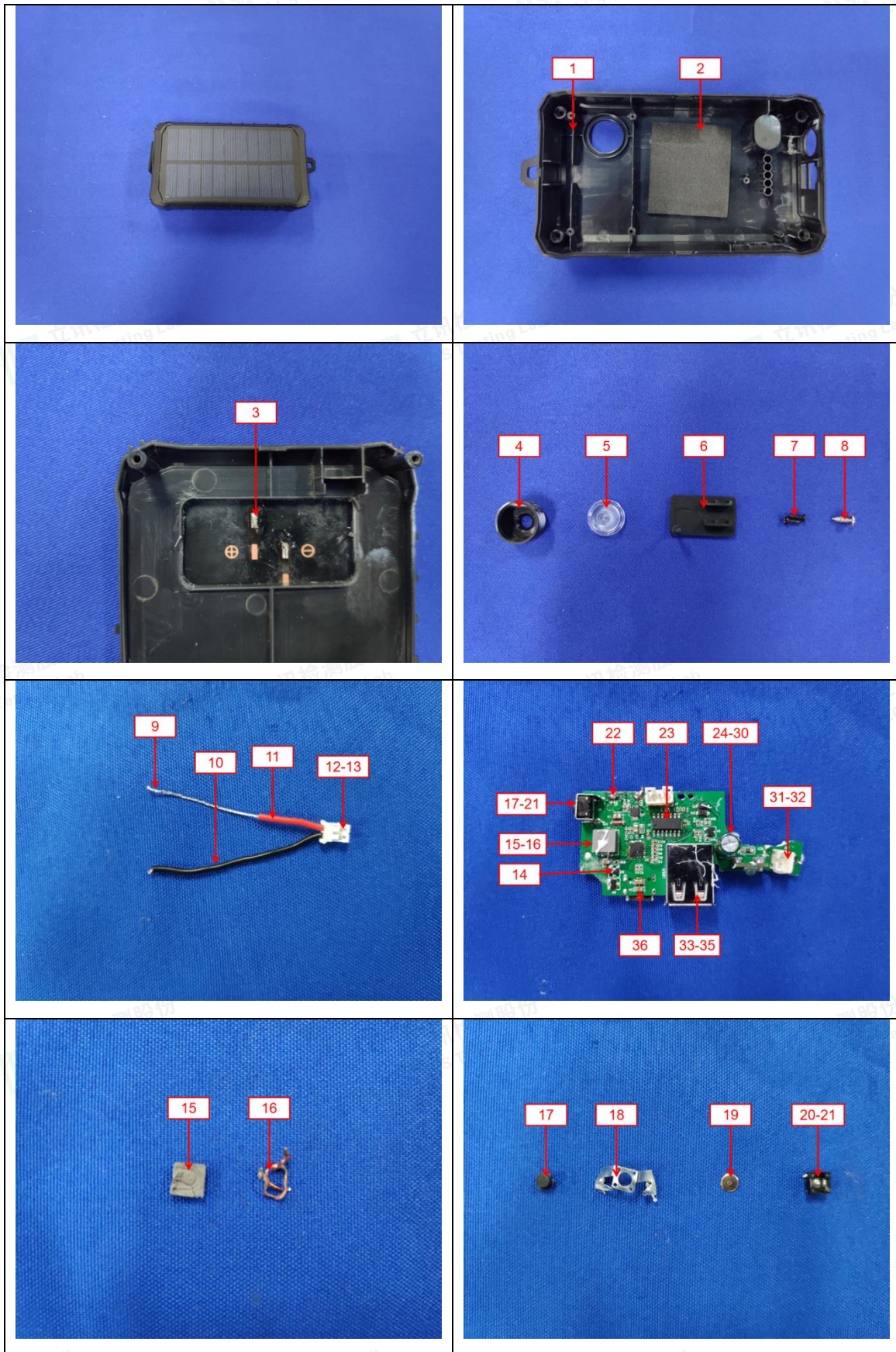


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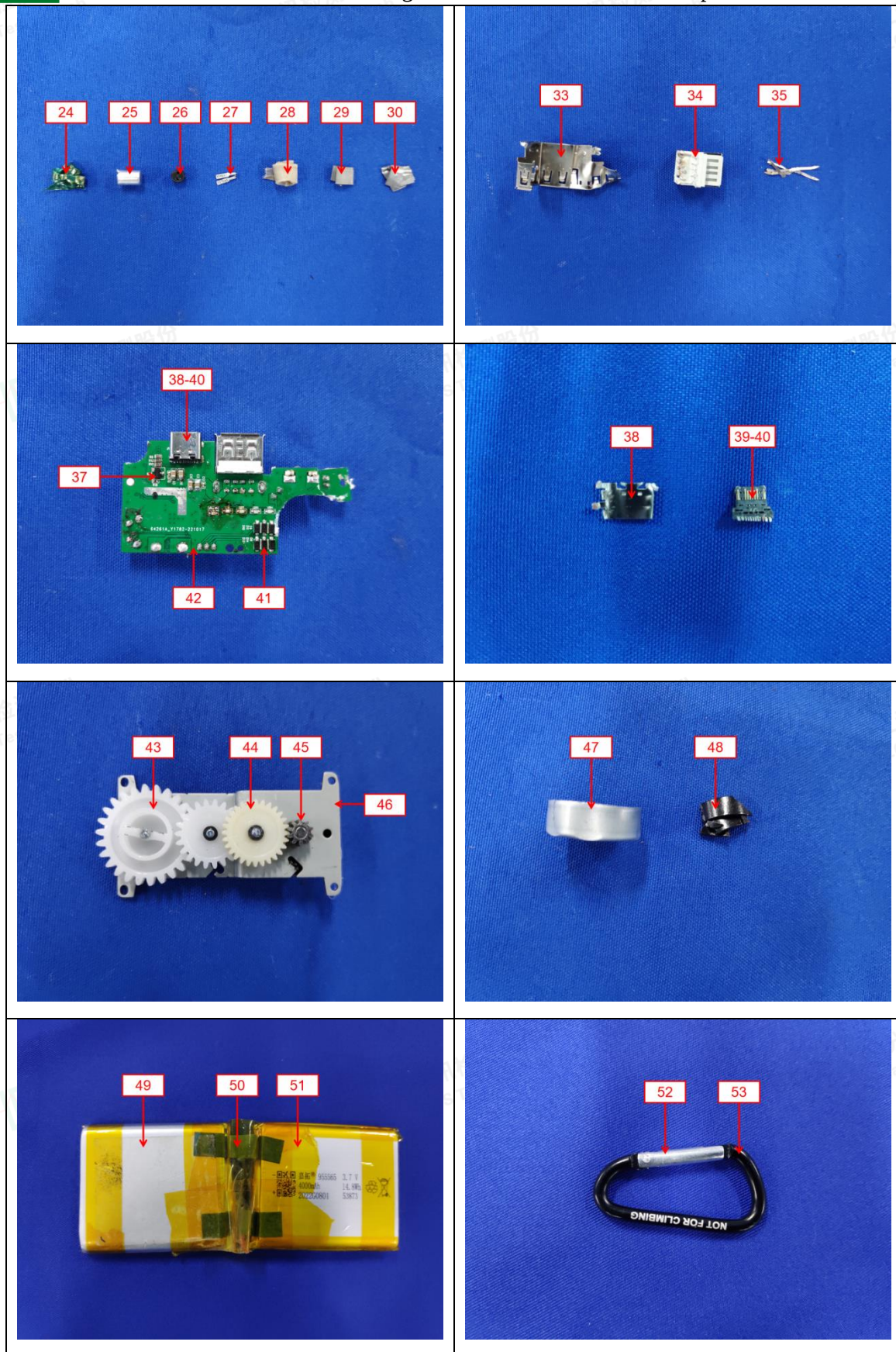


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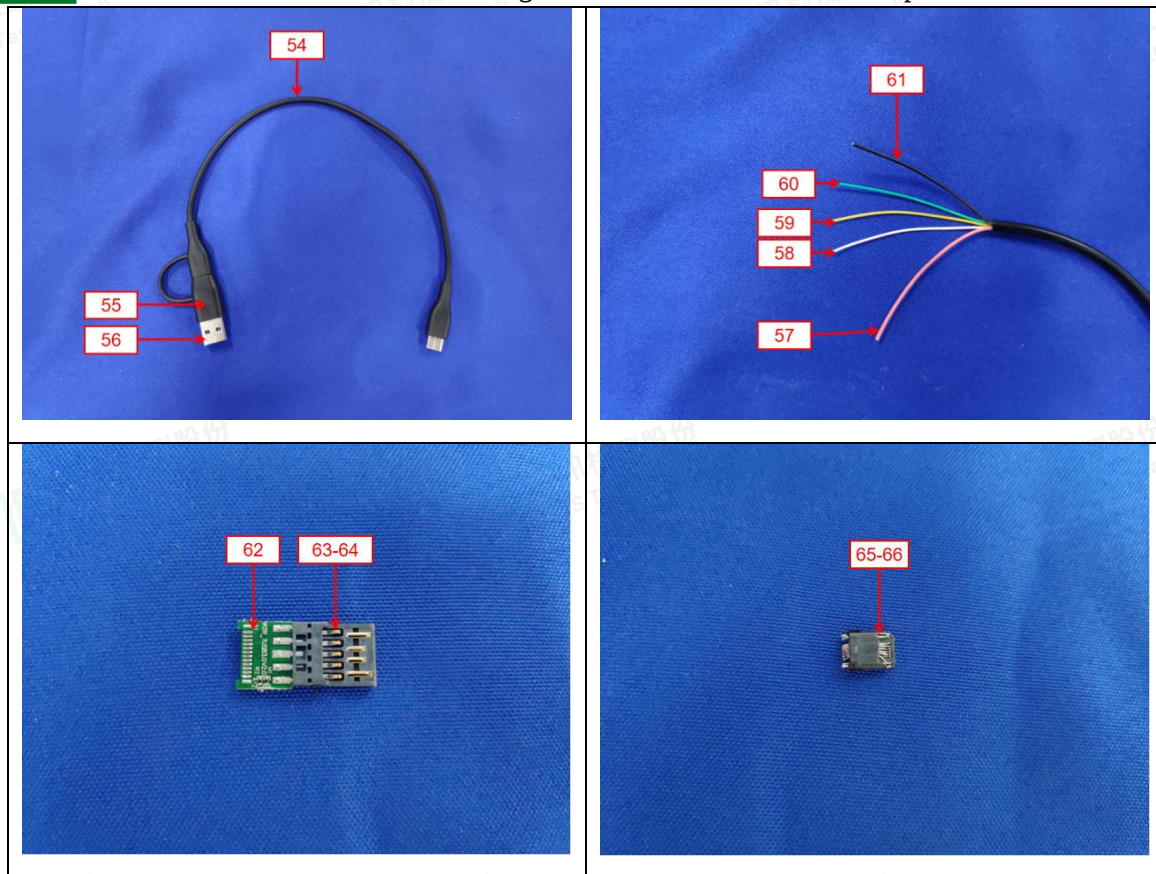


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**Statement:**

1. The test report is invalid without the signature of the approver and the special seal for the company's report;
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 ***

