

# TEST REPORT

Report No.: DPHTL2508193040E

Date: Sep 10, 2025

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**Applicant :** Mid Ocean Brands B.V.**Address:** Unit 711-716, 7/F., Tower A, 83 King Lam Street Cheung Sha Wan, Kowloon, Hong Kong

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

**Sample Name:** Big USB lighter**Model:** MO9651**Vendor Code:** 107978**Receiving Date:** Aug 19, 2025**Test Period:** From Aug 19, 2025 to Sep 2, 2025**Add Information:** -**Test Summary:**

#	Test Item(s)	Conclusion
1	Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP and DIBP EU RoHS Directive 2011/65/EU and its amendment directives (EU)2015/863,(EU)2017/2102,(EU)2022/1632 (RoHS 2.0)	PASS

\*\*\*\*\*Please refer to the following page for detailed results\*\*\*\*\*

Authorized Signatory

Mark Mai  
(Technical Director)

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**Result:**

**1.1 EU RoHS Directive 2011/65/EU and its amendment directives(EU)2015/863,(EU)2017/2102,(EU)2022/1632 (RoHS 2.0) on XRF**  
**IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)**

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	Black coating,shell	BL	BL	BL	BL	BL
2	Silvery metal,shell	BL	BL	BL	BL	NA
3	Silvery metal,rectangle	BL	BL	BL	BL	NA
4	Silvery metal,small rectangle	BL	BL	BL	BL	NA
5	Silvery coating,shell	BL	BL	BL	BL	BL
6	Beige plastic,shell	BL	BL	BL	BL	BL
7	Silvery metal,screw	BL	BL	BL	X	NA
8	White plastic,shell	BL	BL	BL	BL	BL
9	Black plastic,shell	BL	BL	BL	BL	BL
10	Silvery metal,small screw	BL	BL	BL	X	NA
11	Silvery metal,circle	BL	BL	BL	BL	NA
12	Silvery metal,large plate	BL	BL	BL	BL	NA
13	Translucent plastic,LED	BL	BL	BL	BL	X
14	Silvery metal,solder	X	BL	BL	BL	NA
15	Silvery metal,solder	X	BL	BL	BL	NA
16	Silvery metal,lead	BL	BL	BL	BL	NA
17	Black body,IC	BL	BL	BL	BL	BL
18	Black body,resistor	BL	BL	BL	BL	BL
19	Brown body,capacitor	BL	BL	BL	BL	BL
20	Blue PCB	BL	BL	BL	BL	X
21	Silvery metal,port shell	BL	BL	BL	BL	NA
22	Silvery metal,contact pin	BL	BL	BL	BL	NA
23	Gray plastic,holder	BL	BL	BL	BL	BL
24	Light beige plastic,switch	BL	BL	BL	BL	BL



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25	Silvery metal,lid	BL	BL	BL	BL	NA
26	Silvery metal,small plate	BL	BL	BL	BL	NA
27	White soft plastic,thin wire jacket	BL	BL	BL	BL	BL
28	Coppery metal,wire core	BL	BL	BL	BL	NA
29	White soft plastic,thick wire jacket	BL	BL	BL	BL	BL
30	Transparent soft plastic,circle	BL	BL	BL	BL	BL
31	Silvery metal,solder	BL	BL	BL	BL	NA
32	Silvery metal,solder	BL	BL	BL	BL	NA
33	Transparent plastic,shell	BL	BL	BL	BL	BL
34	Silvery metal,wire	BL	BL	BL	BL	NA
35	Silvery metal,switch	BL	BL	BL	BL	NA
36	Silvery metal,small rivet	BL	BL	BL	BL	NA
37	Silvery metal,large rivet	BL	BL	BL	BL	NA
38	Silvery metal,spring	BL	BL	BL	X	NA
39	White soft plastic,wire cover	BL	BL	BL	BL	BL
40	White soft plastic,small plug shell	BL	BL	BL	BL	BL
41	White soft plastic,large plug shell	BL	BL	BL	BL	BL
42	Silvery metal,small plug shell	BL	BL	BL	BL	NA
43	Silvery metal,large plug shell	BL	BL	BL	BL	NA
44	Silvery metal,contact plate	BL	BL	BL	BL	NA
45	Matt white plastic,holder	BL	BL	BL	BL	BL
46	Silvery metal,plate	BL	BL	BL	BL	NA
47	Silvery metal,contact pin	BL	BL	BL	BL	NA
48	White soft plastic,wire jacket	BL	BL	BL	BL	BL
49	Yellow soft plastic,wire jacket	BL	BL	BL	BL	BL
50	Red PCB	BL	BL	BL	BL	X
51	Silvery metal,solder	BL	BL	BL	BL	NA
52	Silvery metal,solder	BL	BL	BL	BL	NA
53	Coppery enameled wire	BL	BL	BL	BL	BL
54	Transparent yellow plastic adhesive tape	BL	BL	BL	BL	BL

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55	Black plastic adhesive tape	BL	BL	BL	BL	BL
56	Gray magnet	BL	BL	BL	BL	NA
57	Silvery metal,solder	BL	BL	BL	BL	NA
58	Silvery metal,solder	BL	BL	BL	BL	NA
59	Silvery metal,solder	BL	BL	BL	BL	NA
60	Silvery metal,solder	BL	BL	BL	BL	NA
61	Silvery metal,solder	BL	BL	BL	BL	NA
62	Silvery metal,solder	BL	BL	BL	BL	NA
63	Silvery metal,solder	BL	BL	BL	BL	NA
64	Silvery metal,solder	BL	BL	BL	BL	NA
65	Silvery metal,solder	BL	BL	BL	BL	NA
66	Silvery metal,solder	BL	BL	BL	BL	NA
67	Silvery metal,solder	BL	BL	BL	BL	NA

Remark:

(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.

Element	Unit	Polymers	Metal	Composite material
Cd	mg/kg	BL≤70-3σ< X <130+3σ≤OL	BL≤70-3σ< X <130+3σ≤OL	BL≤50-3σ< X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ< X	BL≤700-3σ< X	BL≤500-3σ< X
Br	mg/kg	BL≤300-3σ< X	--	BL≤250-3σ< X

Note:

BL = Below Limit

OL = Over Limit

X = Inconclusive

NA = Not Applicable

(2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be

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of non-uniformity composition.

(3) The maximum permissible limit is quoted from the document 2011/65/EU and its amendment directives(EU)2015/863,(EU)2017/2102,(EU)2022/1632 (RoHS 2.0):

<b>RoHS Restricted Substances</b>	<b>Maximum Concentration Value (mg/kg) (by weight in homogenous Results)</b>
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenyl ethers (PBDEs)	1000

(4) 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.

(5) The selection of test portions was recommended by the client and the conclusion of chemical test is only for the selected portions.

## 1.2 Hexavalent Chromium (Cr(VI))

Metal: IEC 62321-7-1:2015, extracted by boiling water and analyzed by UV-Vis

Non-metal: IEC 62321-7-2:2017, alkaline digested and analyzed by UV-Vis

<b>Test Item(s)</b>	<b>Result</b>			<b>Limit</b>	<b>MDL</b>
	<b>7</b>	<b>10</b>	<b>38</b>		
1 Hexavalent Chromium (Cr(VI))	Negative	Negative	Negative	#	-
- Conclusion	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	-	-

Remark(s) (a)  $\mu\text{g}/\text{cm}^2$ : microgram per square centimeter

(b) MDL: Method detected limit

(c) Negative = Sample Cr(VI) concentration is less than  $0.10 \mu\text{g}/\text{cm}^2$

Positive = Sample Cr(VI) concentration is greater than  $0.13 \mu\text{g}/\text{cm}^2$

(d) # = Positive indicates the presence of Cr(VI) on the tested areas and result be regarded as conflict with RoHS requirement.

Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as no conflict with RoHS requirement.

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**1.3 Lead Content (Pb)**

IEC62321-5:2013, acid digested and determined by AAS

Test Item(s)		Result		Limit (mg/kg)	MDL (mg/kg)
		14	15		
1	Lead (Pb)	146	146	1000	10
-	Conclusion	PASS	PASS	-	-

Remark(s):  
(a) mg/kg: milligrams per kilogram  
(b) MDL: Method detected limit  
(c) N.D.: Not detected (result is less than MDL)

**1.4 Polybrominated Biphenyls and Polybrominated Diphenyl Ethers (PBBs and PBDEs)**

IEC 62321-6:2015, solvent extract and determined by GC-MS

Test Item(s)		Result			Limit (mg/kg)	MDL (mg/kg)
		13	20	50		
1	Monobromo biphenyl	N.D.	N.D.	N.D.	-	50
2	Dibromo biphenyl	N.D.	N.D.	N.D.	-	50
3	Tribromo biphenyl	N.D.	N.D.	N.D.	-	50
4	Tetrabromo biphenyl	N.D.	N.D.	N.D.	-	50
5	Pentabromo biphenyl	N.D.	N.D.	N.D.	-	50
6	Hexabromo biphenyl	N.D.	N.D.	N.D.	-	50
7	Heptabromo biphenyl	N.D.	N.D.	N.D.	-	50
8	Octabromo biphenyl	N.D.	N.D.	N.D.	-	50
9	Nonabromo biphenyl	N.D.	N.D.	N.D.	-	50
10	Decabromo biphenyl	N.D.	N.D.	N.D.	-	50
11	Monobromo diphenyl ether	N.D.	N.D.	N.D.	-	50
12	Dibromo diphenyl ether	N.D.	N.D.	N.D.	-	50
13	Tribromo diphenyl ether	N.D.	N.D.	N.D.	-	50
14	Tetrabromo diphenyl ether	N.D.	N.D.	N.D.	-	50

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15	Pentabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
16	Hexabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
17	Heptabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
18	Octabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
19	Nonabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
20	Decabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
-	Sum of PBBs	N.D.	N.D.	N.D.	1000	-
-	Sum of PBDEs	N.D.	N.D.	N.D.	1000	-
-	<b>Conclusion</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	-	-

Remark(s): (a) mg/kg: milligram per kilogram

(b) MDL: Method detected limit

(c) N.D.: Not detected (result is less than MDL)

## 1.5 Phthalates – (DBP, BBP, DEHP, DIBP)

IEC 62321-8:2017, Solvent extract and determined by GC-MS

Test Item(s)			Result						Limit (%)	MDL(%)
			1+5	6+8+9	13	17+18 +19	20	23+24		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
-	<b>Conclusion</b>		<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	-	-

Test Item(s)			Result						Limit (%)	MDL(%)
			27+29 +30	33	39+40 +41	45	48+49	50		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005

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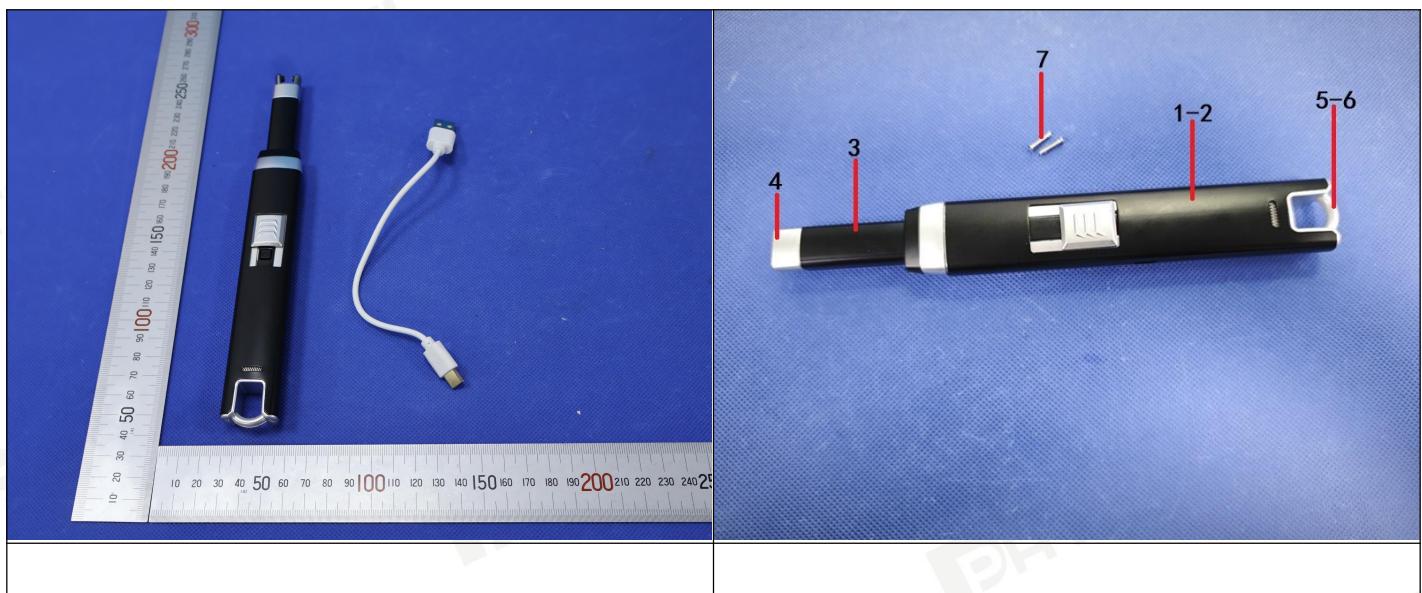
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4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
-	<b>Conclusion</b>		<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	-	-

Test Item(s)			Result				Limit (%)	MDL(%)
			53		54+55			
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.		N.D.		0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.		N.D.		0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.		N.D.		0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.		N.D.		0.1	0.005
-	<b>Conclusion</b>		<b>PASS</b>		<b>PASS</b>		-	-

Remark(s): (a) MDL: Method detected limit  
 (b) N.D.: Not detected (result is less than MDL)

## Photo(s):

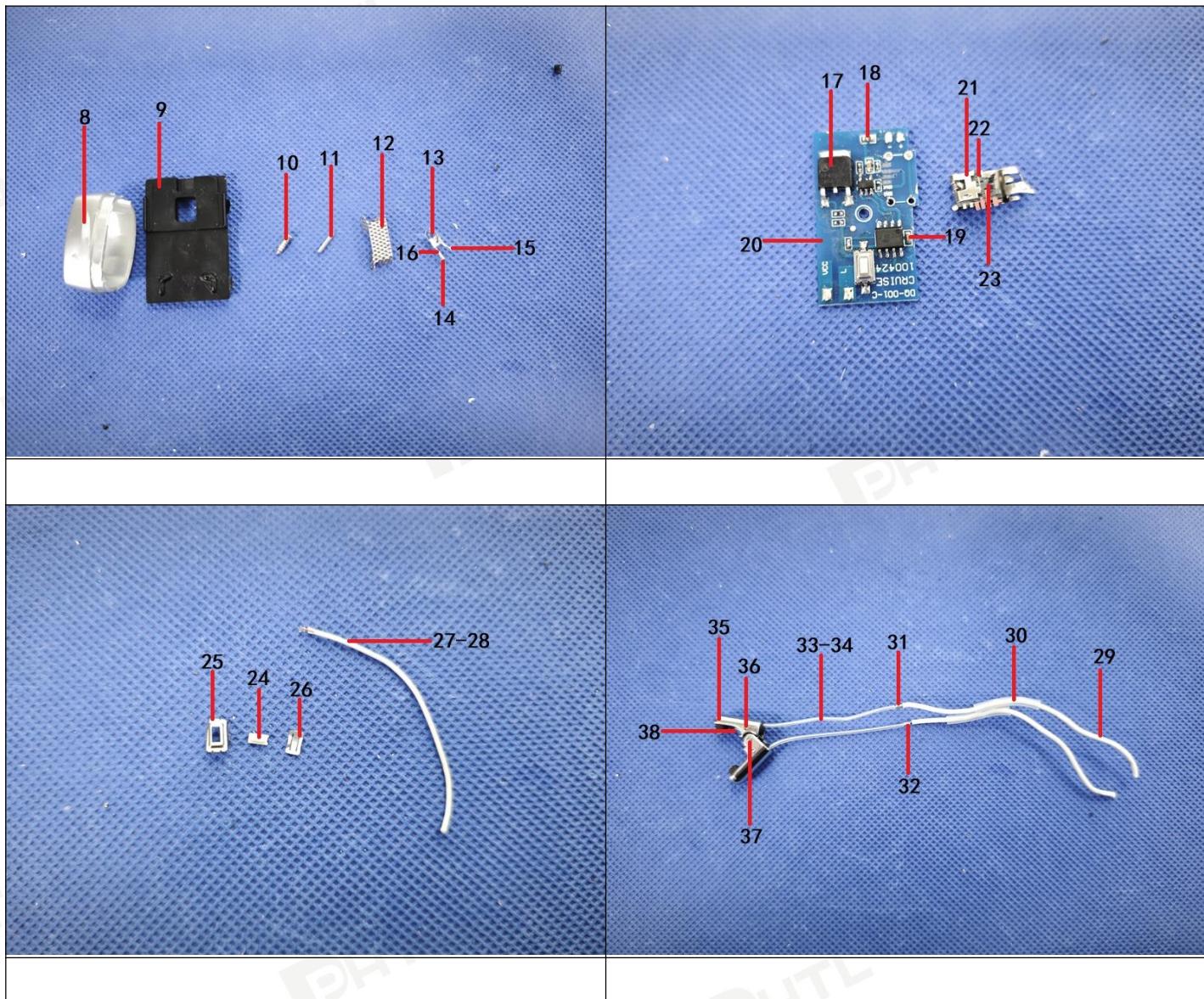


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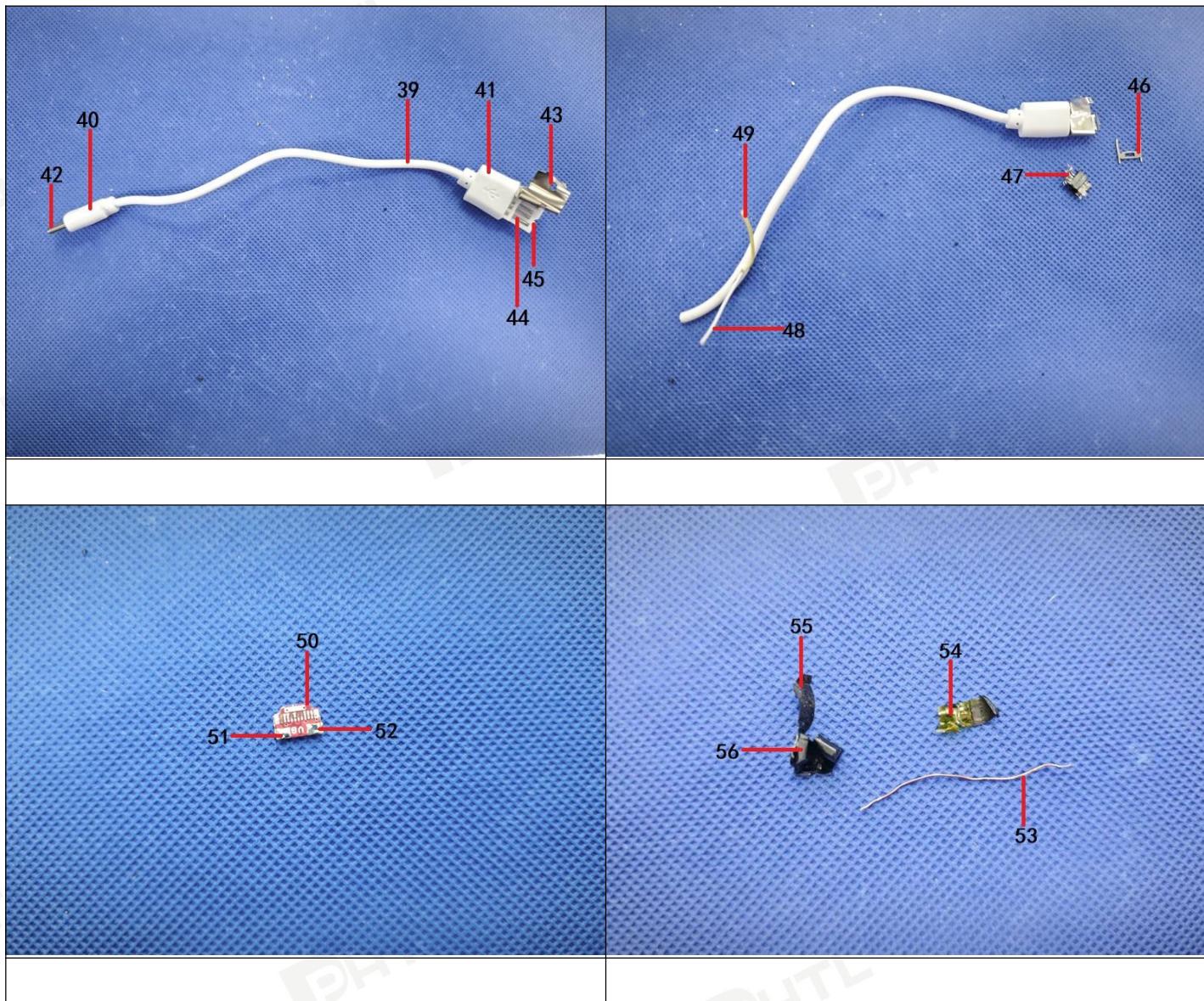


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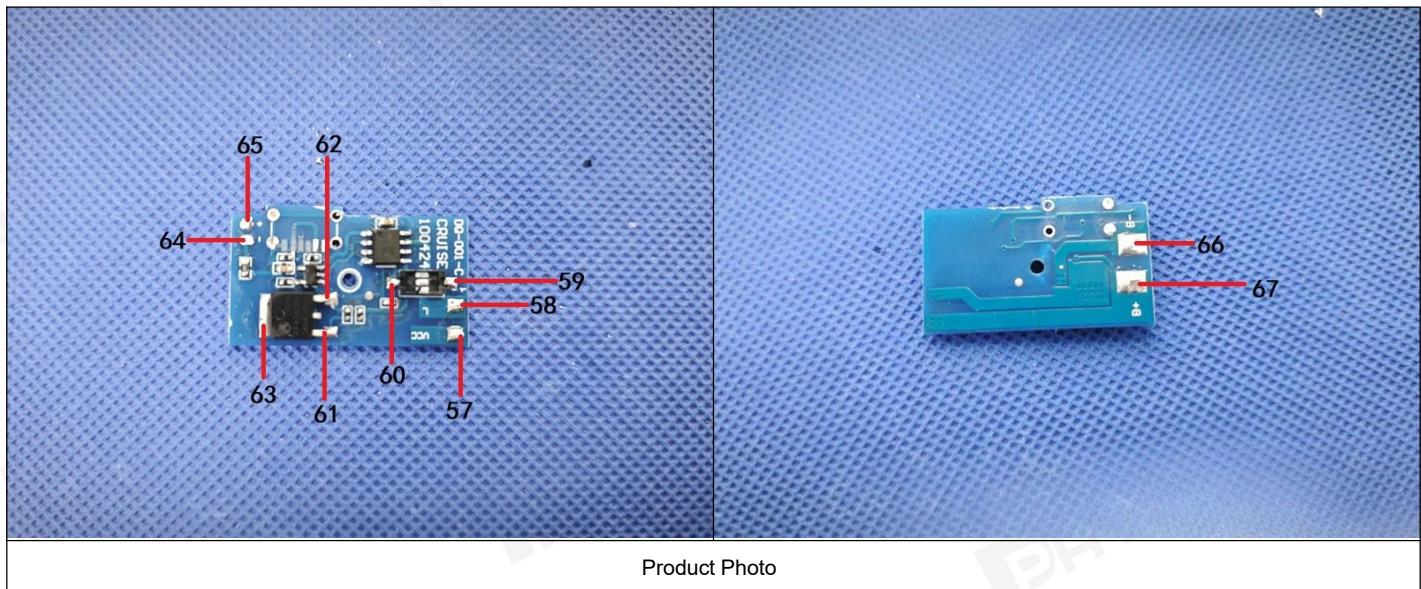


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