



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF24F06129683C

Applicant..... : Mid Ocean Brands B.V.

Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

Manufacturer..... : 114538

Sample Name..... : Wireless 10000 mAh Power bank

Sample Model..... : MO9821

Test Requested..... : Refer to next page (s)

Test Method..... : Refer to next page (s)

Test Conclusion..... : Refer to next page (s)

Date of Receipt sample..... : 2024-06-04

Testing period..... : 2024-06-04 to 2024-06-13

Date of Issue..... : 2024-06-14

Test Result..... : Refer to next page (s)

Prepared By:

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Signed for and on behalf of
Waltek Testing Group (Foshan) Co., Ltd.

Swing Liang

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WTF24F06129683C



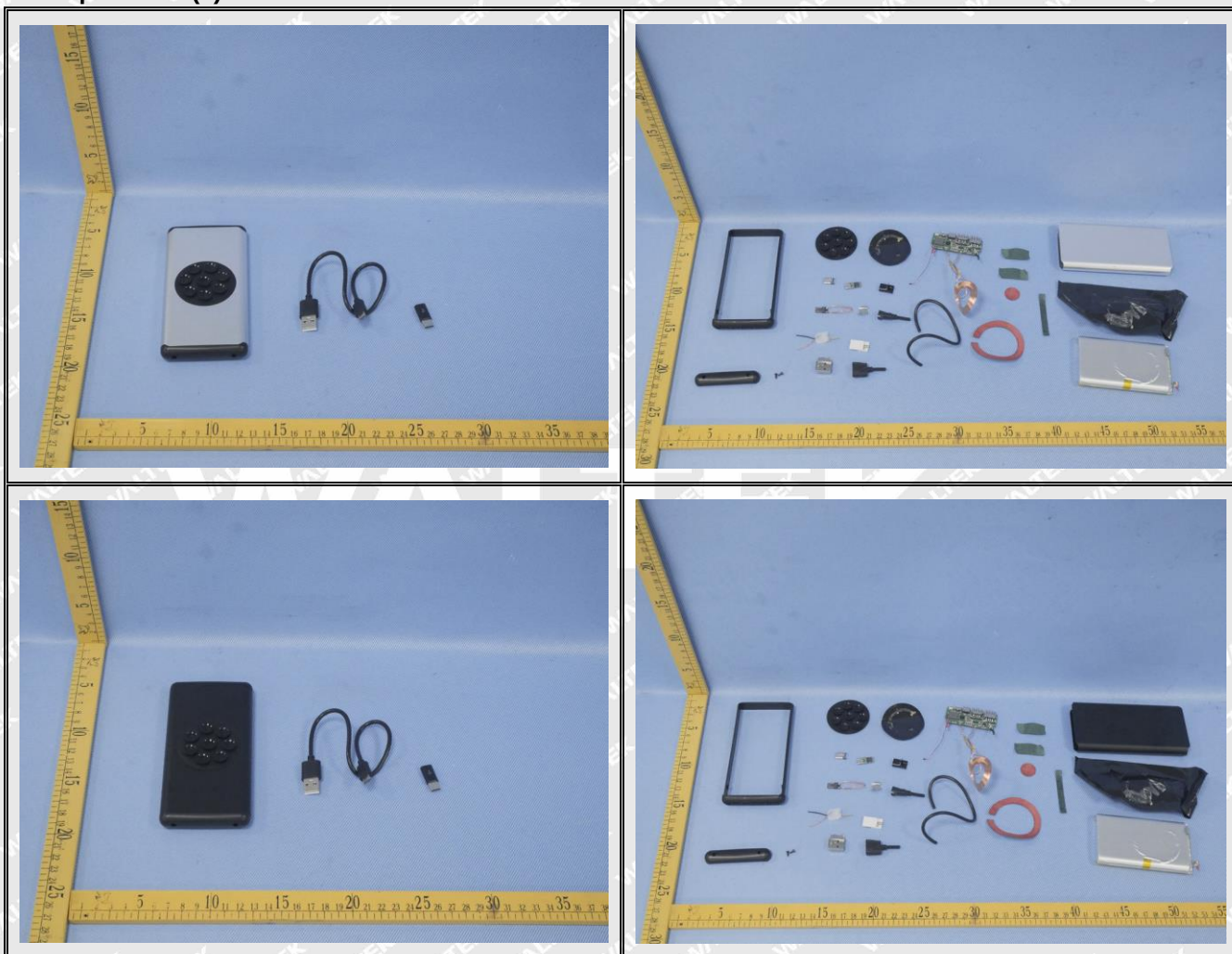
Report No.: WTF24F06129683C

Job No.: FSW2406040105CJ

Summary:

Test Requested	Test Conclusion
In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863, to determine the 10 restricted substances content in the submitted sample.	Pass (Please refer to next pages for details)

Sample Photo(s):



**Test Results:****1. Lead, Mercury, Cadmium, Hexavalent Chromium, PBBs and PBDEs**

Test method:

- 1) With reference to IEC 62321-2:2021, disassembly, disjunction and mechanical sample preparation
- 2) With reference to IEC 62321-3-1:2013, screening –Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry
- 3) With reference to IEC 62321-4:2013+AMD1:2017 CSV, determination of Mercury by ICP-OES
- 4) With reference to IEC 62321-5:2013, determination of Lead and Cadmium by ICP-OES
- 5) With reference to IEC 62321-7-2: 2017 and IEC 62321-7-1: 2015, determination of Hexavalent Chromium by UV-Vis
- 6) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS

Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
1	Black plastic shell (plug)	BL	BL	BL	BL	BL	NA
2	Silvery metal shell (Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
3	Black plastic core (Type-C plug)	BL	BL	BL	BL	BL	NA
4	Silvery metal pin (Type-C plug)	BL	BL	BL	BL	--	NA
5	Green PCB (Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
6	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
7	Black plastic jacket (micro-USB plug)	BL	BL	BL	BL	BL	NA
8	Silvery metal shell (micro-USB plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
9	Black plastic jacket (USB plug)	BL	BL	BL	BL	BL	NA
10	Silvery metal shell (USB plug)	BL	BL	BL	BL	--	NA
11	Coppery metal wire	BL	BL	BL	BL	--	NA
12	Solder (micro-USB plug)	BL	BL	BL	BL	--	NA
13	Golden metal pin (micro-USB plug)	BL	BL	BL	BL	--	NA
14	Black plastic core (micro-USB plug)	BL	BL	BL	BL	BL	NA
15	Black plastic wire covering	BL	BL	BL	BL	BL	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
16	Transparent dry glue (USB plug)	BL	BL	BL	BL	BL	NA
17	Golden metal pin (USB plug)	BL	BL	BL	BL	--	NA
18	White plastic core (USB plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
19	Pink plastic wire covering	BL	BL	BL	BL	BL	NA
20	Solder (USB plug)	BL	BL	BL	BL	--	NA
21	Silvery metal shell	BL	BL	BL	BL	--	NA
22	Black plastic shell	BL	BL	BL	BL	BL	NA
23	Silvery metal screw with black surface	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
24	Black soft plastic suction cup with adhesive tape	BL	BL	BL	BL	BL	NA
25	Brown plastic adhesive tape	BL	BL	BL	BL	BL	NA
26	Black plastic adhesive tape	BL	BL	BL	BL	BL	NA
27	Red-green paper adhesive tape	BL	BL	BL	BL	BL	NA
28	Coppery varnished wire	BL	BL	BL	BL	BL	NA
29	Solder	BL	BL	BL	BL	--	NA
30	Red paper adhesive tape	BL	BL	BL	BL	BL	NA
31	Green paper adhesive tape	BL	BL	BL	BL	BL	NA
32	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
33	Black plastic wire covering	BL	BL	BL	BL	BL	NA
34	Silvery metal wire	BL	BL	BL	BL	--	NA
35	Chip capacitor	BL	BL	BL	BL	BL	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
36	Red plastic wire covering	BL	BL	BL	BL	BL	NA
37	Chip IC	BL	BL	BL	BL	BL	NA
38	Chip inductor	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
39	Black plastic part (button)	BL	BL	BL	BL	BL	NA
40	White plastic shell (button)	BL	BL	BL	BL	BL	NA
41	Silvery metal shell (button)	BL	BL	BL	BL	--	NA
42	Silvery metal sheet (button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
43	Black plastic core (socket)	BL	BL	BL	BL	BL	NA
44	Silvery metal shell (socket)	BL	BL	BL	BL	--	NA
45	Silvery metal pin (socket)	BL	BL	BL	BL	--	NA
46	Black plastic core (socket)	BL	BL	BL	BL	BL	NA
47	Silvery metal shell (socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
48	Silvery metal pin (socket)	BL	BL	BL	BL	--	NA
49	Chip resistor	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
50	Chip diode	BL	BL	BL	BL	BL	NA
51	Chip IC	BL	BL	BL	BL	BL	NA
52	Black plastic core (socket)	BL	BL	BL	BL	BL	NA
53	Silvery metal shell (socket)	BL	BL	BL	BL	--	NA
54	Silvery metal pin (socket)	BL	BL	BL	BL	--	NA
55	Black soft plastic part with adhesive tape	BL	BL	BL	BL	BL	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
56	Black body	BL	BL	BL	BL	BL	NA
57	Red metal wire	BL	BL	BL	BL	--	NA
58	Silvery metal shell with black plating	BL	BL	BL	BL	--	NA

Remark:

- (1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	$\text{BL} \leq (70-3\sigma) < \text{IN} < (130+3\sigma) \leq \text{OL}$	$\text{BL} \leq (70-3\sigma) < \text{IN} < (130+3\sigma) \leq \text{OL}$	$\text{LOD} < \text{IN} < (150+3\sigma) \leq \text{OL}$
Pb	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (500-3\sigma) < \text{IN} < (1500+3\sigma) \leq \text{OL}$
Hg	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (500-3\sigma) < \text{IN} < (1500+3\sigma) \leq \text{OL}$
Cr	$\text{BL} \leq (700-3\sigma) < \text{IN}$	$\text{BL} \leq (700-3\sigma) < \text{IN}$	$\text{BL} \leq (500-3\sigma) < \text{IN}$
Br	$\text{BL} \leq (300-3\sigma) < \text{IN}$	--	$\text{BL} \leq (250-3\sigma) < \text{IN}$

BL= Below Limit

OL= Over Limit

LOD = Limit of Detection

-- = Not Regulated

- (2) "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
- (3) The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.
- (4) mg/kg = milligram per kilogram = ppm, $\mu\text{g}/\text{cm}^2$ = Micrograms per square centimetre.
- (5) ND = Not Detected or lower than limit of quantitation.
- (6) NA = Not Applicable, as the XRF screening test result was below the limit or as the XRF screening directly determine that test result was over the limit, it was not need to conduct the wet chemical testing.
- (7) LOQ = Limit of quantitation.

Test Items	Pb	Cd	Hg	Cr^{6+}		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	$\mu\text{g}/\text{cm}^2$	mg/kg	mg/kg
LOQ	2	2	2	8	0.1	5	5

The LOQ for single compound of PBBs and PBDEs is 5 mg/kg, LOQ of Cr^{6+} for polymer and composite sample is 8 mg/kg and LOQ of Cr^{6+} for metal sample is 0.1 $\mu\text{g}/\text{cm}^2$.



(8) RoHS Requirement

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)

- (9) According to IEC 62321-7-1:2015, determined of Cr⁶⁺ on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is less than 0.10 ug/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13 ug/cm².

Information on storage conditions and production date of the tested sample is unavailable and thus Cr⁶⁺ results represent status of the sample at the time of testing.

(10) Abbreviation:

"Pb" denotes Lead, "Cd" denotes Cadmium, "Hg" denotes Mercury, "Cr" denotes Chromium, "Cr (VI)" denotes Hexavalent Chromium, "Br" denotes Bromine, "PBBs" denotes Total Polybrominated Biphenyls, "PBDEs" denotes Total Polybrominated Diphenyl Ethers.

2. Phthalates:

Test method:

With reference to IEC 62321-8:2017, determination of Phthalates content by GC-MS.

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1+3+14+22+39 [△]	ND	ND	ND	ND
T02	2	--	--	--	--
T03	4	--	--	--	--
T04	5+32 [△]	ND	ND	ND	ND
T05	6+7+9 [△]	ND	ND	145	ND
T06	8	--	--	--	--
T07	10	--	--	--	--
T08	11	--	--	--	--
T09	12	--	--	--	--
T10	13	--	--	--	--
T11	15+19+33 [△]	ND	ND	ND	ND
T12	16	ND	ND	ND	ND
T13	17	--	--	--	--
T14	18+40+43+46+52 [△]	ND	ND	ND	ND
T15	20	--	--	--	--
T16	21	--	--	--	--



Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T17	23	--	--	--	--
T18	24+55 [△]	ND	ND	ND	ND
T19	25+26 [△]	101	ND	ND	ND
T20	27+30+31 [△]	ND	ND	ND	ND
T21	28	ND	ND	ND	ND
T22	29	--	--	--	--
T23	34	--	--	--	--
T24	35+37+38+49+50 [△]	ND	ND	ND	ND
T25	36	ND	ND	ND	ND
T26	41	--	--	--	--
T27	42	--	--	--	--
T28	44	--	--	--	--
T29	45	--	--	--	--
T30	47	--	--	--	--
T31	48	--	--	--	--
T32	51+56 [△]	ND	ND	ND	ND
T33	53	--	--	--	--
T34	54	--	--	--	--
T35	57	--	--	--	--
T36	58	--	--	--	--

Note:

- (1) mg/kg = milligram per kilogram= ppm
- (2) ND = Not Detected or lower than limit of quantitation.
- (3) -- = Not Regulated.
- (4) LOQ = Limit of quantitation.

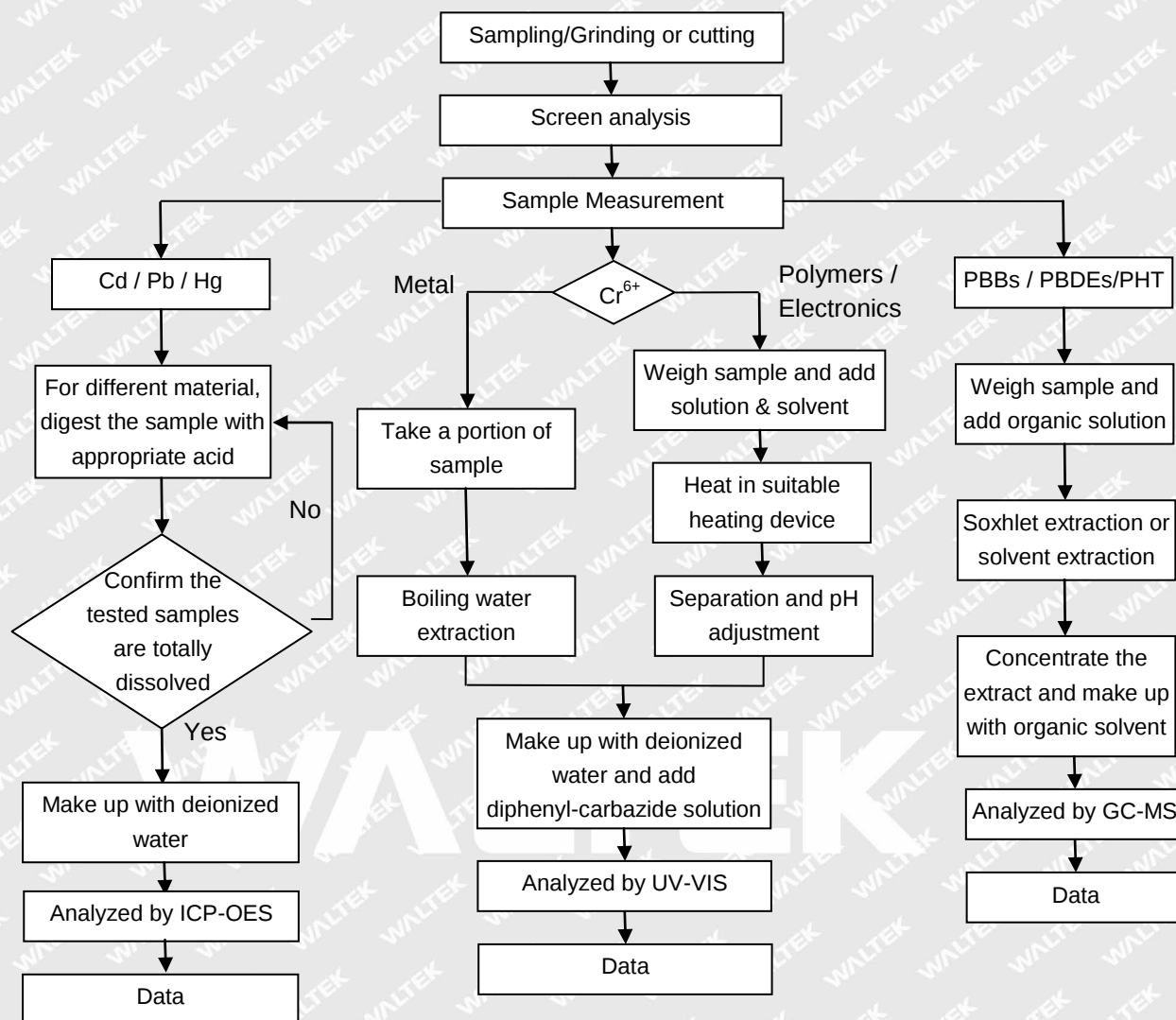
Test Items	DBP	BBP	DEHP	DIBP
Units	mg/kg	mg/kg	mg/kg	mg/kg
LOQ	50	50	50	50

- (5) Abbreviation:
 "DBP" denotes Dibutyl phthalate, "BBP" denotes Benzyl butyl phthalate (BBP), "DEHP" denotes Bis(2-ethylhexyl)-phthalate, "DIBP" denotes Diisobutyl phthalate, "PHT" denotes Phthalates.

- (6) RoHS requirement

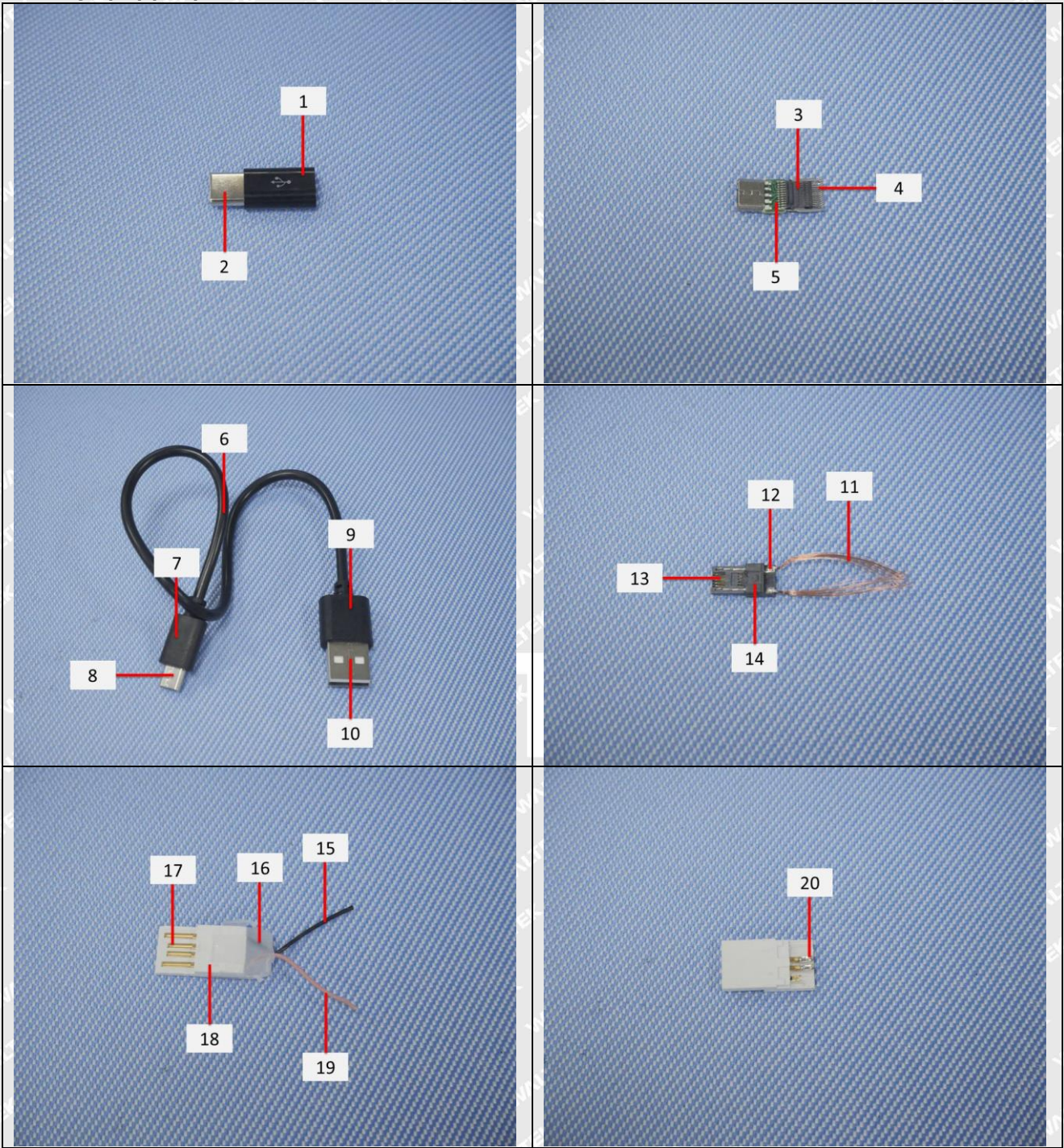
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

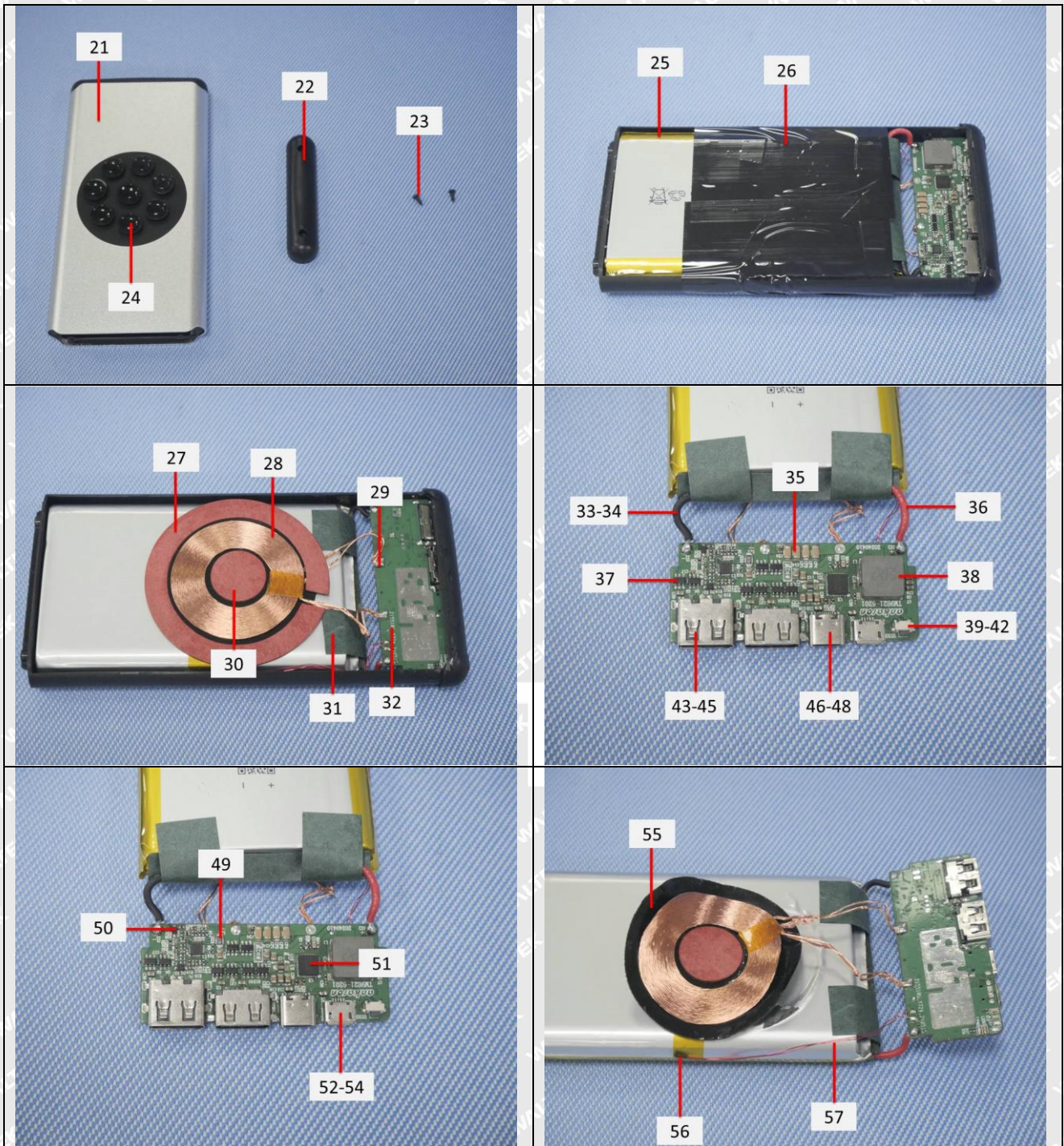
- (7) "△"= As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.
- (8) The weight of test sample No.39 is insufficient, the test result is for reference only.

**Measurement Flowchart:**



Photograph(s) of parts tested:





**Remarks:**

1. The results shown in this test report refer only to the sample(s) tested;
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===== End of Report =====