



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF24F11263761A1C
Job No...... : FSW2412160609CJ
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer : 111033
Sample Name : A4 folder wireless power bank
Sample Model..... : MO2495
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 : 2024-12-16 & 2024-12-27
Testing period : 2024-12-16 to 2024-12-24 & 2024-12-27 to 2024-12-28
Date of Issue..... : 2024-12-28
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

Swing.Liang



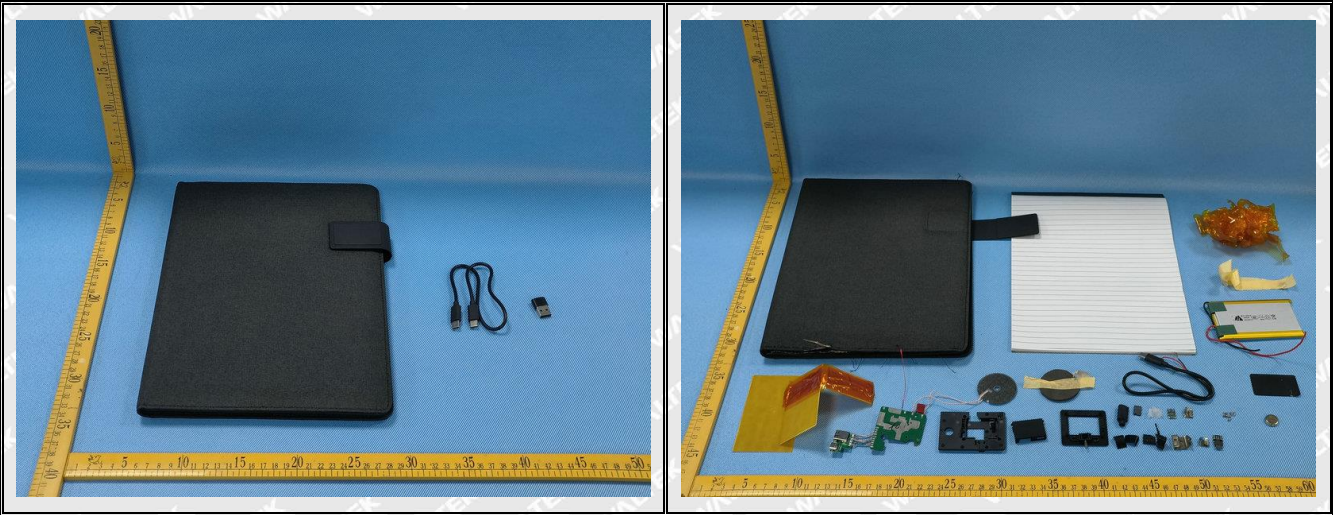
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Summary:

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, Cadmium, Mercury, 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, cadmium, mercury, 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 wire jacket	BL	BL	BL	BL	BL	NA
2	Black plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA
3	Silvery metal shell with black surface(plug)	BL	BL	BL	BL	--	NA
4	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
5	Silvery metal shell(plug)	BL	BL	BL	BL	--	NA
6	Black dry glue(plug)	BL	BL	BL	BL	BL	NA
7	Silvery metal shell(plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
8	Golden metal pin(plug)	BL	BL	BL	BL	--	NA
9	Black PCB(plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
10	Chip resistor(plug)	BL	BL	BL	BL	BL	NA
11	Black plastic core(plug)	BL	BL	BL	BL	BL	NA
12	White dry glue(Type-C plug)	BL	BL	BL	BL	BL	NA
13	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
14	Silvery metal pin(Type-C plug)	BL	BL	BL	BL	--	NA
15	Solder(Type-C plug)	BL	IN	BL	BL	--	Pb :39



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
16	Green PCB(Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
17	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
18	White plastic wire covering	BL	BL	BL	BL	BL	NA
19	Red plastic wire covering	BL	BL	BL	BL	BL	NA
20	Green plastic wire covering	BL	BL	BL	BL	BL	NA
21	Black plastic wire covering	BL	BL	BL	BL	BL	NA
22	Coppery metal wire	BL	BL	BL	BL	--	NA
23	Black main fabric	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
24	Silvery metal sheet with black surface	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
25	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
26	Silvery magnetic sheet	BL	BL	BL	BL	--	NA
27	Black paper sheet	BL	BL	BL	BL	BL	NA
28	White paper sheet with black printing	BL	BL	BL	BL	BL	NA
29	Transparent plastic sheet	BL	BL	BL	BL	BL	NA
30	Grey paper sheet	BL	BL	BL	BL	BL	NA
31	Black elastic band	BL	BL	BL	BL	BL	NA
32	Black synthetic leather	BL	BL	BL	BL	BL	NA
33	Black elastic band	BL	BL	BL	BL	BL	NA
34	Black plastic shell	BL	BL	BL	BL	BL	NA
35	Black plastic hook(VELCRO)	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	Black plastic loop(VELCRO)	BL	BL	BL	BL	BL	NA
37(R1)	Black plastic sheet	BL	BL	BL	BL	BL	NA
38	Yellow paper adhesive tape	BL	BL	BL	BL	BL	NA
39	Brown plastic adhesive tape	BL	BL	BL	BL	BL	NA
40	Brown paper sheet	BL	BL	BL	BL	BL	NA
41	Grey paper sheet	BL	BL	BL	BL	BL	NA
42	Black sponge sheet	BL	BL	BL	BL	BL	NA
43	Red plastic wire covering	BL	BL	BL	BL	BL	NA
44	Black plastic wire covering	BL	BL	BL	BL	BL	NA
45	Silvery metal wire	BL	BL	BL	BL	--	NA
46	White fabric wire covering	BL	BL	BL	BL	BL	NA
47	Coppery metal wire	BL	BL	BL	BL	--	NA
48	Green paper sheet	BL	BL	BL	BL	BL	NA
49	Brown plastic sheet	BL	BL	BL	BL	BL	NA
50	Transparent double faced adhesive tape	BL	BL	BL	BL	BL	NA
51	Red capacitor	BL	BL	BL	BL	BL	NA
52	Black magnetic sheet	BL	BL	BL	BL	--	NA
53	Red-copper metal wire	BL	BL	BL	BL	--	NA
54	Black body	BL	BL	BL	BL	BL	NA
55	Silvery metal screw	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	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
57	Solder	BL	IN	BL	BL	--	Pb :174
58	Chip IC	BL	BL	BL	BL	BL	NA
59	Chip IC	BL	BL	BL	BL	BL	NA
60	Coppery metal wire	BL	BL	BL	BL	--	NA
61	Green metal wire	BL	BL	BL	BL	--	NA
62	White fabric wire	BL	BL	BL	BL	BL	NA
63	Coppery varnished wire(inductor)	BL	BL	BL	BL	BL	NA
64	Black magnetic shell(inductor)	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
65	Chip IC	BL	BL	BL	BL	BL	NA
66	Chip capacitor	BL	BL	BL	BL	BL	NA
67	Chip LED	BL	BL	BL	BL	BL	NA
68	Black plastic shell(button)	BL	BL	BL	BL	BL	NA
69	Silvery metal shell(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
70	Silvery metal sheet(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
71	Chip resistor	BL	IN	BL	IN	BL	Pb :330 Cr ⁶⁺ : ND
72	Chip diode	BL	BL	BL	BL	BL	NA
73	Chip resistor	BL	BL	BL	BL	BL	NA
74	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
75	Silvery metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
76	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
77	Silvery metal shell(socket)	BL	BL	BL	BL	--	NA
78	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
79	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
80	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
81	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
82	Black sponge sheet	BL	BL	BL	BL	BL	NA
83	White sponge sheet	BL	BL	BL	BL	BL	NA
84	Silvery magnetic sheet	BL	BL	BL	BL	--	NA
85	Yellow plastic sheet	BL	BL	BL	BL	BL	NA

Remark:

- (1) Results are obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr⁶⁺) 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	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$LOD < IN < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < IN$	$BL \leq (700-3\sigma) < IN$	$BL \leq (500-3\sigma) < IN$
Br	$BL \leq (300-3\sigma) < IN$	--	$BL \leq (250-3\sigma) < IN$

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.



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- (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 Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10 $\mu\text{g}/\text{cm}^2$.

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13 $\mu\text{g}/\text{cm}^2$.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} 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.



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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+2+17 [△]	ND	ND	ND	ND
T02	3	--	--	--	--
T03	4	--	--	--	--
T04	5	--	--	--	--
T05	6+12 [△]	ND	ND	ND	ND
T06	7	--	--	--	--
T07	8	--	--	--	--
T08	9+16+56 [△]	ND	ND	ND	ND
T09	10+51+54+58+59 [△]	ND	ND	ND	ND
T10	11+13+29+34 [△]	ND	ND	ND	ND
T11	14	--	--	--	--
T12	15	--	--	--	--
T13	18+19+20 [△]	ND	ND	ND	ND
T14	21+43+44 [△]	ND	ND	ND	ND
T15	22	--	--	--	--
T16	23+31+33 [△]	408	ND	ND	ND
T17	24	--	--	--	--
T18	25	--	--	--	--
T19	26	--	--	--	--
T20	27+28+30+40+41 [△]	ND	ND	ND	ND
T21	32	ND	ND	ND	ND
T22	35+36 [△]	ND	ND	ND	ND
T23	37(R1)	ND	ND	ND	ND
T24	38	ND	ND	ND	ND
T25	39	ND	ND	ND	ND
T26	42+82+83 [△]	ND	ND	190	ND
T27	45	--	--	--	--
T28	46+62 [△]	ND	ND	ND	ND
T29	47	--	--	--	--
T30	48	ND	ND	ND	ND
T31	49+68+76+79+85 [△]	ND	ND	ND	ND
T32	50	ND	ND	ND	ND
T33	52	--	--	--	--
T34	53	--	--	--	--
T35	55	--	--	--	--
T36	57	--	--	--	--
T37	60	--	--	--	--
T38	61	--	--	--	--
T39	63	ND	ND	ND	ND
T40	64	--	--	--	--
T41	65+66+67+71+72 [△]	ND	ND	ND	ND



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T42	69	--	--	--	--
T43	70	--	--	--	--
T44	73	ND	ND	ND	ND
T45	74	--	--	--	--
T46	75	--	--	--	--
T47	77	--	--	--	--
T48	78	--	--	--	--
T49	80	--	--	--	--
T50	81	--	--	--	--
T51	84	--	--	--	--

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

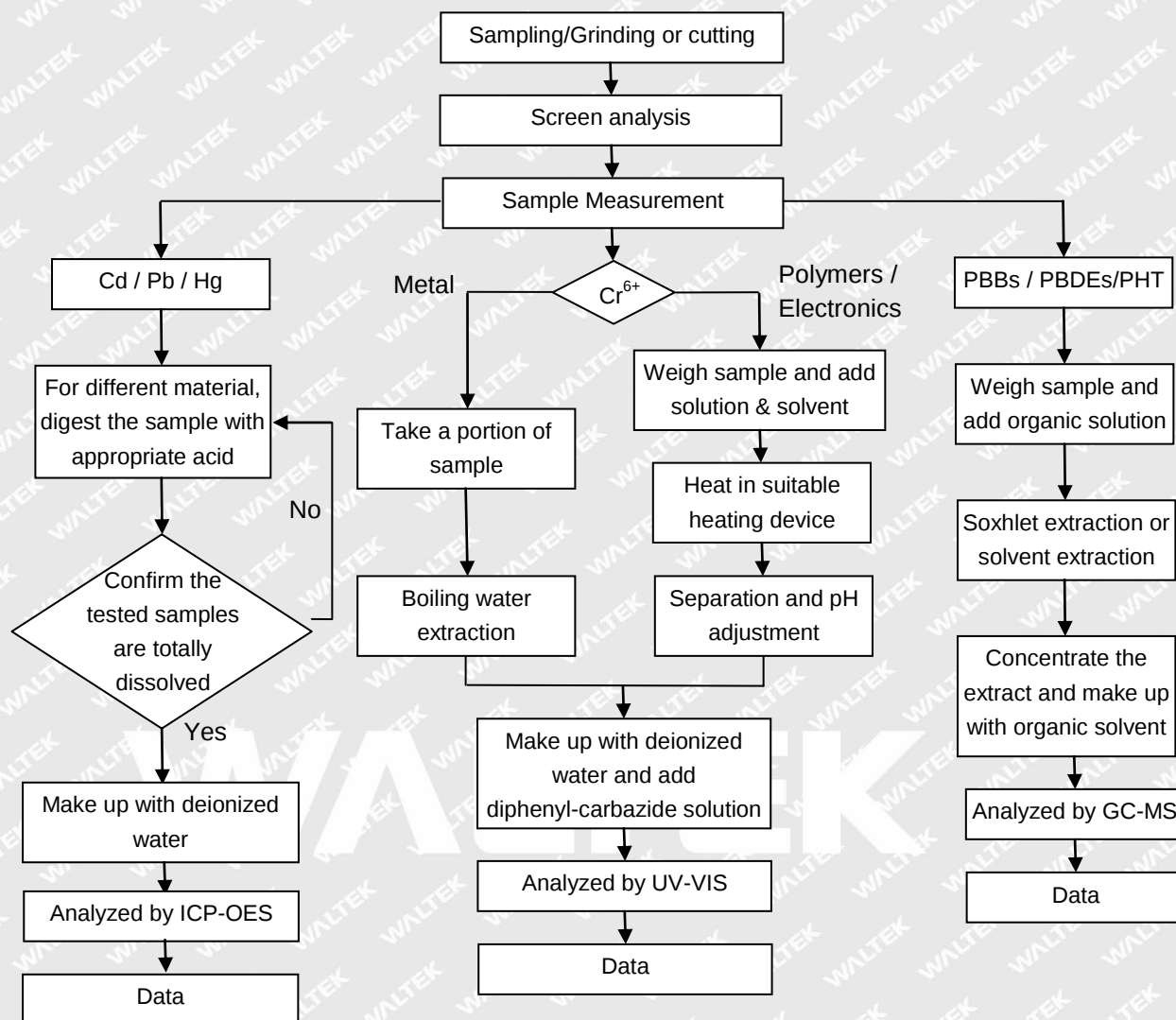
- (5) Abbreviation:

“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

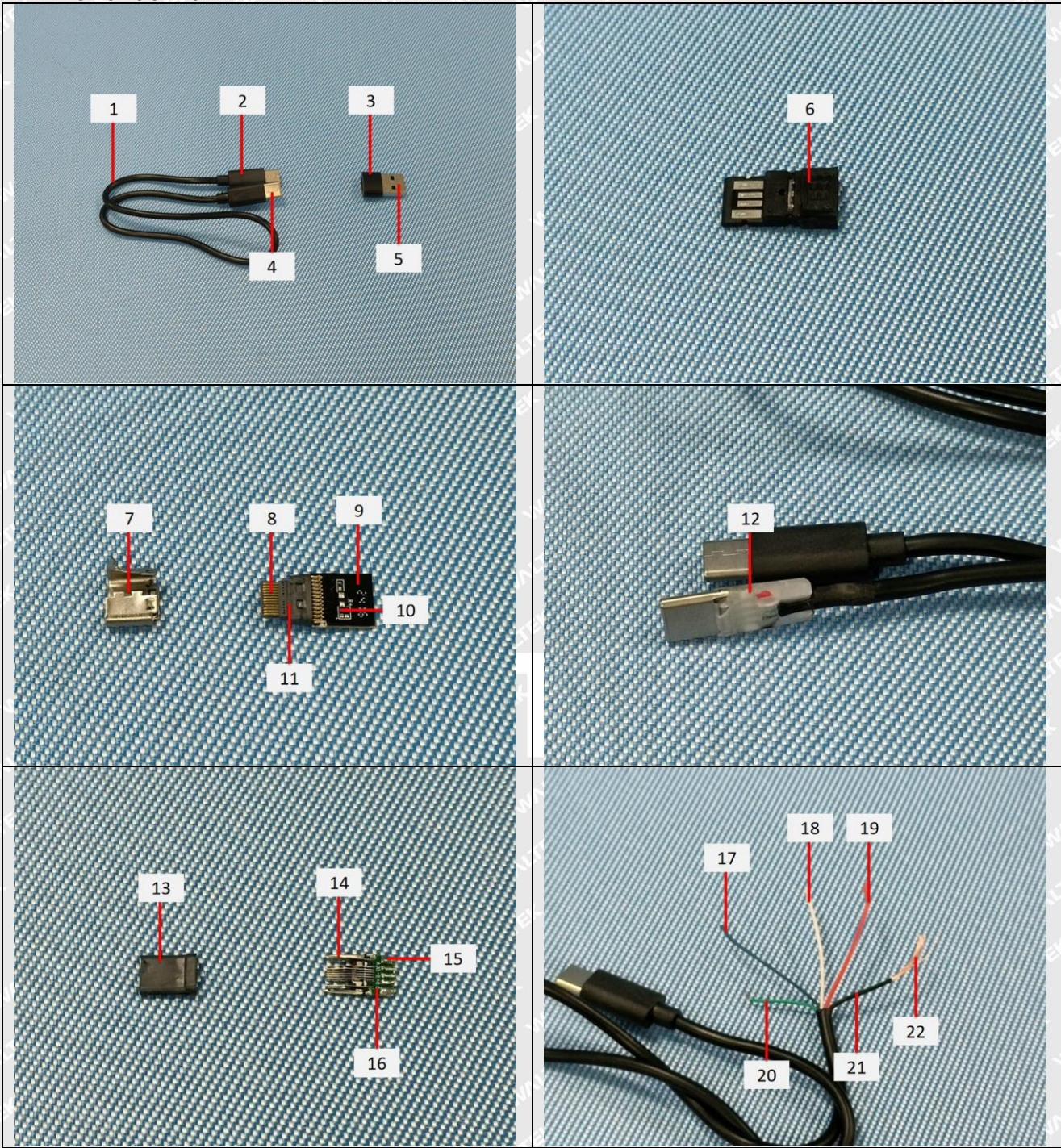
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

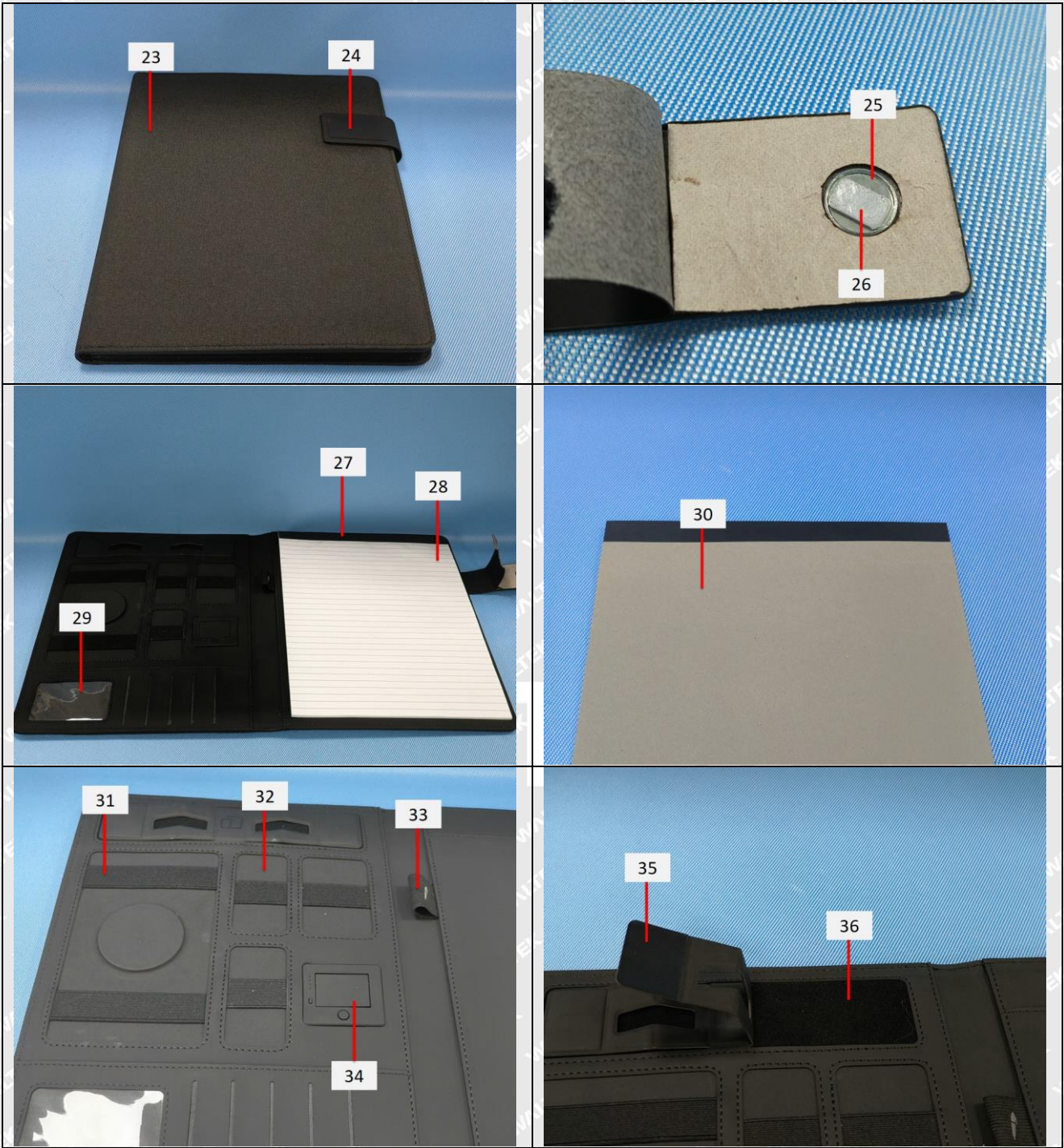
- (7) “△”= As client’s requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

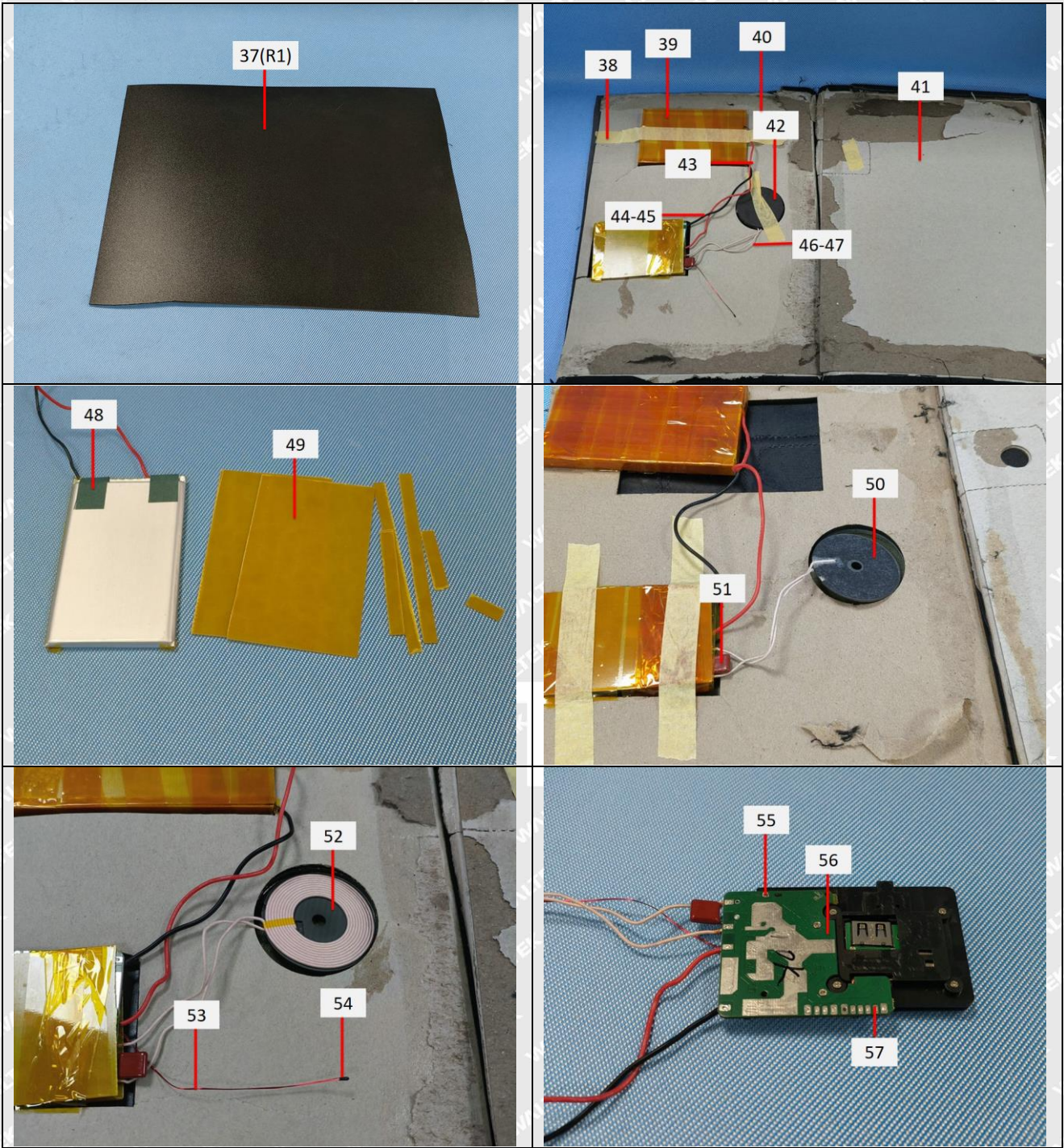
**Measurement Flowchart:**

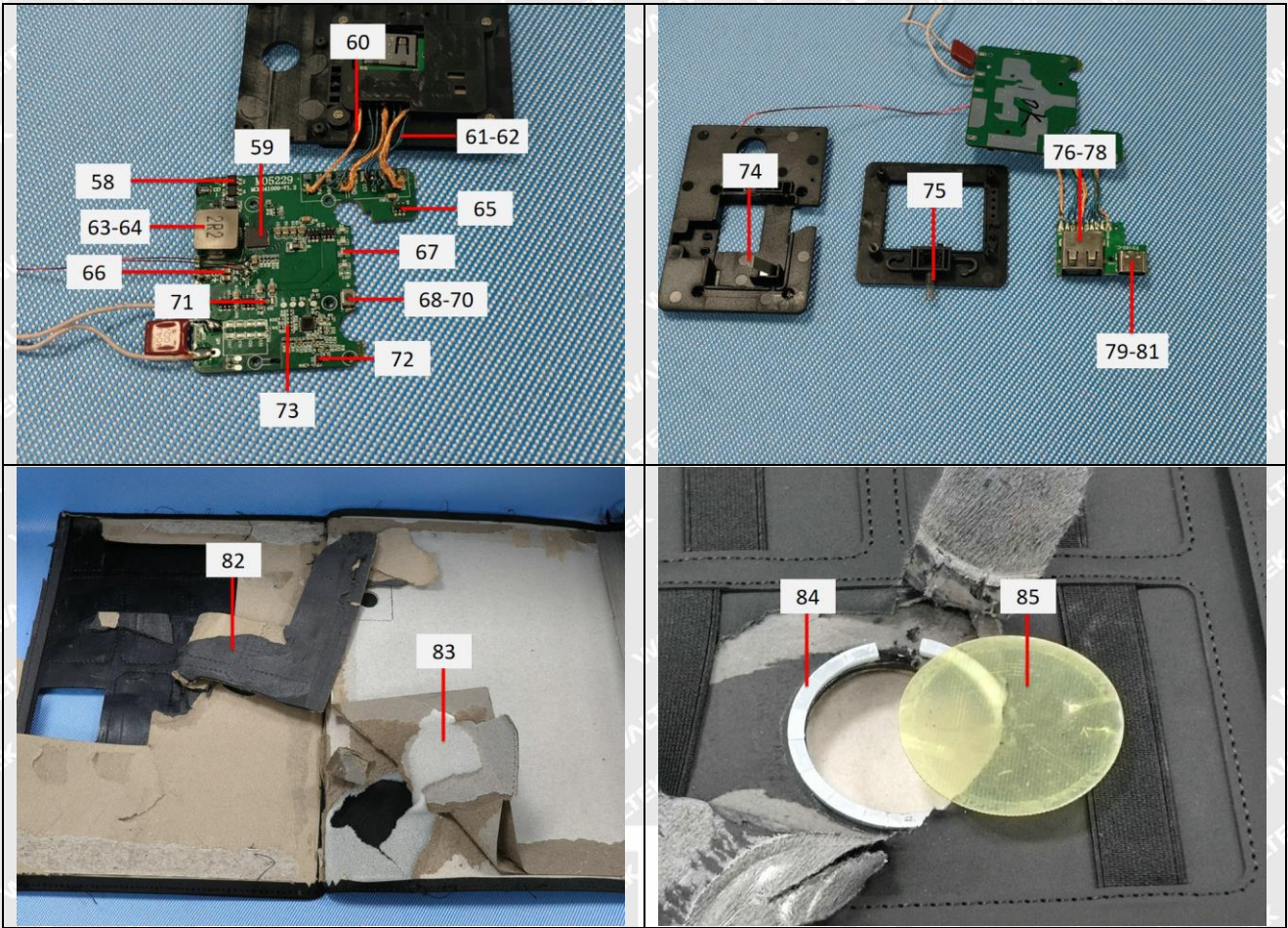


Photograph(s) of parts tested:











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===== End of Report =====

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