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检测
TESTING
CNAS L6478

TEST REPORT

Report No.	:	WTF23F11233547C
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 Powerbank
Sample Model	:	MO2185
Date of Receipt sample	:	2023-11-01
Testing period	:	2023-11-01 to 2023-11-09
Date of Issue	:	2023-11-10
Test Result	:	Refer to next page (s)
Test Conclusion	:	**Pass** (Based on the performed tests on the submitted samples, the results comply with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863)

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

Swing.Liang

Test Requested	:	In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.
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 7) With reference to IEC 62321-8:2017, determination of Phthalates content by GC-MS.

Sample Photo(s):

Test Results:

1. Lead, Mercury, Cadmium, Hexavalent Chromium, PBBs and PBDEs

Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
1	Black synthetic leather	BL	BL	BL	BL	BL	NA
2	Brown wooden shell	BL	BL	BL	BL	BL	NA
3	Black soft plastic button	BL	BL	BL	BL	BL	NA
4	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
5	Green plastic plate	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
6	Transparent hot melt adhesive	BL	BL	BL	BL	BL	NA
7	Brown plastic adhesive tape	BL	BL	BL	IN	BL	Cr^{6+} : ND
8	White dry glue	BL	BL	BL	BL	BL	NA
9	Black magnetic sheet	BL	BL	BL	BL	--	NA
10	White fabric wire covering	BL	BL	BL	BL	BL	NA
11	Red plastic wire covering	BL	BL	BL	BL	BL	NA
12	Coppery metal wire	BL	BL	BL	BL	--	NA
13	Black plastic wire covering	BL	BL	BL	BL	BL	NA
14	Silvery metal wire	BL	BL	BL	BL	--	NA
15	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
16	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
17	Black plastic part(button)	BL	BL	BL	BL	BL	NA
18	Silvery metal sheet(button)	BL	BL	BL	IN	--	Cr^{6+} : Negative
19	Off-white plastic shell(button)	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	
20	Silvery metal sheet(button)	BL	BL	BL	BL	--	NA
21	Black body	BL	BL	BL	BL	BL	NA
22	Red-coppery varnished wire	BL	BL	BL	BL	BL	NA
23	Solder	BL	BL	BL	BL	--	NA
24	Silvery metal shell(socket)	BL	BL	BL	BL	--	NA
25	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
26	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
27	Chip IC	BL	BL	BL	BL	BL	NA
28	Chip LED	BL	BL	BL	BL	BL	NA
29	Brown capacitor	BL	BL	BL	BL	BL	NA
30	Chip IC	BL	BL	BL	BL	BL	NA
31	Chip capacitor	BL	BL	BL	BL	BL	NA
32	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr^{6+} : Negative
33	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
34	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
35	Chip IC	BL	BL	BL	BL	BL	NA
36	Chip diode	BL	BL	BL	BL	BL	NA
37	Chip audio	BL	BL	BL	BL	BL	NA
38	Black magnetic shell(inductor)	BL	BL	BL	IN	--	Cr^{6+} : ND
39	Coppery varnished wire(inductor)	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	
40	Chip resistor	BL	BL	BL	BL	BL	NA
41	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
42	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
43	Black plastic shell(USB plug)	BL	BL	BL	BL	BL	NA
44	Black dry glue(USB plug)	BL	BL	BL	BL	BL	NA
45	Green PCB(USB plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
46	Solder(USB plug)	BL	BL	BL	BL	--	NA
47	Chip resistor(USB plug)	BL	BL	BL	IN	BL	Cr^{6+} : ND
48	Silvery metal pin(USB plug)	BL	BL	BL	BL	--	NA
49	Light golden metal pin(USB plug)	BL	BL	BL	BL	--	NA
50	White plastic core(USB plug)	BL	BL	BL	BL	BL	NA
51	Black plastic core(USB plug)	BL	BL	BL	BL	BL	NA
52	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr^{6+} : Negative
53	Coppery metal wire	BL	BL	BL	BL	--	NA
54	Black plastic jacket	BL	BL	BL	BL	BL	NA
55	Green PCB(Type-C plug)	BL	BL	BL	BL	BL	NA
56	Chip capacitor(Type-C plug)	BL	BL	BL	BL	BL	NA
57	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
58	Silvery metal pin(Type-C plug)	BL	BL	BL	BL	--	NA
59	Solder(Type-C plug)	BL	BL	BL	BL	--	NA

Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
60	White plastic wire covering	BL	BL	BL	BL	BL	NA
61	Green plastic wire covering	BL	BL	BL	BL	BL	NA
62	Black plastic wire covering	BL	BL	BL	BL	BL	NA
63	Red plastic wire covering	BL	BL	BL	BL	BL	NA
64	Yellow plastic wire covering	BL	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	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < 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, $\mu g/cm^2$= 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	$\mu g/cm^2$	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 $\mu g/cm^2$.

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

2. Phthalates:

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1	ND	ND	ND	ND
T02	2	ND	ND	ND	ND
T03	3	ND	ND	ND	ND
T04	4	ND	ND	ND	ND
T05	5+51+57△	ND	ND	ND	ND
T06	6	ND	ND	ND	ND
T07	7	ND	ND	ND	ND
T08	8	ND	ND	ND	ND
T09	9	--	--	--	--
T10	10	ND	ND	ND	ND
T11	11	ND	ND	ND	ND
T12	12	--	--	--	--
T13	13	ND	ND	ND	ND
T14	14	--	--	--	--
T15	15	ND	ND	ND	ND
T16	16+45+55△	ND	ND	ND	ND
T17	17	ND	ND	ND	ND

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T18	18	--	--	--	--
T19	19	ND	ND	ND	ND
T20	20	--	--	--	--
T21	21+27+28+29+30△	ND	ND	ND	ND
T22	22+39+47+56△	ND	ND	ND	ND
T23	23	--	--	--	--
T24	24	--	--	--	--
T25	25+33+43+50△	ND	ND	ND	ND
T26	26	--	--	--	--
T27	31+35+36+37+40△	ND	ND	ND	ND
T28	32	--	--	--	--
T29	34	--	--	--	--
T30	38	--	--	--	--
T31	41	ND	ND	ND	ND
T32	42	--	--	--	--
T33	44	ND	ND	ND	ND
T34	46	--	--	--	--
T35	48	--	--	--	--
T36	49	--	--	--	--
T37	52	--	--	--	--
T38	53	--	--	--	--
T39	54	ND	ND	ND	ND
T40	58	--	--	--	--
T41	59	--	--	--	--
T42	60	ND	ND	66	ND
T43	61	ND	ND	ND	ND
T44	62	ND	ND	ND	ND
T45	63	ND	ND	ND	ND
T46	64	ND	ND	ND	ND

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

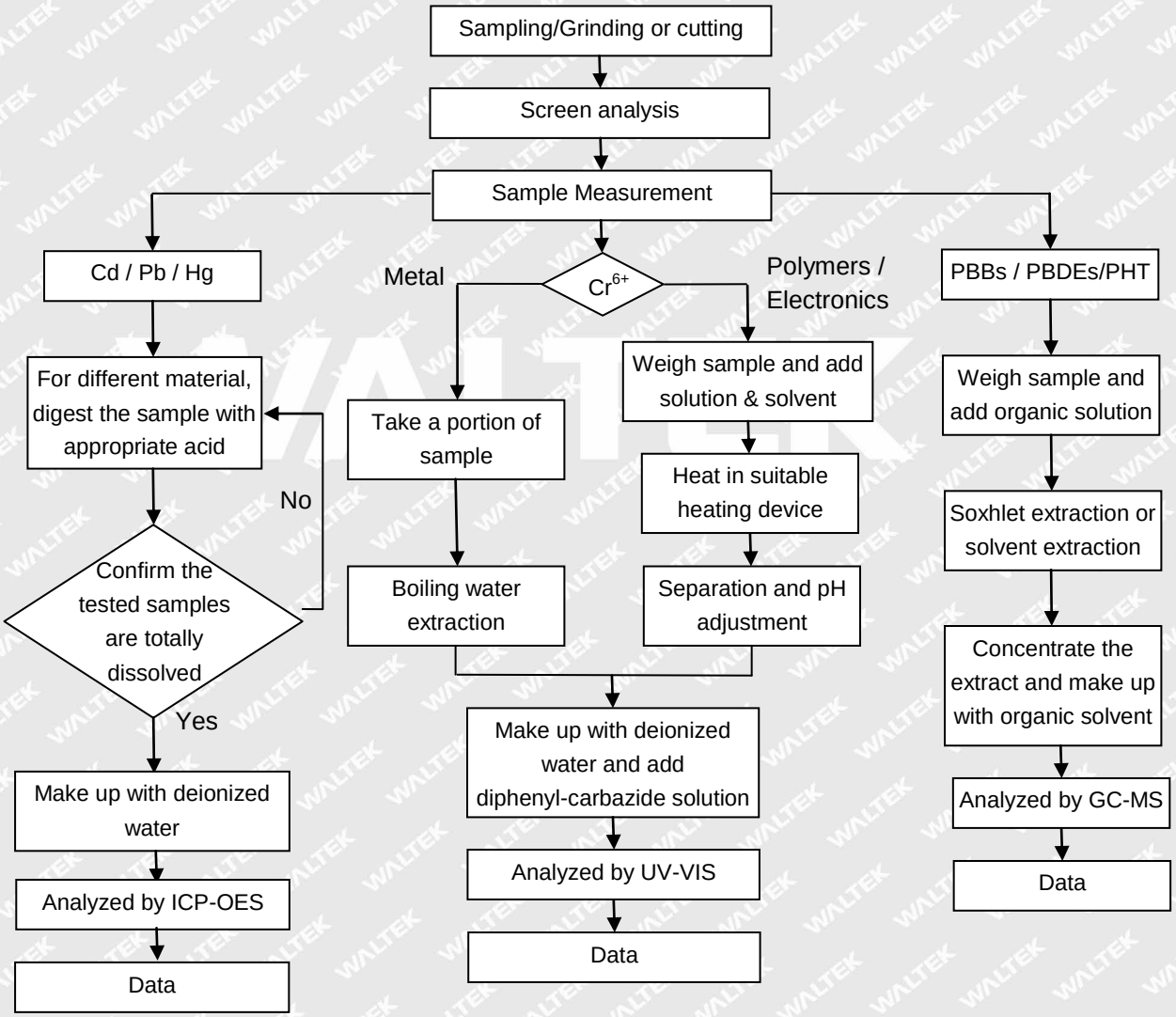
(5) Abbreviation:
"DBP" denotes Dibutyl phthalate, "BBP" denotes Benzyl butyl phthalate (BBP), "DEHP" denotes Bis(2-ethylhexyl)-phthalate, "DIBP" denotes Diisobutyl phthalate, "PHT" denotes Phthalates.

(6) RoHS requirement

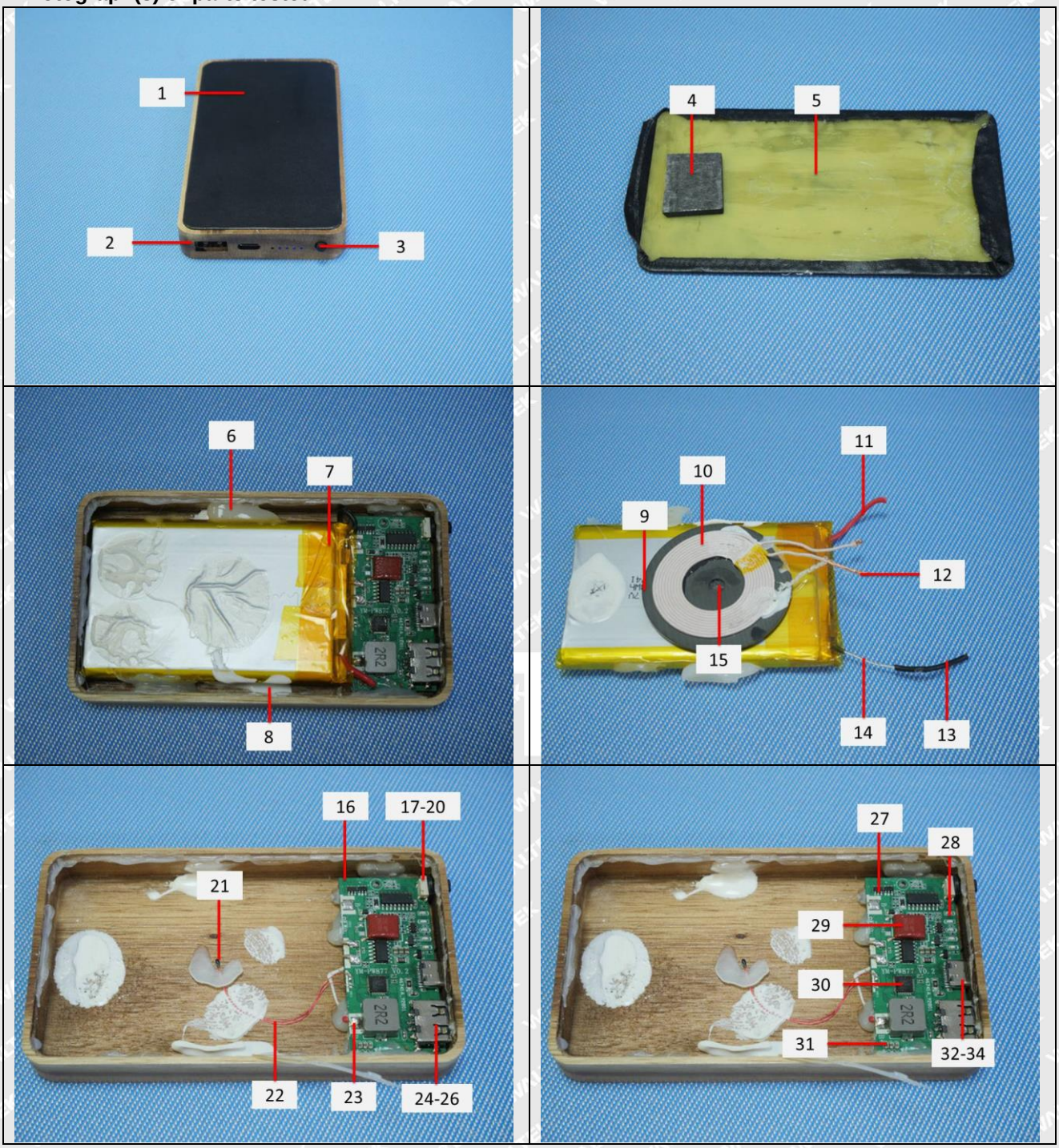
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

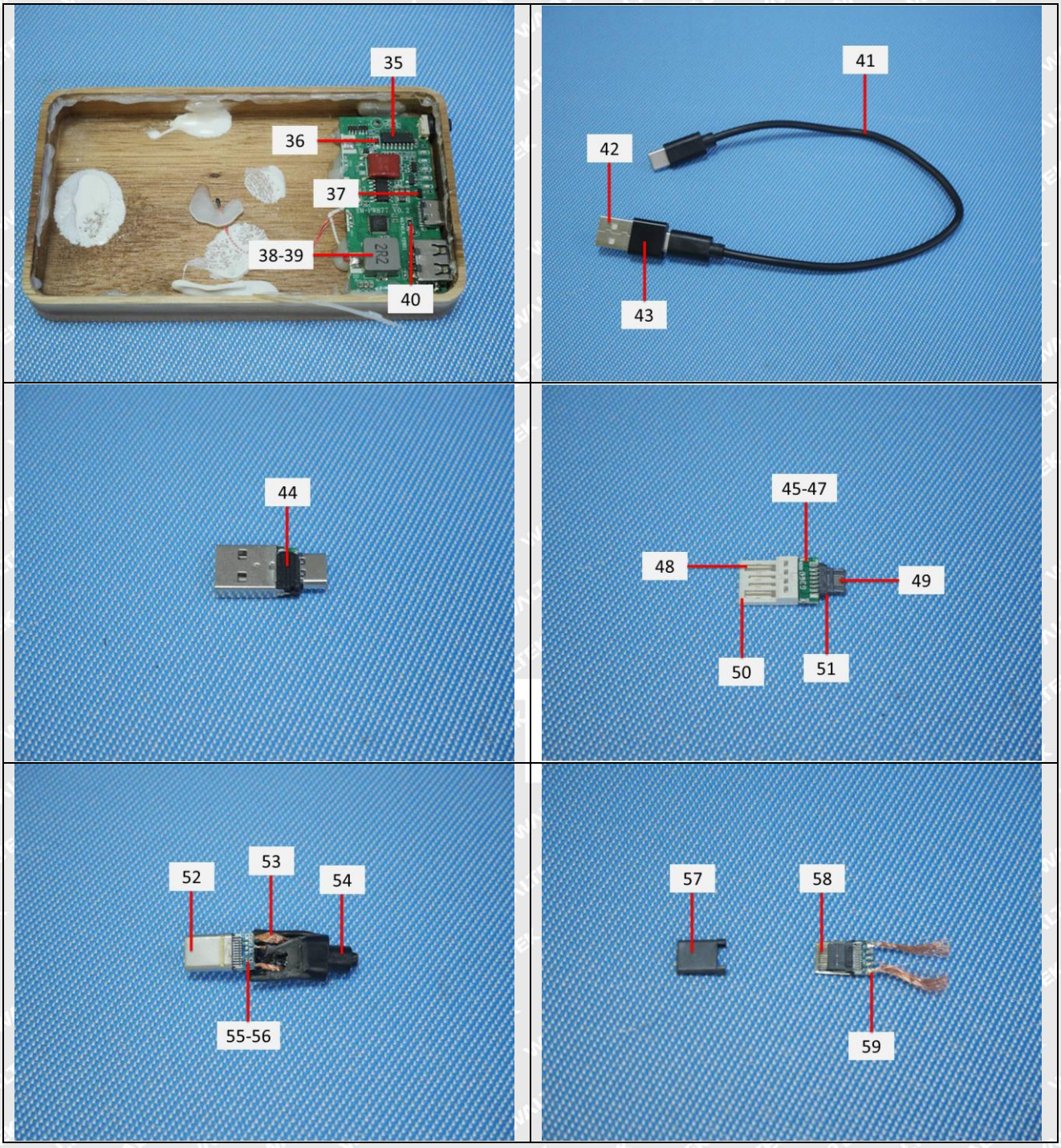
(7) "△"= As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

Measurement Flowchart:



Photograph(s) of parts tested:

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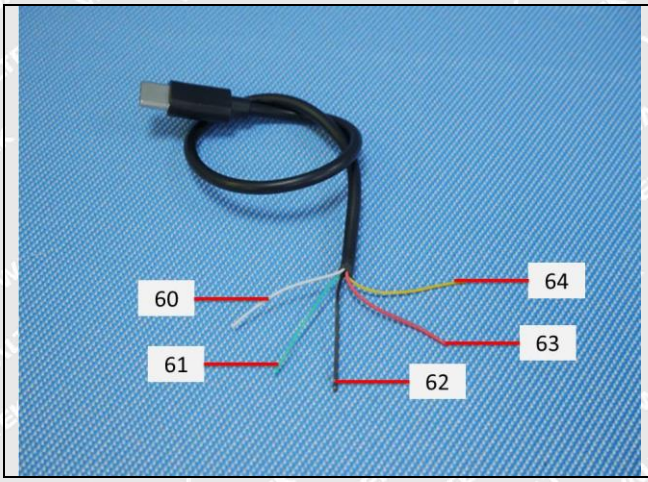	/

Remarks:

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