



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No. : WTF24F11279741C
Job No. : FSW2412200847CJ
Applicant : Mid Ocean Brands B.V.
Address : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha
Wan, Kowloon, Hong Kong
Manufacturer : 108699
Sample Name : Wireless charger
Sample Model : MO6823
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 : 2024-12-20
Testing period : 2024-12-20 to 2024-12-30
Date of Issue : 2024-12-30
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



WTF24F11279741C



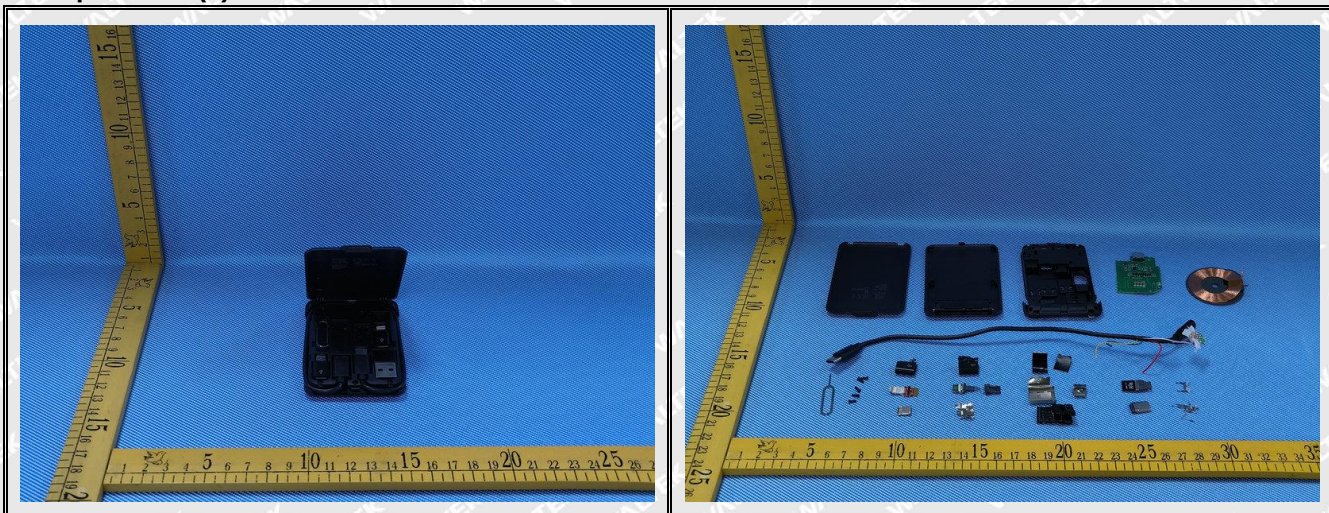
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Summary:

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 shell	BL	BL	BL	BL	BL	NA
2	Black soft plastic part	BL	BL	BL	BL	BL	NA
3	Silvery metal screw with black surface	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
4	Silvery metal axle	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
5	Black plastic shell(Micro-USB plug)	BL	BL	BL	BL	BL	NA
6	Silvery metal part	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
7	Black plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA
8	Silvery metal shell with black plating(USB plug)	BL	BL	BL	BL	--	NA
9	Silvery metal shell(Micro-USB plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
10	Black plastic core(Micro-USB plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
11	Silvery metal pin(Micro-USB plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
12	Green PCB(Micro-USB plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
13	Solder(Micro-USB plug)	BL	BL	BL	BL	--	NA
14	Silvery metal shell(Lightning Dock plug)	BL	BL	BL	BL	--	NA
15	Silvery metal pin(Lightning Dock 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	
16	Chip audion(Lightning Dock plug)	BL	BL	BL	BL	BL	NA
17	White plastic core(Lightning Dock plug)	BL	BL	BL	BL	BL	NA
18	Chip IC(Lightning Dock plug)	BL	BL	BL	BL	BL	NA
19	Chip resistor(Lightning Dock plug)	BL	BL	BL	BL	BL	NA
20	Red PCB(Lightning Dock plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
21	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
22	Black dry glue(USB plug)	BL	BL	BL	BL	BL	NA
23	Silvery metal shell(USB plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
24	Black plastic core(USB plug)	BL	BL	BL	BL	BL	NA
25	Black PCB(USB plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
26	Silvery metal pin(USB plug)	BL	BL	BL	BL	--	NA
27	Chip resistor(USB plug)	BL	BL	BL	BL	BL	NA
28	Yellow plastic wire covering	BL	BL	BL	BL	BL	NA
29	Green plastic wire covering	BL	BL	BL	BL	BL	NA
30	Red plastic wire covering	BL	BL	BL	BL	BL	NA
31	Black plastic wire covering	BL	BL	BL	BL	BL	NA
32	Transparent dry glue	BL	BL	BL	BL	BL	NA
33	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
34	Silvery metal pin(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
35	White 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	
36	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
37	Solder(Type-C plug)	BL	BL	BL	BL	--	NA
38	Coppery metal wire	BL	BL	BL	BL	--	NA
39	Green PCB(Type-C plug)	BL	BL	BL	BL	BL	NA
40	Coppery varnished wire	BL	BL	BL	BL	BL	NA
41	Black magnetic sheet	BL	BL	BL	BL	--	NA
42	Brown plastic adhesive tape	BL	BL	BL	BL	BL	NA
43	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
44	Solder	BL	BL	BL	BL	--	NA
45	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
46	Black plastic sheet with adhesive	BL	BL	BL	BL	BL	NA
47	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
48	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
49	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
50	Chip LED	BL	BL	BL	BL	BL	NA
51	Chip capacitor	BL	BL	BL	BL	BL	NA
52	Chip audion	BL	BL	BL	BL	BL	NA
53	Chip diode	BL	BL	BL	BL	BL	NA
54	Chip resistor	BL	BL	BL	BL	BL	NA
55	Chip resistor	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.
- (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 Cr⁶⁺ for polymer and composite sample is 8 mg/kg and LOQ of Cr⁶⁺ 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)



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- (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.

- (11) The weight of test sample No.42 and No.43 is insufficient, the test result is for reference only.

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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+5+10+17+24 [△]	ND	ND	ND	ND
T02	2+7+28 [△]	ND	ND	ND	ND
T03	3	--	--	--	--
T04	4	--	--	--	--
T05	6	--	--	--	--
T06	8	--	--	--	--
T07	9	--	--	--	--
T08	11	--	--	--	--
T09	12+20+25+39+45 [△]	ND	ND	ND	ND
T10	13	--	--	--	--
T11	14	--	--	--	--
T12	15	--	--	--	--
T13	16+18+19+27+50 [△]	ND	ND	ND	ND
T14	21	--	--	--	--
T15	22+32 [△]	ND	ND	ND	ND
T16	23	--	--	--	--
T17	26	--	--	--	--
T18	29+30+31 [△]	ND	ND	129	ND
T19	33	--	--	--	--
T20	34	--	--	--	--
T21	35+36 [△]	ND	ND	ND	ND
T22	37	--	--	--	--
T23	38	--	--	--	--
T24	40	ND	ND	ND	ND
T25	41	--	--	--	--
T26	42	ND	ND	ND	ND
T27	43	ND	ND	ND	ND
T28	44	--	--	--	--
T29	46	ND	ND	ND	ND
T30	47	ND	ND	ND	ND
T31	48	--	--	--	--
T32	49	--	--	--	--
T33	51+52+53+54+55 [△]	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



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(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.

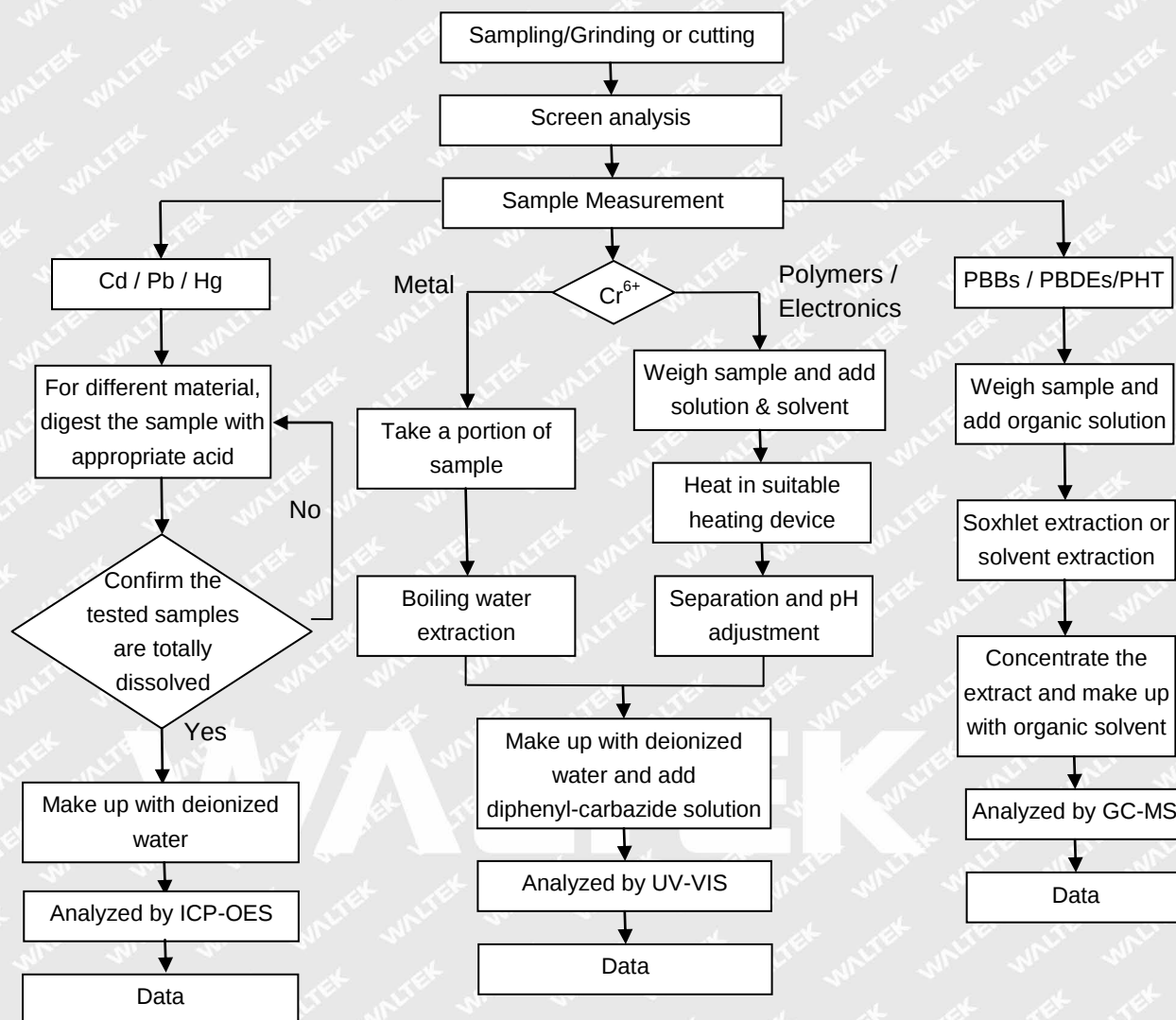
(6) RoHS requirement

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.

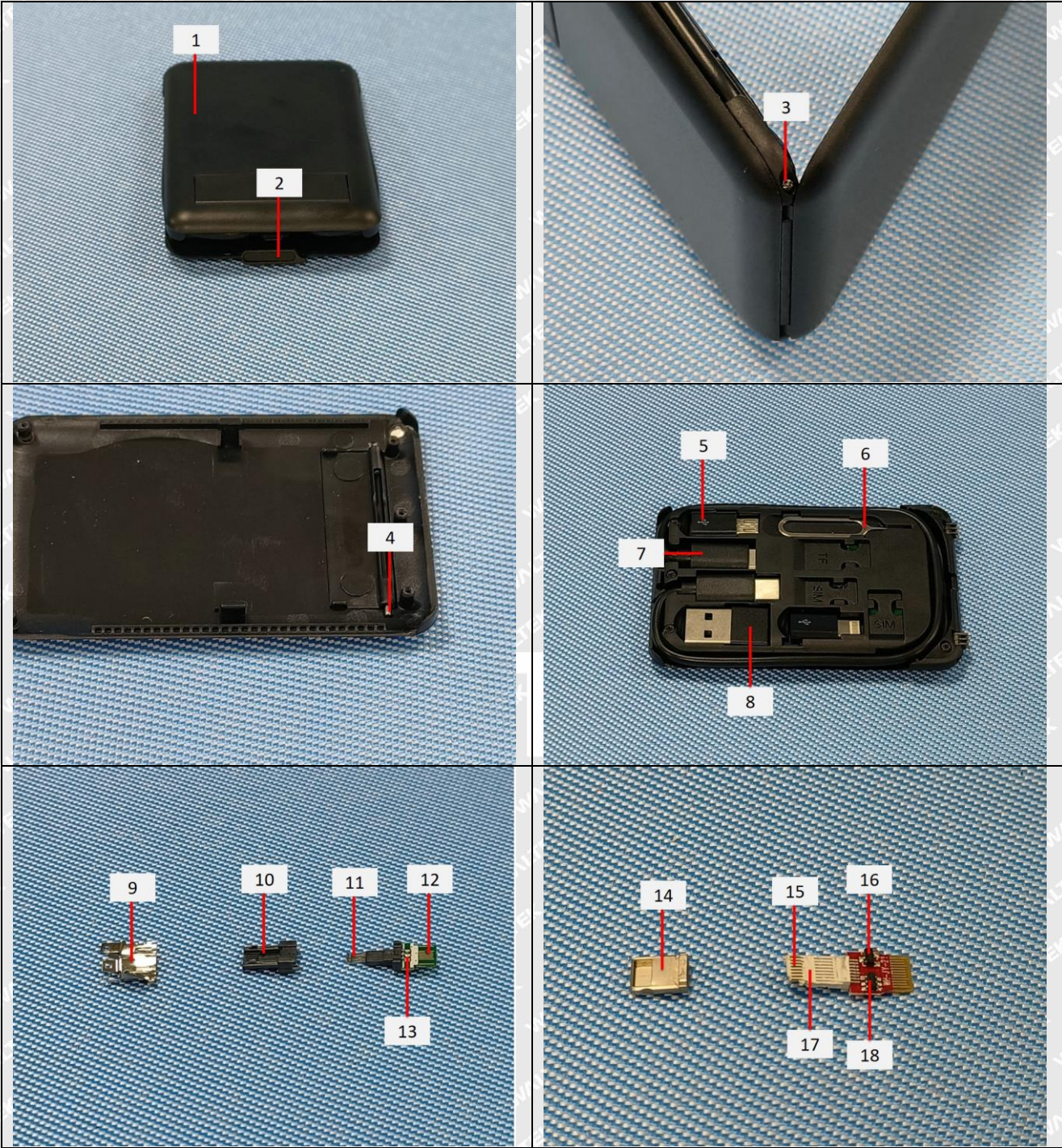
(8) The weight of test sample No.42 and No.43 is insufficient, the test result is for reference only.

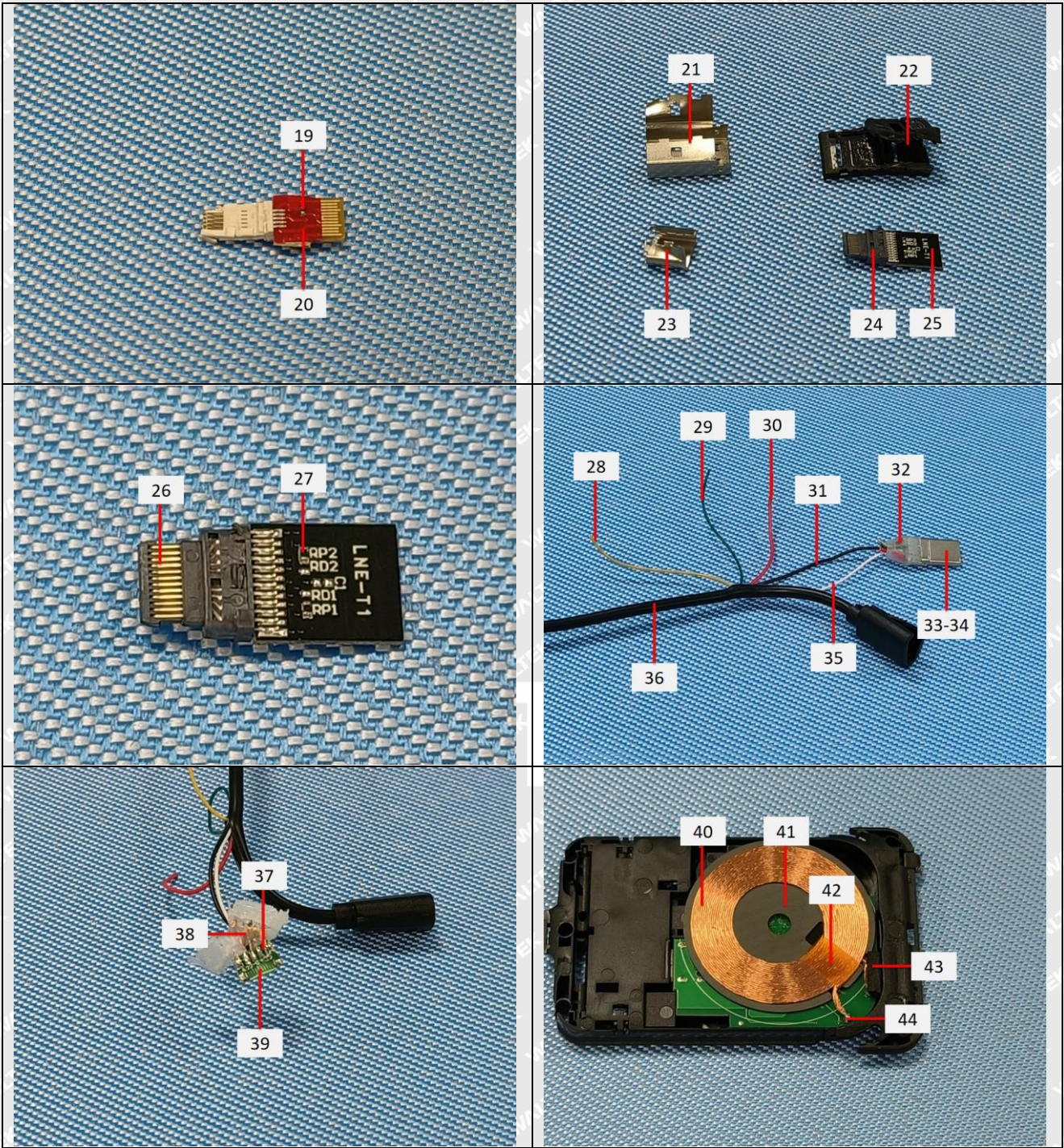
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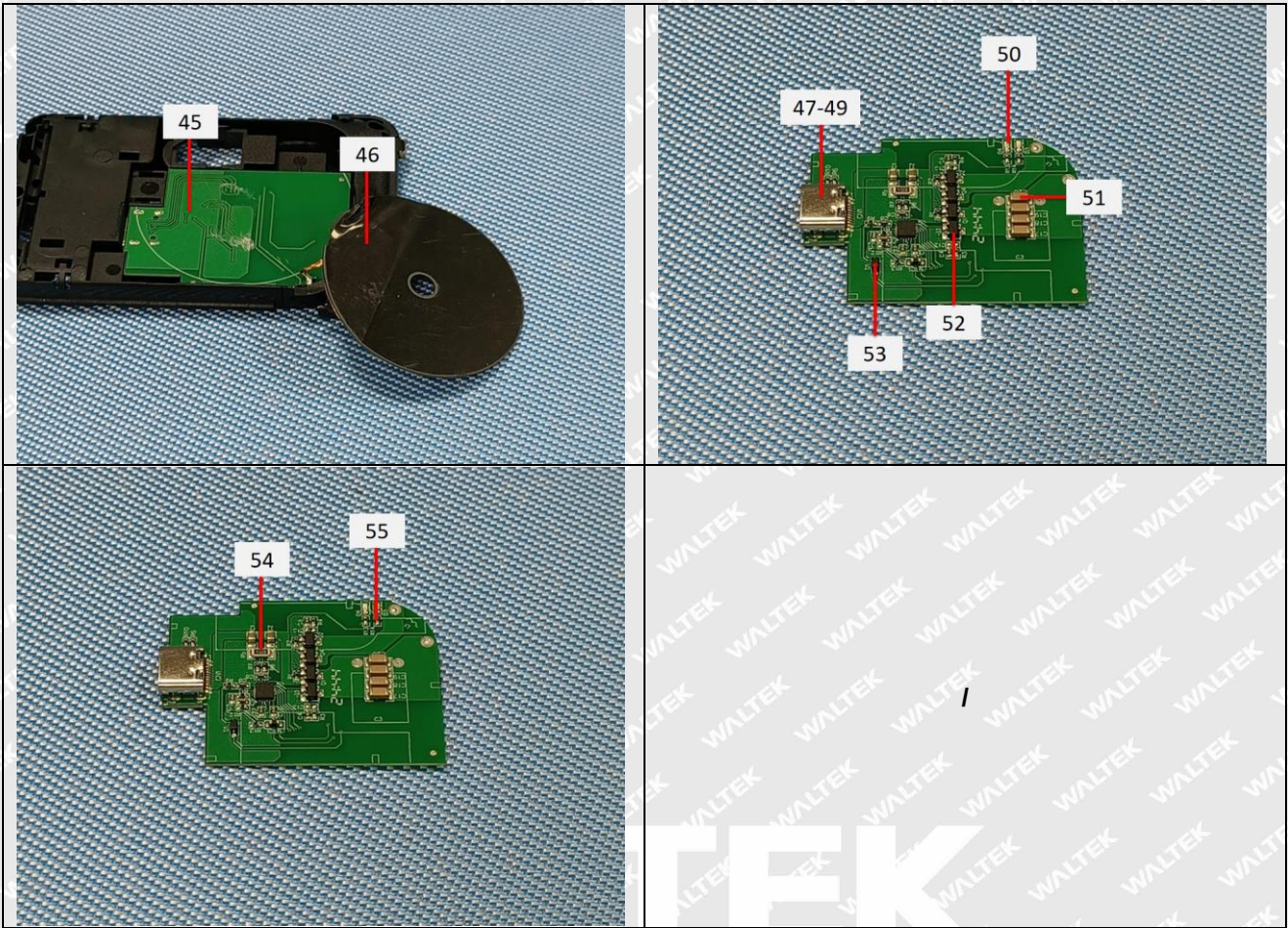
**Measurement Flowchart:**



Photograph(s) of parts tested:









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Remarks:

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

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