



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No : WTF24F11264350R1C
Job No. : FSW2411120471CJ
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 : Foldable charging station
Sample Model : MO2145
Test Requested : With reference to EU RoHS Directive 2011/65/EU and its
amendment Directive EU 2015/863, to determine the Lead,
Mercury, Cadmium, Hexavalent Chromium, PBBs, PBDEs,
DBP, BBP, DEHP, DIBP content in the submitted sample.
Test Method : Refer to next page (s)
Test Conclusion : **Pass**
Date of Receipt sample : 2024-11-12 & 2025-05-13
Testing period : 2024-11-12 to 2024-11-21 & 2025-05-13 to 2025-05-19
Date of Issue : 2025-05-19
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.



WTF24F11264350R1C

Swing Liang

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Sample photo:



MO2145



MO2145



MO2145



MO2145



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

Test Method/Equipment:

- 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	White plastic shell(plug)	BL	BL	BL	BL	BL	NA
2	White dry glue(plug)	BL	BL	BL	BL	BL	NA
3	Silvery metal shell(plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
4	Silvery metal shell(plug)	BL	BL	BL	BL	--	NA
5	White plastic core(plug)	BL	BL	BL	BL	BL	NA
6	Solder(plug)	BL	BL	BL	BL	--	NA
7	Green PCB(plug)	BL	BL	BL	BL	IN	PBBs: ND PBDEs: ND
8	Black plastic core(plug)	BL	BL	BL	BL	BL	NA
9	Silvery metal pin(plug)	BL	BL	BL	BL	--	NA
10	Chip resistor(plug)	BL	BL	BL	BL	BL	NA
11	Silvery metal pin(plug)	BL	BL	BL	BL	--	NA
12	White plastic wire jacket	BL	BL	BL	BL	BL	NA
13	White plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
14	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
15	White plastic wire covering	BL	BL	BL	BL	BL	NA
16	Green plastic wire covering	BL	BL	BL	BL	BL	NA
17	Black plastic wire covering	BL	BL	BL	BL	BL	NA
18	Red plastic wire covering	BL	BL	BL	BL	BL	NA
19	Yellow plastic wire covering	BL	BL	BL	BL	BL	NA
20	Coppery metal wire	BL	BL	BL	BL	--	NA
21	Transparent dry glue(Type-C plug)	BL	BL	BL	BL	BL	NA
22	Silvery metal pin(Type-C plug)	BL	BL	BL	BL	--	NA
23	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
24	Green PCB(Type-C plug)	BL	BL	BL	BL	IN	PBBs: ND PBDEs: ND
25	White plastic shell	BL	BL	BL	BL	BL	NA
26	White soft plastic sheet	BL	BL	BL	BL	BL	NA
27	Silvery magnetic sheet	BL	BL	BL	BL	--	NA
28	Silvery metal screw	BL	BL	BL	BL	--	NA
29	Dark grey magnetic sheet	BL	BL	BL	BL	--	NA
30	Coppery varnished wire	BL	BL	BL	BL	BL	NA
31	Yellow transparent plastic adhesive tape	BL	BL	BL	BL	BL	NA



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
32	White FPC	BL	BL	BL	BL	BL	NA
33	Black sponge with adhesive	BL	BL	BL	BL	BL	NA
34	Solder	BL	BL	BL	BL	--	NA
35	Chip resistor	BL	BL	BL	BL	BL	NA
36	Chip LED	BL	BL	BL	BL	BL	NA
37	Chip audion	BL	BL	BL	BL	BL	NA
38	Chip diode	BL	BL	BL	BL	BL	NA
39	Chip IC	BL	BL	BL	BL	BL	NA
40	Red capacitor	BL	BL	BL	BL	BL	NA
41	Chip capacitor	BL	BL	BL	BL	BL	NA
42	Grey magnetic shell(inductor)	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
43	Coppery varnished wire(inductor)	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
44	Green PCB	BL	BL	BL	BL	BL	NA
45	Silvery metal shell(Type-C socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
46	Dark grey plastic core(Type-C socket)	BL	BL	BL	BL	BL	NA
47	Golden metal pin(Type-C socket)	BL	BL	BL	BL	--	NA
48	Black double faced adhesive tape	BL	BL	BL	BL	BL	NA
49	Black plastic cap	BL	BL	BL	BL	BL	NA



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
50	White plastic part with silvery plating	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
51	Red varnished wire	BL	BL	BL	BL	BL	NA
52	Black plastic shell(plug)	BL	BL	BL	BL	BL	NA
53	Black plastic core(plug)	BL	BL	BL	BL	BL	NA
54	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
55	Black plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA
56	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
57	Black PCB(plug)	BL	BL	BL	BL	IN	PBBs: ND PBDEs: ND
58	Black plastic shell	BL	BL	BL	BL	BL	NA
59	Black soft plastic sheet	BL	BL	BL	BL	BL	NA
60	White plastic part	BL	BL	BL	BL	BL	NA

2. Phthalates

Test Method/Equipment:

1) With reference to IEC 62321-8:2017, determination of DBP, BBP, DEHP, DIBP by GC-MS

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1+2+12 [△]	ND	ND	ND	ND
T02	3	--	--	--	--
T03	4	--	--	--	--
T04	5+8+23+25+46 [△]	ND	ND	ND	ND
T05	6	--	--	--	--
T06	7+24+32 [△]	ND	ND	ND	ND
T07	9	--	--	--	--
T08	10+35+36+37+38 [△]	ND	ND	ND	ND



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T09	11	--	--	--	--
T10	13+15+16 [△]	ND	ND	ND	ND
T11	14	--	--	--	--
T12	17+18+19 [△]	ND	ND	ND	ND
T13	20	--	--	--	--
T14	21+26+31 [△]	ND	ND	ND	ND
T15	22	--	--	--	--
T16	27	--	--	--	--
T17	28	--	--	--	--
T18	29	--	--	--	--
T19	30+43+51 [△]	ND	ND	ND	ND
T20	33+48+49 [△]	ND	ND	ND	ND
T21	34	--	--	--	--
T22	39+40+41 [△]	ND	ND	ND	ND
T23	42	--	--	--	--
T24	44	ND	ND	ND	ND
T25	45	--	--	--	--
T26	47	--	--	--	--
T27	50	ND	ND	ND	ND
T28	52+54+55 [△]	ND	ND	ND	ND
T29	53+58+60 [△]	ND	ND	ND	ND
T30	56+59 [△]	ND	ND	ND	ND
T31	57	ND	ND	ND	ND



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Remark:

- (1) Results are obtained by XRF 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	DBP	BBP	DEHP	DIBP
Units	mg/kg	mg/kg	mg/kg	mg/kg	$\mu\text{g}/\text{cm}^2$	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOQ	2	2	2	8	0.1	5	5	50	50	50	50

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



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(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)
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)

(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 0.10µg/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13µg/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, “Cr⁶⁺” denotes Hexavalent Chromium, “Br” denotes Bromine, “PBBs” denotes Total Polybrominated Biphenyls, “PBDEs” denotes Total Polybrominated Diphenyl Ethers.

“DBP” denotes Dibutyl phthalate, “BBP” denotes Benzyl butyl phthalate (BBP), “DEHP” denotes Bis(2-ethylhexyl)-phthalate, “DIBP” denotes Diisobutyl phthalate, “PHT” denotes Phthalates.

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

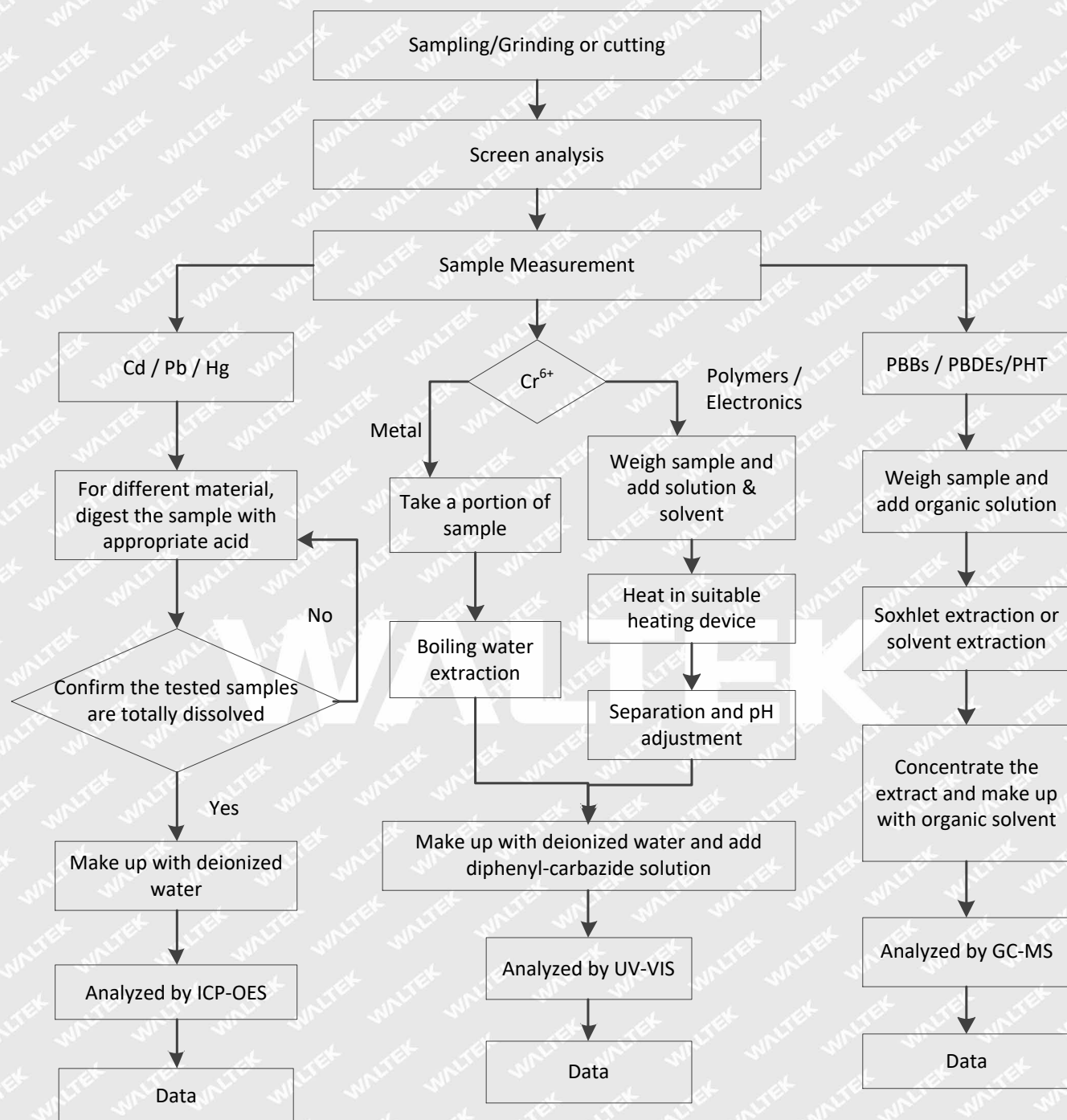
(12) As per client’s requirement, the result of specimen No.1 to No.51 was quoted from Report No.WTF24F11264350C .



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Testing Flow chart:

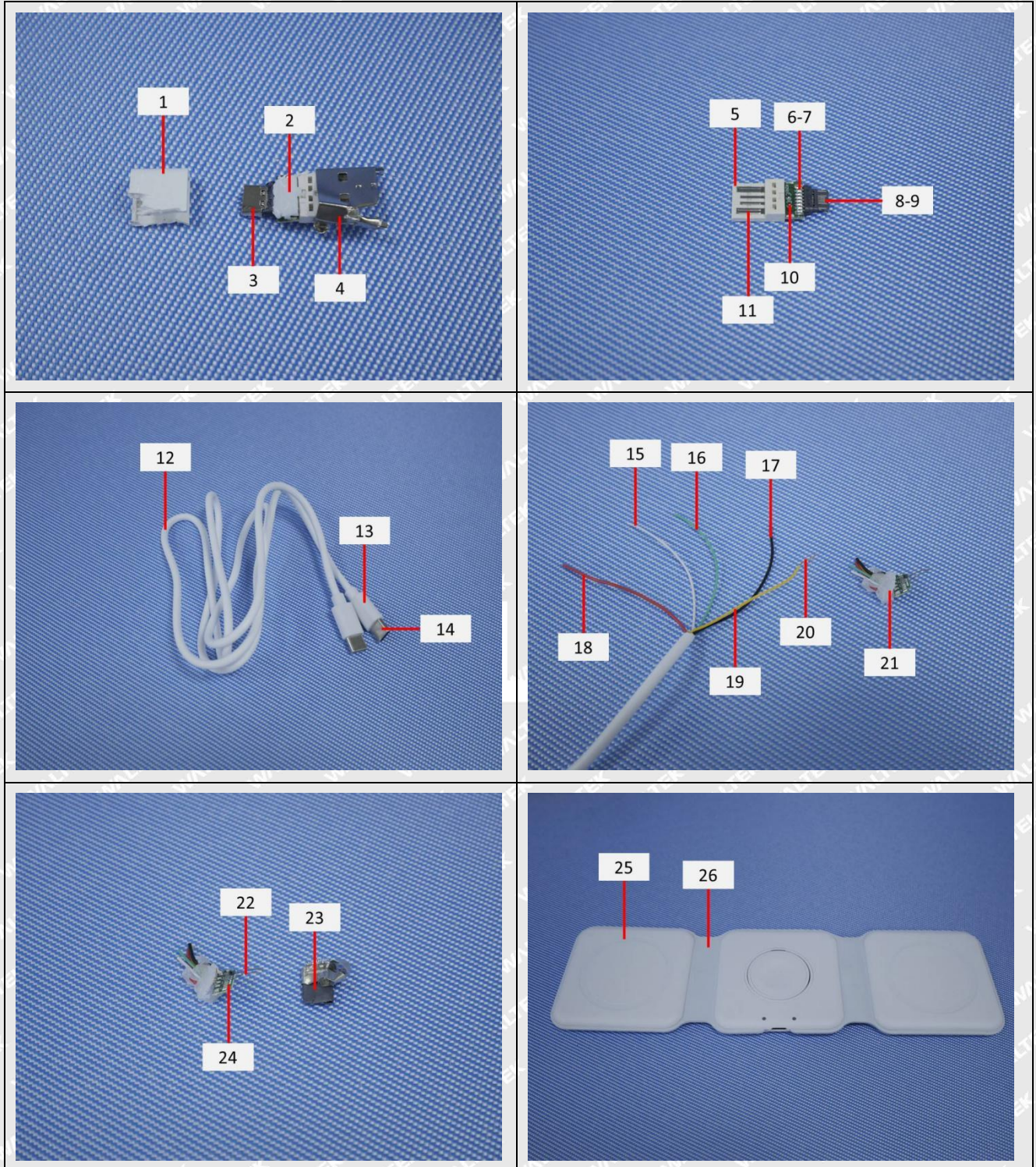




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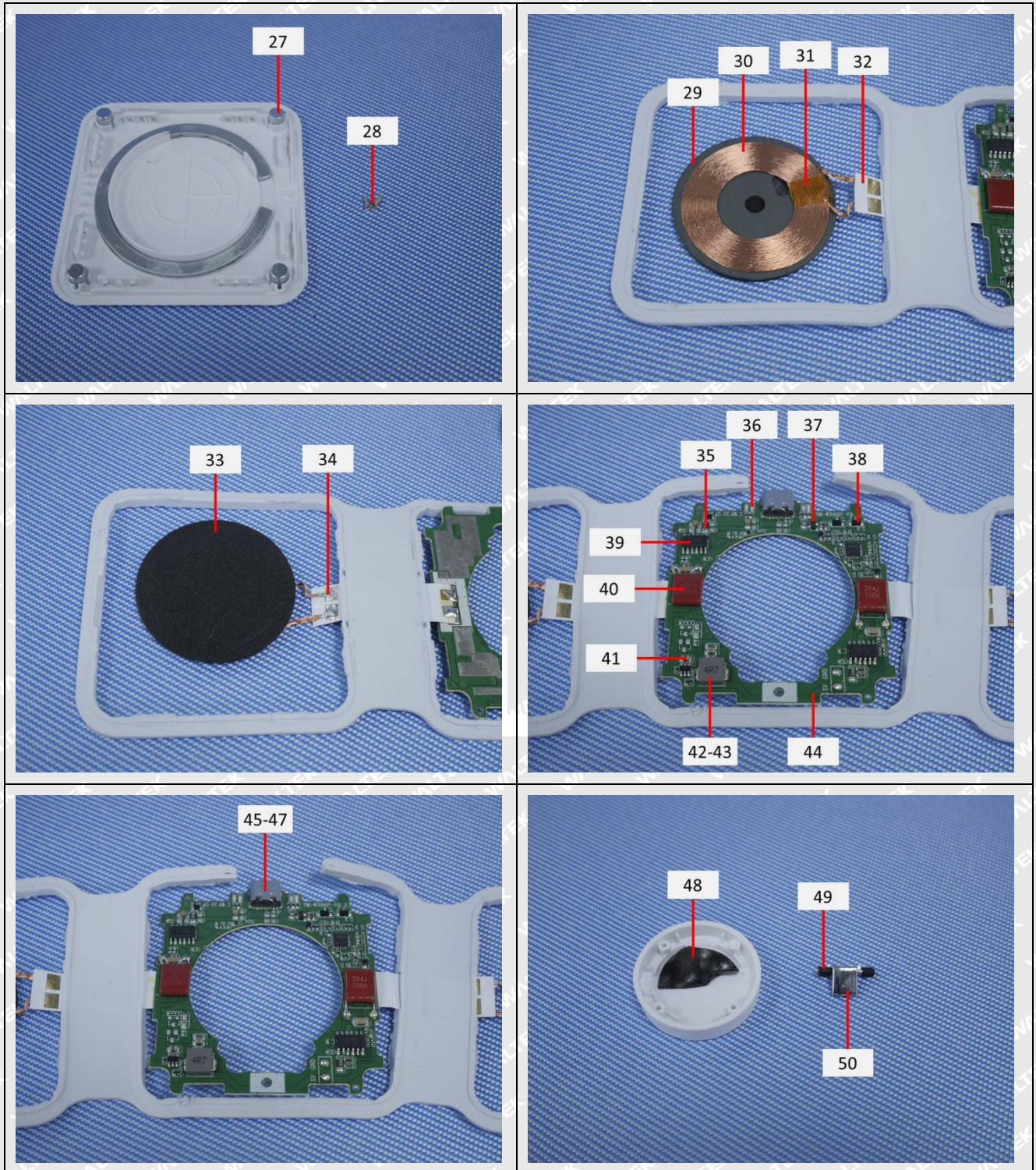
Photograph of parts tested:





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Remarks:

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

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