



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No : WTF24F10236569C
Applicant : Mid Ocean Brands B.V.
Address : 7-F., Kings Tower, 111 King Lam Street, Cheung Sha Wan,
Kowloon, Hong Kong
Manufacturer : 116266
Sample Name : 3 in 1 wireless charger set
Sample Model : MO2530
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 and
PBDEs, DBP, BBP, DEHP, DIBP content in the submitted
sample.
Test Method : Refer to next page (s)
Test Conclusion : **Pass**
Date of Receipt sample : 2024-10-25
Testing period : 2024-10-25 to 2024-11-06
Date of Issue : 2024-11-06
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



WTF24F10236569C

Swing.Liang
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<http://www.waltek.com.cn>



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Sample photo:



WALTEK



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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	Black main fabric	BL	BL	BL	BL	BL	NA
2	Dark silvery metal clasp	BL	BL	BL	BL	--	NA
3	Silvery metal cap with black surface	BL	BL	BL	BL	--	NA
4	Black plastic wire jacket	BL	BL	BL	BL	IN	PBDEs: ND PBBs: ND
5	Black plastic shell	BL	BL	BL	BL	BL	NA
6	Dark silvery metal clasp	BL	BL	BL	BL	--	NA
7	Silvery metal strip	BL	BL	BL	BL	--	NA
8	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
9	Silvery metal shell(Lightning Dock plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
10	Silvery metal shell with black plating(Type-C plug)	BL	BL	BL	BL	--	NA
11	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
12	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
13	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
14	Black plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA
15	Chip capacitor(Type-C plug)	BL	IN	BL	BL	BL	Pb :21
16	Silvery metal pin(Type-C plug)	BL	IN	BL	IN	--	Pb :38 Cr ⁶⁺ : Negative
17	Green PCB(Type-C plug)	BL	BL	BL	BL	BL	NA
18	Solder(Type-C plug)	BL	BL	BL	BL	--	NA
19	Yellow plastic wire covering	BL	BL	BL	BL	BL	NA
20	Grey plastic wire covering	BL	BL	BL	BL	BL	NA
21	Coppery metal wire	BL	BL	BL	BL	--	NA
22	Transparent plastic wire covering	BL	BL	BL	BL	BL	NA
23	Green plastic wire covering	BL	BL	BL	BL	BL	NA
24	White plastic wire covering	BL	BL	BL	BL	BL	NA
25	Chip resistor(USB plug)	BL	IN	BL	BL	BL	Pb: 699
26	Black PCB(USB plug)	BL	BL	BL	BL	IN	PBDEs: ND PBBs: ND
27	Black plastic shell(USB plug)	BL	BL	BL	BL	IN	PBDEs: ND PBBs: ND
28	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
29	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
30	Chip IC	BL	BL	BL	BL	BL	NA
31	Golden metal pin(Lightning Dock plug)	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	Chip capacitor	BL	BL	BL	BL	BL	NA
33	Chip audion	BL	BL	BL	BL	BL	NA
34	Black plastic sore(Lightning Dock plug)	BL	BL	BL	BL	BL	NA
35	Green PCB	BL	BL	BL	BL	IN	PBDEs: ND PBBs: ND
36	Chip resistor	BL	BL	BL	BL	BL	NA
37	Silvery metal screw with black surface	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
38	Transparent double faced adhesive tape	BL	BL	BL	BL	BL	NA
39	White dry glue	BL	BL	BL	BL	BL	NA
40	Red metal wire	BL	BL	BL	BL	--	NA
41	Green metal wire	BL	BL	BL	BL	--	NA
42	Green PCB	BL	BL	BL	BL	IN	PBDEs: ND PBBs: ND
43	Red metal wire	BL	BL	BL	BL	--	NA
44	Blue metal wire	BL	BL	BL	BL	--	NA
45	White fabric wire	BL	BL	BL	BL	BL	NA
46	Chip IC	BL	BL	BL	BL	BL	NA
47	Chip resistor	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
48	Chip resistor	BL	BL	BL	BL	BL	NA
49	Chip diode	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	Chip capacitor	BL	BL	BL	BL	BL	NA
51	Black magnetic shell	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
52	Copper varnished wire	BL	BL	BL	BL	BL	NA
53	Silvery magnetic core	BL	BL	BL	BL	--	NA
54	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
55	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
56	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
57	Grey magnetic shell(inductor)	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
58	Copper varnished wire(inductor)	BL	BL	BL	BL	BL	NA
59	Chip LED	BL	BL	BL	BL	BL	NA
60	Chip capacitor	BL	BL	BL	BL	BL	NA
61	White fabric wire covering	BL	BL	BL	BL	BL	NA
62	Copper metal wire	BL	BL	BL	BL	--	NA
63	Chip IC	BL	BL	BL	BL	BL	NA
64	Black body	BL	BL	BL	BL	BL	NA
65	Grey magnetic sheet	BL	BL	BL	BL	--	NA
66	Brown plastic adhesive tape	BL	BL	BL	BL	BL	NA
67	Solder	BL	BL	BL	BL	--	NA



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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	ND	ND	ND	ND
T02	2	--	--	--	--
T03	3	--	--	--	--
T04	4+14+19 [△]	ND	ND	ND	ND
T05	5+12+27+28+34 [△]	ND	ND	ND	ND
T06	6	--	--	--	--
T07	7	--	--	--	--
T08	8	--	--	--	--
T09	9	--	--	--	--
T10	10	--	--	--	--
T11	11	--	--	--	--
T12	13	--	--	--	--
T13	15+25+30+32+33 [△]	ND	ND	ND	ND
T14	16	--	--	--	--
T15	17+26+35 [△]	ND	ND	ND	ND
T16	18	--	--	--	--
T17	20+22+23 [△]	ND	ND	ND	ND
T18	21	--	--	--	--
T19	24	ND	ND	ND	ND
T20	29	--	--	--	--
T21	31	--	--	--	--
T22	36+46+47+48+49 [△]	ND	ND	ND	ND
T23	37	--	--	--	--
T24	38	ND	ND	ND	ND
T25	39	ND	ND	ND	ND
T26	40	--	--	--	--
T27	41	--	--	--	--
T28	42	ND	ND	ND	ND
T29	43	--	--	--	--
T30	44	--	--	--	--
T31	45+61 [△]	ND	ND	ND	ND
T32	50+59+60+63+64 [△]	ND	ND	ND	ND
T33	51	--	--	--	--



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T34	52+58 ^Δ	ND	ND	ND	ND
T35	53	--	--	--	--
T36	54	ND	ND	ND	ND
T37	55	--	--	--	--
T38	56	--	--	--	--
T39	57	--	--	--	--
T40	62	--	--	--	--
T41	65	--	--	--	--
T42	66	121	ND	ND	ND
T43	67	--	--	--	--

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.



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(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	μg/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 Cr⁶⁺ for polymer and composite sample is 8mg/kg and LOQ of Cr⁶⁺ for metal sample is 0.1μg/cm².

(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.

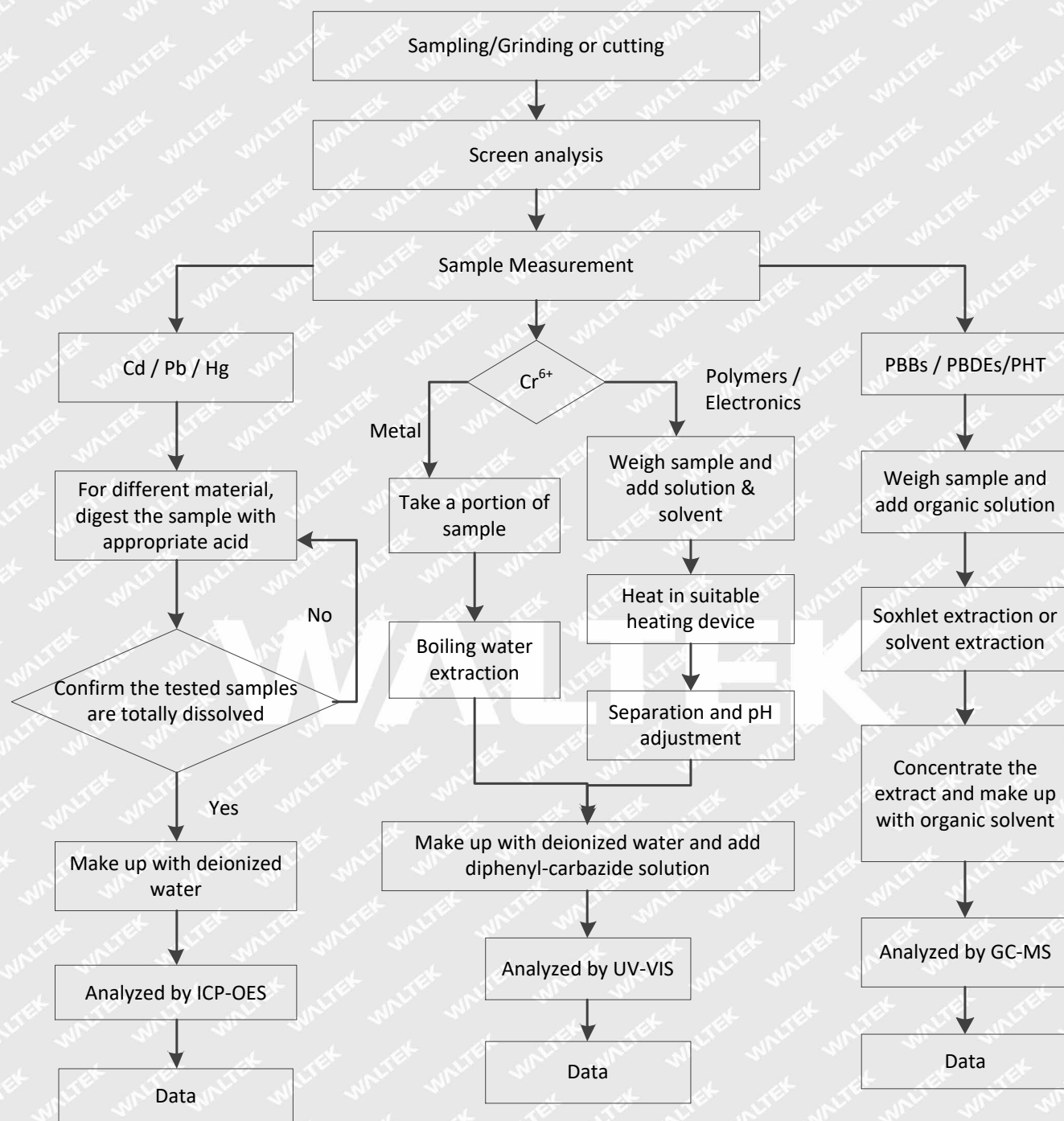
(11) “△”=As client’s requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.



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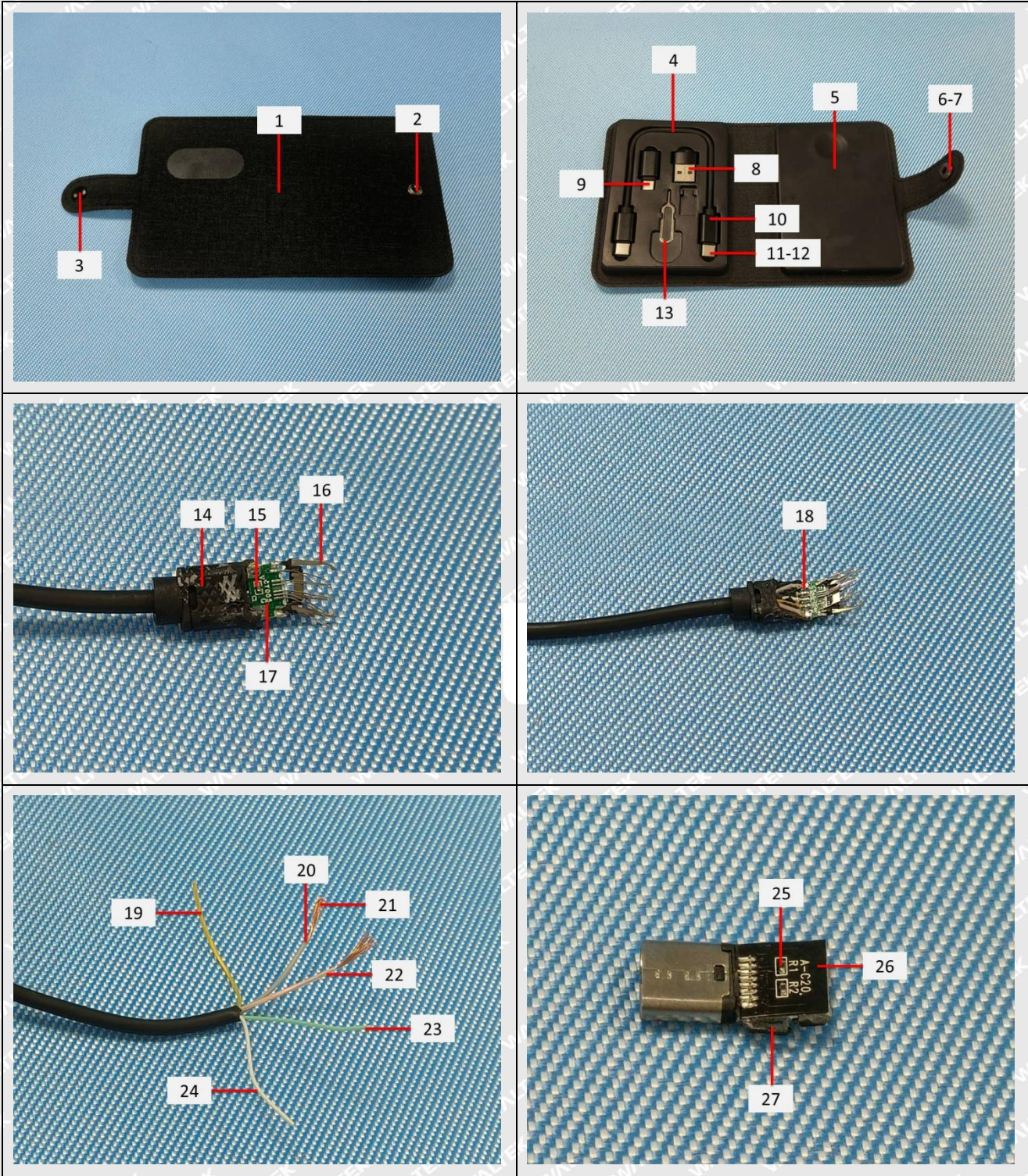
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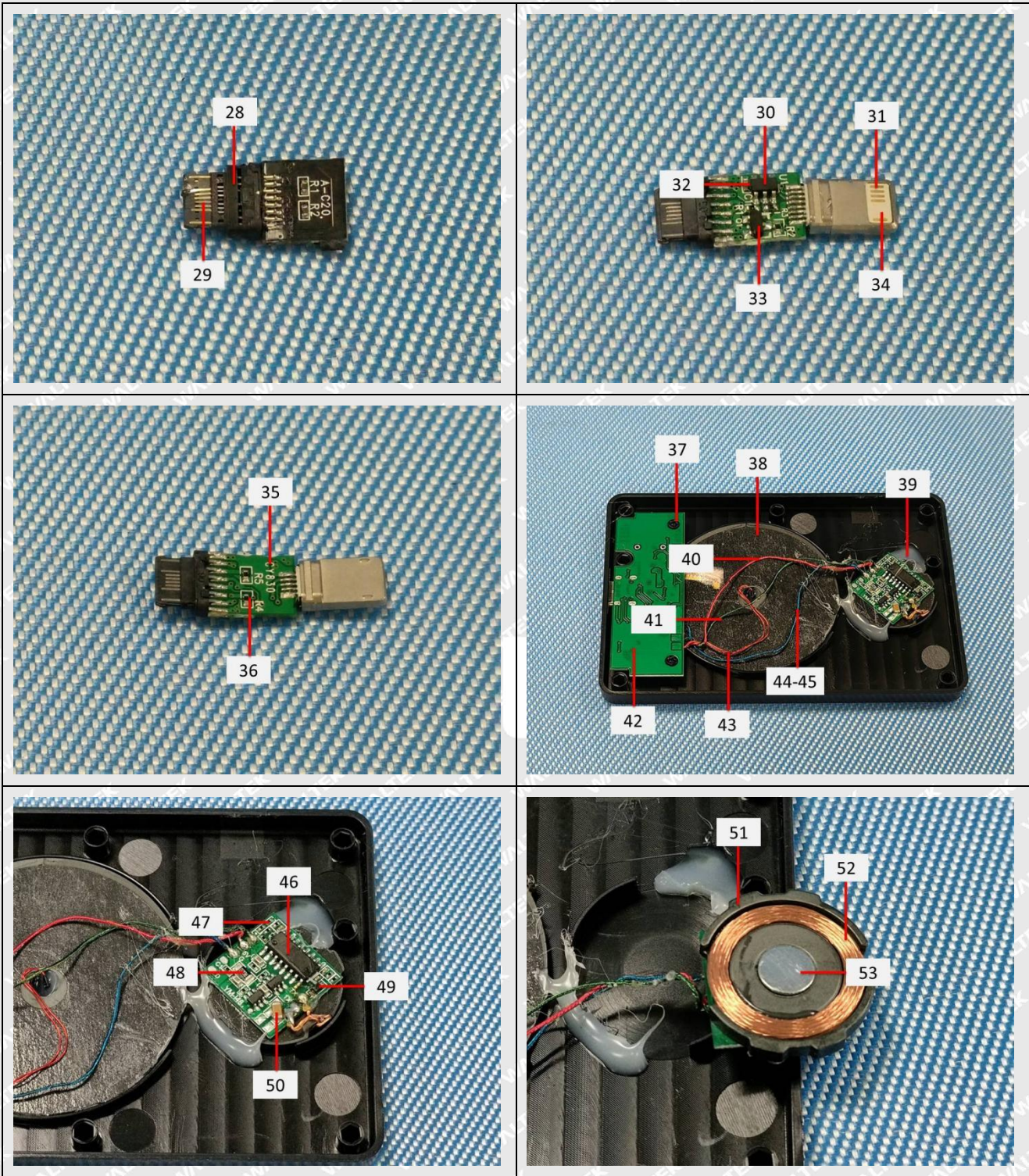
Testing Flow chart:





Photograph of parts tested:

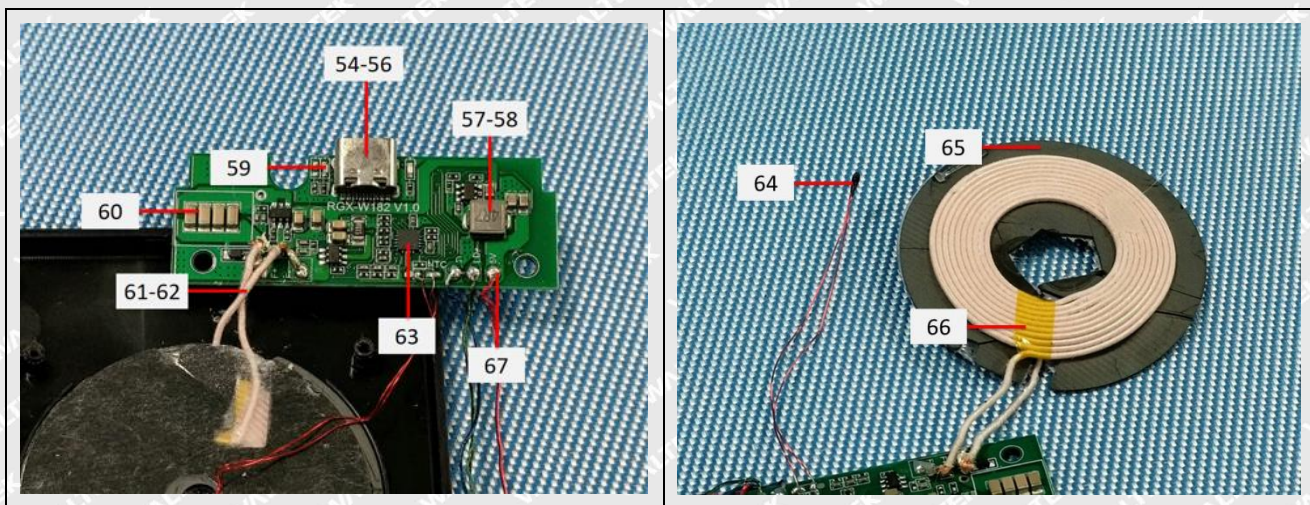






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===== End of Report =====