



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF22F09191521A1C
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer..... : 103221
Sample Name..... : Desktop charger fan with light
Sample Model..... : MO6810
Date of Receipt sample..... : 2022-09-21 & 2022-10-21
Testing period..... : 2022-09-21 to 2022-09-30 & 2022-10-21 to 2022-10-24
Date of Issue..... : 2022-10-25
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



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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.

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)

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Sample Photo(s):



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**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	White soft plastic tube	BL	BL	BL	BL	BL	NA
2	White plastic cover	BL	BL	BL	BL	BL	NA
3	White plastic shell	BL	BL	BL	BL	BL	NA
4	Grey soft plastic foot pad with adhesive	BL	BL	BL	BL	BL	NA
5	Silvery metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
6	Silvery-grey metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
7	White plastic shell	BL	BL	BL	BL	BL	NA
8	White semi-transparent plastic ring	BL	BL	BL	BL	BL	NA
9	Transparent plastic fan blades	BL	BL	BL	BL	BL	NA
10	Silvery metal shell	BL	BL	BL	BL	--	NA
11	Dark grey magnetic ring	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
12	Coppery metal sleeve	BL	BL	BL	BL	--	NA
13	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
14	White plastic gasket	BL	BL	BL	BL	BL	NA
15	Silvery metal shaft	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
16	Coppery varnished wire	BL	BL	BL	BL	BL	NA
17	Black sponge with adhesive	BL	BL	BL	BL	BL	NA
18	Solder	BL	BL	BL	BL	--	NA
19	White plastic sheet	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	White plastic sheet	BL	BL	BL	BL	BL	NA
21	Silvery metal sheet	BL	BL	BL	BL	--	NA
22	Red plastic wire covering	BL	BL	BL	BL	BL	NA
23	Black plastic wire covering	BL	BL	BL	BL	BL	NA
24	Coppery metal wire	BL	BL	BL	BL	--	NA
25	Silvery metal cover	BL	BL	BL	BL	--	NA
26	Coppery-silvery metal ring	BL	BL	BL	BL	--	NA
27	Solder	BL	BL	BL	BL	--	NA
28	Black magnetic ring	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
29	White plastic ring	BL	BL	BL	BL	BL	NA
30	Grey plastic ring	BL	BL	BL	BL	BL	NA
31	Semi-transparent plastic holder	BL	BL	BL	BL	BL	NA
32	White fibrous sleeve	BL	BL	BL	BL	BL	NA
33	Coppery varnished wire	BL	BL	BL	BL	BL	NA
34	Dark grey magnetic sheet	BL	BL	BL	BL	--	NA
35	Black resistor	BL	BL	BL	BL	BL	NA
36	Red varnished wire	BL	BL	BL	BL	BL	NA
37	Yellow transparent plastic adhesive tape	BL	BL	BL	BL	BL	NA
38	Yellow paper sheet	BL	BL	BL	BL	BL	NA
39	Black sponge sheet with adhesive	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 LED	BL	BL	BL	BL	BL	NA
41	White-brown FPC	BL	BL	BL	BL	BL	NA
42	Red plastic wire covering	BL	BL	BL	BL	BL	NA
43	Solder	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	Silvery metal shell(micro-USB socket)	BL	BL	BL	BL	--	NA
47	Silvery metal pin(micro-USB socket)	BL	BL	BL	BL	--	NA
48	Black plastic core(micro-USB socket)	BL	BL	BL	BL	BL	NA
49	Black magnetic core(inductor)	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
50	Copper varnished wire(inductor)	BL	BL	BL	BL	BL	NA
51	Solder	BL	BL	BL	BL	--	NA
52	Red capacitor	BL	BL	BL	BL	BL	NA
53	Chip IC	BL	BL	BL	BL	BL	NA
54	Chip diode	BL	BL	BL	BL	BL	NA
55	Chip IC	BL	BL	BL	BL	BL	NA
56	Chip audion	BL	BL	BL	BL	BL	NA
57	Chip resistor	BL	IN	BL	BL	BL	Pb : 577
58	Chip resistor	BL	BL	BL	BL	BL	NA
59	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
60	Chip capacitor	BL	BL	BL	BL	BL	NA
61	Chip LED	BL	BL	BL	BL	BL	NA
62	Silvery metal shell(switch)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
63	Silvery metal sheet(switch)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
64	Black plastic base(switch)	BL	BL	BL	BL	BL	NA
65	Chip resistor	BL	IN	BL	BL	BL	Pb : 390
66	Chip IC	BL	BL	BL	BL	BL	NA
67	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
68	White plastic jacket(USB plug)	BL	BL	BL	BL	BL	NA
69	Solder(USB plug)	BL	BL	BL	BL	--	NA
70	Silvery metal pin(USB plug)	BL	BL	BL	BL	--	NA
71	White plastic core(USB plug)	BL	BL	BL	BL	BL	NA
72	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
73	White plastic jacket(micro-USB plug)	BL	BL	BL	BL	BL	NA
74	Black plastic core(micro-USB plug)	BL	BL	BL	BL	BL	NA
75	Silvery metal shell(micro-USB plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
76	Silvery metal pin(micro-USB plug)	BL	BL	BL	BL	--	NA
77	Solder(micro-USB plug)	BL	BL	BL	BL	--	NA
78	White plastic wire jacket	BL	BL	BL	BL	BL	NA
79	Light green 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	
80	White plastic wire covering	BL	BL	BL	BL	BL	NA
81	Red plastic wire covering	BL	BL	BL	BL	BL	NA
82	Black plastic wire covering	BL	BL	BL	BL	BL	NA
83	Coppery metal wire	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 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 ≤ (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, μg/cm²= 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	μg/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 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)

- (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 0.10ug/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/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, “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+3+7+8+9 [△]	ND	ND	ND	ND
T03	4	ND	ND	ND	ND
T04	5	--	--	--	--
T05	6	--	--	--	--
T06	10	--	--	--	--
T07	11	--	--	--	--
T08	12	--	--	--	--
T09	13	--	--	--	--
T10	14+19+64+71+74 [△]	ND	ND	ND	ND
T11	15	--	--	--	--
T12	16+33+35+36+40 [△]	ND	ND	ND	ND
T13	17	ND	ND	ND	ND
T14	18	--	--	--	--
T15	20	ND	ND	ND	ND
T16	21	--	--	--	--



Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T17	22	ND	ND	ND	ND
T18	23	ND	ND	ND	ND
T19	24	--	--	--	--
T20	25	--	--	--	--
T21	26	--	--	--	--
T22	27	--	--	--	--
T23	28	--	--	--	--
T24	29	ND	ND	ND	ND
T25	30	ND	ND	ND	ND
T26	31	ND	ND	ND	ND
T27	32	ND	ND	ND	ND
T28	34	--	--	--	--
T29	37	ND	ND	ND	ND
T30	38	ND	ND	ND	ND
T31	39	ND	ND	ND	ND
T32	41+50+52+53+54 [△]	ND	ND	ND	ND
T33	42	ND	ND	ND	ND
T34	43	--	--	--	--
T35	44	ND	ND	ND	ND
T36	45	--	--	--	--
T37	46	--	--	--	--
T38	47	--	--	--	--
T39	48	ND	ND	ND	ND
T40	49	--	--	--	--
T41	51	--	--	--	--
T42	55+56+57+58+60 [△]	ND	ND	ND	ND
T43	59+61+65+66 [△]	ND	ND	ND	ND
T44	62	--	--	--	--
T45	63	--	--	--	--
T46	67	--	--	--	--
T47	68	ND	ND	ND	ND
T48	69	--	--	--	--
T49	70	--	--	--	--
T50	72	--	--	--	--
T51	73	ND	ND	514	ND
T52	75	--	--	--	--
T53	76	--	--	--	--
T54	77	--	--	--	--
T55	78	ND	ND	ND	ND
T56	79	ND	ND	ND	ND
T57	80	ND	ND	ND	ND
T58	81	ND	ND	ND	ND
T59	82	ND	ND	ND	ND
T60	83	--	--	--	--



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

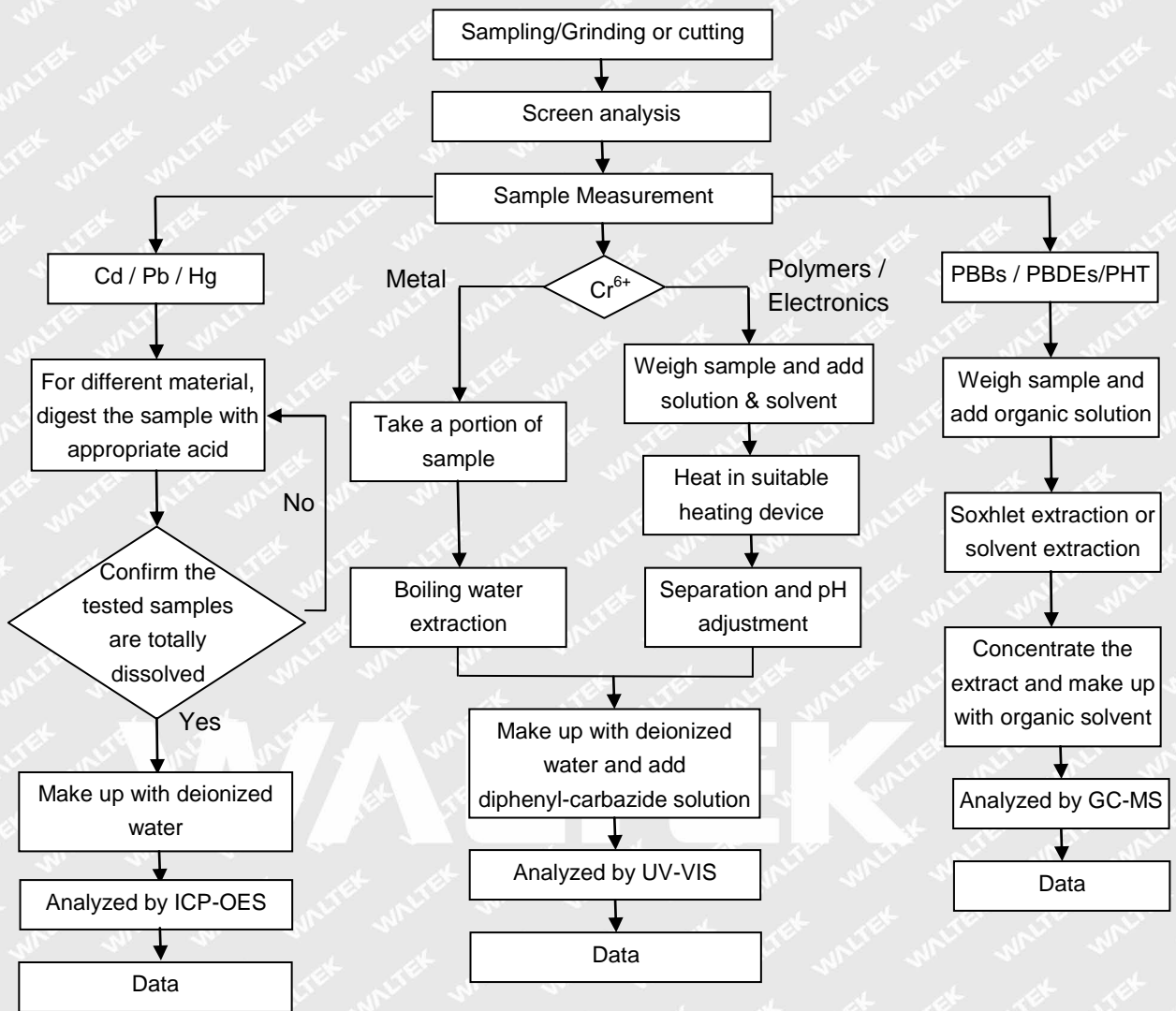
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

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





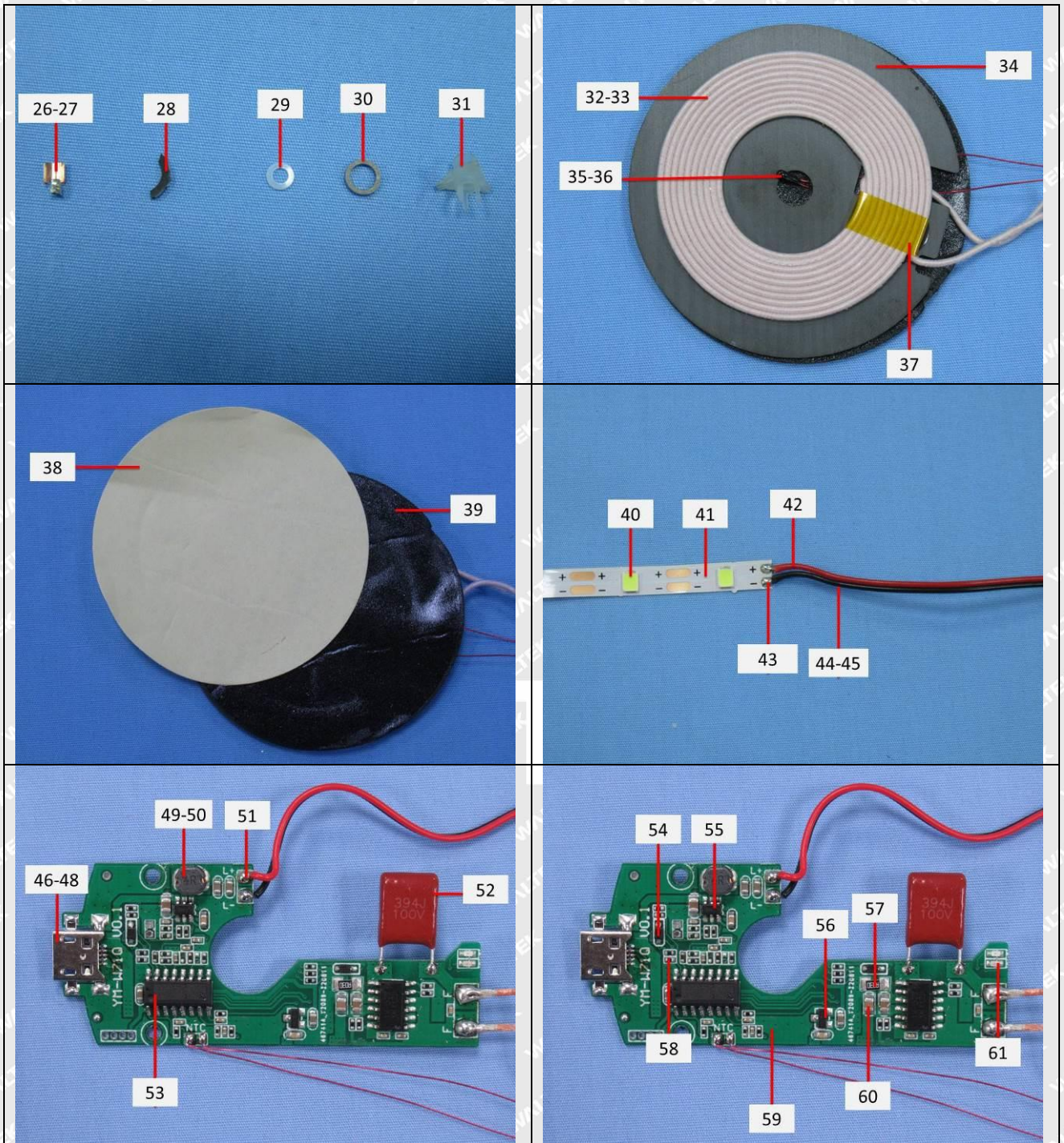
Measurement Flowchart:

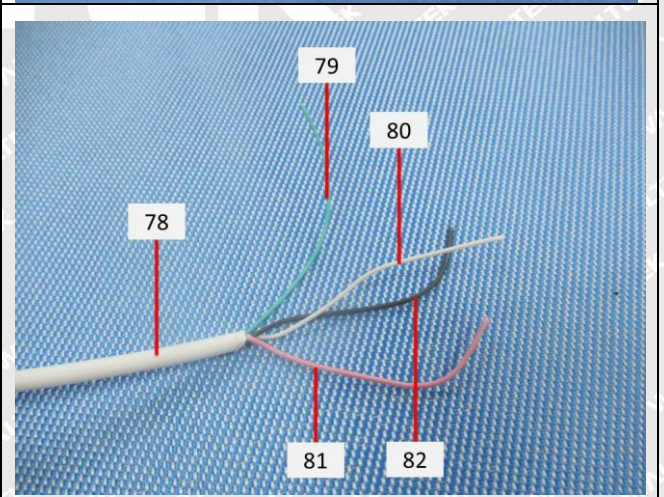
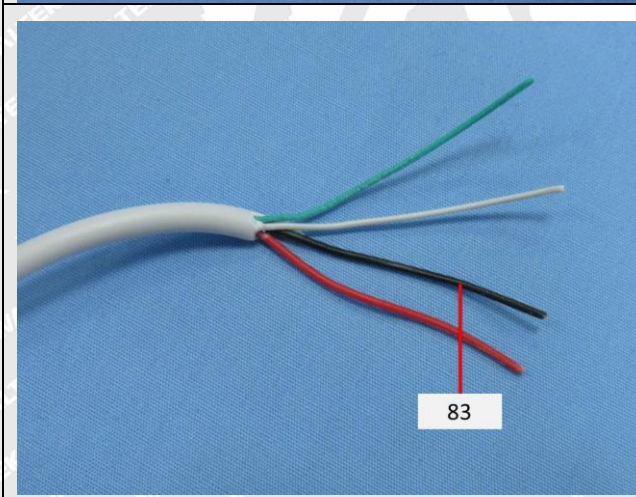
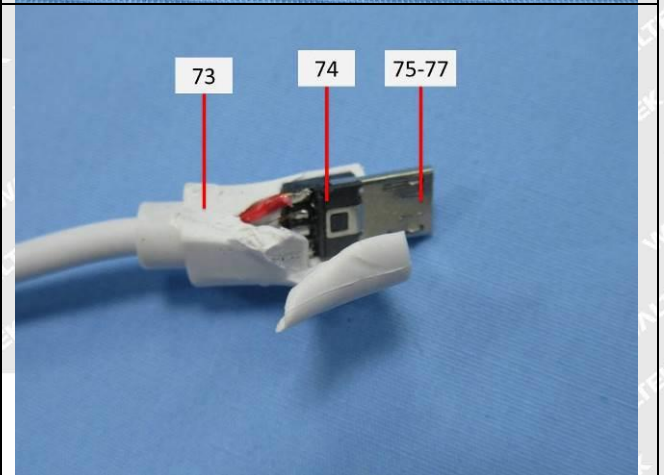
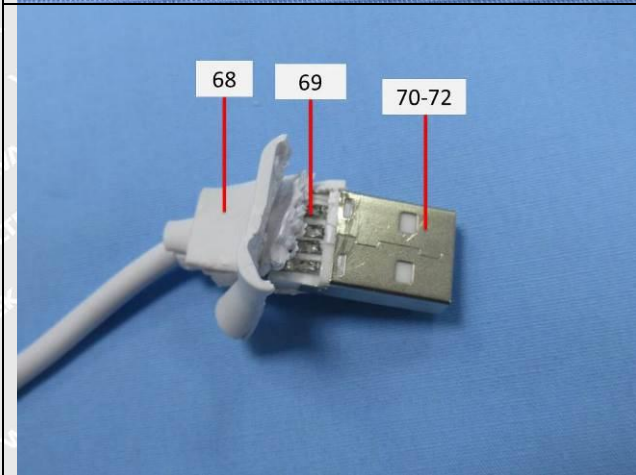
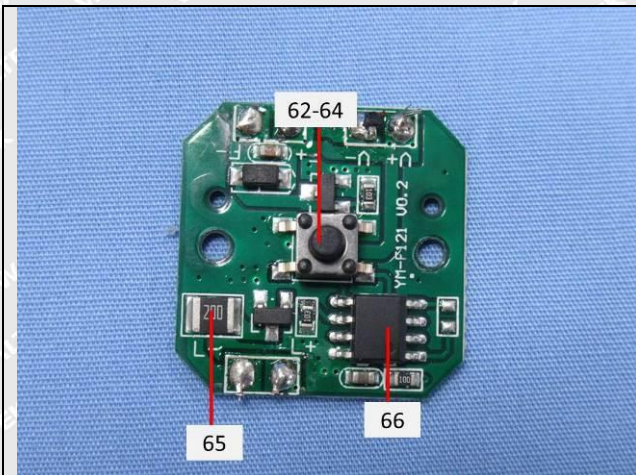




Photograph(s) of parts tested:









Report No.: WTF22F09191521A1C

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

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