



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF24F03068017R1C
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer..... : 118897
Sample Name..... : Smart wireless health watch
Sample Model..... : MO2270
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..... : 2024-03-29 & 2024-04-22
Testing period..... : 2024-03-29 to 2024-04-15 & 2024-04-22 to 2024-04-24
Date of Issue..... : 2024-04-24
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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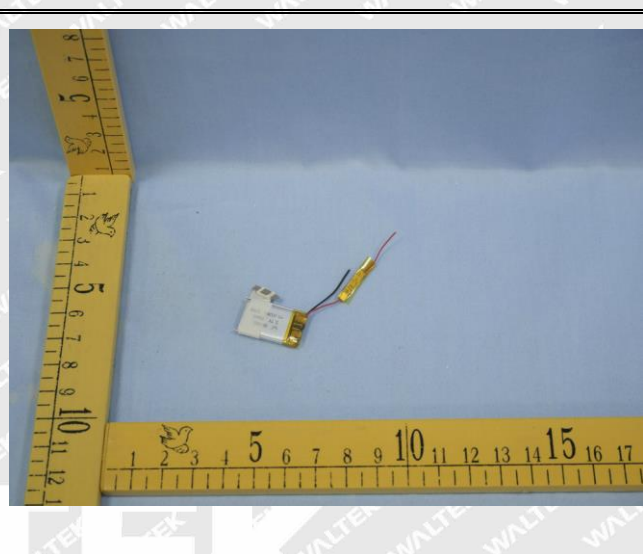
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Job No.: FSW202404012497CJ

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, Mercury, Cadmium, 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, 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 plastic stopper	BL	BL	BL	BL	BL	NA
2	Black soft plastic bracelet	BL	BL	BL	BL	BL	NA
3	Black transparent plastic cover	BL	BL	BL	BL	BL	NA
4	Transparent plastic sheet with glue with black surface	BL	BL	BL	BL	BL	NA
5	Black plastic shell	BL	BL	BL	BL	BL	NA
6	Golden metal shell	IN	OL	BL	BL	--	Cd :32 #Pb : 3.17×10^4
7	Silvery metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
8	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
9	Black plastic shell (USB plug)	BL	BL	BL	BL	BL	NA
10	Silvery metal shell (USB plug)	BL	BL	BL	BL	--	NA
11	Golden metal part	IN	OL	BL	BL	--	Cd :31 #Pb : 3.02×10^4
12	Silvery black sound-proof cotton	BL	BL	BL	BL	BL	NA
13	Black brown FPC	BL	BL	BL	BL	BL	NA
14	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
15	Chip capacitor	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	
16	Black EC	BL	BL	BL	BL	BL	NA
17	Chip resistor	BL	OL	BL	BL	BL	*Pb : 1.33×10^4
18	Black reinforcing plate	BL	BL	BL	BL	BL	NA
19	Black soft plastic sheet with glue	BL	BL	BL	BL	BL	NA
20	Silvery magnetic ring	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
21	Green PCB	BL	BL	BL	BL	BL	NA
22	Copper varnished wire	BL	BL	BL	BL	BL	NA
23	Golden metal ring	BL	BL	BL	BL	--	NA
24	Purple plastic wire covering	BL	BL	BL	BL	BL	NA
25	Silvery metal part	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
26	Black plastic wire covering	BL	BL	BL	BL	BL	NA
27	Red PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
28	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
29	Silvery metal wire	BL	BL	BL	BL	--	NA
30	Silvery metal sheet	BL	BL	BL	BL	--	NA
31	Dark grey plastic shell (socket)	BL	BL	BL	BL	BL	NA
32	Black plastic sheet (socket)	BL	BL	BL	BL	BL	NA
33	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
34	Chip audion	BL	BL	BL	BL	BL	NA
35	Silvery crystal oscillator	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	
36	Black EC	BL	BL	BL	BL	BL	NA
37	Chip IC	BL	BL	BL	BL	BL	NA
38	Solder	BL	BL	BL	BL	--	NA
39	Chip capacitor	BL	BL	BL	BL	BL	NA
40	Black transparent glass sheet	BL	BL	BL	BL	--	NA
41	Yellow-black FPC	BL	BL	BL	BL	BL	NA
42	Chip LED	BL	BL	BL	BL	BL	NA
43	White-black FPC	BL	BL	BL	BL	BL	NA
44	Black plastic frame	BL	BL	BL	BL	BL	NA
45	Silvery plastic sheet	BL	BL	BL	BL	BL	NA
46	Transparent plastic sheet	BL	BL	BL	BL	BL	NA
47	Black transparent plastic sheet	BL	BL	BL	BL	BL	NA
48	White plastic sheet	BL	BL	BL	BL	BL	NA
49	Yellow transparent plastic adhesive tape	BL	BL	BL	BL	BL	NA
50	Chip capacitor	BL	BL	BL	BL	BL	NA
51	Chip IC	BL	BL	BL	BL	BL	NA
52	Chip IC	BL	BL	BL	BL	BL	NA
53	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
54	White plastic sheet (USB plug)	BL	BL	BL	BL	BL	NA
55	Silvery metal pin (USB plug)	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	
56	Red plastic wire covering	BL	BL	BL	BL	BL	NA
57	Black plastic jacket	BL	BL	BL	BL	BL	NA
58	Coppery metal wire	BL	BL	BL	BL	--	NA
59	Solder	BL	BL	BL	BL	--	NA
60	White EC	BL	BL	BL	BL	BL	NA
61	Coppery metal pin	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	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$LOD < IN < (150+3\sigma) \leq OL$
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 $\mu\text{g}/\text{cm}^2$.



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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)

- (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 0.10 ug/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13 ug/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.

- (11)* = According to the declaration from client, the source of lead in test sample is from the glass or ceramic material of that electronic component which is exempted by Directive 2011/65/EU ANNEX III.

- (12)[#] = According to the declaration from client, the source of lead in test sample is from copper alloy while lead as copper alloy containing up to 4% lead by weight is exempted by Directive 2011/65/EU ANNEX III.

- (13) As per client's requirement, the result of specimen No.1 to No.59 was quoted from Report No. WTF24F03068017C specimen No.1 to No.59.

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	ND	ND	ND	ND
T02	2	ND	ND	ND	ND
T03	3	ND	ND	ND	ND
T04	4	ND	ND	ND	ND
T05	5	ND	ND	ND	ND
T06	6	--	--	--	--
T07	7	--	--	--	--
T08	8	ND	ND	ND	ND
T09	9	ND	ND	ND	ND
T10	10	--	--	--	--



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T11	11	--	--	--	--
T12	12	ND	ND	ND	ND
T13	13	ND	ND	ND	ND
T14	14	--	--	--	--
T15	15	ND	ND	ND	ND
T16	16	ND	ND	ND	ND
T17	17	ND	ND	ND	ND
T18	18	ND	ND	ND	ND
T19	19	ND	ND	ND	ND
T20	20	--	--	--	--
T21	21	ND	ND	ND	ND
T22	22	ND	ND	ND	ND
T23	23	--	--	--	--
T24	24	ND	ND	ND	ND
T25	25	--	--	--	--
T26	26	ND	ND	ND	ND
T27	27	ND	ND	ND	ND
T28	28	ND	ND	ND	ND
T29	29	--	--	--	--
T30	30	--	--	--	--
T31	31	ND	ND	ND	ND
T32	32	ND	ND	ND	ND
T33	33	--	--	--	--
T34	34	ND	ND	ND	ND
T35	35	ND	ND	ND	ND
T36	36	ND	ND	ND	ND
T37	37	ND	ND	ND	ND
T38	38	--	--	--	--
T39	39	ND	ND	ND	ND
T40	40	--	--	--	--
T41	41	ND	ND	ND	ND
T42	42	ND	ND	ND	ND
T43	43	ND	ND	ND	ND
T44	44	ND	ND	ND	ND
T45	45	ND	ND	ND	ND
T46	46	ND	ND	ND	ND
T47	47	ND	ND	ND	ND
T48	48	ND	ND	ND	ND
T49	49	ND	ND	ND	ND
T50	50	ND	ND	ND	ND
T51	51	ND	ND	ND	ND
T52	52	ND	ND	ND	ND
T53	53	ND	ND	ND	ND
T54	54	ND	ND	ND	ND



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T55	55	--	--	--	--
T56	56	ND	ND	ND	ND
T57	57	ND	ND	ND	ND
T58	58	--	--	--	--
T59	59	--	--	--	--
T60	60	ND	ND	ND	ND
T61	61	--	--	--	--

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

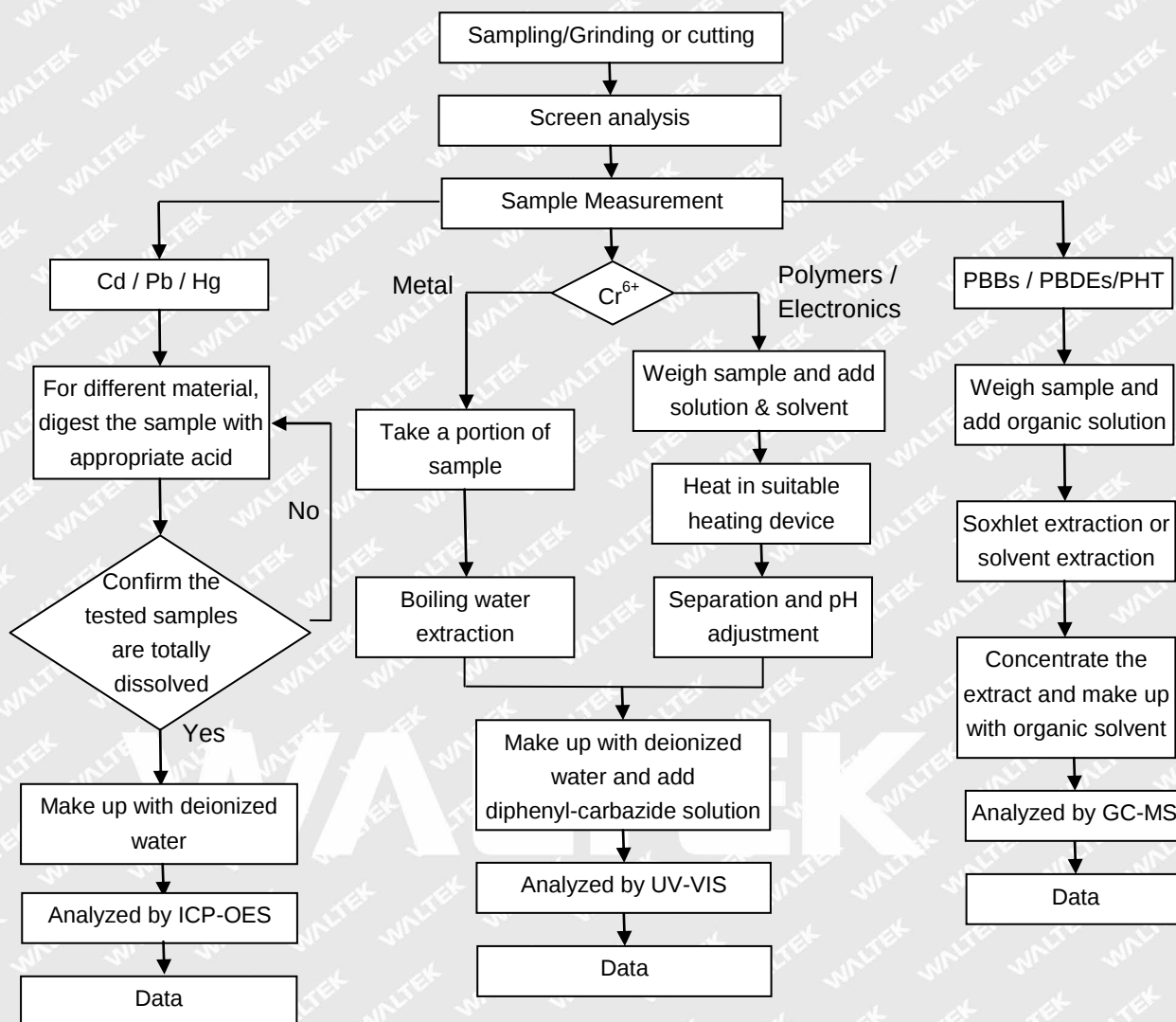
- (5) Abbreviation:

“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)

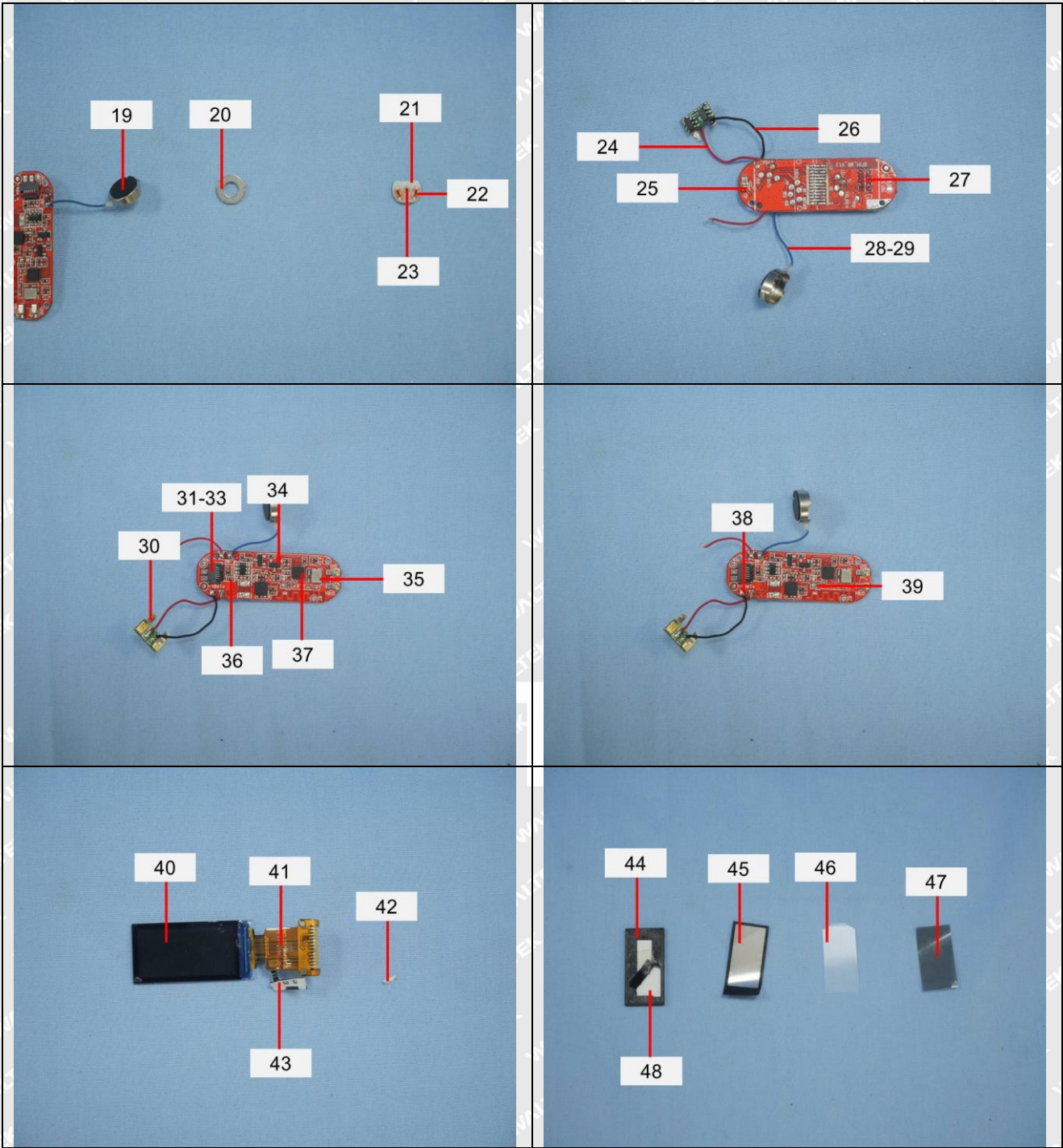
- (7) As per client's requirement, the result of specimen No.1 to No.59 was quoted from Report No. WTF24F03068017C specimen No.1 to No.59.

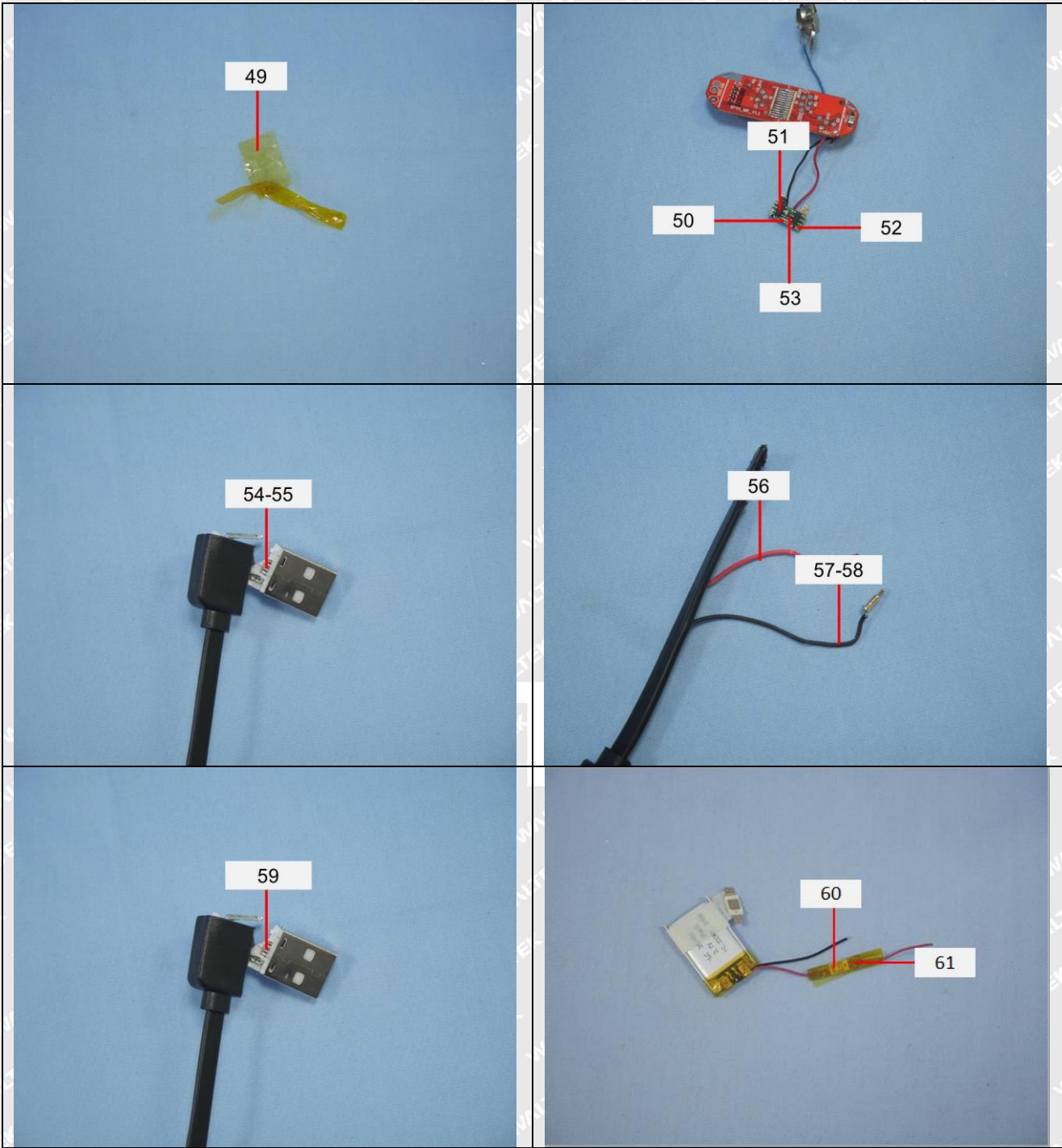
**Measurement Flowchart:**



Photograph(s) of parts tested:









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Remarks:

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

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