



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No. : WTF24F01020469C

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 : Speaker in wheat straw/ABS

Sample Model..... : MO9995

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 : 2024-01-25

Testing period : 2024-01-25 to 2024-02-19

Date of Issue..... : 2024-02-19

Test Result..... : Refer to next page (s)

Prepared By:

Waltek Testing Group (Foshan) Co., Ltd.

Address: No.13-19, 2/F., 2nd Building, Sunlink Machinery City, Xingye 4 Road, Guanglong Industrial
Park, Chihua Neighborhood Committee, Chencun Town, Shunde District, Foshan, Guangdong, China
Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

Signed for and on behalf of
Waltek Testing Group (Foshan) Co., Ltd.

Swing Liang

Swing.Liang



WTF24F01020469C

**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 (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)

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	White plastic wire jacket	BL	BL	BL	BL	BL	NA
2	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
3	White plastic core(USB plug)	BL	BL	BL	BL	BL	NA
4	Golden metal pin(USB plug)	BL	BL	BL	BL	--	NA
5	Transparent dry glue(USB plug)	BL	BL	BL	BL	BL	NA
6	Solder(USB plug)	BL	BL	BL	BL	--	NA
7	Yellow plastic wire covering	BL	BL	BL	BL	BL	NA
8	Coppery metal wire	BL	BL	BL	BL	--	NA
9	Transparent plastic wire covering	BL	BL	BL	BL	BL	NA
10	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
11	Transparent dry glue(Type-C plug)	BL	BL	BL	BL	BL	NA
12	Chip resistor(Type-C plug)	BL	OL	BL	BL	BL	*Pb : 1.32×10^3
13	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
14	Solder(Type-C plug)	BL	BL	BL	BL	--	NA
15	Silvery metal sheet(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
16	Golden metal pin(Type-C plug)	BL	BL	BL	BL	--	NA
17	Green PCB(Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
18	Off-white coating	BL	BL	BL	BL	BL	NA
19	Silvery metal net without off-white coating	BL	BL	BL	BL	--	NA
20	Off-white plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
21	Black soft plastic sheet with adhesive	BL	BL	BL	BL	BL	NA
22	Silvery metal screw with black surface	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
23	Brown-green PCB	BL	BL	BL	BL	BL	NA
24	Chip crystal oscillator	BL	BL	BL	BL	BL	NA
25	Silvery metal shell(plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
26	Silvery metal pin(plug)	BL	BL	BL	BL	--	NA
27	Black plastic core(plug)	BL	BL	BL	BL	BL	NA
28	Black plastic part(button)	BL	BL	BL	BL	BL	NA
29	Brown plastic sheet(button)	BL	BL	BL	BL	BL	NA
30	Silvery metal shell(button)	BL	BL	BL	BL	--	NA
31	Silvery metal pin(button)	BL	BL	BL	BL	--	NA
32	Chip LED	BL	BL	BL	BL	BL	NA
33	Chip IC	BL	BL	BL	BL	BL	NA
34	Chip resistor	BL	IN	BL	IN	BL	Pb :499 Cr ⁶⁺ : ND
35	Chip capacitor	IN	IN	BL	BL	BL	Cd :17 Pb :332



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
36	Solder	BL	BL	BL	BL	--	NA
37	Brown plastic adhesive tape	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
38	White dry glue	BL	BL	BL	BL	BL	NA
39	Red plastic wire covering	BL	BL	BL	BL	BL	NA
40	Black plastic wire covering	BL	BL	BL	BL	BL	NA
41	Red plastic wire covering	BL	BL	BL	BL	BL	NA
42	Silvery metal wire	BL	BL	BL	BL	--	NA
43	Black plastic wire covering	BL	BL	BL	BL	BL	NA
44	Silvery metal wire	BL	BL	BL	BL	--	NA
45	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
46	Chip resistor	BL	BL	BL	BL	BL	NA
47	Chip capacitor	BL	BL	BL	BL	BL	NA
48	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
49	Chip IC	BL	BL	BL	BL	BL	NA
50	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
51	Solder	BL	BL	BL	BL	--	NA
52	Transparent dry glue	BL	BL	BL	BL	BL	NA
53	Black soft plastic shell	BL	BL	BL	BL	BL	NA
54	Black paper gasket	BL	BL	BL	BL	BL	NA
55	Black synthetic leather	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	
56	Black plastic sheet	BL	BL	BL	BL	BL	NA
57	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
58	Black magnetic rim	BL	BL	BL	BL	--	NA
59	White paper sheet	BL	BL	BL	BL	BL	NA
60	Silvery metal plate	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
61	Solder	BL	IN	BL	BL	--	Pb :52
62	Silvery metal rivet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
63	Red-coppery varnished wire	BL	BL	BL	BL	BL	NA
64	Brown paper shell	BL	BL	BL	BL	BL	NA
65	Coppery metal wire	BL	BL	BL	BL	--	NA
66	Silvery metal shell	BL	BL	BL	BL	--	NA
67	Brown fabric net	BL	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.



Report No.: WTF24F01020469C

Job No.: FSW20240131130214CJ

- (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)

- (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 $\mu\text{g}/\text{cm}^2$.
- Positive = Presence of Cr⁶⁺ 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 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.

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	--	--	--	--
T03	3+13+20+27+28 [△]	ND	ND	ND	ND



Report No.: WTF24F01020469C

Job No.: FSW20240131130214CJ

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T04	4	--	--	--	--
T05	5+11+38 [△]	ND	ND	ND	ND
T06	6	--	--	--	--
T07	7	ND	ND	ND	ND
T08	8	--	--	--	--
T09	9	ND	ND	ND	ND
T10	10	--	--	--	--
T11	12+24+32+33+34 [△]	ND	ND	ND	ND
T12	14	--	--	--	--
T13	15	--	--	--	--
T14	16	--	--	--	--
T15	17+23+48 [△]	ND	ND	ND	ND
T16	18	ND	ND	ND	ND
T17	19	--	--	--	--
T18	21	ND	ND	ND	ND
T19	22	--	--	--	--
T20	25	--	--	--	--
T21	26	--	--	--	--
T22	29+56 [△]	ND	ND	ND	ND
T23	30	--	--	--	--
T24	31	--	--	--	--
T25	35+46+47+49 [△]	ND	ND	ND	ND
T26	36	--	--	--	--
T27	37	ND	ND	ND	ND
T28	39	ND	ND	ND	ND
T29	40	ND	ND	ND	ND
T30	41	ND	ND	ND	ND
T31	42	--	--	--	--
T32	43	ND	ND	ND	ND
T33	44	--	--	--	--
T34	45	ND	ND	ND	ND
T35	50	--	--	--	--
T36	51	--	--	--	--
T37	52	ND	ND	ND	ND
T38	53	ND	ND	ND	ND
T39	54+59+64 [△]	ND	ND	ND	ND
T40	55	ND	ND	ND	ND
T41	57	ND	ND	ND	ND
T42	58	--	--	--	--
T43	60	--	--	--	--
T44	61	--	--	--	--
T45	62	--	--	--	--
T46	63	ND	ND	ND	ND
T47	65	--	--	--	--



Report No.: WTF24F01020469C

Job No.: FSW20240131130214CJ

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T48	66	--	--	--	--
T49	67	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

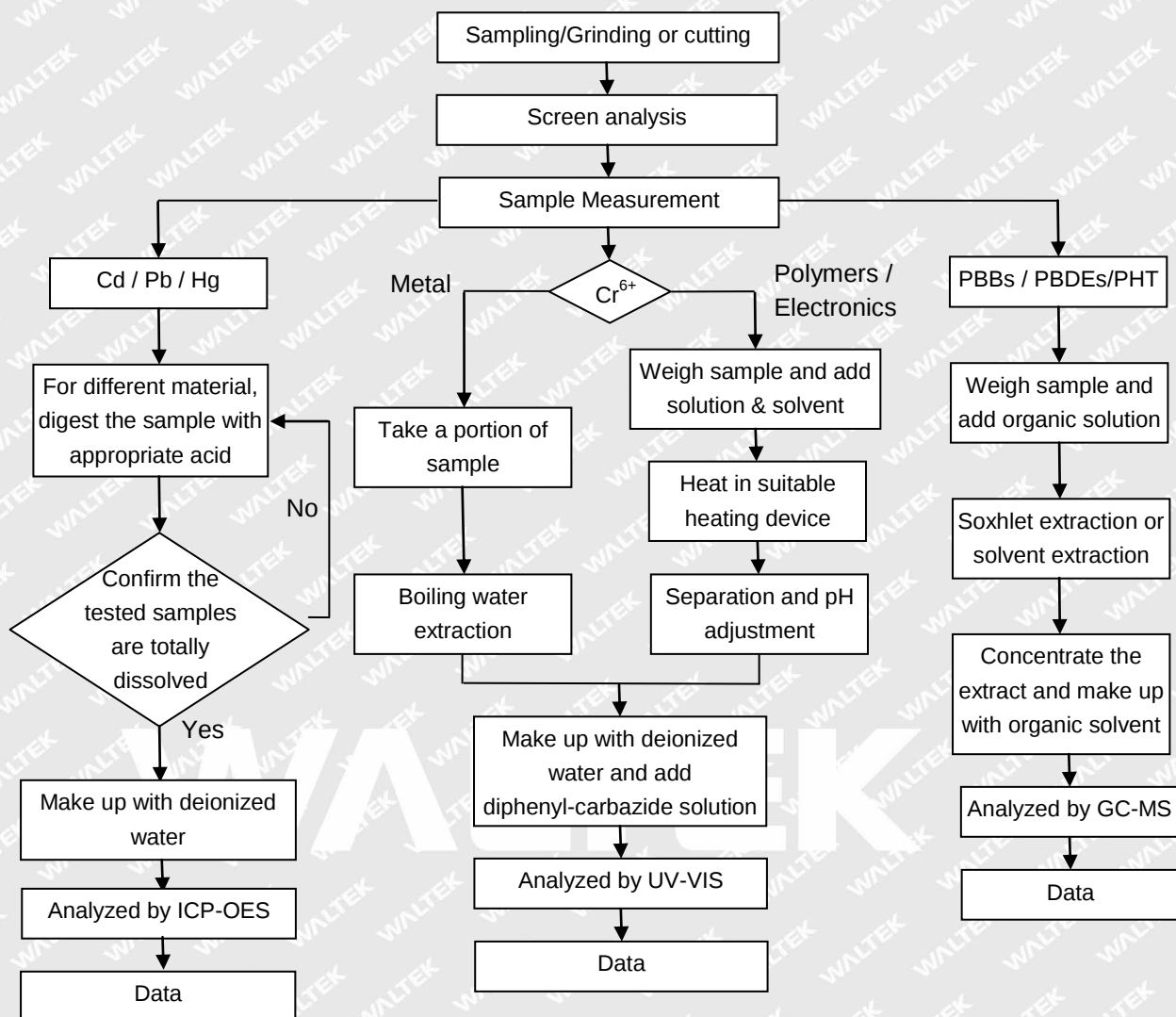
- (5) Abbreviation:

“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

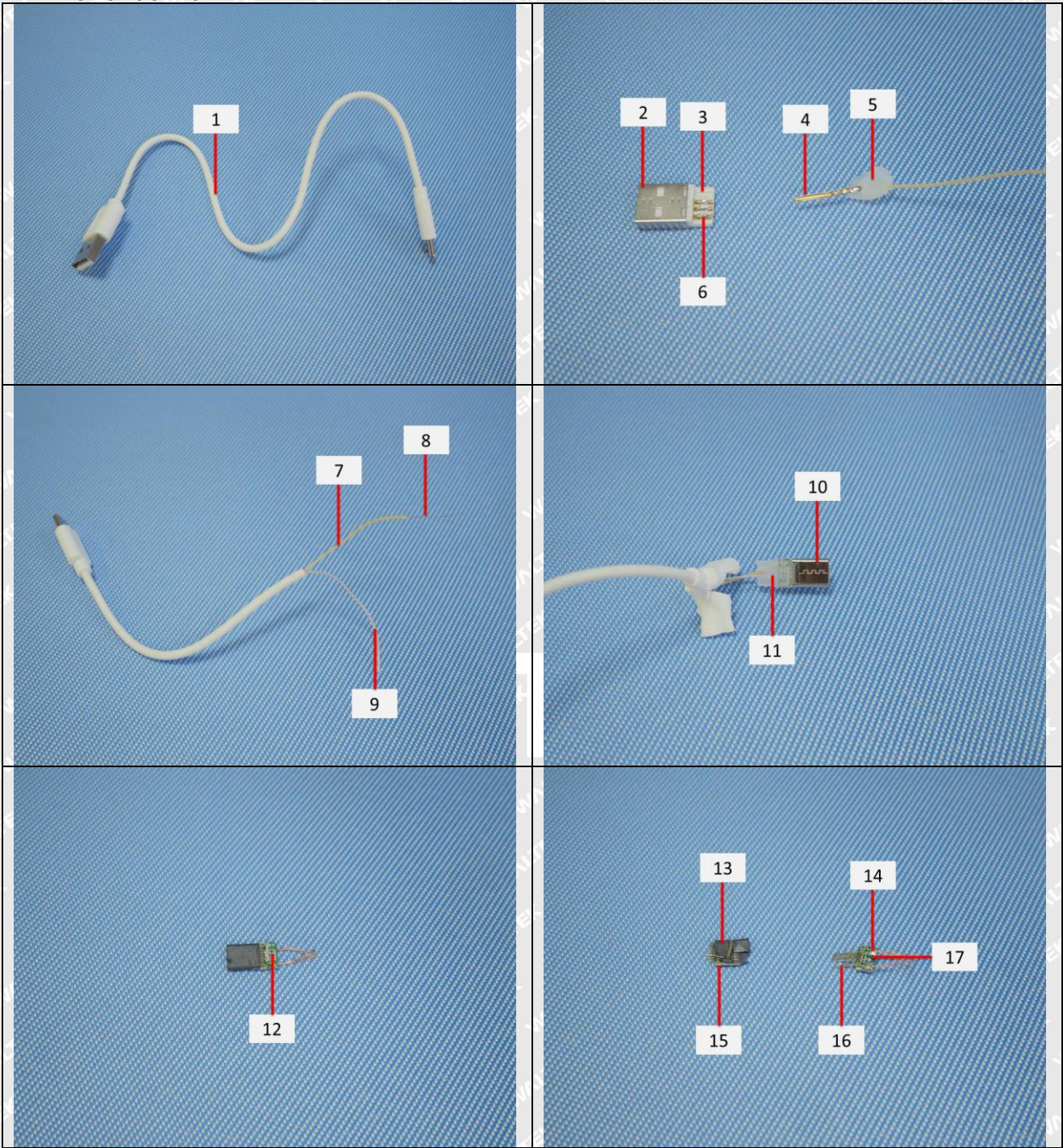
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

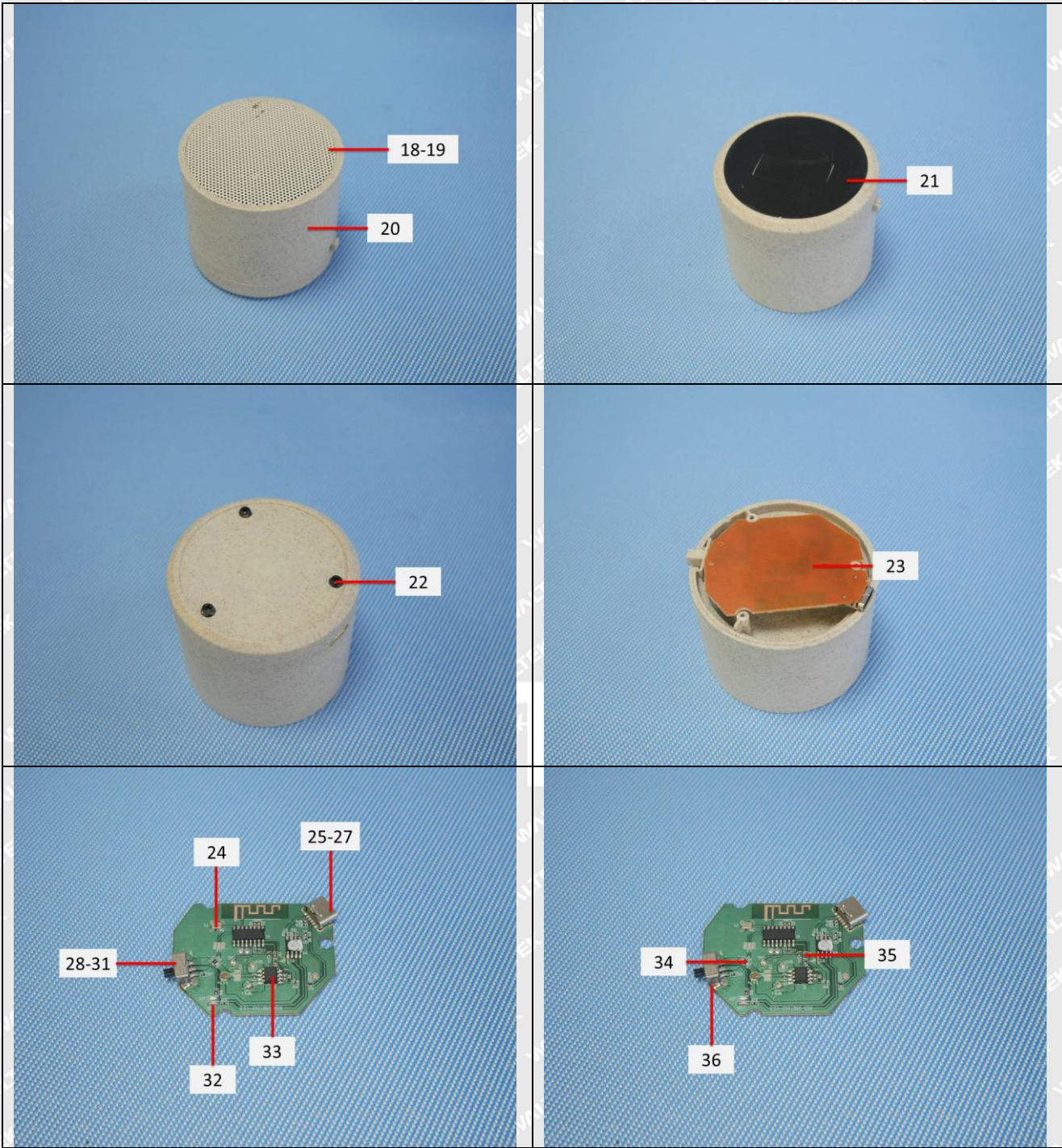
- (7) “△”= As client’s requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

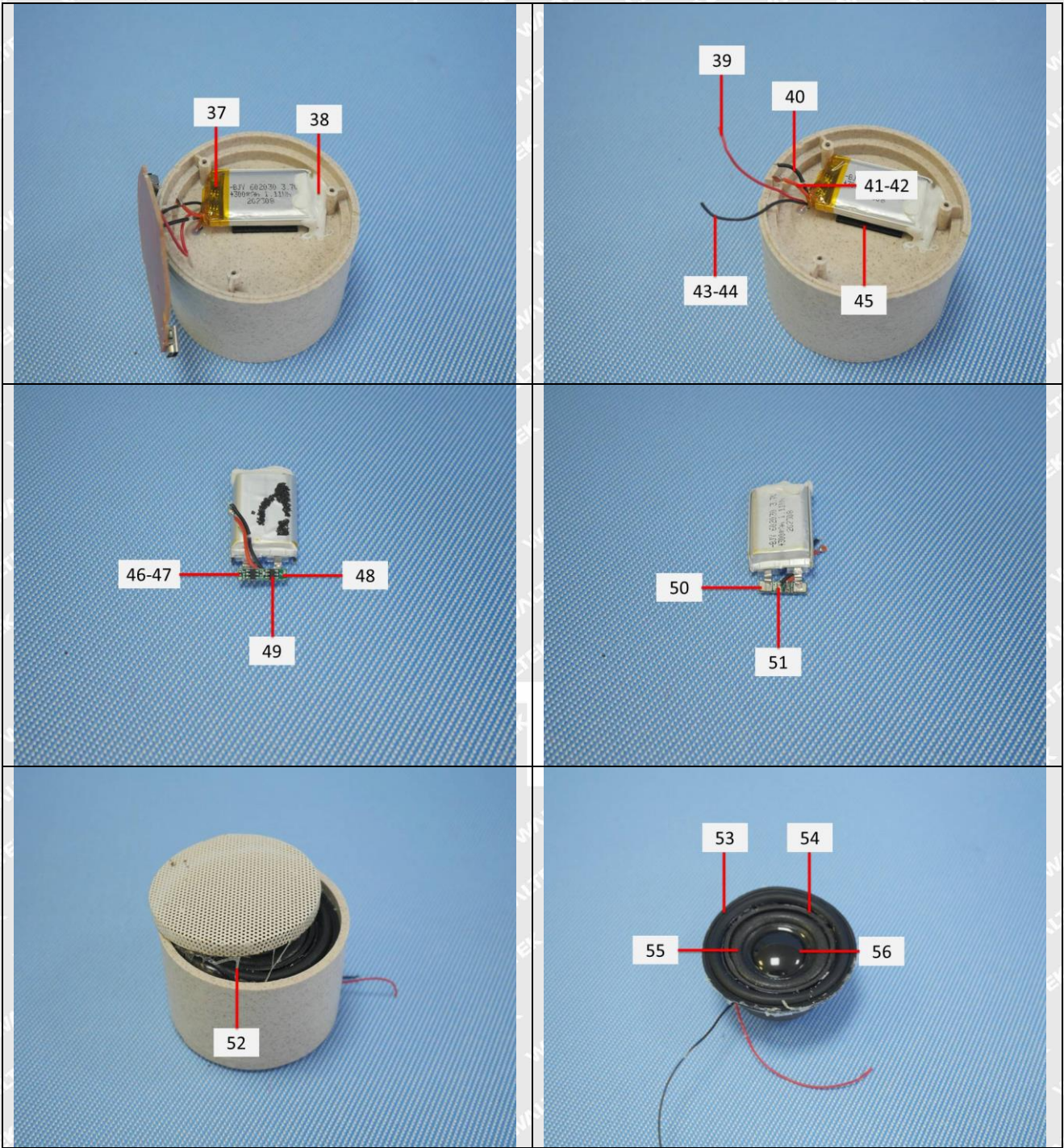
**Measurement Flowchart:**

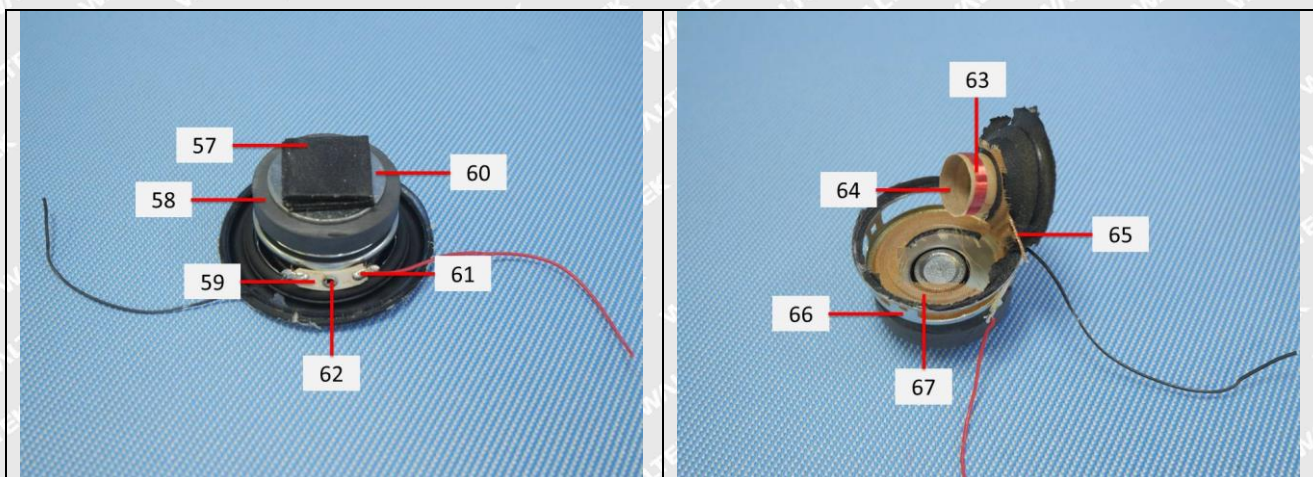


Photograph(s) of parts tested:







**Remarks:**

1. The results shown in this test report refer only to the sample(s) tested;
2. This test report cannot be reproduced, except in full, without prior written permission of the company;
3. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver;
4. The Applicant name and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which Waltek hasn't verified;
5. If the report is not stamped with the accreditation recognized seal, it will only be used for scientific research, education, and internal quality control activities, and is not used for the purpose of issuing supporting data to the society.
6. The sample material information (Model No. information) is provided by client, not verified by test laboratory. The samples of reference Model No. are not tested. Test laboratory not responsible for the accuracy, appropriateness, completeness and authenticity of the information provided by client.

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