



Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 1 of 19

Applicant: Mid Ocean Brands B.V.

Address: Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

Manufacturer: 117486

Address: /

The following sample(s) was /were submitted and identified on behalf of the clients as:

Sample Name: Wireless Speaker

Sample Model: MO2733

Sample Received Date: Aug. 26, 2025 & Sep. 01, 2025

Testing Period: Aug. 26, 2025 to Sep. 08, 2025

Test Requested

As requested by the applicant, refer to attached page(s) for details.

Approved by:

Tony Qian/Technical Manager



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Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 2 of 19

Summary of Test Results:

Test Standard		Conclusion
RoHS Directive 2011/65/EU and its subsequent amendments Directive (EU) 2015/863		
1	To determine Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)content by screening test and chemical test.	Pass
2	To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test,	Pass

Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 3 of 19

Test Results:

(1)XRF Test Result:

No.	XRF Result(mg/kg)					Chemical Test (mg/kg)	Conclusion
	Pb	Cd	Hg	Cr	Br		
1	BL	BL	BL	BL	BL	--	Pass
2	BL	BL	BL	BL	BL	--	Pass
3	BL	BL	BL	BL	BL	--	Pass
4	BL	BL	BL	BL	BL	--	Pass
5	BL	BL	BL	BL	BL	--	Pass
6	BL	BL	BL	BL	BL	--	Pass
7	BL	BL	BL	BL	BL	--	Pass
8	BL	BL	BL	BL	BL	--	Pass
9	BL	BL	BL	BL	BL	--	Pass
10	BL	BL	BL	BL	BL	--	Pass
11	BL	BL	BL	BL	BL	--	Pass
12	BL	BL	BL	BL	BL	--	Pass
13	BL	BL	BL	BL	BL	--	Pass
14	BL	BL	BL	BL	BL	--	Pass
15	BL	BL	BL	BL	BL	--	Pass
16	BL	BL	BL	BL	--	--	Pass
17	BL	BL	BL	BL	BL	--	Pass
18	BL	BL	BL	BL	--	--	Pass
19	BL	BL	BL	BL	--	--	Pass
20	BL	BL	BL	BL	BL	--	Pass
21	BL	BL	BL	BL	BL	--	Pass
22	BL	BL	BL	BL	BL	--	Pass
23	BL	BL	BL	BL	--	--	Pass
24	BL	BL	BL	BL	--	--	Pass
25	BL	BL	BL	BL	--	--	Pass

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Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 4 of 19

No.	XRF Result(mg/kg)					Chemical Test (mg/kg)	Conclusion
	Pb	Cd	Hg	Cr	Br		
26	BL	BL	BL	BL	--	--	Pass
27	BL	BL	BL	BL	--	--	Pass
28	BL	BL	BL	BL	BL	--	Pass
29	BL	BL	BL	BL	--	--	Pass
30	BL	BL	BL	BL	--	--	Pass
31	BL	BL	BL	BL	--	--	Pass
32	BL	BL	BL	BL	--	--	Pass
33	BL	BL	BL	BL	--	--	Pass
34	BL	BL	BL	BL	BL	--	Pass
35	BL	BL	BL	BL	--	--	Pass
36	BL	BL	BL	BL	BL	--	Pass
37	BL	BL	BL	BL	BL	--	Pass
38	BL	BL	BL	BL	BL	--	Pass
39	BL	BL	BL	BL	--	--	Pass
40	BL	BL	BL	BL	BL	--	Pass
41	BL	BL	BL	BL	BL	--	Pass
42	BL	BL	BL	BL	BL	--	Pass
43	BL	BL	BL	BL	--	--	Pass
44	BL	BL	BL	BL	BL	--	Pass
45	BL	BL	BL	BL	--	--	Pass
46	BL	BL	BL	BL	BL	--	Pass
47	BL	BL	BL	BL	BL	--	Pass
48	BL	BL	BL	BL	--	--	Pass
49	BL	BL	BL	BL	BL	--	Pass
50	BL	BL	BL	BL	BL	--	Pass
51	BL	BL	BL	BL	BL	--	Pass
52	BL	BL	BL	BL	BL	--	Pass

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Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 5 of 19

No.	XRF Result(mg/kg)					Chemical Test (mg/kg)	Conclusion
	Pb	Cd	Hg	Cr	Br		
53	BL	BL	BL	BL	--	--	Pass
54	BL	BL	BL	BL	--	--	Pass
55	BL	BL	BL	BL	--	--	Pass
56	BL	BL	BL	BL	BL	--	Pass
57	BL	BL	BL	BL	BL	--	Pass
58	BL	BL	BL	BL	BL	--	Pass
59	BL	BL	BL	BL	BL	--	Pass
60	BL	BL	BL	BL	--	--	Pass
61	BL	BL	BL	BL	--	--	Pass
62	BL	BL	BL	BL	BL	--	Pass
63	BL	BL	BL	BL	BL	--	Pass
64	BL	BL	BL	BL	--	--	Pass
65	BL	BL	BL	BL	--	--	Pass

Remark: 1.It is the result on total Br while test item on restricted substances in PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).
2.Screening test by XRF spectroscopy. XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1: 2013Annex A.

Element	Polymer Material	Metallic Material	Composite Material
Pb	$BL \leq 700 - 3\sigma \leq X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma \leq X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma \leq X < 1500 + 3\sigma \leq OL$
Cd	$BL \leq 70 - 3\sigma \leq X < 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma \leq X < 130 + 3\sigma \leq OL$	$LOD < X < 150 + 3\sigma \leq OL$
Hg	$BL \leq 700 - 3\sigma \leq X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma \leq X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma \leq X < 1500 + 3\sigma \leq OL$
Cr	$BL \leq 700 - 3\sigma < X$	$BL \leq 700 - 3\sigma < X$	$BL \leq 500 - 3\sigma < X$
Br	$BL \leq 300 - 3\sigma < X$	--	$BL \leq 250 - 3\sigma < X$

Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 6 of 19

XRF Detection Limits in mg/kg for Regulated Elements in Various Material

Element	Polymer Material	Metallic Material	Composite Material
Pb	10	50	50
Cd	10	50	50
Hg	10	50	50
Cr	10	50	50
Br	10	50	50

- Note:**
- 1.BL = Under the XRF screening limit
 - 2.OL = Future chemical test will be conducted while result is above the screening limit
 - 3.X =The symbol“X”marks the region where further investigation in necessary
 - 4.3σ=The reproducibility of analytical instruments
 - 5.LOD=Detection limit

(2)Wet Chemical Test

Test Item(s)	Test Method/ Test Equipment	Unit	Limit	MDL
Cadmium(Cd)	IEC 62321-5:2013, ICP-OES	mg/kg	100	2
Lead(Pb)	IEC 62321-5:2013, ICP-OES	mg/kg	1000	2
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017, ICP-OES	mg/kg	1000	2
Hexavalent Chromium(CrVI) (Metal)	IEC 62321-7-1:2015, UV-Vis	μg/cm ²	0.13	0.1
Hexavalent Chromium(CrVI) (Nonmetal)	IEC 62321-7-2:2017, UV-Vis	mg/kg	1000	8
PBBs (Next form)	IEC 62321-6:2015, GC-MS	mg/kg	1000	5
PBDEs (Next form)	IEC 62321-6:2015, GC-MS	mg/kg	1000	5
Dibutyl Phthalate(DBP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30
Butyl benzyl phthalate (BBP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30
Di-(2-ethylhexyl) Phthalate(DEHP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30

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Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 7 of 19

Test Item(s)	Test Method/ Test Equipment	Unit	Limit	MDL
Diisobutyl phthalate (DIBP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30

PBBs		PBDEs	
Monobromobiphenyl	Hexabromobiphenyl	Monobromodiphenyl ether	Hexabromodiphenyl ether
Dibromobiphenyl	Heptabromobiphenyl	Dibromodiphenyl ether	Heptabromodiphenyl ether
Tribromobiphenyl	Octabromobiphenyl	Tribromodiphenyl ether	Octabromodiphenyl ether
Tetrabromobiphenyl	Nonabromobiphenyl	Tetrabromodiphenyl ether	Nonabromodiphenyl ether
Pentabromobiphenyl	Decabromobiphenyl	Pentabromodiphenyl ether	Decabromodiphenyl ether

- Note:**
1. mg/kg= ppm=0.0001%
 2. N.D.= Not Detected(<MDL)
 3. MDL = Method Detection Limit
 4. -- = No Testing
 5. When Cr (VI) in a sample is detected below the 0.10 $\mu\text{g}/\text{cm}^2$ LOQ (limit of quantification), the sample is considered to be negative for Cr (VI). Since Cr (VI) may not be uniformly distributed in the coating even within the same sample batch, a "grey zone" between 0.10 $\mu\text{g}/\text{cm}^2$ and 0.13 $\mu\text{g}/\text{cm}^2$ has been established as "inconclusive" to reduce inconsistent results due to unavoidable coating variations. In this case, additional testing may be necessary to confirm the presence of Cr (VI). When Cr (VI) is detected above 0.13 $\mu\text{g}/\text{cm}^2$, the sample is considered to be positive for the presence of Cr (VI) in the coating layer. Unavoidable coating variations may influence the determination Information on storage conditions and production date of the tested sample is unavailable and thus Cr (VI) results represent status of the sample at the time of testing.

Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 8 of 19

(3)Phthalate Test Result:

Test No.	Test Item(s)				Conclusion
	Dibutyl Phthalate (DBP)	Butyl benzyl phthalate (BBP)	Di-(2-ethylhexyl) Phthalate (DEHP)	Diisobutyl phthalate (DIBP)	
1	N.D.	N.D.	N.D.	N.D.	Pass
2	N.D.	N.D.	N.D.	N.D.	Pass
3	N.D.	N.D.	N.D.	N.D.	Pass
4	N.D.	N.D.	N.D.	N.D.	Pass
5	N.D.	N.D.	N.D.	N.D.	Pass
6	N.D.	N.D.	N.D.	N.D.	Pass
7	N.D.	N.D.	N.D.	N.D.	Pass
8	N.D.	N.D.	N.D.	N.D.	Pass
9	N.D.	N.D.	N.D.	N.D.	Pass
10	N.D.	N.D.	N.D.	N.D.	Pass
11	N.D.	N.D.	N.D.	N.D.	Pass
12	N.D.	N.D.	N.D.	N.D.	Pass
13	N.D.	N.D.	N.D.	N.D.	Pass
14	N.D.	N.D.	N.D.	N.D.	Pass
15	N.D.	N.D.	N.D.	N.D.	Pass
17	N.D.	N.D.	N.D.	N.D.	Pass
20	N.D.	N.D.	N.D.	N.D.	Pass
21	N.D.	N.D.	N.D.	N.D.	Pass
22	N.D.	N.D.	N.D.	N.D.	Pass
28	N.D.	N.D.	N.D.	N.D.	Pass
34	N.D.	N.D.	N.D.	N.D.	Pass
36	N.D.	N.D.	N.D.	N.D.	Pass
37	N.D.	N.D.	N.D.	N.D.	Pass
38	N.D.	N.D.	N.D.	N.D.	Pass
40	N.D.	N.D.	N.D.	N.D.	Pass

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Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 9 of 19

Test No.	Test Item(s)				Conclusion
	Dibutyl Phthalate (DBP)	Butyl benzyl phthalate (BBP)	Di-(2-ethylhexyl) Phthalate (DEHP)	Diisobutyl phthalate (DIBP)	
41	N.D.	N.D.	N.D.	N.D.	Pass
42	N.D.	N.D.	N.D.	N.D.	Pass
44	N.D.	N.D.	N.D.	N.D.	Pass
46	N.D.	N.D.	N.D.	N.D.	Pass
47	N.D.	N.D.	N.D.	N.D.	Pass
49	N.D.	N.D.	N.D.	N.D.	Pass
50	N.D.	N.D.	N.D.	N.D.	Pass
51	N.D.	N.D.	N.D.	N.D.	Pass
52	N.D.	N.D.	N.D.	N.D.	Pass
56	N.D.	N.D.	N.D.	N.D.	Pass
57	N.D.	N.D.	N.D.	N.D.	Pass
58	N.D.	N.D.	N.D.	N.D.	Pass
59	N.D.	N.D.	N.D.	N.D.	Pass
62	N.D.	N.D.	N.D.	N.D.	Pass
63	N.D.	N.D.	N.D.	N.D.	Pass

- Note:**
1. mg/kg= ppm=0.0001%
 2. N.D.= Not Detected(<MDL)

Test Report

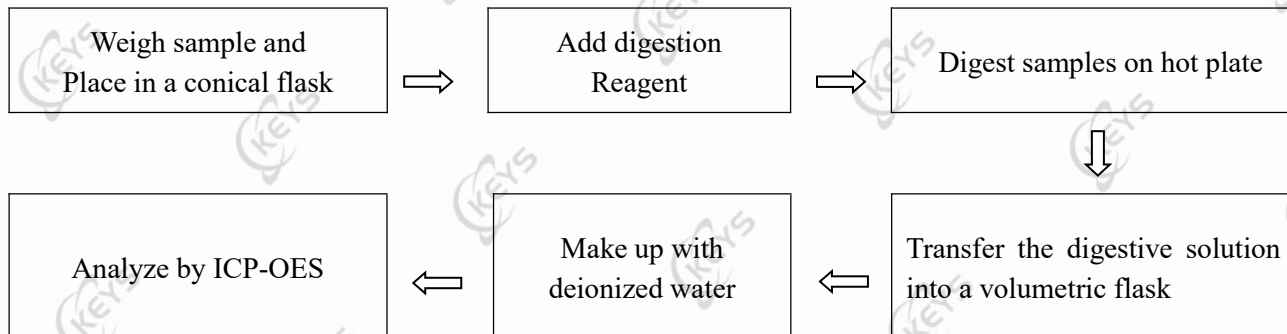
Report No.: RKEYS250826445

Date: Sep. 15, 2025

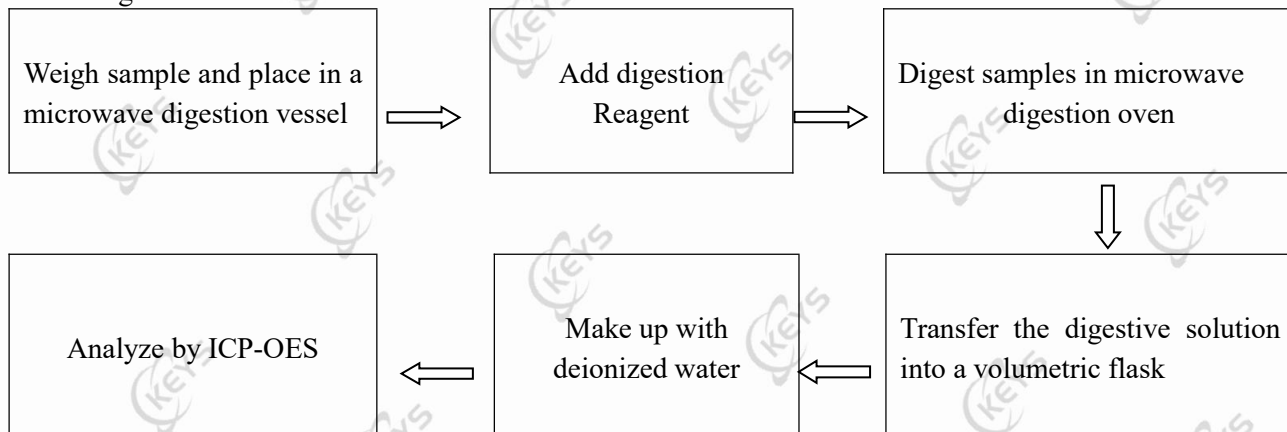
Page 10 of 19

Test Process:

1. Test for Cd/Pb Content



2. Test for Hg Content



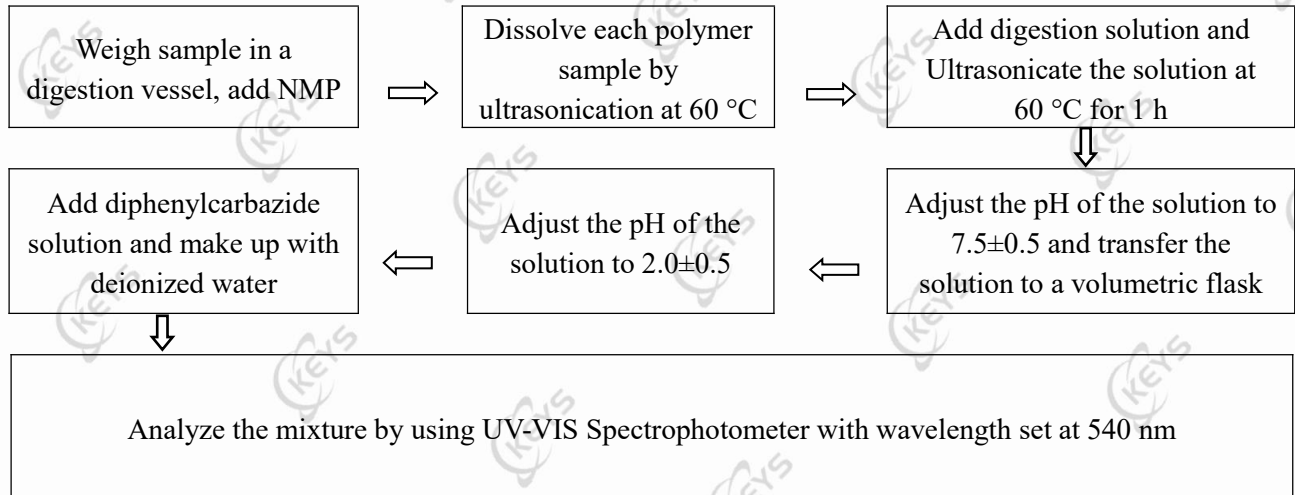
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Report No.: RKEYS250826445

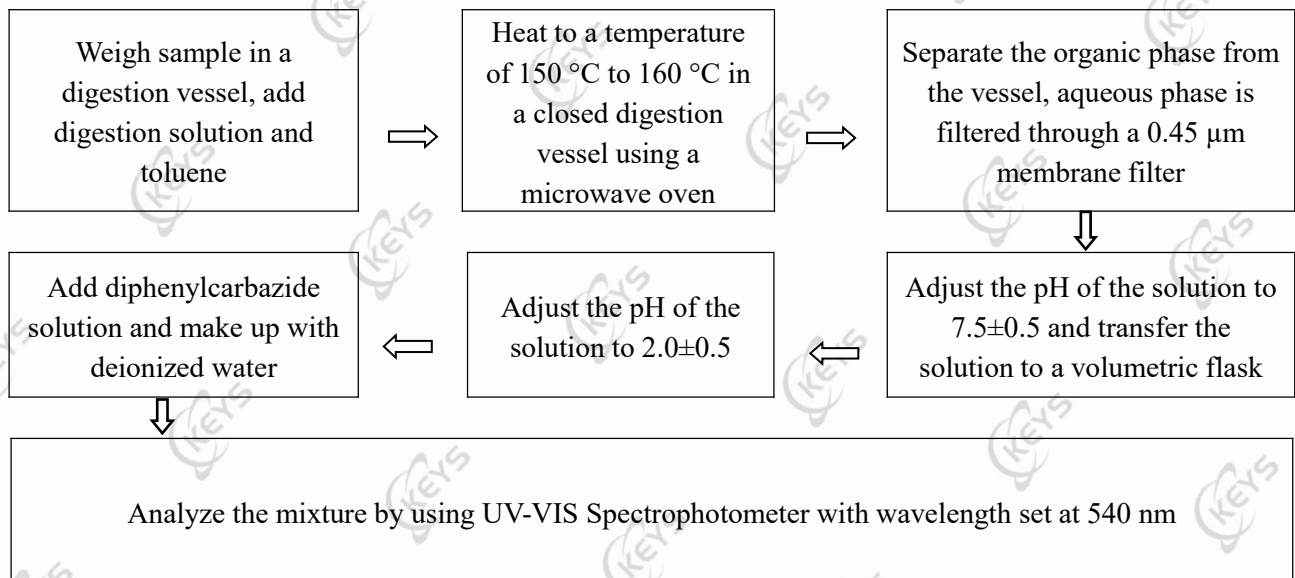
Date: Sep. 15, 2025

Page 11 of 19

3.Soluble polymers:



Insoluble/unknown polymers and electronics without Sb



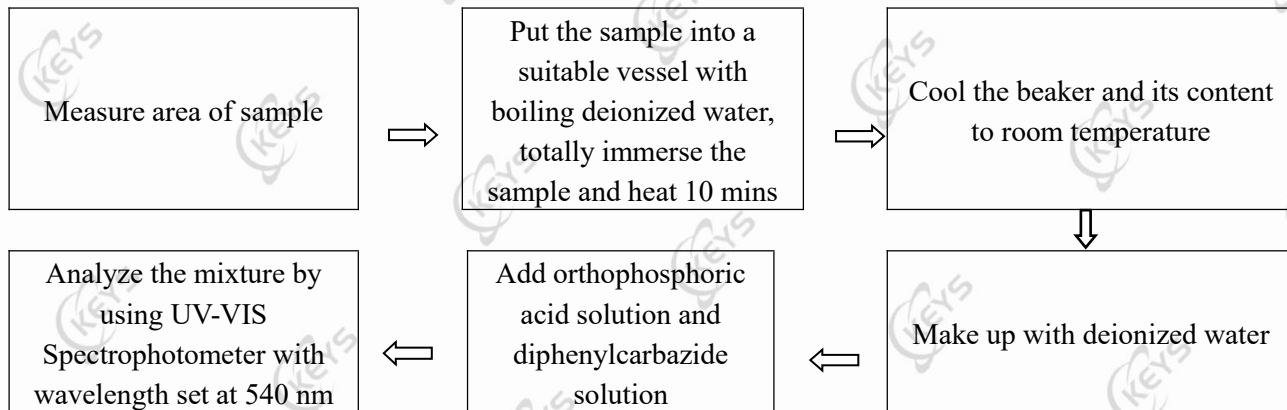
Test Report

Report No.: RKEYS250826445

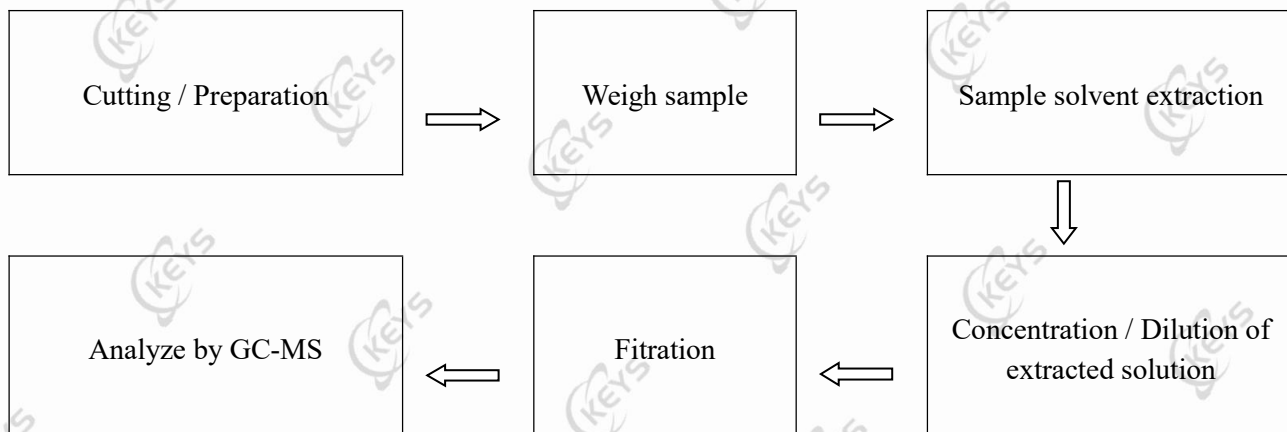
Date: Sep. 15, 2025

Page 12 of 19

Metal material



4. Test for DBP, BBP, DEHP, DIBP, PBB, PBDE Content



Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 13 of 19

Sample Description:

No.	Description
1	Black plastic casing
2	White printing black plastic bottom cover
3	Black plastic ring
4	Black component housing
5	Black silicone sheet
6	Black plastic button
7	Black woven mesh fabric
8	Black plastic casing
9	Black sponge adhesive
10	White plastic terminal blocks
11	Yellow dry glue
12	Black rubber outer skin
13	Black non-woven fabric
14	Black plastic eardrum shell
15	Yellow eardrum paper
16	Copper-colored metal enameled wire
17	Transparent glue
18	Silvery metal screw
19	Silvery metal stylus
20	Black plastic fasteners
21	Black plastic fasteners
22	Black plastic fasteners
23	Silvery metal stylus
24	Silvery metal disc
25	Silvery metal square mouth shell
26	Silvery metal mouth shell
27	Silvery metal tp-c port housing

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Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 14 of 19

No.	Description
28	Black printing with blue plastic outer skin battery
29	Black metal fixing ring
30	Black metal magnet
31	Silvery metal solder
32	Silvery metal frame
33	Silvery metal base
34	Green PCB
35	Black/Silvery metal shell electrolytic capacitors
36	Off-white plastic terminal blocks
37	Black IC
38	White/black plastic socket
39	Silvery metal crystal oscillator
40	Brown capacitor
41	Red plastic terminal blocks
42	Black resistor
43	Yellow/Silvery metal buttons
44	White LED light
45	Silvery metal fasteners
46	Green PCB
47	White/blue plastic flat flat cable
48	Silvery metal wire core
49	Red plastic wire skin
50	Black plastic wire skin
51	Red plastic wire skin
52	Black plastic wire skin
53	Silvery metal solder
54	Silvery metal solder
55	Copper-colored metal wire core

Test Report

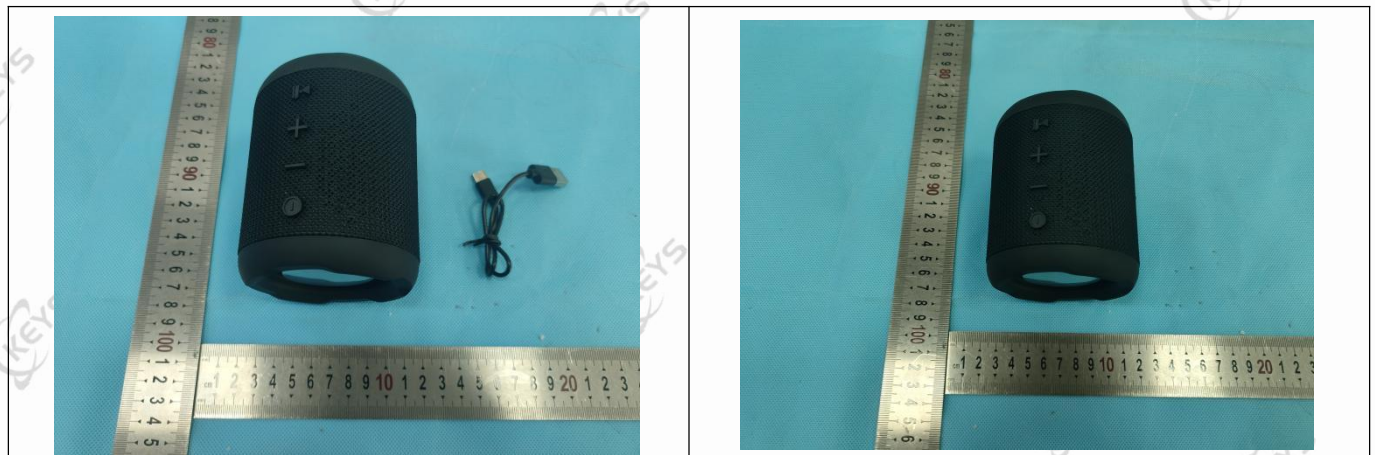
Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 15 of 19

No.	Description
56	Red plastic wire sheath
57	White plastic wire skin
58	Black plastic wire skin
59	Black plastic fasteners
60	Silvery metal casing
61	Silvery metal stylus
62	Black plastic firmware
63	White plastic fasteners
64	Silvery metal stylus
65	Silvery metal solder

Photograph(s) of Sample:



Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 16 of 19

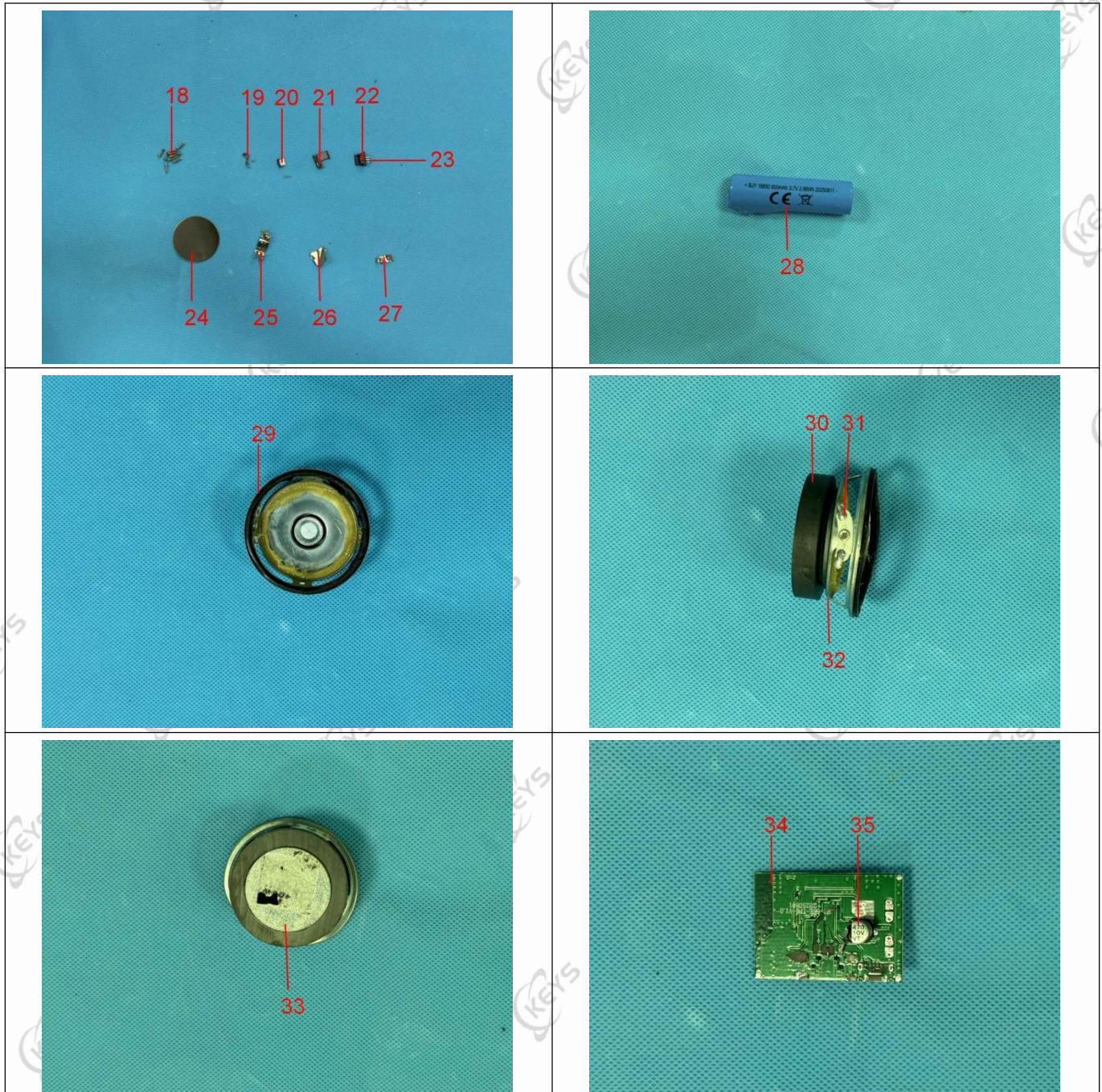


Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 17 of 19

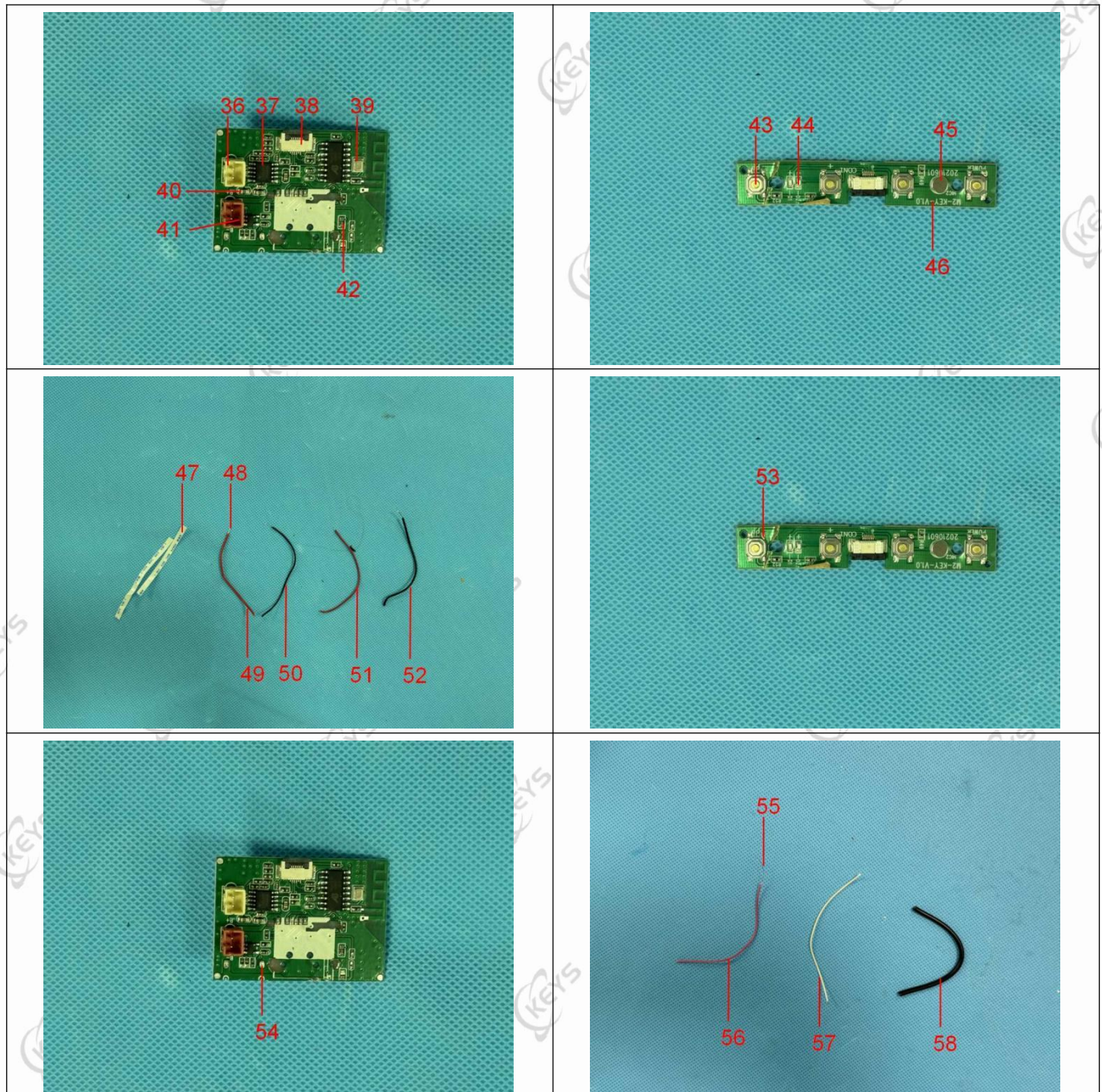


Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 18 of 19

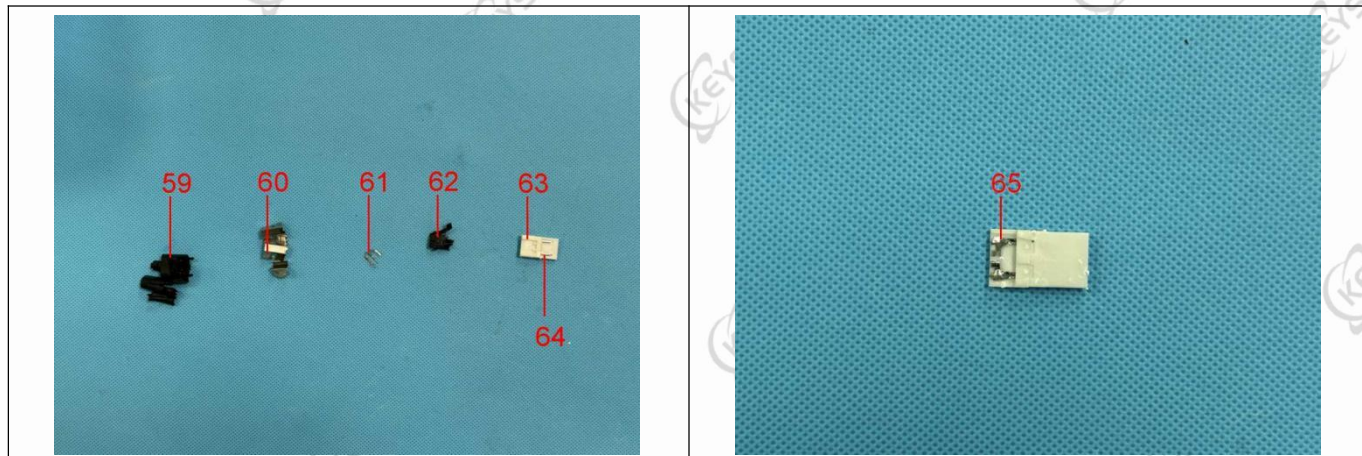


Test Report

Report No.: RKEYS250826445

Date: Sep. 15, 2025

Page 19 of 19



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