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**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: MO2665

Sample Received Date: Aug. 13, 2025

**Testing Period:** Aug. 13, 2025 to Aug. 18, 2025

**Test Requested** 

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

\*

Approved by:

Tony glan

Tony Qian/Technical Manager



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**Summary of Test Results:** 

Test	Standard	Conclusion
RoH	S 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)),	Pass
	Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)content	
	by screening test and chemical test.	(E
2	To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test.	Pass



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#### **Test Results:**

(1)XRF Test Result:

(1)XKF	Test Result	:			CH.		
No.		XRI	XRF Result(mg/kg)			Chemical Test	Conclusion
No.	Pb	Cd Hg		Cr	Br	(mg/kg)	Conclusion
1	BL	BL	BL	<sub>6</sub> BL	BL		Pass
2	BL	BL	BL	BL	BL		Pass
3	BL	BL	BL	BL	BL		Pass
4	BL	BL	BL	BL	BL	(E)	Pass
5	BL	BL	BL	BL	BL	- 66	Pass
6	BL	BL	BL	BL	BL	- 9	Pass
7	BL	BL	BL	BL	125		Pass
8	BL	BL	BL	BL	BL	∆ <u>5</u> 9	Pass
9	BL	BL	6 BL	BL	BL	69-	Pass
10	BL	BL (	BL	BL	BL	(	Pass
<u>6</u> 11	BL	BL	BL	BL	BL		Pass
12	BL	BL	BL	BL	BL		Pass
13	BL	BL	BL	BL	BL	(Caro	Pass
14	BL	BL	BL	BL	BL	9	Pass
15	BL	BL	BL	BL			Pass
16	BL	BL	BL	BL	BL	25	Pass
17	BL 0	√ BL	BL	BL	BL	- 25	Pass
18	BL 🥞	BL	BL	BL	BL	-69	Pass
19	BL	BL	BL	BL	6		Pass
20	BL	BL	BL	BL		- /-	Pass
21	BL	BL	BL	BL		(C)	Pass
22	BL	BL	BL	BL		- (6)	Pass
23	BL	BL	BL	BL	BL	9	Pass
24	BL	BL	BL	BL	BL		Pass
25	BL	BL	BL	BL	¥	050	Pass

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			0.6			(H)	- (0
NT -			RF Result(mg/kg)		0 60	<b>Chemical Test</b>	a (let
No.	Pb	Cd	Hg	Cr	Br	(mg/kg)	Conclusion
26	BL	BL	BL	BL	BL	(E)	Pass
27	BL	BL	BL	BL		- 650	Pass
28	BL	BL	BL	BL	BL	- 9	Pass
29	BL	BL	BL	BL	BL		Pass
30	BL	BL	BL	BL	(F)-	155-	Pass
31	BL	BL 6	BL	BL		(F) V	Pass
32	BL	BL	BL	BL	BL	(10	Pass
33	BL	BL	BL	BL	(0		Pass
34	BL	BL	BL	BL	BL		Pass
35	BL	BL	BL	BL	Ā	(c)	Pass
36	BL	BL (	BL	BL	BL	9	Pass
37	BL	BL	BL	BL	BL		Pass
38	BL	BL	BL	BL	BL	·	Pass
39	BL	BL	BL	BL	&	759	Pass
40	BL	BL	BL	BL	BL	(ie)	Pass
41	BL	BL	BL	BL	BL		Pass
42	BL	BL	BL	BL	BL		Pass
43	BL	BL	BL	BL	BL		Pass
44	BL (	BL	BL	BL	BL	-(E)	Pass
45	BL	BL	BL	BL			Pass
46	BL	BL	BL	BL	BL		Pass
47	BL	BL	BL	BL	BL	050	Pass
48	BL	BL	BL	BL	BL	- 06	Pass
49	BL	BL	BL	BL		- (4)	Pass
50	BL	BL	BL	BL	BL		Pass
51	BL	BL	BL	BL (	BL	A.60	Pass
52	BL	BL	BL	BL	BL	(E)	Pass

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	0.5					0.5	
No.			XRF Result(mg/kg)		Chemical Test	Conclusion	
110.	Pb	Cd	Hg	Cr	Br	(mg/kg)	Conclusion
53	BL	BL	BL	BL	BL	(E)	Pass
54	BL	BL	BL	BL		- (2)	Pass
55	BL	BL	BL	BL	BL	- 9	Pass
56	BL	BL	BL	BL	BL		Pass
57	BL	BL	BL	BL	BL	050-	Pass
58	BL	BL	BL	BL		V	Pass
59	BL	BL	BL	BL		(10)	Pass
60	BL	BL	BL	BL	BL		Pass
61	BL	BL	BL	BL	(E)		Pass
62	BL	BL	BL	BL	Ā	(c)	Pass
63	BL	BL (	BL	BL	BL	<b>V</b> (	Pass
64	BL	BL	BL	BL			Pass
65	BL	BL	BL	BL	BL	·	Pass
66	BL	BL	BL	BL	-6	735	Pass
67	BL	BL	BL	BL		(F)	Pass
68	BL	BL	BL	BL			Pass
69	BL	BL	BL	BL			Pass
70	BL	BL	BL	BL	BL		Pass
71	BL (	BL	BL	BL	BL	- (CE)	Pass
72	BL	BL	BL	BL	BL	-9	Pass
73	BL	BL	BL	BL	BL		Pass
74	BL	BL	BL	BL	BL	125	Pass
75	BL	BL	BL	BL		- 00	Pass
76	BL	BL	BL	BL		- (4)	Pass
77	BL	BL	BL	BL	35		Pass
78	BL	BL	BL	BL (	T	A.G	Pass
79	BL	BL	BL	BL		(E)	Pass

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No	XRF Result(mg/kg)					Chemical Test	Conclusion
No.	Pb	Cd	Hg	Cr	Br	(mg/kg)	Conclusion
80	BL	BL	BL	BL	J	(E)	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	Polymer Material Metallic Material	
Pb	BL $\leq$ 700-3 $\sigma$ $\leq$ X $\leq$ 1300+3 $\sigma$ $\leq$ OL	BL $\leq$ 700-3 $\sigma$ $\leq$ X $<$ 1300+3 $\sigma$ $\leq$ OL	BL $\leq$ 500-3 $\sigma$ $\leq$ X $\leq$ 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 $\leq$ 130+3 $\sigma$ $\leq$ OL	LOD <x<150+3σ≤ol< td=""></x<150+3σ≤ol<>
Hg	BL $\leq$ 700-3 $\sigma$ $\leq$ X $<$ 1300+3 $\sigma$ $\leq$ OL	BL $\leq$ 700-3 $\sigma$ $\leq$ X $\leq$ 1300+3 $\sigma$ $\leq$ OL	BL $\leq$ 500-3 $\sigma$ $\leq$ X $<$ 1500+3 $\sigma$ $\leq$ OL
Cr	BL≤700-3σ <x< td=""><td>BL≤700-3σ<x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<></td></x<>	BL≤700-3σ <x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<>	BL≤500-3σ <x< td=""></x<>
Br	BL≤300-3σ< X		BL≤250-3σ <x< td=""></x<>

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	
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	A 19		$\nu$	- (-
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 <sup>2</sup>	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
Diisobutyl phthalate (DIBP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30

PB	Bs	PBDEs			
Monobromobiphenyl	l Hexabromobiphenyl Monobromodiphenyl ether Hexabromodipheny		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		



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**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 μg/cm² 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 μg/cm² and 0.13 μg/cm² 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 μg/cm², 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.



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(3)Phthalate Test Result:

(3)Phthalate	iest Kesuit:	(F)	A.6		(10)			
		Test Item(s)						
Test No.	Dibutyl Phthalate (DBP)	Butyl benzyl phthalate (BBP)	Di-(2-ethylhexyl) Phthalate (DEHP)	Diisobutyl phthalate (DIBP)	Conclusio			
1	N.D.	N.D.	N.D.	N.D.	Pass			
2	N.D.	N.D.	N.D.	N.D.	Pass			
3 0.5	N.D.	N.D.	N.D.	N.D.	Pass			
45	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			
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.	9 N.D.	N.D.	N.D.	Pass			
16	N.D.	N.D.	N.D.	N.D.	Pass			
1517	N.D.	N.D.	N.D.	N.D.	Pass			
18	N.D.	N.D.	N.D.	N.D.	Pass			
23	N.D.	N.D.	N.D.	N.D.	Pass			
24	N.D.	N.D.	N.D.	N.D.	Pass			
26	N.D.	N.D.	N.D.	N.D.	Pass			
28	N.D.	N.D.	N.D.	N.D.	Pass			
29	N.D.	N.D.	N.D.	N.D.	Pass			
32	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			

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		0.6		(H)	- 6
		Test I	7	(E)	
Test No.	Dibutyl Phthalate (DBP)	Butyl benzyl phthalate (BBP)	Di-(2-ethylhexyl) Phthalate (DEHP)	Diisobutyl phthalate (DIBP)	Conclusion
38	N.D.	N.D.	N.D.	N.D.	Pass
40	N.D.	N.D.	N.D.	N.D.	Pass
41	N.D.	N.D.	N.D.	N.D.	Pass
42	N.D.	N.D.	N.D.	N.D.	Pass
43	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
48	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.	101	N.D.	Pass
53	N.D.	N.D.	N.D.	N.D.	Pass
55	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
60	N.D.	N.D.	N.D.	N.D.	Pass
63	N.D.	N.D.	N.D.	N.D.	Pass
65	N.D.	N.D.	N.D.	N.D.	Pass
70	N.D.	N.D.	N.D.	N.D.	Pass
(271	N.D.	N.D.	N.D.	N.D.	Pass
72	N.D.	N.D.	N.D.	N.D.	Pass
73	N.D.	N.D.	N.D.	N.D.	Pass
74	N.D.	N.D.	513	N.D.	Pass

**Note:** 1. mg/kg= ppm=0.0001%

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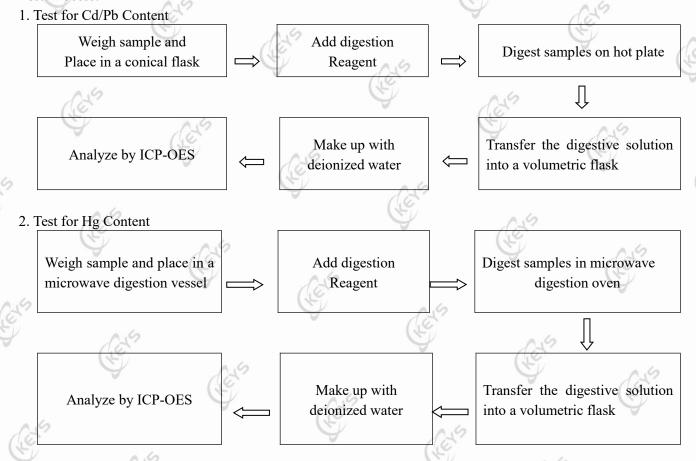
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2. N.D.= Not Detected(<MDL)

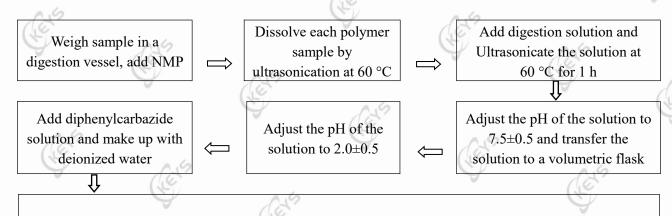
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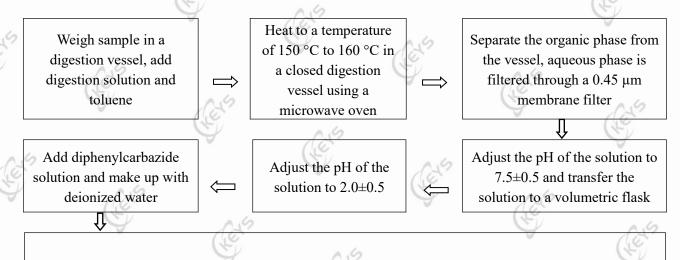
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3. Test for Chromium (VI) Content Soluble polymers:



Analyze the mixture by using UV-VIS Spectrophotometer with wavelength set at 540 nm

Insoluble/unknown polymers and electronics without Sb



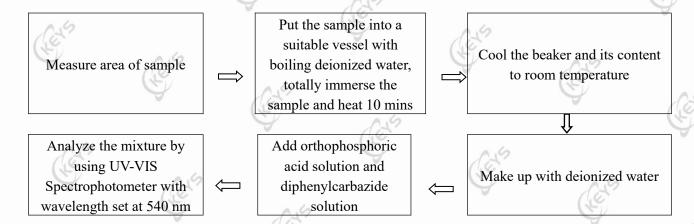
Analyze the mixture by using UV-VIS Spectrophotometer with wavelength set at 540 nm

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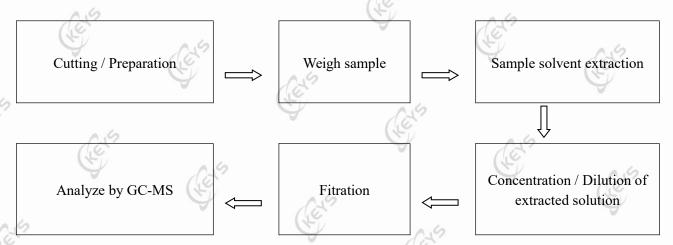


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#### Metal material



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





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**Sample Description:** 

Sample Description	on:
No.	Description
CEP	Brown leather handle
2	Grey printing beige plastic shell
3	Beige plastic casing
4	Black plastic microphone housing
5, 6	Beige plastic fasteners
6	Beige plastic button
7	Beige printing grey metal cover
8	White plastic terminal blocks
9	Black rubber outer skin
10	Black plastic eardrum
11	Black plastic frame
12	Black plastic fasteners
9 13	Black paper fastener
14	Brown eardrum paper
15	Copper-colored metal enameled wire
16	Black printing with grey plastic outer skin battery
17	Black printing with blue plastic outer skin battery
18	Green insulating paper
19	Silvery metal screw
20	Black-gray metal magnet
21	Silvery metal base
22	Silvery metal solder
23	Black non-woven fabric adhesive
24	Silvery plastic shell
25	Yellow metal frame
26	Black non-woven fabric
27	Iridescent metal base
W 7 1/	1 Val

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No.	Description
28	Black plastic casing
29	Black plastic fasteners
30	Silvery metal stylus
31	Silvery metal tp-c port housing
32	White plastic fasteners
33	Silvery metal stylus
34	Black plastic casing
35	Silvery metal square mouth shell
36	White LED light
37	White PCB
38	Green PCB
39	Silvery metal contact piece
40	Coffee-colored plastic terminal blocks
41	Dark red plastic terminal blocks
42	Black plastic casing
43	Green PCB
44	White LED light
45	Black/Silvery metal shell electrolytic capacitors
46	Black plastic button
47	Black resistor
48	Brown capacitor
49	Silvery metal crystal oscillator
50	Black IC
51	Black transistor
52	Green PCB
53	Black plastic button
54	Silvery metal crystal oscillator
55	Black IC

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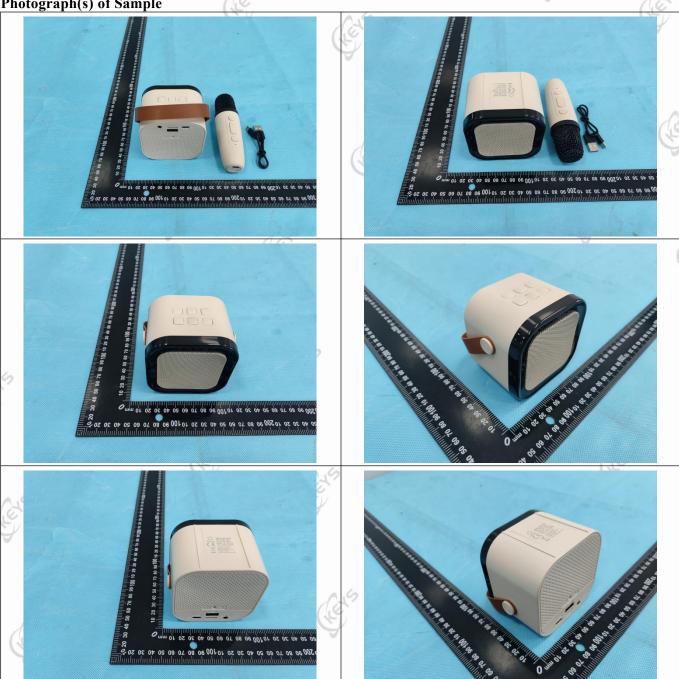
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	0.5
No.	Description
56	White LED light
57	Black resistor
58	Silvery metal tp-c port housing
59	Silvery metal stylus
60	Grayish-black plastic fasteners
61	Silvery metal memory card casing
62	Silvery metal stylus
63	Grayish-black plastic fasteners
64	Silvery metal casing
65	Grayish-black plastic fasteners
66	Silvery metal stylus
67	Silvery metal square mouth shell
68	Silvery metal wire core
69	Copper-colored metal wire core
70	White plastic wire skin
71	Red plastic wire skin
72	Black plastic wire skin
73	Red plastic wire skin
74	Black plastic wire skin
75	Silvery metal solder
76	Silvery metal solder
77	Silvery metal solder
78	Silvery metal solder
79	Silvery metal solder
80	Silvery metal solder



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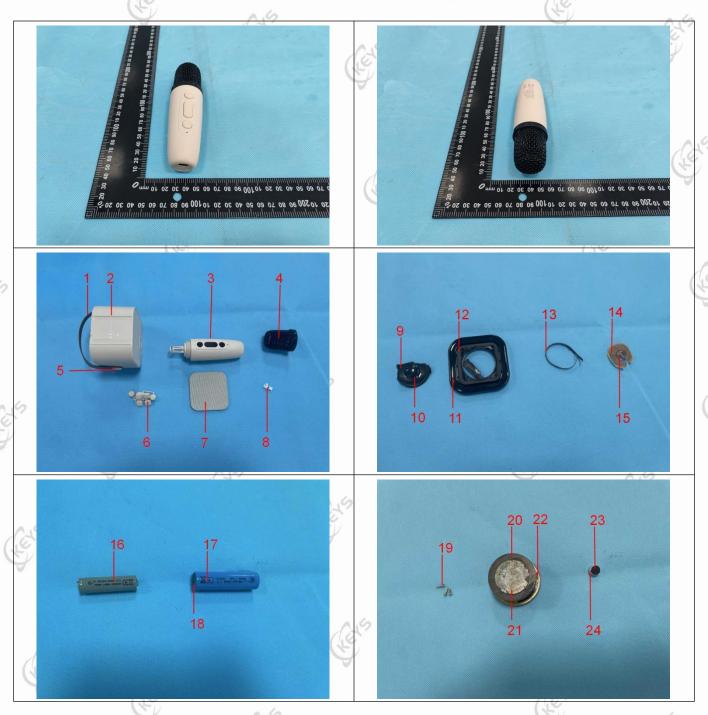
Photograph(s) of Sample



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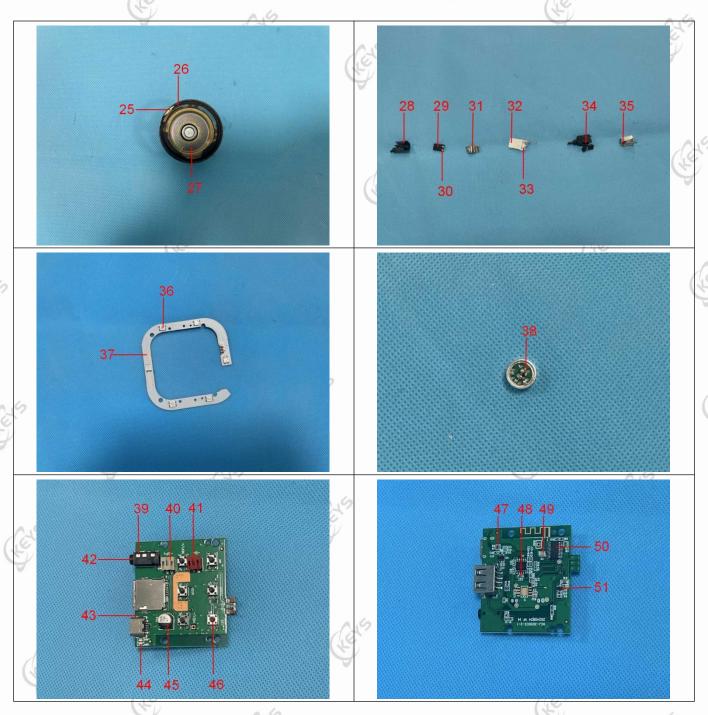
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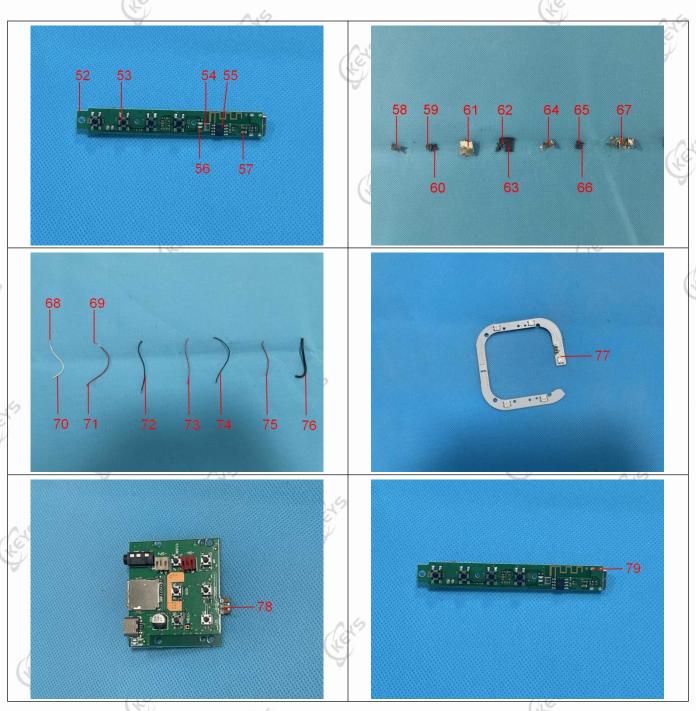
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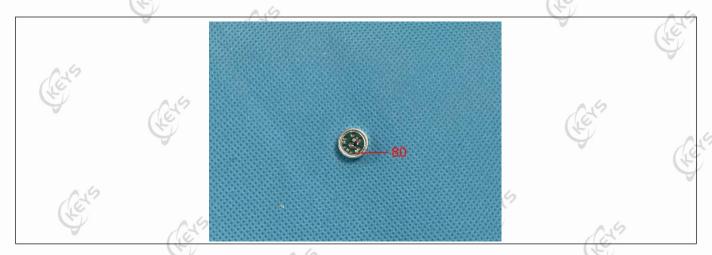
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