



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF22F04082710A1C
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer..... : 114746
Sample Name..... : Wireless bamboo speaker
Sample Model..... : MO6669
Date of Receipt sample..... : 2022-04-28 & 2022-05-27
Testing period..... : 2022-04-28 to 2022-05-20 & 2022-05-27 to 2022-05-30
Date of Issue..... : 2022-06-02
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** (As per client's requirement, to test the specified components. The results of specified components comply with the requirement of EU RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863)

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Sample Photo(s):



**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	Black plastic jacket of USB plug	BL	BL	BL	BL	BL	NA
2	Black plastic core of USB plug	BL	BL	BL	BL	BL	NA
3	White plastic sheet of USB plug	BL	BL	BL	BL	BL	NA
4	Silvery metal shell of USB plug	BL	BL	BL	BL	BL	NA
5	Silvery metal pin of USB plug	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative
6	Solder of USB plug	BL	BL	BL	BL	BL	NA
7	Silvery metal shell of plug	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative
8	Solder of plug	BL	BL	BL	BL	BL	NA
9	Silvery metal pin of plug	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative
10	Black plastic sheet of plug	BL	BL	BL	BL	BL	NA
11	Black plastic jacket of plug	BL	BL	BL	BL	BL	NA
12	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
13	Rose red plastic wire covering	BL	BL	BL	BL	BL	NA
14	Black plastic wire covering	BL	BL	BL	BL	BL	NA
15	Coppery metal wire	BL	BL	BL	BL	BL	NA
16	Beige wood shell	BL	BL	BL	BL	BL	NA
17	Beige glue	BL	BL	BL	BL	BL	NA
18	Yellow transparent plastic adhesive tape	BL	BL	BL	BL	BL	NA
19	Silvery metal screw	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
20	Beige leather	BL	BL	BL	BL	BL	NA
21	White plastic shell	BL	BL	BL	BL	BL	NA
22	Silvery metal cap of loudspeaker	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative
23	Dark grey magnetic ring of loudspeaker	BL	BL	BL	BL	BL	NA
24	Red plastic wire covering	BL	BL	BL	BL	BL	NA
25	Black plastic wire covering	BL	BL	BL	BL	BL	NA
26	Silvery metal wire	BL	BL	BL	BL	BL	NA
27	Silvery metal shell of loudspeaker	BL	BL	BL	BL	BL	NA
28	White paper of loudspeaker	BL	BL	BL	BL	BL	NA
29	Silvery metal rivet of loudspeaker	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative
30	Solder of loudspeaker	BL	BL	BL	BL	BL	NA
31	Black paper ring of loudspeaker	BL	BL	BL	BL	BL	NA
32	Black soft plastic sheet of loudspeaker	BL	BL	BL	BL	BL	NA
33	Black plastic film of loudspeaker	BL	BL	BL	BL	BL	NA
34	Beige fibrous sheet of loudspeaker	BL	BL	BL	BL	BL	NA
35	Coppery metal wire	BL	BL	BL	BL	BL	NA
36	Red enamelled wire	BL	BL	BL	BL	BL	NA
37	Beige paper bobbin	BL	BL	BL	BL	BL	NA
38	Solder wire	BL	BL	BL	BL	BL	NA
39	Yellow-transparent glue of LED	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	Silvery metal sheet with white plating	BL	BL	BL	BL	BL	NA
41	Red metal wire	BL	BL	BL	BL	BL	NA
42	Black body of diode	BL	BL	BL	BL	BL	NA
43	White paper sheet	BL	BL	BL	BL	BL	NA
44	Transparent plastic adhesive tape	BL	BL	BL	BL	BL	NA
45	Chip audion	BL	BL	BL	BL	BL	NA
46	Chip resistor	BL	BL	BL	BL	BL	NA
47	Solder	BL	IN	BL	BL	BL	Pb :305
48	Chip IC	BL	BL	BL	BL	BL	NA
49	Chip resistor	BL	BL	BL	BL	BL	NA
50	Yellow-green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
51	Silvery metal shell of switch	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative
52	Silvery metal sheet of switch	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative
53	Black plastic button of switch	BL	BL	BL	BL	BL	NA
54	Beige plastic base of switch	BL	BL	BL	BL	BL	NA
55	Chip capacitor	BL	BL	BL	BL	BL	NA
56	Silvery metal shell of socket	BL	BL	BL	BL	BL	NA
57	Silvery metal pin of socket	BL	BL	BL	BL	BL	NA
58	Black plastic sheet of socket	BL	BL	BL	BL	BL	NA
59	Chip LED	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	
60	Chip IC	BL	BL	BL	BL	BL	NA
61	Chip oscillator	BL	BL	BL	BL	BL	NA
62	White plastic button of switch	BL	BL	BL	BL	BL	NA
63	Chip IC	BL	BL	BL	BL	BL	NA
64	Chip capacitor	BL	BL	BL	BL	BL	NA
65	Chip resistor	BL	BL	BL	BL	BL	NA
66	Solder	BL	BL	BL	BL	BL	NA
67	Silvery metal sheet	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.
- (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	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.

(11) As per client's requirement, to test the specified components. The test results relate only to the components tested, and it doesn't mean that the whole product complies with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.

2. Phthalates:

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1	<50	<50	<50	<50
T02	2+3+10+21+62 ^Δ	<50	<50	<50	<50
T03	11	88	<50	<50	<50
T04	12	195	<50	100	<50
T05	13	<50	<50	<50	<50
T06	14	<50	<50	<50	<50
T07	16	<50	<50	<50	<50



Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T08	17	<50	<50	<50	<50
T09	18	<50	<50	<50	<50
T10	20	<50	<50	<50	<50
T11	23+36+42+45+46 [△]	<50	<50	<50	<50
T12	24	<50	<50	<50	<50
T13	25	77	<50	<50	<50
T14	28	<50	<50	<50	<50
T15	31	<50	<50	<50	<50
T16	32	<50	<50	<50	<50
T17	33	<50	<50	<50	<50
T18	34	<50	<50	<50	<50
T19	37	<50	<50	<50	<50
T20	39	<50	<50	<50	<50
T21	43	<50	<50	<50	<50
T22	44	<50	<50	<50	<50
T23	48+49+55+59+60 [△]	<50	<50	<50	<50
T24	50+61+63+64+65 [△]	<50	<50	<50	<50
T25	53	<50	<50	<50	<50
T26	54	<50	<50	<50	<50
T27	58	<50	<50	<50	<50

Note:

- (1) "<" = less than
- (2) mg/kg = milligram per kilogram= ppm
- (3) Abbreviation:
"DBP" denotes Dibutyl phthalate, "BBP" denotes Benzyl butyl phthalate (BBP), "DEHP" denotes Bis(2-ethylhexyl)-phthalate, "DIBP" denotes Diisobutyl phthalate, "PHT" denotes Phthalates.

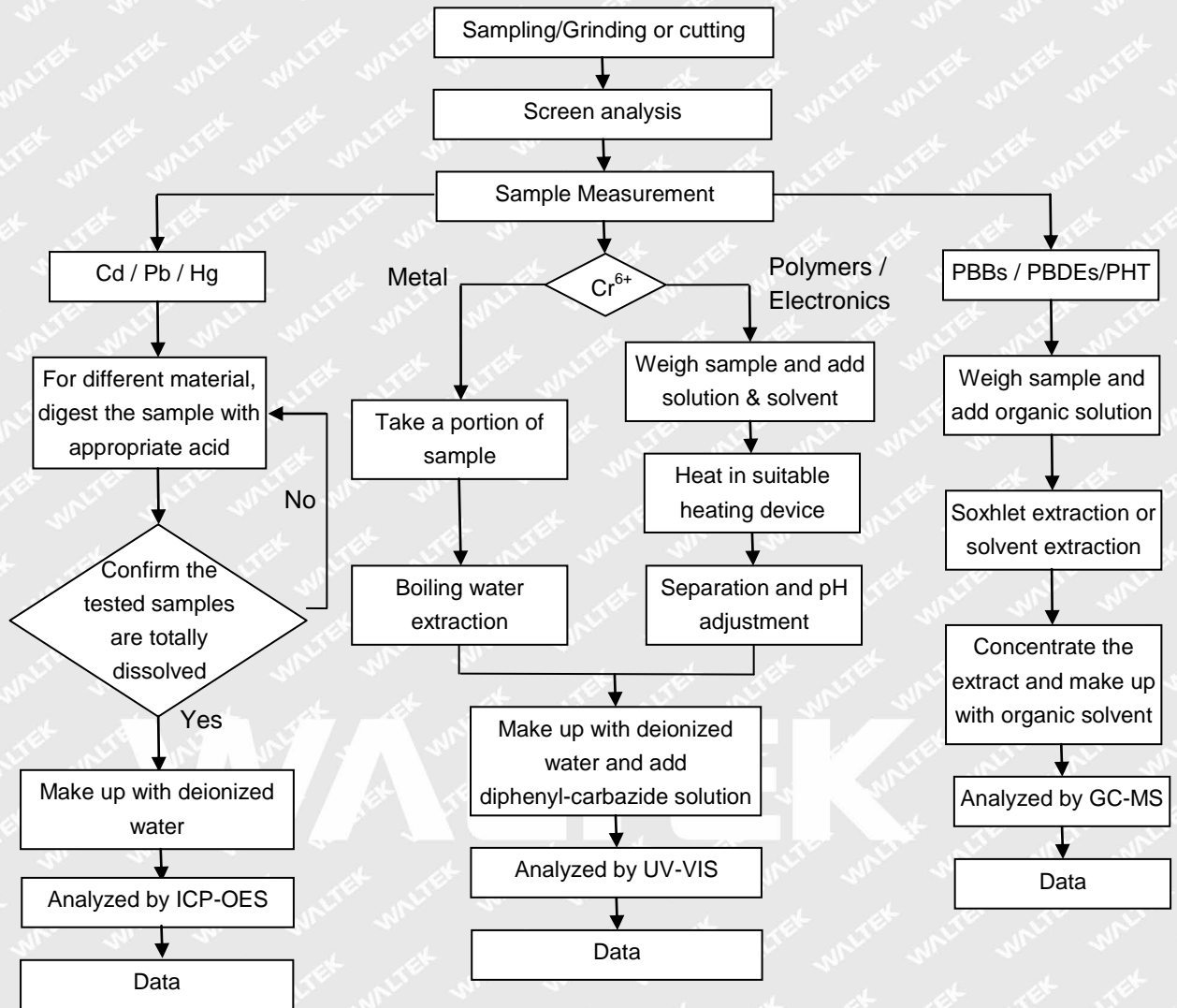
(4) RoHS requirement

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)

- (5) "△" = As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.
- (6) As per client's requirement, to test the specified components. The test results relate only to the components tested, and it doesn't mean that the whole product complies with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.



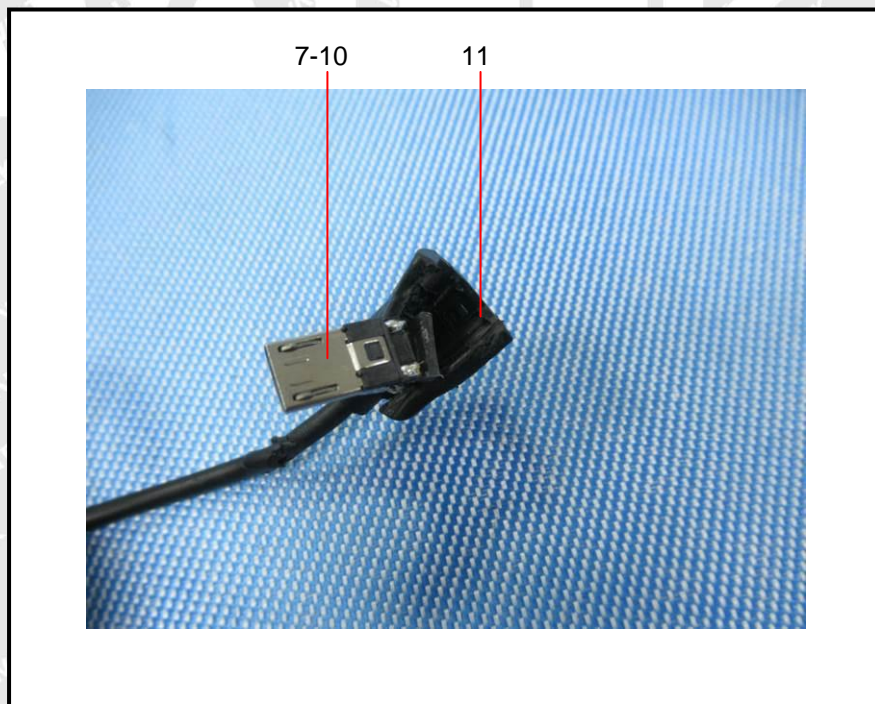
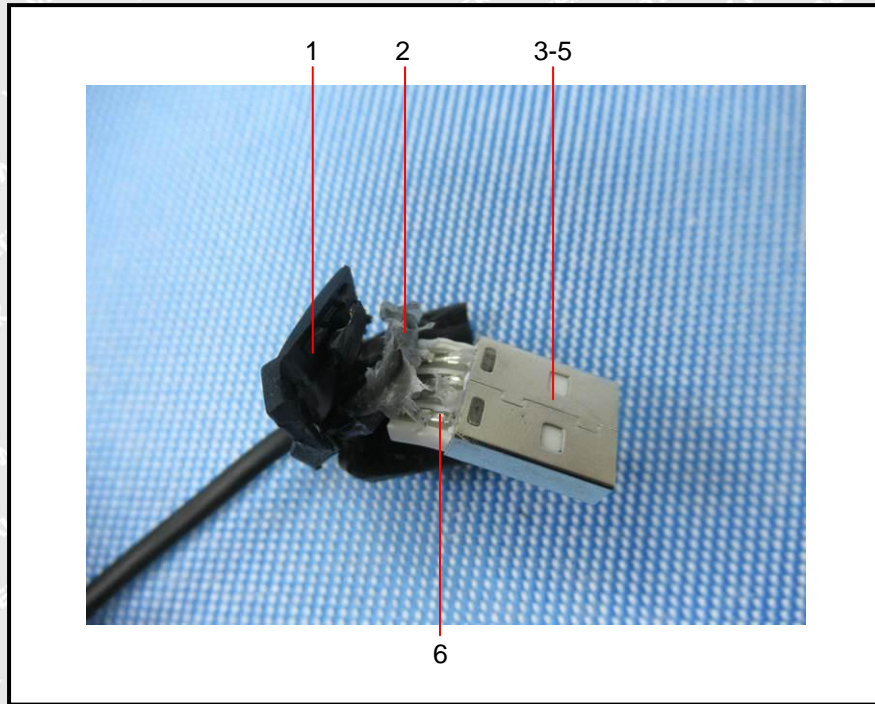
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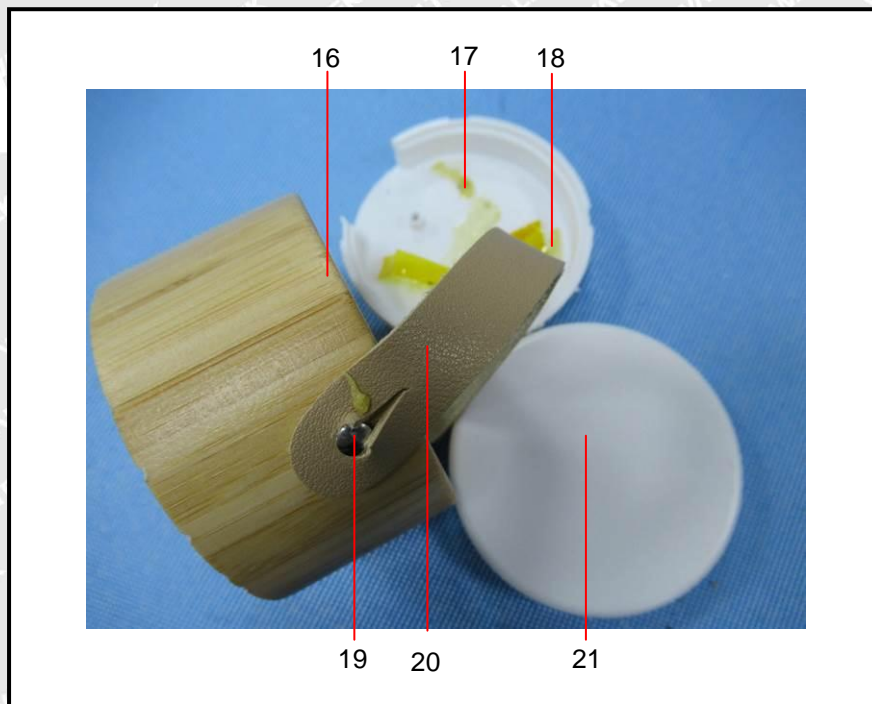
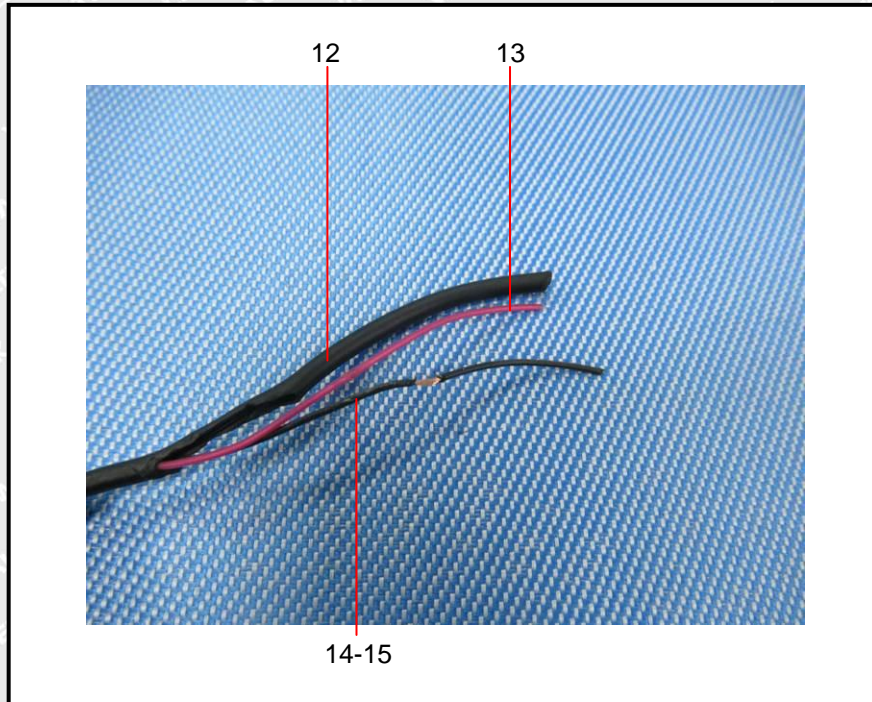


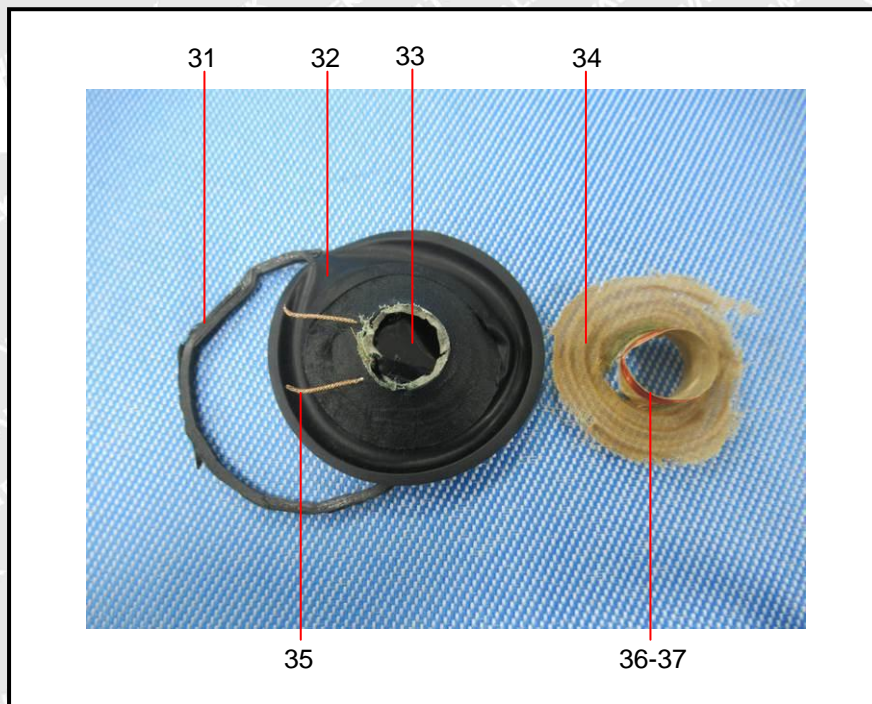
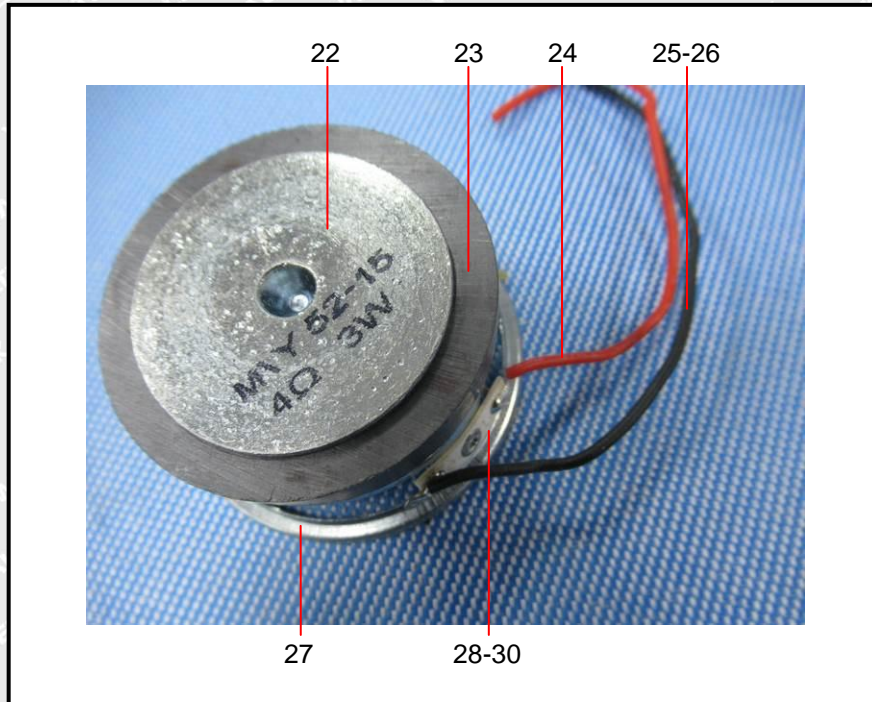


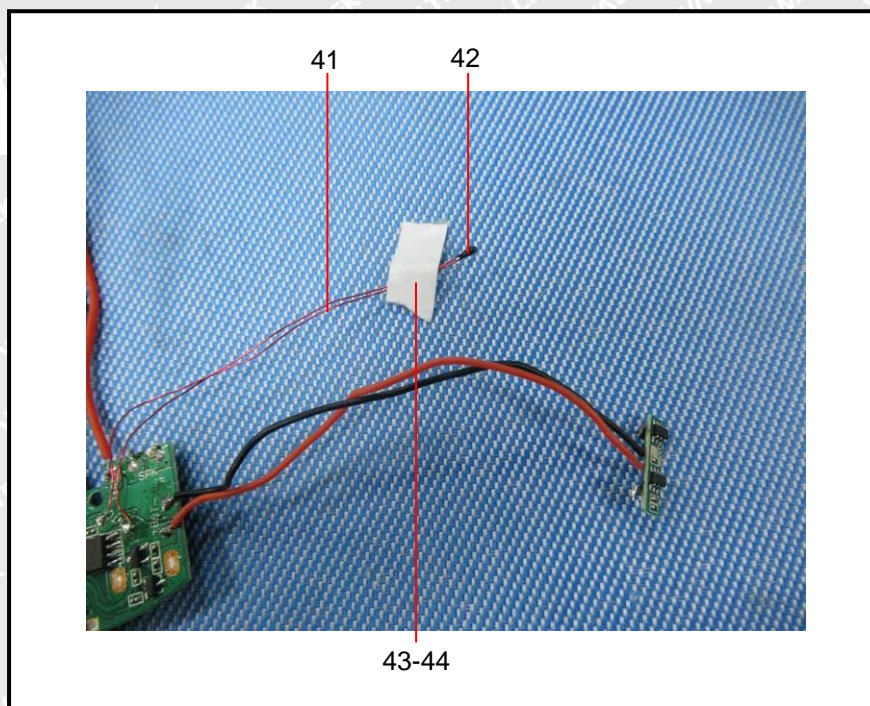
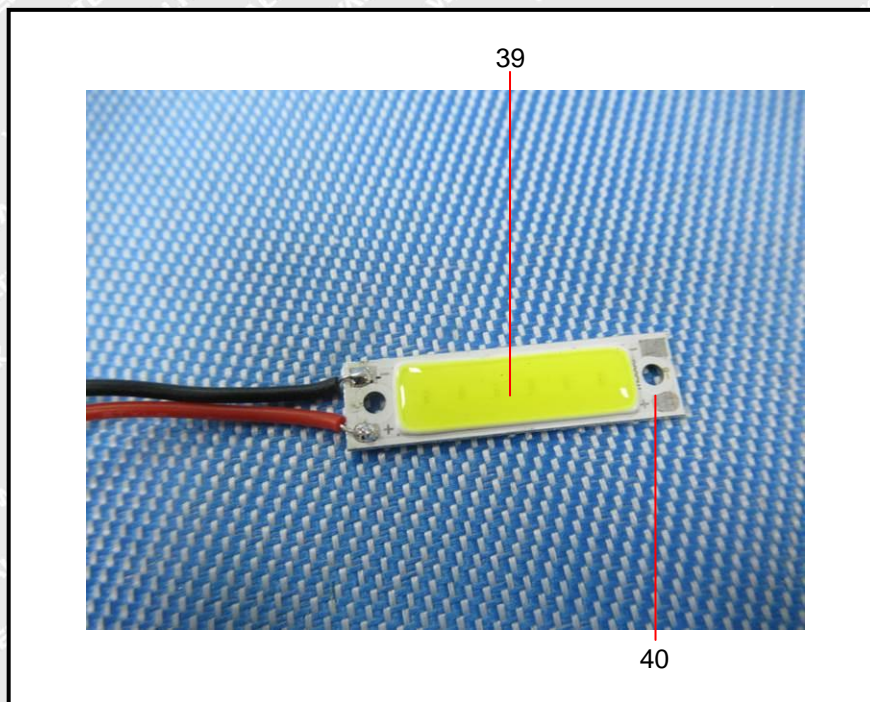
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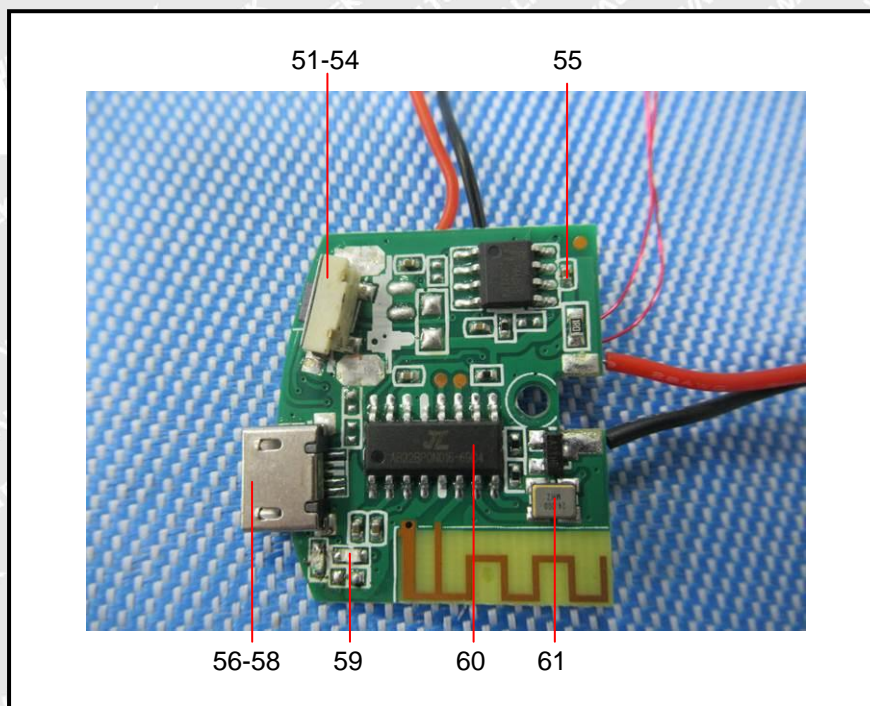
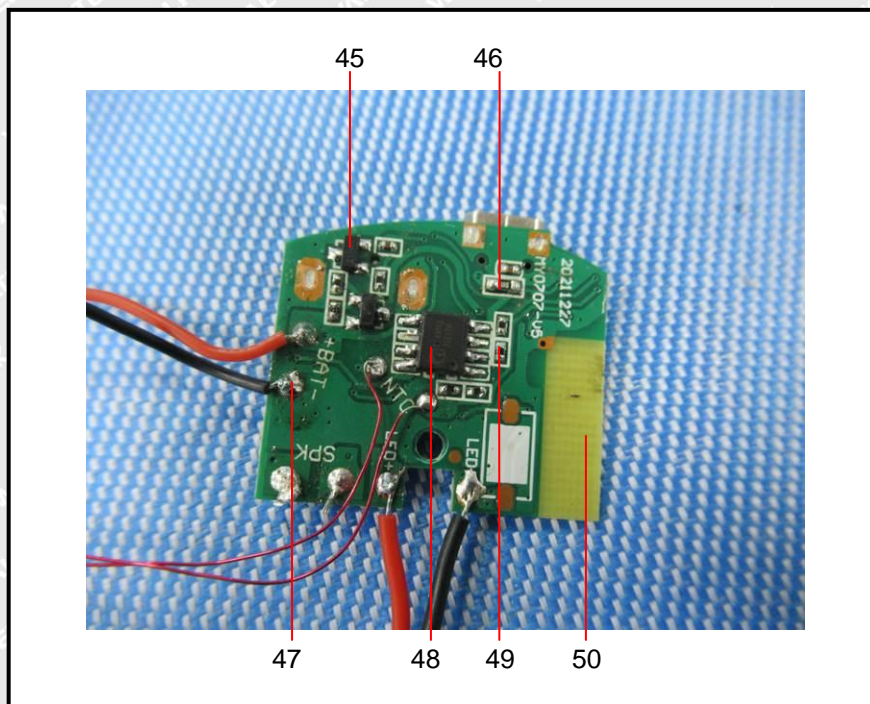
Photograph(s) of parts tested:

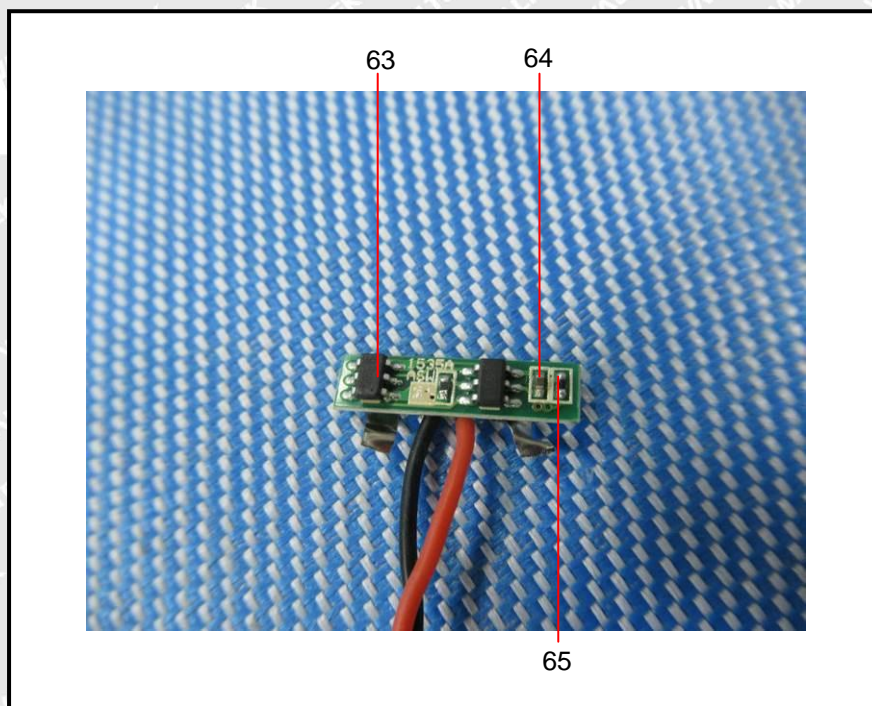
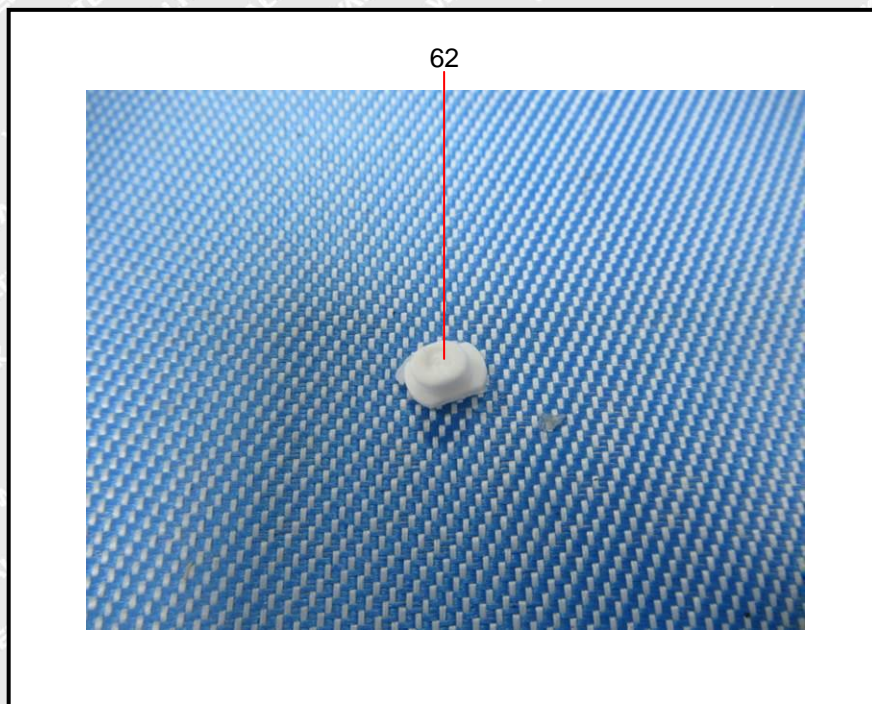


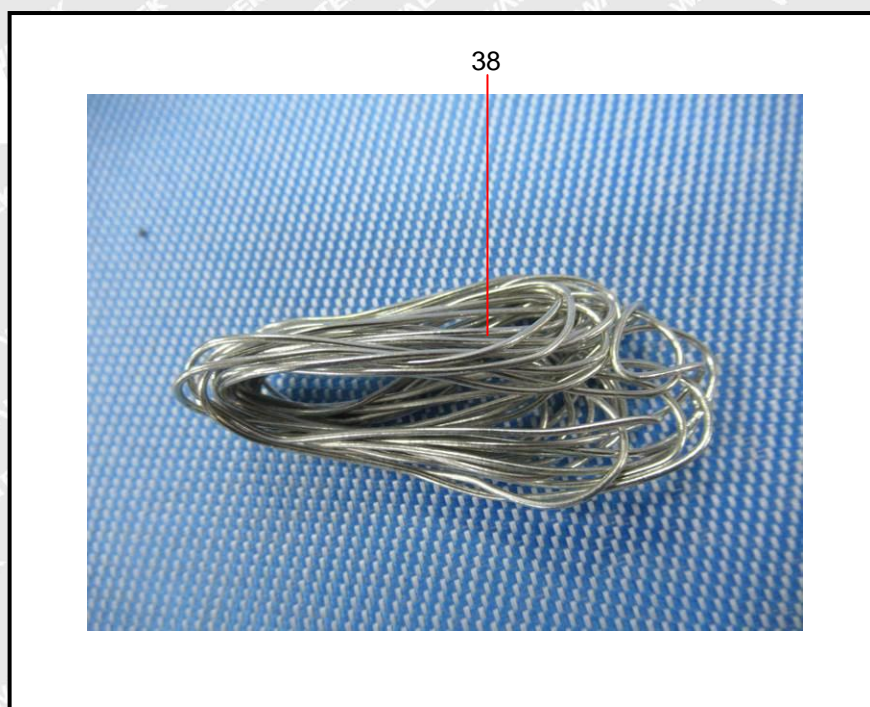
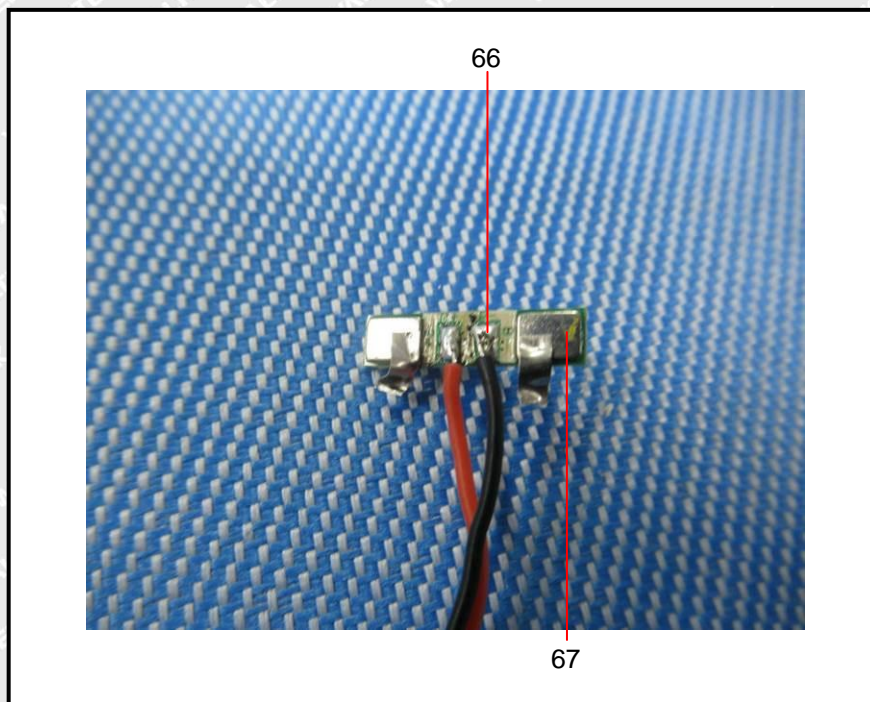














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