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检测
TESTING
CNAS L6478

TEST REPORT

Report No.	:	WTF21F09097243X2C
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	:	Wireless speaker limestone
Model No.	:	MO9916
Sample Receiving Date	:	2021-10-08 & 2021-10-25
Testing Period	:	2021-10-08 to 2021-10-19 & 2021-10-25 to 2021-10-30
Date of Issue	:	2021-12-10
Test Result	:	Please refer to next page (s)
Note	:	This report is based on Waltek test report WTF21F09097243X1C for revising, and replaced report WTF21F09097243X1C.

Remarks:
The results shown in this test report refer only to the sample(s) tested; this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.
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Compiled by: Approved by:

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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 62321-2:2013, 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** (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)

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	Yellow bamboo shell	BL	BL	BL	BL	BL	NA
2	Black fabric	BL	BL	BL	BL	BL	NA
3	Transparent glue	BL	BL	BL	BL	BL	NA
4	Grey marble shell	BL	BL	BL	BL	BL	NA
5	Grey plastic shell	BL	BL	BL	BL	BL	NA
6	Grey plastic sheet	BL	BL	BL	BL	BL	NA
7	Grey plastic sheet	BL	BL	BL	BL	BL	NA
8	Grey plastic ring	BL	BL	BL	BL	BL	NA
9	Grey plastic sheet	BL	BL	BL	BL	BL	NA
10	Grey soft plastic ring	BL	BL	BL	BL	BL	NA
11	Black soft plastic sheet	BL	BL	BL	BL	BL	NA
12	Black soft plastic sheet	BL	BL	BL	BL	BL	NA
13	Slivery metal sheet with black plating	BL	BL	BL	BL	BL	NA
14	Black fibrous net	BL	BL	BL	BL	BL	NA
15	Black plastic sheet	BL	BL	BL	BL	BL	NA
16	Yellow paper	BL	BL	BL	BL	BL	NA
17	Red metal winding	BL	BL	BL	BL	BL	NA
18	Slivery metal shell	BL	BL	BL	BL	BL	NA
19	Slivery magnetic sheet	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	
20	Slivery metal wire	BL	BL	BL	BL	BL	NA
21	Solder	BL	IN	BL	BL	BL	Pb : 305
22	Slivery metal rivet	BL	BL	BL	BL	BL	NA
23	White paper sheet	BL	BL	BL	BL	BL	NA
24	Yellow adhesive plastic tape	BL	BL	BL	BL	BL	NA
25	Black sponge sheet	BL	BL	BL	BL	BL	NA
26	Semi-transparent plastic sheet	BL	BL	BL	BL	BL	NA
27	White plastic core of plug	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
28	Grey plastic jacket of plug	BL	BL	BL	BL	BL	NA
29	Slivery metal pin of plug	BL	BL	BL	BL	BL	NA
30	Solder of plug	BL	BL	BL	BL	BL	NA
31	Slivery metal shell of plug	BL	BL	BL	BL	BL	NA
32	Grey plastic jacket of plug	BL	BL	BL	BL	BL	NA
33	Black plastic core of plug	BL	BL	BL	BL	BL	NA
34	Semi-transparent plastic sheet	BL	BL	BL	BL	BL	NA
35	Solder of plug	BL	BL	BL	BL	BL	NA
36	Slivery metal shell of plug	BL	BL	BL	IN	BL	Cr^{6+} : Negative
37	Slivery metal pin of plug	BL	BL	BL	BL	BL	NA
38	Grey plastic wire jacket	BL	BL	BL	BL	BL	NA
39	Grey plastic wire covering	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	White plastic wire covering	BL	BL	BL	BL	BL	NA
41	Coppery metal wire	BL	BL	BL	BL	BL	NA
42	Black plastic wire covering	BL	BL	BL	BL	BL	NA
43	Red plastic wire covering	BL	BL	BL	BL	BL	NA
44	Slivery metal wire	BL	BL	BL	BL	BL	NA
45	Solder	BL	BL	BL	BL	BL	NA
46	Black plastic wire covering	BL	BL	BL	BL	BL	NA
47	White plastic wire covering	BL	BL	BL	BL	BL	NA
48	Slivery metal wire	BL	BL	BL	BL	BL	NA
49	Slivery metal sheet	BL	BL	BL	BL	BL	NA
50	Chip resistor	BL	BL	BL	IN	BL	Cr^{6+} : ND
51	Chip IC	BL	BL	BL	BL	BL	NA
52	Chip capacitor	BL	BL	BL	BL	BL	NA
53	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
54	Chip diode	BL	BL	BL	BL	BL	NA
55	Slivery metal shell of socket	BL	BL	BL	BL	BL	NA
56	Black plastic core of socket	BL	BL	BL	BL	BL	NA
57	Slivery metal pin of socket	BL	BL	BL	BL	BL	NA
58	Chip oscillator	BL	BL	BL	BL	BL	NA
59	Black plastic base	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	Coppery metal button of switch	BL	BL	BL	BL	BL	NA
61	Slivery metal shell of switch	BL	BL	BL	IN	BL	Cr^{6+} : Negative
62	Yellow adhesive tape	BL	BL	BL	BL	BL	NA
63	Slivery metal sheet of switch	BL	BL	BL	IN	BL	Cr^{6+} : Negative
64	Black plastic base of switch	BL	BL	BL	BL	BL	NA
65	Solder	BL	BL	BL	BL	BL	NA
66	Chip capacitor	BL	BL	BL	BL	BL	NA
67	Chip resistor	BL	BL	BL	BL	BL	NA
68	Chip IC	BL	BL	BL	BL	BL	NA
69	Chip IC	BL	BL	BL	BL	BL	NA
70	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
71	Solder	BL	BL	BL	BL	BL	NA
72	White glue	BL	BL	BL	BL	BL	NA
73	Black body of resistor	BL	BL	BL	BL	BL	NA
74	Slivery metal screw	BL	BL	BL	BL	BL	NA
75	Slivery metal screw	BL	BL	BL	IN	BL	Cr^{6+} : Negative

Remark:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) 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 ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < 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, $\mu g/cm^2$= 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	$\mu g/cm^2$	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 Cr^{6+} for polymer and composite sample is 8mg/kg and LOQ of Cr^{6+} for metal sample is 0.1$\mu g/cm^2$.

(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 Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10ug/cm^2.

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm^2.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} 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.

2. Phthalates:

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1	<50	<50	<50	<50
T02	2	<50	<50	<50	<50
T03	3	<50	<50	<50	<50
T04	4+19+53+70△	<50	<50	<50	<50
T05	5+6△	<50	<50	<50	<50
T06	7+8+9△	<50	<50	166	<50
T07	10	<50	<50	<50	<50
T08	11	<50	<50	<50	<50
T09	12	185	<50	200	<50
T10	14	<50	<50	<50	<50
T11	15	<50	<50	404	<50
T12	16	<50	<50	<50	<50
T13	23	<50	<50	<50	<50
T14	24	610	<50	99	<50
T15	25	85	<50	254	<50
T16	26+27△	<50	<50	<50	<50
T17	28	<50	<50	<50	<50
T18	32	<50	<50	<50	<50
T19	33+34△	<50	<50	<50	<50
T20	38	<50	<50	<50	<50
T21	39	<50	<50	<50	<50
T22	40	<50	<50	<50	<50
T23	42	292	<50	87	<50
T24	43	242	<50	84	<50
T25	46	<50	<50	<50	<50
T26	47	129	<50	<50	<50
T27	50+51+52+54+58△	<50	<50	<50	<50
T28	56	<50	<50	<50	<50
T29	59	<50	<50	<50	<50
T30	62	<50	<50	<50	<50
T31	64	<50	<50	<50	<50
T32	66+67+68+69△	<50	<50	<50	<50
T33	72	<50	<50	105	<50
T34	73	<50	<50	<50	<50

Note:

(1) "<" = less than

(2) mg/kg = milligram per kilogram= ppm

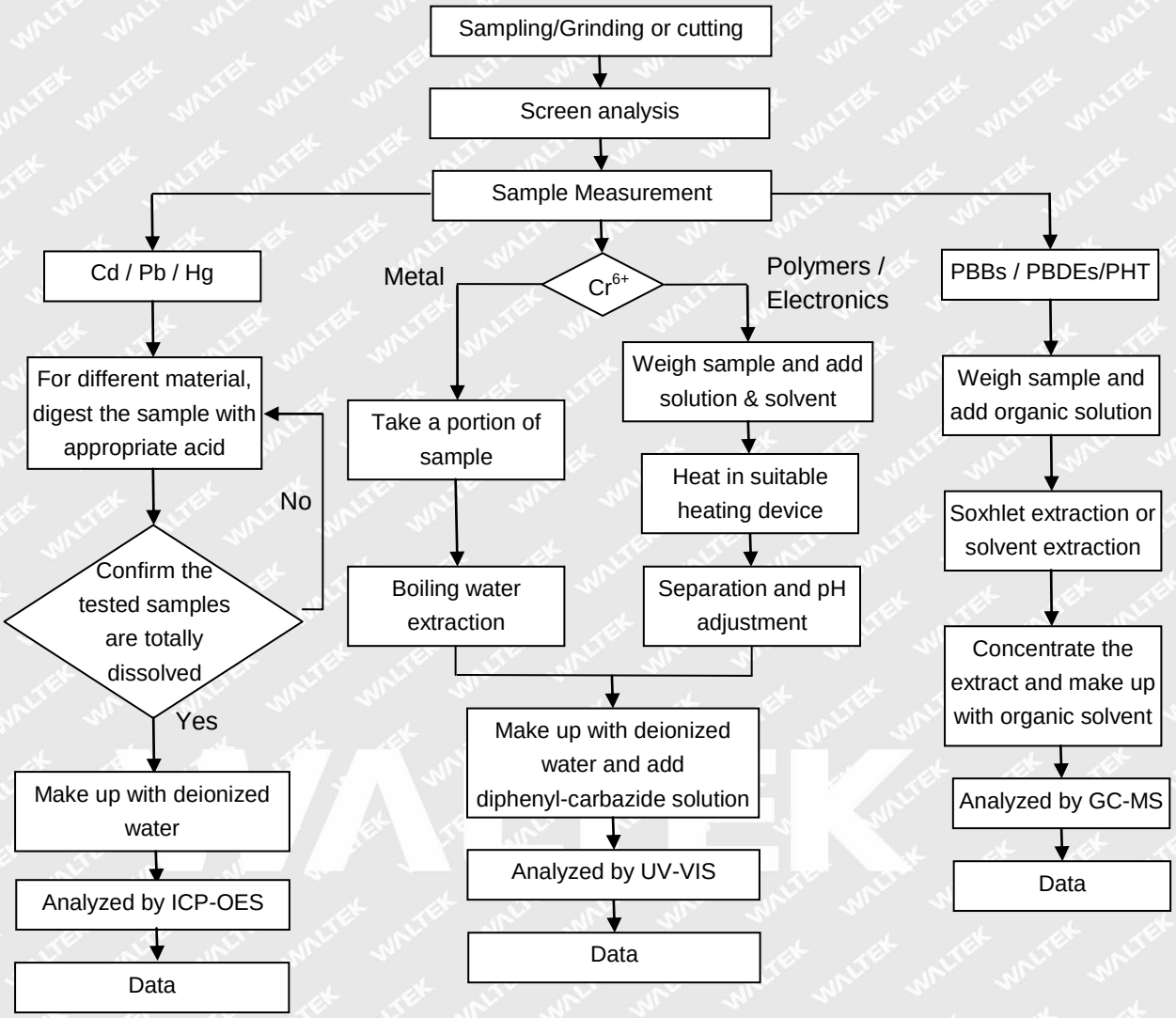
(3) Abbreviation:
"DBP" denotes Dibutyl phthalate, "BBP" denotes Benzyl butyl phthalate (BBP), "DEHP" denotes Bis(2-ethylhexyl)-phthalate, "DIBP" denotes Diisobutyl phthalate, "PHT" denotes Phthalates.

(4) RoHS requirement

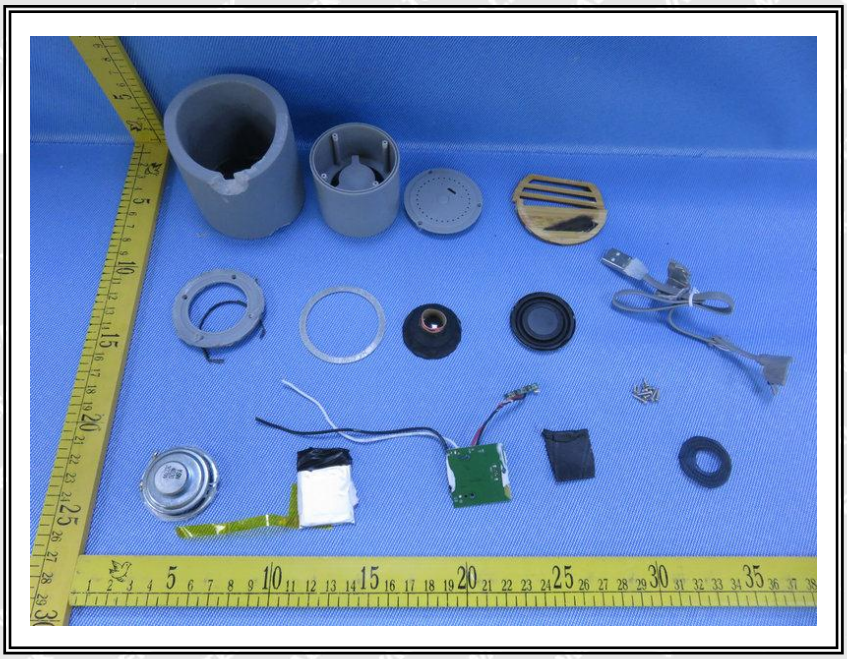
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

(5) "△"= As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

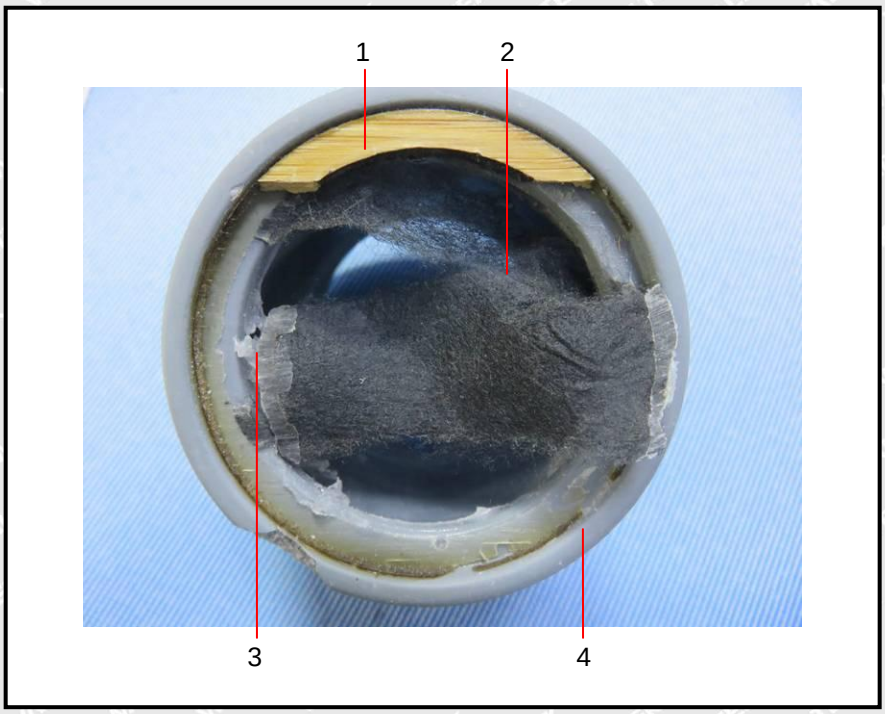
Measurement Flowchart:

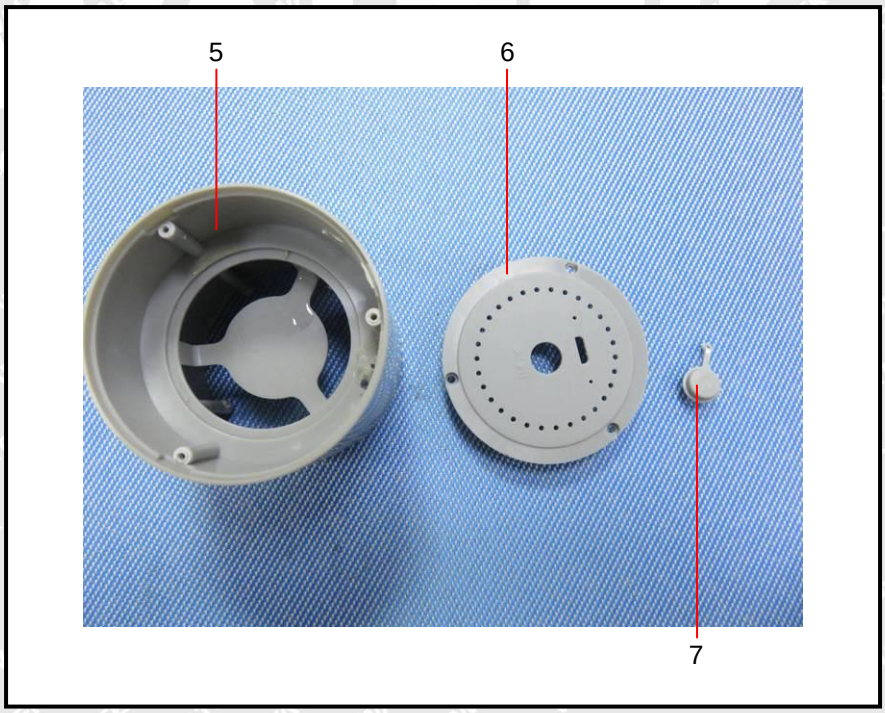


Sample Photo(s):



Photograph(s) of parts tested:



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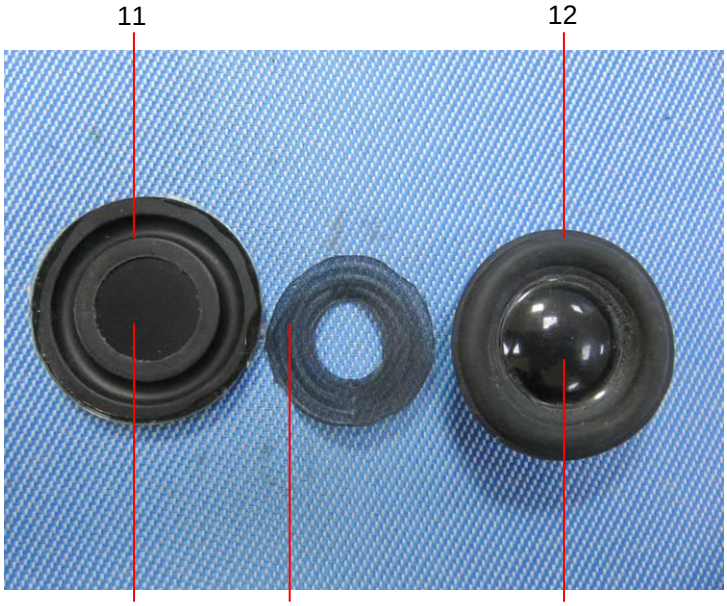
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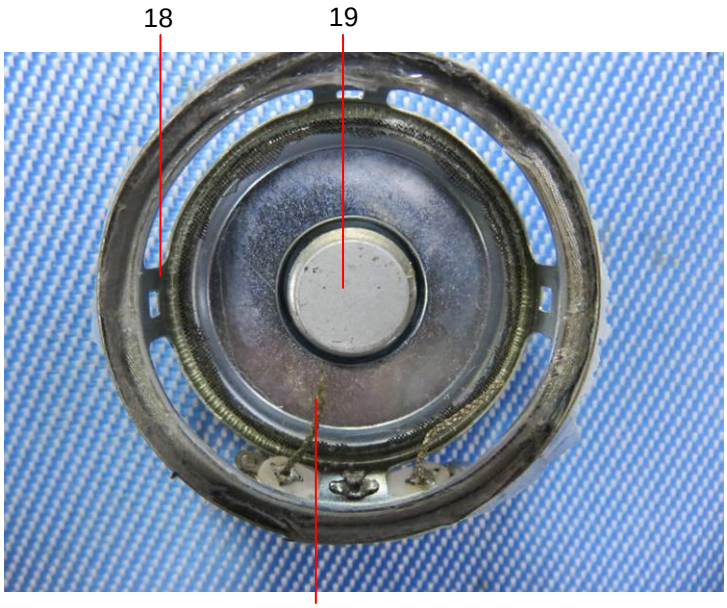
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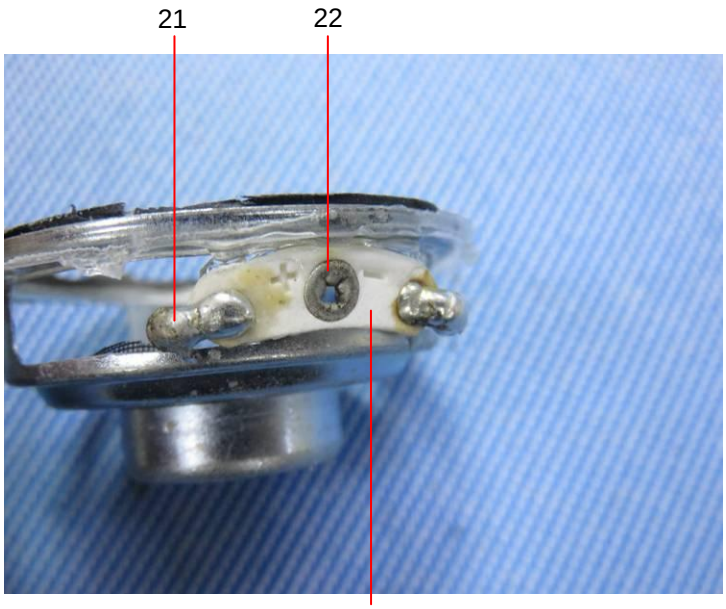
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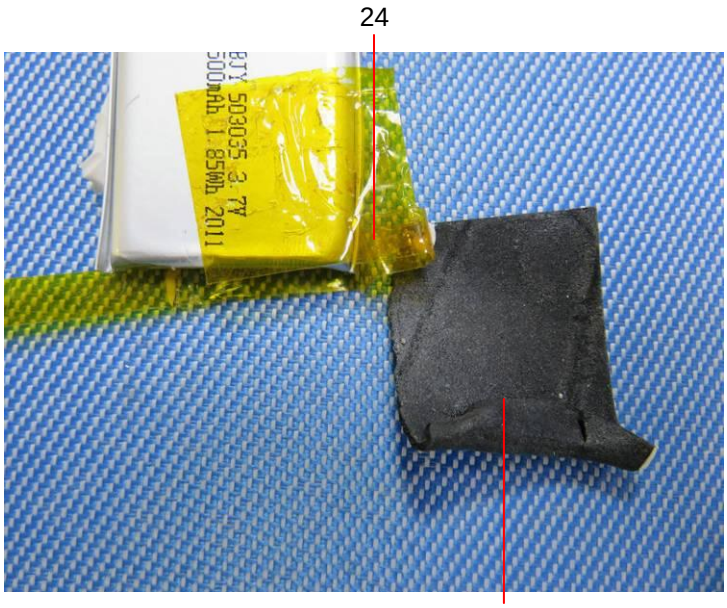
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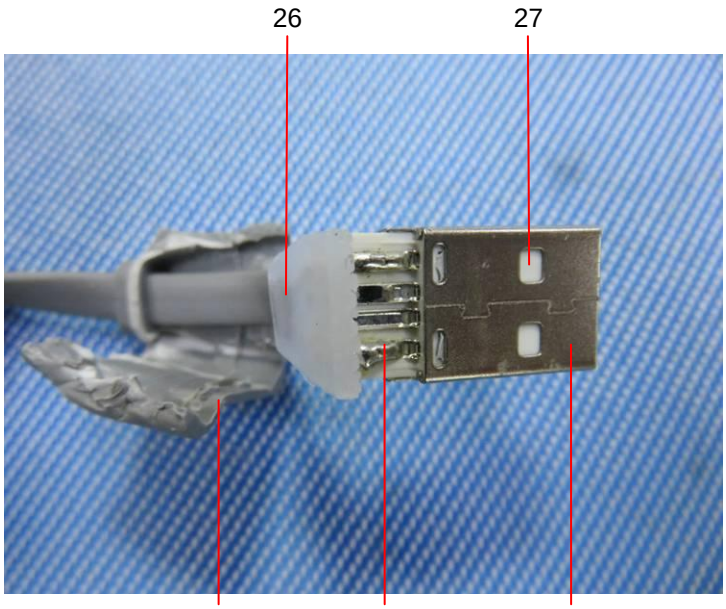
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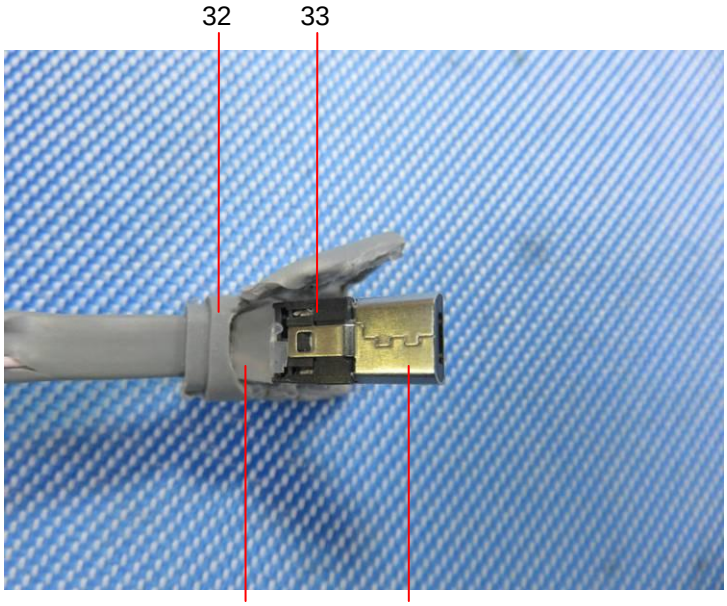
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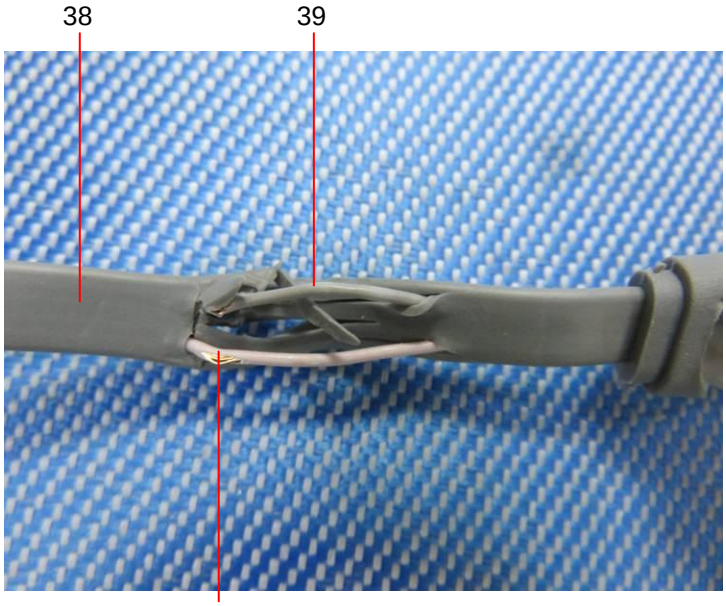
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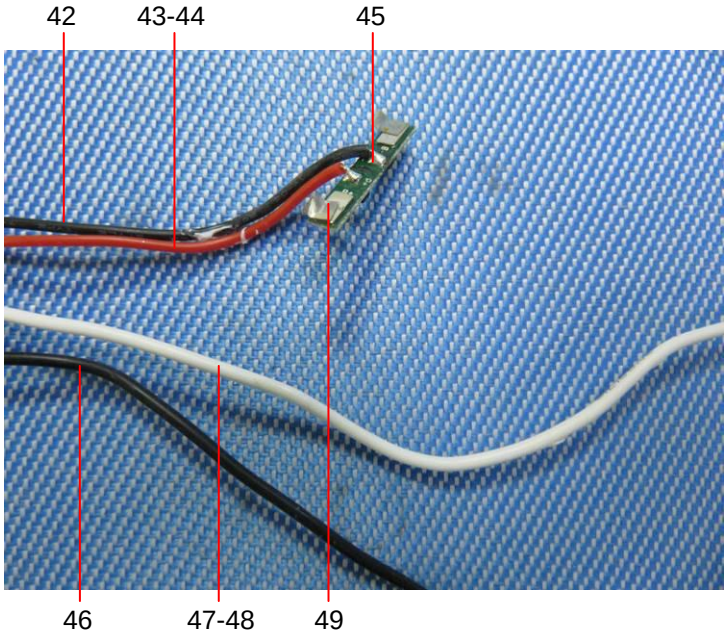
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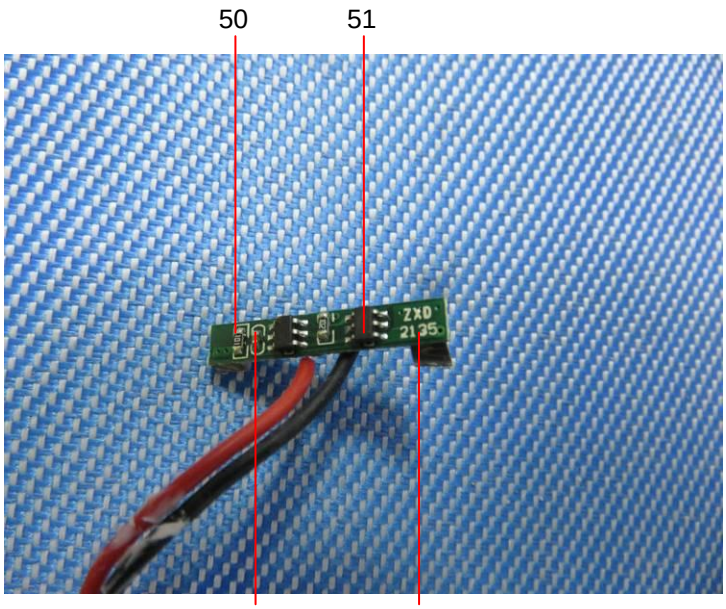
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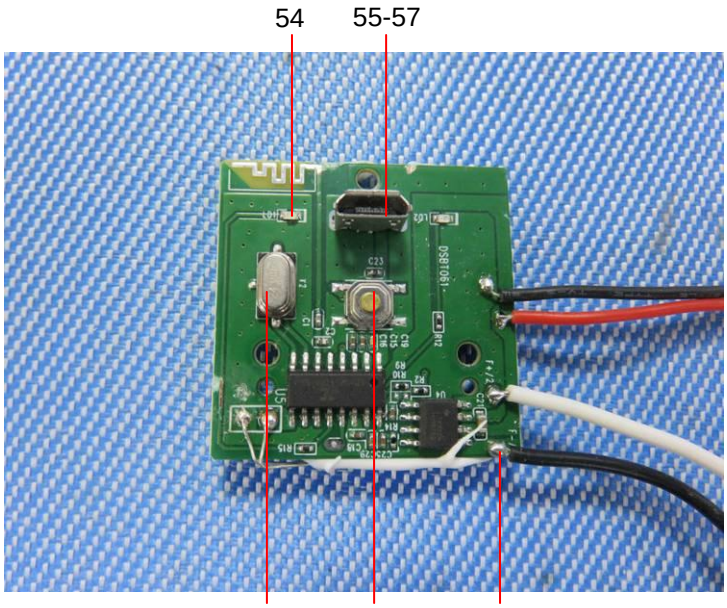
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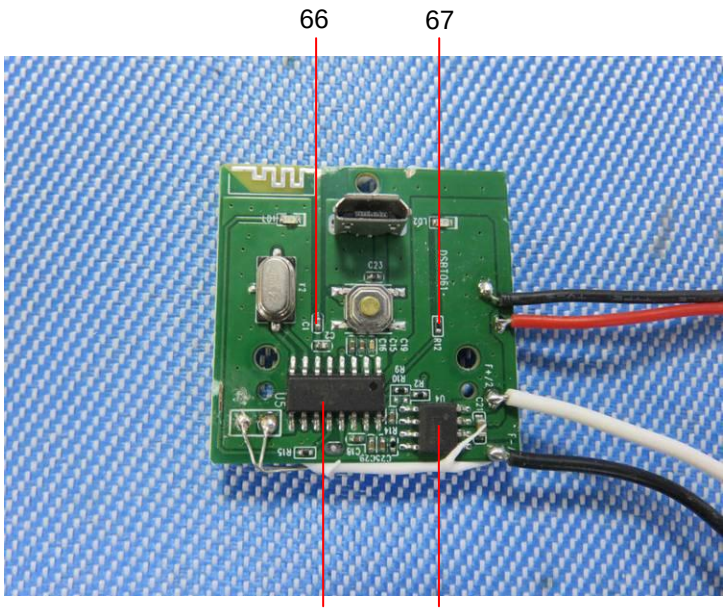
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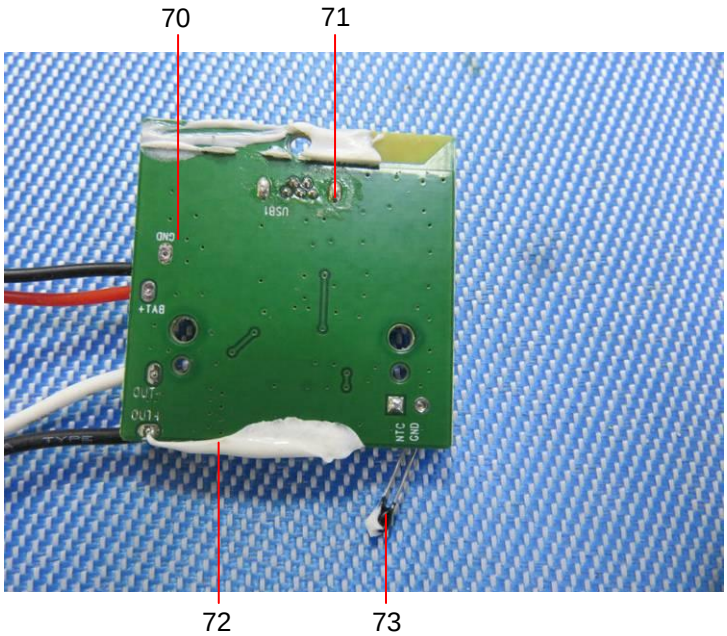
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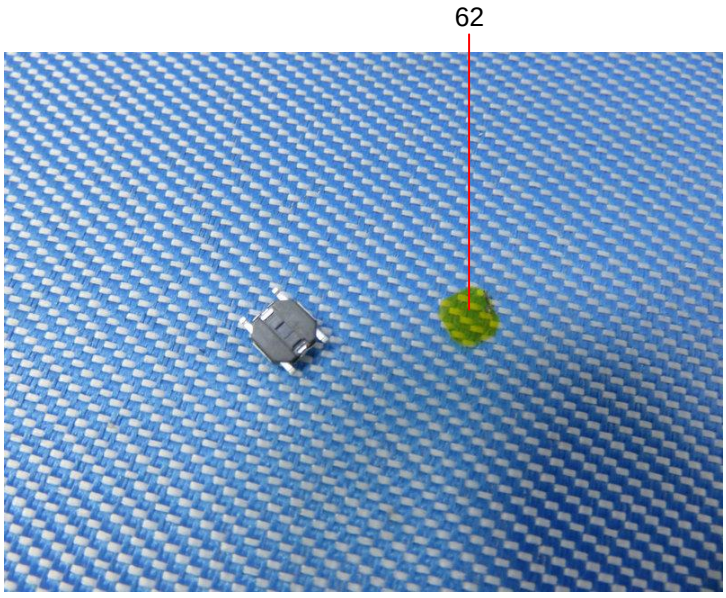

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