



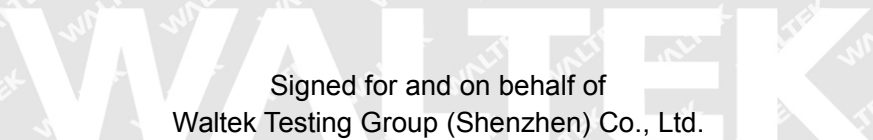
TEST REPORT

Report No. : WTX20X06041392X1C

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Applicant..... : Lumi United Technology Co., Ltd
Applicant Address..... : 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen.China.
Manufacturer..... : Lumi United Technology Co., Ltd
Manufacturer Address.... : 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen.China.
Date of Receipt Sample.. : Jul.01, 2020
Testing Period..... : Jul.01, 2020 to Jul.20, 2020
Date Of Issue..... : Jul.20, 2020
Test Requested..... : 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.
Test Conclusion..... : **Pass** (Based on the performed tests on the submitted samples, the results comply with the requirement of EU RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863).

*****FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) *****



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

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Reviewed by:

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Declaration: 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 considered invalidated without specific seal for test institute and the signatures of compiler and approver.



Sample Name..... : Hub M1S

Model No. : HM1S-G01

Reference Model No. : N/A

Brand..... : Aqara

Test Method:

- IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry (XRF)
- IEC 62321-4-2013+AMD1:2017 CSV for mercury (Hg), analyzed by ICP-OES
- IEC 62321-5-2013 for lead (Pb) and cadmium (Cd), analyzed by ICP-OES
- IEC 62321-7-2:2017 and/or IEC 62321-7-1:2015 for hexavalent chromium (Cr⁶⁺), analyzed by UV-Vis
- IEC 62321-6-2015 for PBBs and PBDEs, analyzed by GC-MS
- IEC 62321-8:2017 for phthalates, analyzed by GC-MS

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**Test Results:****1. Lead, Mercury, Cadmium, Hexavalent Chromium, PBBs and PBDEs**

No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
1	Silvery metal sheet PIN	BL	BL	BL	BL	NA	NA
2	Silvery metal PIN	BL	BL	BL	BL	NA	NA
3	White plastic shell	BL	BL	BL	BL	BL	NA
4	White plastic frame	BL	BL	BL	BL	BL	NA
5	Translucent plastic ring	BL	BL	BL	BL	BL	NA
6	White rubber footpad	BL	BL	BL	BL	BL	NA
7	Silvery metal screw	BL	BL	BL	BL	NA	NA
8	Golden cladding metal dot (antenna)	BL	BL	BL	BL	NA	NA
9	Gray plastic wire jacket (antenna) 1	BL	BL	BL	BL	BL	NA
10	Silvery metal core (antenna)	BL	BL	BL	BL	NA	NA
11	Solder (antenna)	BL	BL	BL	BL	NA	NA
12	Black/brown FPC plate (antenna)	BL	BL	BL	BL	BL	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
13	Black sponge (loudspeaker)	BL	BL	BL	BL	BL	NA
14	Black drum paper (loudspeaker)	BL	BL	BL	BL	BL	NA
15	Coppery metal coil w/brown paper (loudspeaker)	BL	BL	BL	BL	NA	NA
16	Brown metal net cover (loudspeaker)	BL	BL	BL	BL	NA	NA
17	Silvery metal shielding case (loudspeaker)	BL	BL	BL	BL	NA	NA
18	Coppery metal down-lead (loudspeaker)	BL	BL	BL	BL	NA	NA
19	White hard paper piece (loudspeaker)	BL	BL	BL	BL	BL	NA
20	Silvery metal w/hole (loudspeaker)	BL	BL	BL	BL	NA	NA
21	Solder (loudspeaker)	BL	BL	BL	BL	NA	NA
22	Black plastic wire jacket (loudspeaker) 2	BL	BL	BL	BL	BL	NA
23	Red plastic wire jacket (loudspeaker) 2	BL	BL	BL	BL	BL	NA
24	Silvery metal core (loudspeaker)	BL	BL	BL	BL	NA	NA
25	Yellow plastic film adhesive tape (Transformer)	BL	BL	BL	BL	BL	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
26	Black plastic base (Transformer)	BL	BL	BL	BL	BL	NA
27	Grey body w/multicolor printing (Winding resistance)	BL	BL	BL	BL	BL	NA
28	Silvery metal PIN (Winding resistance)	BL	BL	BL	BL	NA	NA
29	Black plastic w/white printing (capacitor) 1	BL	BL	BL	BL	BL	NA
30	Black rubber cover (capacitor) 1	BL	BL	BL	BL	BL	NA
31	Silvery metal shell (capacitor) 1	BL	BL	BL	BL	NA	NA
32	Silvery metal PIN (capacitor) 1	BL	BL	BL	BL	NA	NA
33	Black plastic w/white printing (capacitor) 2	BL	BL	BL	BL	BL	NA
34	Black rubber cover (capacitor) 2	BL	BL	BL	BL	BL	NA
35	Silvery metal shell (capacitor)	BL	BL	BL	BL	NA	NA
36	Silvery metal PIN (capacitor) 2	BL	BL	BL	BL	NA	NA
37	Black plastic w/white printing (capacitor) 3	BL	BL	BL	BL	BL	NA
38	Black rubber cover (capacitor) 3	BL	BL	BL	BL	BL	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
39	Silvery metal shell (capacitor) 3	BL	BL	BL	BL	NA	NA
40	Silvery metal PIN (capacitor) 3	BL	BL	BL	BL	NA	NA
41	Blue body (Y capacitor)	BL	BL	BL	BL	BL	NA
42	Silvery metal PIN (Y capacitor)	BL	BL	BL	BL	NA	NA
43	Blue body (Y capacitor)	BL	BL	BL	BL	BL	NA
44	Silvery metal PIN (Y capacitor)	BL	BL	BL	BL	NA	NA
45	Yellow plastic film adhesive tape (Transformer)	BL	BL	BL	BL	BL	NA
46	Black plastic base (Transformer)	BL	BL	BL	BL	BL	NA
47	Coppery metal coil (Transformer)	BL	BL	BL	BL	NA	NA
48	Black plastic	BL	BL	BL	BL	IN	PBBs: ND PBDEs: ND
49	Silvery metal PIN	BL	BL	BL	BL	NA	NA
50	Gray solid material (Inductance)	BL	BL	BL	IN	NA	Cr ⁶⁺ : Negative
51	Black IC SMD	BL	BL	BL	BL	BL	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
52	Black IC SMD	BL	BL	BL	BL	BL	NA
53	Black IC SMD	BL	BL	BL	BL	BL	NA
54	Black IC SMD	BL	BL	BL	BL	BL	NA
55	Black IC SMD	BL	BL	BL	BL	BL	NA
56	Silvery metal	BL	BL	BL	BL	NA	NA
57	Solder	BL	BL	BL	BL	NA	NA
58	Cream plastic (socket)	BL	BL	BL	BL	BL	NA
59	Silvery metal PIN (socket)	BL	BL	BL	BL	NA	NA
60	Black IC SMD	BL	BL	BL	BL	BL	NA
61	Black plastic button (button)	BL	BL	BL	BL	BL	NA
62	Silvery square metal body (button)	BL	BL	BL	BL	NA	NA
63	Silvery metal sheet (button)	BL	BL	BL	BL	NA	NA
64	Transparent body (LED)	BL	BL	BL	BL	BL	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
65	Silvery metal PIN (LED)	BL	BL	BL	BL	NA	NA
66	Black cladding PCB board	BL	BL	BL	BL	IN	PBBs: ND PBDEs: ND
67	Solder	BL	BL	BL	BL	NA	NA



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**Note:**

- (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 centimeter.
- (5) ND = Not Detected, less than the value of Method Detection Limit.
- (6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the chemical testing.
- (7) MDL= Method Detection Limit in chemical test.

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
MDL	10	10	10	10	0.1	10

The MDL for single compound of PBBs and PBDEs is 10mg/kg, MDL of Cr⁶⁺ for polymer and composite sample is 10mg/kg and MDL of Cr⁶⁺ for metal sample is 0.1 $\mu\text{g}/\text{cm}^2$.

- (8) Requirement as per RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863

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, “Cr⁶⁺” denotes Hexavalent Chromium, “Br” denotes Bromine, “PBBs” denotes Total Polybrominated Biphenyls, “PBDEs” denotes Total Polybrominated Diphenyl Ethers.



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**2. Phthalates (DEHP, BBP, DBP, DIBP)**

No.	Screening Result (mg/kg)				Result of Chemical Testing (mg/kg)			
	DEHP	DBP	BBP	DIBP	DEHP	DBP	BBP	DIBP
3	BL	BL	BL	BL	--	--	--	--
4	BL	BL	BL	BL	--	--	--	--
5	BL	BL	BL	BL	--	--	--	--
6	BL	BL	BL	BL	--	--	--	--
9	BL	BL	BL	BL	--	--	--	--
12	BL	BL	BL	BL	--	--	--	--
13	BL	BL	BL	BL	--	--	--	--
14	BL	BL	BL	BL	--	--	--	--
19	BL	BL	BL	BL	--	--	--	--
22	BL	BL	BL	BL	--	--	--	--
23	BL	BL	BL	BL	--	--	--	--
25	BL	BL	BL	BL	--	--	--	--
26	BL	BL	BL	BL	--	--	--	--
27	BL	BL	BL	BL	--	--	--	--
29	BL	BL	BL	BL	--	--	--	--
30	BL	BL	BL	BL	--	--	--	--
33	BL	BL	BL	BL	--	--	--	--
34	BL	BL	BL	BL	--	--	--	--
37	BL	BL	BL	BL	--	--	--	--
38	BL	BL	BL	BL	--	--	--	--
41	BL	BL	BL	BL	--	--	--	--
43	BL	BL	BL	BL	--	--	--	--
45	BL	BL	BL	BL	--	--	--	--
46	BL	BL	BL	BL	--	--	--	--
48	BL	BL	BL	BL	--	--	--	--
51	BL	BL	BL	BL	--	--	--	--
52	BL	BL	BL	BL	--	--	--	--
53	BL	BL	BL	BL	--	--	--	--
54	BL	BL	BL	BL	--	--	--	--
55	BL	BL	BL	BL	--	--	--	--
58	BL	BL	BL	BL	--	--	--	--



No.	Screening Result (mg/kg)				Result of Chemical Testing (mg/kg)			
	DEHP	DBP	BBP	DIBP	DEHP	DBP	BBP	DIBP
60	BL	BL	BL	BL	--	--	--	--
61	BL	BL	BL	BL	--	--	--	--
64	BL	BL	BL	BL	--	--	--	--
66	BL	BL	BL	BL	--	--	--	--

Note:

- (1) mg/kg =milligram per kilogram= ppm.
(2) Requirement as per RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863

Test Item(s)	Limit (mg/kg)
Bis (2-ethylhexyl)- phthalate (DEHP)	1000
Dibutyl phthalate (DBP)	1000
Benzylbutyl phthalate (BBP)	1000
Diisobutyl phthalate (DIBP)	1000

- (3) Screening result of phthalates are for primary screening ,and further chemical testing by GC-MS (DEHP,DBP, BBP and DIBP) are recommended to be performed if the concentration exceeds the below warning value (unit: mg/kg)

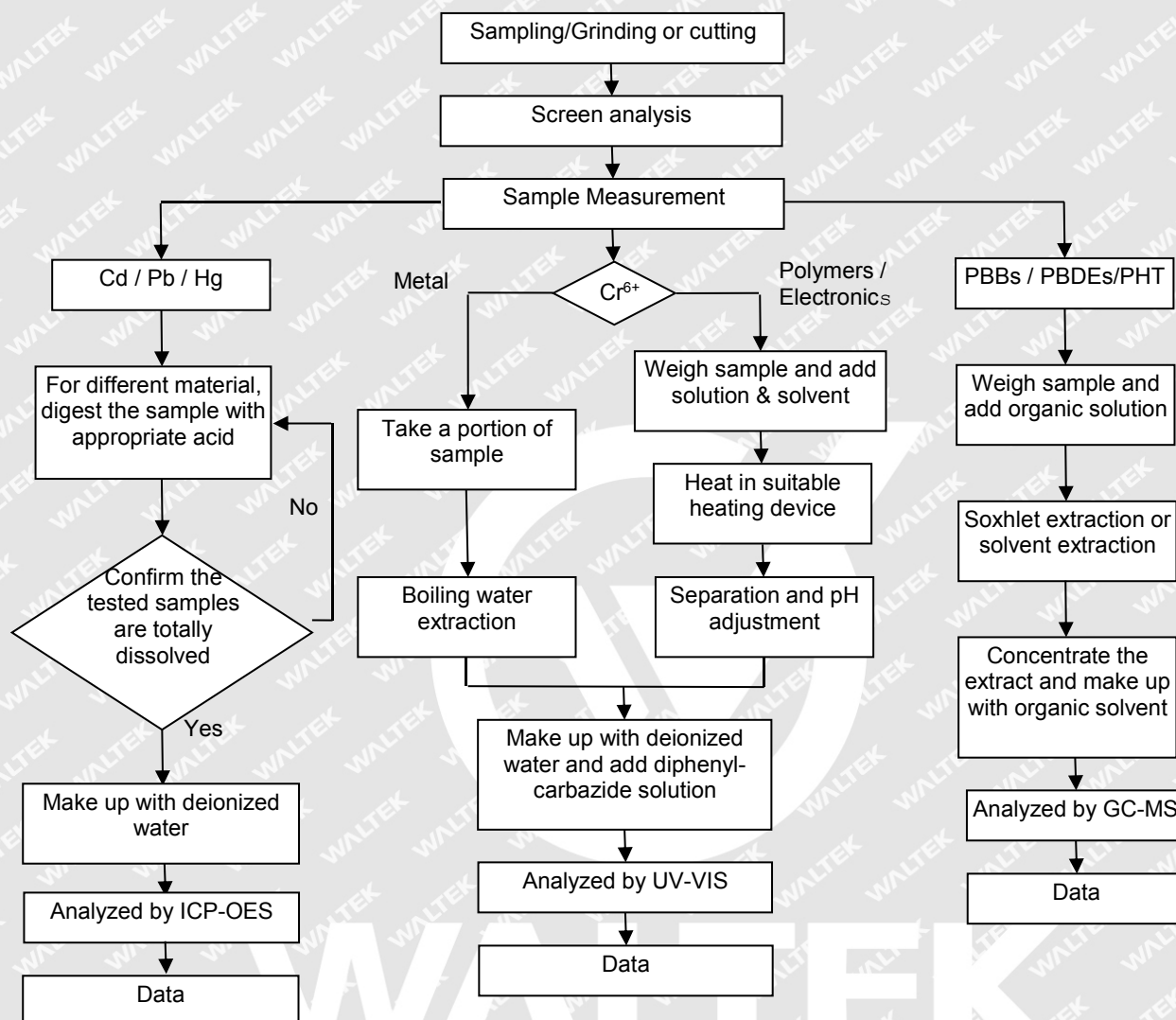
Test Item(s)	Polymer
Bis (2-ethylhexyl)- phthalate (DEHP)	BL≤600≤X
Dibutyl phthalate (DBP)	BL≤600≤X
Benzylbutyl phthalate (BBP)	BL≤600≤X
Diisobutyl phthalate (DIBP)	BL≤600≤X

- (4) Method Detection Limit (MDL) : 50mg/kg for each of phthalate.

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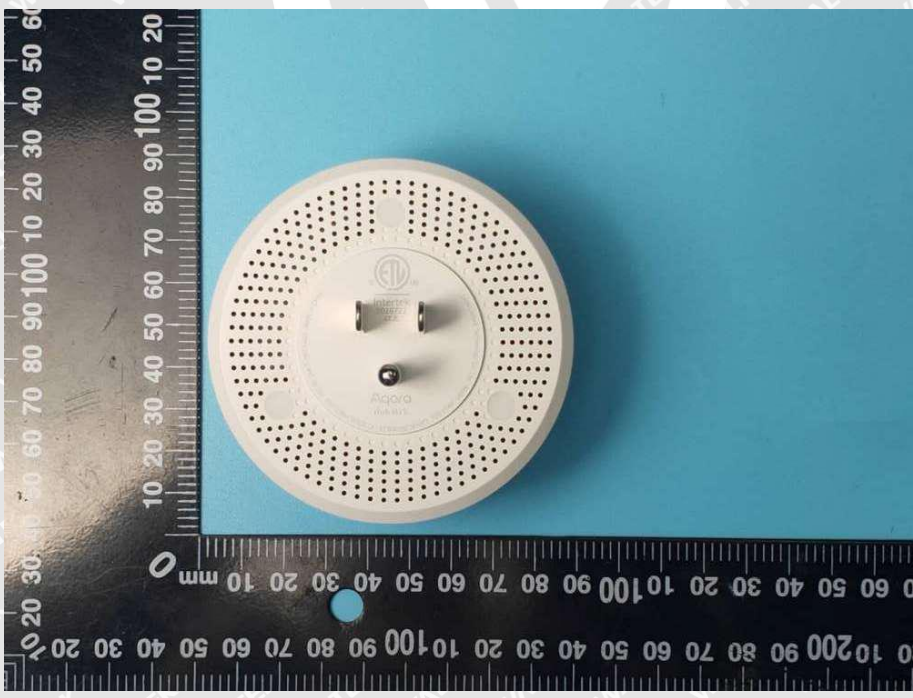


Measurement Flow chart:



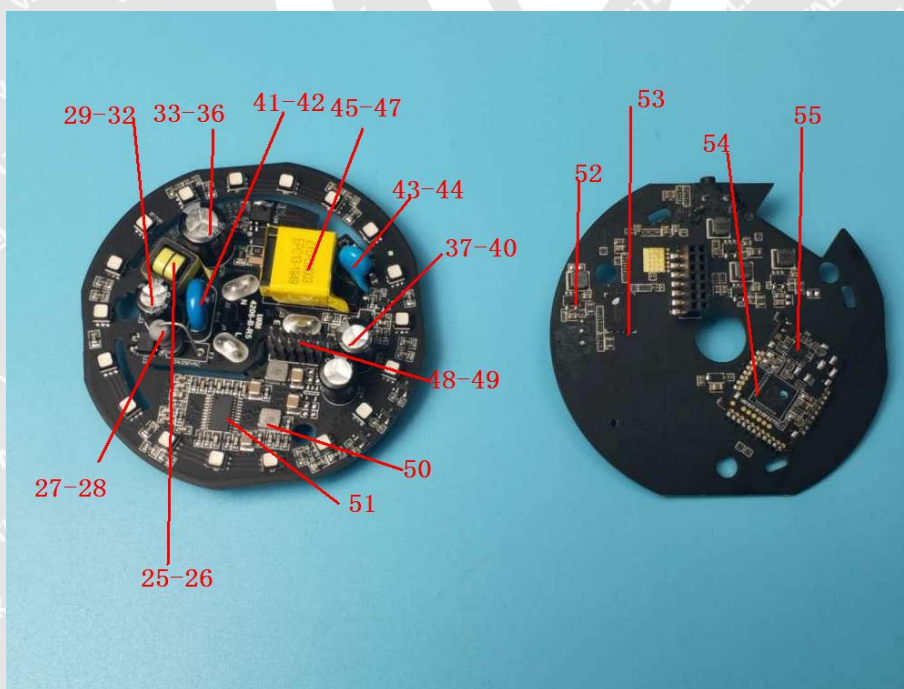
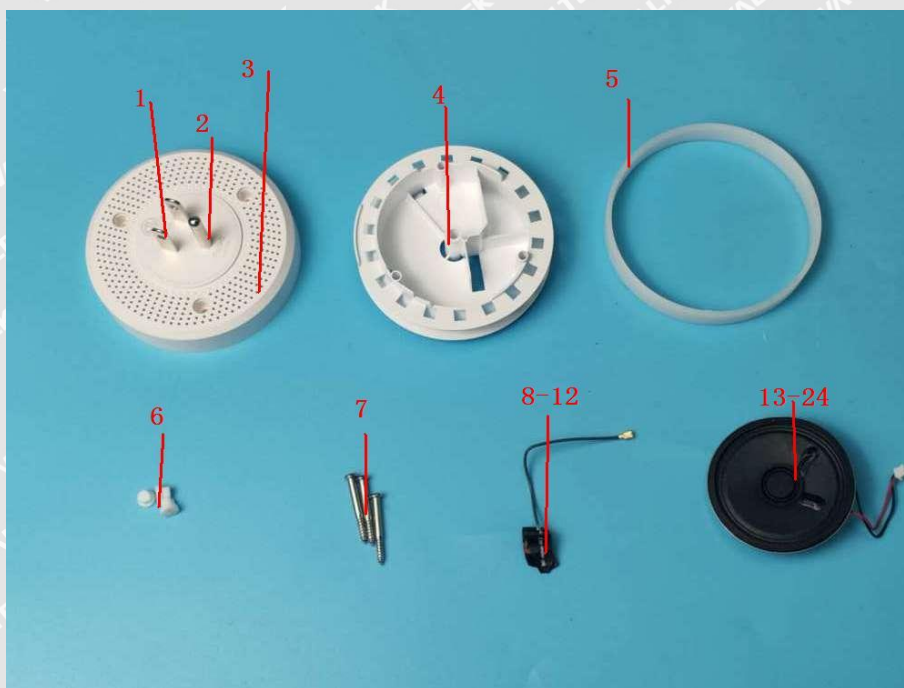


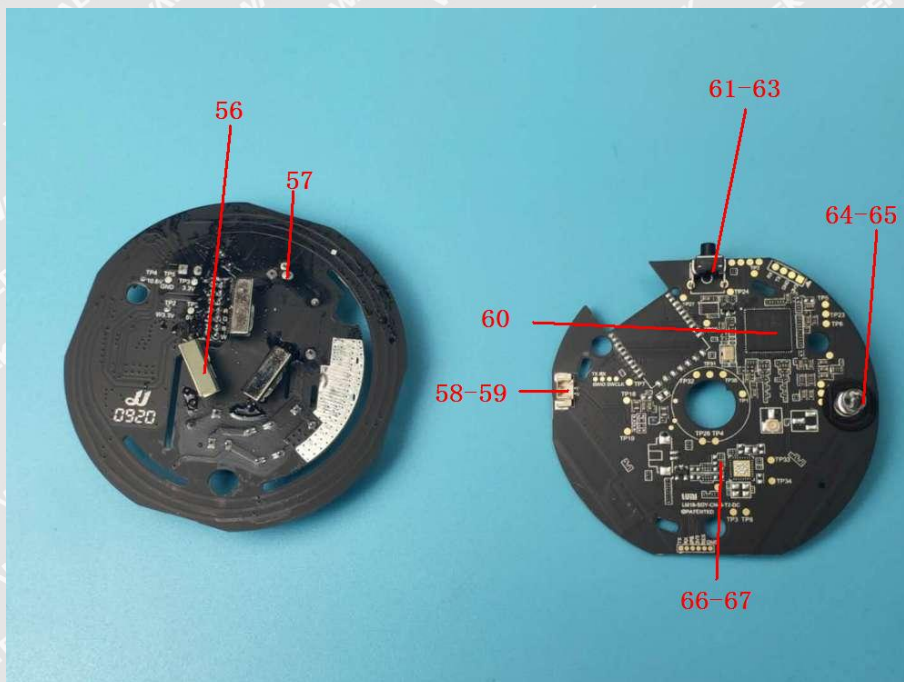
Sample Photo:





Photograph of parts tested :





==== End of Report ====

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