



TEST REPORT

Report No. : WTX21X04039645C

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Applicant..... : Guangzhou NETUM Electronic Technology Co., Ltd.
Applicant Address..... : Room 301, 6th Floor and full 3rd Floor, Building 1, No. 51 Xiangshan Avenue, Ningxi Street, Zengcheng District, Guangzhou City, Guangdong Province, China
Manufacturer..... : Guangzhou NETUM Electronic Technology Co., Ltd.
Manufacturer Address.... : Room 301, 6th Floor and full 3rd Floor, Building 1, No. 51 Xiangshan Avenue, Ningxi Street, Zengcheng District, Guangzhou City, Guangdong Province, China
Date of Receipt Sample.. : Apr.27, 2021& May 12, 2021
Testing Period..... : Apr.27, 2021 to May 11, 2021 & May 12, 2021 to May 12, 2021
Date Of Issue..... : May 12, 2021
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
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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.



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Sample Name..... : Barcode Scanner

Model No. : C100

Reference Model No. : C200,C300,C500,C740,C750,C830,C850,C990,C970

Brand..... : NETUM NetumScan

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 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 (Cr^{6+}), 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	Green plastic	BL	BL	BL	BL	BL	NA
2	Transplant plastic	BL	BL	BL	BL	BL	NA
3	Black rubber	BL	BL	BL	BL	BL	NA
4	Black plastic	BL	BL	BL	BL	BL	NA
5	Black plastic	BL	BL	BL	BL	BL	NA
6	Golden cladding metal nut	BL	BL	BL	BL	NA	NA
7	Black/brown plastic	BL	BL	BL	BL	BL	NA
8	Solder	BL	BL	BL	BL	NA	NA
9	Black plastic wire jacket 1	BL	BL	BL	BL	BL	NA
10	Golden cladding metal dot	BL	BL	BL	BL	NA	NA
11	Yellow plastic film adhesive tape (battery)	BL	BL	BL	BL	BL	NA
12	Silvery metal rod (battery)	BL	BL	BL	BL	NA	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
13	Solder (battery)	BL	BL	BL	BL	NA	NA
14	Black plastic wire jacket 2	BL	BL	BL	BL	BL	NA
15	Red plastic wire jacket 2	BL	BL	BL	BL	BL	NA
16	Black sponge	BL	BL	BL	BL	BL	NA
17	Silvery metal (microphone)	BL	BL	BL	BL	NA	NA
18	Copperry metal (microphone)	BL	BL	BL	BL	NA	NA
19	Golden cladding metal (microphone)	BL	BL	BL	BL	NA	NA
20	Red plastic wire jacket 3 (microphone)	BL	BL	BL	BL	BL	NA
21	Blue plastic wire jacket 3 (microphone)	BL	BL	BL	BL	BL	NA
22	Solder	BL	BL	BL	BL	NA	NA
23	Blue plastic (switch)	BL	BL	BL	BL	BL	NA
24	Brown plastic (switch)	BL	BL	BL	BL	BL	NA
25	Silvery metal (switch)	BL	BL	BL	BL	NA	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
26	Golden cladding metal	BL	BL	BL	BL	NA	NA
27	Silvery metal body (Crystal oscillator)	BL	BL	BL	BL	NA	NA
28	Black IC SMD	BL	BL	BL	BL	BL	NA
29	Black IC SMD	BL	BL	BL	BL	BL	NA
30	Black IC SMD	BL	BL	BL	BL	BL	NA
31	Silvery metal body (Crystal oscillator)	BL	BL	BL	BL	NA	NA
32	Black IC SMD	BL	BL	BL	BL	BL	NA
33	Blue cladding PCB board	BL	BL	BL	BL	IN	PBBs: ND PBDEs: ND
34	Solder	BL	BL	BL	BL	NA	NA
35	Transparent body (LED)	BL	BL	BL	BL	BL	NA
36	Silvery metal PIN (LED)	BL	BL	BL	BL	NA	NA
37	Transplant glass sensor	BL	BL	BL	BL	BL	NA
38	Black plastic (USB Type-C)	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 (USB Type-C)	BL	BL	BL	IN	NA	Cr ⁶⁺ : Negative
40	Gray plastic	BL	BL	BL	BL	BL	NA
41	Silvery metal axle	BL	BL	BL	BL	NA	NA
42	White plastic (USB Type-A)	BL	BL	BL	BL	BL	NA
43	Silvery metal (USB Type-A)	BL	BL	BL	BL	NA	NA
44	Golden cladding metal PIN (USB Type-A)	BL	BL	BL	BL	NA	NA
45	Black soft plastic plug	BL	BL	BL	BL	BL	NA
46	Black soft plastic cable jacket	BL	BL	BL	BL	BL	NA
47	Black plastic wire jacket 4	BL	BL	BL	BL	BL	NA
48	Red plastic wire jacket 4	BL	BL	BL	BL	BL	NA
49	White plastic wire jacket 4	BL	BL	BL	BL	BL	NA
50	Green plastic wire jacket 4	BL	BL	BL	BL	BL	NA
51	Black plastic (USB Type-C)	BL	BL	BL	BL	BL	NA



No.	Part Description	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
52	Silvery metal (USB Type-C)	BL	BL	BL	IN	NA	Cr ⁶⁺ : Negative
53	Green cladding PCB board	BL	BL	BL	BL	BL	NA
54	Solder	BL	BL	BL	BL	NA	NA
55	Silvery metal body (Crystal oscillator)	BL	BL	BL	BL	NA	NA
56	Black IC SMD	BL	BL	BL	BL	BL	NA
57	Black IC SMD	BL	BL	BL	BL	BL	NA
58	Silvery metal	BL	BL	BL	BL	NA	NA
59	Black plastic	BL	BL	BL	BL	BL	NA

**Note:**

- (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	$\text{BL} \leq (70-3\sigma) < \text{IN} < (130+3\sigma) \leq \text{OL}$	$\text{BL} \leq (70-3\sigma) < \text{IN} < (130+3\sigma) \leq \text{OL}$	$\text{LOD} < \text{IN} < (150+3\sigma) \leq \text{OL}$
Pb	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (500-3\sigma) < \text{IN} < (1500+3\sigma) \leq \text{OL}$
Hg	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (500-3\sigma) < \text{IN} < (1500+3\sigma) \leq \text{OL}$
Cr	$\text{BL} \leq (700-3\sigma) < \text{IN}$	$\text{BL} \leq (700-3\sigma) < \text{IN}$	$\text{BL} \leq (500-3\sigma) < \text{IN}$
Br	$\text{BL} \leq (300-3\sigma) < \text{IN}$	--	$\text{BL} \leq (250-3\sigma) < \text{IN}$

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	mg/kg
MDL	10	10	10	10	0.1	10	10

The MDL for single compound of PBBs and PBDEs is 10mg/kg, MDL of Cr^{6+} for polymer and composite sample is 10mg/kg and MDL of Cr^{6+} 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 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 $0.10\mu\text{g}/\text{cm}^2$.

Positive = Presence of Cr^{6+} 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.

(11) Results of sample 8 were based on raw solder wire resubmitted which received on May 12, 2021.

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

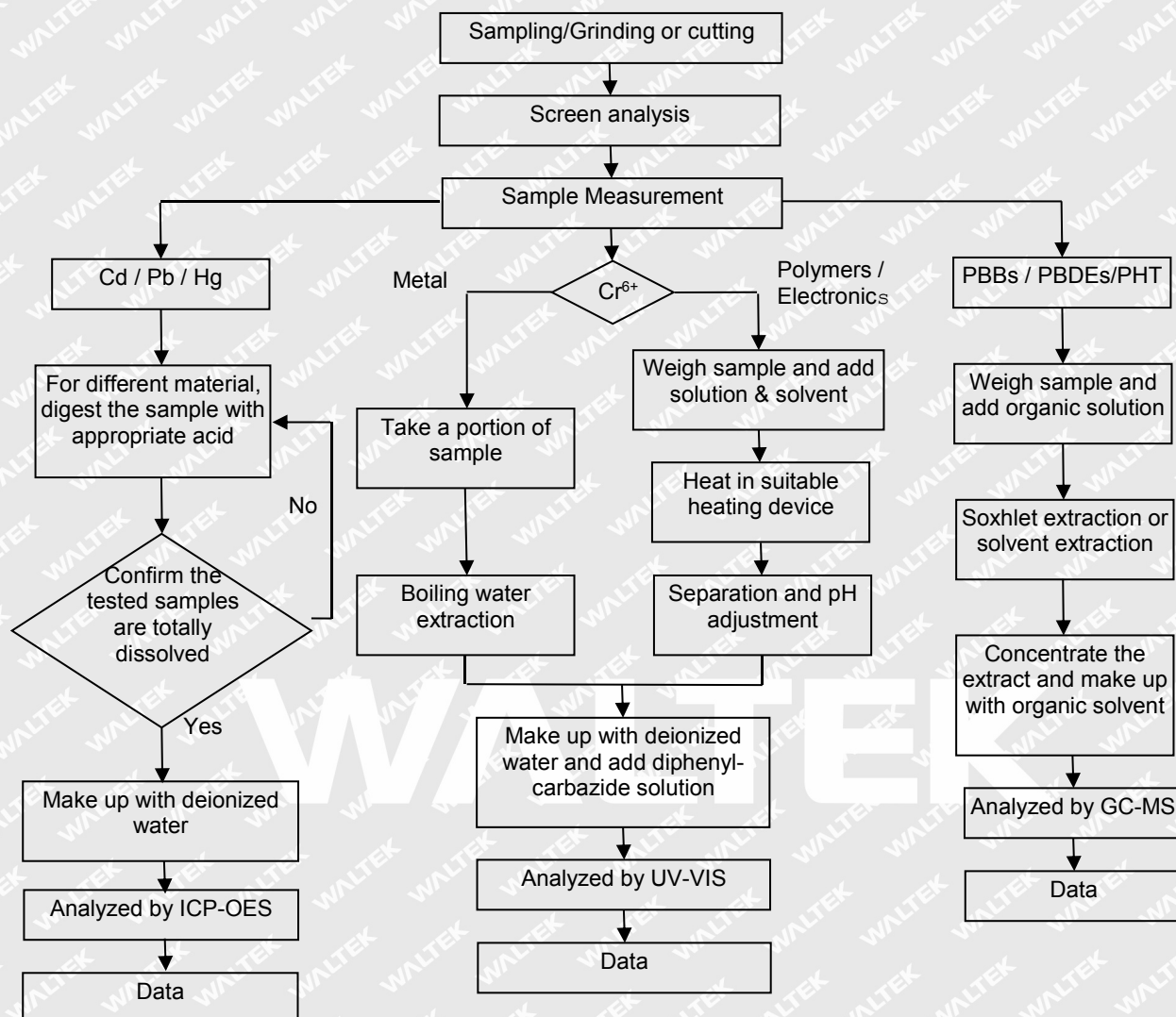
Serial No.	Part No.	Result (mg/kg)			
		DIBP	DBP	BBP	DEHP
T01	3	ND	ND	ND	ND
T02	20+21 [△]	ND	ND	ND	ND
T03	45+46 [△]	ND	ND	ND	ND
T04	47+48 [△]	ND	ND	ND	ND
T05	49+50 [△]	ND	ND	ND	ND
T06	9+14+15+16 [△]	ND	ND	ND	ND
T07	1+2+4+5+7 [△]	ND	ND	ND	ND
T08	11+16+35+38+42 [△]	ND	ND	ND	ND
T09	23+24+40 [△]	ND	ND	ND	ND
T10	28+29+30+32+33 [△]	ND	ND	ND	ND
T11	35+38+42+59 [△]	ND	ND	ND	ND
T12	51+53+56+57 [△]	ND	ND	ND	ND

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) 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) Method Detection Limit (MDL) : 50mg/kg for each of phthalate.
(5) “△” = As client’s requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

**Measurement Flow chart:**



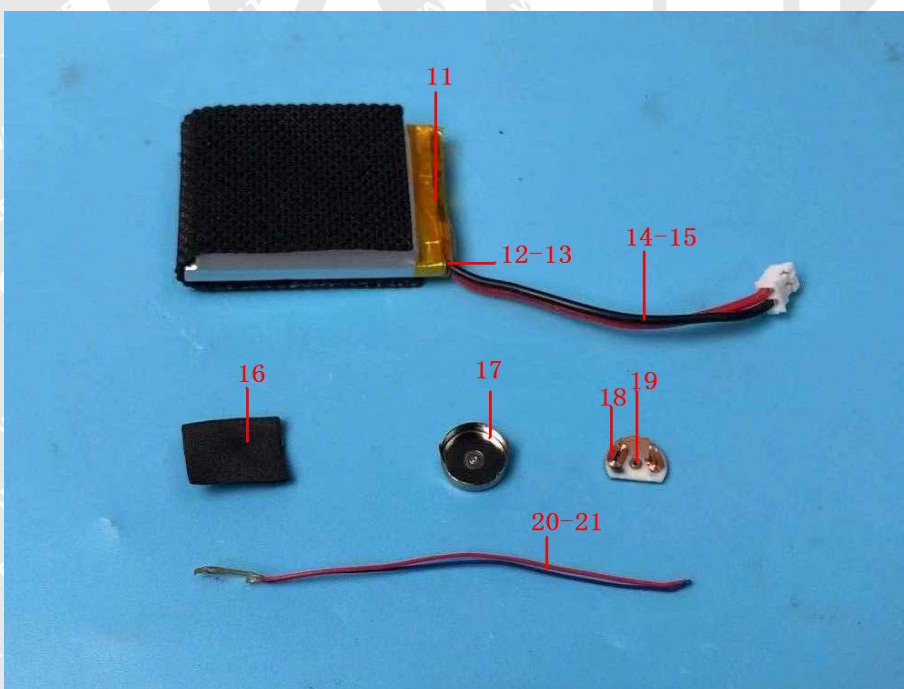
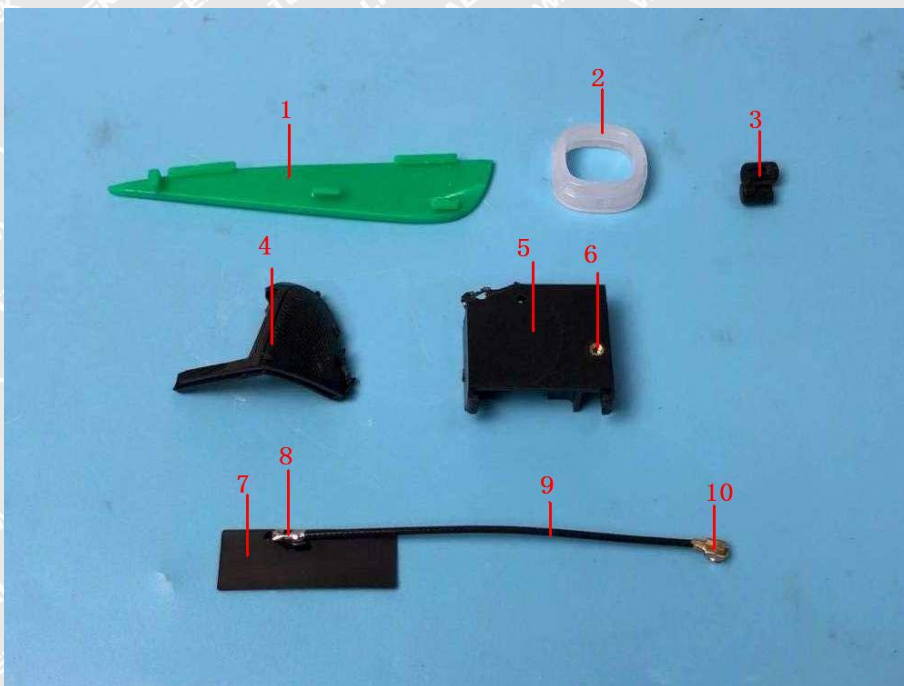
Sample Photo:

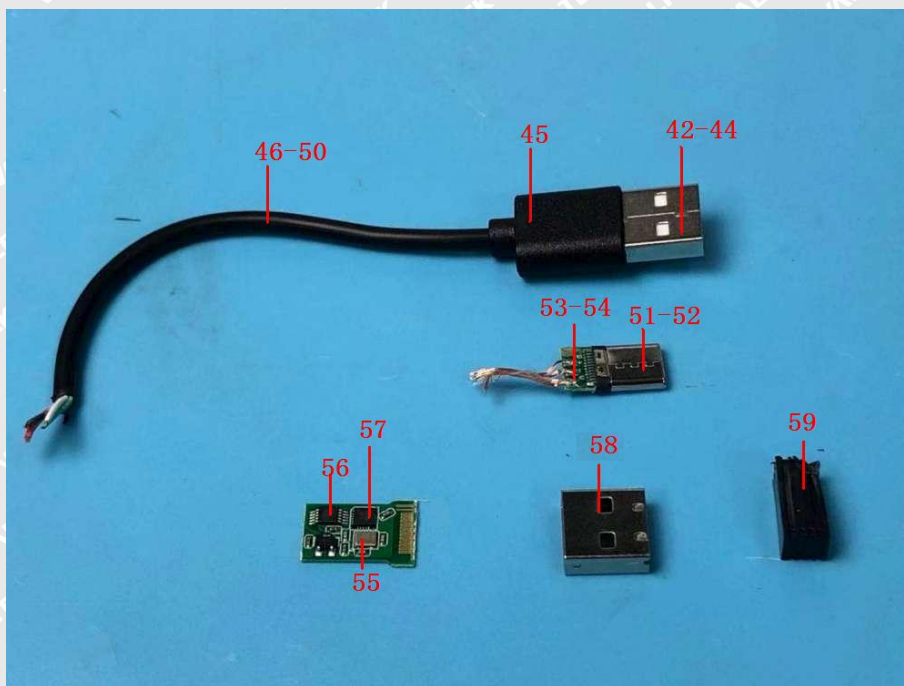
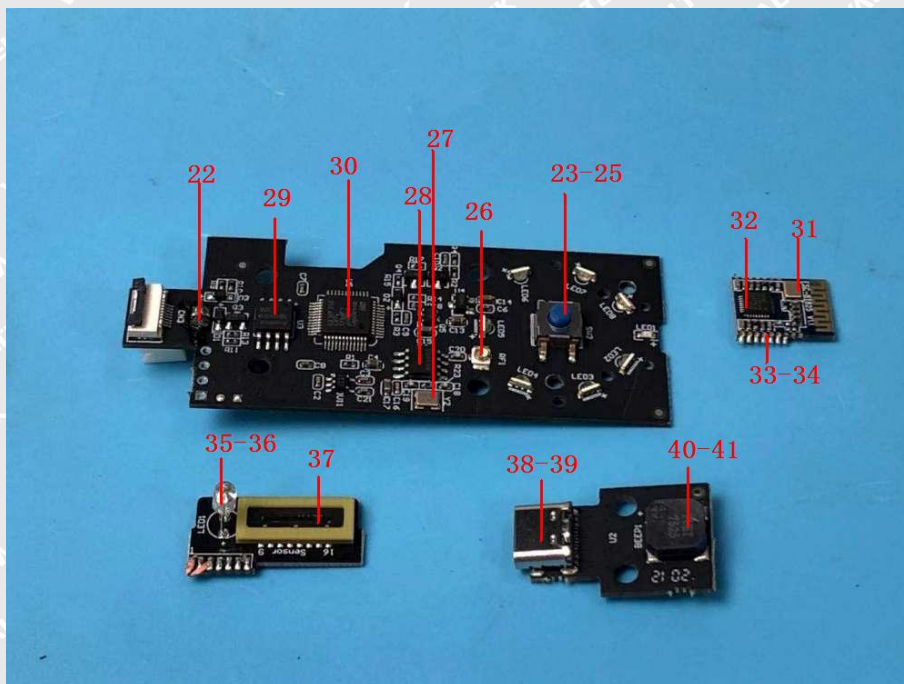






Photograph of parts tested :





===== End of Report =====