



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF22F05105277C
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer..... : 109617
Sample Name..... : LED alarm clock bamboo casing
Sample Model..... : MO9921 MO9922
Date of Receipt sample..... : 2022-05-26
Testing period..... : 2022-05-26 to 2022-06-09
Date of Issue..... : 2022-06-10
Test Result..... : Refer to next page (s)

Prepared By:

Waltek Testing Group (Foshan) Co., Ltd.

Address: No.13-19, 2/F., 2nd Building, Sunlink International Machinery City,
Chencun, Shunde District, Foshan, Guangdong, China

Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

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

Swing.Liang

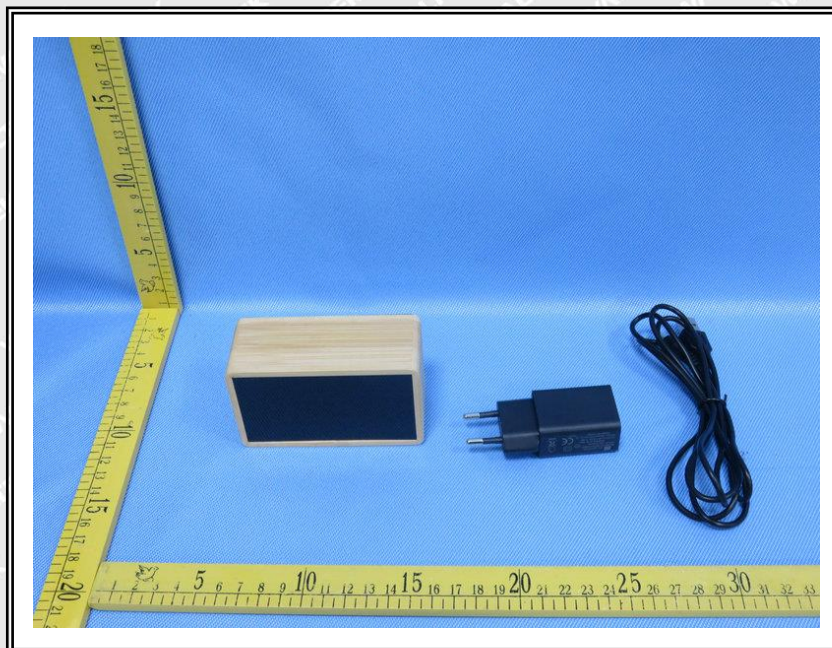


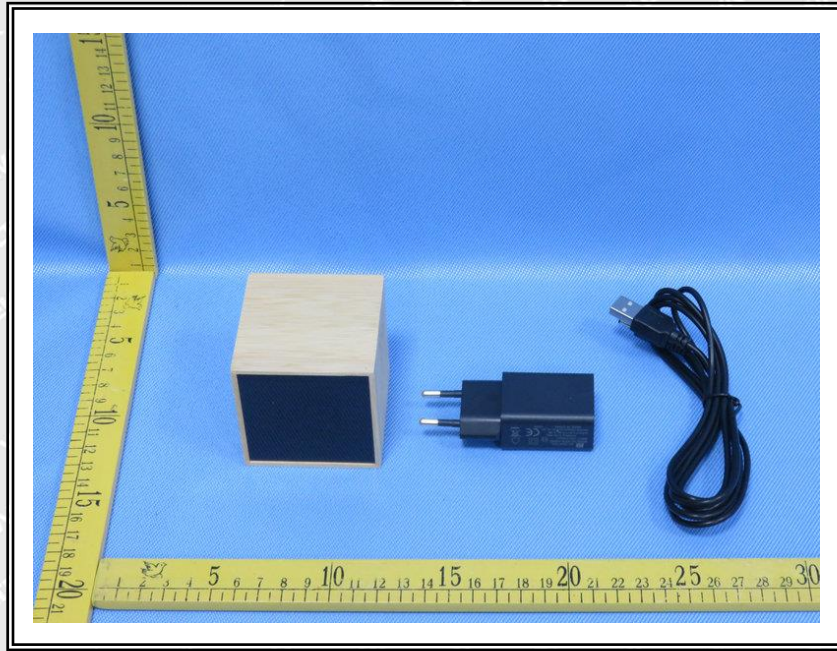
- Test Requested** : In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.
- Test Method**..... :
1) With reference to IEC 62321-2:2021, disassembly, disjunction and mechanical sample preparation
2) With reference to IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, 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** (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)

WALTEK



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)	Note
		Cd	Pb	Hg	Cr	Br		
1	Brown bamboo shell	BL	BL	BL	BL	BL	NA	•
2	Semi-transparent glue	BL	BL	BL	BL	BL	NA	•
3	Transparent epoxy resin of nixie tube	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
4	Black PCB of nixie tube	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
5	White-black plastic shell of nixie tube	BL	BL	BL	BL	BL	NA	•
6	Black-transparent plastic sheet	BL	BL	BL	BL	BL	NA	•
7	Green PCB	BL	BL	BL	BL	BL	NA	•
8	Solder	BL	BL	BL	BL	BL	NA	•
9	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
10	Silvery metal sheet	BL	BL	BL	BL	BL	NA	•
11	Silvery metal spring	BL	BL	BL	BL	BL	NA	•
12	Black plastic sheet	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 111	•
13	Black plastic button	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 219	•
14	Silvery metal screw	BL	BL	BL	BL	BL	NA	•
15	Silvery metal screw with black plating	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•
16	Black plastic shell of buzzer	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 134	•
17	Green PCB of buzzer	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
18	Silvery metal sheet of buzzer	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•
19	Silvery metal axle of buzzer	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
20	Coppery metal winding of buzzer	BL	BL	BL	BL	BL	NA	•
21	Black magnetic core of buzzer	BL	BL	BL	BL	BL	NA	•
22	Black plastic wire covering	BL	BL	BL	BL	BL	NA	•
23	Green plastic wire covering	BL	BL	BL	BL	BL	NA	•
24	Red plastic wire covering	BL	BL	BL	BL	BL	NA	•
25	Silvery metal wire	BL	BL	BL	BL	BL	NA	•
26	Grey plastic wire covering	BL	BL	BL	BL	BL	NA	•
27	Silvery metal wire	BL	BL	BL	BL	BL	NA	•
28	Silvery body of EC	BL	BL	BL	BL	BL	NA	•
29	Black plastic film of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
30	Black rubber stopper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
31	Brown paper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
32	Silvery metal shell of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
33	Silvery metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
34	Grey metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
35	Black paper adhesive sheet	BL	BL	BL	BL	BL	NA	•
36	Silvery metal shell of MIC	BL	BL	BL	BL	BL	NA	•
37	Chip audion of MIC	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
38	Solder of MIC	BL	BL	BL	BL	BL	NA	•
39	Black plastic key of switch	BL	BL	BL	BL	BL	NA	•



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
40	Black plastic base of switch	BL	BL	BL	BL	BL	NA	•
41	Silvery metal shell of switch	BL	BL	BL	BL	BL	NA	•
42	Silvery metal sheet of switch	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•
43	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
44	Black plastic shell of socket	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
45	Silvery metal pin of socket	BL	BL	BL	BL	BL	NA	•
46	Silvery metal sheet of socket	BL	BL	BL	BL	BL	NA	•
47	Green PCB of socket	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
48	Solder	BL	BL	BL	BL	BL	NA	•
49	Chip audion	BL	BL	BL	BL	BL	NA	•
50	Chip diode	BL	BL	BL	BL	BL	NA	•
51	Chip IC	BL	BL	BL	BL	BL	NA	•
52	Chip resistor	BL	BL	BL	BL	BL	NA	•
53	Chip capacitor	BL	BL	BL	BL	BL	NA	•
54	Silvery metal pin of plug	BL	OL	BL	BL	BL	#Pb : 2.28×10 ⁴	•
55	Black plastic sleeve of plug	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
56	Silvery metal sheet of plug	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•
57	Silvery metal shell of socket	BL	BL	BL	BL	BL	NA	•
58	Silvery metal pin of socket	BL	BL	BL	BL	BL	NA	•
59	Black plastic core of socket	BL	BL	BL	BL	BL	NA	•



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
60	Transparent plastic adhesive label of transformer	BL	BL	BL	BL	BL	NA	•
61	Yellow plastic adhesive tape of transformer	BL	BL	BL	BL	BL	NA	•
62	Black plastic bobbin of transformer	BL	BL	BL	BL	BL	NA	•
63	White glue of transformer	BL	BL	BL	BL	BL	NA	•
64	Copper metal winding of transformer	BL	BL	BL	BL	BL	NA	•
65	Yellow insulation wire of transformer	BL	BL	BL	BL	BL	NA	•
66	Black magnetic core of transformer	BL	BL	BL	BL	BL	NA	•
67	Brown plastic film of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
68	Black plastic film of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
69	Black rubber stopper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
70	Brown paper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
71	Silvery metal shell of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
72	Silvery metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
73	Grey metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
74	Yellow-green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
75	Black heat-shrinkable tube of resistor	BL	BL	BL	BL	BL	NA	•
76	Grey body of resistor	BL	BL	BL	BL	BL	NA	•
77	Green body of inductor	BL	BL	BL	BL	BL	NA	•
78	Chip diode	BL	BL	BL	BL	BL	NA	•
79	Chip diode	BL	BL	BL	BL	BL	NA	•



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
80	Chip rectifier	BL	BL	BL	BL	BL	NA	•
81	Chip diode	BL	BL	BL	BL	BL	NA	•
82	Chip IC	BL	BL	BL	BL	BL	NA	•
83	Chip capacitor	BL	BL	BL	BL	BL	NA	•
84	Solder	BL	BL	BL	BL	BL	NA	•
85	Chip resistor	BL	IN	BL	BL	BL	Pb :424	•
86	White plastic core of plug	BL	BL	BL	BL	BL	NA	•
87	Black plastic jacket of plug	BL	BL	BL	BL	BL	NA	•
88	Silvery metal shell of plug	BL	BL	BL	BL	BL	NA	•
89	Silvery metal pin of plug	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•
90	Solder of plug	BL	BL	BL	BL	BL	NA	•
91	Black plastic jacket of plug	BL	BL	BL	BL	BL	NA	•
92	Solder of plug	BL	BL	BL	BL	BL	NA	•
93	Black plastic core of plug	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
94	Silvery metal sleeve of plug	BL	BL	BL	BL	BL	NA	•
95	Silvery metal pin of plug	BL	BL	BL	BL	BL	NA	•
96	Black plastic wire covering	BL	BL	BL	BL	BL	NA	•
97	Red plastic wire covering	BL	BL	BL	BL	BL	NA	•
98	Coppery metal wire	BL	BL	BL	BL	BL	NA	•
99	Black plastic wire jacket	BL	BL	BL	BL	BL	NA	•



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
100	Semi-transparent glue	BL	BL	BL	BL	BL	NA	(Same) 2
101	Brown bamboo shell	BL	BL	BL	BL	BL	NA	(Same) 1
102	Transparent epoxy resin of nixie tube	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 3
103	Black PCB of nixie tube	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 4
104	White-black plastic shell of nixie tube	BL	BL	BL	BL	BL	NA	(Same) 5
105	Solder	BL	BL	BL	BL	BL	NA	•
106	Green PCB	BL	BL	BL	BL	BL	NA	•
107	Black plastic shell of buzzer	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 134	(Same) 16
108	Green PCB of buzzer	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 17
109	Silvery metal sheet of buzzer	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	(Same) 18
110	Silvery metal axle of buzzer	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	(Same) 19
111	Coppery metal winding of buzzer	BL	BL	BL	BL	BL	NA	(Same) 20
112	Black magnetic core of buzzer	BL	BL	BL	BL	BL	NA	(Same) 21
113	Grey sponge sheet	BL	BL	BL	BL	BL	NA	•
114	Black-transparent plastic sheet	BL	BL	BL	BL	BL	NA	(Same) 6
115	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 9
116	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 9
117	Silvery metal spring	BL	BL	BL	BL	BL	NA	(Same) 11
118	Silvery metal screw	BL	BL	BL	BL	BL	NA	(Same) 14
119	Silvery metal sheet	BL	BL	BL	BL	BL	NA	(Same) 10



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
120	Solder	BL	BL	BL	BL	BL	NA	•
121	Black plastic film of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
122	Black rubber stopper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
123	Brown paper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
124	Silvery metal shell of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
125	Silvery metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
126	Grey metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	•
127	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	•
128	Silvery metal sheet	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•
129	Silvery body of EC	BL	BL	BL	BL	BL	NA	(Same) 28
130	Grey plastic wire covering	BL	BL	BL	BL	BL	NA	•
131	Silvery metal wire	BL	BL	BL	BL	BL	NA	•
132	Black plastic wire covering	BL	BL	BL	BL	BL	NA	•
133	Silvery metal wire	BL	BL	BL	BL	BL	NA	•
134	Black paper adhesive sheet	BL	BL	BL	BL	BL	NA	(Same) 35
135	Silvery metal shell of MIC	BL	BL	BL	BL	BL	NA	(Same) 36
136	Chip audion of MIC	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 37
137	Solder of MIC	BL	BL	BL	BL	BL	NA	(Same) 38
138	Chip audion	BL	BL	BL	BL	BL	NA	•
139	Coppery metal key of switch	BL	BL	BL	BL	BL	NA	•



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
140	Silvery metal shell of switch	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	•
141	Yellow-transparent plastic film of switch	BL	BL	BL	BL	BL	NA	•
142	Black plastic base of switch	BL	BL	BL	BL	BL	NA	•
143	Black plastic shell of socket	BL	BL	BL	BL	BL	NA	•
144	Silvery metal pin of socket	BL	BL	BL	BL	BL	NA	•
145	Black body of IC	BL	BL	BL	BL	BL	NA	•
146	Chip capacitor	BL	BL	BL	BL	BL	NA	•
147	Chip resistor	BL	BL	BL	BL	BL	NA	•
148	Chip diode	BL	BL	BL	BL	BL	NA	•
149	Silvery metal pin of plug	BL	OL	BL	BL	BL	#Pb : 2.28 × 10⁴	(Same) 54
150	Black plastic sleeve of plug	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 55
151	Silvery metal sheet of plug	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	(Same) 56
152	Silvery metal shell of socket	BL	BL	BL	BL	BL	NA	(Same) 57
153	Silvery metal pin of socket	BL	BL	BL	BL	BL	NA	(Same) 58
154	Black plastic core of socket	BL	BL	BL	BL	BL	NA	(Same) 59
155	transparent plastic adhesive label of transformer	BL	BL	BL	BL	BL	NA	(Same) 60
156	Yellow plastic adhesive tape of transformer	BL	BL	BL	BL	BL	NA	(Same) 61
157	Black plastic bobbin of transformer	BL	BL	BL	BL	BL	NA	(Same) 62
158	White glue of transformer	BL	BL	BL	BL	BL	NA	(Same) 63
159	Coppery metal winding of transformer	BL	BL	BL	BL	BL	NA	(Same) 64



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
160	Yellow insulation wire of transformer	BL	BL	BL	BL	BL	NA	(Same) 65
161	Black magnetic core of transformer	BL	BL	BL	BL	BL	NA	(Same) 66
162	Brown plastic film of electrolytic capacitor	BL	BL	BL	BL	BL	NA	(Same) 67
163	Black plastic film of electrolytic capacitor	BL	BL	BL	BL	BL	NA	(Same) 68
164	Black rubber stopper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	(Same) 69
165	Brown paper of electrolytic capacitor	BL	BL	BL	BL	BL	NA	(Same) 70
166	Silvery metal shell of electrolytic capacitor	BL	BL	BL	BL	BL	NA	(Same) 71
167	Silvery metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	(Same) 72
168	Grey metal foil of electrolytic capacitor	BL	BL	BL	BL	BL	NA	(Same) 73
169	Yellow-green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 74
170	Black heat-shrinkable tube of resistor	BL	BL	BL	BL	BL	NA	(Same) 75
171	Grey body of resistor	BL	BL	BL	BL	BL	NA	(Same) 76
172	Green body of inductor	BL	BL	BL	BL	BL	NA	(Same) 77
173	Chip diode	BL	BL	BL	BL	BL	NA	(Same) 78
174	Chip diode	BL	BL	BL	BL	BL	NA	(Same) 79
175	Chip rectifier	BL	BL	BL	BL	BL	NA	(Same) 80
176	Chip diode	BL	BL	BL	BL	BL	NA	(Same) 81
177	Chip IC	BL	BL	BL	BL	BL	NA	(Same) 82
178	Chip capacitor	BL	BL	BL	BL	BL	NA	(Same) 83
179	Solder	BL	BL	BL	BL	BL	NA	(Same) 84



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)	Note
		Cd	Pb	Hg	Cr	Br		
180	Chip resistor	BL	IN	BL	BL	BL	Pb :424	(Same) 85
181	White plastic core of plug	BL	BL	BL	BL	BL	NA	(Same) 86
182	Black plastic jacket of plug	BL	BL	BL	BL	BL	NA	(Same) 87
183	Silvery metal shell of plug	BL	BL	BL	BL	BL	NA	(Same) 88
184	Silvery metal pin of plug	BL	BL	BL	IN	BL	Cr ⁶⁺ : Negative	(Same) 89
185	Solder of plug	BL	BL	BL	BL	BL	NA	(Same) 90
186	Black plastic jacket of plug	BL	BL	BL	BL	BL	NA	(Same) 91
187	Solder of plug	BL	BL	BL	BL	BL	NA	(Same) 92
188	Black plastic core of plug	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND	(Same) 93
189	Silvery metal sleeve of plug	BL	BL	BL	BL	BL	NA	(Same) 94
190	Silvery metal pin of plug	BL	BL	BL	BL	BL	NA	(Same) 95
191	Black plastic wire covering	BL	BL	BL	BL	BL	NA	(Same) 96
192	Red plastic wire covering	BL	BL	BL	BL	BL	NA	(Same) 97
193	Coppery metal wire	BL	BL	BL	BL	BL	NA	(Same) 98
194	Black plastic wire jacket	BL	BL	BL	BL	BL	NA	(Same) 99

**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	$\mu\text{g}/\text{cm}^2$	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 0.1 $\mu\text{g}/\text{cm}^2$.

- (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 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, “Cr (VI)” denotes Hexavalent Chromium, “Br” denotes Bromine, “PBBs” denotes Total Polybrominated Biphenyls, “PBDEs” denotes Total Polybrominated Diphenyl Ethers.

(11) “●” = Actual tested sample. Screening and chemical tests were performed for the samples indicated by the photo in this report.

(12) “Same” = It means that the sample and the actual tested sample are of the same material and have not been tested.

(13)[#] = According to the declaration from client, the source of lead in test sample is from copper alloy while lead as copper alloy containing up to 4% lead by weight is exempted by Directive 2011/65/EU ANNEX III.

2. Phthalates:

Serial No.	Part No.	Result (mg/kg)				Note
		DBP	BBP	DEHP	DIBP	
T01	1	<50	<50	<50	<50	●
T02	2	<50	<50	<50	<50	●
T03	3+5+6+9+12 [△]	101	<50	249	<50	●
T04	102	--	--	--	--	(Same)3
T05	104	--	--	--	--	(Same)5
T06	114	--	--	--	--	(Same)6
T07	115	--	--	--	--	(Same)9
T08	116	--	--	--	--	(Same)9
T09	4+7+17+43+47 [△]	<50	<50	<50	<50	●
T10	103	--	--	--	--	(Same)4
T11	108	--	--	--	--	(Same)17
T12	13+16+39+40+44 [△]	<50	<50	116	<50	●
T13	107	--	--	--	--	(Same)16
T14	21+66+65+148 [△]	<50	<50	<50	<50	●
T15	112	--	--	--	--	(Same)21
T16	161	--	--	--	--	(Same)66
T17	160	--	--	--	--	(Same)65
T18	22	<50	<50	<50	<50	●
T19	23	169	<50	<50	<50	●
T20	24	<50	<50	<50	<50	●
T21	26	<50	<50	<50	<50	●
T22	28+37+49+50+51 [△]	<50	<50	<50	<50	●
T23	129	--	--	--	--	(Same)28
T24	136	--	--	--	--	(Same)37
T25	29	<50	<50	172	<50	●
T26	30	<50	<50	<50	<50	●
T27	31+70+123 [△]	<50	<50	<50	<50	●
T28	165	--	--	--	--	(Same)70
T29	35	<50	<50	<50	<50	●



Serial No.	Part No.	Result (mg/kg)				Note
		DBP	BBP	DEHP	DIBP	
T30	52+53+76+77+78 [△]	<50	<50	<50	<50	●
T31	171	--	--	--	--	(Same)76
T32	172					Same)77
T33	173	--	--	--	--	(Same)78
T34	55+143	<50	<50	<50	<50	●
T35	150	--	--	--	--	(Same)50
T36	59+62+86+93+142 [△]	<50	<50	<50	<50	●
T37	154	--	--	--	--	(Same)59
T38	157	--	--	--	--	(Same)62
T39	181	--	--	--	--	(Same)86
T40	188	--	--	--	--	(Same)93
T41	60	121	<50	<50	<50	●
T42	61	<50	<50	<50	<50	●
T43	63	<50	<50	<50	<50	●
T44	67	<50	<50	<50	<50	●
T45	68	<50	<50	<50	<50	●
T46	69	<50	<50	<50	<50	●
T47	74+106+127 [△]	<50	<50	<50	<50	●
T48	169	--	--	--	--	(Same)74
T49	75	<50	<50	<50	<50	●
T50	79+80+81+82+83 [△]	<50	<50	<50	<50	●
T51	174	--	--	--	--	(Same)79
T52	175	--	--	--	--	(Same)80
T53	176	--	--	--	--	(Same)81
T54	177	--	--	--	--	(Same)82
T55	178	--	--	--	--	(Same)83
T56	85+138+145+146+147 [△]	<50	<50	<50	<50	●
T57	180	--	--	--	--	(Same)85
T58	87	161	<50	<50	<50	●
T59	91	107	<50	<50	<50	●
T60	96	194	<50	<50	<50	●
T61	97	296	<50	86	<50	●
T62	99	292	<50	<50	<50	●
T63	100	<50	<50	<50	<50	(Same)2
T64	101	<50	<50	<50	<50	(Same)1
T65	113	<50	<50	<50	<50	●
T66	121	<50	<50	<50	<50	●
T67	122	<50	<50	<50	<50	●
T68	130	<50	<50	<50	<50	●
T69	132	290	<50	<50	<50	●
T70	134	<50	<50	<50	<50	(Same)35
T71	141	<50	<50	<50	<50	●
T72	155	121	<50	<50	<50	(Same)60
T73	156	<50	<50	<50	<50	(Same)61
T74	158	<50	<50	<50	<50	(Same)63



Serial No.	Part No.	Result (mg/kg)				Note
		DBP	BBP	DEHP	DIBP	
T75	162	<50	<50	<50	<50	(Same)67
T76	163	<50	<50	<50	<50	(Same)68
T77	164	<50	<50	<50	<50	(Same)69
T78	170	<50	<50	<50	<50	(Same)75
T79	182	161	<50	<50	<50	(Same)87
T80	186	107	<50	<50	<50	(Same)91
T81	191	194	<50	<50	<50	(Same)96
T82	192	296	<50	86	<50	(Same)97
T83	194	292	<50	<50	<50	(Same)99

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.

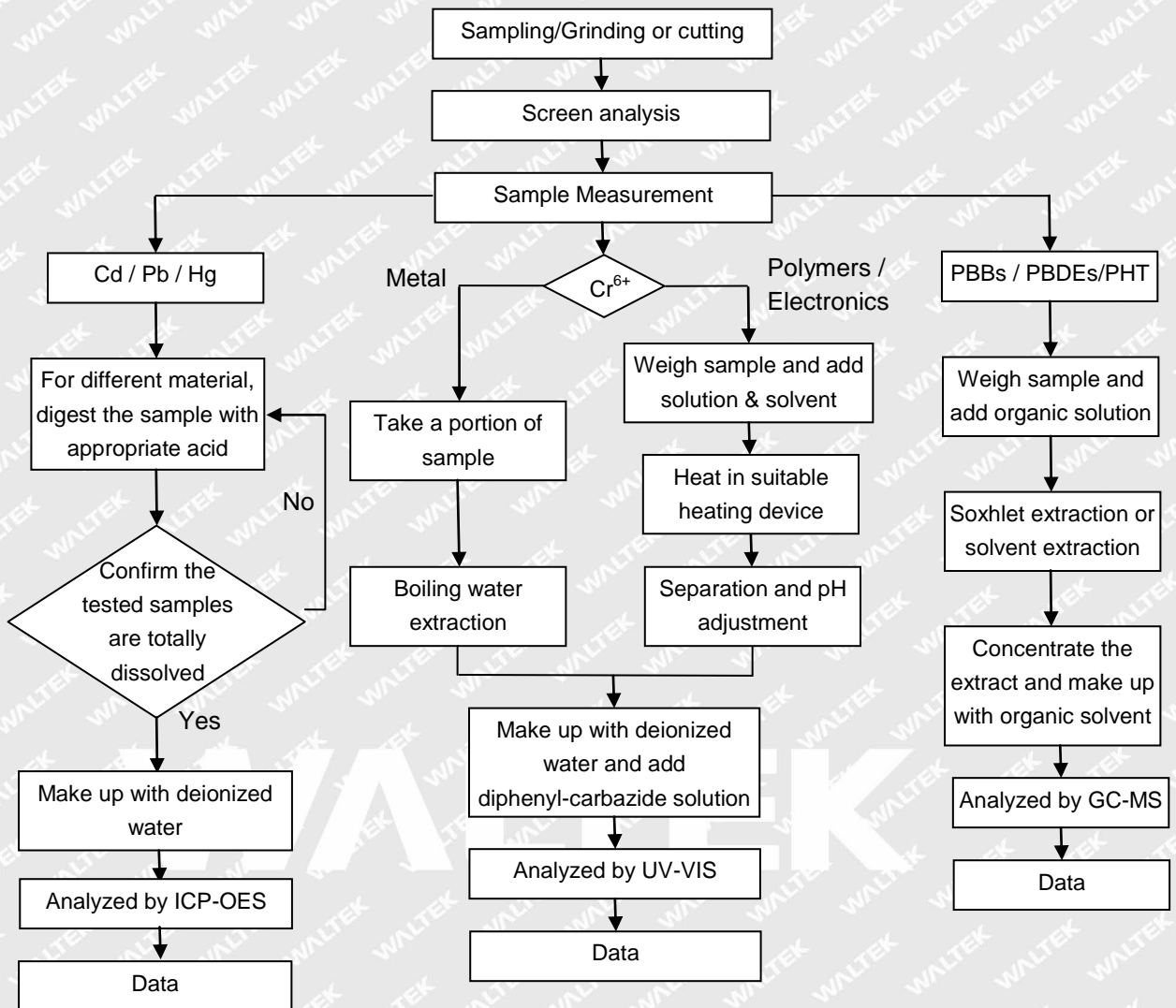
(4) RoHS requirement

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) "●" =Actual tested sample. Screening and chemical tests were performed for the samples indicated by the photo in this report.
- (6) "Same" = It means that the sample and the actual tested sample are of the same material and have not been tested.
- (7) "△" = As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.
- (8) "--" = Not regulated

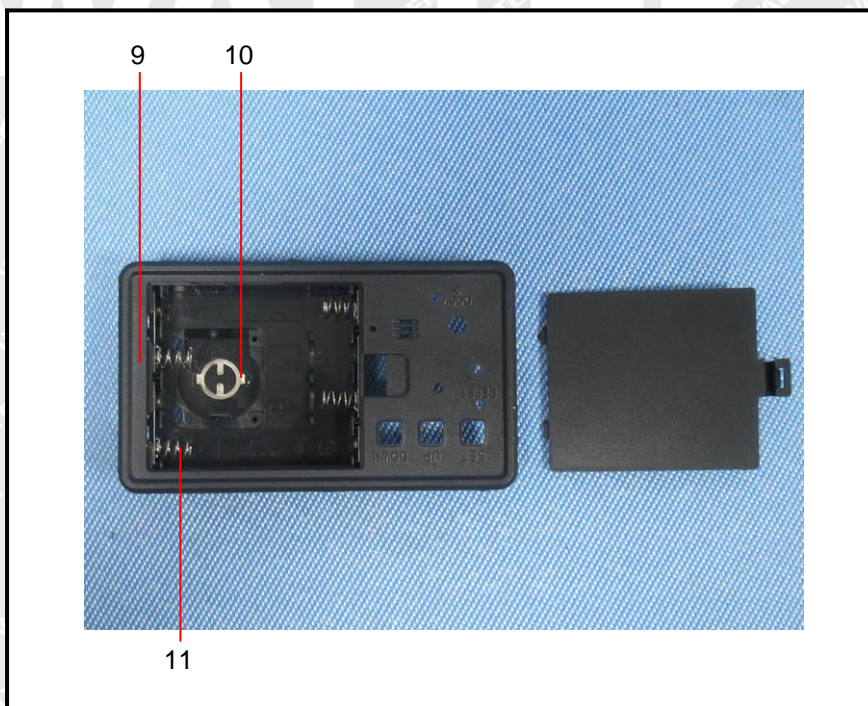
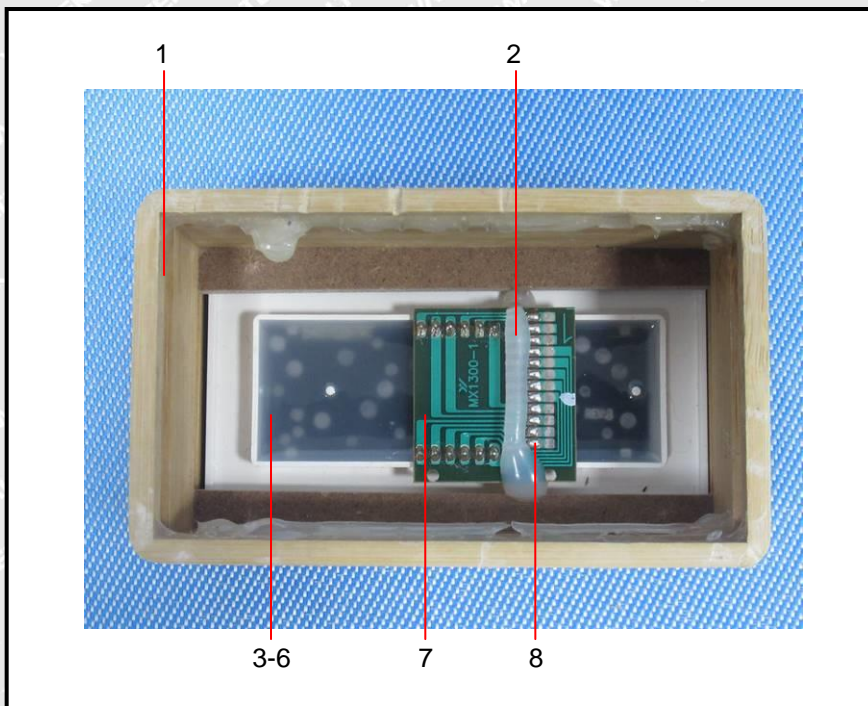


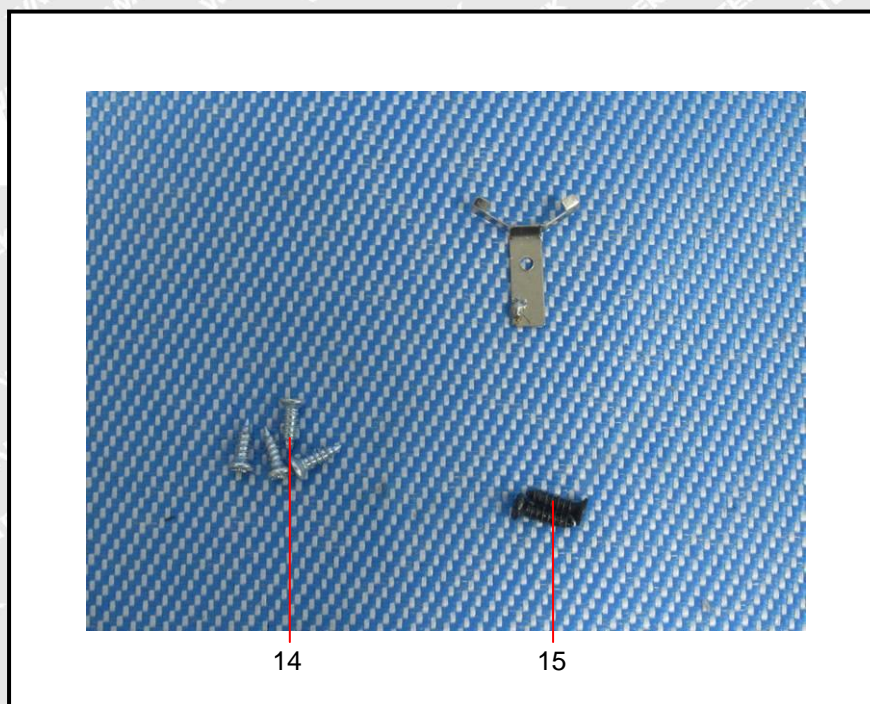
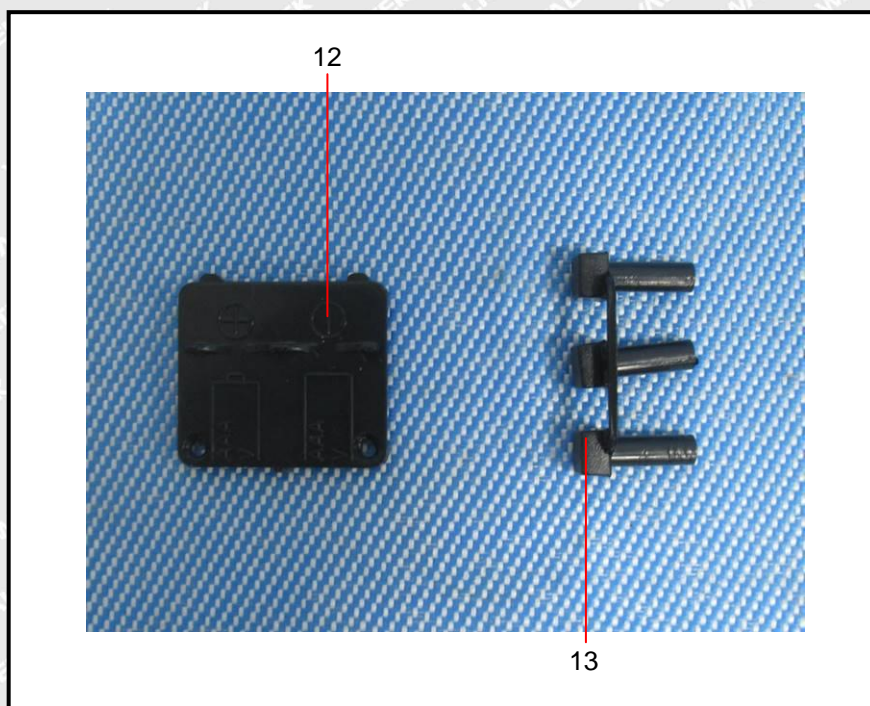
Measurement Flowchart:

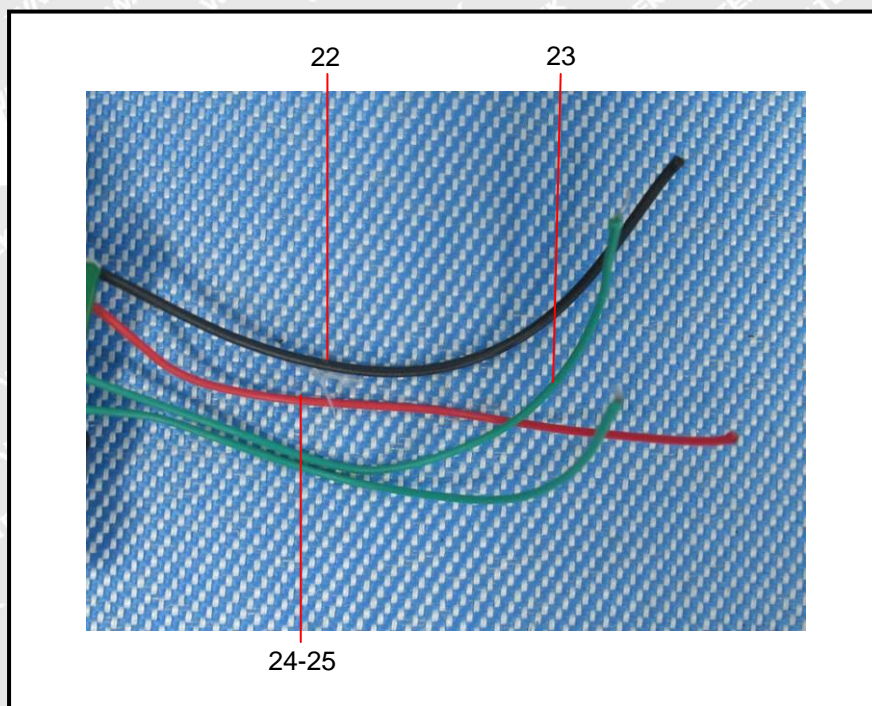
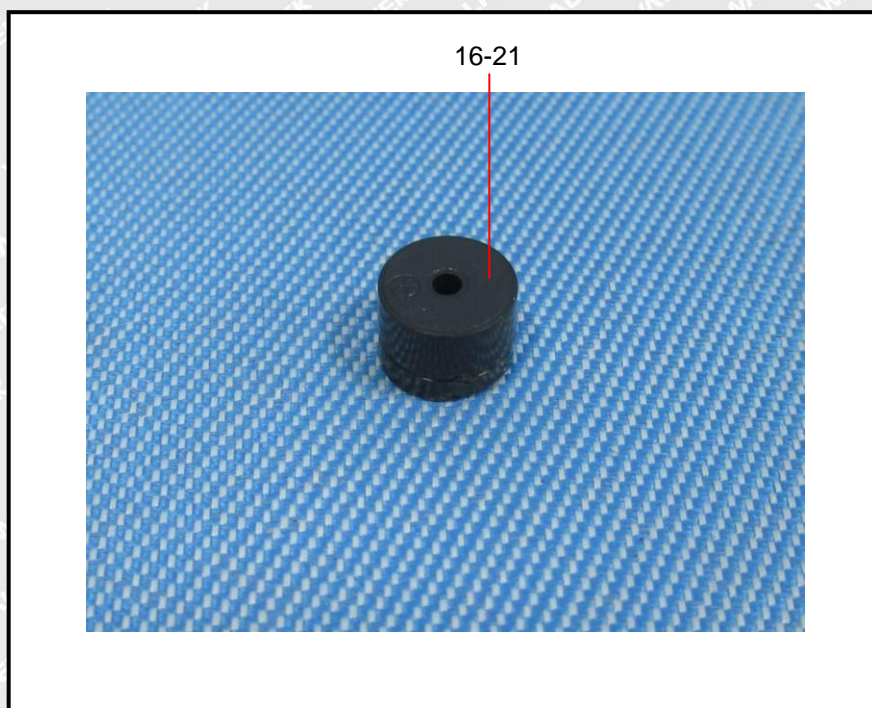


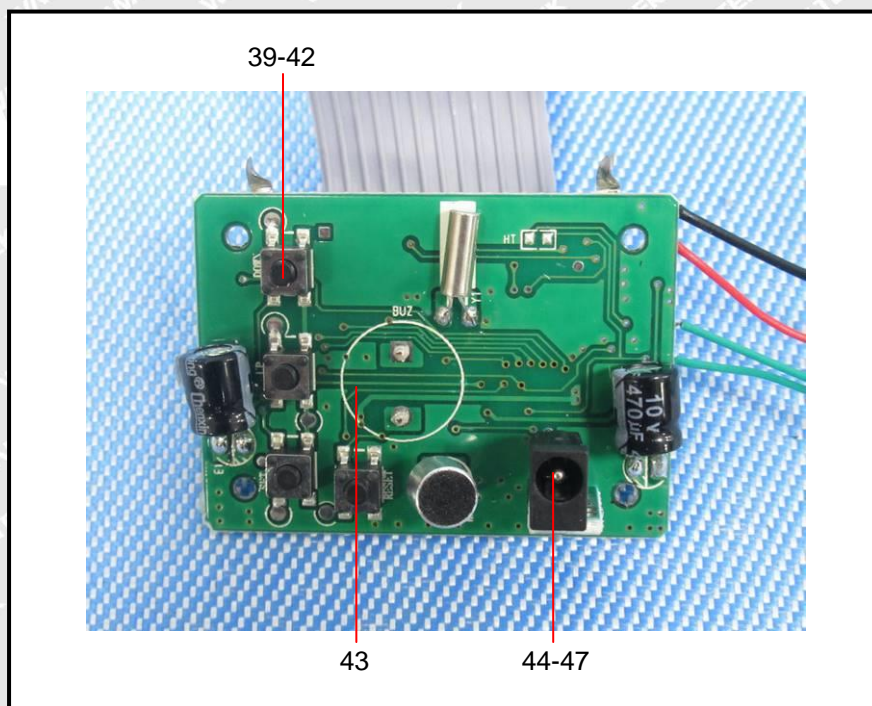
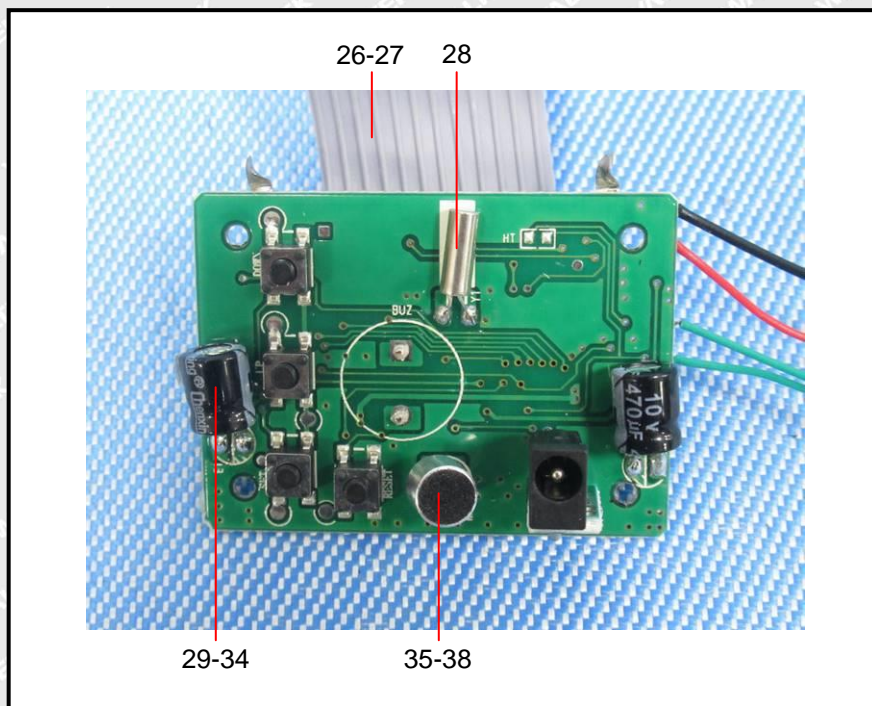


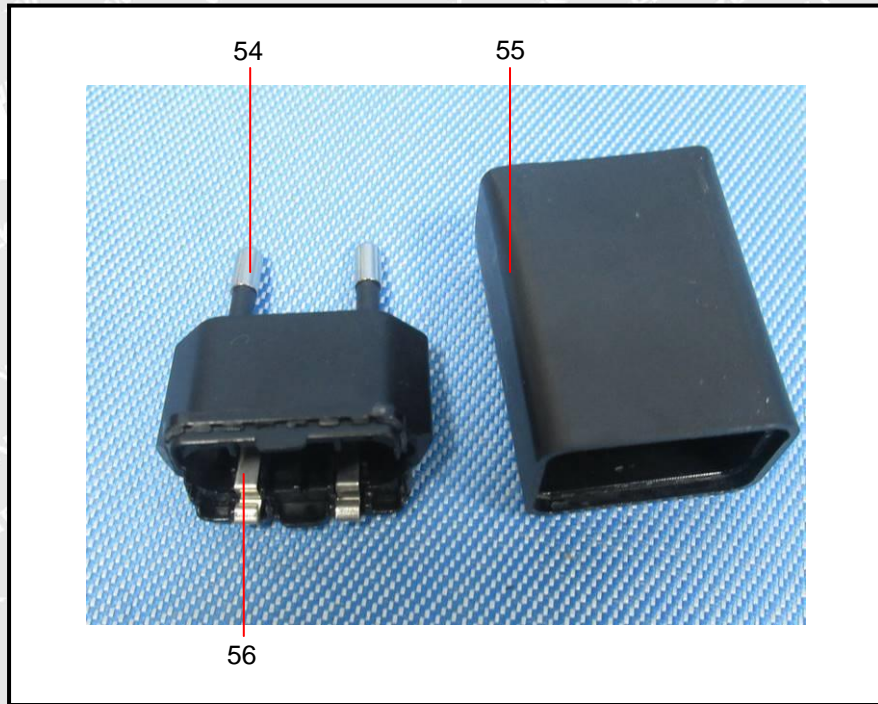
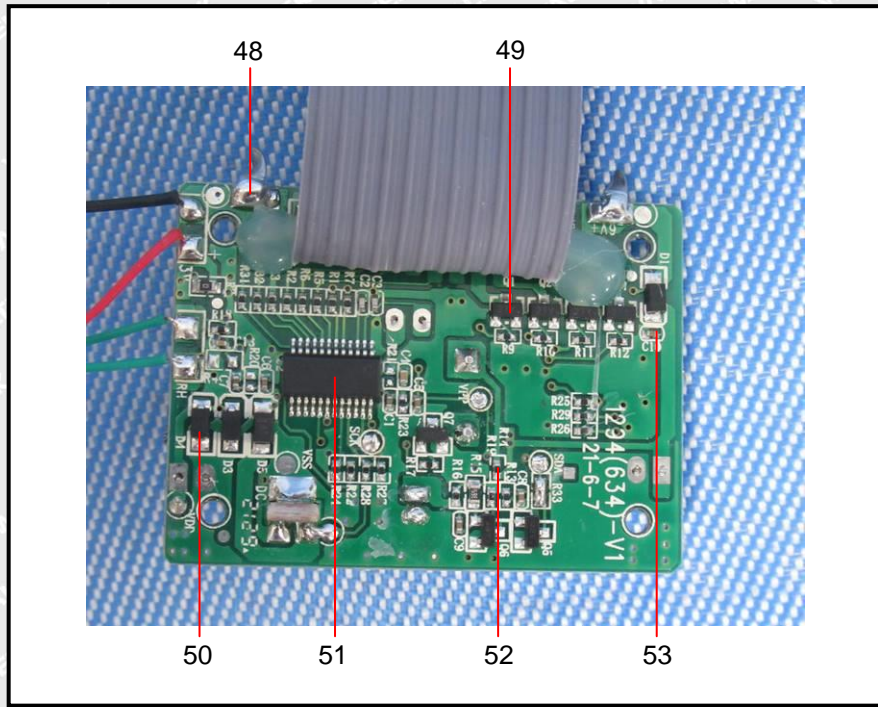
Photograph(s) of parts tested:

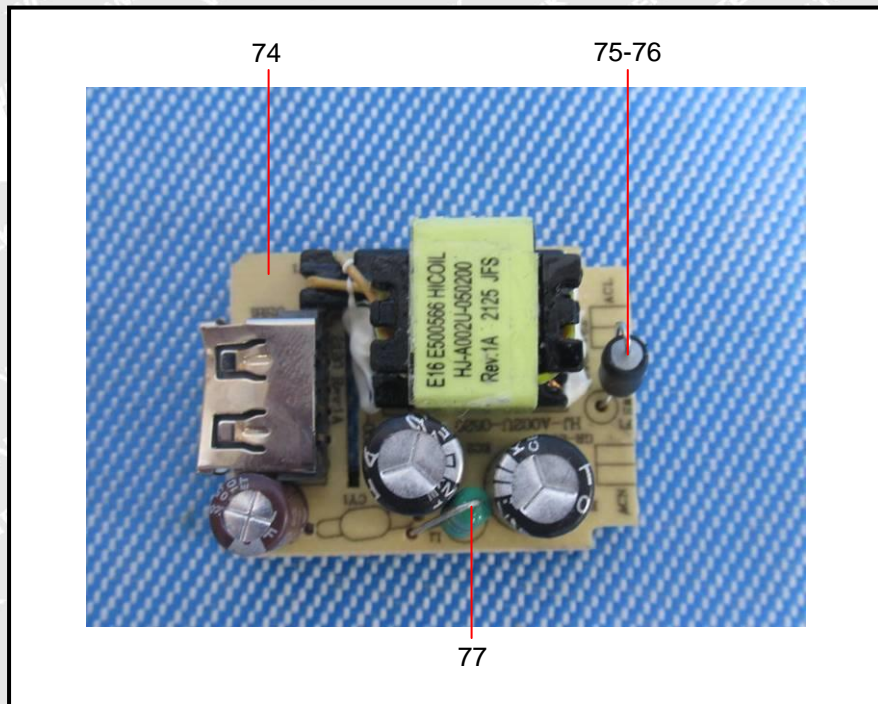
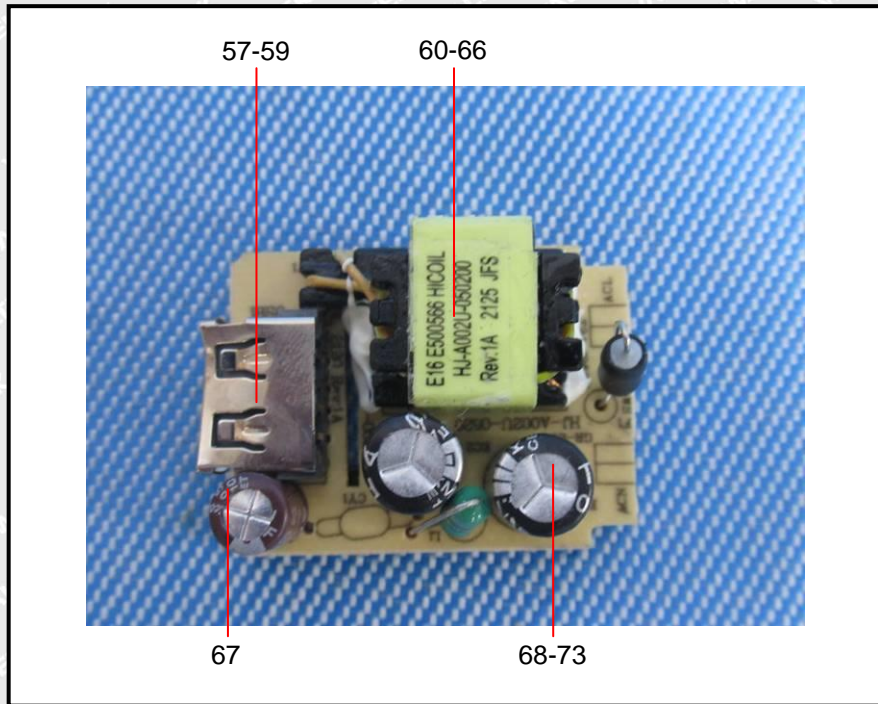


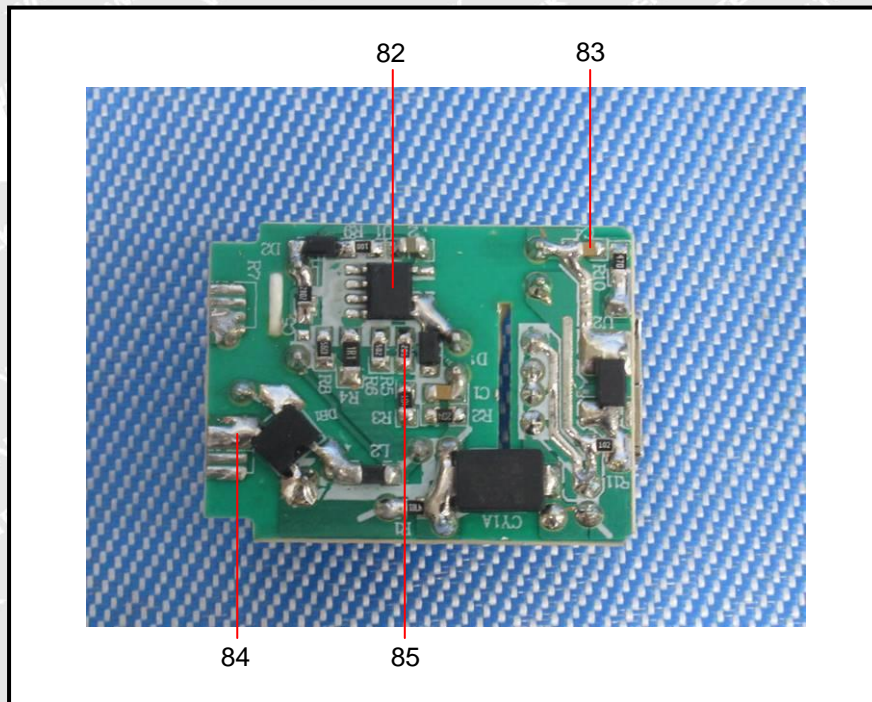
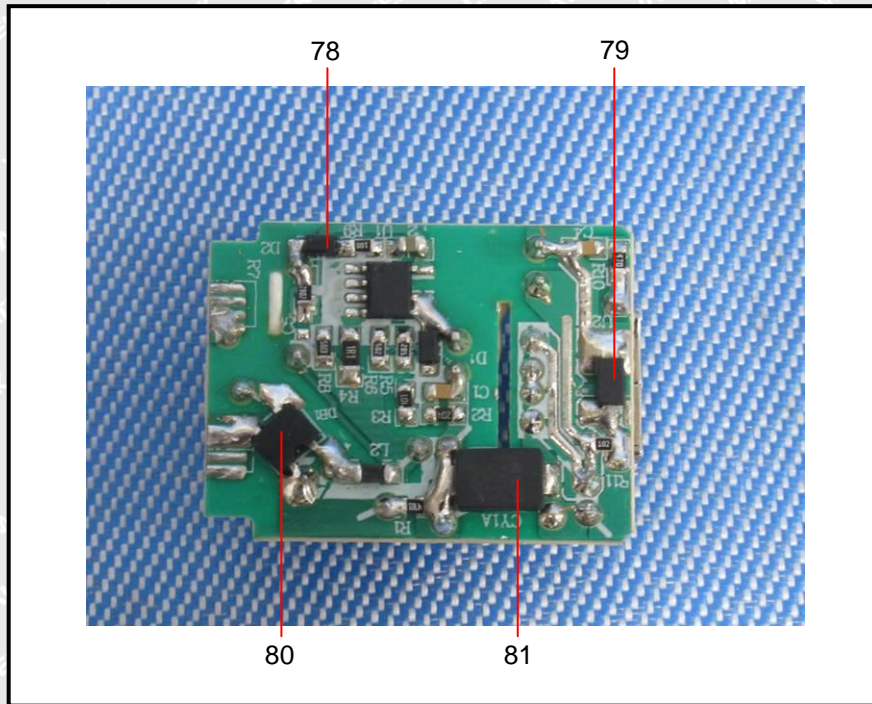


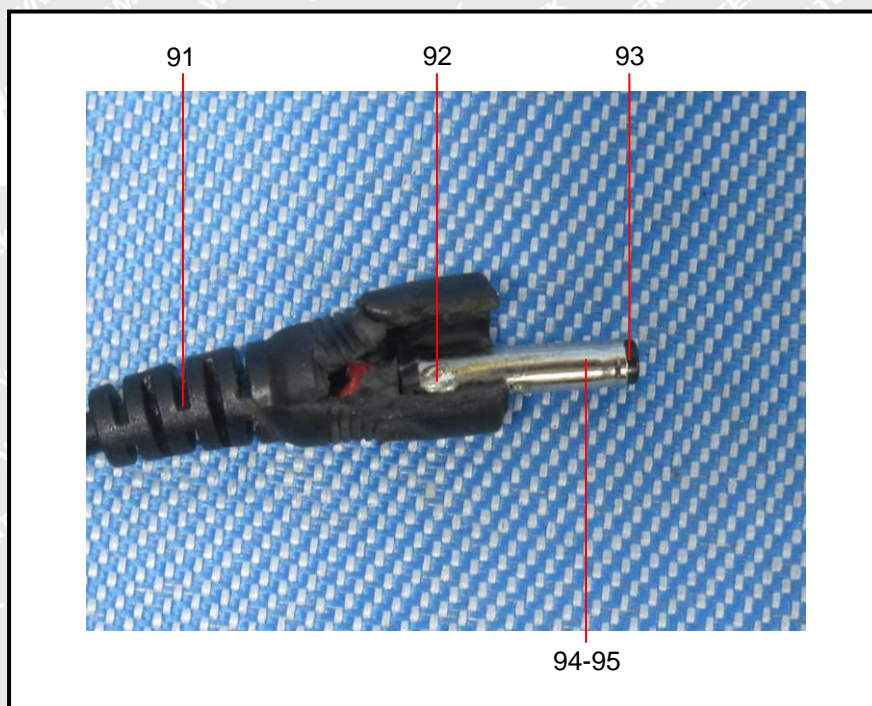
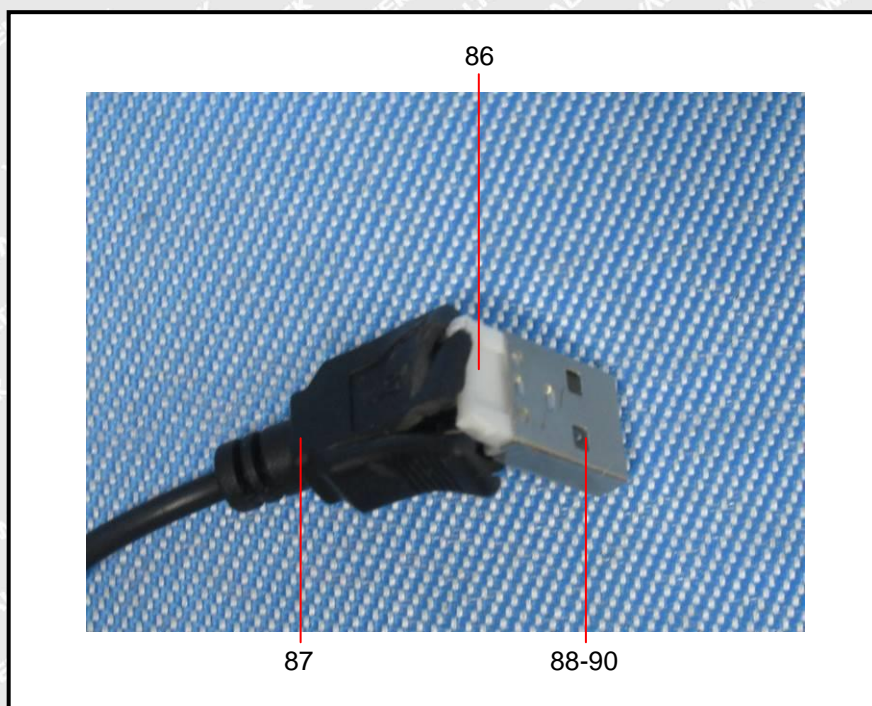


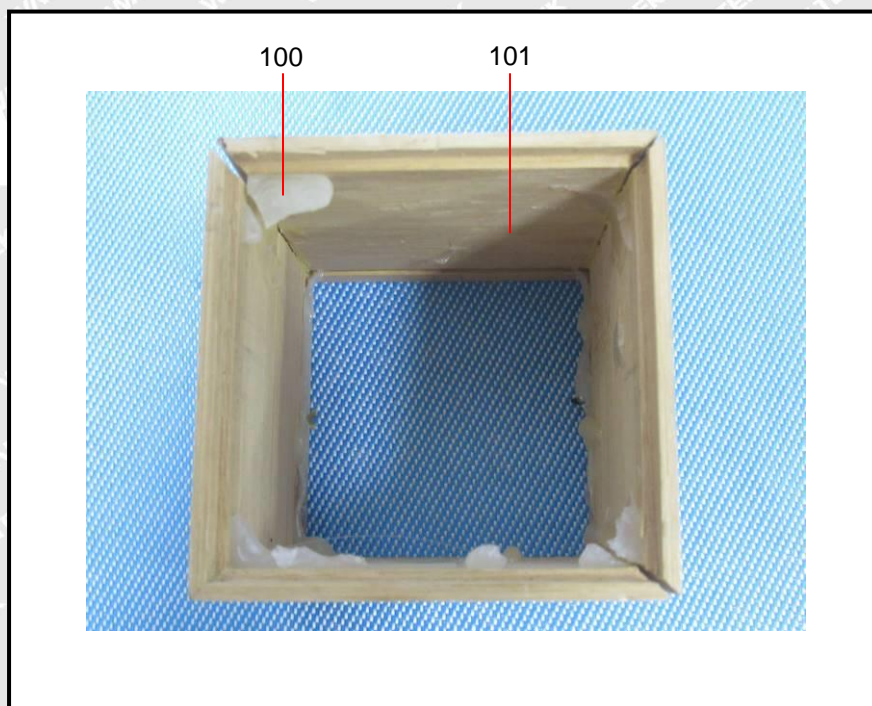
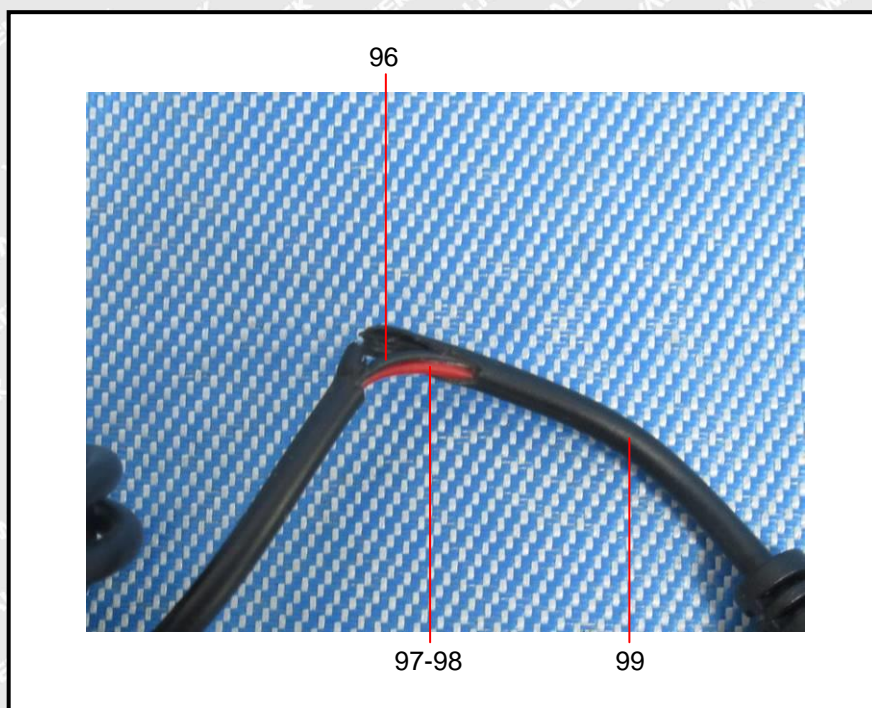


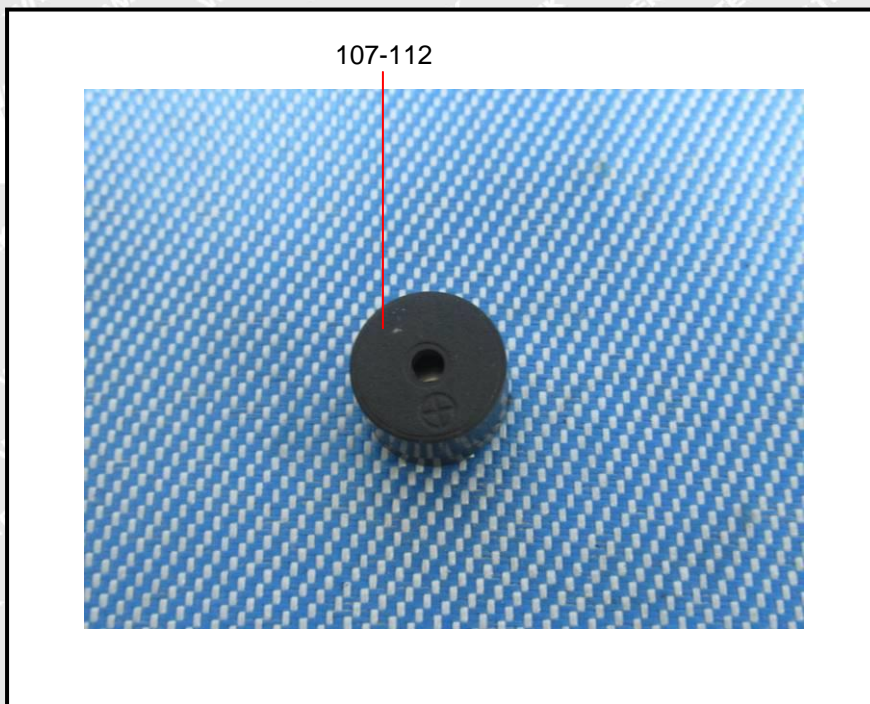
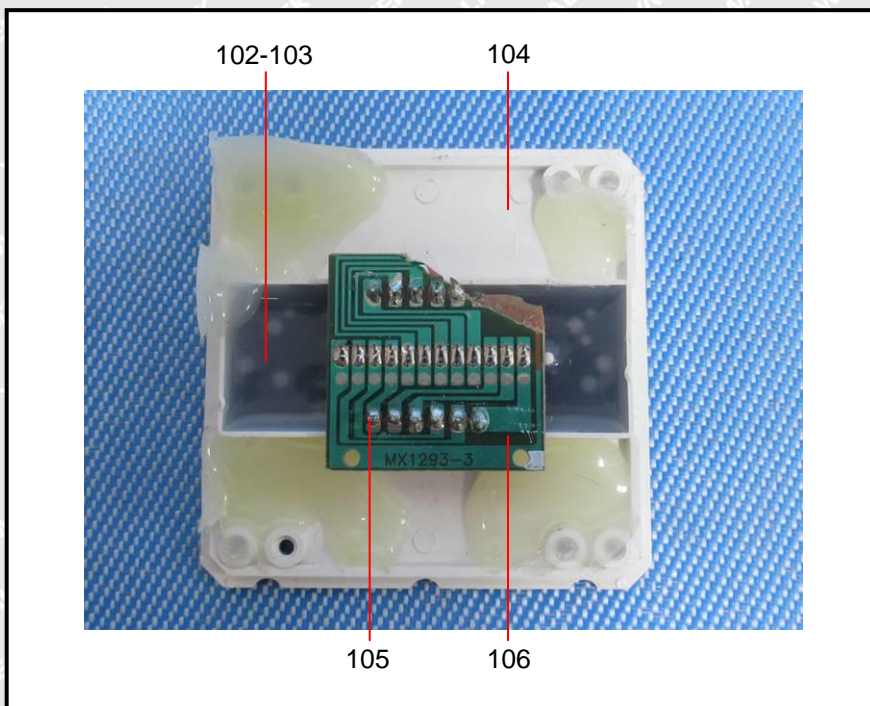


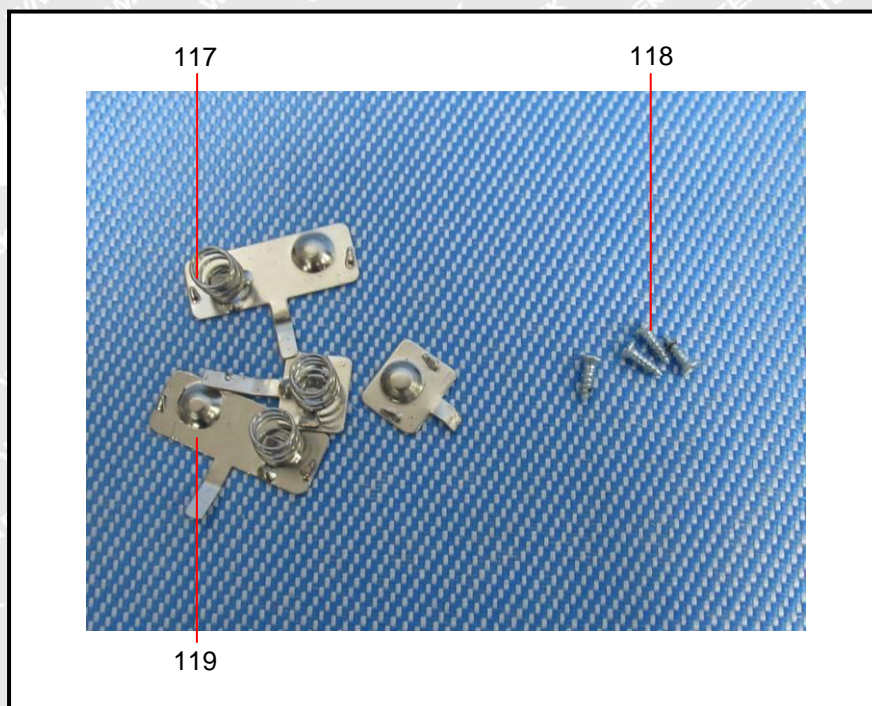
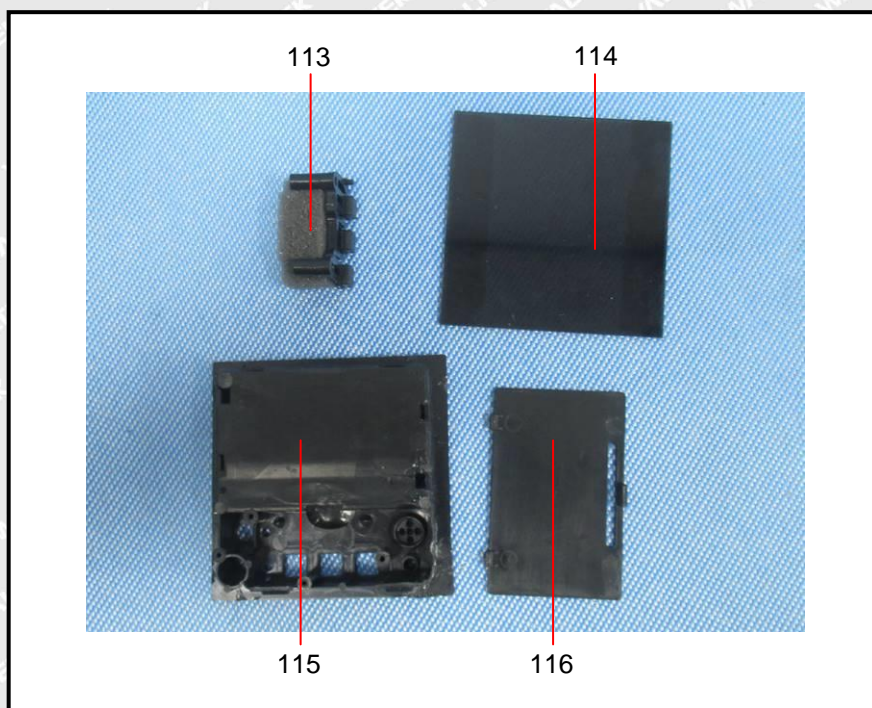


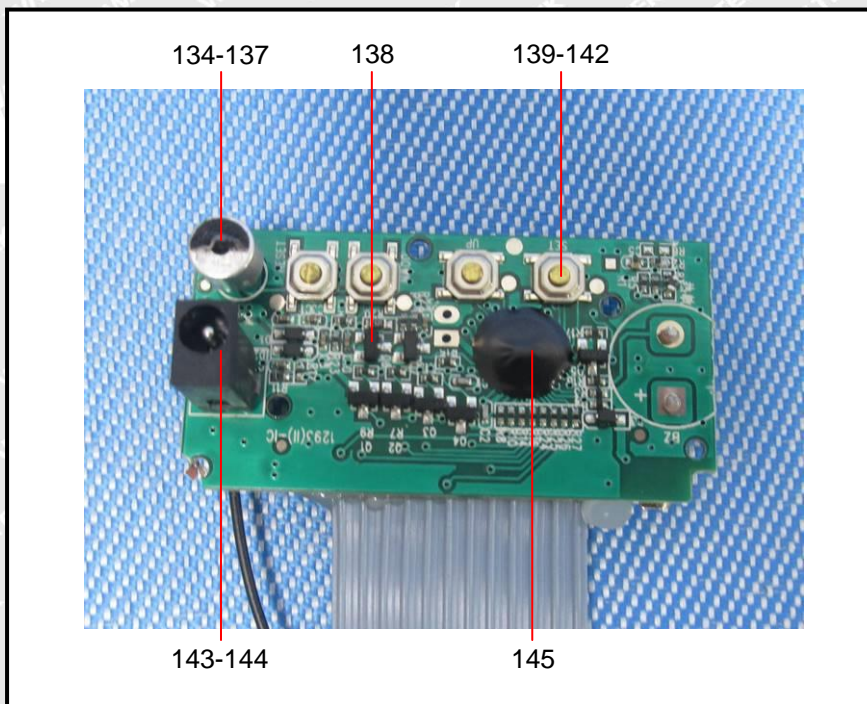
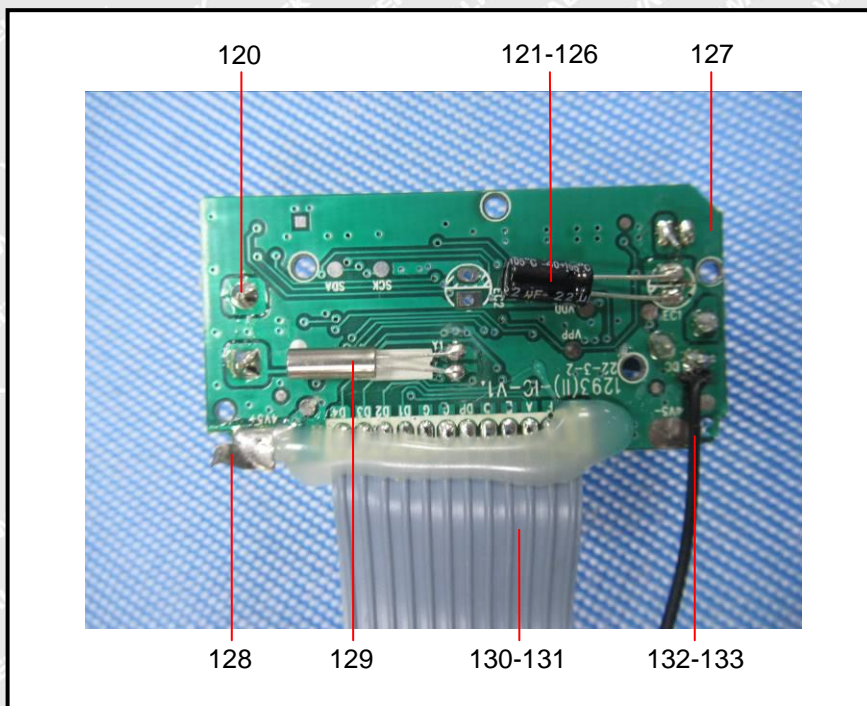


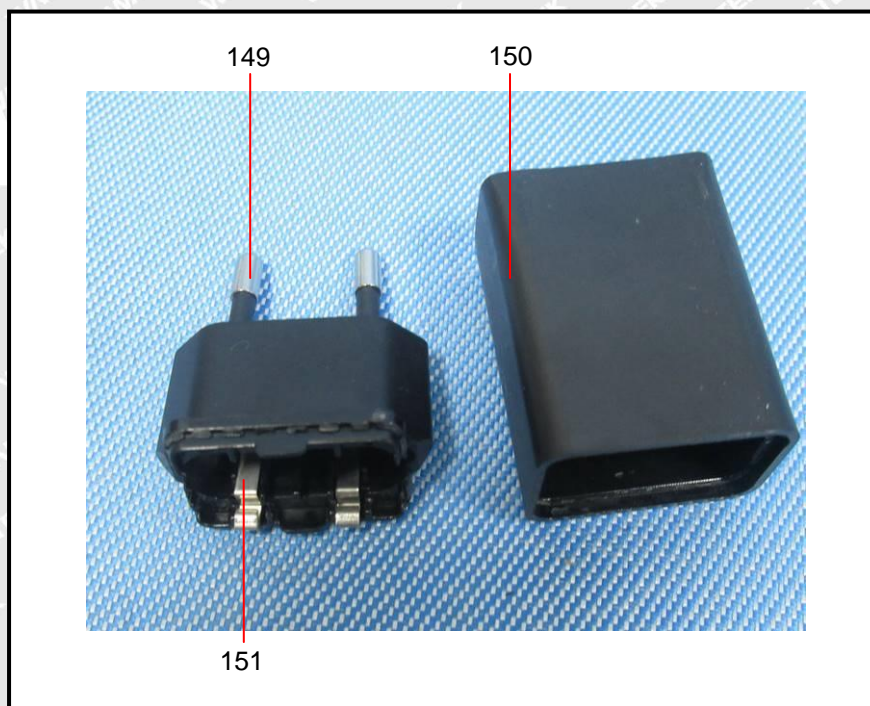
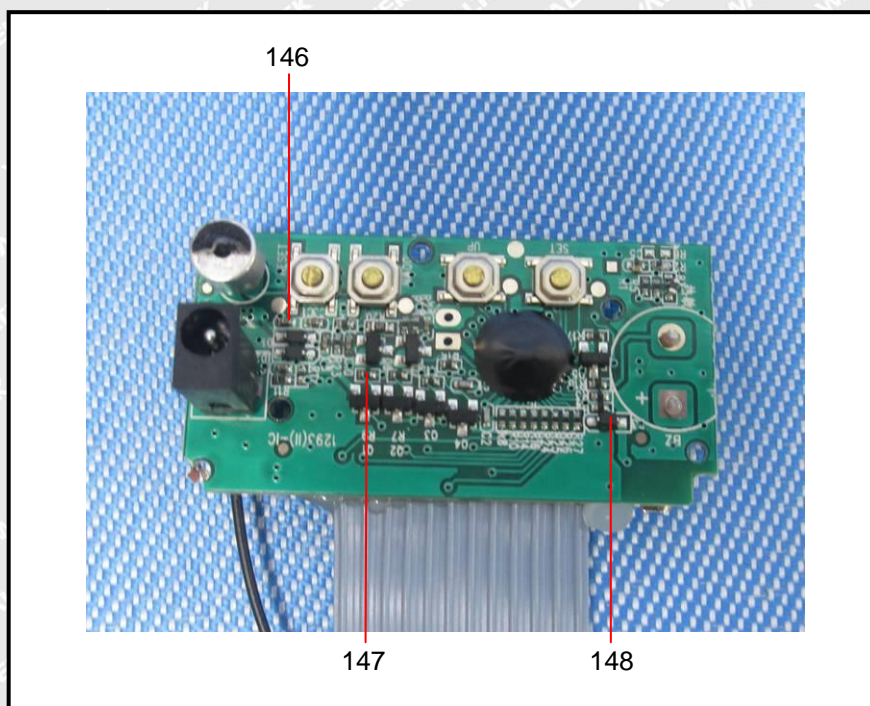


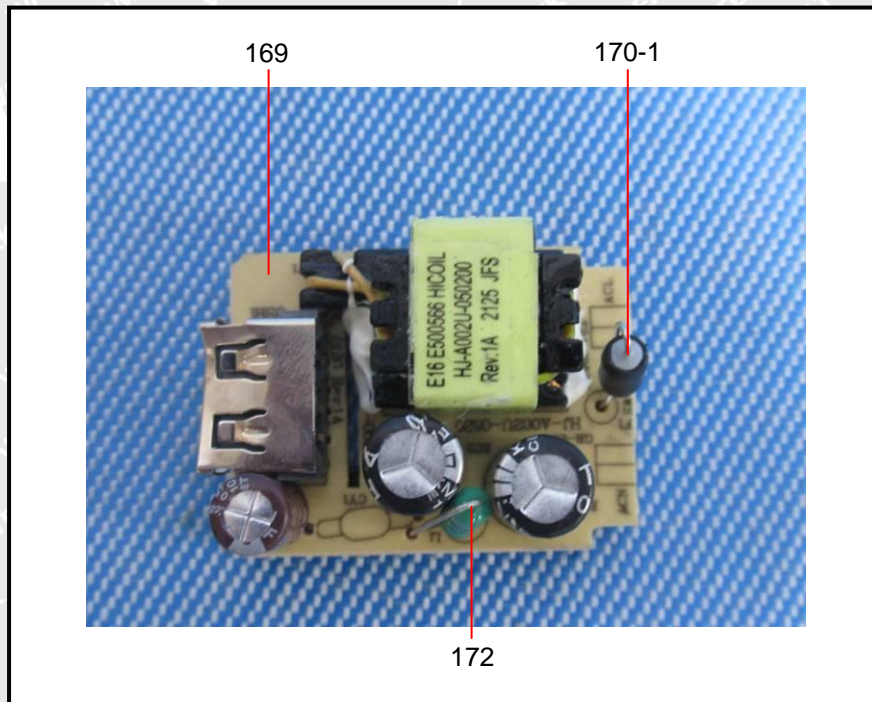
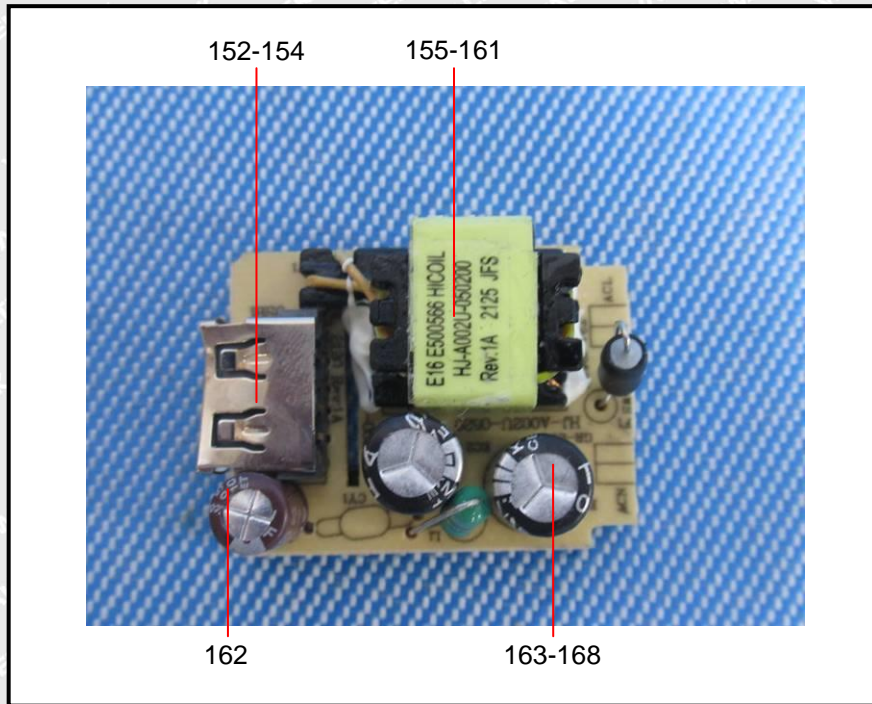


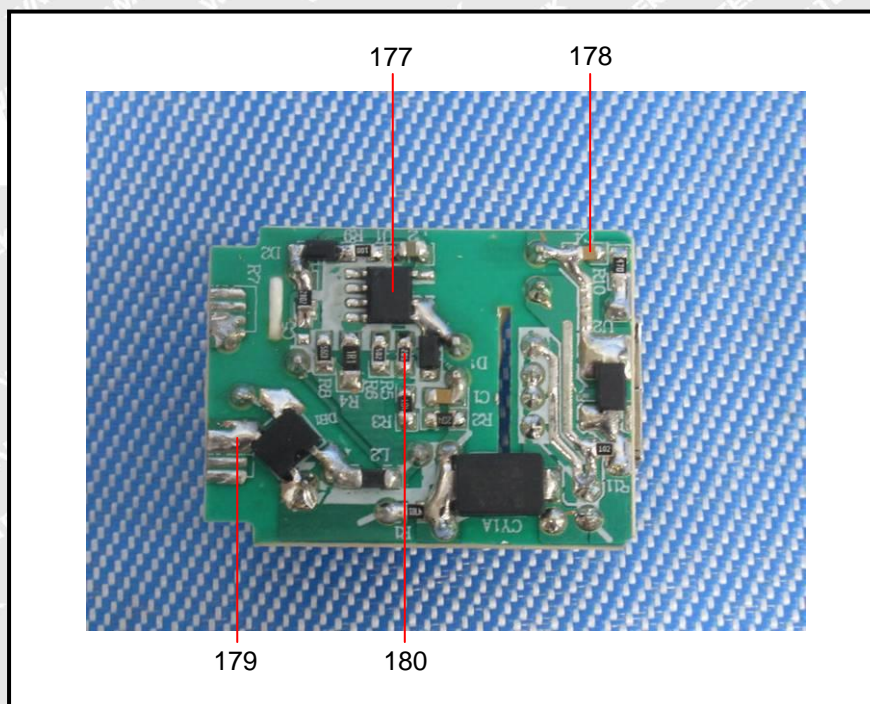
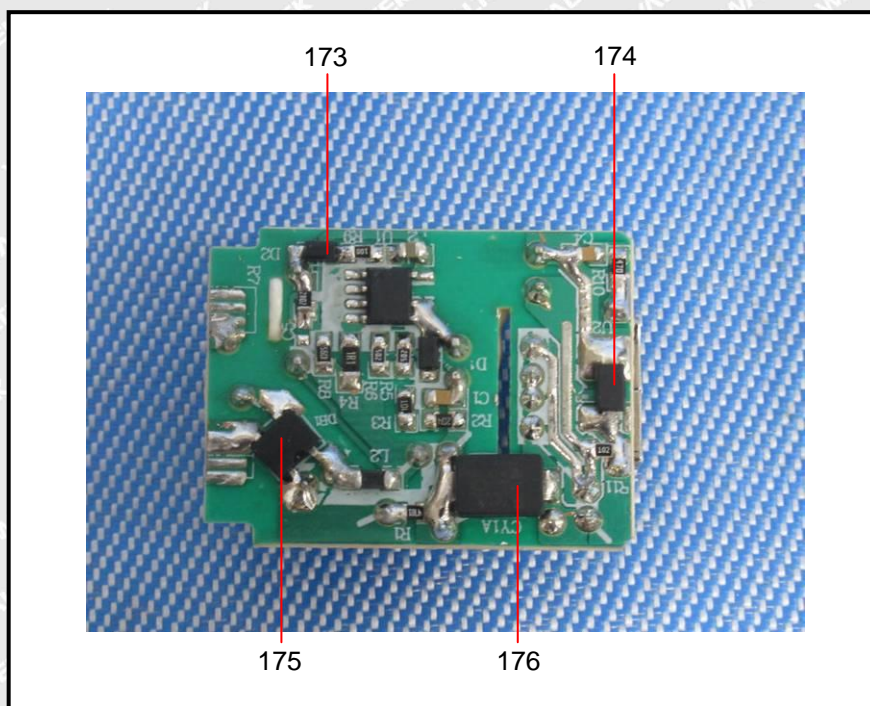


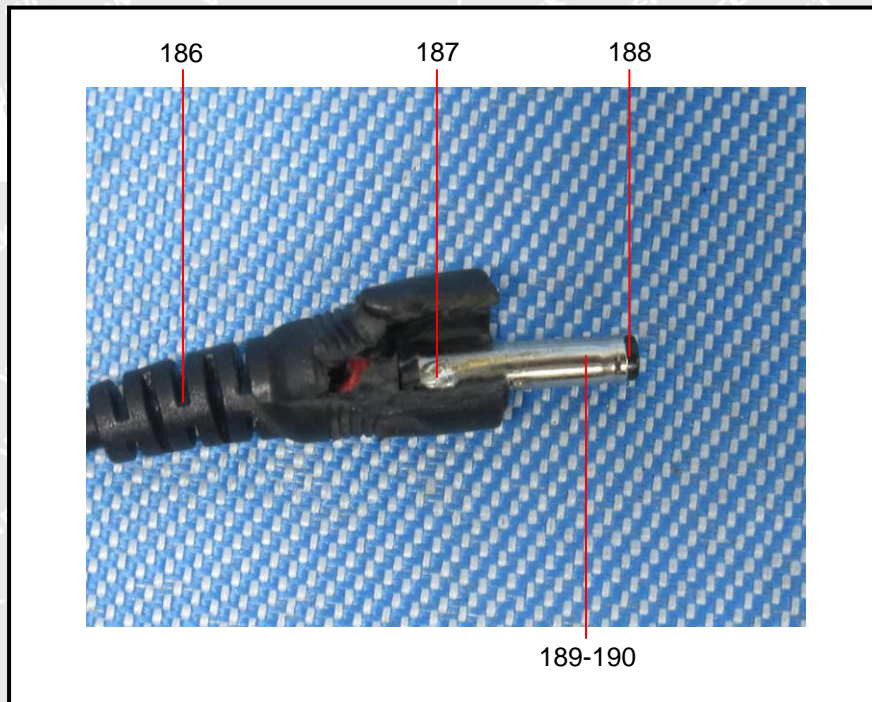
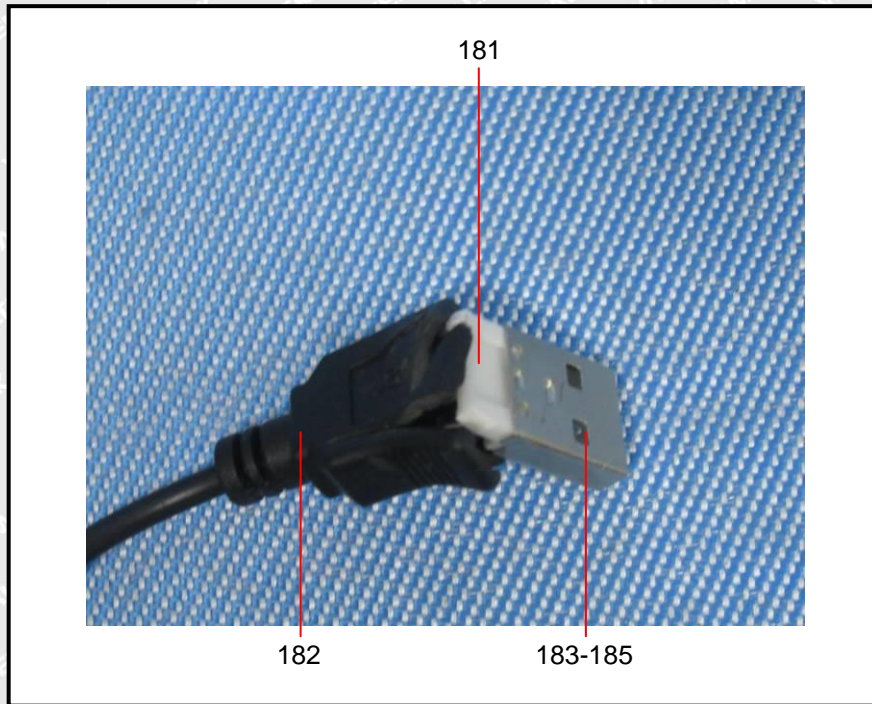


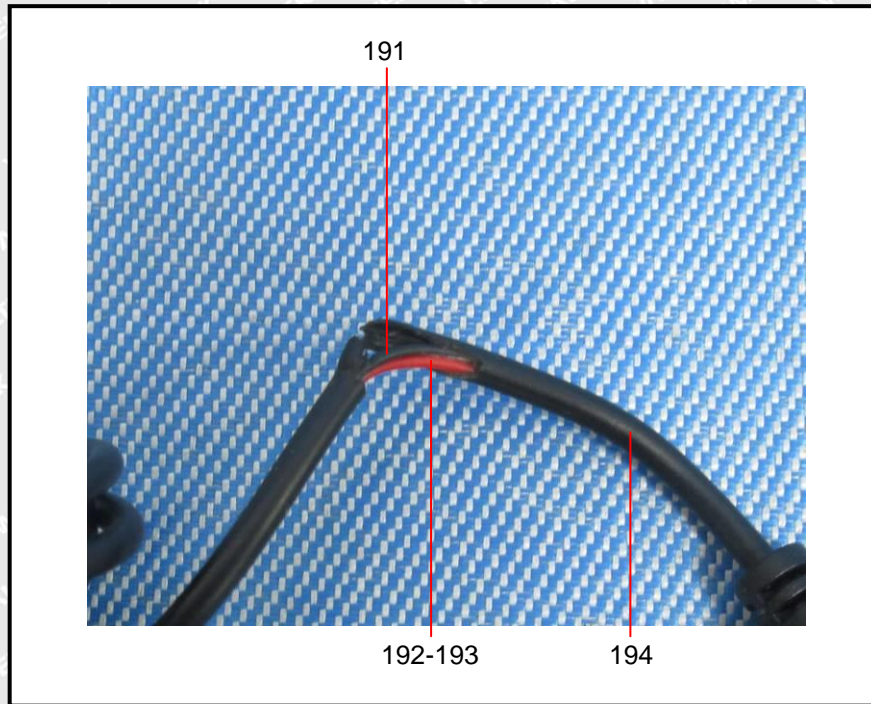












Remarks:

1. The results shown in this test report refer only to the sample(s) tested;
2. This test report cannot be reproduced, except in full, without prior written permission of the company;
3. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver;
4. The Applicant name and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which Waltek hasn't verified;
5. If the report is not stamped with the accreditation recognized seal, it will only be used for scientific research, education, and internal quality control activities, and is not used for the purpose of issuing supporting data to the society.

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