TEST REPORT

Applicant:	HDL Automation Co., Ltd.
Address:	No.86 Lotus west Road. Lifeng Street, Shilou Town, Panyu District, Guangzhou 511447 China

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample name:	LED Driver
Model:	MQLET8-2C24-150.10
Client Ref. Info.:	MQLET6-1C24-150.10， MQLET6-1C24-75.10,MQLET6-1C12-75.10，MQLET8-4C24-75.10，MQLET8-2C12-75.10，MQLET8-2C24-75.10，MQLET8-4C24-150.10,MQLET8-2C12-150.10
Trade mark:	HDL®
Manufacturer&Factory:	HDL Automation Co., Ltd.
Address:	No.86 Lotus west Road. Lifeng Street, Shilou Town, Panyu District, Guangzhou 511447 China
Sample No.:	S240829066003
Sample Received Date:	2024-08-31
Testing Period:	2024-08-31~ 2024-09-10

Test Requirement: **Conclusion**

As specified by client, to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Bis-(2-ethylhexyl) Phthalate (DEHP), Benzyl butyl Phthalate (BBP), Dibutyl Phthalate (DBP) and Diisobutyl Phthalate(DIBP)contents in the submitted sample(s) in accordance with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU. Pass

Test Result(s): Please refer to the following page(s);

Test Method: Please refer to the following page(s);

Compiled by: Reviewed by:

Approved by: Date: 2024-09-24

Sample Description:

No.	Component name	Sample name	Description
1	Shell	White plastic shell	White plastic
2		cover	Black plastic
3`	PCBA	PCB	Green PCB
4		Green interface	Green plastic
5			Silver metal sheet
6			Silver metal screw
7			Silver metal nut
8		Silver metal plate	Silver metal plate
9		Silver gray metal contact pin	Silver gray metal contact pin
10		Silver gray metal screw	Silver gray metal screw
11		T1 transformer	Yellow adhesive tape
12			Black plastic
13			Magnet core
14			Copper foil tape
15			Silver metal wire
16			Transparent casing tube
17			Varnished wire
18			Coil
19			Metal pin
20			Tin solder
21		C11 electrolytic capacitor	Yellow/green plastic jacket
22			Aluminum shell
23			Cathode foil
24			Anode foil
25			Electrolytic paper
26			Electrode pin
27			Rubber pad
28		C3 electrolytic capacitor	Purple plastic jacket
29			Rubber pad
30		C14 electrolytic capacitor	Blue plastic jacket
31			Rubber pad
32		White colloid	#N/A
33		C2 capacitor	Blue body
34		L21 inductor	Yellow adhesive tape
35			Beige plastic plate
36			Black pouring sealant
37			Green coating
38			Magnet core
39			Coil
40		C12 capacitor	Purplish red body

41	PCBA	D2 diode	Black body
42		Q13 transistor	Black body
43		BD1 rectifier bridge	Black body
44		C20 capacitor	Purplish red body
45		L13 inductor	Yellow adhesive tape
46			Yellow plastic plate
47			Black pouring sealant
48			Black coating
49			Magnet core
50			Coil
51		C02 capacitor	Yellow plastic shell
52			Yellow pouring sealant
53			Inner body
54			Metal pin
55		L03 inductor	Black plastic frame
56			Green coating
57			Magnet core
58			Coil
59		L5 inductor	Yellow adhesive tape
60			Beige plastic plate
61			Black pouring sealant
62			Green coating
63			Varnished wire
64			Magnet core
65			Coil
66		RT1 thermistor	Black body
67		F1 fuse	Black plastic shell
68			Black plastic sketch
69		SA1 resistor	Yellow body
70		CY1 capacitor	Black body
71		Black electronic components	Black body
72		SMD	R137 SMD resistor
73			D1 SMD diode
74			U102 SMD chip
75			Q11 SMD audion
76			C9 SMD capacitor
77			R213 SMD resistor
78			SMD inductor
79	Insert PCBA	PCB	Green PCB
80			SMD resistor
81			SMD audion
82			Black electronic components

83	Insert PCBA	PCB	U1 Chip

Test Result(s):

Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers(PBDEs)

Part No.	Test Items	XRF Screening Result(mg/kg)	Chemical Test Result(mg/kg)	Conclusion
1	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
2	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
3	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
4	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
5	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	IN	N.D.	
	Br(PBBs&PBDEs)	/	/	
6	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	

7	Pb	OL	N.D.	Pass
	Cd	IN	N.D.	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
8	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
9	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
10	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
11	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
12	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
13	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
14	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	

15	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
16	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
17	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
18	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
19	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
20	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
21	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
22	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	

23	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
24	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
25	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
26	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
27	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
28	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
29	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
30	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	

31	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
32	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
33	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
34	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
35	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
36	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
37	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
38	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	

39	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
40	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
41	Pb	8420[#1#2]	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
42	Pb	IN	8345[#1#2]	Pass
	Cd	IN	N.D.	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
43	Pb	7825[#1#2]	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
44	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
45	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
46	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	

47	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
48	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
49	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
50	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
51	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
52	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
53	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
54	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	

55	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
56	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
57	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
58	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
59	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
60	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
61	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
62	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	

63	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
64	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
65	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	
66	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
67	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
68	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
69	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
70	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	

71	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
72	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	IN	N.D.	
	Br(PBBs&PBDEs)	BL	/	
73	Pb	8175[#1#2]	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
74	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
75	Pb	8605[#1#2]	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
76	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
77	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
78	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	/	/	

79	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	IN	N.D.	
80	Pb	IN	161	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	IN	N.D.	
	Br(PBBs&PBDEs)	BL	/	
81	Pb	10147#1#2	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
82	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	
83	Pb	BL	/	Pass
	Cd	BL	/	
	Hg	BL	/	
	Cr(Cr(VI))	BL	/	
	Br(PBBs&PBDEs)	BL	/	

Bis-(2-ethylhexyl) Phthalate (DEHP), Benzyl butyl Phthalate (BBP), Dibutyl Phthalate (DBP) and Diisobutyl Phthalate(DIBP)

Test Items	Result(mg/kg)		
	1+2+4	11+34+45	12+35+46
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	14	16	17+63
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	21+28+30	25	27+29+31
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	32	33	36+47+52
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	37	40	41
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	42	43	44
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	48	51+55+60	53
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	56	59	61
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	112	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	62	66	67+68
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)		
	69	70	71
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass

Test Items	Result(mg/kg)	
	79	82
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.
Conclusion	Pass	Pass

Note: 1.N.D. = Not Detected (<MDL)
MDL = Method Detection Limit
1mg/kg = 1ppm =0.0001%
/=Not Regulated or Not Applicable
2. BL = Below the XRF screening limit
IN = Further chemical test will be conducted when the screening result inconclusive
OL = Further chemical test will be conducted while the result is above the screening limit.
3. For metal samples, the sample is negative for Cr(VI), if the Cr(VI) concentration is less than 0.10 μg/cm², the coating is considered a non- Cr(VI) based coating;
The sample is positive for Cr(VI), if the Cr(VI) concentration is greater than 0.13 μg/cm², The sample coating is considered to contain Cr(VI);
The result is considered to be inconclusive, the Cr(VI) concentration is between the 0.10 μg/cm² and 0.13 μg/cm², unavoidable coating variations may influence the determination.
Because the storage condition and production date of the sample are not known, the test results of the sample of hexavalent chromium can only represent the state of hexavalent chromium in the samples tested.

Remark: 1. When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
2. According to the client's statement , the material of the sample(s) comply with RoHS directive 2011/65/EU Annex III Exemption, Corresponding exemption clause:
#1 7(c)-I Lead is exempted as Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.
#2 7(a) Lead is exempted as Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead).

Test Method:

1. With reference to IEC 62321-1: 2013 Ed.1.0, IEC 62321-2:2021 Ed.2.0, IEC 62321-3-1:2013 Ed.1.0.

XRF screening limits in mg/kg for regulated elements in various matrices.

Element	Limit of IEC 62321-3-1:2013 Ed.1.0 (mg/kg)		
	Polymers	Metals	Composite material
Pb	BL≤(700-3σ) <X <(1300+3σ)≤OL	BL≤(700-3σ) <X <(1300+3σ)≤OL	BL≤(500-3σ)<X <(1500+3σ)≤OL
Cd	BL≤(70-3σ)<X < (130+3σ) ≤OL	BL≤(70-3σ)<X < (130+3σ) ≤OL	LOD <X<(150+3σ) ≤OL
Hg	BL≤(700-3σ)<X <(1300+3σ)≤OL	BL≤(700-3σ)<X <(1300+3σ)≤OL	BL≤(500-3σ)<X <(1500+3σ)≤OL
Cr	BL≤(700-3σ)< X	BL≤(700-3σ)< X	BL≤(500-3σ)< X
Br	BL≤(300-3σ)< X	/	BL≤(250-3σ)< X

Note: BL= Below the XRF screening limit

OL=Over the XRF screening limit

X=The symbol"X"marks the region where further investigation is necessary.

3σ =The reproducibility of analytical instruments

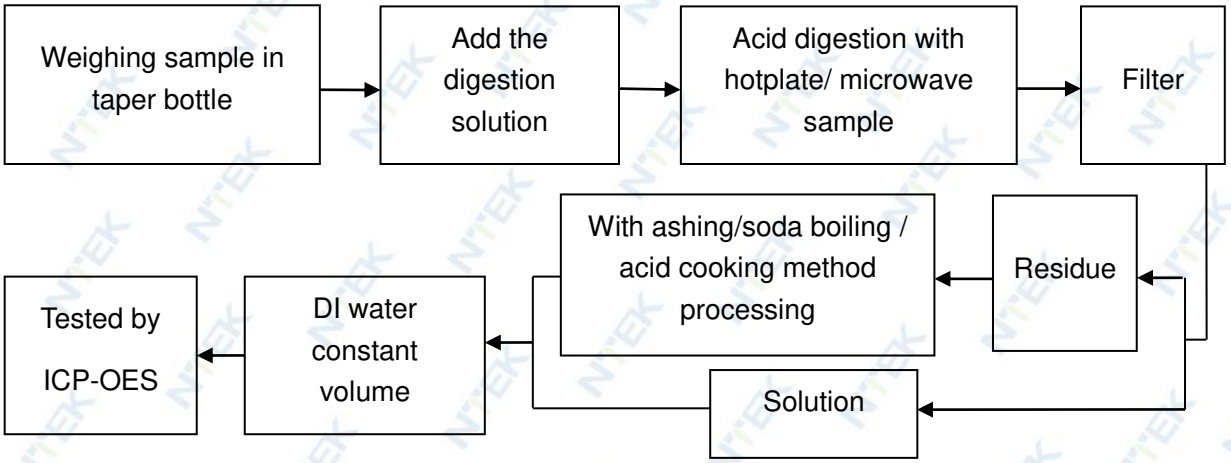
LOD= Detection limit

2. Chemical Test

Test item	Test method	Test instrument	MDL	Limit△
Lead (Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	1000 mg/kg
Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	100 mg/kg
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017	ICP-OES	2 mg/kg	1000 mg/kg
Hexavalent Chromium(Cr(VI))	IEC 62321-7-1:2015 Ed.1.0	UV-Vis	0.10 μg/cm^2	1000 mg/kg
	IEC 62321-7-2:2017 Ed.1.0		8 mg/kg	
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Polybrominated, Diphenyl Ethers(PBDEs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Bis-(2-ethylhexyl) Phthalate (DEHP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg
Benzyl butyl Phthalate (BBP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg
Dibutyl Phthalate (DBP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg
Diisobutyl Phthalate (DIBP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg
△The limit is quoted from RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.				

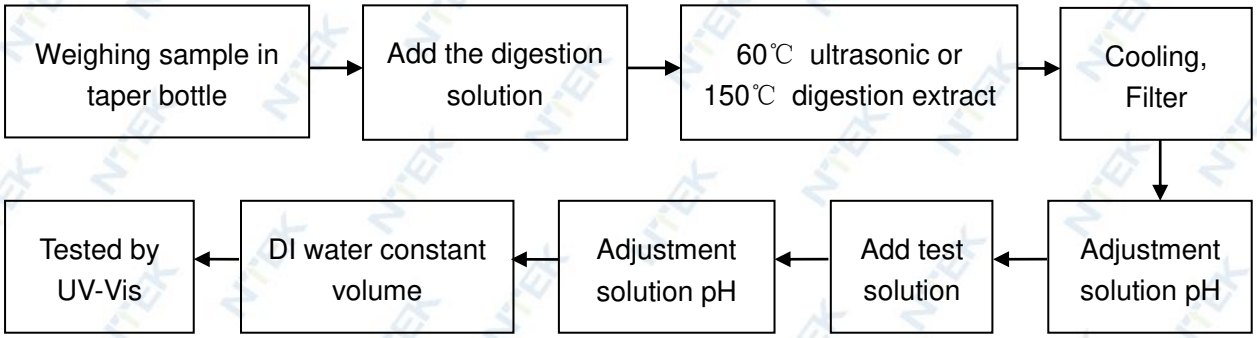
Test Flow:

1. Lead(Pb), Cadmium(Cd) , Mercury (Hg)

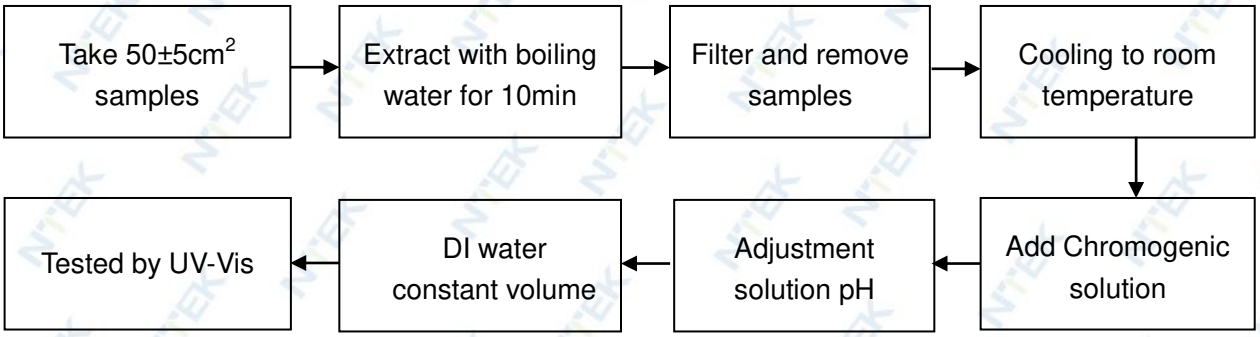


2. Hexavalent Chromium(Cr(VI))

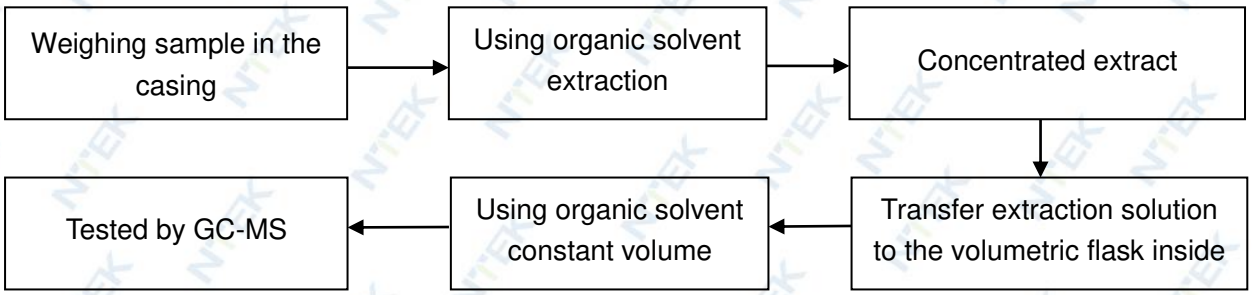
2.1 Non- metal sample(s)



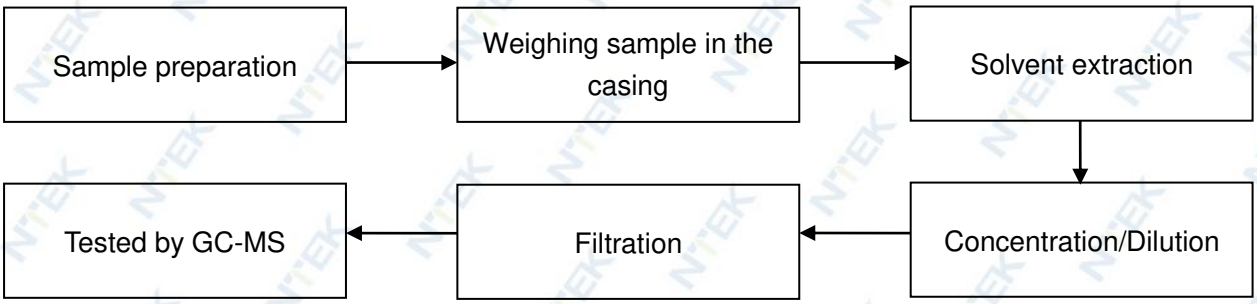
2.2 Metal sample(s)



3. PBBs/ PBDEs



4. Phthalates



Sample photo(s):



Fig.1(Finished photo)

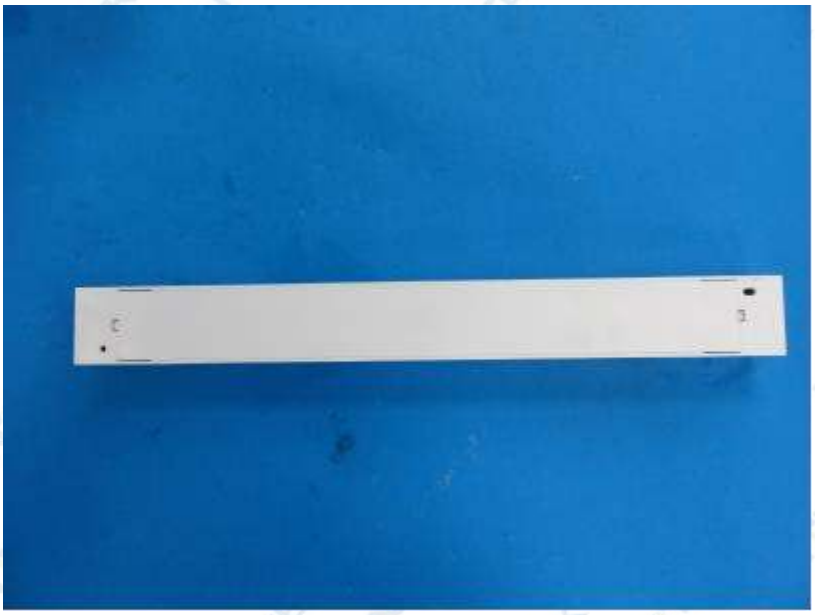


Fig.2(Finished photo)

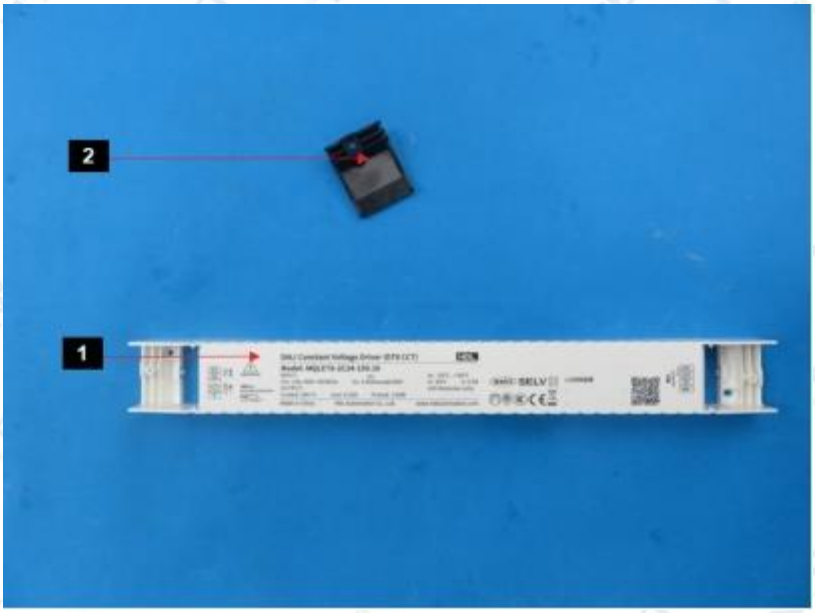
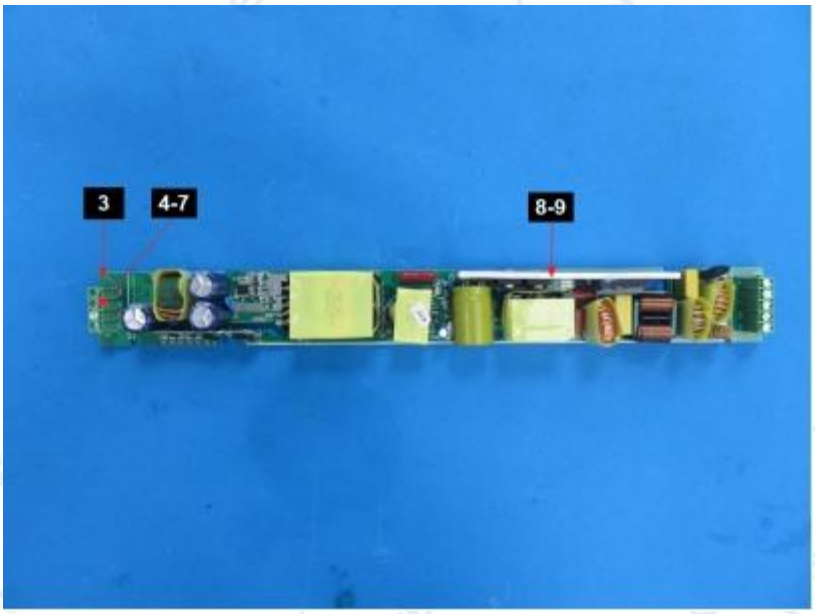


Fig.3



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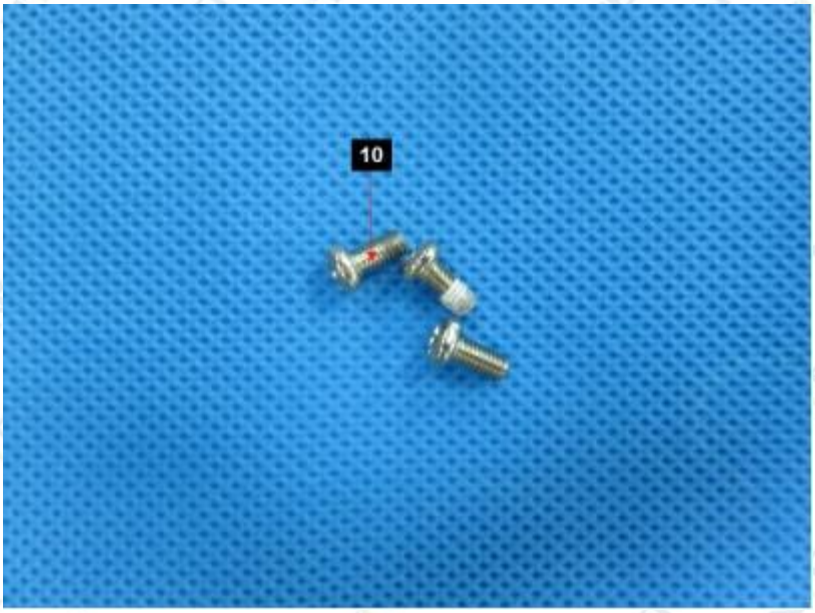

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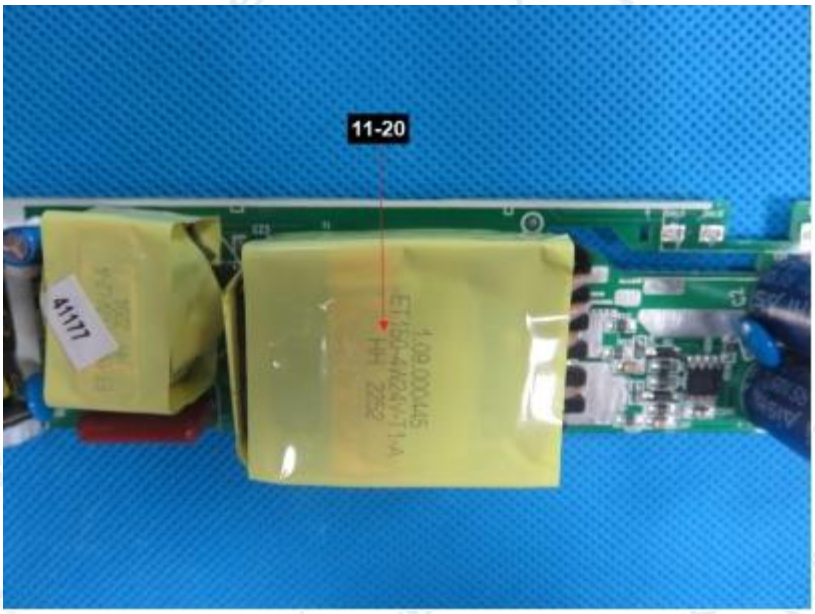


Fig.6

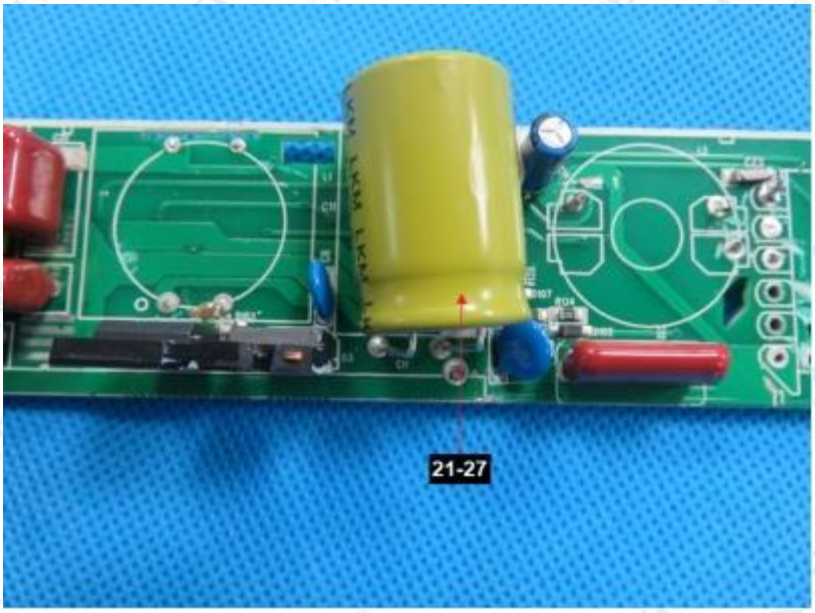


Fig.7



Fig.8

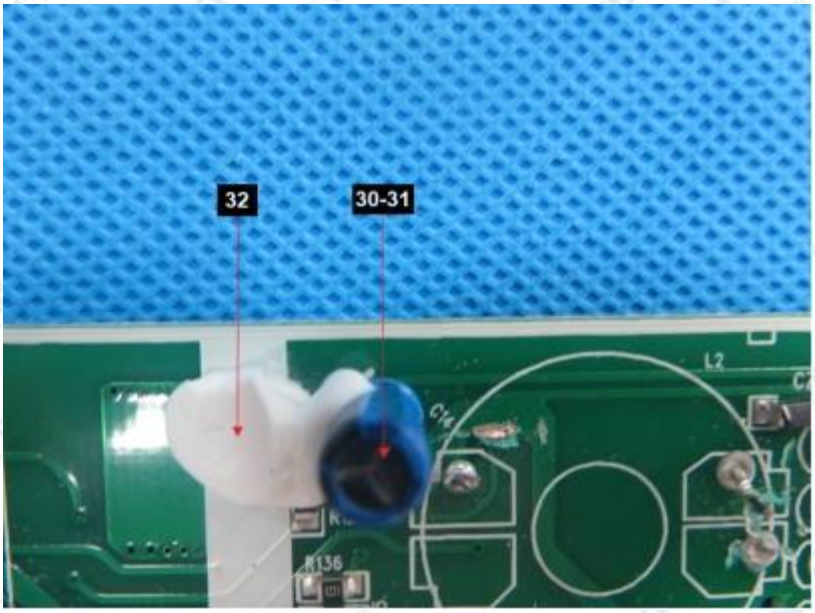


Fig.9

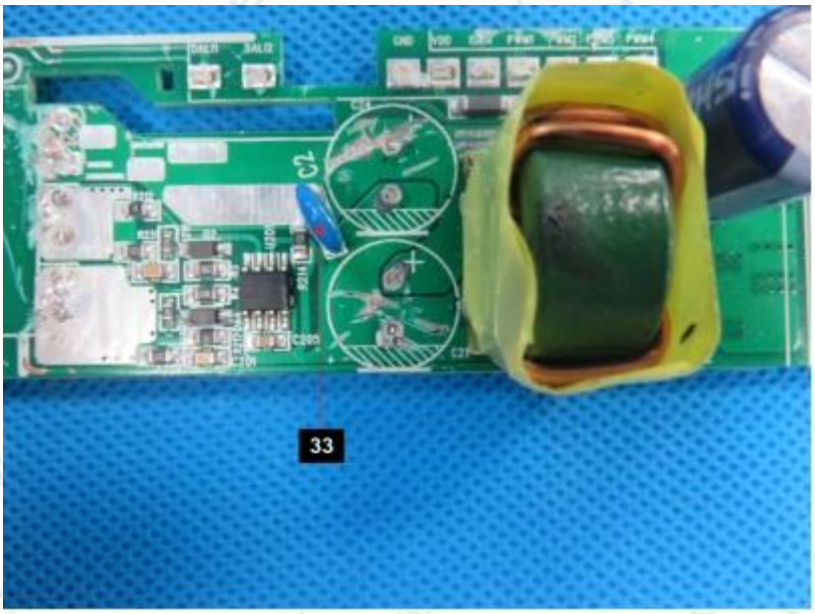
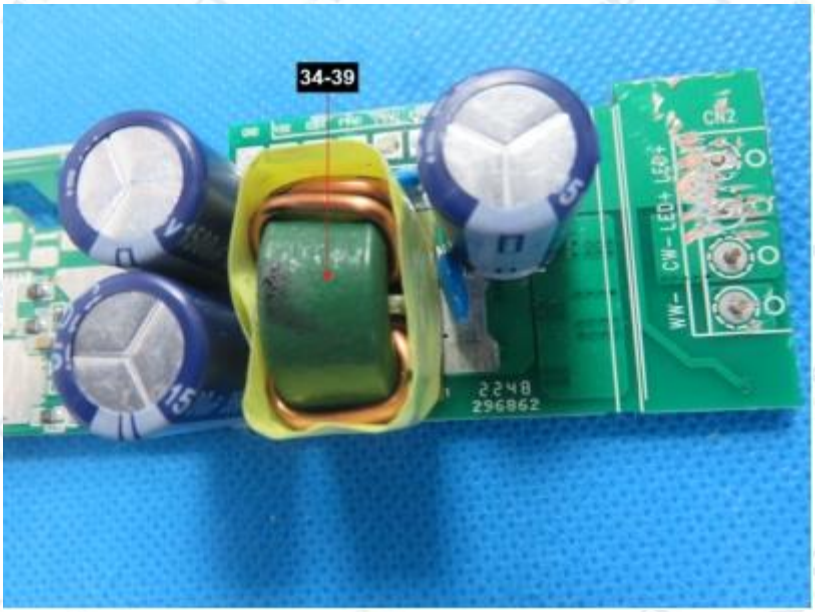


Fig.10



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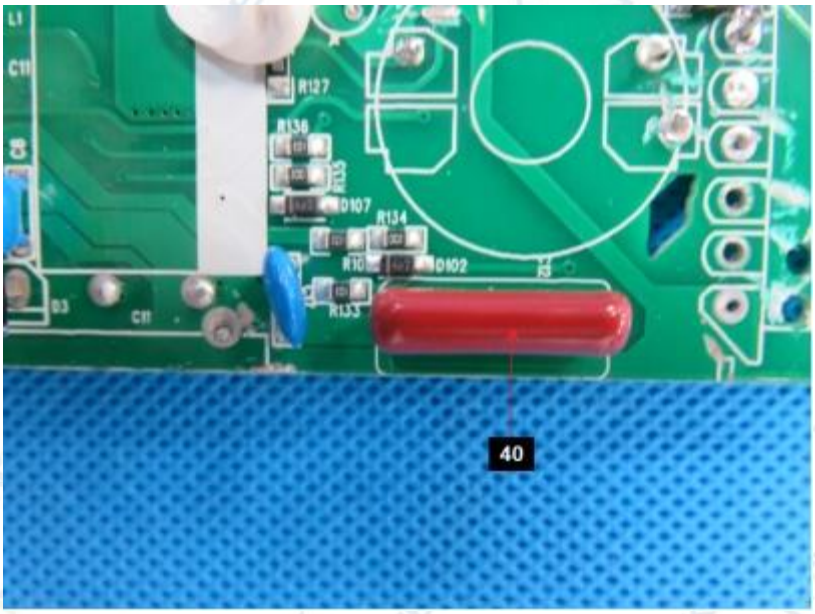

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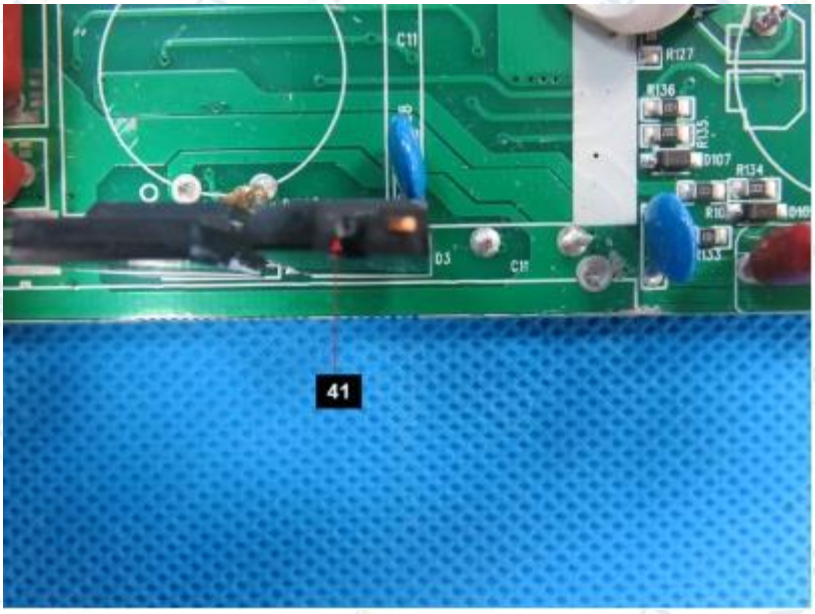
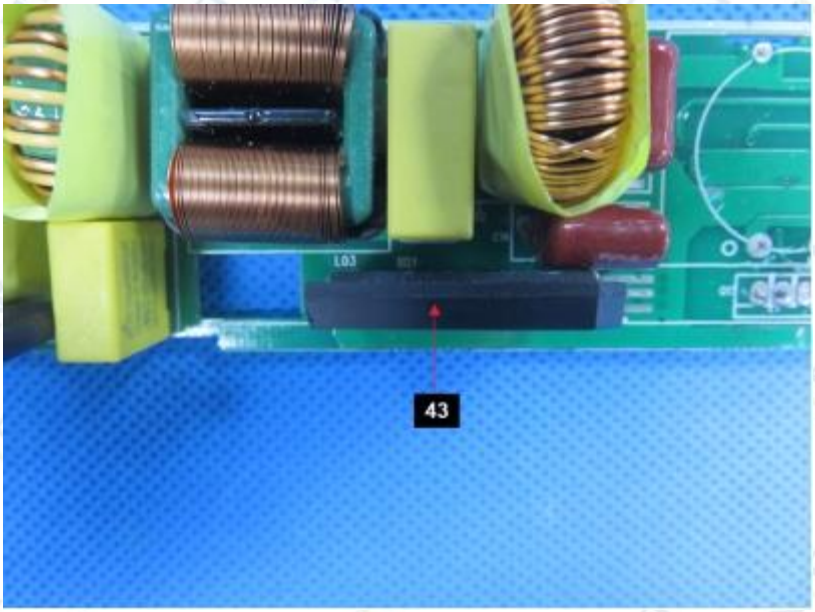


Fig.13



Fig.14



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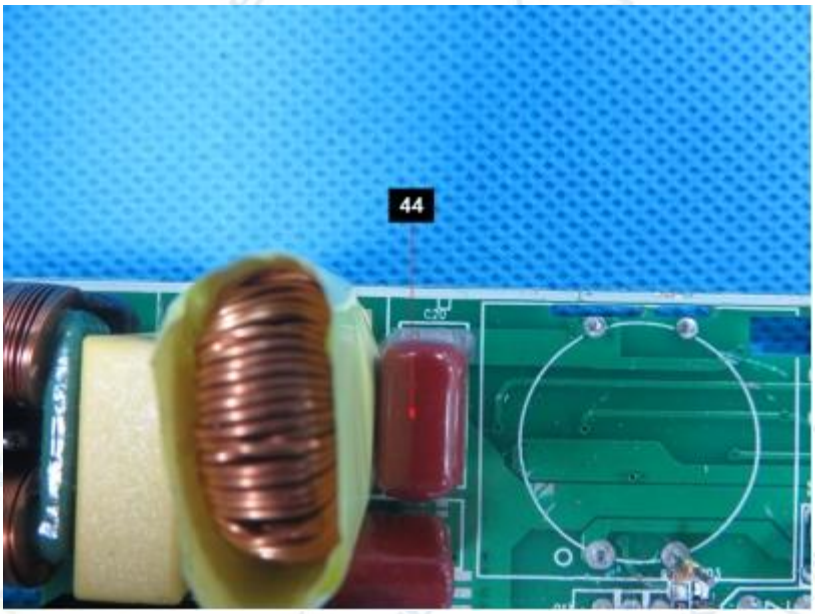

Fig.16

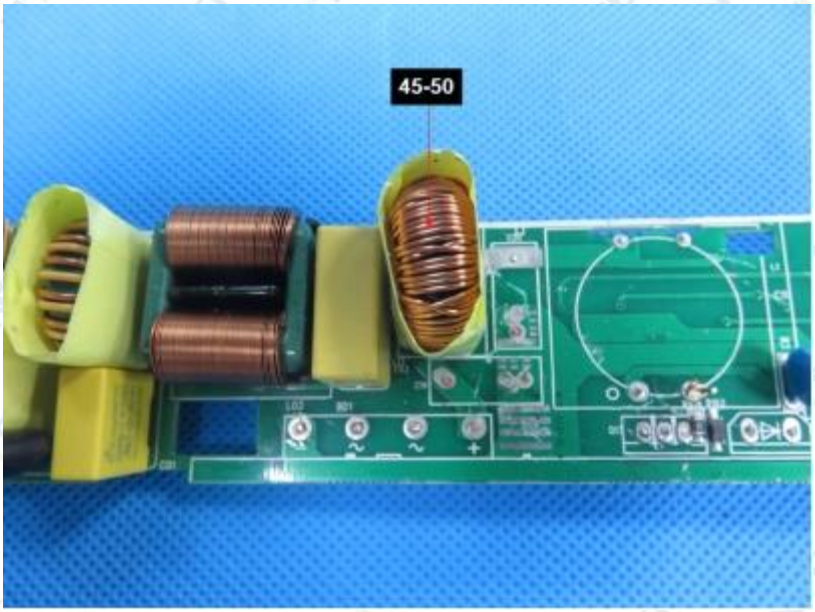

Fig.17

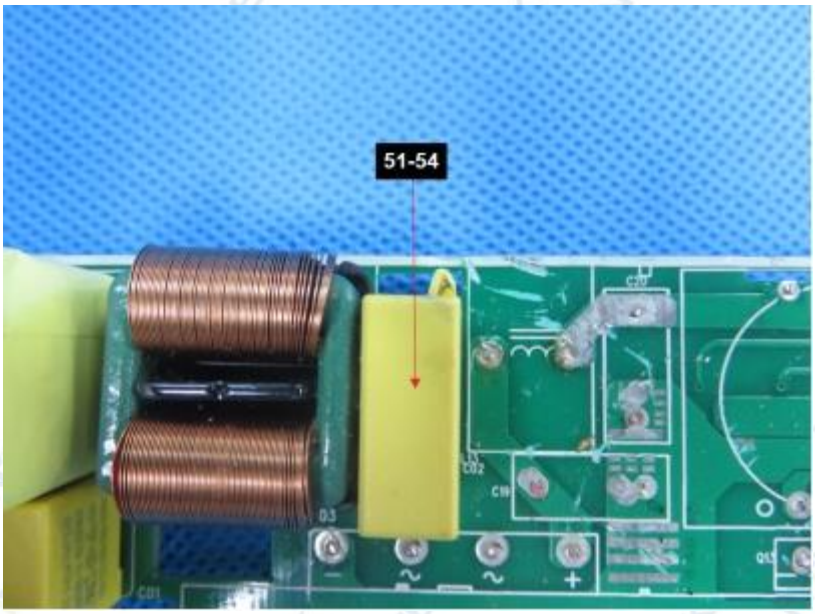

Fig.18

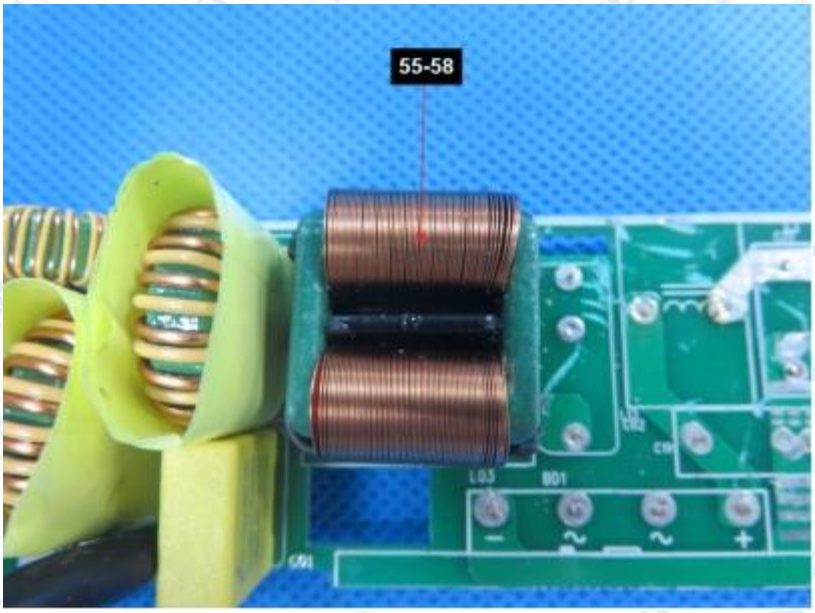

Fig.19



Fig.20



Fig.21



Fig.22



Fig.23

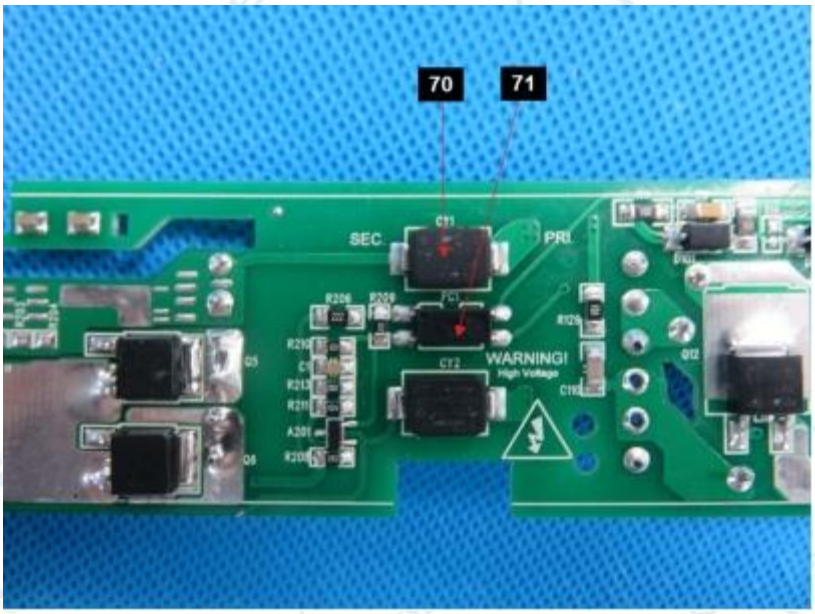

Fig.24

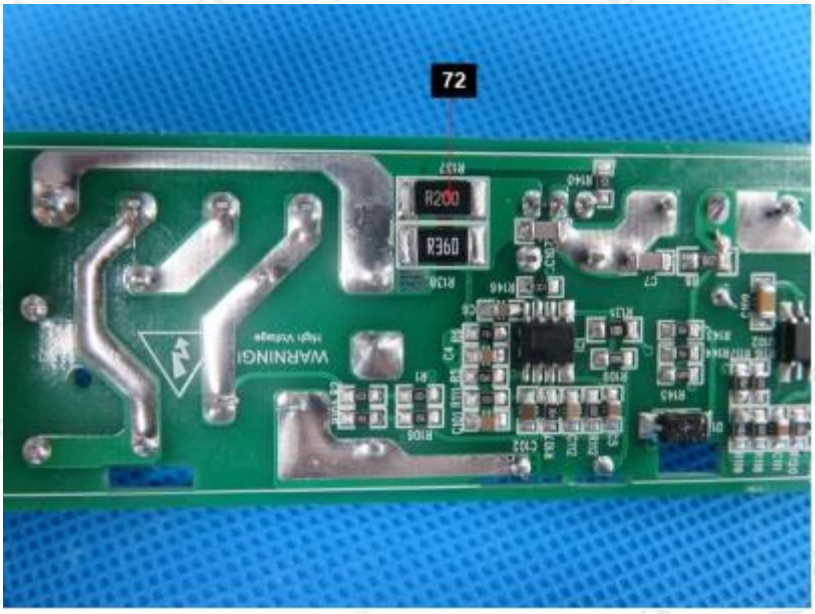

Fig.25

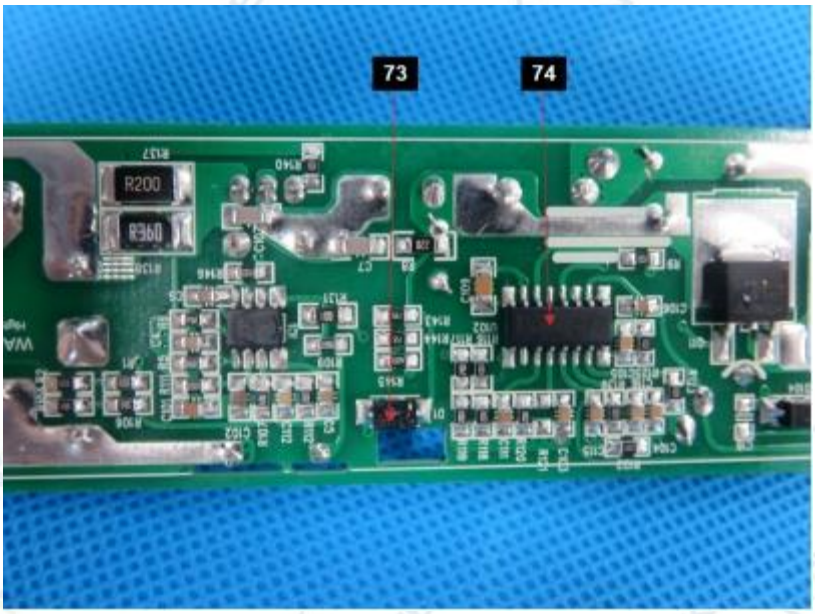

Fig.26

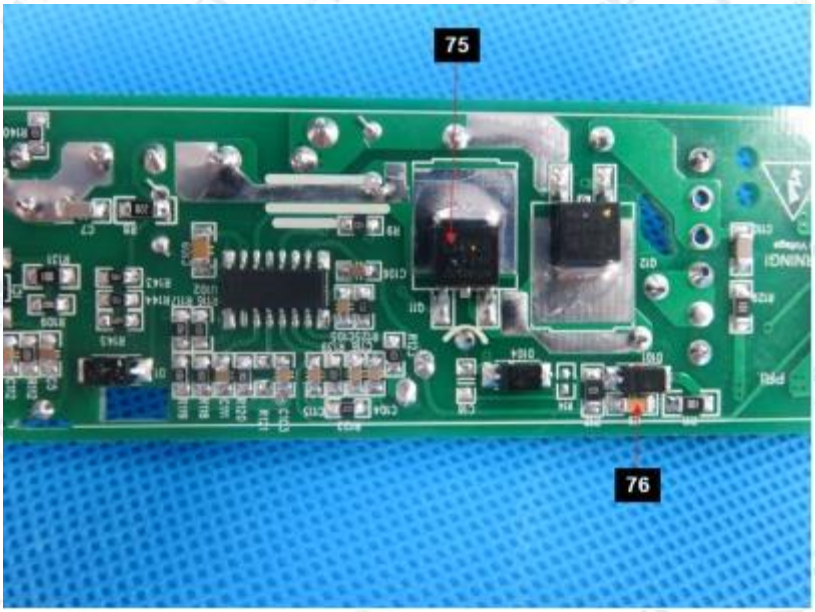

Fig.27

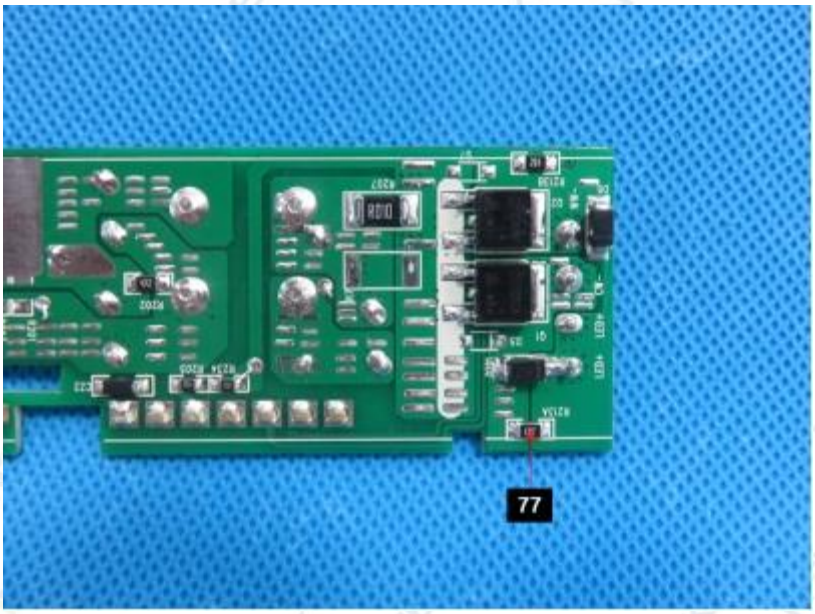

Fig.28

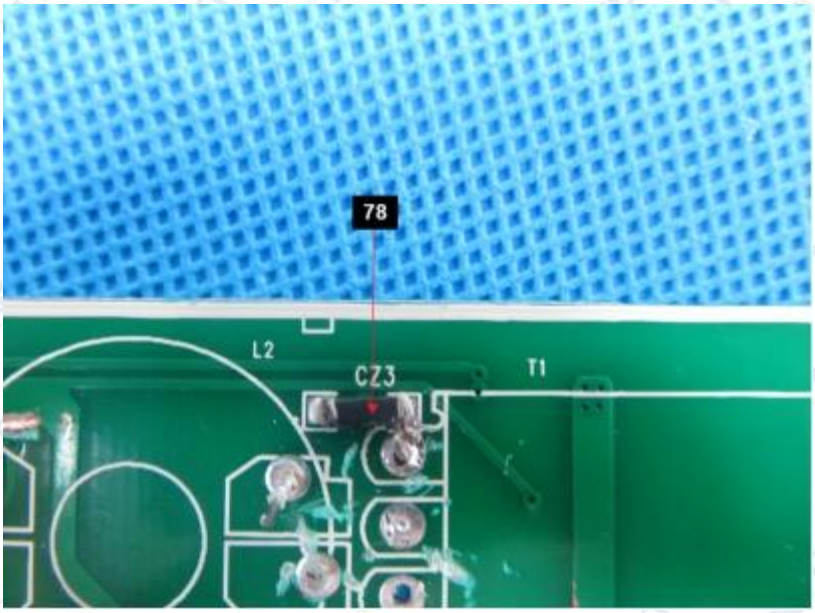

Fig.29

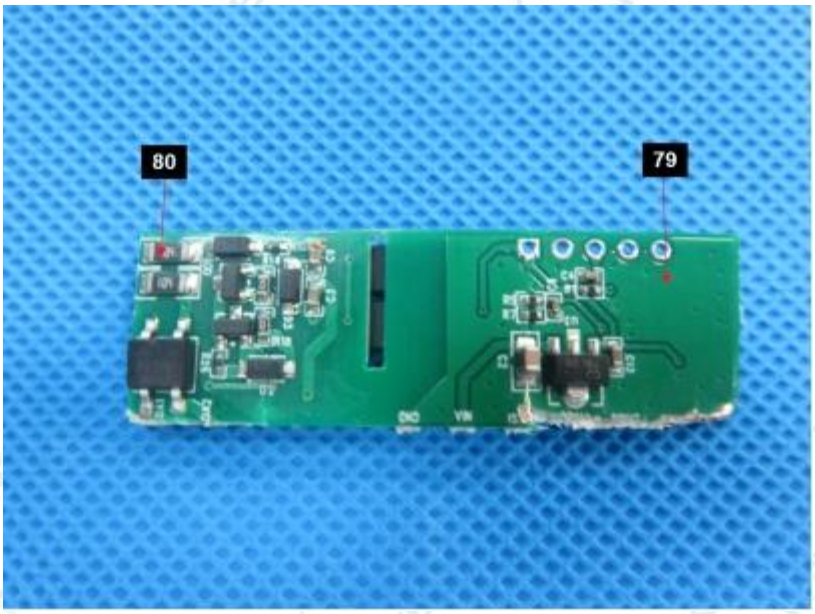

Fig.30

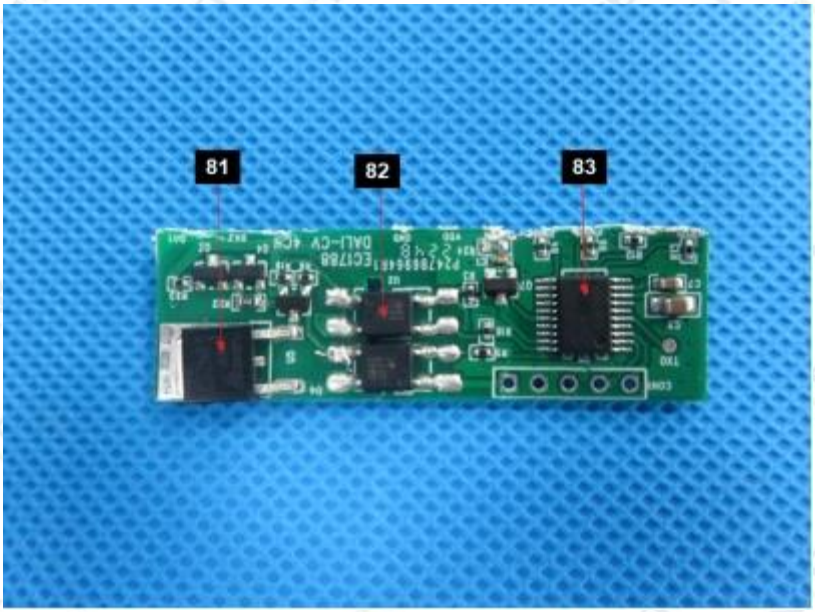

Fig.31

****End of Report****

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