

TEST REPORT

Report No.: LCS190708124AR

Date: 2019.09.10

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Applicant : ZHEJIANG CARSPA NEW ENERGY CO., LTD

Address : Carspa Building,Xinhejia Industrial Zone, Baishi, Yueqing, Wenzhou, Zhejiang, China, 325604

Report on the submitted samples said to be:

Sample Name : POWER INVERTER

Trade Mark : CARSPA

Client's information : N/A

Style No. : P4000, P150, P200, P300, P400, P600, P1000, P1500, P2000, P2500, P3000, CPS600, CPS1000, CPS1500, CPS2000, SK700, SK1000, SK2000, SK3000, SKD700, SKD1000, SKD2000, SKD3000, PX500, PX600, PX700, PX800, PX1000, PX1200, PX1500, PX2000

Testing Period : July 17, 2019 ~ September 10, 2019

Results : Please refer to next page(s).

TEST REQUEST	CONCLUSION
According to the customer's request, based on the performed tests on submitted sample, the result of Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, Dibutyl Phthalate(DBP), Benzylbutyl Phthalate(BBP), Bis(2-ethylhexyl) Phthalate(DEHP), Diisobutyl phthalate(DIBP) content comply with the limit as set of RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.	Pass

Signed for and on behalf of LCS



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Results:

A.EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Test method: With reference to IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results						Date of sample submission/r esubmission
		Cd	Pb	Hg	Cr ^Ⅲ	Br ^Ⅴ		
						PBBs	PBDE s	
1	Blue metal sheet	BL	BL	BL	BL	/	/	2019-07-17
2	Coloured paper	BL	BL	BL	BL	BL	BL	2019-07-17
3	Ferrous metal sheet	BL	BL	BL	BL	/	/	2019-07-17
4	Transparent gel	BL	BL	BL	BL	BL	BL	2019-07-17
5	Black plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
6	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
7	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
8	Golden metal sheet	BL	X	BL	BL	/	/	2019-07-17
9	Silver metal screw	BL	BL	BL	BL	/	/	2019-07-17
10	Silver metal nut	BL	BL	BL	BL	/	/	2019-07-17
11	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
12	Black plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
13	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
14	Silver metal sheet	OL	BL	BL	BL	/	/	2019-07-17
15	Ferrous metal spring	X	BL	BL	X	/	/	2019-07-17
16	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
17	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
18	Yellow color ring resistance	BL	BL	BL	BL	BL	BL	2019-07-17
19	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
20	Red LED	BL	BL	BL	BL	X	X	2019-07-17
21	Green LED	BL	BL	BL	BL	X	X	2019-07-17
22	Silver metal needle	BL	BL	BL	BL	/	/	2019-07-17
23	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13
24	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
25	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
26	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
27	Silver metal needle	BL	BL	BL	BL	/	/	2019-07-17
28	Tin solder	BL	X	BL	BL	/	/	2019-07-17
29	PCB board	BL	BL	BL	BL	X	X	2019-07-17

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Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr [▼]	Br [▼]		
						PBBs	PBDEs	
30	Black plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
31	Black plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
32	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
33	Black plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
34	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
35	Black soft magnet	BL	BL	BL	BL	/	/	2019-07-17
36	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
37	Silver metal spring	BL	BL	BL	X	/	/	2019-07-17
38	Ferrous metal clip spring	BL	BL	BL	X	/	/	2019-07-17
39	Silver metal needle	BL	BL	BL	X	/	/	2019-07-17
40	Silver metal sheet	BL	BL	BL	X	/	/	2019-07-17
41	Silver metal sheet	BL	BL	BL	X	/	/	2019-07-17
42	Silver steel beads	BL	BL	BL	X	/	/	2019-07-17
43	Brown plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
44	Silver metal sheet	X	BL	BL	X	/	/	2019-07-17
45	Black plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
46	Silver metal sheet	BL	BL	BL	X	/	/	2019-07-17
47	Red metal wire	BL	BL	BL	BL	/	/	2019-07-17
48	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
49	Black IC	BL	BL	BL	BL	BL	BL	2019-07-17
50	Black Diode	BL	BL	BL	BL	X	X	2019-07-17
51	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
52	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
53	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
54	Grey metal sheet	BL	BL	BL	BL	/	/	2019-07-17
55	Brown paper	BL	BL	BL	BL	BL	BL	2019-07-17
56	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
57	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
58	Silver metal needle	OL	BL	BL	BL	/	/	2019-07-17
59	Tin solder	BL	BL	BL	BL	/	/	2019-07-17
60	PCB board	BL	BL	BL	BL	X	X	2019-07-17

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Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr ^Ⅵ	Br ^Ⅶ		
						PBBs	PBDEs	
61	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
62	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
63	White plastic pipes	BL	BL	BL	BL	BL	BL	2019-07-17
64	Red plastic thread	BL	BL	BL	BL	BL	BL	2019-07-17
65	Black plastic thread	BL	BL	BL	BL	BL	BL	2019-07-17
66	Silver wire	BL	BL	BL	BL	/	/	2019-07-17
67	Red plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
68	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
69	Gold metal screw	BL	OL	BL	BL	/	/	2019-07-17
70	Silver metal cushion	BL	BL	BL	BL	/	/	2019-07-17
71	Silver metal cushion	BL	BL	BL	BL	/	/	2019-07-17
72	Silver metal nut	BL	BL	BL	BL	/	/	2019-07-17
73	Silver metal nut	BL	OL	BL	BL	/	/	2019-07-17
74	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
75	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13
76	Red plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13
77	Red plastic thread	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13
78	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
79	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
80	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13

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Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr ^{VI}	Br ^{VI}		
						PBBs	PBDEs	
81	Green plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
82	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
83	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
84	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
85	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
86	Blue and White Plastic Wire	BL	BL	BL	BL	BL	BL	2019-07-17
87	White Gel	BL	BL	BL	BL	BL	BL	2019-07-17
88	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
89	Blue paper	BL	BL	BL	BL	BL	BL	2019-07-17
90	White plastic bandage	BL	BL	BL	BL	BL	BL	2019-07-17
91	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
92	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
93	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
94	Grey metal sheet	BL	BL	BL	BL	/	/	2019-07-17
95	Brown paper	BL	BL	BL	BL	BL	BL	2019-07-17
96	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
97	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
98	Silver metal needle	OL	BL	BL	BL	/	/	2019-07-17
99	White adhesive paper	BL	BL	BL	BL	BL	BL	2019-07-17
100	Yellow plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17

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Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr ^Ⅵ	Br ^Ⅳ		
						PBBs	PBDEs	
101	Black Ceramic Slices	BL	BL	BL	BL	BL	BL	2019-07-17
102	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
103	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
104	Dark yellow plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
105	Golden metal sheet	BL	BL	BL	BL	/	/	2019-07-17
106	Transparent plastic pipe	BL	BL	BL	BL	BL	BL	2019-07-17
107	Black Ceramic Slices	BL	BL	BL	BL	BL	BL	2019-07-17
108	Red metal wire	BL	BL	BL	BL	/	/	2019-07-17
109	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
110	Green Ceramic Sheet	BL	BL	BL	BL	BL	BL	2019-07-17
111	Red metal wire	BL	BL	BL	BL	/	/	2019-07-17
112	White plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
113	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
114	Gray plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
115	Black IC	BL	BL	BL	BL	X	X	2019-07-17
116	Silver metal sheet	BL	X	BL	BL	/	/	2019-07-17
117	Transparent glass sheet	BL	BL	BL	BL	BL	BL	2019-07-17
118	Silver wire	X	BL	BL	BL	/	/	2019-07-17
119	Yellow plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
120	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17

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Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr ^Ⅵ	Br ^Ⅳ		
						PBBs	PBDEs	
121	Brown plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
122	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
123	Silver metal needle	BL	BL	BL	BL	/	/	2019-07-17
124	Green plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
125	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
126	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
127	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
128	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
129	Blue metal wire	BL	BL	BL	BL	/	/	2019-07-17
130	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
131	black magnet	BL	BL	BL	BL	/	/	2019-07-17
132	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
133	Red plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
134	Black Ceramic Slices	BL	BL	BL	X	BL	BL	2019-07-17
135	Gold wire	BL	BL	BL	BL	/	/	2019-07-17
136	Black plastic sheet	BL	BL	BL	BL	X	X	2019-07-17
137	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
138	Black Diode	BL	BL	BL	BL	X	X	2019-07-17
139	Blue Ring Resistor	BL	BL	BL	BL	BL	BL	2019-07-17
140	Yellow color ring resistance	BL	BL	BL	BL	BL	BL	2019-07-17

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Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr ^Ⅵ	Br ^Ⅳ		
						PBBs	PBDEs	
141	White IC	BL	BL	BL	BL	X	X	2019-07-17
142	Blue Ceramic Capacitance	BL	BL	BL	BL	BL	BL	2019-07-17
143	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17
144	Tin solder	BL	BL	BL	BL	/	/	2019-07-17
145	PCB board	BL	BL	BL	BL	X	X	2019-07-17
146	Black IC	BL	BL	BL	BL	BL	BL	2019-07-17
147	Patch triode	BL	BL	BL	BL	BL	BL	2019-07-17
148	Brown patch capacitor	BL	BL	BL	BL	BL	BL	2019-07-17
149	Chip resistor	BL	BL	BL	X	BL	BL	2019-07-17
150	PCB board	BL	BL	BL	BL	X	X	2019-07-17
151	Black IC	BL	BL	BL	BL	BL	BL	2019-07-17
152	Red Glass Diode	BL	OL	BL	BL	BL	BL	2019-07-17
153	PCB board	BL	BL	BL	BL	X	X	2019-07-17
154	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
155	Ferrous metal screw	BL	BL	BL	BL	/	/	2019-07-17
156	Ferrous metal screw	BL	BL	BL	BL	/	/	2019-07-17
157	Silver metal screw	BL	BL	BL	BL	/	/	2019-07-17
158	Silver metal screw	BL	BL	BL	BL	/	/	2019-07-17
159	Silver metal screw	BL	BL	BL	BL	/	/	2019-07-17
160	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17

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Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr ^Ⅵ	Br ^Ⅳ		
						PBBs	PBDEs	
161	Silver metal sheet	BL	BL	BL	BL	/	/	2019-07-17
162	Silver metal nut	BL	BL	BL	BL	/	/	2019-07-17
163	Silver metal sheet	X	BL	BL	BL	/	/	2019-07-17
164	Red plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13
165	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13
166	Red plastic thread	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13
167	Black plastic thread	BL	BL	BL	BL	BL	BL	2019-07-17 2019-08-13

Note:

- (1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	--	BL≤250-3σ<X

Note:

BL = Below Limit

OL = Over Limit

X = Inconclusive

- (2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2015/863/EC amending RoHS directive 2011/65/EU:
- (4) ▼=For restricted substances PBBs and PBDEs, the results show the total Br content; The restricted substance was Cr(VI), and the results showed the total Cr content

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RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenylethers (PBDEs)	1000
Dibutyl Phthalate(DBP)	1000
Benzylbutyl Phthalate(BBP)	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	1000
Diisobutyl phthalate(DIBP)	1000

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

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B. EU RoHS Directive 2011/65/EU and its amendment Directives 2015/863/EU on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content.

Test method:

Lead(Pb) & Cadmium(Cd) Content:

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Mercury(Hg) Content:

With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Hexavalent Chromium(Cr⁶⁺) Content:

With reference to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

BBP DBP DEHP & DIBP Content:

With reference to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

1) The test results of Lead (Pb) and Cadmium (Cd)

Item	Unit	MDL	Results				Limit
			8	28	73	69	
Lead Content (Pb)	mg/kg	2	685	N.D.	N.D.	32535 ^{#3}	1000

Item	Unit	MDL	Results		Limit
			111	152	
Lead Content (Pb)	mg/kg	2	N.D.	13245 ^{#1}	1000

Item	Unit	MDL	Results				Limit
			14	44	58	98	
Cadmium Content (Cd)	mg/kg	2	N.D.	N.D.	N.D.	N.D.	100

Item	Unit	MDL	Results		Limit
			118	163	
Cadmium Content (Cd)	mg/kg	2	N.D.	N.D.	100

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2) The test results of Hexavalent Chromium (Cr⁶⁺)(for nonmetal)

Item	Unit	MDL	Results		Limit
			134	149	
Hexavalent Chromium (Cr ⁶⁺)	mg/kg	8	N.D.	N.D.	1000

3) The test results of Hexavalent Chromium (Cr⁶⁺)(metal)

Item	Unit	MDL	Results				Limit
			15	37	38	39	
Hexavalent Chromium (Cr ⁶⁺)	ug/cm ²	0.10	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results					Limit
			40	41	42	44	46	
Hexavalent Chromium (Cr ⁶⁺)	ug/cm ²	0.10	N.D.	N.D.	N.D.	N.D.	N.D.	1000

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Note:

- MDL = Method Detection Limit
- /= Not apply
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is $0.10 \mu\text{g}/\text{cm}^2$
- $\text{mg}/\text{kg} = \text{ppm} = \text{parts per million}$
- N.D.=Not Detected(<MDL or LOQ)
- *The sample is negative for Cr(VI)-The Cr(VI) concentration is below $0.10\text{ug}/\text{cm}^2$
The coating is considered a non-Cr(VI) based coating.
- #1 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in glass of cathode ray tubes, electronic components and fluorescent tubes.
- #2 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in electronic ceramic parts (e.g. piezoelectronic devices).
- #3 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.
- #4 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).
- #5 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Aluminum containing up to 0.4% (4000ppm) by weight.
- #6 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Cadmium and its compounds in electrical contact is exempted.
- #7 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its Amendments, Lead is exempted in steel for machining purposes and in galvanised steel containing up to 0.35% (3500ppm) by weight.
- Flow chart appendix is included.
- Photo appendix is included.

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4) The test results of DBP、BBP、DEHP & DIBP

Item	Unit	MDL	Results	Limit
			5+6+11+12+17+18	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	61	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

Item	Unit	MDL	Results	Limit
			20+21+24+26+29+30	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

Item	Unit	MDL	Results	Limit
			31+33+43+45+49+50	
Dibutyl Phthalate(DBP)	mg/kg	50	161	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	161	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

Item	Unit	MDL	Results	Limit
			56+61+65+67+68+101	
Dibutyl Phthalate(DBP)	mg/kg	50	395	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	789	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	263	1000

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Item	Unit	MDL	Results	Limit
			102+107+110+112+113+117	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	67	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

Item	Unit	MDL	Results	Limit
			119+121+124+127+136+138	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	191	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

Item	Unit	MDL	Results	Limit
			139+140+141+142+145+146	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	166	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

Item	Unit	MDL	Results	Limit
			147+148+151+150+153+81	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	85	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

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Item	Unit	MDL	Results	Limit
			115+149+152+60+134	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	1000

Item	Unit	MDL	Results				Limit
			2	4	19	23	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	121	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			32	36	51	55	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	134	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			63	64	75	76	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	838	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	50	608	1000

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Item	Unit	MDL	Results				Limit
			77	80	89	85	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	61	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			86	87	90	91	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	184	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			95	98	99	100	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	160	164	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			104	106	114	120	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

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Item	Unit	MDL	Results				Limit
			122	133	137	143	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	87	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	87	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			164	165	166	167	
Dibutyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	497	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	50	N.D.	52	689	698	1000

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5) The test results of PBBs & PBDEs

Item	Unit	MDL	Results				Limit
			5+12	20+21	29+30	31+33	
Polybrominated Biphenyls (PBBs)							
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	N.D.	1000
Polybrominated Diphenylethers (PBDEs)(Mon-Deca)							
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	N.D.	1000

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Item	Unit	MDL	Results				Limit
			45+50	60+112	115+119	124+136	
Polybrominated Biphenyls (PBBs)							
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	N.D.	1000
Polybrominated Diphenylethers (PBDEs)(Mon-Deca)							
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	N.D.	1000

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Item	Unit	MDL	Results			Limit
			138+141	145+150	153	
Polybrominated Biphenyls (PBBs)						
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	1000
Polybrominated Diphenylethers (PBDEs)(Mon-Deca)						
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	1000

Remark:

- mg/kg = ppm
- N.D. = Not detected
- MDL=Method detected limited
- Flow chart appendix is included
- Photo appendix is included.

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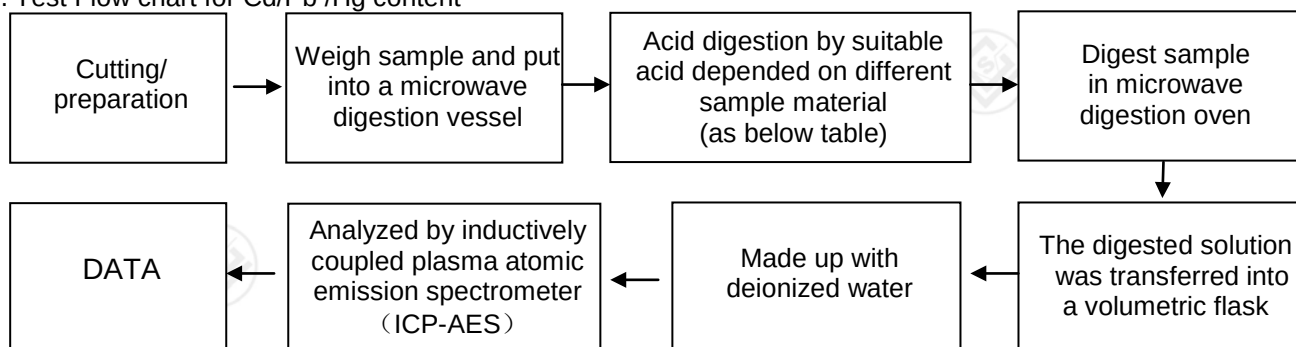
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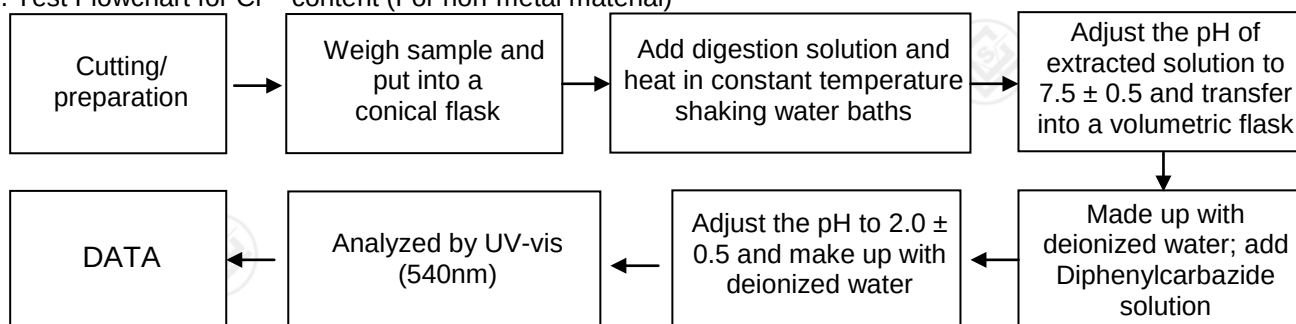
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Appendix

1. Test Flow chart for Cd/Pb /Hg content



2. Test Flowchart for Cr⁶⁺ content (For non-metal material)



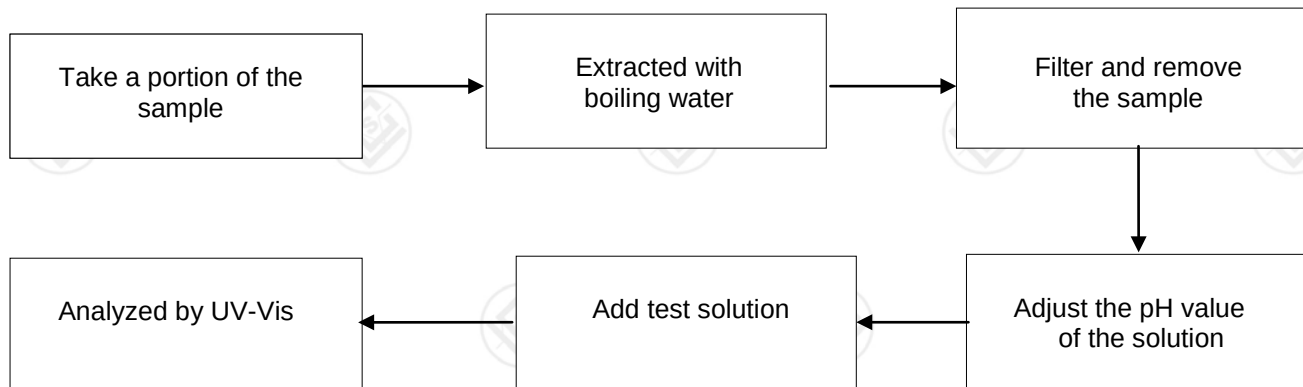
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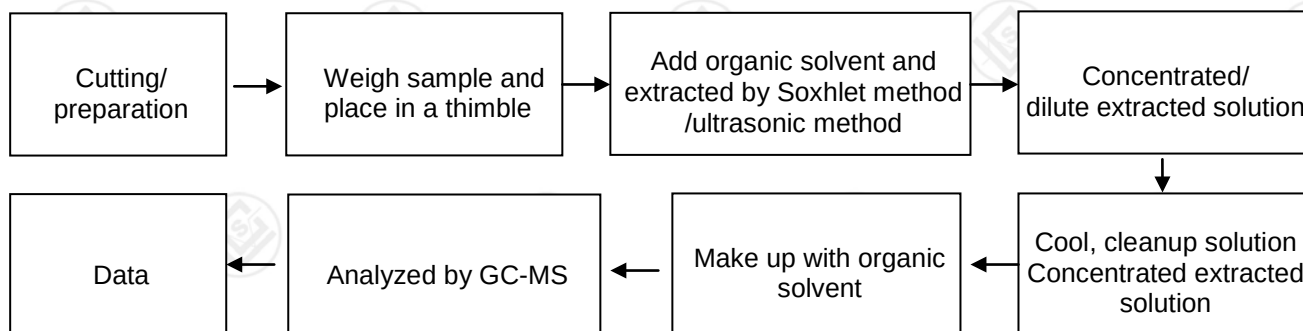
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Test Flowchart for Cr⁶⁺ content (For metal material)



3. Test Flow chart for PBBs & PBDEs & DBP & BBP & DEHP & DIBP content



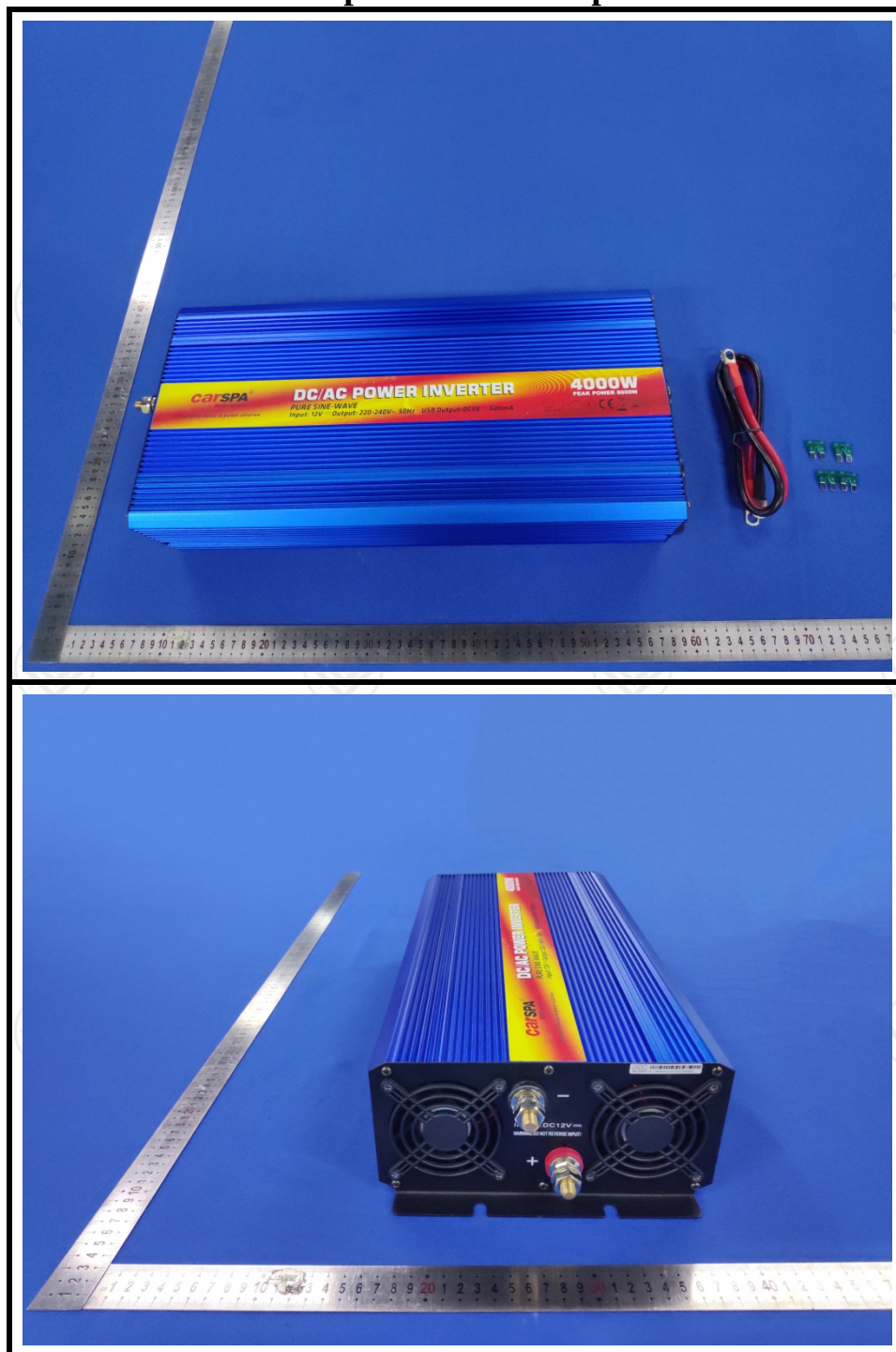
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The photo of the sample

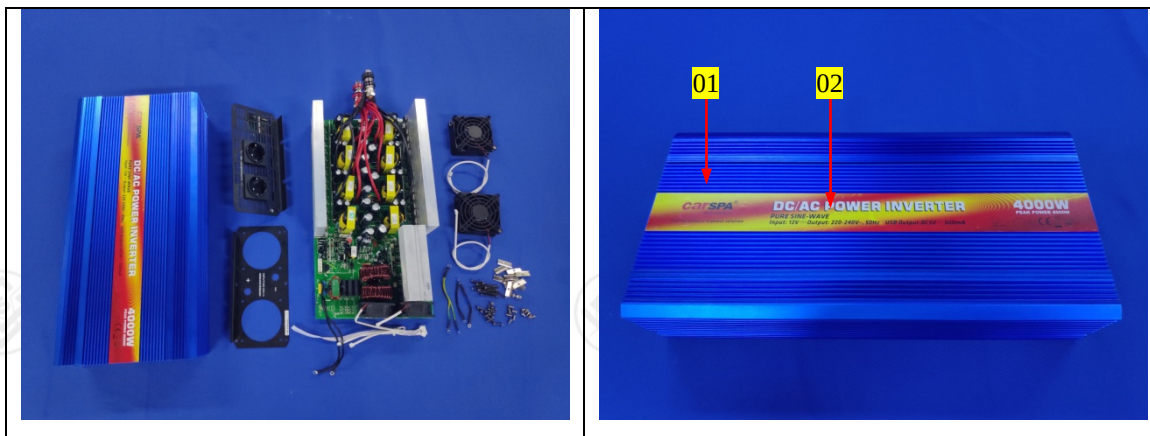
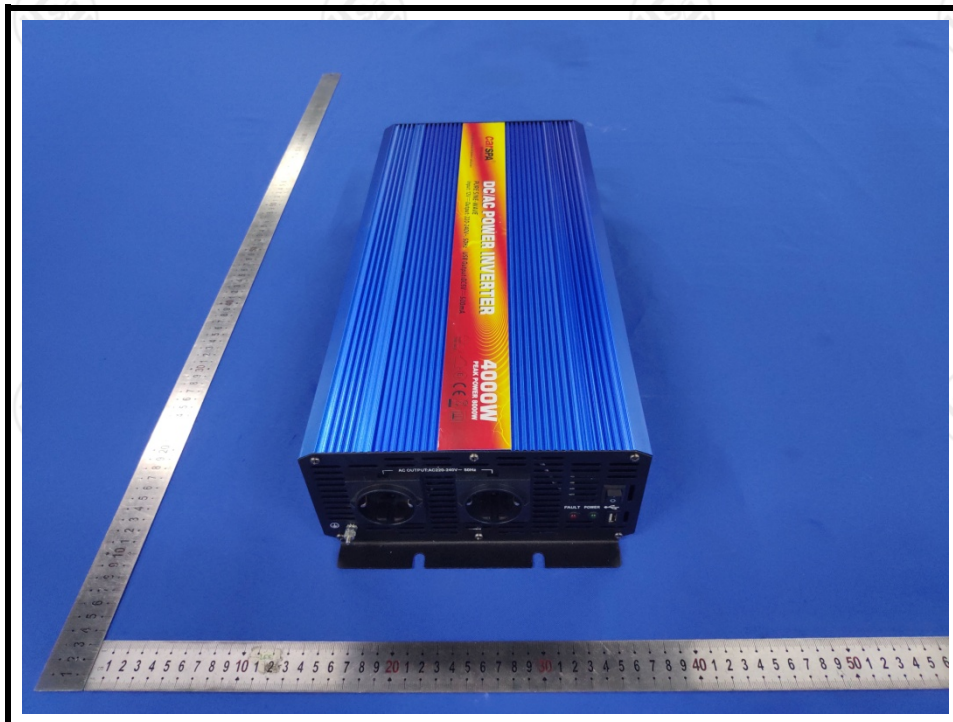


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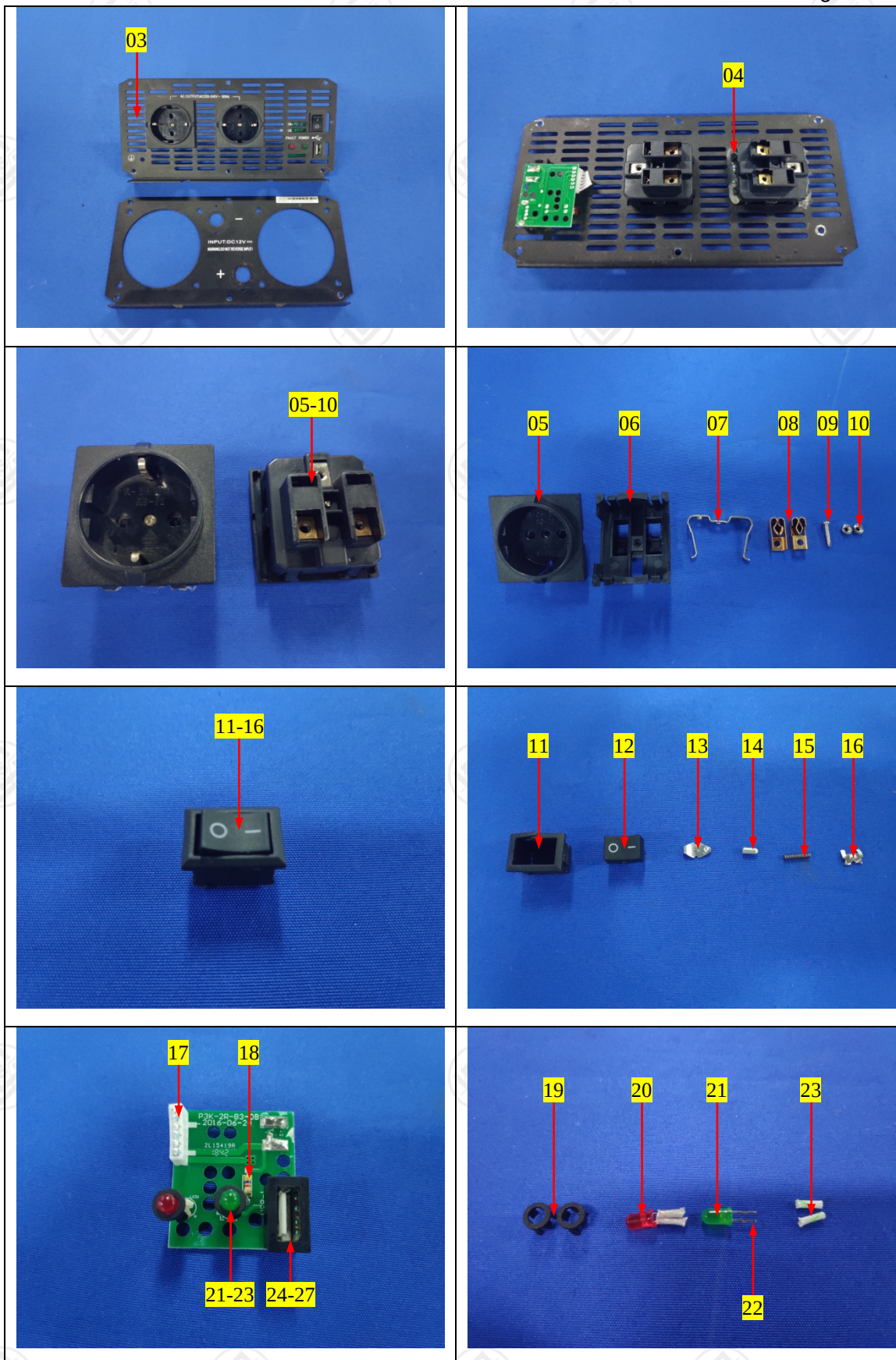


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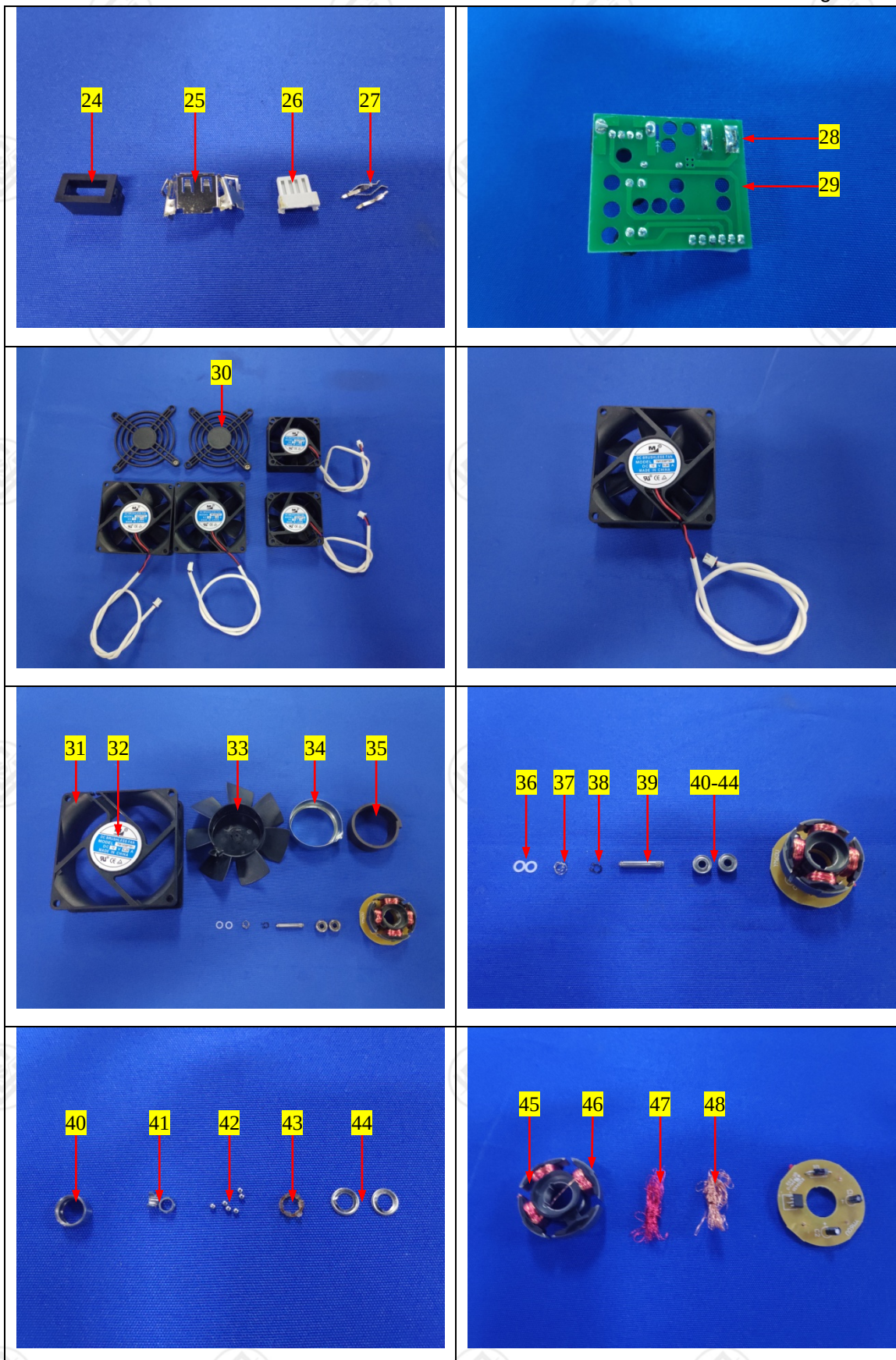


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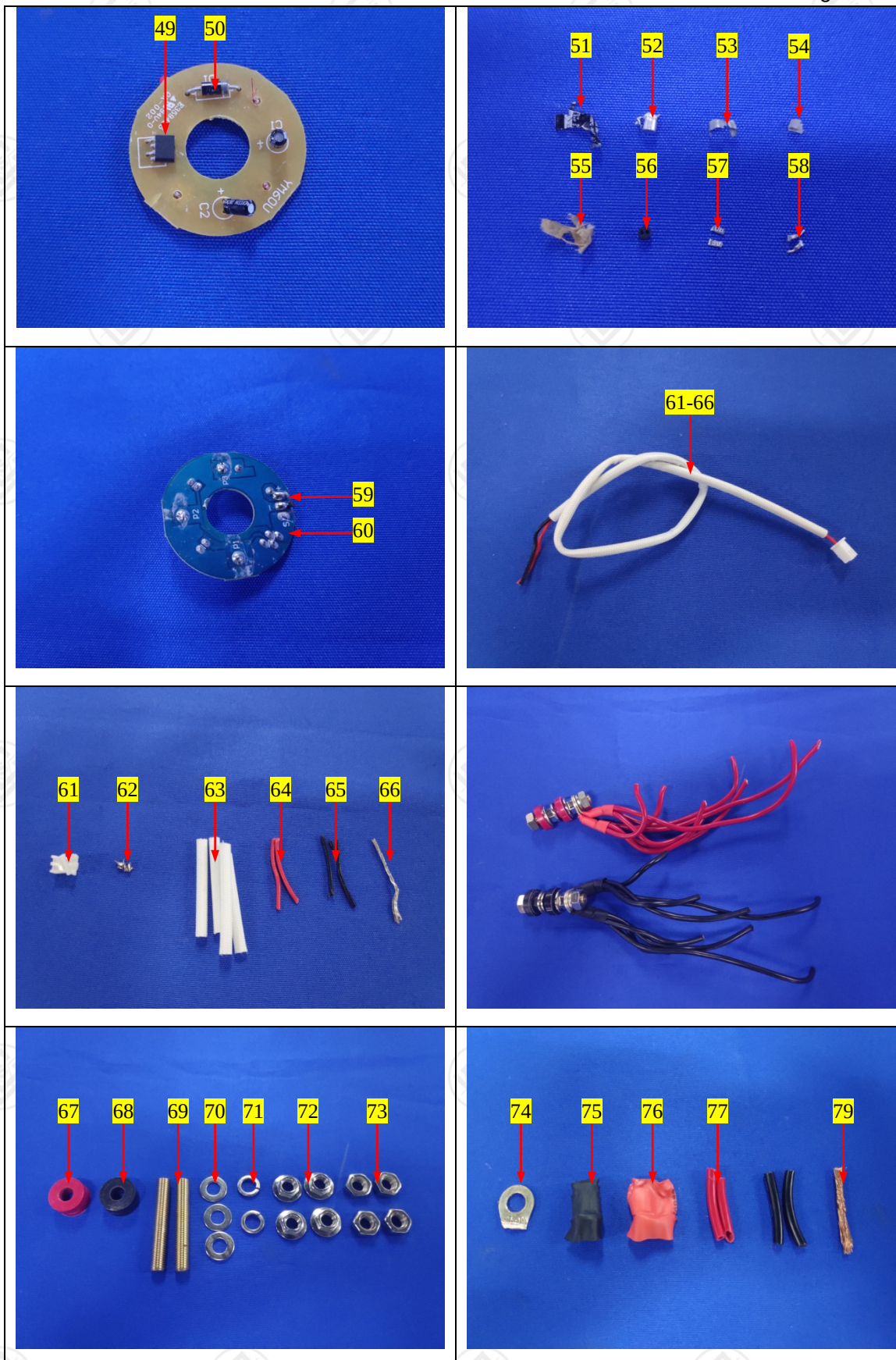


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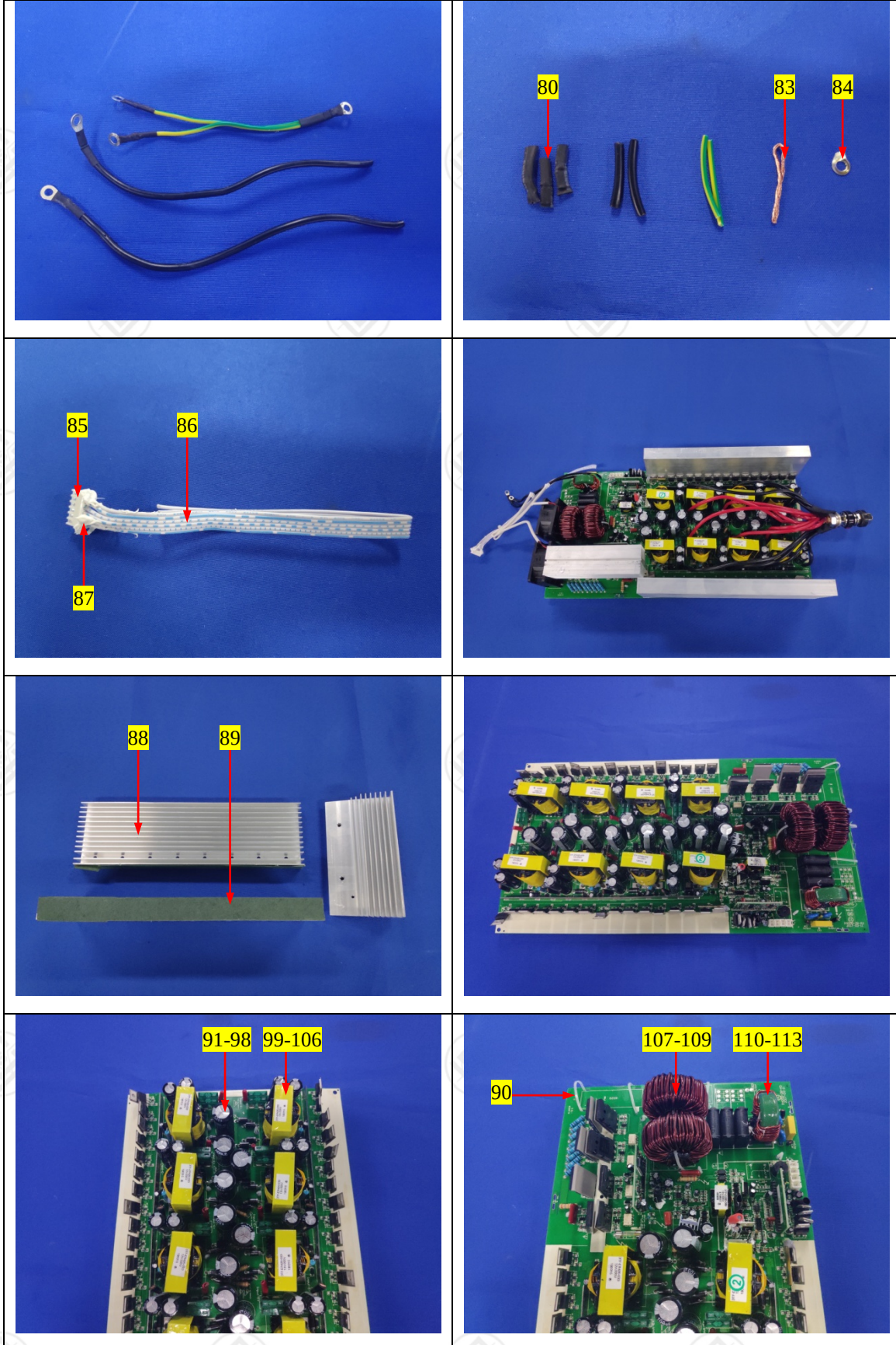


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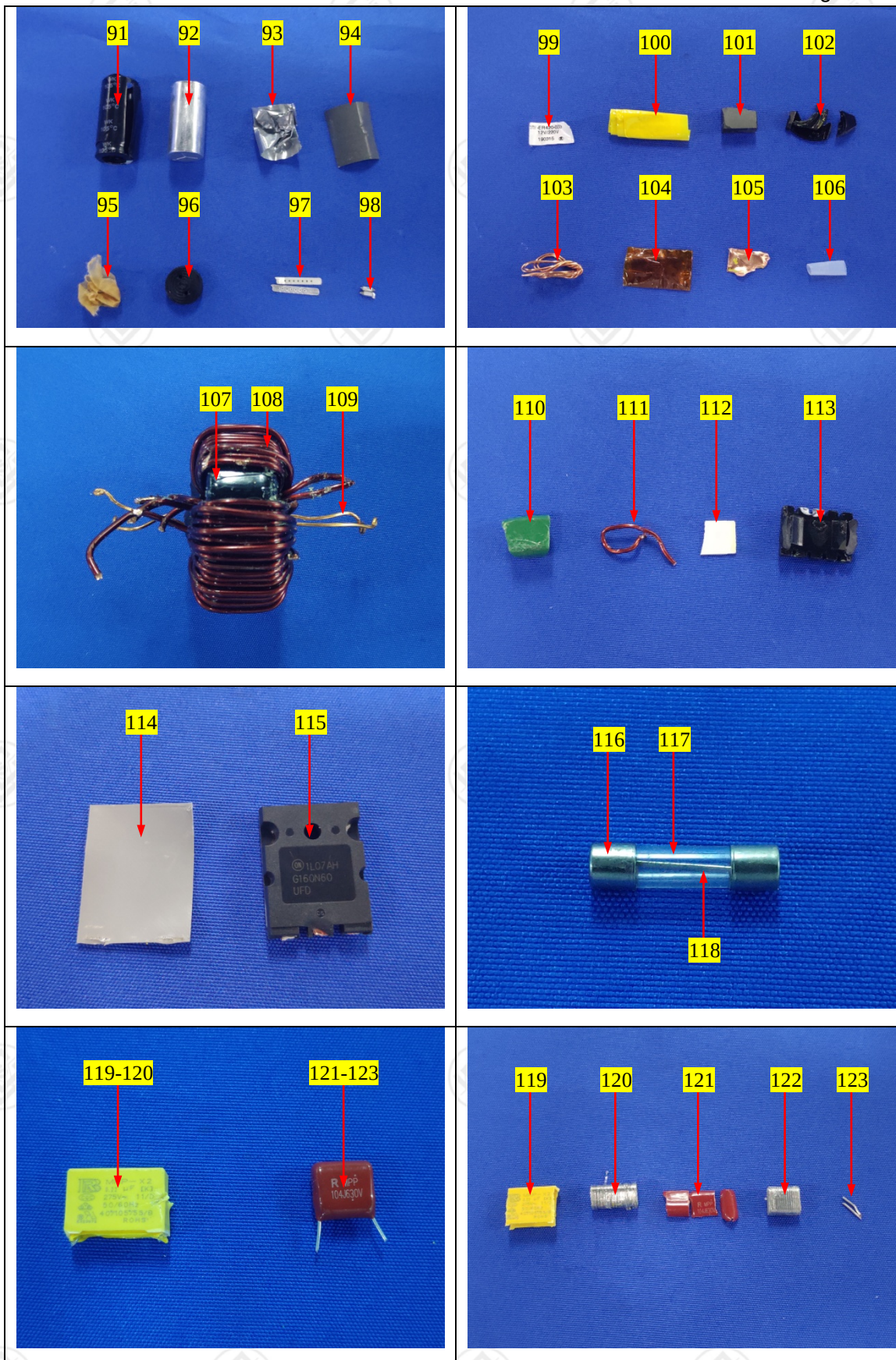


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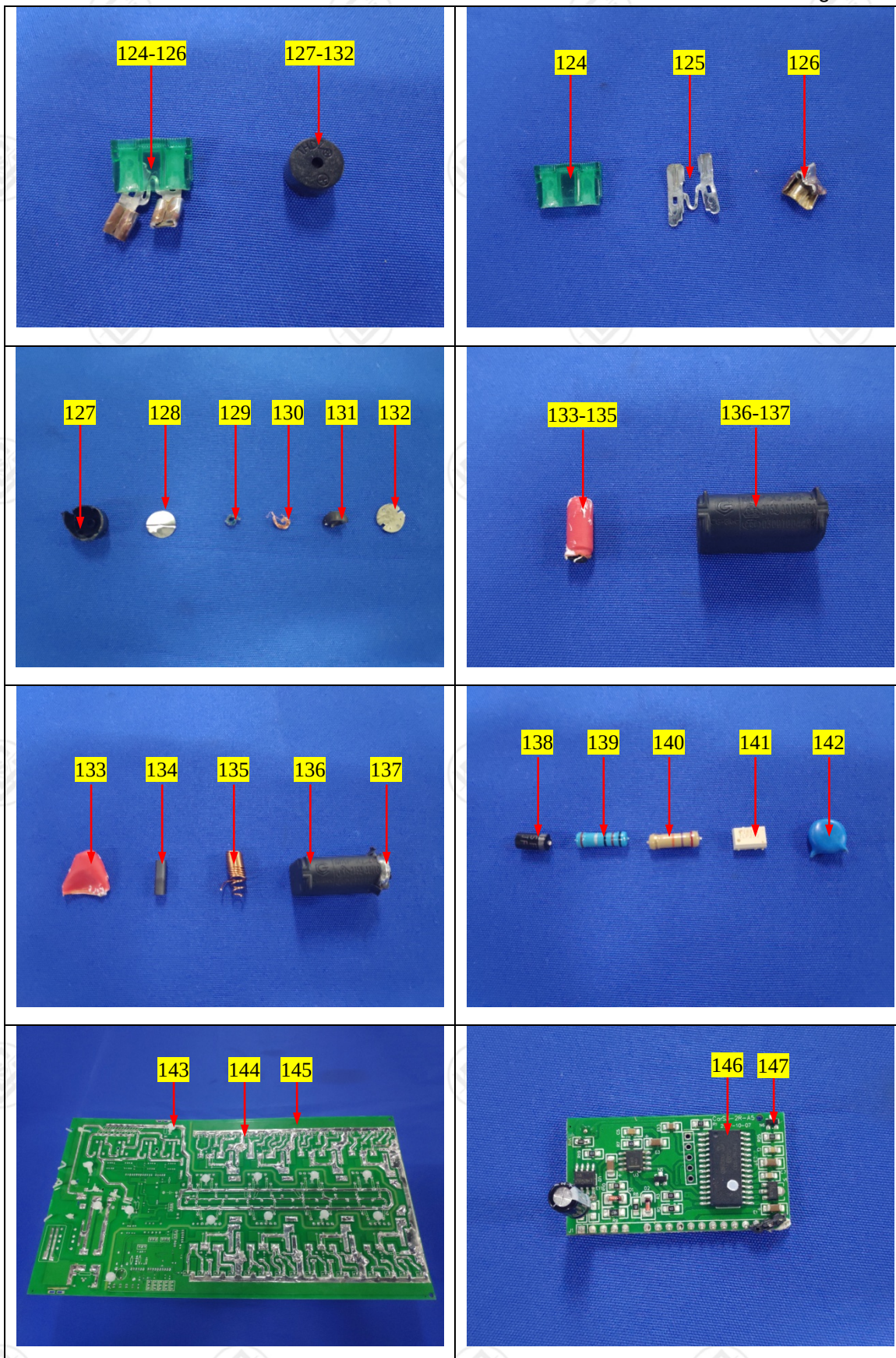


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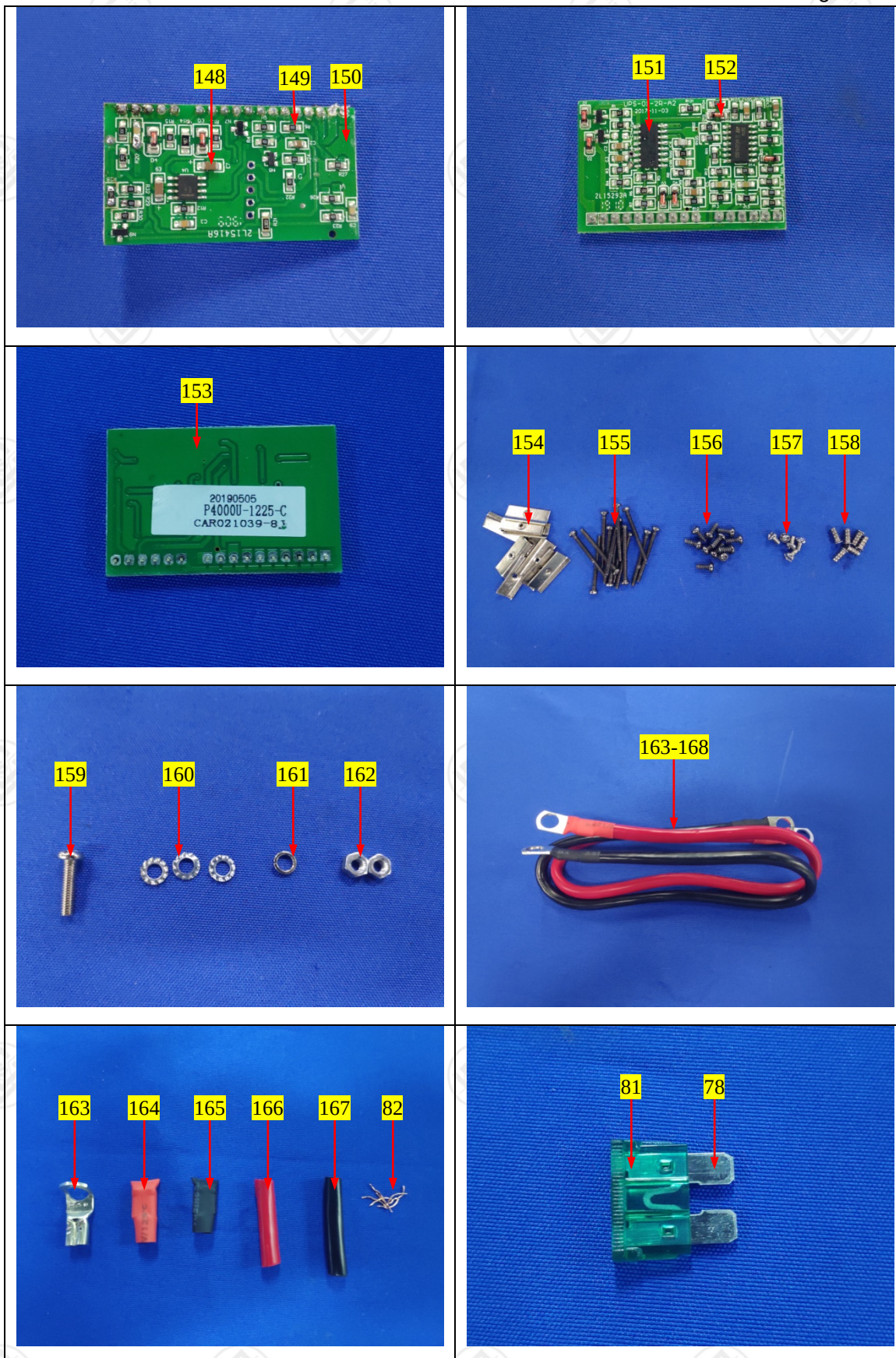


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