

Test Report

Applicant: ARICO TECHNOLOGY CO., LTD.
8F., No. 1, Alley 1, Lane 235,
Baoqiao Rd., Xindian Dist.,
New Taipei City, 23145, Taiwan

Number : TWNC00784982

Date : May 07, 2019

Sample Description:

One (1) group of submitted samples said to be :
Sample Description : Hot Runner Temperature Controller
Style / Item No. : TC5T-1, TC5T-2, TC5T-4, TC5T-6, TC5T-8
Date Sample Received : Apr 23, 2019
Date Test Started : Apr 23, 2019

Test Conducted:

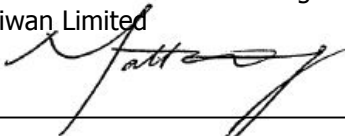
As requested by the applicant, for details please refer to attached pages.

Conclusion:

<u>Tested Samples</u>	<u>Standard</u>	<u>Result</u>
Tested Components Of Submitted Samples	Restriction of Hazardous Substances (RoHS) — As per applicant's request with reference to 2011/65/EU	Pass

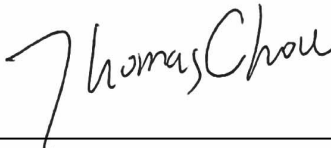
Remark: 1. As per the request of the applicant, only the listed components were tested for the RoHS directive.

Authorized By:
On behalf of Intertek Testing Services
Taiwan Limited


Matt Wang
Sr. Manager



Signed by:



Thomas Chou
Manager



Test Conducted :

Restriction of Hazardous Substances (RoHS) Test

A. Test Result Summary

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
1	Grey metal cover	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	304		--	
		Br	NA			
2	Black/grey plastic sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
3	Black plastic feet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
4	Yellow metal housing	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
5	Silvery metal screw	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
6	Clear red plastic indicator cover	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
7	Silvery metal frame	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			--
8	Switch - dark grey plastic trigger	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			--
9	Switch - off-white/red plastic housing	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			--
10	Red/grey/black plastic sticker	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			--
11	Connector - grey metal cover	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			--
12	Connector - silvery metal sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	173800		Negative	
		Br	NA			--
13	Connector - black soft plastic pad	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			--



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
14	Connector - light grey plastic socket	Cd	ND	--		PBBs: ND PBDEs: ND
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	90900			
15	Connector - silvery metal pin	Cd	ND	--		
		Pb	11700	31010(#)		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
16	Fan frame - black plastic nail	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
17	Fan frame - silvery metal mesh	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	5166		Negative	
		Br	NA			
18	Black metal frame	Cd	ND	--		
		Pb	889	426		
		Hg	ND	--		
		Cr	479		--	
		Br	NA			
19	Yellow/red/black plastic sticker	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
20	Black plastic cord fixed nut	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
21	Black soft plastic washer	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
22	Black cable insulation	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
23	White/green plastic indicator sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
24	Black/yellow plastic indicator sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
25	Silvery metal terminal	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
26	Light grey cable jacket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
27	Blue cable jacket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
28	Yellow/green cable jacket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
29	Black cable jacket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
30	Brown cable jacket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
31	Coppery metal wire	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
32	White plastic track	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
33	Green PCB bare board	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	PBBs: ND PBDEs: ND
		Br	61200			
34	Silvery metal heat spreader	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	325		--	
		Br	NA			
35	Silvery metal hook	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	551		--	
		Br	NA			
36	Switch - clear red plastic trigger	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
37	Grey/black plastic indicator sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
38	MOSFET - black molding part	Cd	ND	--		
		Pb	336	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
39	MOSFET - silvery metal rear sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	422		--	
		Br	NA			
40	MOSFET - silvery metal pin	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
41	Fuse - off-white ceramic body	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
42	Fuse - silvery metal terminal cap	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
43	Silvery metal fuse socket	Cd	ND	--		
		Pb	444	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
44	Relay - black molding part	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	72900			PBBs: ND PBDEs: ND
45	Buzzer - black plastic housing	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	54600			PBBs: ND PBDEs: ND
46	Buzzer - brass metal sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	342		--	
		Br	NA			--
47	Transformer - yellow plastic film	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	57600			PBBs: ND PBDEs: ND
48	Transformer - black core part	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	1054			PBBs: ND PBDEs: ND
49	Transformer - black epoxy part	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			--



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
50	Transformer - coppery metal coil	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
51	Transformer - black wire jacket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
52	Capacitor - white/black plastic sleeve	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
53	Capacitor - silvery metal can	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
54	Capacitor - black rubber seal	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
55	Transformer - silvery metal sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	131900		Negative	
		Br	NA			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
56	Transformer - black core part	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
57	Transformer - black epoxy part	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
58	Transformer - coppery metal coil	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
59	Relay - yellow molding part	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	41100			
60	Green PCB bare board	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	61300			
61	Beige PCB bare board	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	54800			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
62	Green PCB bare board	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	PBBs: ND PBDEs: ND
		Br	62100			
63	Grey metal frame	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	--
		Br	NA			
64	Connector - silvery metal pin	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	--
		Br	NA			
65	Connector - blue plastic socket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	PBBs: ND PBDEs: ND
		Br	45300			
66	Connector - silvery metal contact	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	--
		Br	NA			
67	Connector - white plastic socket	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	PBBs: ND PBDEs: ND
		Br	71200			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
68	Transparent soft plastic terminal sheath	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
69	Silvery metal terminal	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
70	Black/white plastic cable indicator	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
71	Black cable insulation	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
72	Blue cable insulation	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	ND			
73	Red metal plate	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			



Test Conducted :

	Tested Component	Screening Test		Confirmation Test		
		Element	Result (ppm)	Pb/Cd/Hg (ppm)	Cr ⁶⁺ (ug/cm ² or ppm)	PBBs/PBDEs (ppm)
74	Terminal block - black plastic socket	Cd	ND	--		PBBs: ND PBDEs: ND
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	50300			
75	Terminal block - silvery metal bolt	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	2006		Negative	
		Br	NA			
76	Terminal block - silvery metal contact	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	1726		Negative	
		Br	NA			
77	Black metal fixed sheet	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	413		--	
		Br	NA			
78	Silvery metal screw	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			
79	Black metal screw	Cd	ND	--		
		Pb	ND	--		
		Hg	ND	--		
		Cr	ND		--	
		Br	NA			



Test Conducted :

- Remarks:
- ppm = Parts per million = mg/kg
 - ND = Not detected
 - NA = Not applicable
 - = Not tested
 - Negative = The negative result indicated the positive observation was not found by the spot test. Boiling water extraction shall be conducted when the spot test obtained the negative result.
 - As per applicant's request, only spot test was conducted for chromium VI (Cr6+) for the metal material.
 - # = As claimed by the declaration submitted by the client, the tested component was within the scope of RoHS (2011/65/EU-6(c)) exemption: Copper alloy containing up to 4% lead by weight.

B. Information on Analysis

(I) Screening Test

Test Item	Test Method	Reporting Limit
XRF for regulated elements	With reference to IEC 62321-3-1: 2013-06, by X-ray fluorescence spectrometry.	See Table II

Table I: Screening limits in mg/kg for various materials.

Element	Polymer Materials	Metallic Materials	Composite Materials
Cd	BL ≤ 70 < X < 130 ≤ OL	BL ≤ 70 < X < 130 ≤ OL	BL ≤ 70 < X < 150 ≤ OL
Pb	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 500 < X < 1500 ≤ OL
Hg	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 500 < X < 1500 ≤ OL
Cr	BL ≤ 700 < X	BL ≤ 700 < X	BL ≤ 500 < X
Br	BL ≤ 300 < X	Not Applicable	BL ≤ 250 < X

- Remarks:
- mg/kg = Milligram per kilogram = ppm
 - BL = Below Limit
 - X = Inconclusive result
 - OL = Over Limit

Table II: Estimated detection limits in mg/kg for regulated elements in various matrices.

Element	Polymer Materials	Metallic Materials	Composite Materials
Cd	50	70	70
Pb	100	200	200
Hg	100	200	200
Cr	100	200	200
Br	200	Not Applicable	200



Test Conducted :

(II) Confirmation Test

Test Item	Test Method	Reporting Limit
Lead (Pb) Content	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	2 ppm
Chromium VI (Cr ⁶⁺) Content (for metal)	With reference to IEC 62321: 2008, by spot test.	1 ppm
Polybrominated Biphenyls (PBBs)	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	5 ppm
Polybrominated Diphenyl Ethers (PBDEs)		

Remark : Reporting Limit = Quantitation limit of analyte in sample

(III) Other information on analysis

Responsibility of Chemist : Pely Hsiao/ Vita Fu

Date Sample Received : Apr 23, 2019
 Test Period : Apr 23, 2019 to May 02, 2019

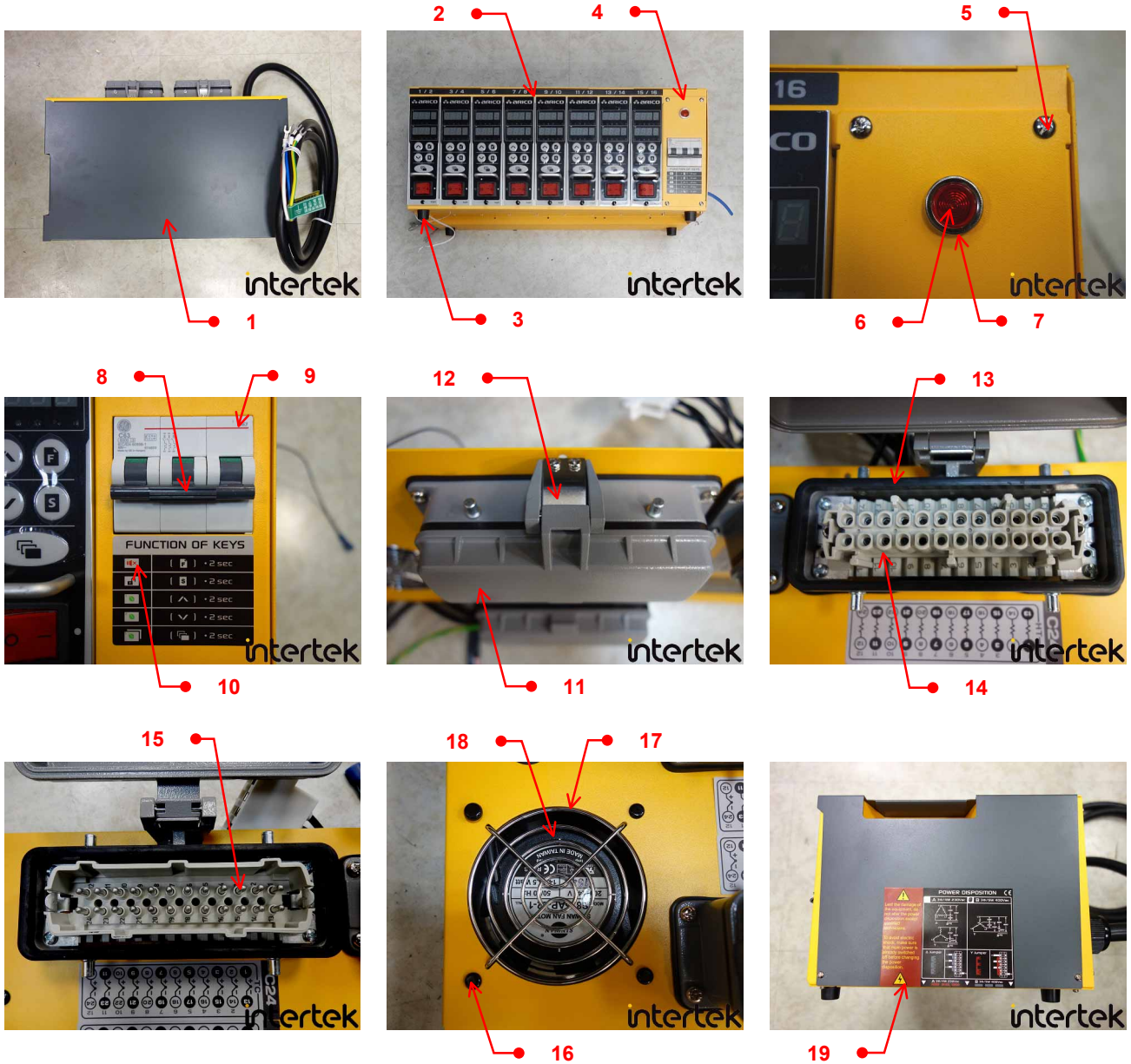
RoHS Limit

Restricted Substances	Limits
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)

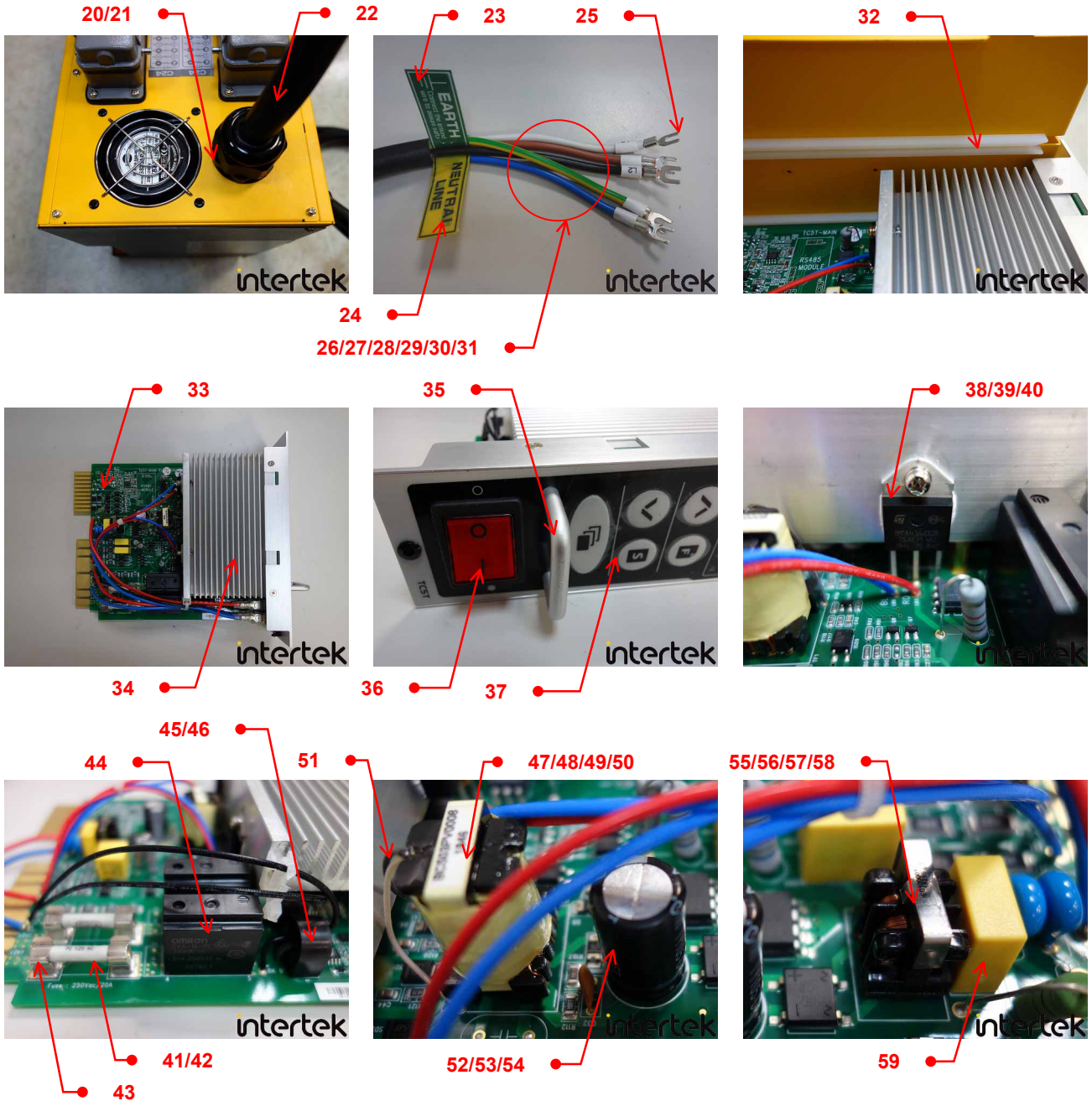
The limits were quoted from Annex II of Directive 2011/65/EU for homogeneous material.



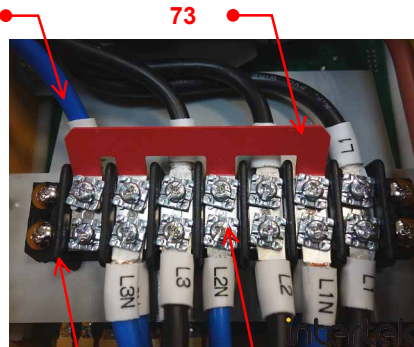
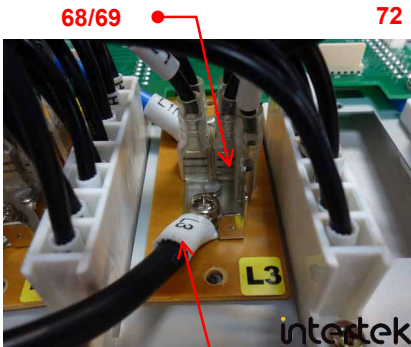
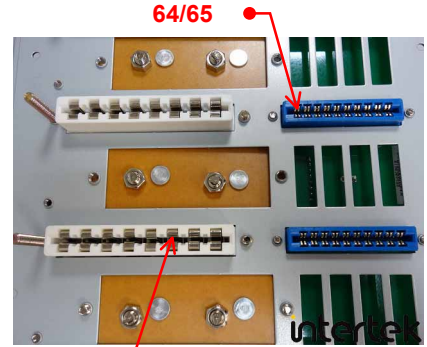
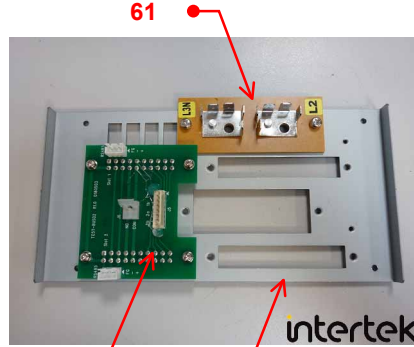
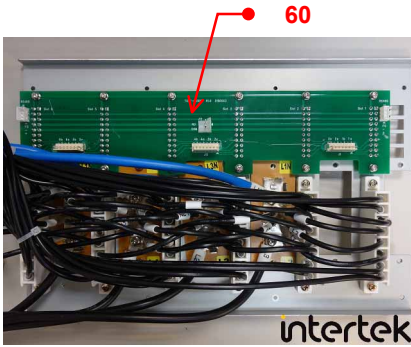
Sample photo:



Sample photo:



Sample photo:



End of Report

Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: <http://www.intertek-twn.com/terms/>. Intertek's responsibility and liability are limited to the terms and conditions of the agreement.

This report is made solely on the basis of your instructions and / or information and materials supplied by you and provide no warranty on the tested sample(s) be truly representative of the sample source. The report is not intended to be a recommendation for any particular course of action, you are responsible for acting as you see fit on the basis of the report results. Intertek is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received and accepts no responsibility to any parties whatsoever, following the issue of the report, for any matters arising outside the agreed scope of the works. This report does not discharge or release you from your legal obligations and duties to any other person. You are the only one authorized to permit copying or distribution of this report (and then only in its entirety). Any such third parties to whom this report may be circulated rely on the content of the report solely at their own risk.

