

Test Report No.: 48.400.24.0286.01-00/01

Rev.: 00

Dated: 2024-03-25



Applicant: Jiangsu Acrel Electrical Manufacturing. Co., Ltd.

Address: No. 5, Dongmeng Road, Nanzha Street, Jiangyin, Jiangsu, P. R. China

Sample Description: ARTM Multi Channel Temperature Controller

Model No.: ARTM-8L

Sample Received Date: 2024-03-07

Test Period: 2024-03-07~2024-03-22

Test Location: TÜV SÜD Certification and Testing (China) Co., Ltd.
Shanghai Branch, SHA Chemical Lab.

Purpose of examination: Verification of RoHS (Restriction of Hazardous Substances) directive 2011/65/EU and its amendment (EU) 2015/863 on submitted samples

Test Results: Refer to following page(s)

Remark:

- The result relates only to the items tested.
- The reference model(s) was declared by client.
- The test sample(s) and item(s) was specified by client.

TÜV SÜD Certification and Testing (China) Co., Ltd.

TÜV SÜD Group

Prepared by:

Reviewed by:



Mr. Yiwei CHEN



Mr. Feng ZHANG

Disclaimer Measurement Uncertainty: Unless otherwise agreed upon, Pass or Fail verdicts are given base on the measured values without any considerations of measurement uncertainties. Please note, every test method has a measurement uncertainty which has been evaluated by the laboratory according to ISO/IEC 17025 requirements. By taking measurement uncertainties into account it might happen that measured values can neither be assessed as Pass nor as Fail. Any use for advertising purposes must be granted in writing. This test report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4.



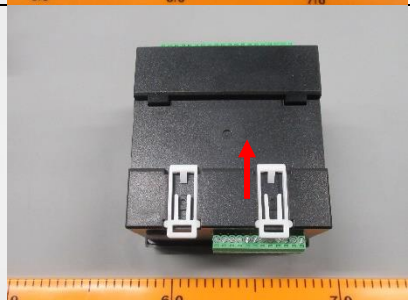
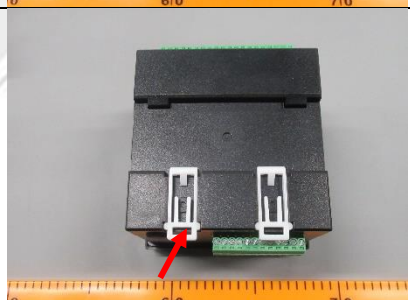
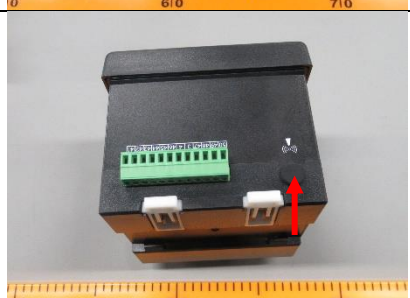
SUMMARY OF TEST RESULTS

No.	Test Requested	Conclusion	Remarks
1.	Heavy Metal (Pb, Cd, Hg and Cr VI) Content	PASS	
2.	Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) Content	PASS	
3.	Phthalates (DEHP, BBP, DBP and DIBP) Content	PASS	



1. TESTED SUBJECT DESCRIPTION

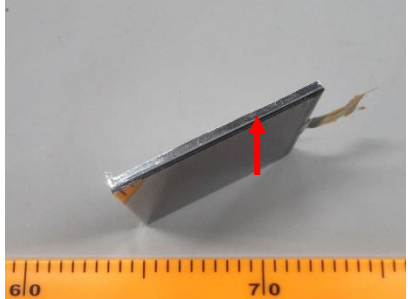
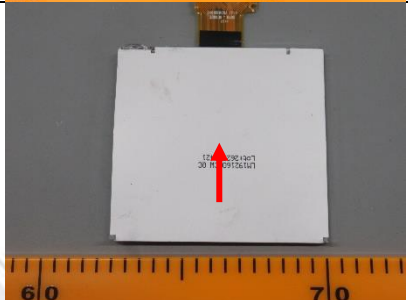
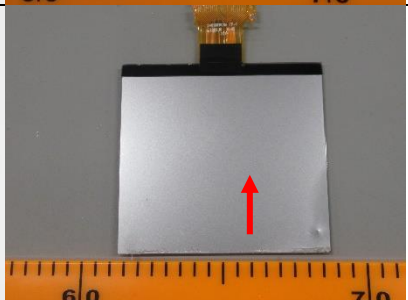
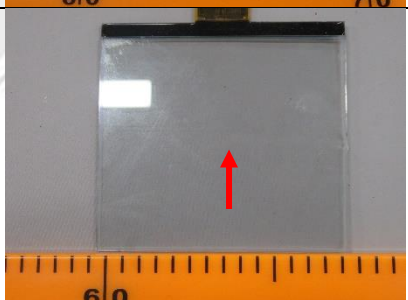
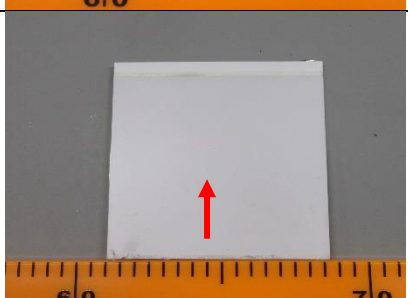
Sample No.	Description (Material, colour)	Photograph/Location
01	Transparent soft plastic film	
02	Transparent hard plastic plate	
03	Gray soft plastic label	
04	Black rubber button	
05	Black hard plastic cover	

Sample No.	Description (Material, colour)	Photograph/Location
06	Black hard plastic frame	
07	Silvery soft plastic label	
08	Black hard plastic base	
09	White hard plastic bracket	
10	Black rubber button	



Sample No.	Description (Material, colour)	Photograph/Location
11	Transparent soft plastic film	
12	Silvery metal frame	
13	Transparent black soft plastic film	
14	Black glue	
15	Yellow soft plastic wire harness	

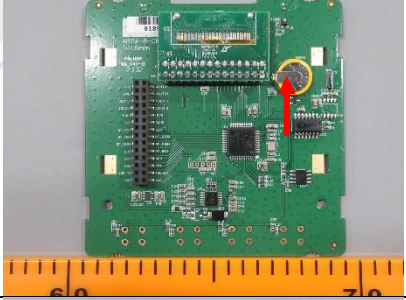
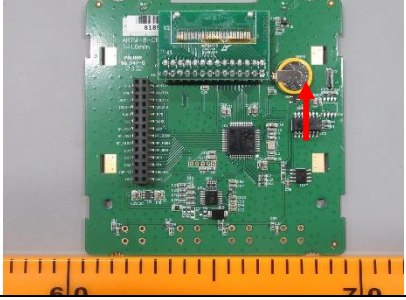


Sample No.	Description (Material, colour)	Photograph/Location
16	Silvery soft plastic adhesive tape	
17	Black soft plastic slice	
18	Silvery soft plastic film	
19	Transparent glass	
20	White soft plastic film	



Sample No.	Description (Material, colour)	Photograph/Location
21	Transparent hard plastic plate	
22	White hard PCB	
23	Black resistor	
24	White hard LED	
25	Green hard PCB	

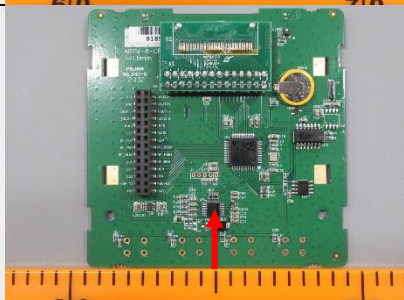
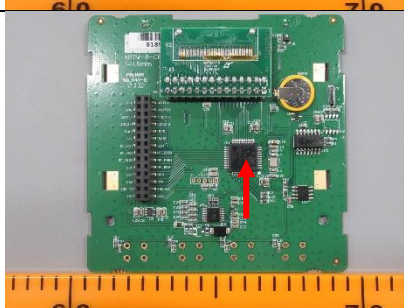


Sample No.	Description (Material, colour)	Photograph/Location
26	Silver metal solder	
27	White paper label	
28	Silvery battery pack	
29	Silvery metal slice	
30	Yellow soft plastic sheath	

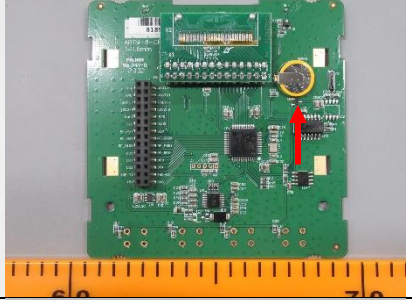
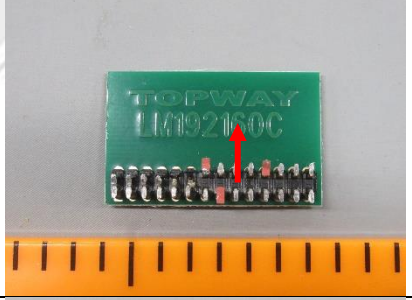
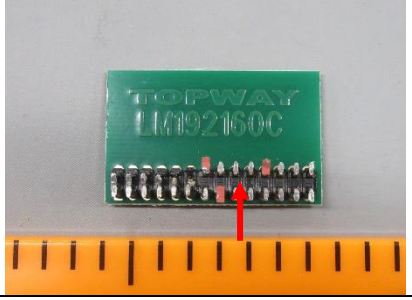


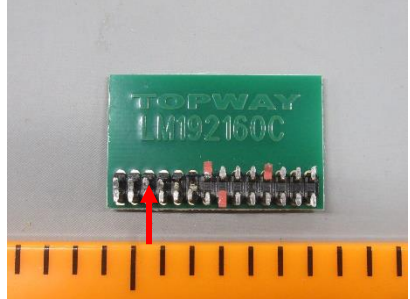
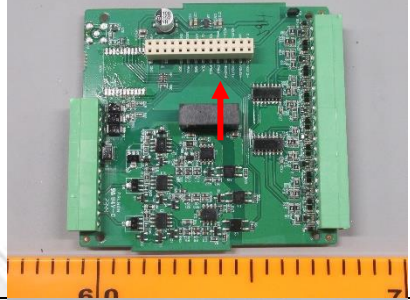
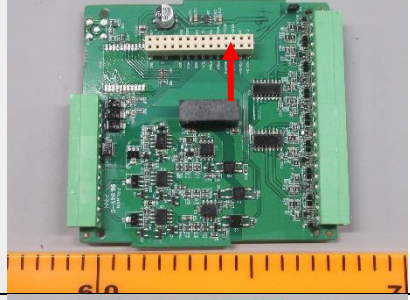
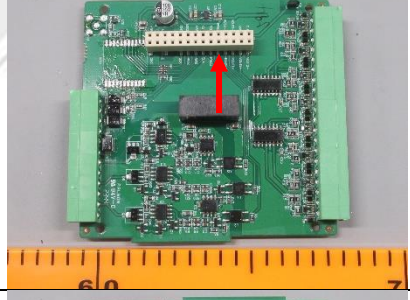
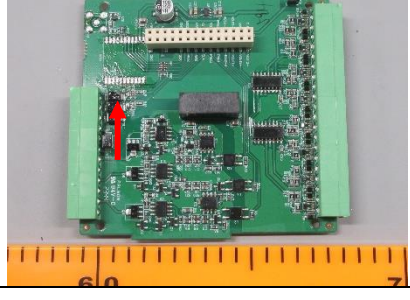
Sample No.	Description (Material, colour)	Photograph/Location
31	Black hard plastic plug	
32	Silvery metal pin	
33	Brown capacitor	
34	Black hard IC	
35	Black resistor	



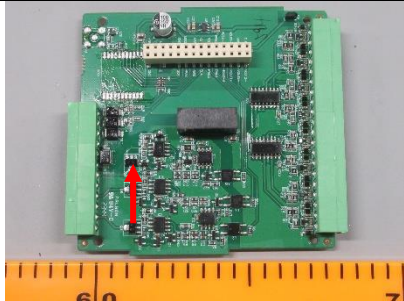
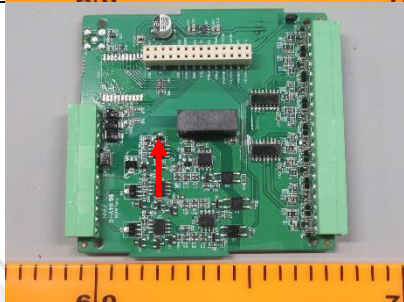
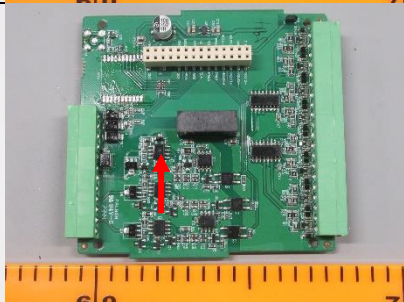
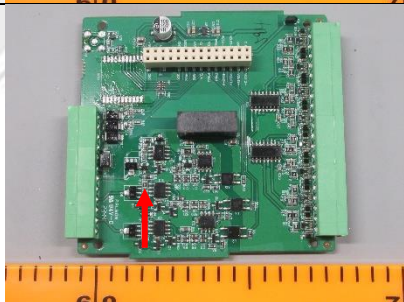
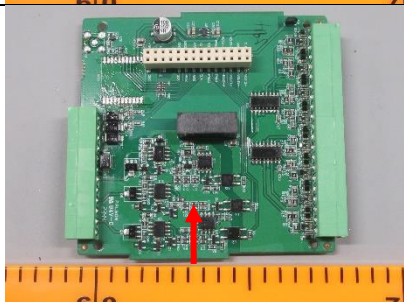
Sample No.	Description (Material, colour)	Photograph/Location
36	Brown capacitor	
37	Black resistor	
38	Black hard IC	
39	Black diode	
40	Black hard IC	



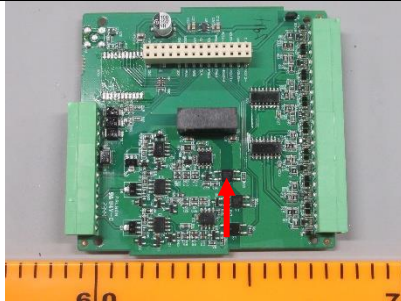
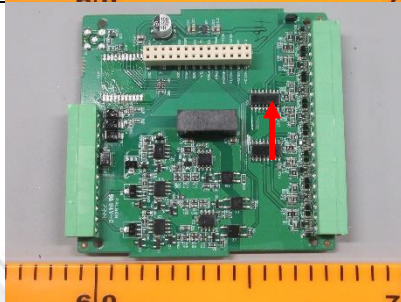
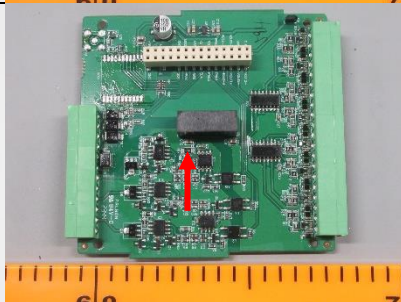
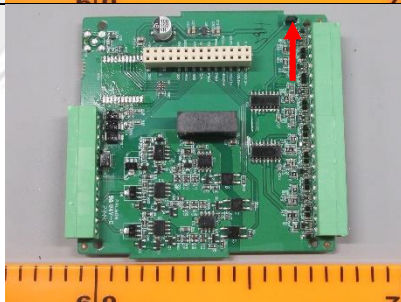
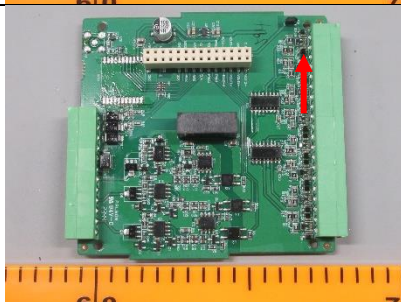
Sample No.	Description (Material, colour)	Photograph/Location
41	Black hard IC	
42	Silver metal crystal oscillator	
43	Black triode	
44	Green hard PCB	
45	Black hard plastic bracket	

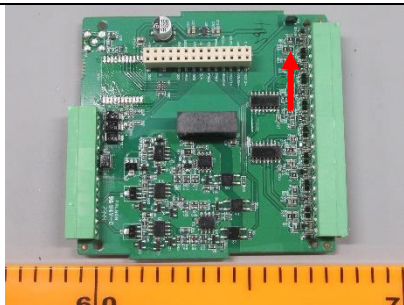
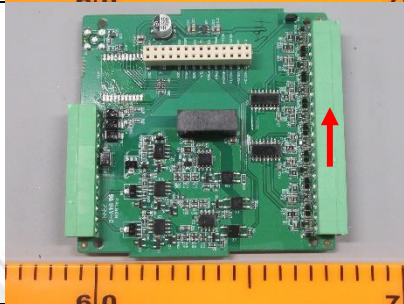
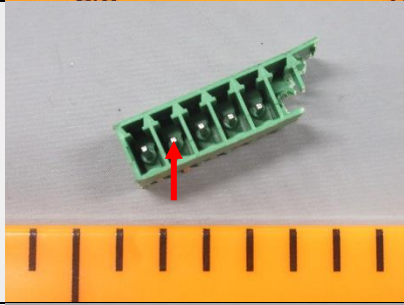
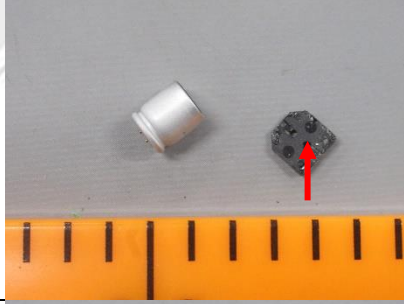
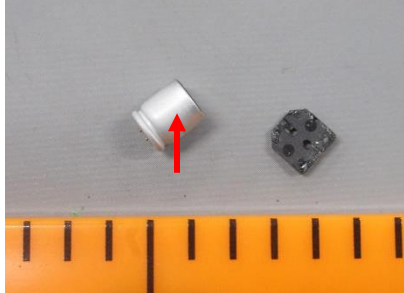
Sample No.	Description (Material, colour)	Photograph/Location
46	Silvery metal pin	
47	Green hard PCB	
48	Beige hard plastic plug	
49	Silvery metal pin	
50	Black diode	



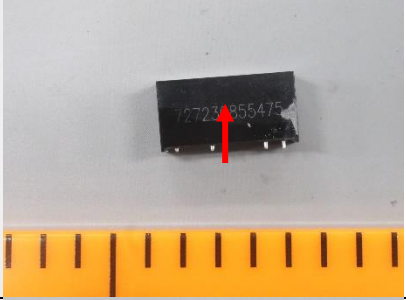
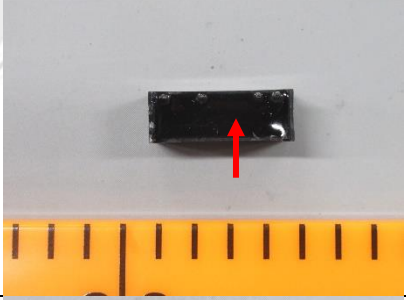
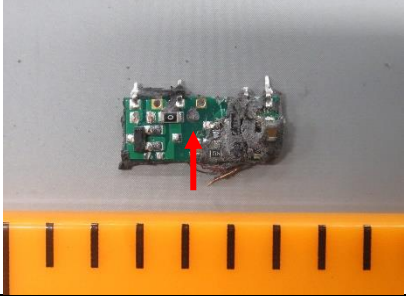
Sample No.	Description (Material, colour)	Photograph/Location
51	Black hard IC	
52	Black triode	
53	Black hard IC	
54	Black resistor	
55	Brown capacitor	



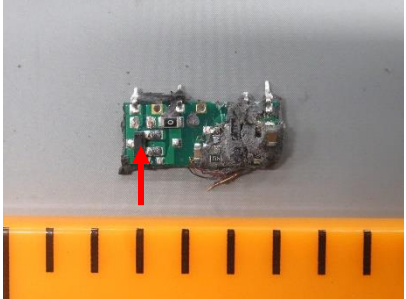
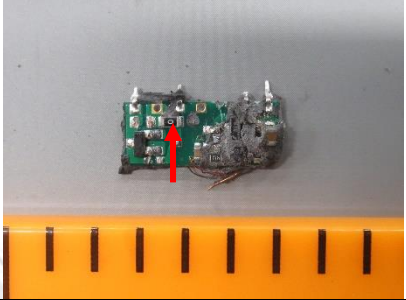
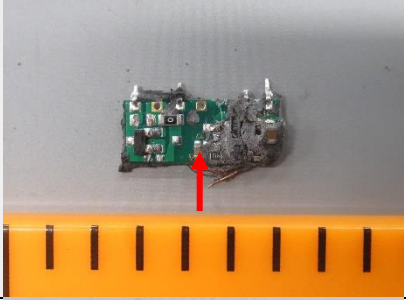
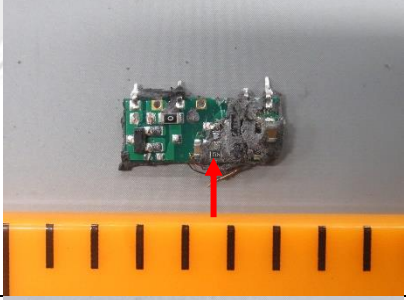
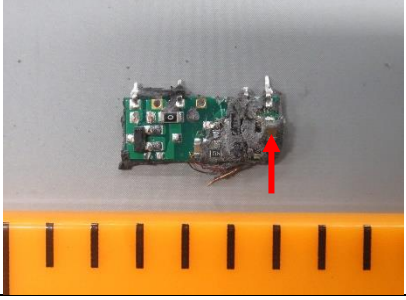
Sample No.	Description (Material, colour)	Photograph/Location
56	Black hard IC	
57	Black hard IC	
58	Black resistor	
59	Black hard IC	
60	Black diode	

Sample No.	Description (Material, colour)	Photograph/Location
61	Black resistor	
62	Green hard plastic plug	
63	Silvery metal pin	
64	Black hard plastic base	
65	Silvery metal shell	

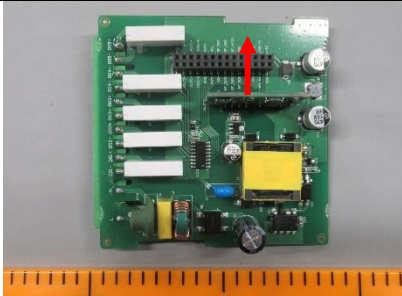
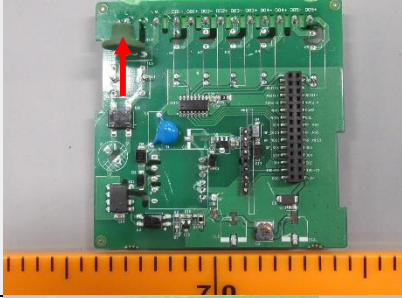
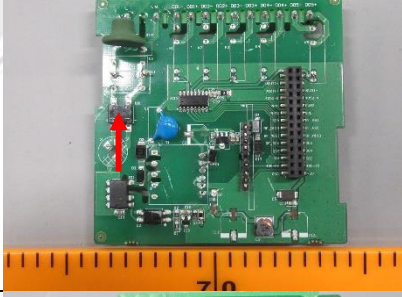
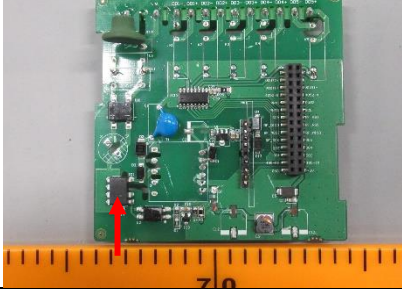


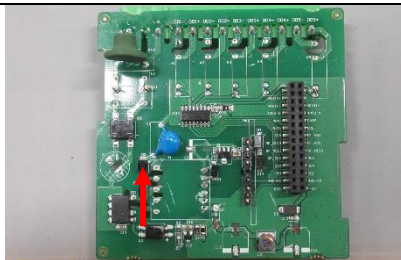
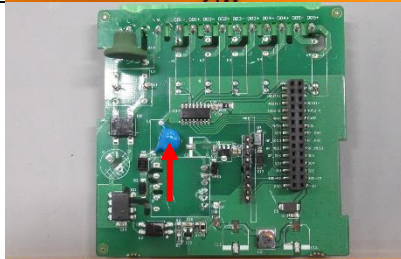
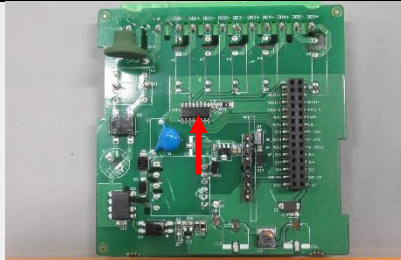
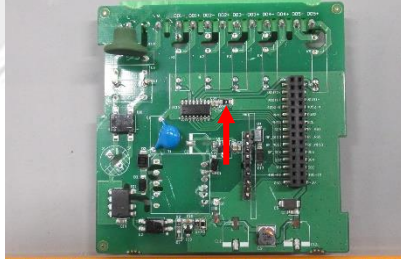
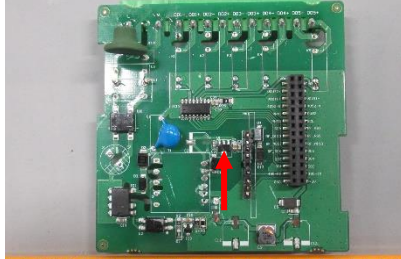
Sample No.	Description (Material, colour)	Photograph/Location
66	Gray paper film	
67	Black rubber cushion	
68	Black hard plastic shell	
69	Black potting compound	
70	Green hard PCB	



Sample No.	Description (Material, colour)	Photograph/Location
71	Black triode	
72	Black resistor	
73	Brown capacitor	
74	Black resistor	
75	Brown capacitor	

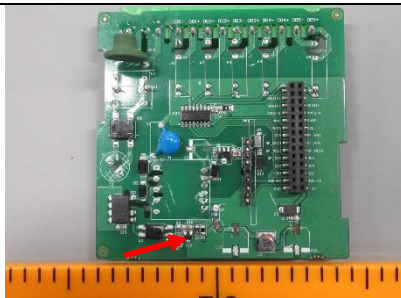
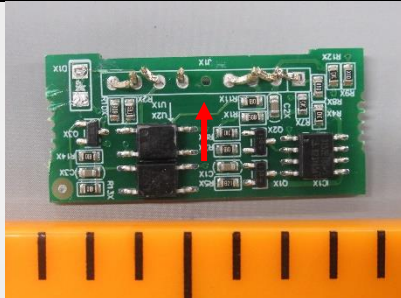
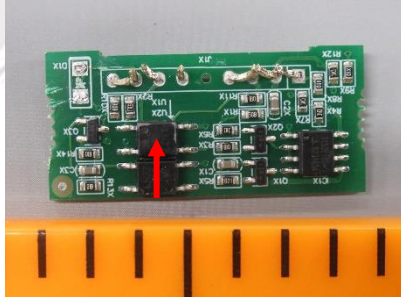
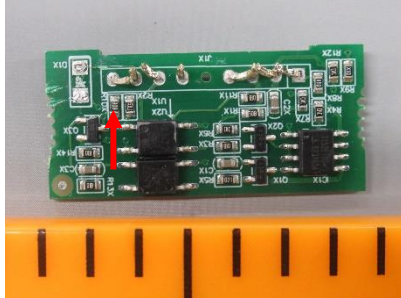


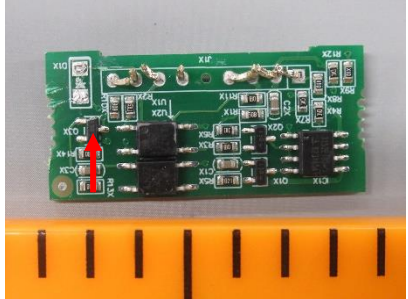
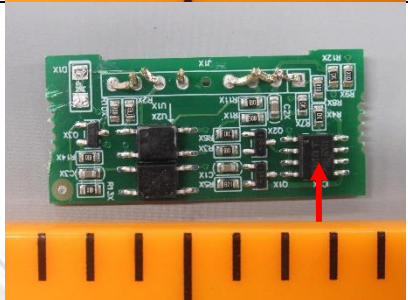
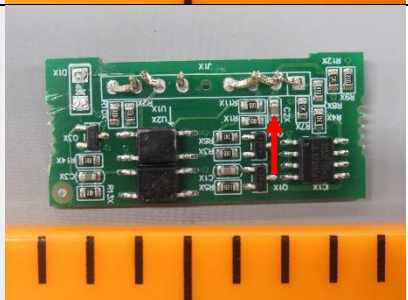
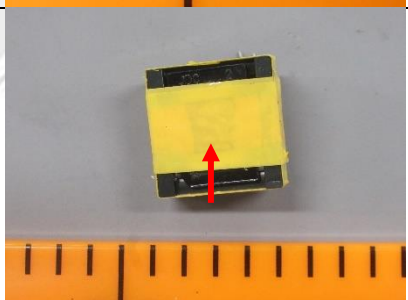
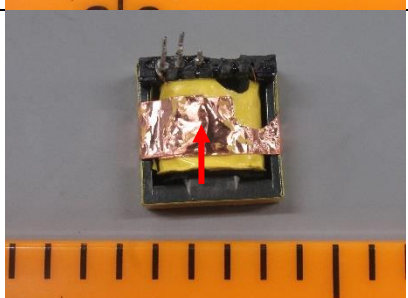
Sample No.	Description (Material, colour)	Photograph/Location
76	Green hard PCB	
77	Silver metal solder	
78	Green capacitor	
79	Black hard IC	
80	Black hard IC	

Sample No.	Description (Material, colour)	Photograph/Location
81	Black diode	
82	Blue capacitor	
83	Black hard IC	
84	Black resistor	
85	Black hard IC	

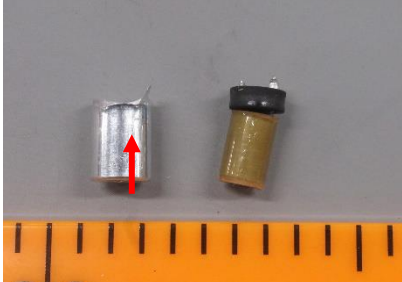


Sample No.	Description (Material, colour)	Photograph/Location
86	Black hard plastic bracket	
87	Brown capacitor	
88	Black diode	
89	Black hard IC	
90	Black resistor	

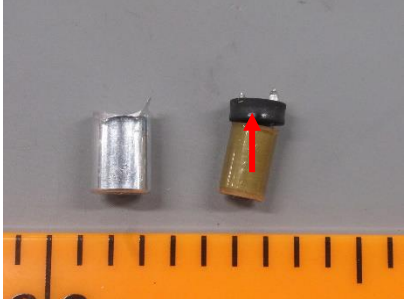
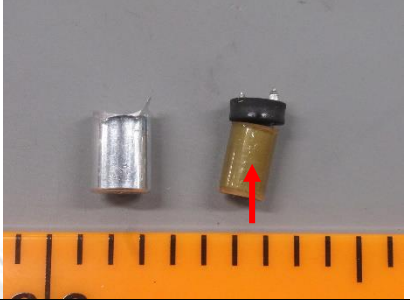
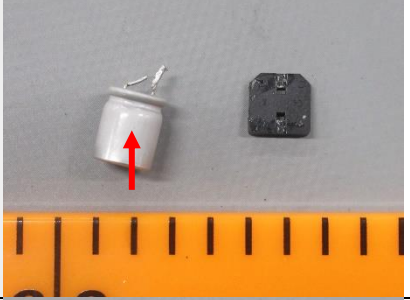
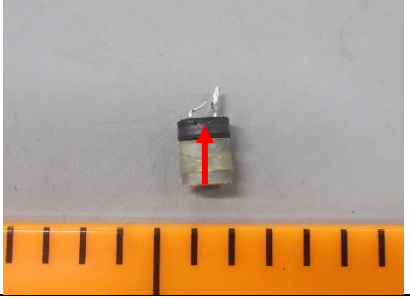
Sample No.	Description (Material, colour)	Photograph/Location
91	Black triode	
92	Black metal magnet	
93	Green hard PCB	
94	Black hard IC	
95	Black resistor	

Sample No.	Description (Material, colour)	Photograph/Location
96	Black triode	
97	Black hard IC	
98	Brown capacitor	
99	Yellow soft plastic adhesive tape	
100	Golden metal film	

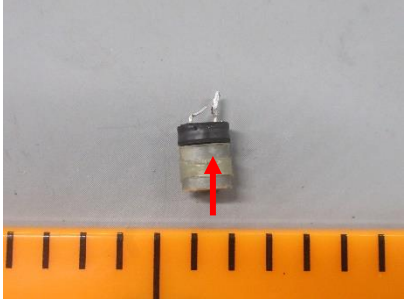
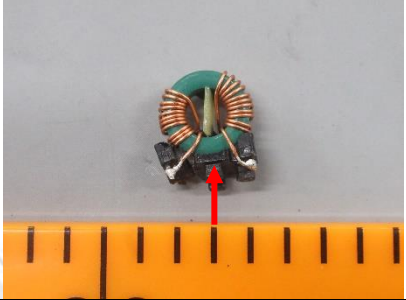
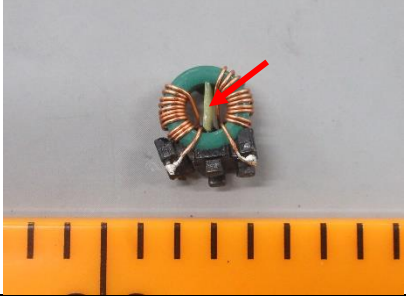


Sample No.	Description (Material, colour)	Photograph/Location
101	Black hard plastic frame	
102	Black metal magnet	
103	Golden metal wire	
104	Black soft plastic sheath	
105	Silvery metal shell	



Sample No.	Description (Material, colour)	Photograph/Location
106	Black rubber cushion	
107	Brown paper film	
108	Silvery metal shell	
109	Black hard plastic base	
110	Black rubber cushion	

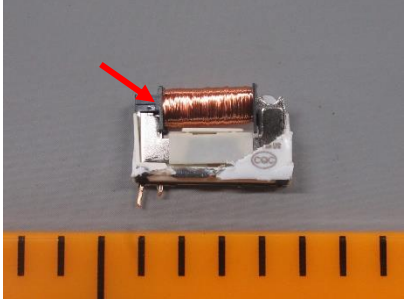
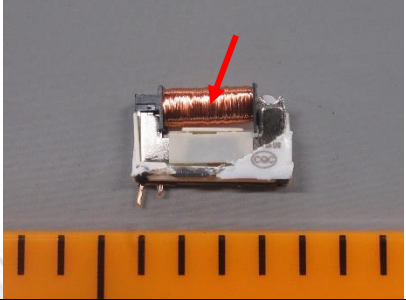
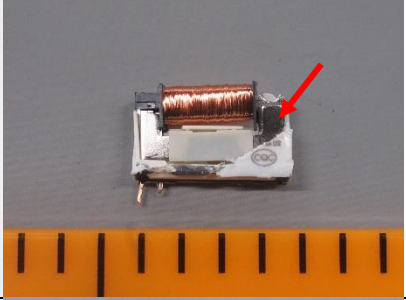
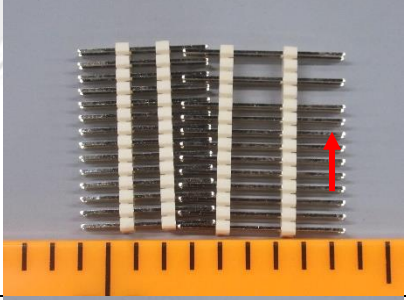
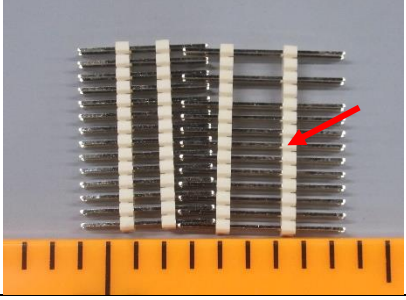


Sample No.	Description (Material, colour)	Photograph/Location
111	Gray paper film	
112	Black hard plastic base	
113	Green metal magnet	
114	Golden metal wire	
115	Yellow hard plastic slice	

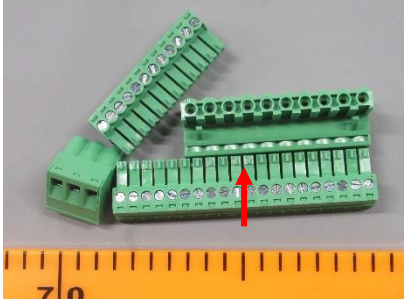
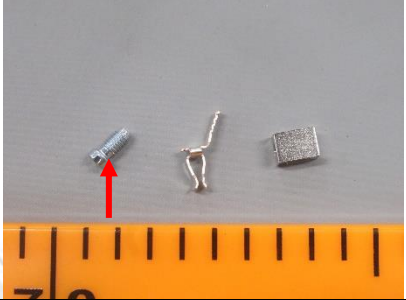
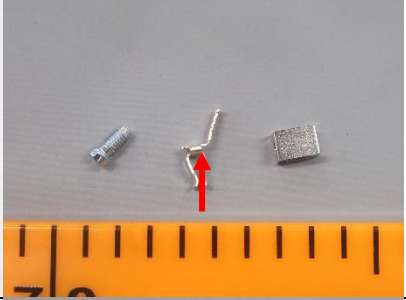
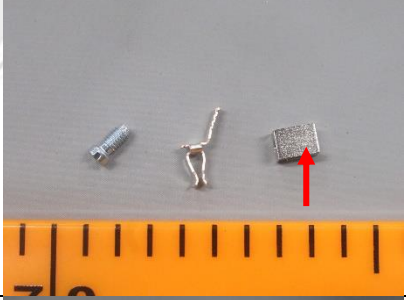


Sample No.	Description (Material, colour)	Photograph/Location
116	Yellow hard plastic shell	
117	Yellow potting compound	
118	Silvery soft plastic film	
119	White hard plastic shell	
120	Beige hard plastic frame	

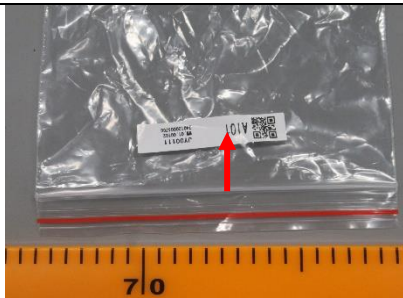
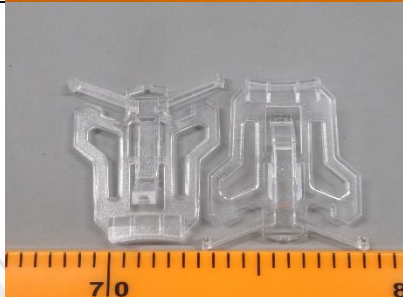
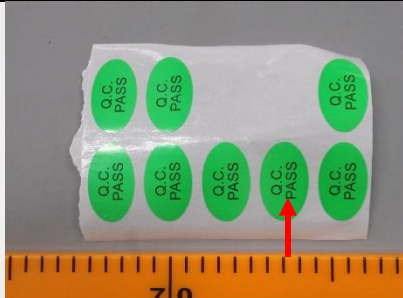
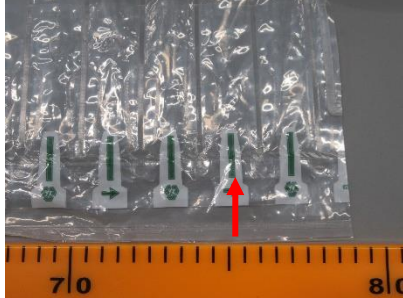


Sample No.	Description (Material, colour)	Photograph/Location
121	Black hard plastic frame	
122	Golden metal wire	
123	Silvery metal bracket	
124	Golden metal pin	
125	Beige hard plastic bracket	



Sample No.	Description (Material, colour)	Photograph/Location
126	Green hard plastic plug	
127	Silvery metal screw	
128	Silvery metal pin	
129	Silvery copper alloy block	
130	Transparent soft plastic bag	



Sample No.	Description (Material, colour)	Photograph/Location
131	White paper label	
132	Transparent hard plastic frame	
133	Green paper label	
134	Transparent soft plastic bag	
135	White and green soft plastic label	



Sample No.	Description (Material, colour)	Photograph/Location
136	Brown paper box	





2. TEST RESULT(S)

2.1 SCREENING TEST

Test method: With reference to EN 62321-1:2013, EN IEC 62321-2:2021, EN 62321-3-1:2014 and EN 62321-8:2017.

For Heavy Metals and Flame Retardants, analyzed by Energy Dispersive X-ray Fluorescence Spectrometer (XRF); for phthalates, analyzed by Gas Chromatography and Mass Spectrometer (GC-MS).

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
01	BL	BL	BL	BL	BL	BL	BL	BL	BL
02	BL	BL	BL	BL	BL	BL	BL	BL	BL
03	BL	BL	BL	BL	BL	BL	BL	BL	BL
04	BL	BL	BL	BL	BL	BL	BL	BL	BL
05	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
06	BL	BL	BL	BL	BL	BL	BL	BL	BL
07	BL	BL	BL	BL	BL	BL	BL	BL	BL
08	BL	BL	BL	BL	BL	BL	BL	BL	BL
09	BL	BL	BL	BL	BL	BL	BL	BL	BL
10	BL	BL	BL	BL	BL	BL	BL	BL	BL
11	BL	BL	BL	BL	BL	BL	BL	BL	BL
12	BL	BL	BL	Inc. ^(a)	NA	NA	NA	NA	NA
13	BL	BL	BL	BL	BL	BL	BL	BL	BL
14	BL	BL	BL	BL	BL	BL	BL	BL	BL
15	BL	BL	BL	BL	BL	BL	BL	BL	BL
16	BL	BL	BL	BL	BL	BL	BL	BL	BL
17	BL	BL	BL	BL	BL	BL	BL	BL	BL
18	BL	BL	BL	BL	BL	BL	BL	BL	BL
19	BL	BL	BL	BL	NA	NA	NA	NA	NA
20	BL	BL	BL	BL	BL	BL	BL	BL	BL
21	BL	BL	BL	BL	BL	BL	BL	BL	BL



Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
22	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
23	BL	BL	BL	BL	BL	BL	BL	BL	BL
24	BL	BL	BL	BL	BL	BL	BL	BL	BL
25	BL	BL	BL	BL	BL	BL	BL	BL	BL
26	BL	BL	BL	BL	NA	NA	NA	NA	NA
27	BL	BL	BL	BL	BL	BL	BL	BL	BL
28	BL	BL	BL	Inc. ^(a)	NA	NA	NA	NA	NA
29	BL	BL	BL	Inc. ^(a)	NA	NA	NA	NA	NA
30	BL	BL	BL	BL	BL	BL	BL	BL	BL
31	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
32	BL	BL	BL	BL	NA	NA	NA	NA	NA
33	BL	BL	BL	BL	BL	BL	BL	BL	BL
34	BL	BL	BL	BL	BL	BL	BL	BL	BL
35	BL	BL	BL	BL	BL	BL	BL	BL	BL
36	BL	BL	BL	BL	BL	BL	BL	BL	BL
37	BL	BL	BL	BL	BL	BL	BL	BL	BL
38	BL	BL	BL	BL	BL	BL	BL	BL	BL
39	BL	BL	BL	BL	BL	BL	BL	BL	BL
40	BL	BL	BL	BL	BL	BL	BL	BL	BL
41	BL	BL	BL	BL	BL	BL	BL	BL	BL
42	BL	BL	BL	BL	NA	NA	NA	NA	NA
43	BL	BL	BL	BL	BL	BL	BL	BL	BL
44	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
45	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL



Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
46	BL	BL	BL	BL	NA	NA	NA	NA	NA
47	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
48	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
49	BL	BL	BL	BL	NA	NA	NA	NA	NA
50	BL	BL	BL	BL	BL	BL	BL	BL	BL
51	BL	BL	BL	BL	BL	BL	BL	BL	BL
52	BL	BL	BL	BL	BL	BL	BL	BL	BL
53	BL	BL	BL	BL	BL	BL	BL	BL	BL
54	BL	BL	BL	BL	BL	BL	BL	BL	BL
55	BL	BL	BL	BL	BL	BL	BL	BL	BL
56	BL	BL	BL	BL	BL	BL	BL	BL	BL
57	BL	BL	BL	BL	BL	BL	BL	BL	BL
58	BL	BL	BL	BL	BL	BL	BL	BL	BL
59	BL	BL	BL	BL	BL	BL	BL	BL	BL
60	BL	BL	BL	BL	BL	BL	BL	BL	BL
61	BL	Inc. ^(a)	BL	BL	BL	BL	BL	BL	BL
62	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
63	BL	BL	BL	BL	NA	NA	NA	NA	NA
64	BL	BL	BL	BL	BL	BL	BL	BL	BL
65	BL	BL	BL	BL	NA	NA	NA	NA	NA
66	BL	BL	BL	BL	BL	BL	BL	BL	BL
67	BL	BL	BL	BL	BL	BL	BL	BL	BL
68	BL	BL	BL	BL	BL	BL	BL	BL	BL
69	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL



Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
70	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
71	BL	BL	BL	BL	BL	BL	BL	BL	BL
72	BL	BL	BL	BL	BL	BL	BL	BL	BL
73	BL	BL	BL	BL	BL	BL	BL	BL	BL
74	BL	BL	BL	BL	BL	BL	BL	BL	BL
75	BL	BL	BL	BL	BL	BL	BL	BL	BL
76	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
77	BL	BL	BL	BL	NA	NA	NA	NA	NA
78	BL	BL	BL	BL	BL	BL	BL	BL	BL
79	BL	BL	BL	BL	BL	BL	BL	BL	BL
80	BL	BL	BL	BL	BL	BL	BL	BL	BL
81	BL	BL	BL	BL	BL	BL	BL	BL	BL
82	BL	BL	BL	BL	BL	BL	BL	BL	BL
83	BL	BL	BL	BL	BL	BL	BL	BL	BL
84	BL	BL	BL	BL	BL	BL	BL	BL	BL
85	BL	BL	BL	BL	BL	BL	BL	BL	BL
86	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
87	BL	BL	BL	BL	BL	BL	BL	BL	BL
88	BL	BL	BL	BL	BL	BL	BL	BL	BL
89	BL	BL	BL	BL	BL	BL	BL	BL	BL
90	BL	BL	BL	BL	BL	BL	BL	BL	BL
91	BL	BL	BL	BL	BL	BL	BL	BL	BL
92	BL	BL	BL	BL	NA	NA	NA	NA	NA
93	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL



Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
94	BL	BL	BL	BL	BL	BL	BL	BL	BL
95	BL	BL	BL	BL	BL	BL	BL	BL	BL
96	BL	BL	BL	BL	BL	BL	BL	BL	BL
97	BL	BL	BL	BL	BL	BL	BL	BL	BL
98	BL	BL	BL	BL	BL	BL	BL	BL	BL
99	BL	BL	BL	BL	BL	BL	BL	BL	BL
100	BL	BL	BL	BL	NA	NA	NA	NA	NA
101	BL	BL	BL	BL	BL	BL	BL	BL	BL
102	BL	BL	BL	BL	NA	NA	NA	NA	NA
103	BL	BL	BL	BL	NA	NA	NA	NA	NA
104	BL	BL	BL	BL	BL	BL	BL	BL	BL
105	BL	BL	BL	BL	NA	NA	NA	NA	NA
106	BL	BL	BL	BL	BL	BL	BL	BL	BL
107	BL	BL	BL	BL	BL	BL	BL	BL	BL
108	BL	BL	BL	BL	NA	NA	NA	NA	NA
109	BL	BL	BL	BL	BL	BL	BL	BL	BL
110	BL	BL	BL	BL	BL	BL	BL	BL	BL
111	BL	BL	BL	BL	BL	BL	BL	BL	BL
112	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
113	BL	BL	BL	BL	NA	NA	NA	NA	NA
114	BL	BL	BL	BL	NA	NA	NA	NA	NA
115	BL	BL	BL	BL	BL	BL	BL	BL	BL
116	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
117	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL



Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Pb	Hg	Cr	Br	DEHP	BBP	DBP	DIBP
118	BL	BL	BL	BL	BL	BL	BL	BL	BL
119	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
120	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
121	BL	BL	BL	BL	BL	BL	BL	BL	BL
122	BL	BL	BL	BL	NA	NA	NA	NA	NA
123	BL	BL	BL	BL	NA	NA	NA	NA	NA
124	BL	BL	BL	BL	NA	NA	NA	NA	NA
125	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
126	BL	BL	BL	BL	BL	BL	BL	BL	BL
127	BL	BL	BL	Inc. ^(a)	NA	NA	NA	NA	NA
128	BL	BL	BL	BL	NA	NA	NA	NA	NA
129	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
130	BL	BL	BL	BL	BL	BL	BL	BL	BL
131	BL	BL	BL	BL	BL	BL	BL	BL	BL
132	BL	BL	BL	BL	BL	BL	BL	BL	BL
133	BL	BL	BL	BL	BL	BL	BL	BL	BL
134	BL	BL	BL	BL	BL	BL	BL	BL	BL
135	BL	BL	BL	BL	BL	BL	BL	BL	BL
136	BL	BL	BL	BL	BL	BL	BL	BL	BL



Remark:

- "BL" denotes below limit
- "OL" denotes over limit
- "Inc." denotes inconclusive
- "NA" denotes not applicable
- "(a)" denotes further confirmation test was conducted, results are listed in 2.2 and 2.3.

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

ELEMENT	POLYMER		
	BL	INCONCLUSIVE	OL
Cd	$X \leq (70-3\sigma)$	$(70-3\sigma) < X < (130+3\sigma)$	$X \geq (130+3\sigma)$
Pb	$X \leq (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X \geq (1300+3\sigma)$
Hg	$X \leq (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X \geq (1300+3\sigma)$
Br	$X \leq (300-3\sigma)$	$X > (300-3\sigma)$	NA
Cr	$X \leq (700-3\sigma)$	$X > (700-3\sigma)$	NA

ELEMENT	METAL		
	BL	INCONCLUSIVE	OL
Cd	$X \leq (70-3\sigma)$	$(70-3\sigma) < X < (130+3\sigma)$	$X \geq (130+3\sigma)$
Pb	$X \leq (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X \geq (1300+3\sigma)$
Hg	$X \leq (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X \geq (1300+3\sigma)$
Cr	$X \leq (700-3\sigma)$	$X > (700-3\sigma)$	NA

ELEMENT	COMPLEX MATERIAL		
	BL	INCONCLUSIVE	OL
Cd	$X \leq (50-3\sigma)$	$(50-3\sigma) < X < (150+3\sigma)$	$X \geq (150+3\sigma)$
Pb	$X \leq (500-3\sigma)$	$(500-3\sigma) < X < (1500+3\sigma)$	$X \geq (1500+3\sigma)$
Hg	$X \leq (500-3\sigma)$	$(500-3\sigma) < X < (1500+3\sigma)$	$X \geq (1500+3\sigma)$
Br	$X \leq (250-3\sigma)$	$X > (250-3\sigma)$	NA
Cr	$X \leq (500-3\sigma)$	$X > (500-3\sigma)$	NA

-Screening limits in mg/kg for regulated phthalates in various matrices

PHthalATES	BL	INCONCLUSIVE
DEHP	$X < 600$	$X \geq 600$
BBP	$X < 600$	$X \geq 600$
DBP	$X < 600$	$X \geq 600$
DIBP	$X < 600$	$X \geq 600$



2.2 HEAVY METAL CONTENT

Test method: With reference to EN 62321-4:2014 /A1:2017, EN 62321-5:2014, EN 62321-7-1:2015 and EN 62321-7-2:2017, analyzed by Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES) and Ultraviolet-visible spectrophotometer (UV-Vis).

[Reporting Limit: 2.0 mg/kg for Cadmium; 5.0 mg/kg or 0.10 µg/cm² for Hexavalent Chromium, 10.0 mg/kg for Lead and Mercury.]

Sample No.	Result(s)				
	Total Cadmium	Hexavalent Chromium	Hexavalent Chromium	Total Mercury	Total Lead
12	--	/	Negative	--	--
28	--	/	Negative	--	--
29	--	/	Negative	--	--
61	--	--	--	--	4749.0 ^(d)
127	--	/	Negative	--	--
129	--	--	--	--	23880.4 ^(c)
Unit	mg/kg	mg/kg	µg/cm²	mg/kg	mg/kg
RoHS Requirement	100	1000	Negative [#]	1000	1000

Remark:

- "mg/kg" denotes milligram per kilogram
- "µg/cm²" denotes micrograms per square centimeter
- "<" denotes less than
- "Positive" denotes the absorbance value of sample is > 0.13 µg/cm², the sample is considered to be positive for Hexavalent Chromium.
- "Inconclusive" denotes the absorbance value of sample is ≥ 0.10 µg/cm² and ≤ 0.13 µg/cm², the sample is considered to be Inconclusive for Hexavalent Chromium.
- "Negative" denotes the absorbance value of sample is < 0.10 µg/cm², the sample is considered to be negative for Hexavalent Chromium.
- [#] According to DIRECTIVE 2011/65/EU Article 4(1) and Annex II. While, positive means the presence of CrVI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1) and Annex II.
- "--" denotes tested by XRF, result is listed in 2.1



2.3 POLYBROMINATED BIPHENYLS (PBBs) AND POLYBROMINATED DIPHENYL ETHERS (PBDEs) CONTENT

Test Method: With reference to EN 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometer (GC-MS). [Reporting Limit : 5 mg/kg]

Test Item		Result(s) [mg/kg]					RoHS Requirement [mg/kg]
		05	22	31	44	45	
PBBs	Monobromobiphenyl	<5	<5	<5	<5	<5	-
	Dibromobiphenyl	<5	<5	<5	<5	<5	-
	Tribromobiphenyl	<5	<5	<5	<5	<5	-
	Tetrabromobiphenyl	<5	<5	<5	<5	<5	-
	Pentabromobiphenyl	<5	<5	<5	<5	<5	-
	Hexabromobiphenyl	<5	<5	<5	<5	<5	-
	Heptabromobiphenyl	<5	<5	<5	<5	<5	-
	Octabromobiphenyl	<5	<5	<5	<5	<5	-
	Nonabromobiphenyl	<5	<5	<5	<5	<5	-
	Decabromobiphenyl	<5	<5	<5	<5	<5	-
	Sum of detected PBBs	<50	<50	<50	<50	<50	1000
PBDEs	Monobromodiphenyl ether	<5	<5	<5	<5	<5	-
	Dibromodiphenyl ether	<5	<5	<5	<5	<5	-
	Tribromodiphenyl ether	<5	<5	<5	<5	<5	-
	Tetrabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Pentabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Hexabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Heptabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Octabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Nonabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Decabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Sum of detected PBDEs	<50	<50	<50	<50	<50	1000



2.3 POLYBROMINATED BIPHENYLS (PBBs) AND POLYBROMINATED DIPHENYL ETHERS (PBDEs) CONTENT

Test Method: With reference to EN 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometer (GC-MS). [Reporting Limit : 5 mg/kg]

Test Item		Result(s) [mg/kg]					RoHS Requirement [mg/kg]
		47	48	62	69	70	
PBBs	Monobromobiphenyl	<5	<5	<5	<5	<5	-
	Dibromobiphenyl	<5	<5	<5	<5	<5	-
	Tribromobiphenyl	<5	<5	<5	<5	<5	-
	Tetrabromobiphenyl	<5	<5	<5	<5	<5	-
	Pentabromobiphenyl	<5	<5	<5	<5	<5	-
	Hexabromobiphenyl	<5	<5	<5	<5	<5	-
	Heptabromobiphenyl	<5	<5	<5	<5	<5	-
	Octabromobiphenyl	<5	<5	<5	<5	<5	-
	Nonabromobiphenyl	<5	<5	<5	<5	<5	-
	Decabromobiphenyl	<5	<5	<5	<5	<5	-
	Sum of detected PBBs	<50	<50	<50	<50	<50	1000
PBDEs	Monobromodiphenyl ether	<5	<5	<5	<5	<5	-
	Dibromodiphenyl ether	<5	<5	<5	<5	<5	-
	Tribromodiphenyl ether	<5	<5	<5	<5	<5	-
	Tetrabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Pentabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Hexabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Heptabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Octabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Nonabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Decabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Sum of detected PBDEs	<50	<50	<50	<50	<50	1000



2.3 POLYBROMINATED BIPHENYLS (PBBs) AND POLYBROMINATED DIPHENYL ETHERS (PBDEs) CONTENT

Test Method: With reference to EN 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometer (GC-MS). [Reporting Limit : 5 mg/kg]

Test Item		Result(s) [mg/kg]					RoHS Requirement [mg/kg]
		76	86	93	112	116	
PBBs	Monobromobiphenyl	<5	<5	<5	<5	<5	-
	Dibromobiphenyl	<5	<5	<5	<5	<5	-
	Tribromobiphenyl	<5	<5	<5	<5	<5	-
	Tetrabromobiphenyl	<5	<5	<5	<5	<5	-
	Pentabromobiphenyl	<5	<5	<5	<5	<5	-
	Hexabromobiphenyl	<5	<5	<5	<5	<5	-
	Heptabromobiphenyl	<5	<5	<5	<5	<5	-
	Octabromobiphenyl	<5	<5	<5	<5	<5	-
	Nonabromobiphenyl	<5	<5	<5	<5	<5	-
	Decabromobiphenyl	<5	<5	<5	<5	<5	-
	Sum of detected PBBs	<50	<50	<50	<50	<50	1000
PBDEs	Monobromodiphenyl ether	<5	<5	<5	<5	<5	-
	Dibromodiphenyl ether	<5	<5	<5	<5	<5	-
	Tribromodiphenyl ether	<5	<5	<5	<5	<5	-
	Tetrabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Pentabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Hexabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Heptabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Octabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Nonabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Decabromodiphenyl ether	<5	<5	<5	<5	<5	-
	Sum of detected PBDEs	<50	<50	<50	<50	<50	1000



2.3 POLYBROMINATED BIPHENYLS (PBBs) AND POLYBROMINATED DIPHENYL ETHERS (PBDEs) CONTENT

Test Method: With reference to EN 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometer (GC-MS). [Reporting Limit : 5 mg/kg]

Test Item		Result(s) [mg/kg]			RoHS Requirement [mg/kg]
		117	119	125	
PBBs	Monobromobiphenyl	<5	<5	<5	-
	Dibromobiphenyl	<5	<5	<5	-
	Tribromobiphenyl	<5	<5	<5	-
	Tetrabromobiphenyl	<5	<5	<5	-
	Pentabromobiphenyl	<5	<5	<5	-
	Hexabromobiphenyl	<5	<5	<5	-
	Heptabromobiphenyl	<5	<5	<5	-
	Octabromobiphenyl	<5	<5	<5	-
	Nonabromobiphenyl	<5	<5	<5	-
	Decabromobiphenyl	<5	<5	<5	-
	Sum of detected PBBs	<50	<50	<50	1000
PBDEs	Monobromodiphenyl ether	<5	<5	<5	-
	Dibromodiphenyl ether	<5	<5	<5	-
	Tribromodiphenyl ether	<5	<5	<5	-
	Tetrabromodiphenyl ether	<5	<5	<5	-
	Pentabromodiphenyl ether	<5	<5	<5	-
	Hexabromodiphenyl ether	<5	<5	<5	-
	Heptabromodiphenyl ether	<5	<5	<5	-
	Octabromodiphenyl ether	<5	<5	<5	-
	Nonabromodiphenyl ether	<5	<5	<5	-
	Decabromodiphenyl ether	<5	<5	<5	-
	Sum of detected PBDEs	<50	<50	<50	1000

Remark:

- "mg/kg" denotes milligram per kilogram
- "<" denotes less than



APPENDIX I: Product Model

Product: ARTM Multi Channel Temperature Controller	Test model: ARTM-8L
Additional Model: ARTM-8,ARTM8,ARTM	

Remark:

- 1. The report covers material testing on specified samples.

