



TEST REPORT

Applicant: Dongguan Habotest Instrument Technology Co., Ltd.

Address: No.8, 4th Qinghu Xingye Road, Qingxi Town, Dongguan City, Guangdong Province, China

Manufacturer: Dongguan Habotest Instrument Technology Co., Ltd.

Address: No.8, 4th Qinghu Xingye Road, Qingxi Town, Dongguan City, Guangdong Province, China

The following sample(s) and sample information by the applicant.

Product Name: THERMAL IMAGE CAMERA

Trade Mark: HABOTEST

Model Number: HT821A, HT821As, HT821B, HT821Cs

Sample Received Date: Jul. 11, 2025

Testing Period: Jul. 11, 2025 - Jul. 16, 2025

Test Requested: With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Test Method: Please refer to next page(s).

Test Results: Please refer to next page(s).

Conclusion:

As requested by applicant, the submitted sample was tested which is listed as specimen description in the following page. The results of Lead(Pb), Mercury(Hg), Cadmium(Cd), Hexavalent chromium(Cr⁶⁺), Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Prepared (Engineer): Shely Mo

Approved (Manager): Xiaoshan Ni



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

**Version**

Version No.	Date	Description
00	Jul. 18, 2025	Original

Test Method:

1. With reference to IEC 62321-2:2021, review was performed for the samples disjointed from the submitted articles.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report
 - (1) With reference to IEC 62321-3-1:2013, screening by EDXRF spectroscopy
 - (2) Wet chemical test method
 - a. With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES
 - b. With reference to IEC 62321-5:2013, determination of Lead by ICP-OES
 - c. With reference to IEC 62321-4:2013+ A1:2017, determination of Mercury by ICP-OES
 - d. With reference to IEC 62321-7-1:2015 & IEC 62321-7-2:2017, determination of Hexavalent chromium by Colorimetric method using UV-Vis.
 - e. With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS
 3. With reference to IEC 62321-8:2017, determination of phthalates by GC-MS

**Test Part Description:**

Part No.	Part Description(s)	Style
A01	Black silicone	-
A02	Red plastic	-
A03	Transparent plastic	-
A04	Red silicone	-
A05	Grey silicone	-
A06	Black glass	-
A07	White plastic	-
A08	Yellow ribbon cable	-
A09	Yellow LED	-
A10	Silver plastic	-
A11	Silver metal	-
A12	Black plastic	-
A13	Black ribbon cable	-
A14	White plastic	-
A15	Red rubber line leather	-
A16	Black rubber line leather	-
A17	Silver metal	-
A18	Yellow metal	-
A19	Black PCB	-
A20	Black coil inductor	-
A21	Silver metal	-
A22	Yellow component	-
A23	Black transistor	-
A24	White plastic	-
A25	Silver capacitor	-
A26	Silver metal	-
A27	Black IC	-
A28	Black surface mount resistor	-



Part No.	Part Description(s)	Style
A29	Brown capacitor	-
A30	Silver metal	-
A31	Silver solder	-
A32	Green PCB	-
A33	Blue plastic film	-
B01	Silver metal	-
B02	Black rubber	-
B03	Black rubber outer skin	-
B04	Silver metal	-
B05	Black rubber	-

**Test Results:**

The results of XRF screening and chemical test (Unit: mg/kg)

Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A01	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A02	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A03	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A04	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A05	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A06	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A07	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A08	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A09	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A10	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A11	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A12	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A13	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A14	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A15	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A16	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A17	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A18	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A19	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A20	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A21	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A22	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A23	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A24	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A25	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A26	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A27	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
A28	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A29	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A30	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A31	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
A32	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
A33	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
B01	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	---	---		
	PBDEs	---	---		
	DIBP	---	---		
	DBP	---	---		
	BBP	---	---		
	DEHP	---	---		
B02	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
B03	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		



Shenzhen DL Testing Technology Co., Ltd.

Report No.: DLR-250624018R

Part No.	Element	X-ray Screening	Results of chemical test	Conclusion on RoHS EU	Sample Resubmitted
B04	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		
B05	Pb	BL	---	Pass	/
	Cd	BL	---		
	Hg	BL	---		
	Cr(Cr ⁶⁺)	BL	---		
	PBBs	BL	---		
	PBDEs	BL	---		
	DIBP	---	ND		
	DBP	---	ND		
	BBP	---	ND		
	DEHP	---	ND		

address:

101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

Tel: 400-688-3552 Web: www.dl-cert.com Email: service@dl-cert.com

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**Remark:**

(1) There are the results on total Br while test items on restricted substances are PBBs and PBDEs. There are the results on total Cr while test items on restricted substances Cr(VI)

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

Element	Polymer Materials	Metal Materials	Composite Materials
Cd	$BL \leq 70-3\sigma < X < 130+3\sigma \leq OL$	$BL \leq 70-3\sigma < X < 130+3\sigma \leq OL$	$BL \leq 50-3\sigma < X < 150+3\sigma \leq OL$
Pb	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 500-3\sigma < X < 1500+3\sigma \leq OL$
Hg	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 500-3\sigma < X < 1500+3\sigma \leq OL$
Br	$BL \leq 300-3\sigma < X$	---	$BL \leq 250-3\sigma < X$
Cr	$BL \leq 700-3\sigma < X$	$BL \leq 700-3\sigma < X$	$BL \leq 500-3\sigma < X$

(a) BL= Below Limit, OL=Over Limit, X= Inconclusive, LOD= Limit of Detection, --- = Not regulated.

(b) The XRF screening test for RoHS elements - the reading may be different to actual content in the sample be of non-uniformity composition

(c) mg/kg=0.0001%, MDL=Method Detection Limit, ND=Not Detected (<MDL), NA= Not applicable

Unit and MDL in wet chemical test

Test Item	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBBs and PBDEs is 100 mg/kg

MDL of Cr(VI) for polymer and composite sample is 10 mg/kg

MDL of Cr(VI) for metal sample is 0.10ug/cm²

(c) ▼=Metal sample

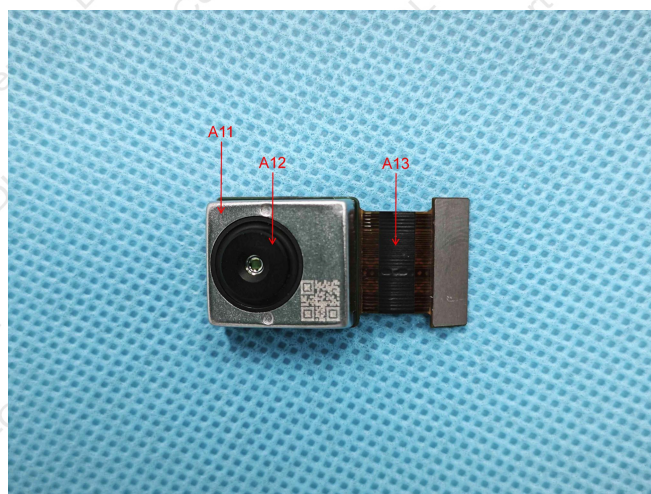
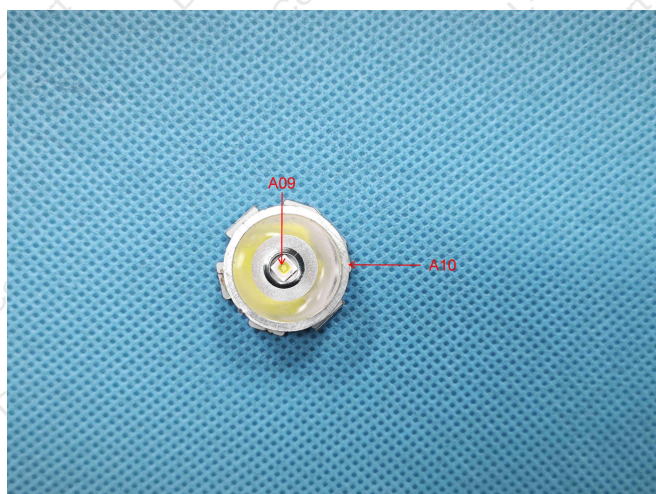
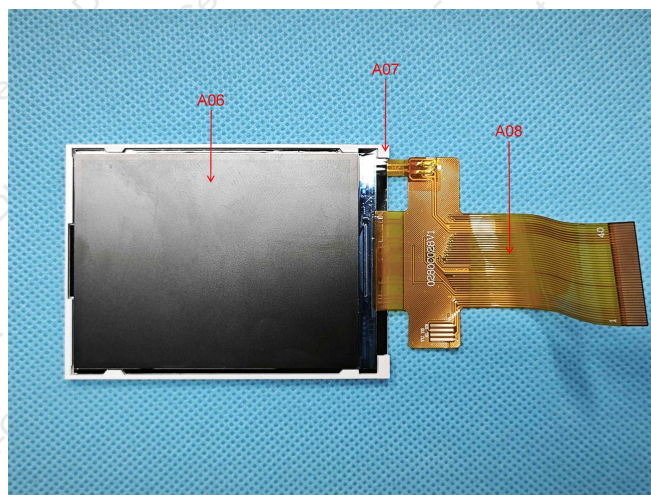
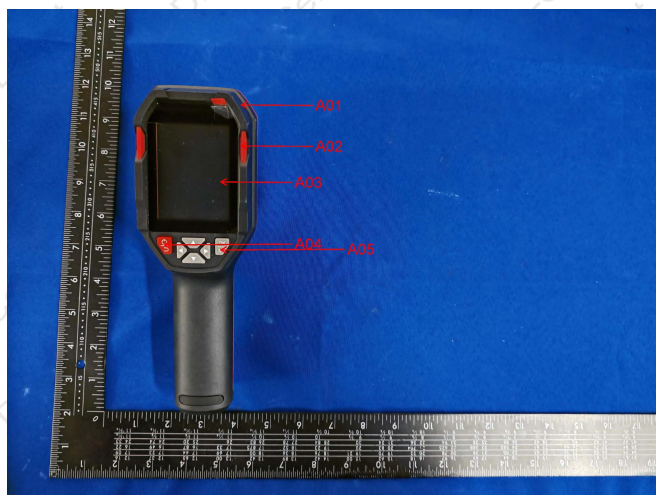
a. The sample is negative for Cr⁶⁺ if Cr⁶⁺ is ND (below the limit 0.10ug/cm²). The coating is considered a non Cr⁶⁺ based coating.

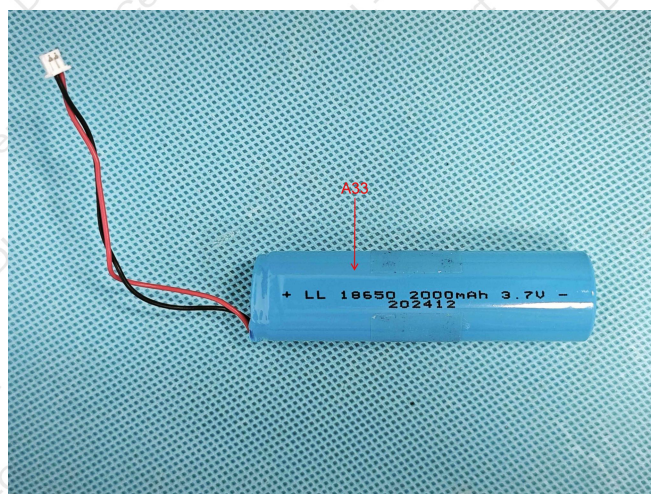
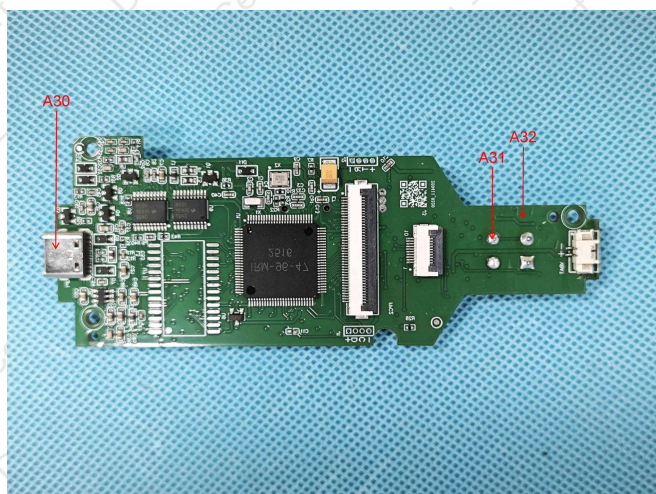
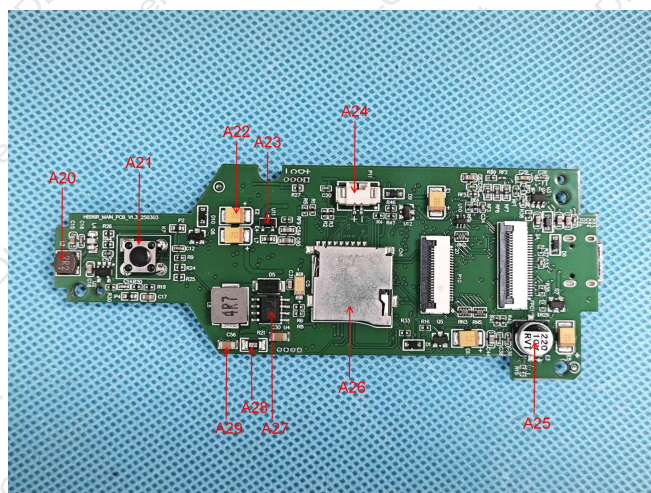
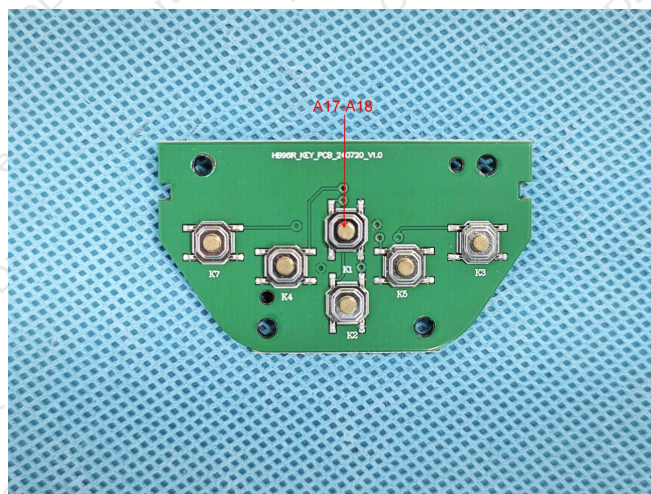
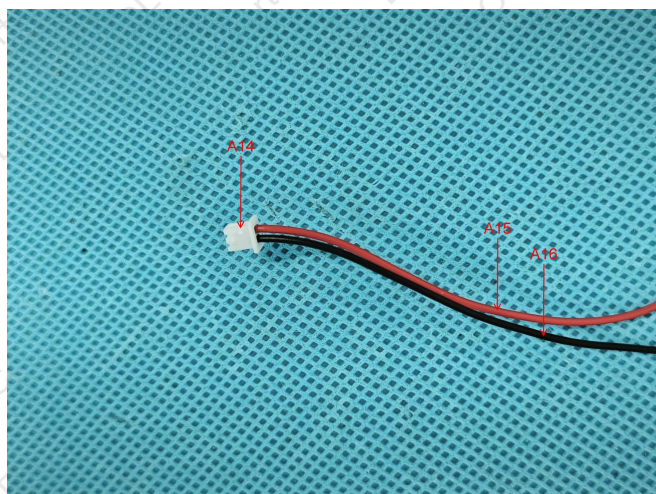
b. The sample positive for Cr⁶⁺ if the Cr⁶⁺ concentration is greater than 0.13ug/cm². The sample coating is considered to contain Cr⁶⁺.

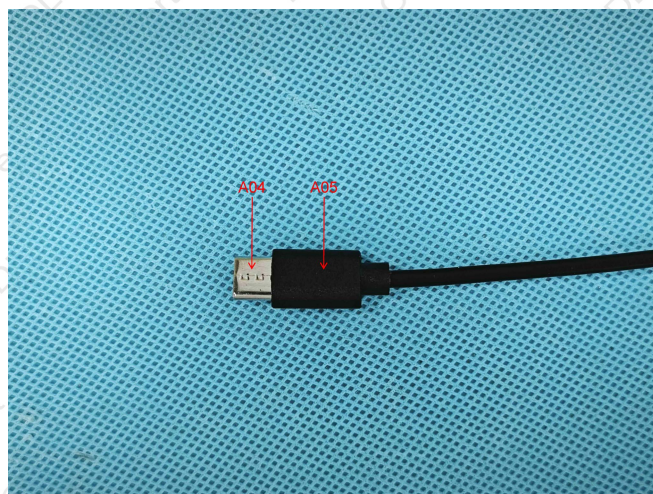
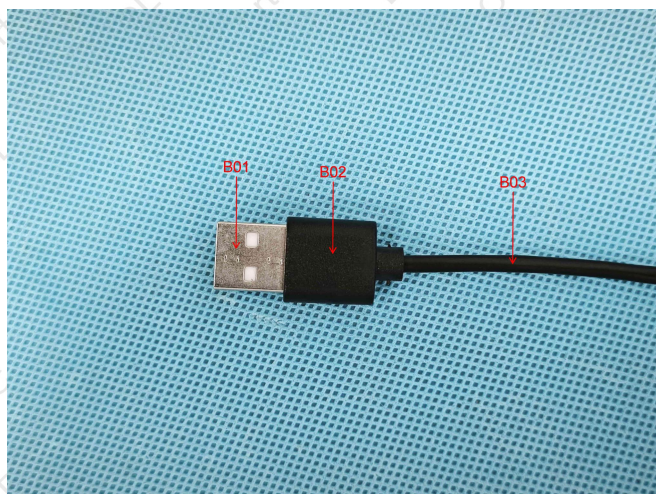
c. The result between 0.10ug/cm² and 0.13ug/cm² is considered to be inconclusive unavoidable coating variations may influence the determination.



Sample photo:







***** END OF REPORT *****