XRF Screening and Chemical Confirmation Test Report Number: ETA25070022C-001

Applicant: Hangzhou Longlux Electronic Technology Co., ltd
The Western Science Park, Hangzhou City, China
Date: July 22, 2025

Sample Description:

One (1) piece of submitted samples said to be

Item Name	:	LED tube
Brand Name/Trade Name		Longlux
Tested Model	:	LLX-2FT-8W
Referenced Model	:	LLX-2FT-8W; LLX-2FT-9W; LLX-2FT-10W; LLX-4FT-14W; LLX-4FT-16W; LLX-4FT-18W; LLX-4FT-20W; LLX-4FT-22W; LLX-5FT-18W; LLX-5FT-20W; LLX-5FT-22W; LLX-8FT-36W; LLX-8FT-38W; LLX-8FT-40W



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Tests Conducted:

As Requested By The Applicant, For Details Refer To Attached Page(S).

Remark:

The tested samples were confirmed by client and reference models were based on the self declaration supplied by clients. **ETA** takes no responsibility for any issues of product consistency caused by inaccurate and/or invalid information submitted by the client.

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Conclusion:

Tested sample	Standard	Result
Tested component of Submitted sample	Screening by XRF spectroscopy and chemical confirmation test for RoHS Directive 2011/65/EU and amendment (EU)2015/863	Pass

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To be continued

Authorized By:
For Hangzhou ETA Testing Technology Co., Ltd

Sean Wan
Manager

Tests Conducted

Cadmium (Cd), Lead (Pb), Mercury (Hg), Chromium (Cr) and Bromine (Br) content were measured with reference to IEC 62321-3-1 Edition 1.0 : 2013 by XRF spectroscopy and chemical confirmation test for RoHS restricted substances. And Phthalates content were determined by Gas Chromatographic-Mass Spectrometric (GC-MS).

(A) Results:

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
1	Glass	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
2	White Nonmetal	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
3	PCB	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	X		PBBs=ND; PBDEs=ND	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

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To be continued

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
4	LED	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
5	Silver Metal	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
6	White Wire						
6-1	White Wire Skin	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	X		PBBs=ND; PBDEs=ND	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

To be continued

Hangzhou ETA Testing Technology Co., Ltd.
8/F., Building A, The Western Science Park, Yuhang District, Hangzhou, Zhejiang, China
杭州亿塔检测技術有限公司
中国浙江省杭州市余杭区西部科技园 A 座 8 楼
Telephone: +86 571 88610058
www.etatests.com

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
6-2	Lead	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
7	Glue	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
8	Triode	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

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To be continued

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
9	Capacitor						
9-1	Brown Nonmental	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
9-2	Silver Metal	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
9-3	EC	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

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To be continued

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
10	Diode	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
11	Red Wire						
11-1	Red Wire Skin	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	X		PBBs=ND; PBDEs=ND	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
11-2	Lead	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	

To be continued

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8/F., Building A, The Western Science Park, Yuhang District, Hangzhou, Zhejiang, China
杭州亿塔检测技術有限公司
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Telephone: +86 571 88610058
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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
12	Black wire						
12-1	Black Wire Skin	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	X		PBBs=ND; PBDEs=ND	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
12-2	Lead	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
13	Capacitor						
13-1	Green Nonmetal	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

To be continued

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
13-2	Silver Metal	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
13-3	EC	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
14	Transformer						
14-1	Black Nonmetal	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

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To be continued

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
14-2	Yellow Nonmetal	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
14-3	Lead	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
15	IC	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

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To be continued

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (phthalates)	Chemical Confirmation Result	Conclusion on RoHS
16	Resistor	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
17	Capacitor	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
18	Solder	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	P		/	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	

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To be continued

Remark: P = Pass (Below the lower screening limit of table (B1))
X = Inconclusive result (Further chemical test was suggested (see table (B1).)
BL= Below the lower screening limit of table (B2) and pass
NA = Not applicable
NT = Not tested
ND = Not detected
ppm = Parts per million = mg/kg
/ = No content.

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(B)
(B1) XRF screening limits in mg/kg for regulated elements in various matrices.

Element	Polymer materials	Metallic materials	Composite materials
Cd	P ≤70 < X < 130 ≤ F	P ≤ 70 < X < 130 ≤ F	P ≤ 70 < X < 150 ≤ F
Pb	P ≤ 700 < X < 1300≤ F	P ≤ 700 < X < 1300 ≤ F	P ≤ 500< X < 1500 ≤ F
Hg	P ≤ 700< X < 1300 ≤ F	P ≤ 700 < X < 1300 ≤ F	P ≤ 500 < X < 1500 ≤ F
Cr	P ≤ 700< X	P ≤ 700 < F	P ≤ 500 < X
Br	P ≤ 300< X	Not applicable	P ≤ 250 < X

(B2) Preliminary screening test will used for phthalates, if the results exceed the warning area in the following table, further chemical methods will conduct to confirm the exact content by GC/MS.

Phthalates	Polymer
Bis(2-ethylhexyl)phthalate(DEHP)	BL ≤600<X
Butyl benzyl phthalate(BBP)	BL ≤600<X
Dibutyl phthalate(DBP)	BL ≤600<X
Diisobutyl phthalate(DIBP)	BL ≤600<X

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(C) 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

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To be continued

Disclaimers:

This XRF Screening and Chemical Confirmation Test 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 and Chemical Confirmation Test Report is sufficient for its/his/her purposes.

The results shown in this XRF Screening and Chemical Confirmation Test 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 is required to obtain quantitative data.

(D) Chemical confirmation test methods:

Testing item	Testing method	Reporting limit
Cadmium (Cd) content	With reference to IEC 62321-5 Edition 1.0：2013, by acid digestion and determined by ICP - OES	2 mg/kg
Lead (Pb) content	With reference to IEC 62321-5 Edition 1.0：2013, by acid digestion and determined by ICP - OES	2 mg/kg
Mercury (Hg) content	With reference to IEC 62321-4 Edition 1.1：2017, by acid digestion and determined by ICP - OES	2 mg/kg
Chromium (VI) (Cr^{6+}) content	With reference to IEC 62321-7-1 Edition 1.0:2015, by boiling water extraction and determined by UV-VIS spectrophotometer	Positive(>0.13 μg/cm^2) / Negative(<0.10 μg/cm^2) / Inconclusive(0.10 μg/cm^2 --0.13 μg/cm^2)
Chromium (VI) (Cr^{6+}) content	With reference to IEC 62321-7-2 Edition 1.0:2017, by alkaline digestion and determined by UV-VIS Spectrophotometer	10 mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs) Content	With reference to IEC 62321-6 Edition 1.0:2015, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg
Phthalates (DEHP, BBP, DBP, DIBP) Content	With reference to IEC 62321-8 Edition 1.0:2017,by solvent extraction and determined by GC/MS	100mg/kg

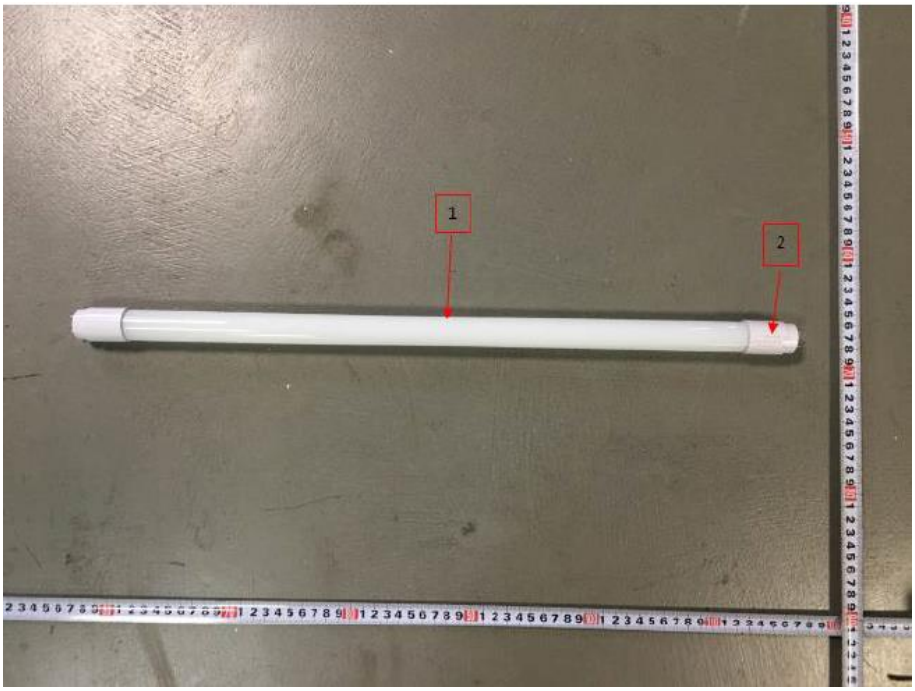
(E) RoHS requirement

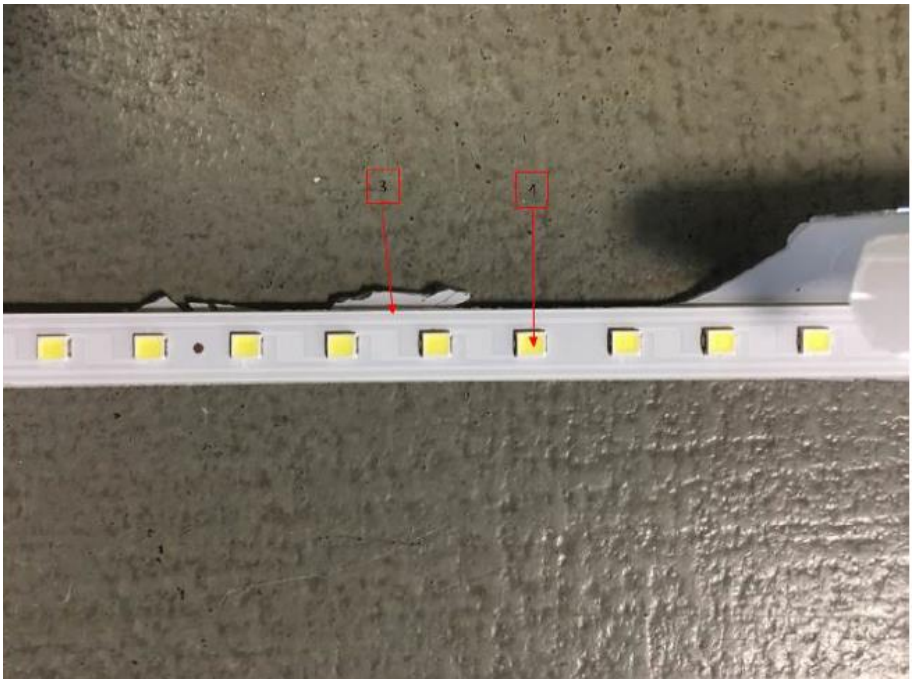
Restricted substances	Limits
Cadmium (Cd)	0.01% (100 ppm)
Lead (Pb)	0.1% (1000 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Chromium (VI) (Cr^{6+})	0.1% (1000 ppm)
Polybrominated biphenyls (PBBs)	0.1% (1000 ppm)
Polybrominated diphenyl ethers (PBDEs)	0.1% (1000 ppm)
Phthalates(DEHP, BBP, DBP, DIBP)	0.1% (1000 ppm)

The above limits were quoted from 2011/65/EU and (EU) 2015/863 for homogeneous material.

Date sample received: July 11, 2025
Testing period: July 11, 2025 to July 22, 2025

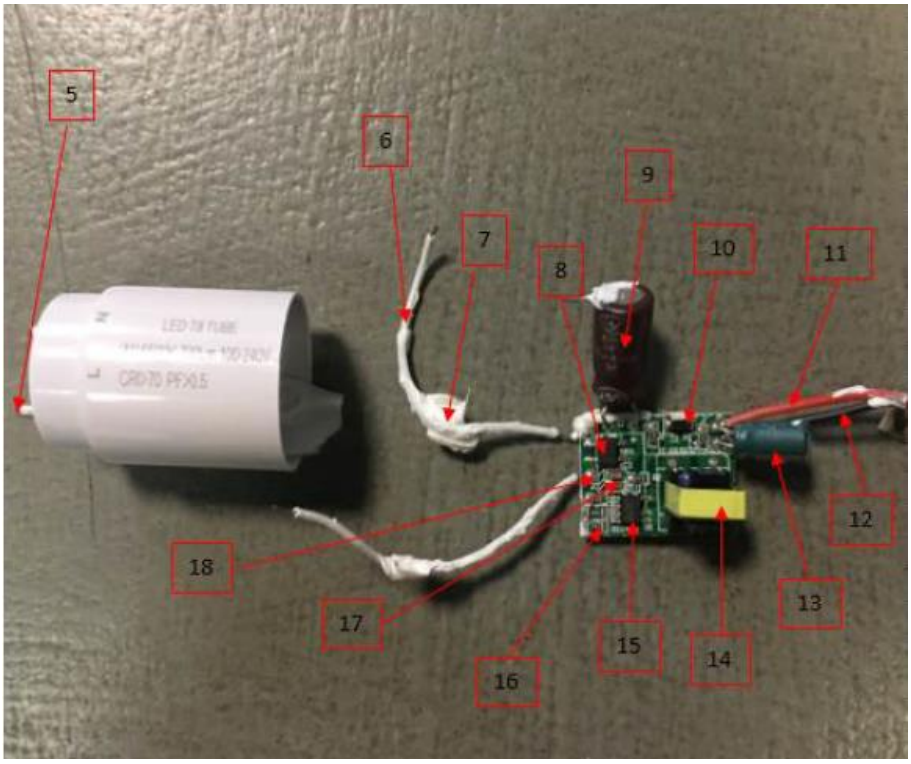
To be continued





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To be continued



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End of this report

Hangzhou ETA Testing Technology Co., Ltd.
8/F., Building A, The Western Science Park, Yuhang District, Hangzhou, Zhejiang, China
杭州亿塔检测技術有限公司
中国浙江省杭州市余杭区西部科技园 A 座 8 楼
Telephone: +86 571 88610058
www.etatests.com