TEST REPORT

Applicant	:	[redacted]
Address	:	**NO.702, BLK15th, Shunde Wanyang Zhongchuang Park, Xiantang Vil, 1st West Rd, Longjiang Town, Shunde Dist, Foshan City, Guangdong Pro., China, 528318**

Report on the submitted samples said to be:

Sample Name(s)	:	**LED step light**
Trade Mark	:	[redacted]
Tested Model No.	:	**ST6051-GY, ST6051W-GY, ST6051-SW, ST6051W-SW, ST6051B**
Sample Received Date	:	**November 06, 2024**
Testing Period	:	**November 06, 2024 ~ December 09, 2024**
Date of Report	:	**December 09, 2024**
Testing Location	:	**901, No.40 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong, China**
Results	:	**Please refer to next page(s).**

TEST REQUEST	CONCLUSION
As specified by client, based on the performed tests on submitted sample, the result of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, Dibutyl Phthalate(DBP), Butylbenzyl Phthalate(BBP), Di-2-ethylhexyl Phthalate(DEHP) and Diisobutyl phthalate(DIBP) content comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.	**PASS**

Signed for and on behalf of LCS

Terry Luo

Shenzhen LCS Compliance Testing Laboratory Ltd.
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A. EU RoHS Directive 2011/65/EU and its amendment directives

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

Test result(s):

Sample No.	Sample Description	Screening Result(s)						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr▼	Br▼		
						PBBs	PBDEs	
1	White metal sheet	BL	BL	BL	BL	/	/	2024-11-06
2	Silver magnet	BL	BL	BL	BL	/	/	2024-11-06
3	Red plastic thread	BL	BL	BL	BL	BL	BL	2024-11-06
4	White plastic thread	BL	BL	BL	BL	BL	BL	2024-11-06
5	Yellow plastic thread	BL	BL	BL	BL	BL	BL	2024-11-06
6	White soft plastic	BL	BL	BL	BL	BL	BL	2024-11-06
7	Silver sheet metal	BL	BL	BL	BL	/	/	2024-11-06
8	Black plastic sheet	BL	BL	BL	BL	BL	BL	2024-11-06
9	Brown plastic sheet	BL	BL	BL	BL	BL	BL	2024-11-06
10	Silver sheet metal	BL	BL	BL	BL	/	/	2024-11-06
11	White plastic sheet	BL	BL	BL	BL	BL	BL	2024-11-06
12	Light-emitting diode	BL	BL	BL	BL	BL	BL	2024-11-06
13	Black IC	BL	BL	BL	BL	BL	BL	2024-11-06
14	Chip resistor	BL	BL	BL	BL	BL	BL	2024-11-06
15	Yellow lamp bead	BL	BL	BL	BL	BL	BL	2024-11-06
16	Tin solder	BL	BL	BL	BL	/	/	2024-11-06
17	PCB board	BL	BL	BL	BL	BL	BL	2024-11-06
18	White plastic sheet	BL	BL	BL	BL	BL	BL	2024-11-06
19	Grey plastic sheet	BL	BL	BL	BL	BL	BL	2024-11-06
20	Silver sheet metal	BL	BL	BL	BL	/	/	2024-11-06
21	Color ring resistance	BL	BL	BL	BL	BL	BL	2024-11-06
22	Black IC	BL	BL	BL	BL	BL	BL	2024-11-06
23	Black plastic shell	BL	BL	BL	BL	BL	BL	2024-11-06
24	Silver metal shell	BL	BL	BL	BL	/	/	2024-11-06
25	Black triode	BL	BL	BL	BL	BL	BL	2024-11-06
26	PCB board	BL	BL	BL	BL	BL	BL	2024-11-06
27	Silver metal screw	BL	BL	BL	BL	/	/	2024-11-06
28	Silver metal screw	BL	BL	BL	BL	/	/	2024-11-06

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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(Unit: mg/kg).

Element	Polymers	Metals	Composite material
Cd	BL≤(70-3σ)<X<(130+3σ)≤OL	BL≤(70-3σ)<X<(130+3σ)≤OL	LOD<X<(150+3σ)≤OL
Pb	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(500-3σ)<X<(1500+3σ)≤OL
Hg	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(500-3σ)<X<(1500+3σ)≤OL
Cr	BL≤(700-3σ)<X	BL≤(700-3σ)<X	BL≤(500-3σ)<X
Br	BL≤(300-3σ)<X	N/A	BL≤(250-3σ)<X

Remark:

- BL= Below Limit
- OL= Over Limit
- X= The range of needing to do further testing
- 3σ= The reproducibility of analytical instruments
- N/A= Not applicable
- LOD= Detection limit

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 RoHS Directive 2011/65/EU with amendment (EU) 2015/863.
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
Butylbenzyl Phthalate(BBP)	1000
Di-(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.

B. EU RoHS Directive 2011/65/EU with amendment (EU) 2015/863 on DBP, BBP, DEHP & DIBP content

Test method:

Phthalates(DBP, BBP, DEHP &DIBP) Content:

Refer to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatography-mass spectrometer (GC-MS).

Test result(s):

1) Phthalates(DBP, BBP, DEHP &DIBP)

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg)			Limit (mg/kg)
		(3)	(4)	(5)	
Dibutyl Phthalate(DBP) Content	50	N.D.	N.D.	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	N.D.	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	N.D.	N.D.	1000

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Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg) (6+8+9+11+12+13)	Limit (mg/kg)
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg) (14+15+17+18+19+21)	Limit (mg/kg)
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Tested Item(s)	MDL (mg/kg)	Test Result(s) (mg/kg) (22+23+25+26)	Limit (mg/kg)
Dibutyl Phthalate(DBP) Content	50	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	50	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	50	N.D.	1000
Diisobutyl phthalate(DIBP) Content	50	N.D.	1000

Note:

- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg= milligram per kilogram=ppm
- According to customer's requirement, only the appointed materials have been tested.

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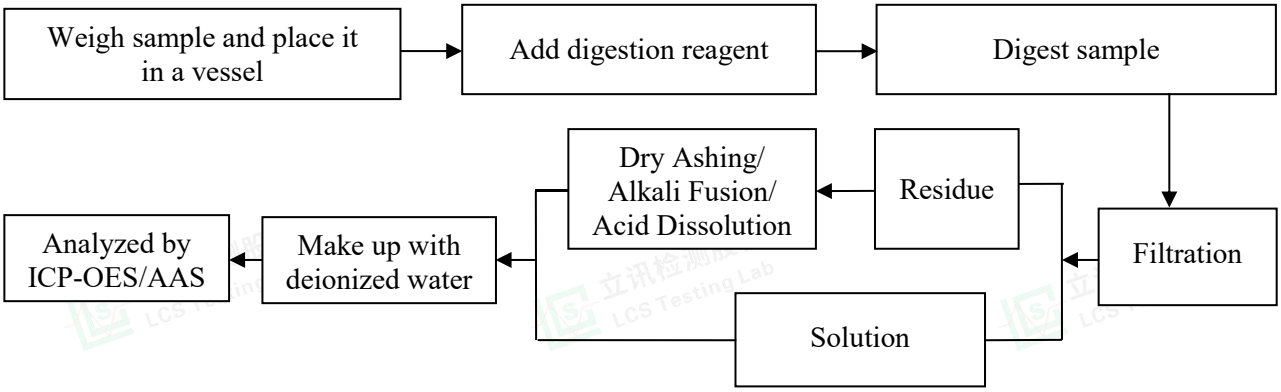
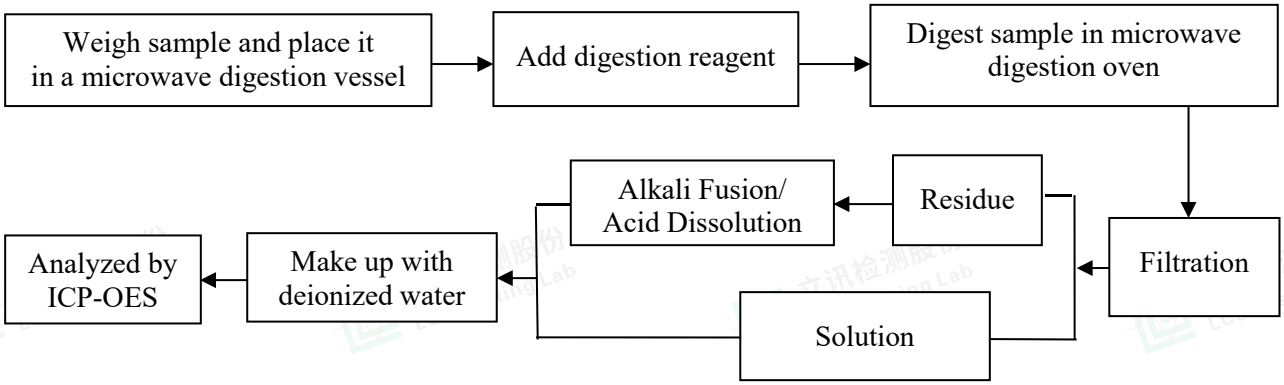
Test Process

1. Lead(Pb) & Cadmium(Cd): IEC 62321-5:2013

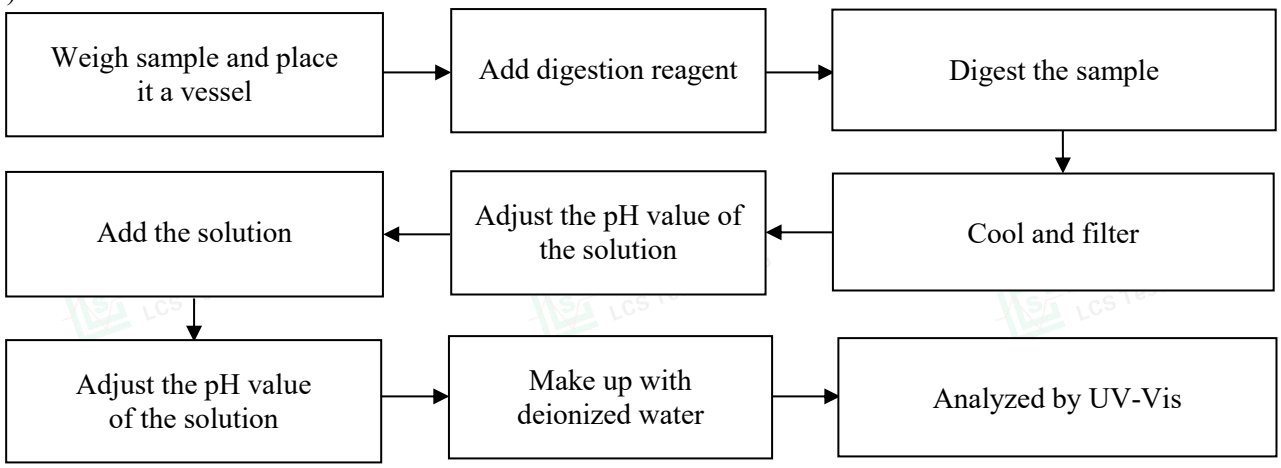


2. Mercury(Hg): IEC 62321-4:2013+AMD1:2017 CSV



3. Hexavalent Chromium(Cr(VI))

1) IEC 62321-7-2:2017



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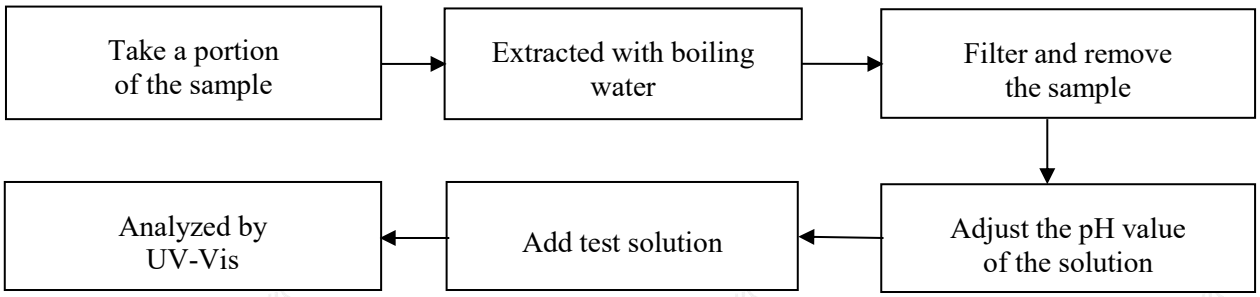
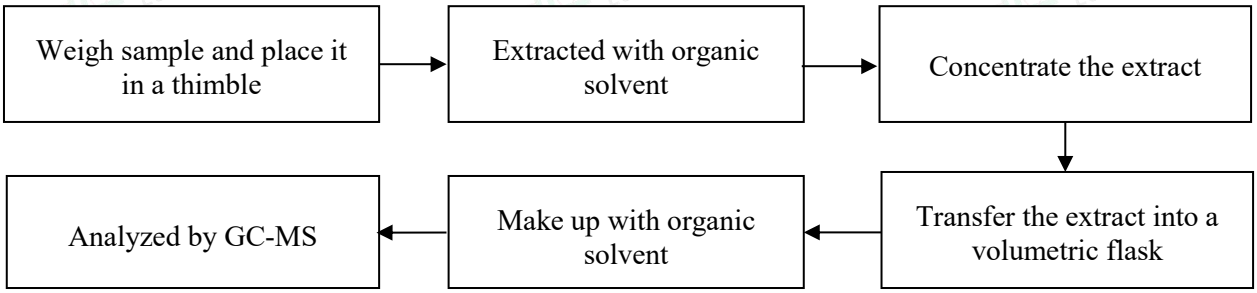
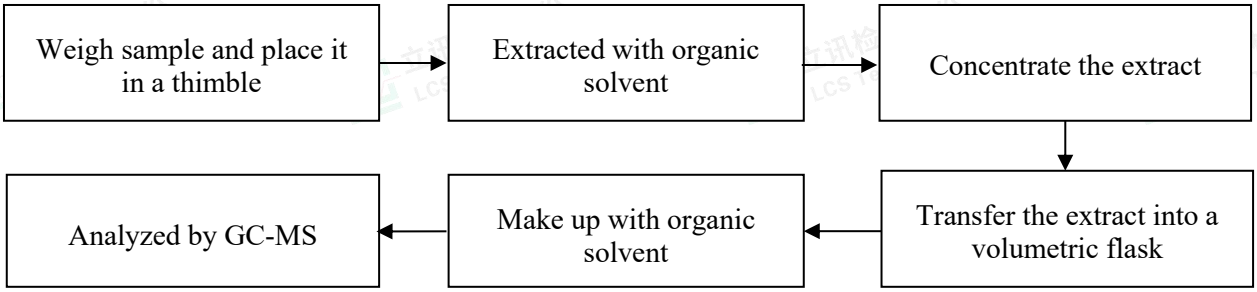
2) IEC 62321-7-1:2015



4. Polybrominated Biphenyls(PBBs) & Polybrominated Diphenyl Ethers(PBDEs) : IEC 62321-6:2015



5. Phthalates(DBP, BBP, DEHP & DIBP) : IEC 62321-8:2017



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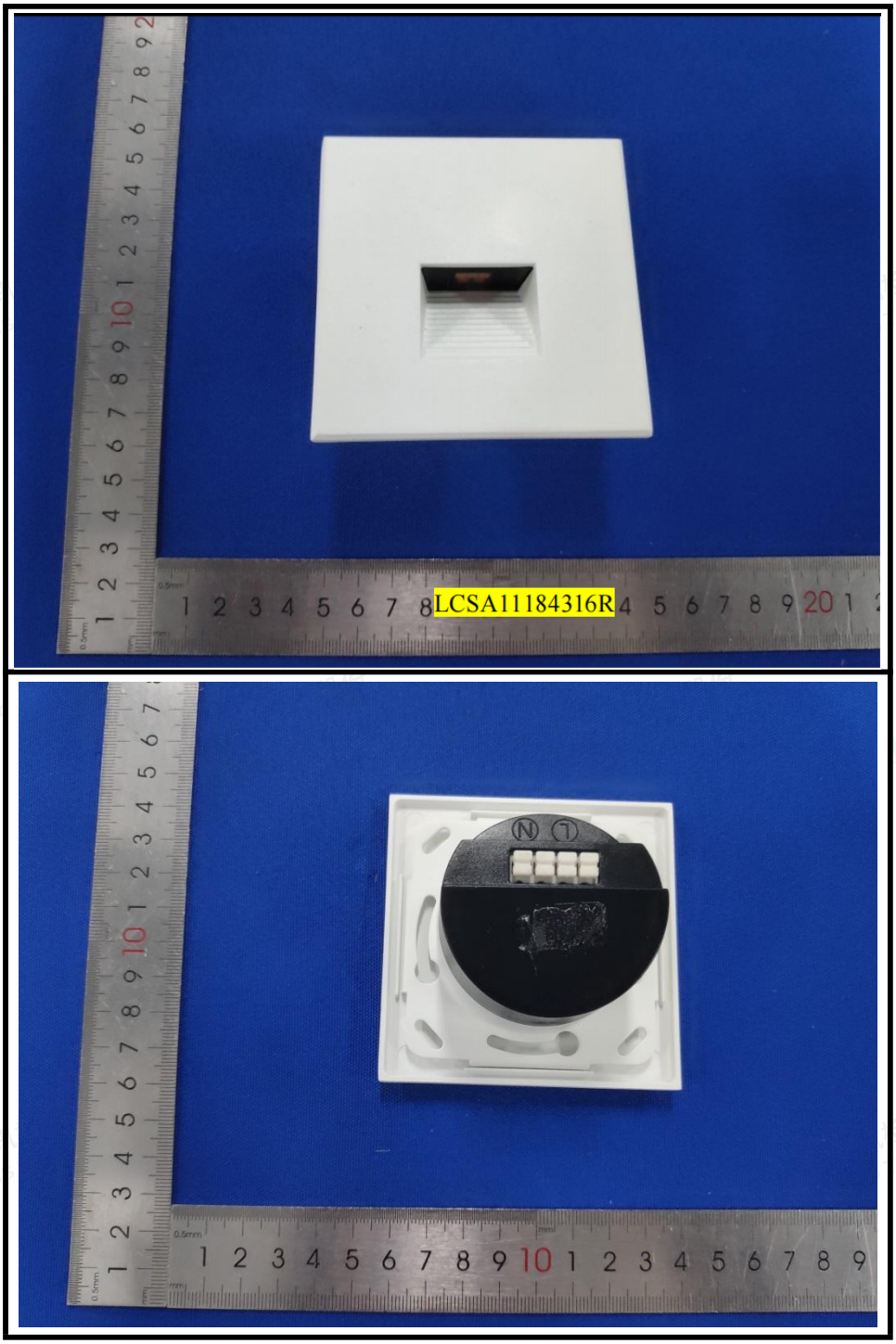
The photo(s) of the sample



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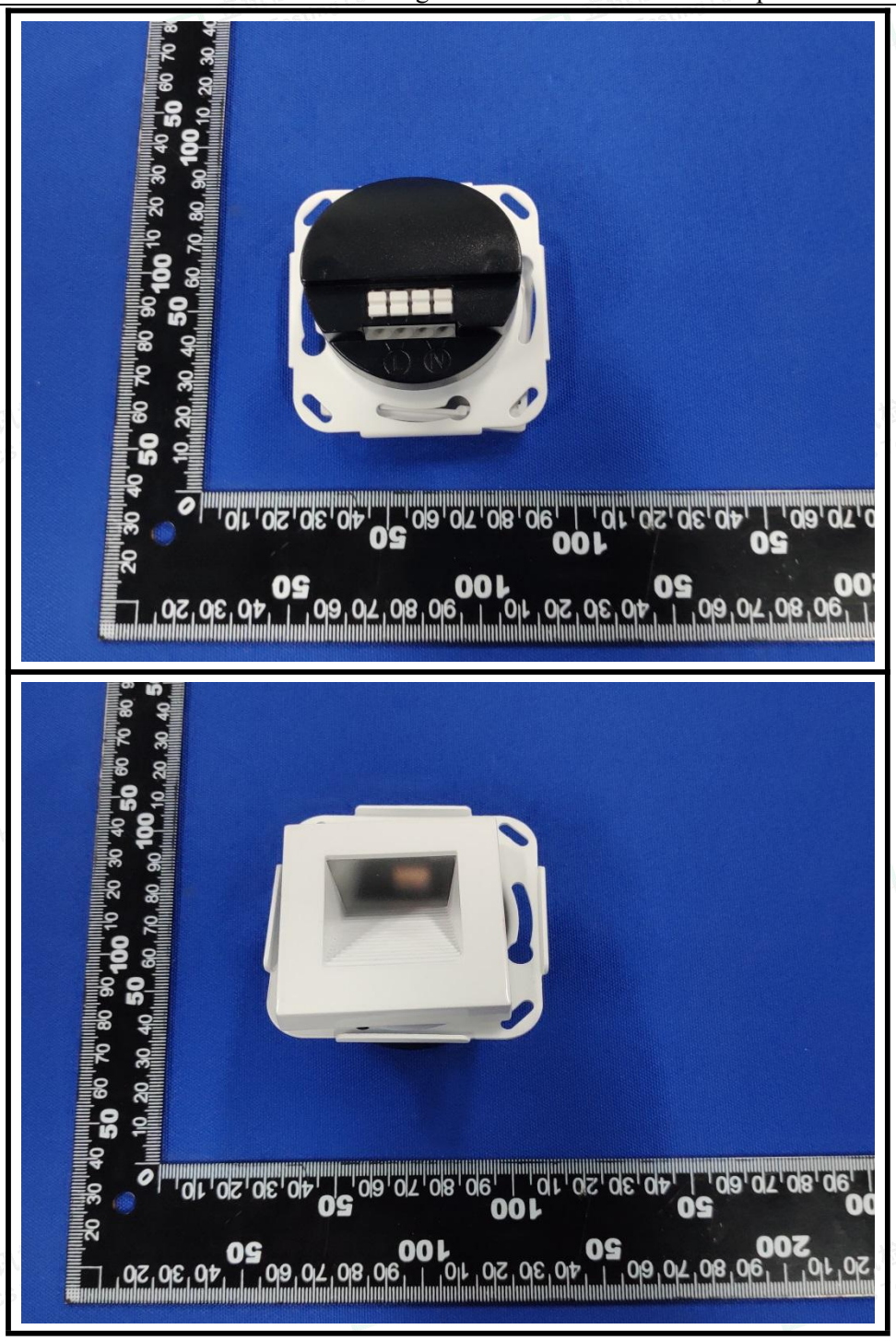

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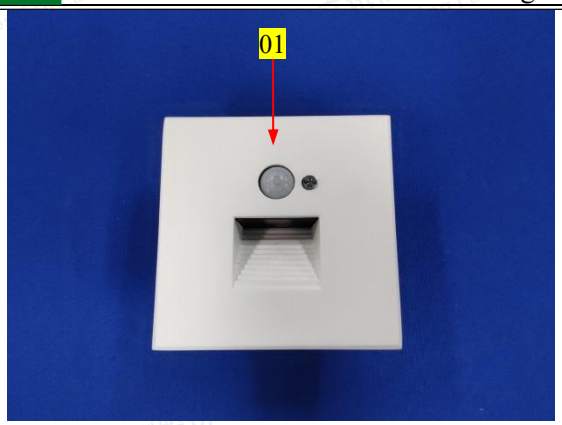

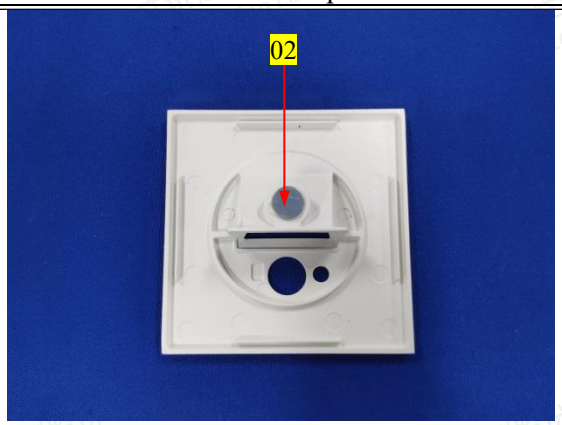

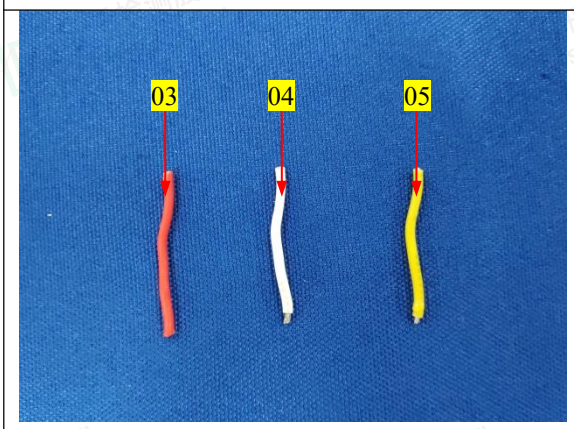

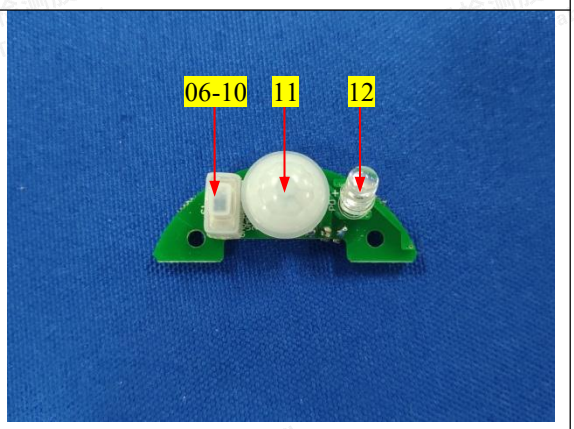

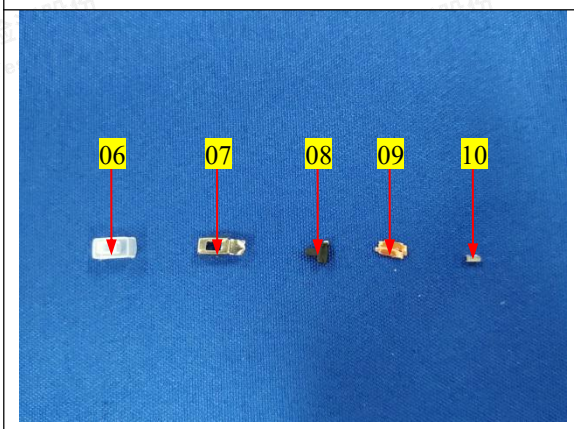

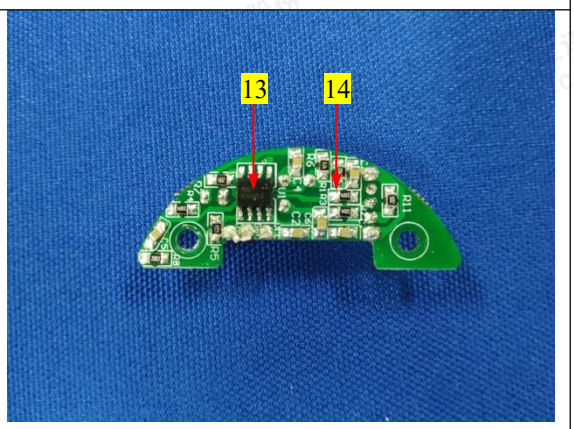

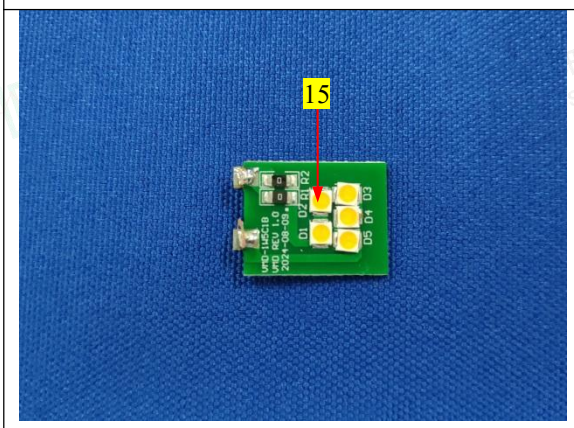

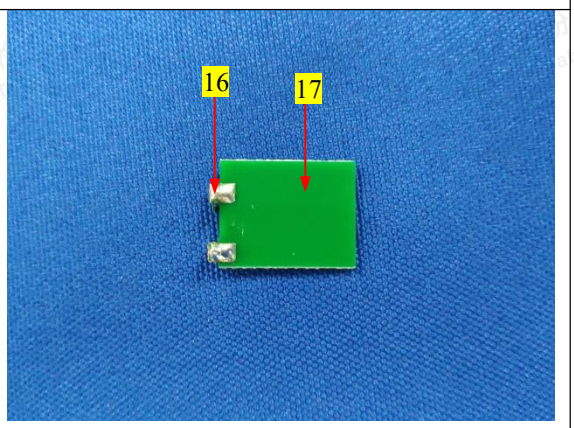

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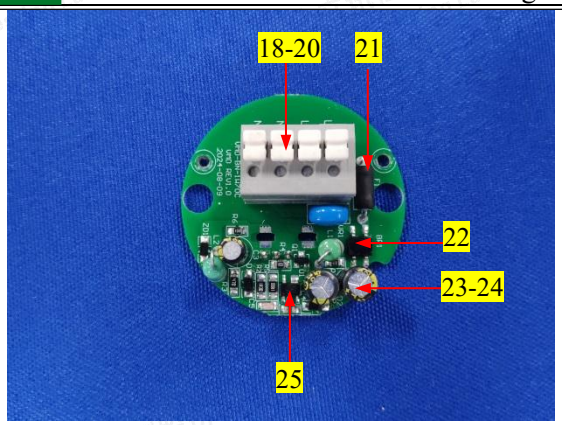

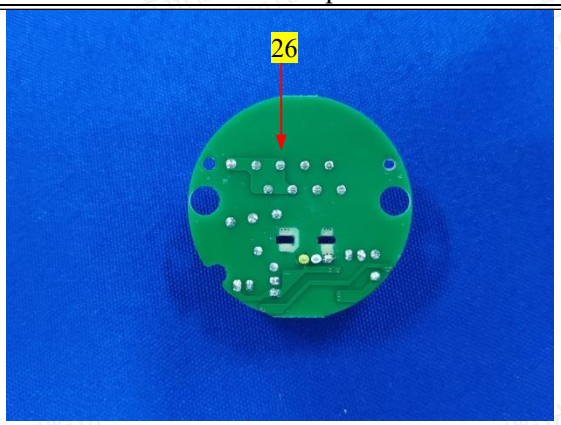

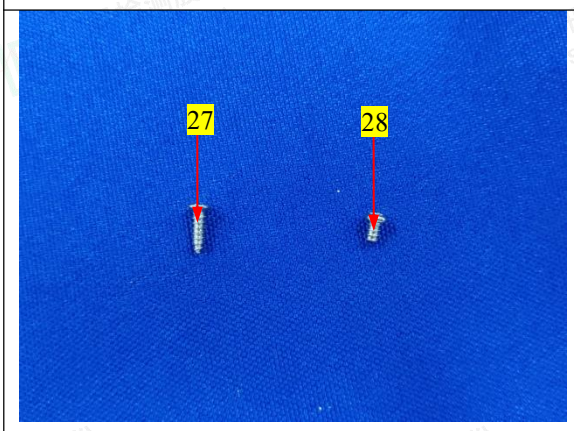

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Statement:

1. The test report is invalid without the signature of the approver and the special seal for the company's report;
2. The company name, address and sample information shown on the report were provided by the applicant who should be responsible for the authenticity which are not verified by LCS;
3. The test results in this report are only responsible for the tested samples;
4. Without written approval of LCS, this report can't be reproduced except in full;
5. In case of any discrepancy between the corresponding Chinese and English contents in the test report, the Chinese version shall prevail.

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