



# TEST REPORT

Report No.: 2501S21241E

Date: April 25, 2025

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Hongli Zhihui Group Co.,Ltd. Guangzhou Branch

Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

Report on the submitted samples said to be:

Sample Description: LED COB

Country of Origin: China

Manufacturer: Hongli Zhihui Group Co.,Ltd. Guangzhou Branch

Supplier: Hongli Zhihui Group Co.,Ltd. Guangzhou Branch

Tested Style/Item No.: HL-LM3229F39W-30B25C14(Ra2)-S-SPHO,HL-LM071F39W-50B20C13(Ra4)-S-SPHO-MH-XX-XX,HL-LM2420F39W-40B14C13(Ra4)-S-SPHO-XX-XX,HL-LM002D94W-9B4C12(Ra4)-S-SPHO-XX-XX,HL-LM003D94W-20B10C13(Ra4)-S-SPHO-XX-XX

Additional Style/ Item No.: HL-LM3229F39W-30B25C14(Ra4)-S-SPHO-XX-XX,HL-LM071F39W-50B20C13(Ra2)-S-SPHO-MH-XX-XX,HL-LM2420F39W-40B14C13(Ra2)-S-SPHO-XX-XX,HL-LM002D94W-9B4C12(Ra2)-S-SPHO-XX-XX,HL-LM003F39W-20B10C13(Ra4)-S-SPHO-XX-XX,HL-LM003D94W-20B10C13(Ra2)-S-SPHO-XX-XX,HL-LM003F39W-20B10C13(Ra2)-S-SPHO-XX-XX,HL-LM2420D94W-40B14C13(Ra4)-S-SPHO-XX-XX,HL-LM2420D94W-40B14C13(Ra2)-S-SPHO-XX-XX,HL-LM2420D94W-40B18C13(Ra4)-S-SPHO-XX-XX,HL-LM2420D94W-40B18C13(Ra2)-S-SPHO-XX-XX

Remark: As claimed by the material declaration submitted by the client, the material of Additional Style/ Item No. are the same as the tested Style/ Item No. . But the results only for the tested sample. And the applicant will undertake all differences and risk.

Sample Receiving Date: April 10,2025

Testing Period: April 10,2025 - April 19,2025

Result: **Please refer to next page(s).**

Signed for and on behalf of

BACL

*Queenie Lee*

*Len Xie*

Checked by: \_\_\_\_\_  
Queenie Lee

Approved by: \_\_\_\_\_  
Len Xie

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Summary of Test Result:

**TEST REQUEST**

**CONCLUSION**

A RoHS Directive 2011/65/EU and amendment directives (EU) 2015/863 on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs, Phthalates (DBP, BBP, DEHP, DIBP) content

A.1 XRF screening test

Pass

A.2 Phthalates (DBP, BBP, DEHP, DIBP) content

Pass  
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**A RoHS Directive 2011/65/EU and amendment directives (EU) 2015/863 on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs, Phthalates (DBP, BBP, DEHP, DIBP) content**

**A.1 XRF screening test**

Test method: IEC 62321-3-1:2013

Seq No.	Tested Part(s)	Result				
		Pb	Cd	Hg	Cr	Br
(1)	Yellow / white body (LED) [1]	BL	BL	BL	BL	BL
(2)	White coated silvery / coppery metal (LED) [1]	BL	BL	BL	BL	BL
(3)	Yellow / white body (LED) [2]	BL	BL	BL	BL	BL
(4)	White coated silvery / coppery metal (LED) [2]	BL	BL	BL	BL	BL
(5)	Yellow / white body (LED) [3]	BL	BL	BL	BL	BL
(6)	White coated silvery / coppery metal (LED) [3]	BL	BL	BL	BL	BL
(7)	Orange / white body (LED) [4]	BL	BL	BL	BL	BL
(8)	White coated silvery / coppery metal (LED) [4]	BL	BL	BL	BL	BL
(9)	Yellow / white body (LED) [5]	BL	BL	BL	BL	BL
(10)	White coated silvery / coppery metal (LED) [5]	BL	BL	BL	BL	BL

Note:

[1] HL-LM3229F39W-30B25C14(Ra2)-S-SPHO; [2] HL-LM071F39W-50B20C13(Ra4)-S-SPHO; [3] HL-LM2420F39W-40B14C13(Ra4)-S-SPHO; [4] HL-LM002D94W-9B4C12(Ra4)-S-SPHO; [5] HL-LM003D94W-20B10C13(Ra4)-S-SPHO

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**Remark:**

i Result 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 IEC62321-3-1:2013.

Element	Unit	Polymers	Metal	Composite Material
Cd	mg/kg	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 50 - 3\sigma < X < 150 + 3\sigma \leq OL$
Pb	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Hg	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Cr	mg/kg	$BL \leq 700 - 3\sigma < X$	$BL \leq 700 - 3\sigma < X$	$BL \leq 500 - 3\sigma < X$
Br	mg/kg	$BL \leq 300 - 3\sigma < X$	--	$BL \leq 250 - 3\sigma < X$

**Note:**

BL = Below Limit

OL = Over Limit

IN/X = Inconclusive (questionable, need further chemical analysis)

ii The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

iii The maximum permissible limit is quoted from the RoHS directive 2011/65/EU:

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

**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.

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## A.2 Phthalates(DBP, BBP, DEHP, DIBP)content

Test method: IEC 62321-8:2017

Item	Unit	MDL	Result					Limit
			(1)+(2)	(3)+(4)	(5)+(6)	(7)+(8)	(9)+(10)	
Dibutyl Phthalate(DBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Benzyl Butyl Phthalate(BBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	1000
<b>Conclusion</b>	/	/	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	/

Note:

- N.D.= Not Detected or less than MDL
- MDL = Method Detection Limit
- " + " = Composite testing.

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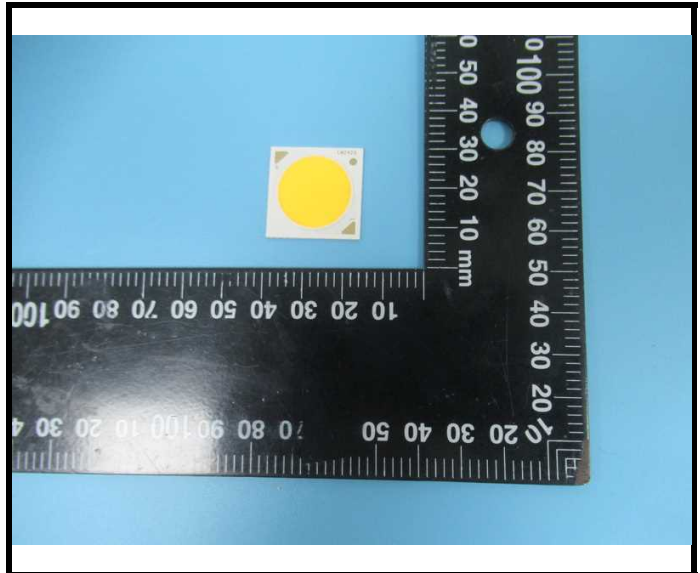
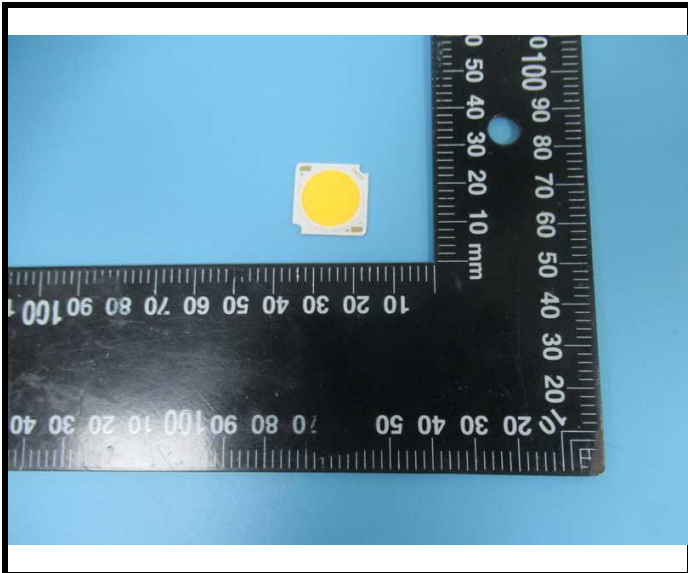
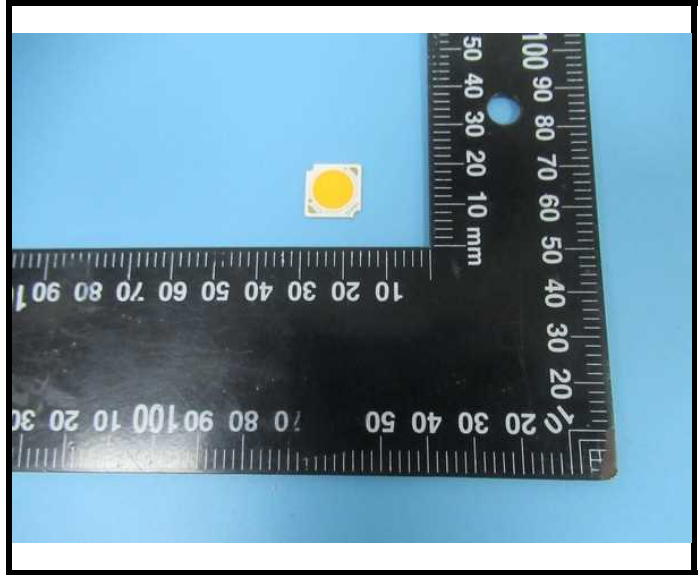
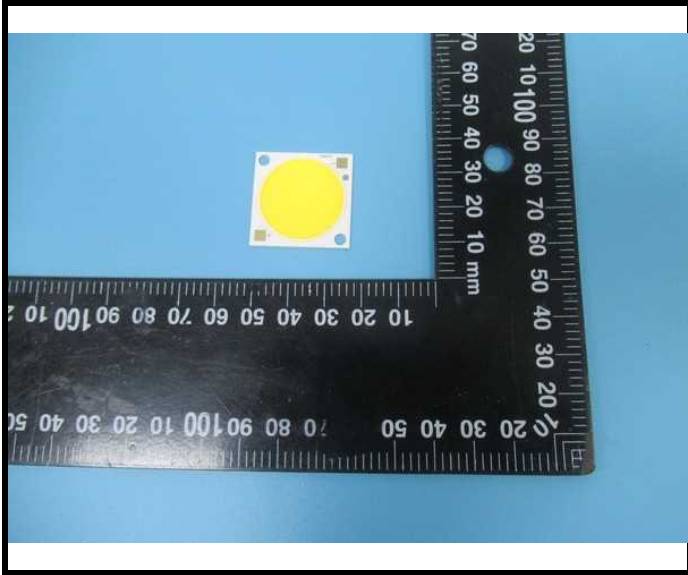
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Photograph of Sample

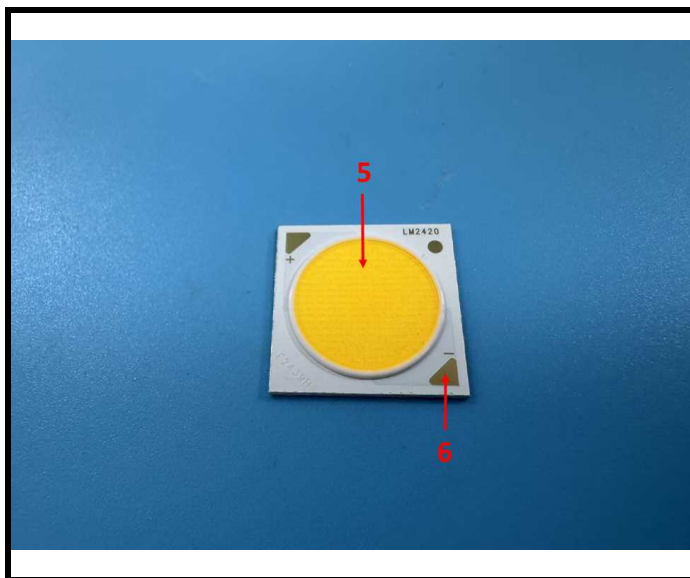
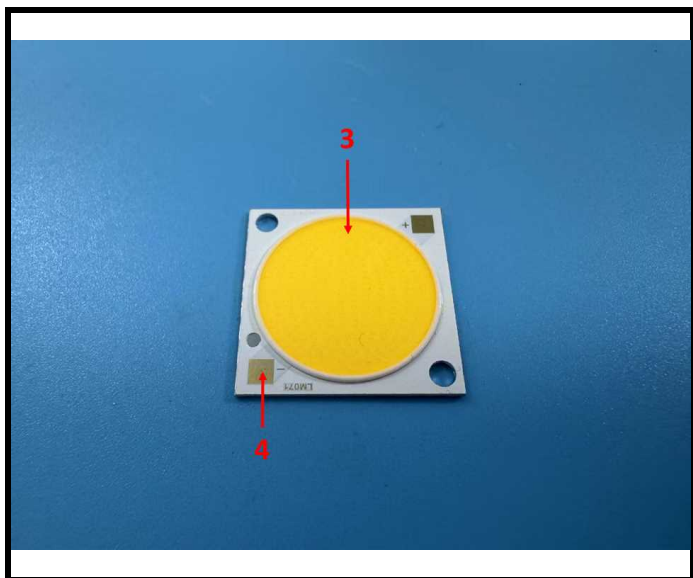
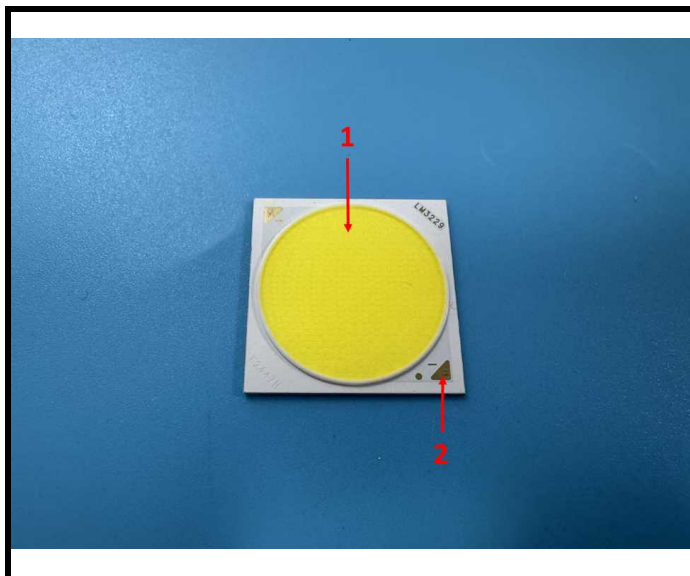
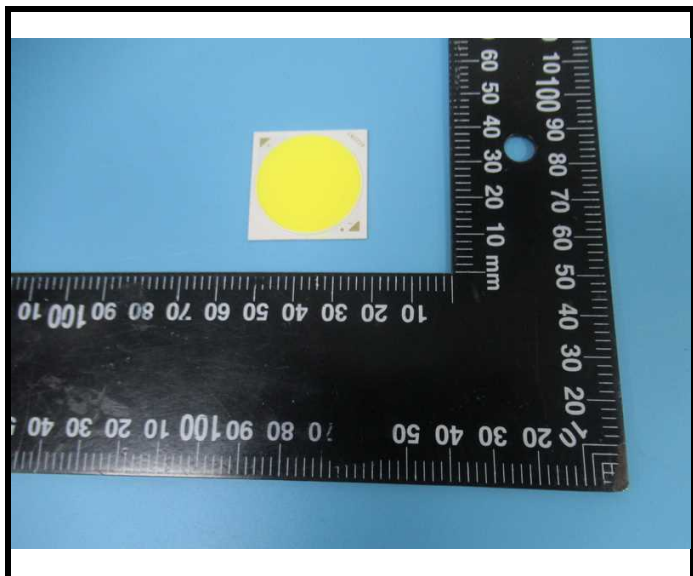


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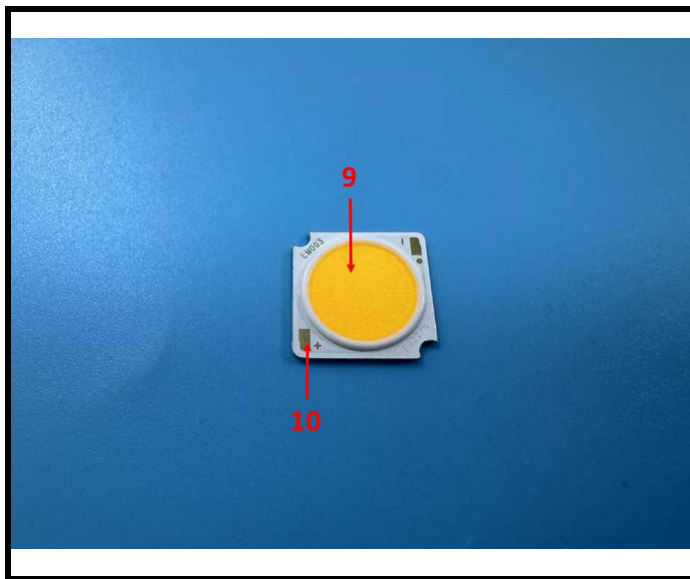
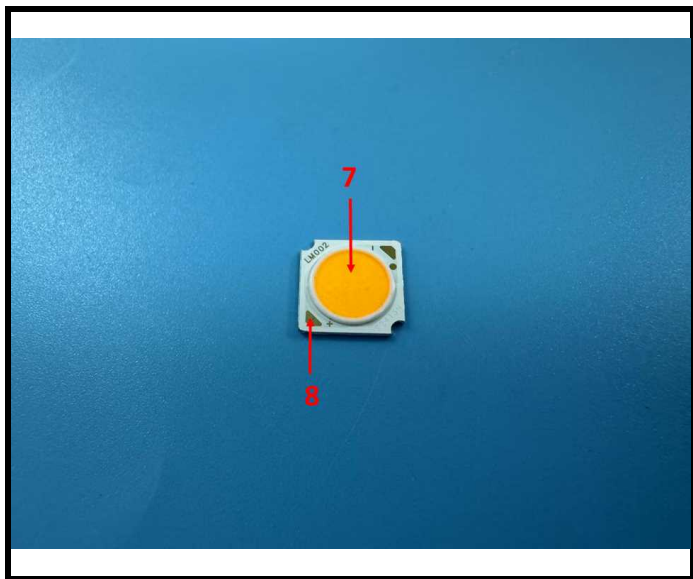


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BACL authenticate the photo on original report only



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Statement:

- 1.This report cannot be reproduced except in full, without prior written approval of the Company.
- 2.Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.
- 3.This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.
- 4.Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
- 5.The information which provided by the applicant, such as sample description, sample name, material component, style/item No. , P.O. No. , manufacturer, age phase, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
- 6.The test samples were in good condition before testing.

\*\*\* End of Report \*\*\*