

Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen,  
Guangdong, China  
Tel: (86)755-82591330 Fax: (86)755-82591332 Internet: Http://www.LCS-cert.com

Report No.: LCS1703030373R

# TEST REPORT

Client company : Fulton Science and Technology Lighting Co., Ltd  
Client address : 7F, Building 17, Area C, Liantang Industrial Town, Shangcun Community,  
Gongming, Guangming New District, Shenzhen, Guangdong Province, China.

Report on the submitted samples said to be:

Sample Name : T8 LED Glass Tube  
Trade Mark : FULTON  
Style/ Item No. : FLT-T8G-10L6, FLT-T8G-12L9, FLT-T8G-12L12, FLT-T8G-15L12,  
FLT-T8G-18L12, FLT-T8G-22L15, FLT-T8G-20L12, FLT-T8G-24L15  
Sample Receiving Date : March 10, 2017  
Testing Period : March 10, 2017 ~ March 17, 2017  
Results : Please refer to next page(s).

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Summary of Test Results:

## TEST REQUEST

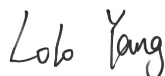
## CONCLUSION

A EU RoHS Directive 2011/65/EU and its amendment directives

**PASS**


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Signed for and on behalf of LCS

Written By:



Lolo Yang  
File administrators

Approved by:



Jun Chen  
Manager

**Results:**

**A. EU RoHS Directive 2011/65/EU and its amendment directives on XRF**

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

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
<b>A</b>	<b>T8 LED Glass Tube</b>					
1	Black plastic	BL	BL	BL	BL	BL
2	Glass tube	BL	BL	BL	BL	BL
3	Golden metal	BL	BL	BL	BL	BL
4	Blue coating	BL	BL	BL	BL	BL
5	LED	BL	BL	BL	BL	BL
6	Red plastic line	BL	BL	BL	BL	BL
7	Black plastic line	BL	BL	BL	BL	BL
8	Silvery metal line	X	BL	BL	BL	BL
9	Yellow plastic tape(Transformor)	BL	BL	BL	BL	BL
10	Ceramic(Transformor)	BL	BL	BL	BL	BL
11	Black plastic(Transformor)	BL	BL	BL	BL	BL
12	Copper line(Transformor)	BL	BL	BL	BL	BL
13	PCB	BL	BL	BL	BL	X
14	Diode	BL	BL	BL	BL	BL
15	IC	BL	BL	BL	BL	X
16	Chips of resistance	BL	BL	BL	BL	BL
17	Chips of capacitance	BL	BL	BL	BL	BL
18	Solder	X	BL	BL	BL	BL

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Note:

- = Not Conducted
- \* = Screening by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

i 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.

Element	Unit	Non-metal	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	$BL \leq 300 - 3\sigma < X$	--	$BL \leq 250 - 3\sigma < X$

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Note:

- BL = Below Limit
- OL = Over Limit
- X = Inconclusive

- 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 document 2005/618/EC amending RoHS directive 2011/65/EU:

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

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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**B. The Test Results of Chemical Method:**

Test method:

**Lead & Cadmium Content:**

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-AES)

**Mercury Content:**

With reference to IEC 62321-4:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-AES)

**Hexavalent Chromium Content:**

With reference to IEC 62321-7-1:2015, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

**PBBs & PBDEs Content:**

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

**1) The test results of Lead (Pb)**

Item	Unit	MDL	Results		Limit
			(8)	(18)	
Lead Content (Pb)	mg/kg	2	N.D.	N.D.	1000 mg/kg
<b>Conclusion</b>	<i>/</i>	<i>/</i>	<b>Pass</b>	<b>Pass</b>	<i>/</i>

Note:

- The sample had been dissolved totally tested for Lead, Mercury and Cadmium.
- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- mg/kg = ppm
- Flow chart appendix is included.
- Photo appendix is included.

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**2) The test results of PBBs & PBDEs**

Item	Unit	MDL	Results		Limit
			13	15	
<b>Polybrominated Biphenyls (PBBs)</b>					
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	1000 mg/kg
<b>Polybrominated Diphenylethers (PBDEs)(Mon-Deca)</b>					
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	1000 mg/kg

Note:

- N.D. = Not Detected or less than MDL
- mg/kg = ppm
- MDL = Method Detection Limit
- Photo appendix is included.

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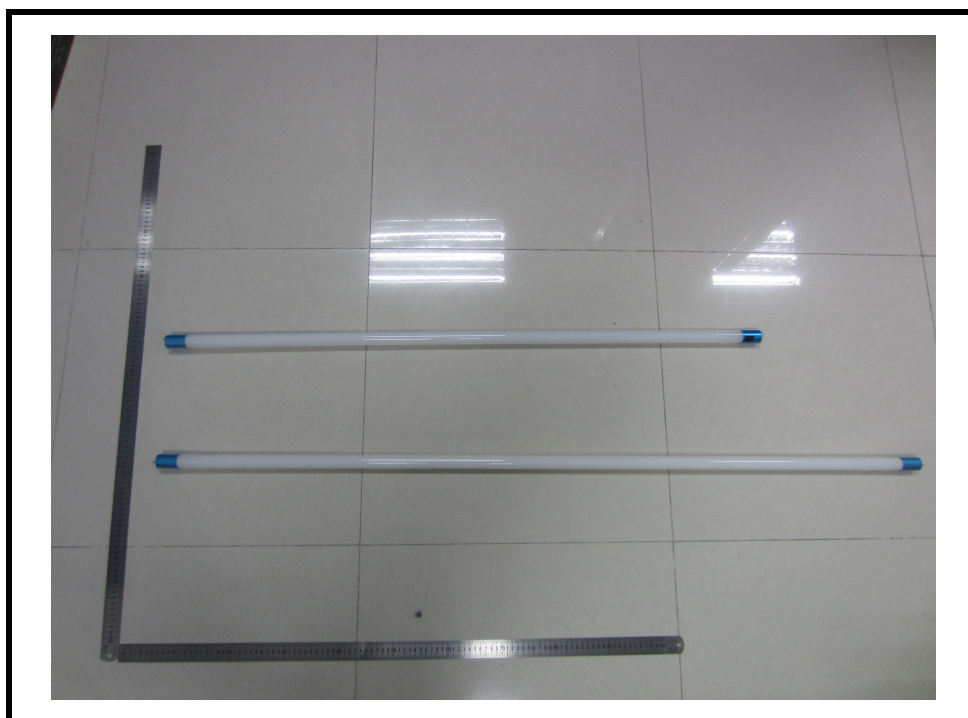
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## Appendix

### Photograph of Sample



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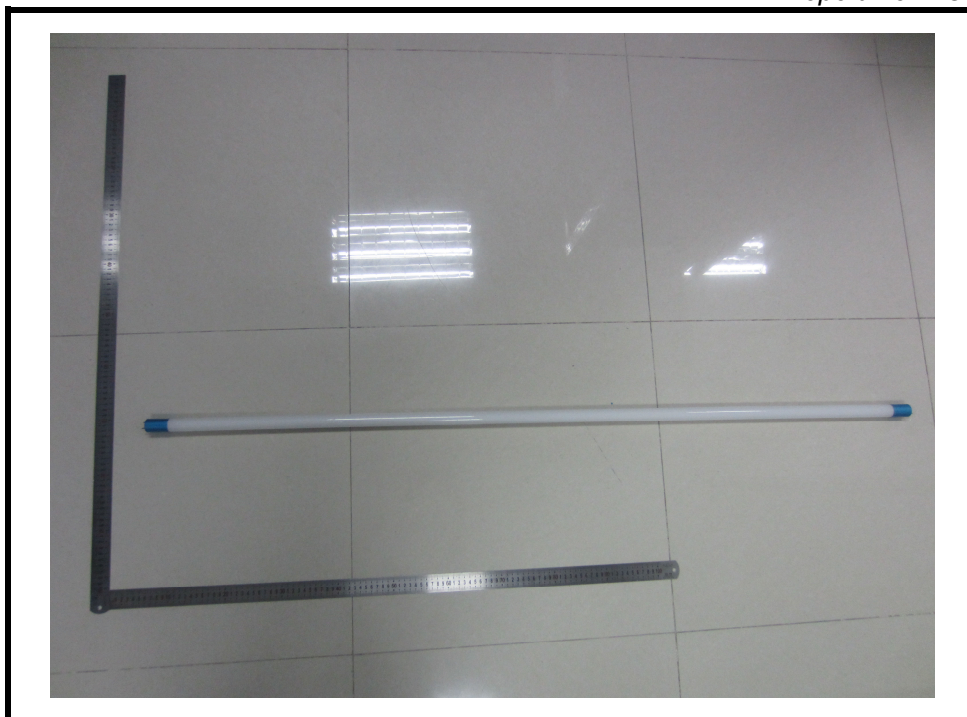
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LCS authenticate the photo on original report only

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