

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.: LCS1610251769R

TEST REPORT

Client company : Berdis Lighting Co., LTD.

Client address : 6F, No.1, South 2nd Lane, HuaTai East Road, Caosan Industrial Park, Guzhen Town, Zhongshan City, Guangdong Province, China

Report on the submitted samples said to be:

Sample Name : Down light

Trade Mark : BERDIS

Style/ Item No. : B01XX-05-ZZZ, B01XX-07-ZZZ, B01XX-09-ZZZ, B01XX-10-ZZZ, B01XX-12-ZZZ, B01XX-15-ZZZ, B01XX-18-ZZZ, B01XX-20-ZZZ, B01XX-24-ZZZ, B01XX-30-ZZZ, B01XX-36-ZZZ, B01XX-40-ZZZ

Sample Receiving Date : October 26, 2016

Testing Period : October 26, 2016 ~ November 14, 2016

Results : Please refer to next page(s).

Summary of Test Results:

TEST REQUEST

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

CONCLUSION

PASS

Signed for and on behalf of LCS

Written By:



Suez Su
File administrators

Approved by:



Hart Qiu
Manager

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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
A	Down light					
1	Transparent plastic	BL	BL	BL	BL	BL
2	White plastic shell	BL	BL	BL	BL	BL
3	White metal shell	BL	BL	BL	X	BL
4	Silvery metal screw	BL	BL	BL	X	BL
5	LED	BL	BL	BL	BL	BL
6	Solder	BL	BL	BL	BL	BL
7	PCB	BL	BL	BL	BL	X
8	Red plastic line	BL	BL	BL	BL	BL
9	Black plastic line	BL	BL	BL	BL	BL
10	Silvery metal line	BL	BL	BL	X	BL
11	Yellow plastic tape(Transfomer)	BL	BL	BL	BL	BL
12	Ceramic(Transfomer)	BL	BL	BL	BL	BL
13	Black plastic(Transfomer)	BL	BL	BL	BL	BL
14	Copper line(Transfomer)	BL	BL	BL	BL	BL
15	Silvery metal needle (Transfomer)	BL	BL	BL	BL	BL
16	Blue plastic case(C1)	BL	BL	BL	BL	BL
17	Silvery metal case(C1)	BL	BL	BL	X	BL
18	Black plastic(C1)	BL	BL	BL	BL	BL
19	Electriolsis paper(C1)	BL	BL	BL	BL	BL
20	Silvery metal needle(C1)	BL	BL	BL	BL	BL
21	Black plastic(Inductance)	BL	BL	BL	BL	BL
22	Copper line(Inductance)	BL	BL	BL	BL	BL
23	Ceramic(Inductance)	BL	BL	BL	BL	BL
24	Green Capacitance	BL	BL	BL	BL	BL
25	Red Capacitance	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
26	Triode	BL	BL	BL	BL	BL
27	Diode	BL	BL	BL	BL	BL
28	IC	BL	BL	BL	BL	BL
29	Chips of resistance	BL	BL	BL	BL	BL
30	Chips of capacitance	BL	BL	BL	BL	BL
31	PCB	BL	BL	BL	BL	X
32	Solder on PCB	BL	BL	BL	BL	BL
33	Label	BL	BL	BL	BL	BL

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 62321-7-1:2013, 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 Cr (VI)

Item	MDL	Results				Limit
		3	4	10	17	
Hexavalent Chromium (Cr (VI))	**	Negative	Negative	Negative	Negative	#

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2) The test results of PBBs & PBDEs

Item	Unit	MDL	Results		Limit
			7	31	
Polybrominated Biphenyls (PBBs)					
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
Polybrominated Diphenylethers (PBDEs)(Mon-Deca)					
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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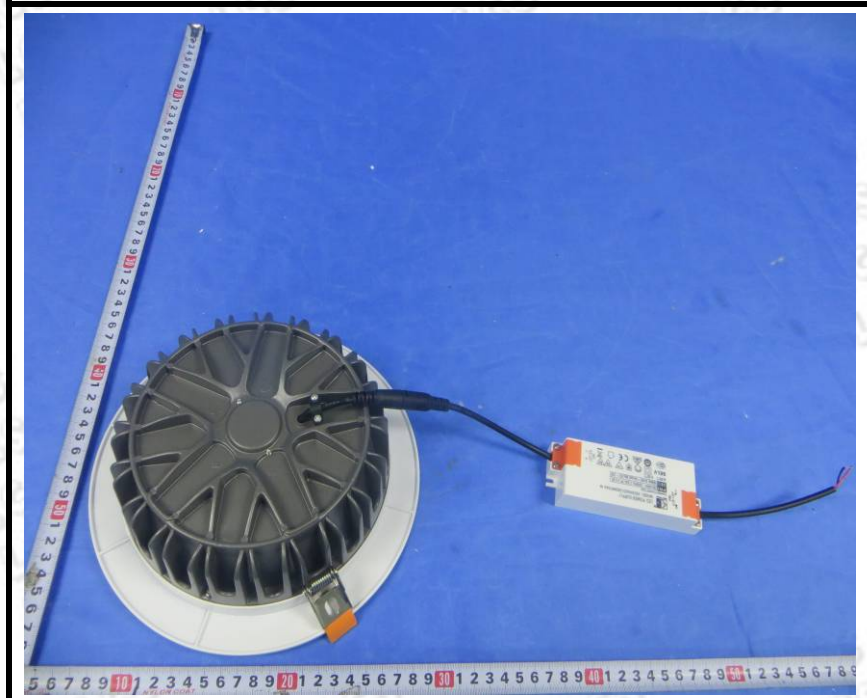
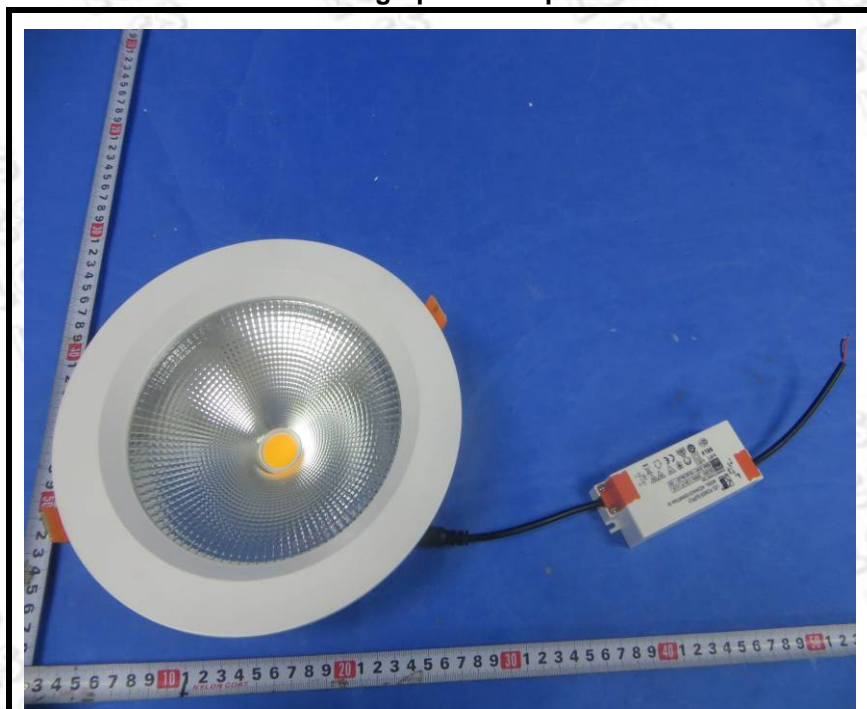
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Appendix Photograph of Sample



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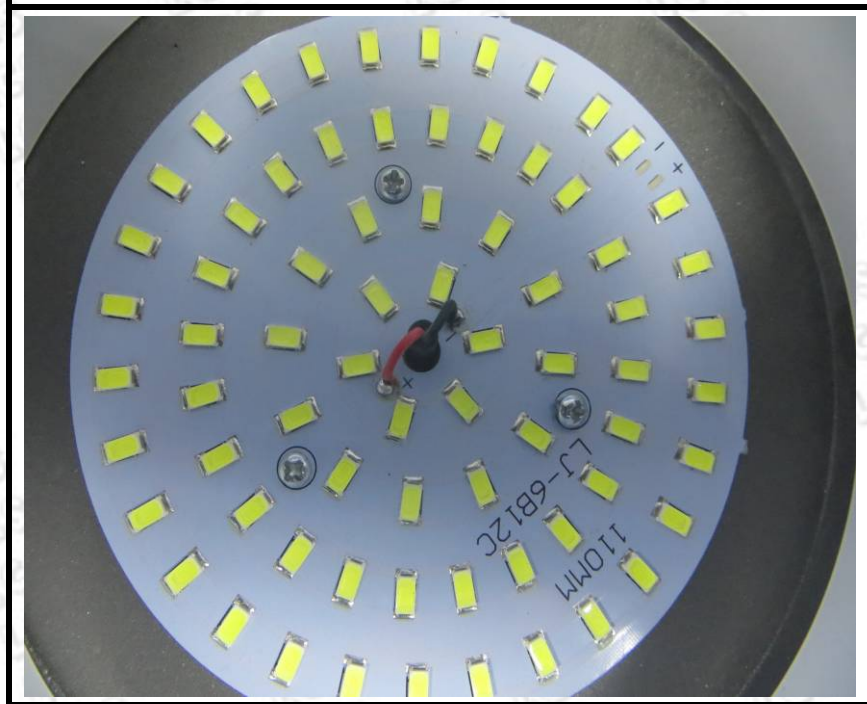
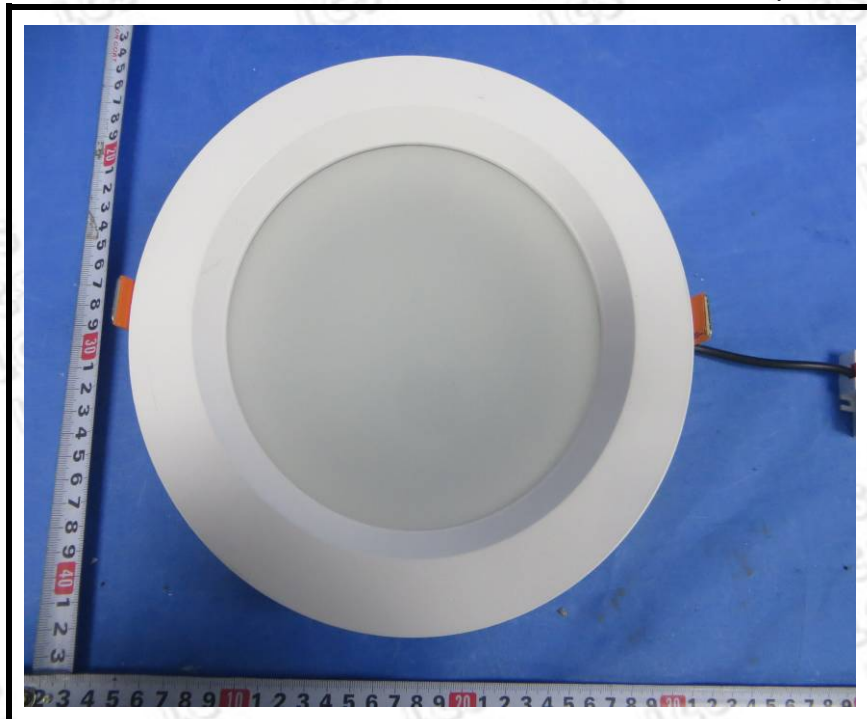
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LCS authenticate the photo on original report only

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