

### REPORT No.: R2DG1904118004E

Date: April 30, 2019

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#### Huizhou Foryou Opoelectronics Technology Co., LTD Building 6, B Area, No. 1 North Shangxia Road, Dongjiang Hight-Tech Industry Park Huizhou

Report on the submitted samples said to be:

Sample Name	:	Down light
Style/Item No.	:	DY25H-W040N0-XXX, DY25H-W040A0-XXX, DY25H-W050A1-1XX, DY25H-W050N1-XXX, DY25H-W034N0-XXX, DY25H-W040N0-1XX, DY25H-W040A0-1XX, DY25H-W050N0-XXX, DY25H-W050N0-1XX, DY25H-W050A0-XXX, DY25H-W050A2-XXX, DY25H-W050A1-XXX, DY25H-W050S1-1XX, DY25H-W050S0-XXX, DY25H-W050S0-1XX, DY25I-W050N0-XXX
Sample Receiving Date	:	April 11, 2019
Testing Period	:	From April 11, 2019 to April 30, 2019
Results	:	Please refer to next page(s).

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Summary of Test Results: (Tested parts are required partially by client)

### TEST REQUEST

### **CONCLUSION**

A As specified by client, refer to RoHS Directive 2011/65/EU and its amendment directives

XRF screening test and Wet Chemical Testing (Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs content)	Pass
Phthalates(DBP、BBP、DEHP、DIBP)content	Pass

Pass = Meet the requirement of Client.

Signed for and on behalf of BACL

M Checked by: Jane Xu

Jane Xu Technical Supervisor

Bensen Huang Laboratory Manager

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**Results:** 

#### A. As specified by client, refer to RoHS Directive 2011/65/EU and its amendment directives

#### XRF screening test

Test method: With reference to IEC62321-3-1:2013 screening by X-ray Fluorescence Spectroscopy (XRF)

Seq.	Tested Part(a)	Results						
No.	Tested Part(s)	Pb	Cd	Hg	Cr	Br		
1	White plastic(shell, ceiling lamp)	BL	BL	BL	BL	BL		
2	White plastic(spring holder , ceiling lamp)	BL	BL	BL	BL	BL		
3	Silvery metal(spring , ceiling lamp)	BL	BL	BL	BL			
4	Translucence plastic(lamp cover, ceiling lamp)	BL	BL	BL	BL	BL		
5	Transparent plastic(lamp cover, ceiling lamp)	BL	BL	BL	BL	BL		
6	White plastic(lamp cover holder , ceiling lamp)	BL	BL	BL	BL	BL		
7*	Silvery metal(big screw, ceiling lamp)	BL	BL	BL	IN			
8	Silvery metal(small screw, ceiling lamp)	BL	BL	BL	BL			
9	Light White plastic(lamp holder , ceiling lamp)	BL	BL	BL	BL	BL		
10	Beige plastic(socket ,PWB"S04820A0" ,ceiling lamp)	BL	BL	BL	BL	BL		
11	Silvery metal (socket pin ,PWB"S04820A0" ,ceiling lamp)	BL	BL	BL	BL			
12	Yellow body(LED, PWB"S04820A0", Ceiling lamp)	BL	BL	BL	BL	BL		
13	White PWB(PWB"S04820A0", Ceiling lamp)	BL	BL	BL	BL	BL		
14	Silvery solder(PWB"S04820A0", Ceiling lamp)	BL	BL	BL	BL			
15	Silvery metal (PWB holder, PWB"S04820A0", ceiling lamp)	BL	BL	BL	BL			
16	Silvery metal (socket pin ,small PCB , ceiling lamp)	BL	BL	BL	BL			
17*	Black plastic(socket pin holder ,small PCB , ceiling lamp)	BL	BL	BL	BL	IN		
18	Silvery solder(small PCB, Ceiling lamp)	BL	BL	BL	BL			
19	Green/yellow PCB(small PCB, Ceiling lamp)	BL	BL	BL	BL	BL		
20	Grey body with multicolor printing(resistor "FR1",PCB"D039AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
21	Black soft plastic with white coating (shrinkable tube, small PCB, Ceiling lamp)	BL	BL	BL	BL	BL		
22*	Black magnet(core, transformer"T1",PCB"D039AV0", Ceiling lamp)	BL	BL	BL	IN	BL		

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Seq.		Results						
No.	Tested Part(s)	Pb	Cd	Hg	Cr	Br		
23	Coppery metal(coil, transformer"T1",PCB"D039AV0", Ceiling lamp)	BL	BL	BL	BL			
24	Coppery metal (wire, small PCB, Ceiling lamp)	BL	BL	BL	BL			
25*	Black plastic(terminal plug, small PCB, Ceiling lamp)	BL	BL	BL	BL	IN		
26	Silvery metal(terminal, terminal plug, small PCB, Ceiling lamp)	BL	BL	BL	BL			
27	Silvery metal(pin, terminal socket, small PCB, Ceiling lamp)	BL	BL	BL	BL			
28	White glue(PWB"S04820A0", Ceiling lamp)	BL	BL	BL	BL	BL		
29	Green plastic(terminal socket ,PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
30	Silvery metal(screw,terminal socket ,PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL			
31*	Silvery metal(screw groove,terminal socket ,PCB"D044AV0", Ceiling lamp)	BL	BL	BL	IN			
32	Grey plastic(terminal socket ,PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
33*	Silvery metal(gasket,terminal socket ,PCB"D044AV0", Ceiling lamp)	BL	BL	BL	IN			
34	Black plastic with white printing (sleeve, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
35	Silvery metal (shell, capacitor "C3", PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL			
36	Black rubber(base, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
37	Silvery metal (foil, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL			
38	Dull Silvery metal (foil, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL			
39	Brown paper with liquid(film, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
40	transparent adhesive plastic(tape, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
41	Silvery metal(connector, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL			
42	Silvery metal(pin, capacitor "C3",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL			
43	Purple plastic with white printing (sleeve, capacitor "C1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
44	Blue body (capacitor "CY2",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		
45	Silvery metal(pin, capacitor "CY2",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL			
46	Pink body with multicolor printing(resistor "FR1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL		

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Seq.		Results							
No.	Tested Part(s)	Pb	Cd	Hg	Cr	Br			
47	Green body with multicolor printing(inductor"L2",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
48	White adhesive plastic with black printing(label, transformer"T1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
49	Yellow adhesive plastic with black printing(sleeve, transformer"T1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
50	Black magnet(core, transformer"T1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
51	Black plastic(bobbin, transformer"T1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
52	Translucent soft plastic(wire jacket, transformer"T1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
53	Coppery metal(coil, transformer"T1",PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL				
54	Black body with white printing(resistor"R6", PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
55	Black body (diode"D2", PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
56	Brown body(capacitor"C5", PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
57	Black body(IC"U1", PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
58	Black body(EC"BD1", PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	BL			
59*	Green/yellow PCB(PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL	IN			
60	Silvery solder(PCB"D044AV0", Ceiling lamp)	BL	BL	BL	BL				
61	Black plastic with white printing (sleeve, transformer"T1",PCB"D039AV0", Ceiling lamp)	BL	BL	BL	BL	BL			

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#### Remark:

(1)

- = Not Conducted
  - 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 IEC62321-3-1:2013.

Element	Unit	Unit Polymers Metal		Composite Material
Cd	mg/kg	BL≤70-3σ< X <130+3σ≤OL	BL≤70-3σ< X <130+3σ≤OL	LOD < X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤ OL	BL≤500-3σ< X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ< X	BL≤700-3σ< X	BL≤500-3σ< X
Br	mg/kg	BL≤300-3σ< X		BL≤250-3σ< X

- BL = Below Limit
- OL = Over Limit
- IN = Inconclusive
- LOD = Limit of Detection

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(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 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
Polybrominate ddiphenylethers (PBDEs)	1000

(4) As requested by applicant, only components shown in this report were screened by XRF spectroscopy for 2011/65/EU and its amendment directives, other components were not screened included in this report.

(5) Photo appendix is included.

#### 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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#### Wet Chemical Testing:

#### Test method:

Hexavalent Chromium Content (For metal material): With reference to IEC 62321-7-1:2015, by boiling-water-extraction and analysis was performed by UV-visible spectrophotometer (UV-Vis)

Hexavalent Chromium Content (For non-metal material): With reference to IEC 62321-7-2:2017, by solvent extraction 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)

#### For metal material

Item	Unit	MDL		Limit		
		MDL	7	31	33	Limit
Hexavalent Chromium (Cr(VI))	µg/cm <sup>2</sup>	0.10	N.D.	N.D.	N.D.	**
Conclusion	/	/	Pass	Pass	Pass	1

#### For non-metal material

Item	Unit MDL		Results	Limit	
nem	onic		22	Linit	
$\begin{array}{c} \text{Hexavalent Chromium} \\ (\text{Cr}\left(\text{VI}\right)) \end{array}$	mg/kg	10	N.D.	1000	
Conclusion	1	1	Pass	1	

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Note:

- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- mg/kg = ppm
- \*\* =

a. The sample is positive for CrVI if the CrVI concentration is greater than  $0.13\mu g/cm^2$ . The sample coating is considered to contain CrVI

b. The sample is negative for CrVI if CrVI is ND (concentration less than  $0.10\mu g/cm^2$ ). The coating is considered a non-CrVI based coating

c. The result between  $0.10\mu g/cm^2$  and  $0.13\mu g/cm^2$  is considered to be inconclusive -unavoidable coating variations may influence the determination

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

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

liom	l lmit	MDL		Limit			
Item	Unit	WDL	17	25	59		
Polybrominated Biphenyls							
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Nonabromodiphenyl	mg/kg <sup>《</sup>	5	N.D.	N.D.	N.D.		
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.		
Total content	mg/kg	1	N.D.	N.D.	N.D.	1000	
Polybrominated Diphenylethers							
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.		
Total content	mg/kg	/	N.D.	N.D.	N.D.	1000	
Conclusion	1	1	Pass	Pass	Pass	1	

Note:

- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- The results less than MDL are not taken into account while calculating the sum contents.
- mg/kg = ppm
- Photo is included.

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#### Phthalates(DBP、BBP、DEHP、DIBP)content

Test method: With reference to IEC 62321-8:2017, by gas chromatographic-mass spectrometer (GC-MS)

Item	Unit	MDL	Results				
liem	Unit	WIDL	1+2+4	5+6+9	10+17	- Limit	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1	
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1	
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1	
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1	
Conclusion	/	1	Pass	Pass	Pass	/	

ltom		MDL			Lingit		
Item	Unit		19+59	20	21	22	Limit
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	0.004	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	N.D.	0.1
Conclusion	1	1	Pass	Pass	Pass	Pass	/

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Item	Unit	MDL	Results			Limit
			23	25+28+29	32+34+36	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Conclusion	1	1	Pass	Pass	Pass	/

Item	Unit	MDL	Results			Limit
			40	43+49	51+52+61	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	N.D.	0.1
Conclusion	1	1	Pass	Pass	Pass	/

Note:

- The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- mg/kg = ppm
- "+"= Mixed, The admixture of specimen is tested as a whole(part) which according to the applicant's request, the result of report as average value because of the whole specimen is regarded as constituting from the homogeneous material. If the testing of specimen may have the obvious difference, and the result may exceed the number in this report. The applicant will undertake all differences and risk.
- Photo is included.

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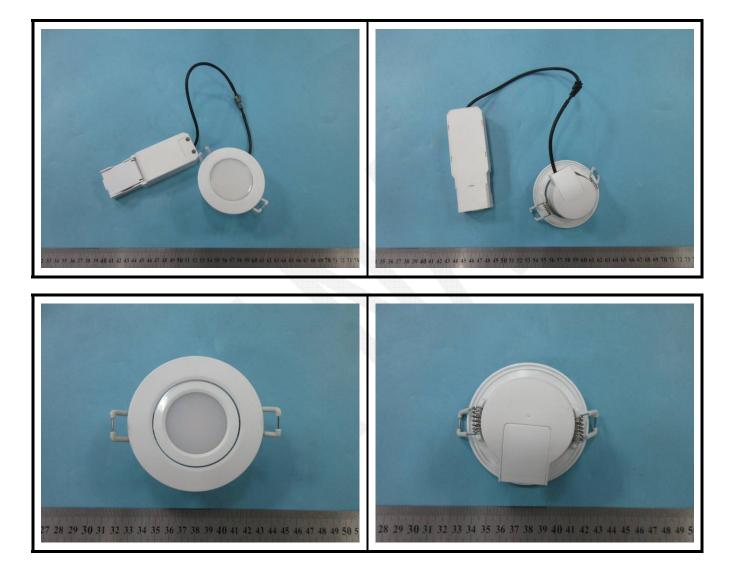


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Photograph of Sample



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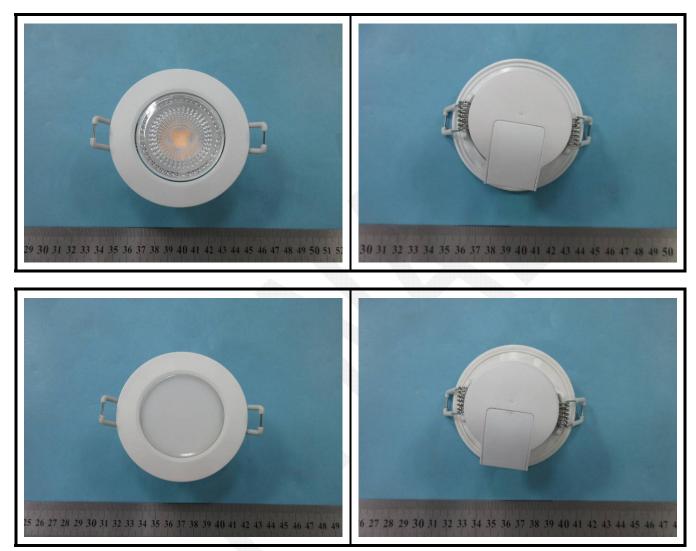
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