



# TEST REPORT

REPORT No.: RSZ160520E0034E

Date: June 22, 2016

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Guangzhou Hongli Opto-Electronic Co., Ltd.  
No.1,Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

Report on the submitted samples said to be:

Sample Name : High Power AC LED Module  
Style/ Item No. : HL-LE002F9VW-10B1C30(Ra2),  
HL-LE003F9VW-20B1C46(Ra2)  
Supplier : Honglitronic  
Serial No HL-LEXXXF9VW-XBXCX(Ra2)  
Country of Origin China  
Sample Receiving Date : May 23, 2016  
Testing Period : May 23, 2016 - May 31, 2016  
Result : Please refer to next page(s).

Signed for and on behalf of

BACL

Checked by: Candance  
Candance Yu  
Engineer

Approved by: Leo Gao  
Leo Gao  
Lab Manager

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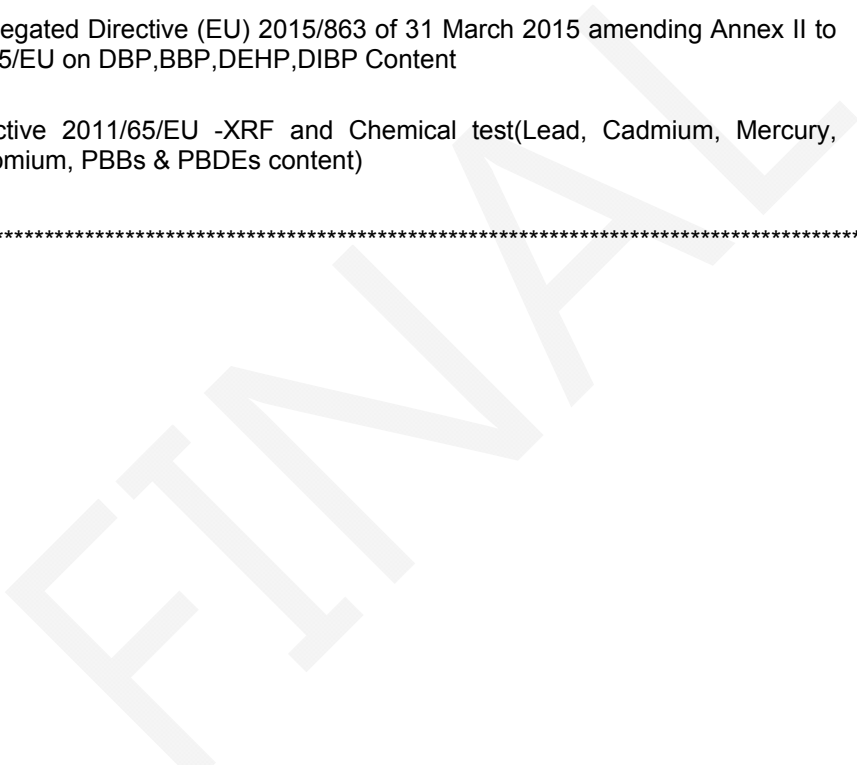
## Summary of Test Result:

### TEST REQUEST

### CONCLUSION

A	Commission Delegated Directive (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU on DBP,BBP,DEHP,DIBP Content	<b>Pass</b>
B	EU RoHS Directive 2011/65/EU -XRF and Chemical test(Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs content)	<b>Pass</b>

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**Result:**

Tested part(s):

- |  |  |
|--|--|
| (1) Black body(IC "U1", High Power AC LED Module)<br>①       | (10) Black body(diode "D1", High Power AC LED Module)②     |
| (2) Black body(IC1, High Power AC LED Module)②               | (11) White ceramic(small plate, High Power AC LED Module)① |
| (3) Black body(BD1, High Power AC LED Module)①<br>②          | (12) White ceramic(big plate, High Power AC LED Module)②   |
| (4) Brown body(capacitor "C1", High Power AC LED Module)①②   | (13) Black/White coating(High Power AC LED Module)①②       |
| (5) Black body(capacitor, High Power AC LED Module)①②        | (14) Silvery solder(small High Power AC LED Module)①       |
| (6) Black body(resistance "R3", High Power AC LED Module) ①  | (15) Silvery solder(big High Power AC LED Module)②         |
| (7) Black body(resistance , High Power AC LED Module)②       | (16) Yellow plastic(LED, High Power AC LED Module)①②       |
| (8) Black body(inductance "F1" , High Power AC LED Module)①② | (17) White plastic(LED, High Power AC LED Module)①②        |
| (9) Black body(diode, High Power AC LED Module)<br>②         |  |

Remark: ①HL-LE002F9VW-10B1C30(Ra2); ②HL-LE002F9VW-20B1C46(Ra2)

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## A. Phthalates (DBP,BBP,DEHP,DIBP) Content

Test method: With reference to US EN 14372:2004 by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS).

Item	Unit	MDL	Result			Limit
			(13)	(16)	(17)	
Dibutyl Phthalate (DBP)	mg/kg	30	<30	<30	<30	1000
Benzylbutyl Phthalate (BBP)	mg/kg	30	<30	<30	<30	1000
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	30	<30	<30	<30	1000
Diisobutyl Phthalate (DIBP)	mg/kg	30	<30	<30	<30	1000
<b>Conclusion</b>	<b>/</b>	<b>/</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>/</b>

Note:

- < = Less than
- MDL = Method Detection Limit
- "+" = Composite testing.
- The Samples had been dissolved totally tested for Phthalates.
- Flow chart appendix I is included.
- Photo appendix II is included.

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**B. EU RoHS Directive 2011/65/EU -XRF and Chemical test(Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs content)**

**(1) .EU RoHS Directive 2011/65/EU on XRF**

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

Seq. No.	Result				
	Pb	Cd	Hg	Cr	Br
(1)	BL	BL	BL	BL	BL
(2)	BL	BL	BL	BL	BL
(3)	BL	BL	BL	BL	BL
(4)	BL	BL	BL	BL	BL
(5)	BL	BL	BL	BL	BL
(6)	BL	BL	BL	BL	BL
(7)	BL	BL	BL	BL	BL
(8)	BL	BL	BL	BL	BL
(9)	BL	BL	BL	BL	BL
(10)	BL	BL	BL	BL	BL
(11)	BL	BL	BL	BL	---
(12)	BL	BL	BL	BL	---
(13)	BL	BL	BL	BL	BL
(14)	BL	BL	BL	BL	---
(15)	BL	BL	BL	BL	---
(16)	BL	BL	BL	BL	BL
(17)	BL	BL	BL	BL	BL

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Note:

--- = Not Conducted

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≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<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

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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:

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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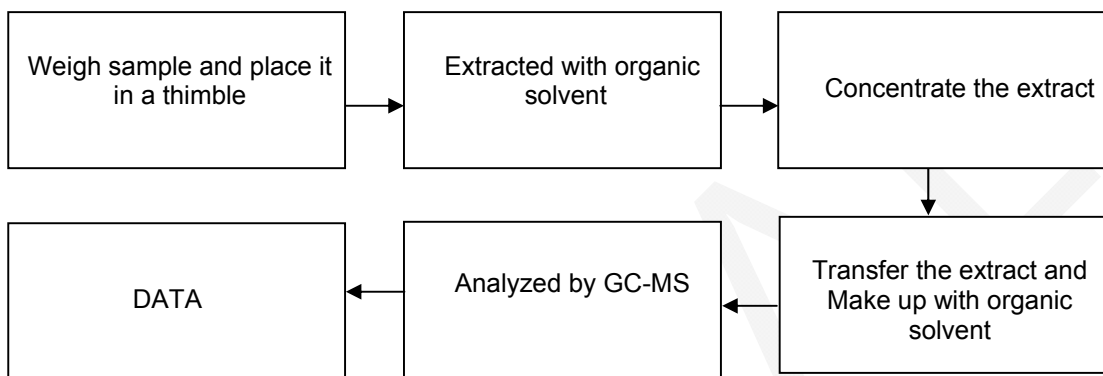
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## Appendix I

### Phthalates Test flow chart:



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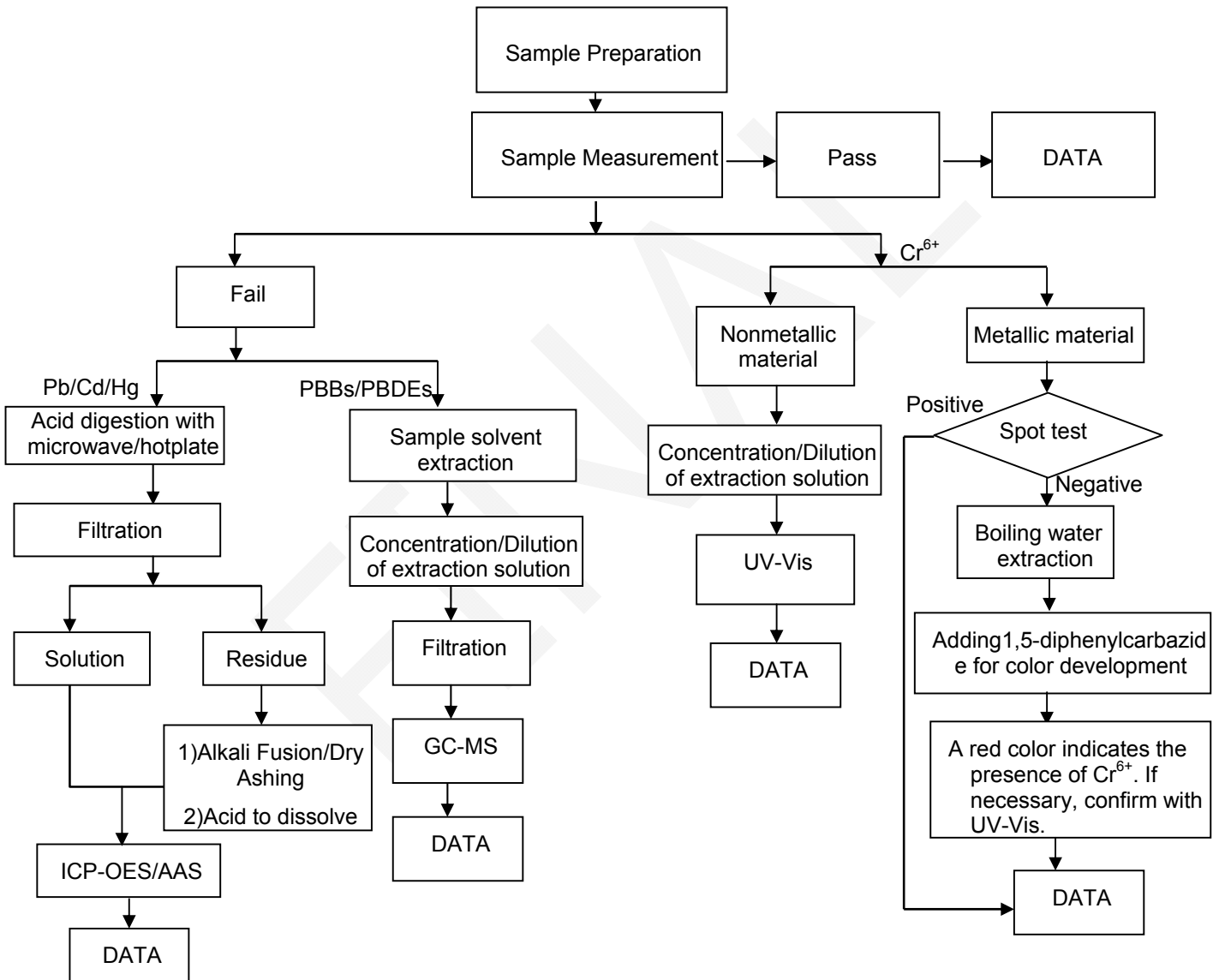
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RoHS testing flow chart:



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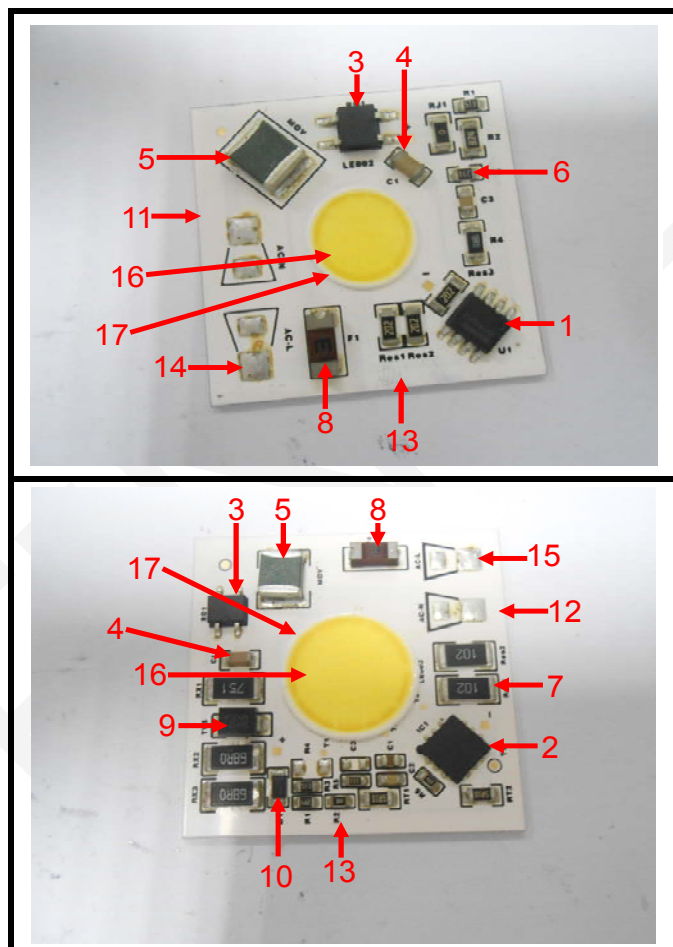
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## Appendix II

Photograph of Sample



BACL authenticate the photo on original report only

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