



## Verification Services

Project No: 4786852099-1

Report No: 4786852099-1a

Report Issued Date: 2015-04-02


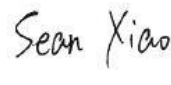
# Test Report

<b>Customer Company &amp; Address:</b>			
Company Name: ABBlighting, Inc.			
ADD: 1501 Industrial Way N. Toms River, NJ 08755 RD, Shanghai			
<b>Contact Person:</b>	Kevin Fan		
<b>Telephone:</b>	021-61262530	<b>Fax/Email address:</b>	kevinfan@abblighting.com

<b>Manufacturer:</b>	ABBlighting, Inc.
<b>Country of Origin:</b>	CHINA
<b>Country of Export:</b>	USA, Canada
<b>Product Description:</b>	Lamp Type: Retrofit Kits for 2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces Total Amount Of Light Source: N/A Manufacturer Of Light Source: SAMSUNG Model Number Of Light Source: LM561B
<b>Model Number:</b>	Model Name: TRK22D3230
<b>Electrical Specification:</b>	Rated voltage: 120-277 V Frequency: 50/60 Hz Wattage: 32 W

<b>Test Laboratory &amp; Address:</b>			
UL Verification Services (Guangzhou) Co., Ltd.			
ADD: Building A1, 1F & 2F, Nansha Science and Technology Innovation Center, No. 25, South Huanshi Avenue, Nansha District, Guangzhou 511458, China			
<b>Telephone:</b>	+86 20 28667188	<b>Fax:</b>	+86 20 83486605

<b>Receipt of Test Samples :</b>	2015-03-23	<b>Test Period:</b>	2015-03-23~2015-03-31
----------------------------------	------------	---------------------	-----------------------

<b>Tested By</b>	<b>Approved By</b>
 / Jackson Zeng	 / Sean Xiao
<b>Test Personnel Name &amp; Signatory</b>	<b>Approval Name &amp; Signatory</b>

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

Doc No: 10-CT-F0059

Issue No: 1.1



## Verification Services

Project No: 4786852099-1

Report No: 4786852099-1a

Report Issued Date: 2015-04-02

# Test Report

## Statement of Results

Test Flow	Test Method	Sample ID (Lab)	Sample Serial No.	Pass/Fail/NA
1.	Integrating Sphere Test	2091410-S1	N/A	Evaluate by customer
2.	Goniophotometer Test	2091410-S1	N/A	Evaluate by customer
3.	Total Harmonic Distortion Test	2091410-S1	N/A	Evaluate by customer

## Deviation from Test Method (if any)

N/A

## Remark (if any)

1. This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.



## Verification Services

Project No: 4786852099-1  
Report No: 4786852099-1a  
Report Issued Date: 2015-04-02

# Test Report

## Test No.1: Integrating Sphere Test

### Environmental Conditions

Temperature: 25.1°C

### Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-PE001	Integrating Sphere	Before Use	Before Use
GVS-LE-FS019	Measurement Standard Lamp	8/19/2014	8/18/2015

### Test Sample

2091410-S1

### Test Method

The sample (bare lamp) was tested according to the IES LM-79-2008. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

### Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)
Input	120.09	60	0.254	30.37	0.996	Base Up	58	50

Test type	CCT (K)	Luminous Flux (lm)	Color Rendering Index Ra	Luminous Efficacy (lm/W)
Output	3093	2728.17	84.5	89.84



# Test Report

## Test Condition

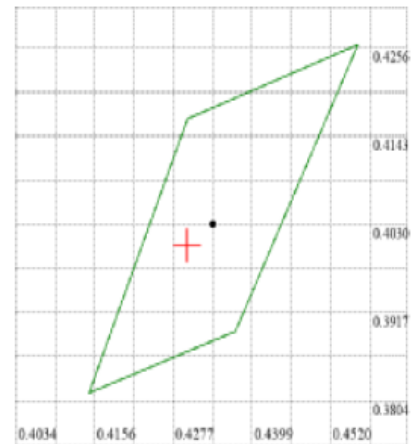
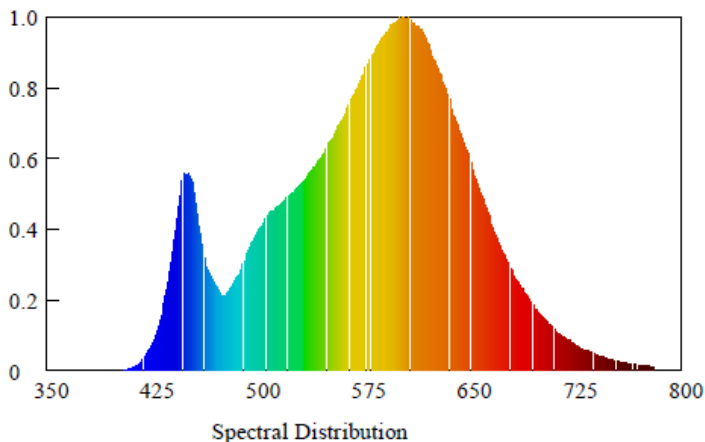
Temperature: 25°C

RH: ----%

Spectrum Range: 380-780 nm

Scan Step: 1 nm

## Spectroradiometric Parameters



Nominal CCT:LED\_3000K  
x0=0.4298 y0=0.4003

Chromaticity Coordinates:  $x=0.4298$   $y=0.4003$   $u'=0.2476$   $v'=0.5188$

Correlated Color Temperature: 3093 K

Dominant Wavelength: 581.0 nm(E)

Luminous Flux: 2728.168 lm

Purity: 0.4936

Chromaticity Difference: -0.0005Duv

Peak Wavelength: 603.0 nm

Color Ratio:  $K_r=44.1\%$   $K_g=47.9\%$   $K_b=8.0\%$

Bandwidth: 131.3nm

Radiant Flux: 6.889 W

Rendering Index:  $R_a=84.5$

$R_1=83$   $R_2=92$   $R_3=96$   $R_4=83$   $R_5=84$   $R_6=91$   $R_7=84$   $R_8=63$

$R_9=15$   $R_{10}=83$   $R_{11}=83$   $R_{12}=76$   $R_{13}=86$   $R_{14}=99$   $R_{15}=76$



## Verification Services

Project No: 4786852099-1  
Report No: 4786852099-1a  
Report Issued Date: 2015-04-02

# Test Report

## Test No. 2: Goniophotometer Test

### Environmental Conditions

Temperature: 25.1°C

### Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-GS002	Goniophotometer	Before Use	Before Use
GVS-LE-FS019	Measurement Standard Lamp	8/19/2014	8/18/2015
GVS-LE-CA008	Digital Caliper	04/03/2014	04/02/2015

### Test Sample

2091410-S1

### Test Method

The samples(three lamps in fixture) were tested according to the IES LM-79-2008. Photometric parameters were measured using a type C goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 50 vertical intervals and 10 horizontal interval

### Test Result

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientat ion	Operate time (Min.)	Stabilization time (Min.)
Input	120.09	60	0.254	30.37	0.996	Base Up	58	50

Test Type	Flux (lm)	Field angle (10%)		Beam angle (50%)		Zonal Lumen Result	Spacing criteria		Luminous Efficacy (lm/W)
		Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread		0°-180°	90°-270°	
Output	2761.7	157.9	167.7	107.1	126.9	76.1%	1.30	1.20	90.93

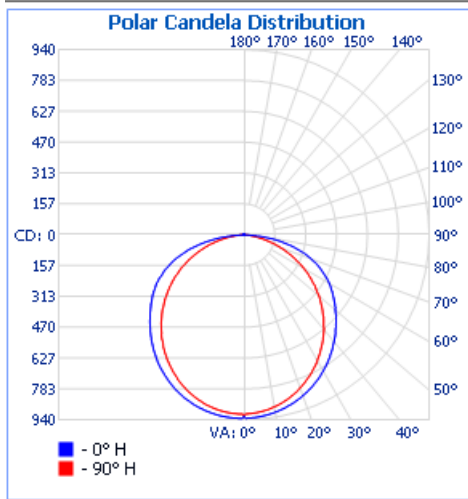


## Verification Services

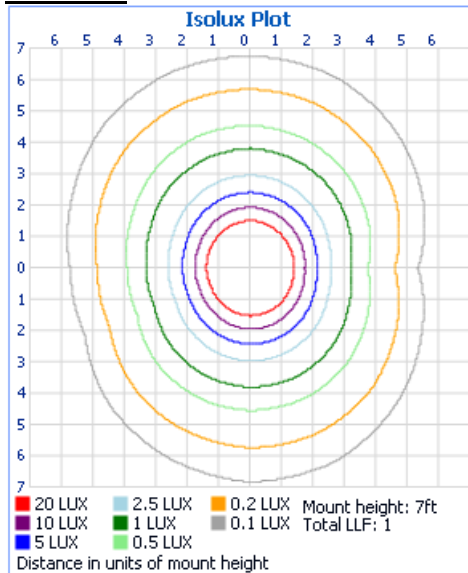
Project No: 4786852099-1  
Report No: 4786852099-1a  
Report Issued Date: 2015-04-02

# Test Report

## Light Distribution Curve



## Isolux Plot





## Verification Services

Project No: 4786852099-1  
Report No: 4786852099-1a  
Report Issued Date: 2015-04-02

# Test Report

## Zonal Lumen Tabulation

### Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	714.6	25.9%
0-40	1,172.4	42.5%
0-60	2,101.5	76.1%
60-90	659.5	23.9%
70-100	292.0	10.6%
90-120	0.2	0%
0-90	2,761.1	100%
90-180	0.6	0%
0-180	2,761.7	100%

### Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	87.1	3.2%	90-100	0.1	0%
10-20	249.4	9.0%	100-110	0.1	0%
20-30	378.2	13.7%	110-120	0.1	0%
30-40	457.8	16.6%	120-130	0.1	0%
40-50	480.4	17.4%	130-140	0.1	0%
50-60	448.7	16.2%	140-150	0.1	0%
60-70	367.6	13.3%	150-160	0.1	0%
70-80	233.0	8.4%	160-170	0.0	0%
80-90	58.9	2.1%	170-180	0.0	0%



# Test Report

## Intensity Data (cd)

Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922
1	932	937	929	917	910	909	910	921	933	937	929	917	910	909	910	920	932
2	931	936	928	916	909	908	910	920	932	937	929	917	910	908	910	919	931
3	930	935	927	915	907	907	909	920	932	937	928	916	909	907	909	919	930
4	929	934	926	914	906	906	908	919	931	936	928	915	908	906	908	917	929
5	928	932	924	912	904	905	906	918	930	934	926	913	907	904	906	915	928
6	925	931	923	910	901	903	905	917	929	933	924	912	905	902	904	914	925
7	923	929	920	908	898	900	903	915	928	931	923	909	902	899	902	912	923
8	921	926	918	905	895	898	900	913	926	929	920	907	900	896	899	909	921
9	918	923	915	902	891	895	898	911	924	927	918	904	897	893	897	906	918
10	915	920	912	898	887	892	894	908	921	924	915	901	893	889	893	903	915
11	912	916	908	895	883	888	891	905	918	921	911	897	890	885	890	900	912
12	908	913	905	891	879	884	887	902	915	918	908	893	886	881	886	896	908
13	905	909	900	885	873	880	883	899	912	914	904	889	882	877	882	892	905
14	900	904	896	881	868	875	879	895	908	911	899	884	876	872	878	889	900
15	896	900	891	875	863	870	875	891	905	906	895	879	871	866	873	883	896
16	892	896	886	870	856	864	869	886	901	902	891	874	866	859	867	878	892
17	886	890	879	864	851	859	864	882	896	897	886	869	861	854	862	873	886
18	882	885	874	859	844	853	859	877	891	892	881	862	854	848	856	868	882
19	876	880	868	852	838	847	854	871	886	887	874	856	848	841	850	862	876
20	869	874	862	845	829	840	848	866	882	882	868	850	842	834	844	857	869
25	839	840	828	807	789	802	812	835	851	850	834	813	802	795	808	824	839
30	802	801	785	762	743	759	771	798	814	811	792	769	758	749	767	786	802
35	760	755	738	710	688	709	727	755	771	767	744	719	709	698	717	739	760
40	710	707	685	655	631	655	675	706	724	719	691	665	650	641	663	692	710
50	606	598	564	527	502	529	560	600	622	610	574	541	526	514	545	582	606
55	555	544	503	459	429	466	498	544	571	556	511	476	460	446	482	530	555
60	501	488	440	389	358	396	435	486	518	501	448	406	386	377	419	472	501
65	438	426	379	319	282	322	374	426	453	437	388	332	314	305	358	410	438
70	365	354	307	245	208	251	303	352	377	363	319	262	240	230	289	340	365
75	278	268	232	176	131	180	230	266	288	276	244	194	162	162	216	258	278
80	181	174	147	101	66	105	142	171	181	177	156	122	92	89	132	161	181
85	61	64	51	33	16	38	51	60	61	68	65	50	34	25	44	58	61
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0





## Verification Services

Project No: 4786852099-1

Report No: 4786852099-1a

Report Issued Date: 2015-04-02

# Test Report

## Test No. 3: Total Harmonic Distortion Test

### Environmental Conditions

Temperature: 25.1°C

### Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-PM012	Digital Power Meter	04/28/2014	04/27/2015
GVS-LE-PS047	Power Supply	----	----

### Test Sample

2091410-S1

### Test Method

The sample was tested according to the ANSI C82.77-2002. The ambient temperature condition was maintained at 25°C ± 1°C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

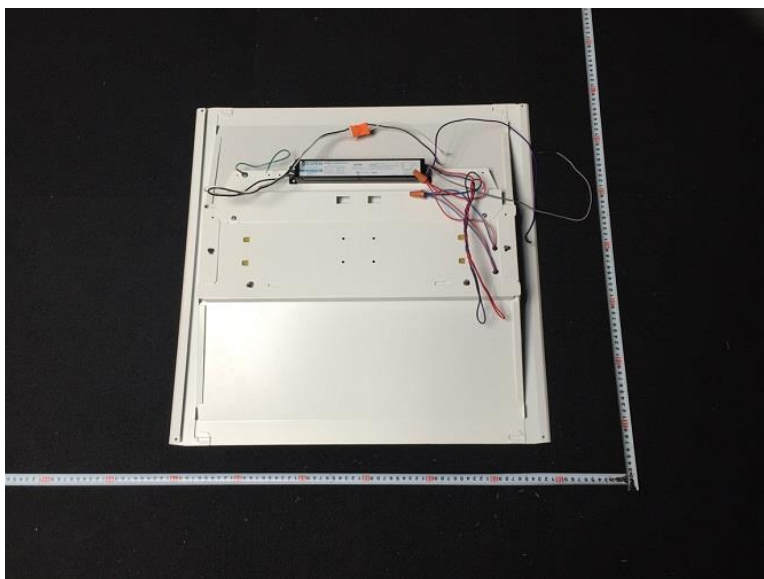
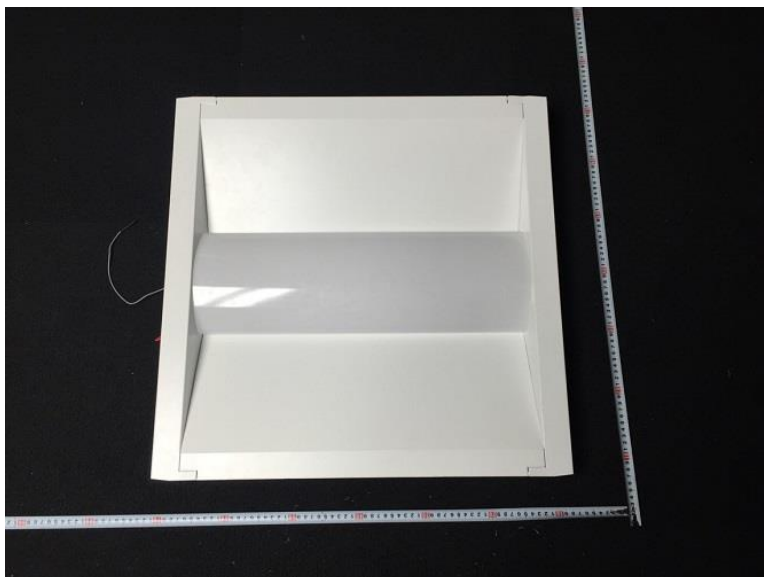
### Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD (%)	Operate time (Min.)	Stabilization time (Min.)
Input	277.09	60	0.121	30.975	0.93	4.71	58	50



# Test Report

## Photos of sample





## Verification Services

Project No: 4786852099-1  
Report No: 4786852099-1a  
Report Issued Date: 2015-04-02

# Test Report

---

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*