



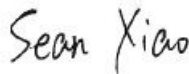

Test Report

Customer Company & Address:			
GlacialTech Inc			
ADD: 9Fl.,No.352,Sec.2,Jung Shan Rd.,Jung He City, Taipei, Taiwan, 235, R.O.C			
Contact Person:	Jeff Chen		
Telephone:	+886 2 8242-2210	Fax:	+886 2 8243-1241

Manufacturer:	GlacialTech Inc
Country of Origin:	Taiwan
Country of Export:	USA
Product Description:	Par38 Directional Integral LED Lamp, total 14 LED packages, the manufacturer of light source is ProLight, the LED model number of light source is PM2B-1LWE.
Model Number:	GL-BR40D-14LCW-120D
Electrical Specification:	Rated voltage: 100~127V AC Frequency: 60Hz Wattage: 18W

Test Laboratory & Address:			
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			
Telephone:	+86 20 28667188	Fax:	+86 20 83486605

Receipt of Test Samples :	Oct 14,2011	Test Period:	Oct 26,2011
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Tested By	Approved By
 / Sean Xiao	 / Johnson Zhao
Test Personnel Name & Signatory	Approval Name & Signatory

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.



Test Report

Statement of Results

Test Flow	Test Method	Sample ID (Lab)	Sample Serial No	Pass/Fail/NA
1.	Integrating Sphere Test	1222147	N/A	Evaluate by customer
2.	Goniophotometer Test	1222147	N/A	Evaluate by customer

Deviation from Test Method (if any)

N/A

Remark (if any)

This report replaces 6011-001819-07a (original report number), the report 6011-001819-07a is terminated.



Test Report

Test No. 1 : Integrating Sphere Test

Environmental Conditions

Temperature:	25.3 ° C
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Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
GVS-LE-PE003	Integrating Sphere	Before Use	Before Use
GVS-LE-FS007	Measurement Standard Lamp	2011/8/16	2012/8/16

Test Sample

1222147

Test Method

The sample 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 120 Volts AC,60Hz. It 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
Input	120.02	60	0.145	17.16	0.985

Test Type	Correlated Color Temperature (K)	Color Rendering Index (Ra)
Output	6830	77.2



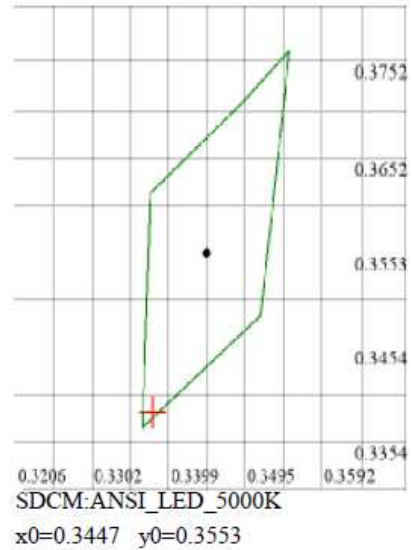
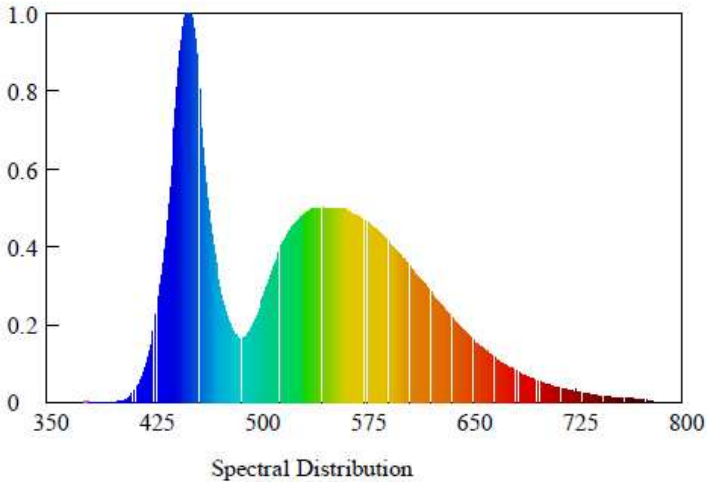
Test Report

Test Condition

Temperature: 25.3°C
 Spectrum Range: 380-780 nm

RH: ----%
 Scan Step: 1 nm

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3082$ $y=0.3217$ $u'=0.1974$ $v'=0.4637$

Correlated Color Temperature: 6830 K

Dominant Wavelength: 485.0 nm(E)

Luminous Flux: 1039.304 lm

Purity: 0.0934

Chromaticity Difference: 0.0017Duv

Peak Wavelength: 452.5 nm

Color Ratio: $K_r=29.1\%$ $K_g=60.1\%$ $K_b=10.8\%$

Color Tolerance: 0.0 SDCM

Bandwidth: 26nm

Radiant Flux: 3.262 W

Rendering Index: $R_a=77.2$

$R_1=76$ $R_2=82$ $R_3=82$ $R_4=77$ $R_5=75$ $R_6=72$ $R_7=86$ $R_8=68$

$R_9=-5$ $R_{10}=53$ $R_{11}=73$ $R_{12}=46$ $R_{13}=78$ $R_{14}=89$ $R_{15}=73$



Test Report

Test No.2: Goniophotometer Test

Environmental Conditions

Temperature: 25.3 °C

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
GVS-LE-GS003	Goniophotometer	Before Use	Before Use
GVS-LE-FS007	Measurement Standard Lamp	2011/8/16	2012/8/16
GVS-LE-CA006	Digital Calliper	2011/8/16	2012/8/16

Test Sample

1222147

Test Method

The sample was tested according to the IES LM-79-2008.
 Photometric paramters 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 fro m the sample and at the same height as the sample.
 The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 22.5° horizontal intervals.

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
Input	120.08	60	0.1391	16.24	0.973

Test Type	Luminous flux (lm)	Beam angle (°)	Center Beam Intensity (cd)	Zonal Lumen Density (within 0°-60°)
Output	1021.2	122.1	288.3	64.7%



Test Report

Photometric test Results

Flood Summary

	Efficiency	Lumens	Horizontal Spread	Vertical Spread
Field (10%):	91.4%	933.8	182.5	182.5
Beam (50%):	65.8%	672.2	122.1	122.1

Utilization of Lumens - Zonal Cavity Method

Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance: 20%

RCC %:	80				70				50			30			10			0
RW %:	70	50	30	0	70	50	30	0	50	30	20	50	30	20	50	30	20	0
RCR: 0	1.17	1.17	1.17	1.17	1.13	1.13	1.13	.91	1.06	1.06	1.06	1.00	1.00	1.00	.94	.94	.94	.91
1	1.05	.99	.94	.90	1.01	.96	.92	.73	.90	.87	.83	.85	.82	.79	.80	.77	.75	.72
2	.95	.86	.78	.72	.91	.83	.76	.60	.78	.72	.67	.73	.68	.64	.69	.65	.62	.59
3	.86	.74	.66	.59	.82	.72	.64	.50	.68	.61	.55	.64	.58	.53	.60	.55	.51	.49
4	.78	.66	.56	.49	.75	.64	.55	.43	.60	.53	.47	.56	.50	.45	.53	.48	.44	.41
5	.72	.58	.49	.42	.69	.57	.48	.37	.53	.46	.40	.51	.44	.39	.48	.42	.38	.35
6	.66	.52	.43	.36	.64	.51	.42	.32	.48	.41	.35	.46	.39	.34	.43	.37	.33	.31
7	.61	.47	.38	.32	.59	.46	.38	.29	.44	.36	.31	.41	.35	.30	.39	.33	.29	.27
8	.57	.43	.34	.28	.55	.42	.34	.26	.40	.33	.27	.38	.31	.27	.36	.30	.26	.24
9	.53	.39	.31	.25	.51	.38	.31	.23	.37	.30	.25	.35	.29	.24	.33	.28	.23	.21
10	.50	.36	.28	.23	.48	.35	.28	.21	.34	.27	.22	.32	.26	.22	.31	.25	.21	.19



NVLAP Lab Code:200952-0

Verification Services

Project No: 6011-001819-07
Report No: 6011-001819-07aR01
Report Issued Date: Nov 8, 2011

Test Report

Zonal Lumen Tabulation

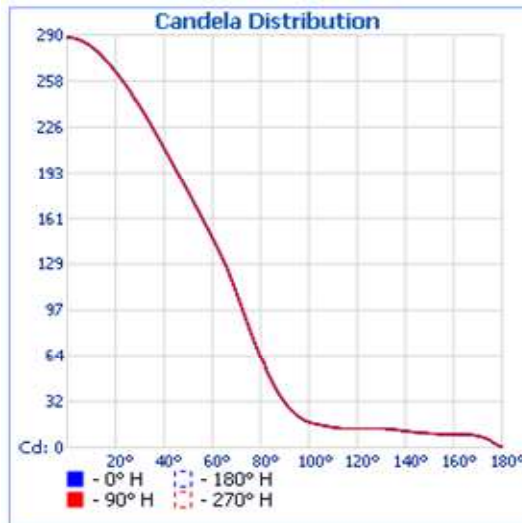
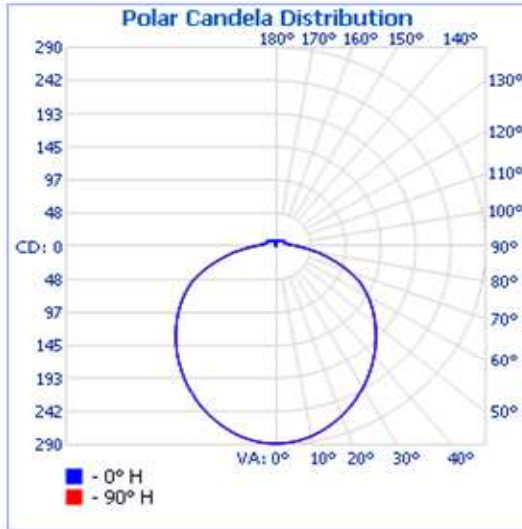
Zonal Lumen Summary			
Zone	Lumens	% Lamp%	Luminaire
0-30	221.2	21.7%	21.7%
0-40	362.7	35.5%	35.5%
0-60	660.5	64.7%	64.7%
60-90	269.2	26.4%	26.4%
70-100	166.3	16.3%	16.3%
90-120	55.6	5.4%	5.4%
0-90	929.7	91%	91%
90-180	91.5	9%	9%
0-180	1,021.2	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	6.9	0.7%	90-95	14.6	1.4%
5-10	20.3	2.0%	95-100	10.8	1.1%
10-15	33.0	3.2%	100-105	8.9	0.9%
15-20	44.4	4.3%	105-110	7.8	0.8%
20-25	54.3	5.3%	110-115	6.9	0.7%
25-30	62.4	6.1%	115-120	6.4	0.6%
30-35	68.6	6.7%	120-125	6.1	0.6%
35-40	72.9	7.1%	125-130	5.8	0.6%
40-45	75.2	7.4%	130-135	5.3	0.5%
45-50	75.8	7.4%	135-140	4.5	0.4%
50-55	74.7	7.3%	140-145	3.7	0.4%
55-60	72.0	7.0%	145-150	3.0	0.3%
60-65	67.6	6.6%	150-155	2.4	0.2%
65-70	60.8	5.9%	155-160	2.0	0.2%
70-75	50.8	5.0%	160-165	1.5	0.1%
75-80	39.7	3.9%	165-170	1.0	0.1%
80-85	29.6	2.9%	170-175	0.5	0%
85-90	20.8	2.0%	175-180	0.1	0%



Test Report

Light Distribution Curve





Test Report

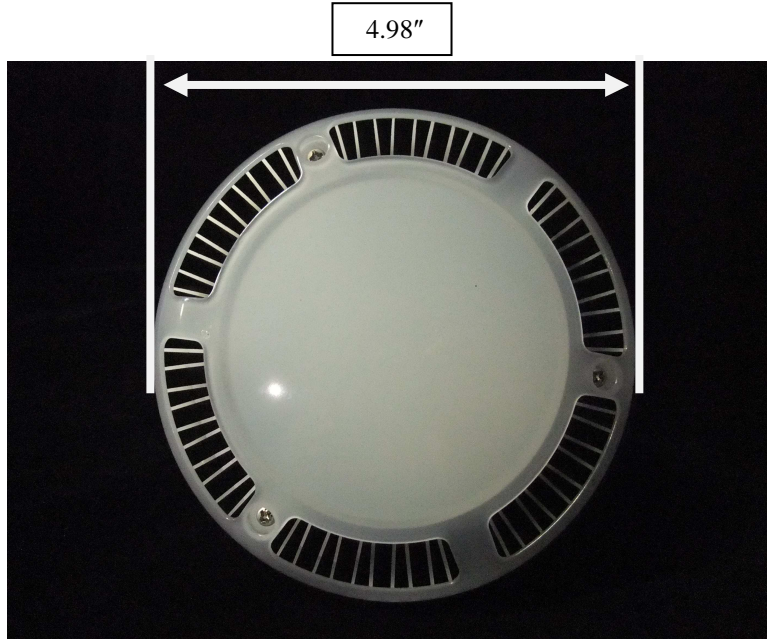
Intensity Data

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	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
1	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
2	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
3	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
4	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
5	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
6	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286
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16	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272
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30	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
35	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226
40	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211
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55	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164
60	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
65	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130
70	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109
75	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
80	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
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105	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
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140	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
145	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
150	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
160	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
165	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
170	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
175	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Test Report

Photos of sample



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