



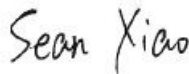

Test Report

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-14LWW-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	1222146	N/A	Evaluate by customer
2.	Goniophotometer Test	1222146	N/A	Evaluate by customer

Deviation from Test Method (if any)

N/A

Remark (if any)

This report replaces 6011-001819-08a (original report number), the report 6011-001819-08a is terminated.



Test Report

Test No. 1 : Integrating Sphere Test

Environmental Conditions

Temperature:	25.2 ° 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

1222146

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	120.04	60	0.142	16.74	0.983

Test Type	Correlated Color Temperature (K)	Color Rendering Index (Ra)
Output	3105	81.1



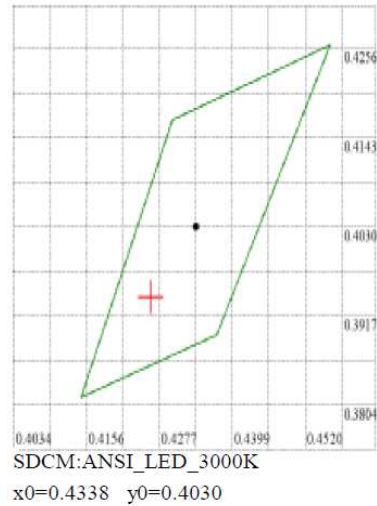
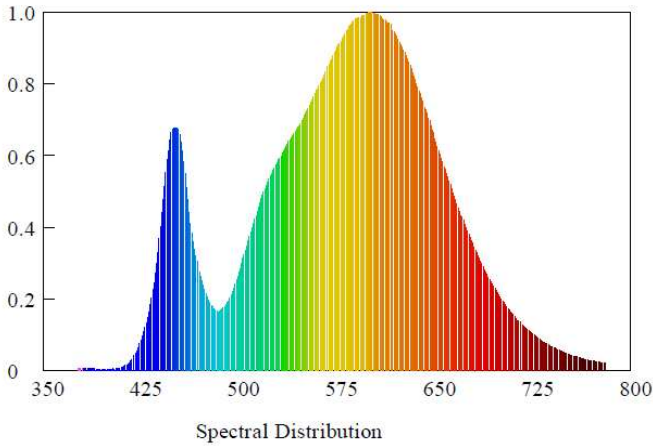
Test Report

Test Condition

Temperature: 25.2°C
 Spectrum Range: 380-780 nm

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

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4263$ $y=0.3941$ $u'=0.2479$ $v'=0.5158$
 Correlated Color Temperature: 3105 K Dominant Wavelength: 582.0 nm(E)
 Luminous Flux: 830.243 lm Purity: 0.4637
 Chromaticity Difference: -0.00249Duv Peak Wavelength: 601.8 nm
 Color Ratio: $K_r=43.5\%$ $K_g=50.1\%$ $K_b=6.3\%$ Color Tolerance: 0.0 SDCM
 Bandwidth: 141.5nm Radiant Flux: 2.424 W
 Rendering Index: $R_a=81.1$
 $R_1=80$ $R_2=88$ $R_3=94$ $R_4=78$ $R_5=78$ $R_6=83$ $R_7=84$ $R_8=63$
 $R_9=14$ $R_{10}=71$ $R_{11}=75$ $R_{12}=60$ $R_{13}=82$ $R_{14}=96$ $R_{15}=75$



Test Report

Test No.2: Goniophotometer Test

Environmental Conditions

Temperature: 25.4 °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

1222146

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	0.1413	16.68	0.983

Test Type	Luminous flux (lm)	Beam angle (°)	Center Beam Intensity (cd)	Zonal Lumen Density (within 0°-60°)
Output	818.0	117.3	242.9	66.1%



Test Report

Photometric test Results

Flood Summary

	Efficiency	Lumens	Horizontal Spread	Vertical Spread
Field (10%):	92%	752.2	179.7	179.7
Beam (50%):	63.7%	521.0	117.3	117.3

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	.92	1.07	1.07	1.07	1.00	1.00	1.00	.95	.95	.95	.92
1	1.05	1.00	.95	.91	1.02	.97	.92	.74	.91	.87	.84	.86	.83	.80	.81	.78	.76	.74
2	.95	.86	.79	.72	.92	.83	.77	.61	.79	.73	.68	.74	.69	.65	.70	.66	.63	.60
3	.86	.75	.66	.59	.83	.73	.65	.51	.69	.62	.56	.65	.59	.54	.61	.56	.52	.50
4	.79	.66	.57	.50	.76	.64	.56	.44	.61	.53	.48	.57	.51	.46	.54	.49	.45	.42
5	.72	.59	.50	.43	.70	.57	.49	.38	.54	.47	.41	.51	.45	.40	.49	.43	.39	.36
6	.67	.53	.44	.37	.64	.51	.43	.33	.49	.41	.36	.46	.40	.35	.44	.38	.34	.31
7	.62	.48	.39	.33	.59	.47	.38	.29	.44	.37	.31	.42	.36	.31	.40	.34	.30	.28
8	.57	.44	.35	.29	.55	.43	.34	.26	.41	.33	.28	.39	.32	.27	.37	.31	.27	.25
9	.54	.40	.32	.26	.52	.39	.31	.24	.37	.30	.25	.36	.29	.25	.34	.28	.24	.22
10	.50	.37	.29	.23	.49	.36	.28	.22	.34	.28	.23	.33	.27	.22	.32	.26	.22	.20



NVLAP Lab Code:200952-0

Verification Services

Project No: 6011-001819-08
Report No: 6011-001819-08aR01
Report Issued Date: Nov 8, 2011

Test Report

Zonal Lumen Tabulation

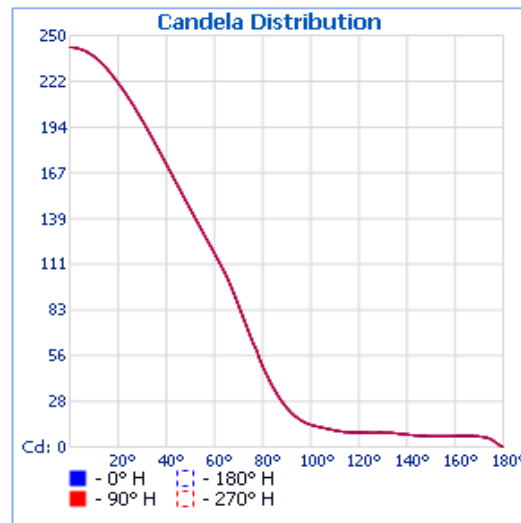
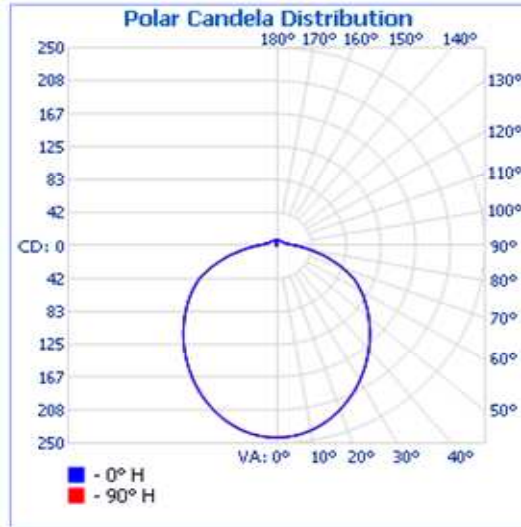
Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	184.9	22.6%	22.6%
0-40	301.1	36.8%	36.8%
0-60	540.8	66.1%	66.1%
60-90	211.8	25.9%	25.9%
70-100	129.1	15.8%	15.8%
90-120	41.1	5%	5%
0-90	752.6	92%	92%
90-180	65.4	8%	8%
0-180	818.0	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	5.8	0.7%	90-95	11.1	1.4%
5-10	17.1	2.1%	95-100	8.2	1%
10-15	27.7	3.4%	100-105	6.7	0.8%
15-20	37.2	4.5%	105-110	5.7	0.7%
20-25	45.3	5.5%	110-115	4.8	0.6%
25-30	51.8	6.3%	115-120	4.4	0.5%
30-35	56.6	6.9%	120-125	4.1	0.5%
35-40	59.6	7.3%	125-130	3.8	0.5%
40-45	61.1	7.5%	130-135	3.5	0.4%
45-50	61.2	7.5%	135-140	3.0	0.4%
50-55	59.9	7.3%	140-145	2.4	0.3%
55-60	57.5	7.0%	145-150	2.0	0.2%
60-65	53.9	6.6%	150-155	1.7	0.2%
65-70	48.2	5.9%	155-160	1.4	0.2%
70-75	40.0	4.9%	160-165	1.1	0.1%
75-80	31.2	3.8%	165-170	0.8	0.1%
80-85	22.6	2.8%	170-175	0.4	0.1%
85-90	15.9	1.9%	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	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
1	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
2	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
3	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242
4	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242	242
5	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241
6	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241
7	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
8	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239
9	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
10	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237
11	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236
12	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
13	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233
14	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232
15	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231
16	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229
17	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227
18	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
19	223	223	223	223	223	223	223	223	223	223	223	223	223	223	223	223	223
20	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221
25	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211
30	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199
35	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
40	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
45	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
50	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
55	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131
60	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118
65	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
70	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
75	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
80	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
85	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
90	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
95	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
100	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
105	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
110	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
115	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
120	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
125	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
130	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
135	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
140	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
145	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
150	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
160	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
165	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
170	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
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*******