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## **Goniophotometer Measurement Report For Luminaires**

Applicant : GlacialTech Inc.

Applicant Add : 9Fl., No.352, Sec.2, Jung Shan Rd., Jung He City, Taipei,  
Taiwan, 235, (R.O.C.)

Report No : GO1408200201A

Product Name : LED Downlight

Model No : GL-DL10-SM-CW

Sample No : 14082002-1

Test Specification : IESNA LM-79-08, Approved Method: Electrical and  
Photometric Measurements of Solid-State Lighting  
Products.

Test Date : 2014-8-22

Issue Date : 2014-8-28

- Note: 1. The test results of this report relate only to the tested sample identified in this report.
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Tested By:

Reviewed By:

Alex Sung

Donald Chang

Project Engineer

Team Leader

# Great One Global Certification Co., Ltd.

Product: GL-DL10-SM-CW

Manufacturer: GlacialTech Inc.

Sample No.: 14082002-1

Tested By: Alex Sung

Date: 8-22-2014

Reviewed By: David Yuan

## Test Condition

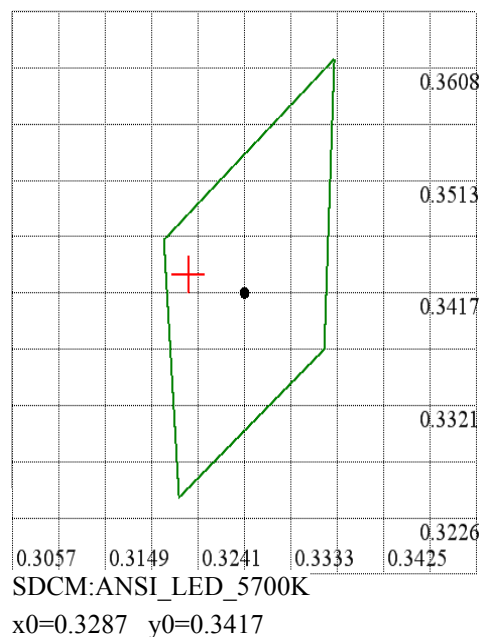
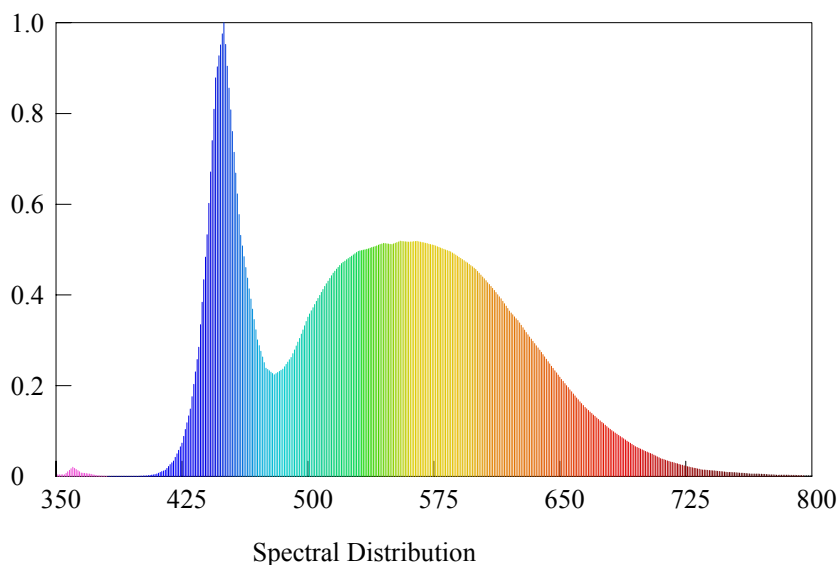
Temperature: 25.5°C

Spectrum Range: 350-800 nm

RH: 60.3%

Scan Step: 5 nm

## Spectroradiometric Parameters



Chromaticity Coordinates:  $x=0.3231$   $y=0.3433$   $u'=0.1996$   $v'=0.4773$

Correlated Color Temperature: 5920 K

Dominant Wavelength: 505.0 nm(E)

Chromaticity Difference: +0.00542Duv

Purity: 0.0310

Color Ratio:  $K_r=30.6\%$   $K_g=57.2\%$   $K_b=12.2\%$

Peak Wavelength: 449.2 nm

Bandwidth: 21.6nm

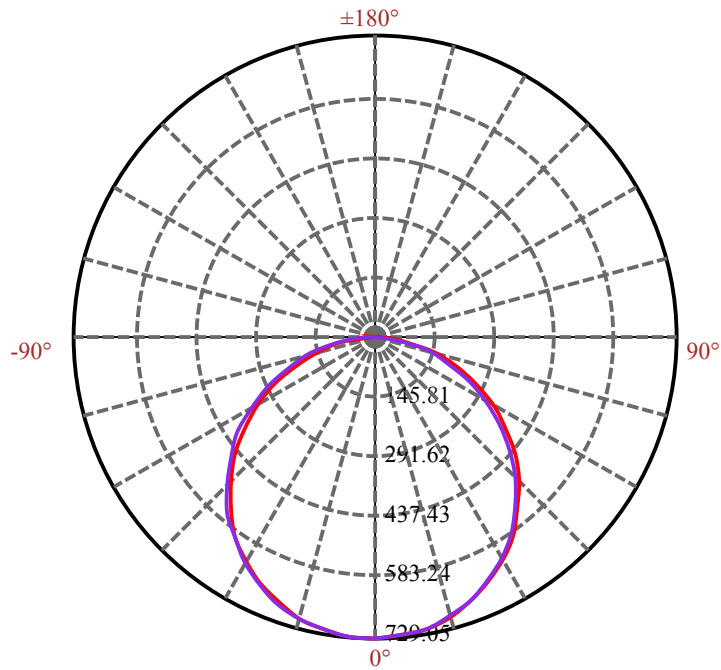
Color Tolerance: 0.0 SDCM

Rendering Index:  $R_a=81.4$

Radiant Flux: 6.368 W

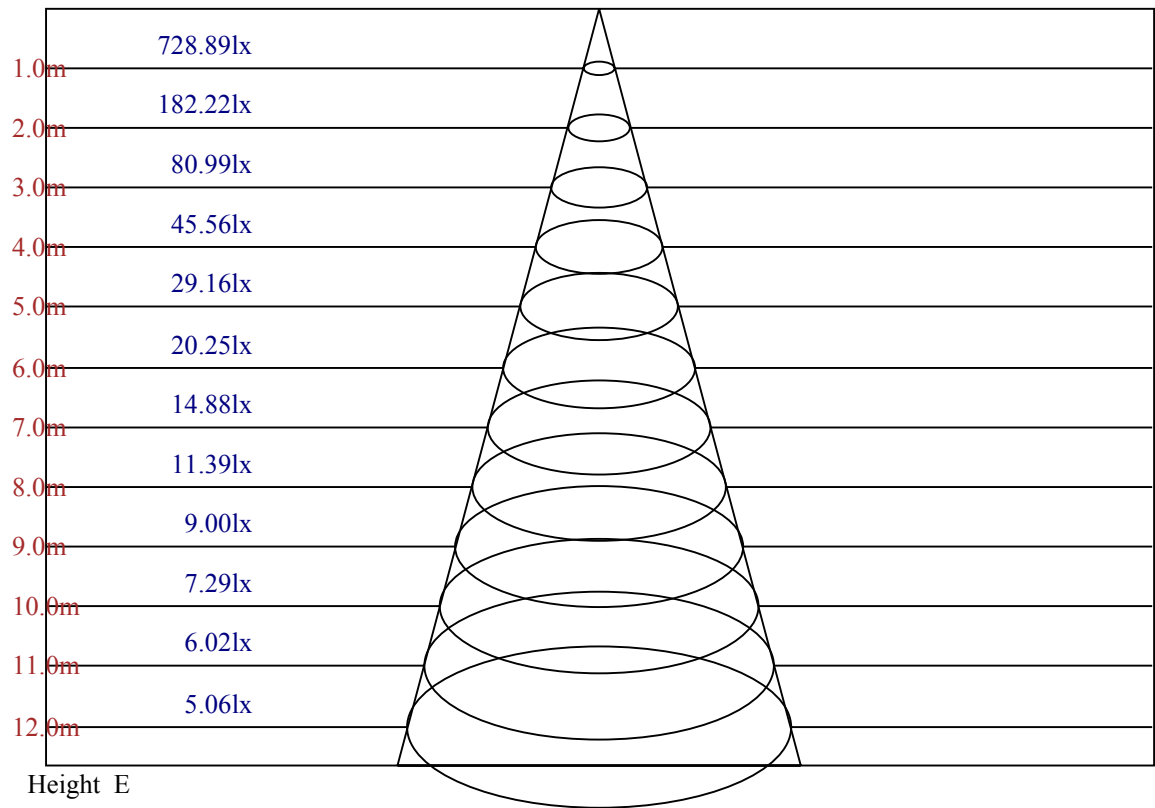
R1=79 R2=85 R3=89 R4=82 R5=80 R6=80 R7=88 R8=69  
R9=4 R10=65 R11=81 R12=57 R13=81 R14=94 R15=74

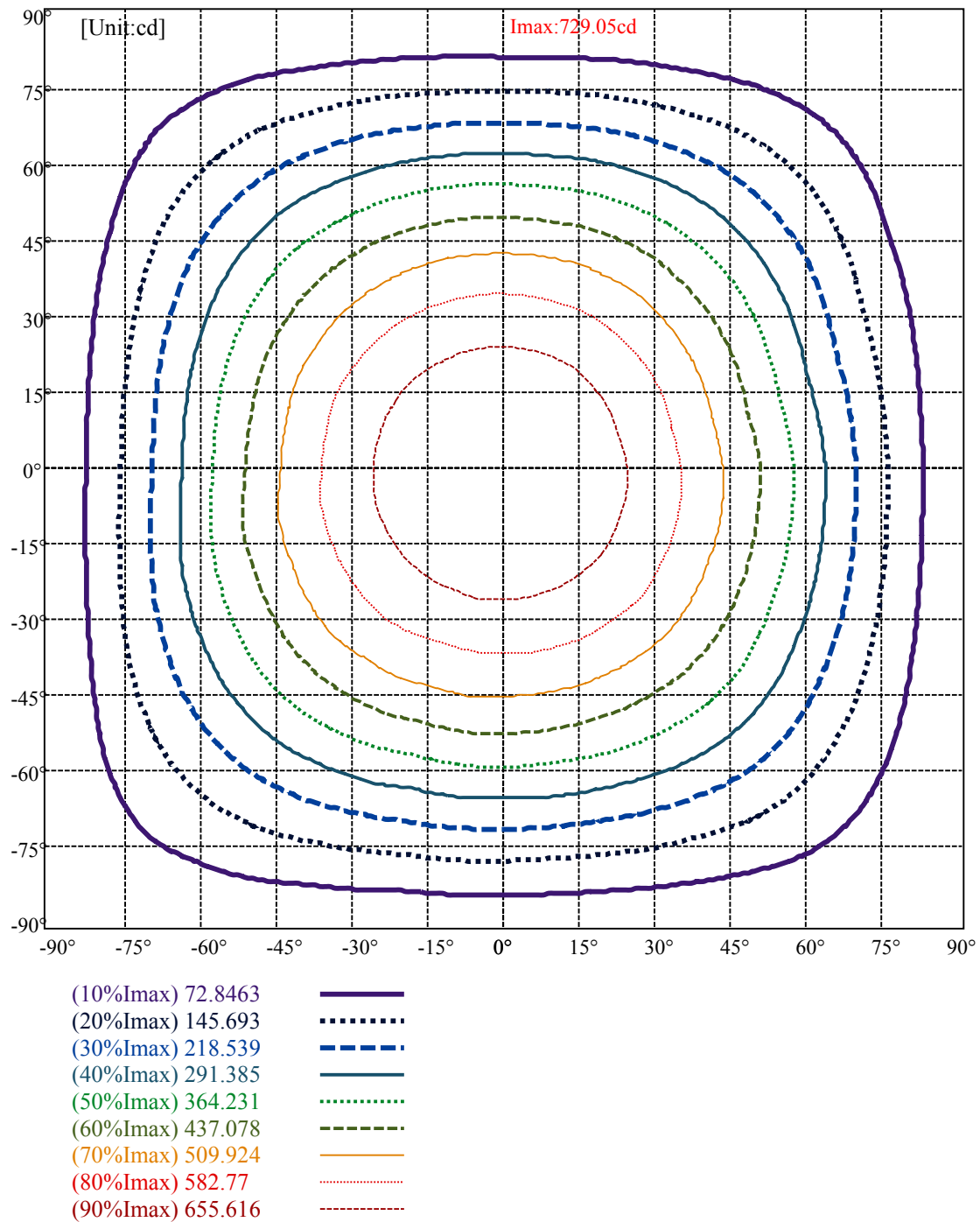
Light Distribution Curve [Unit: cd]



C0/C180: —  
C90/C270: —

Lux distance Curve



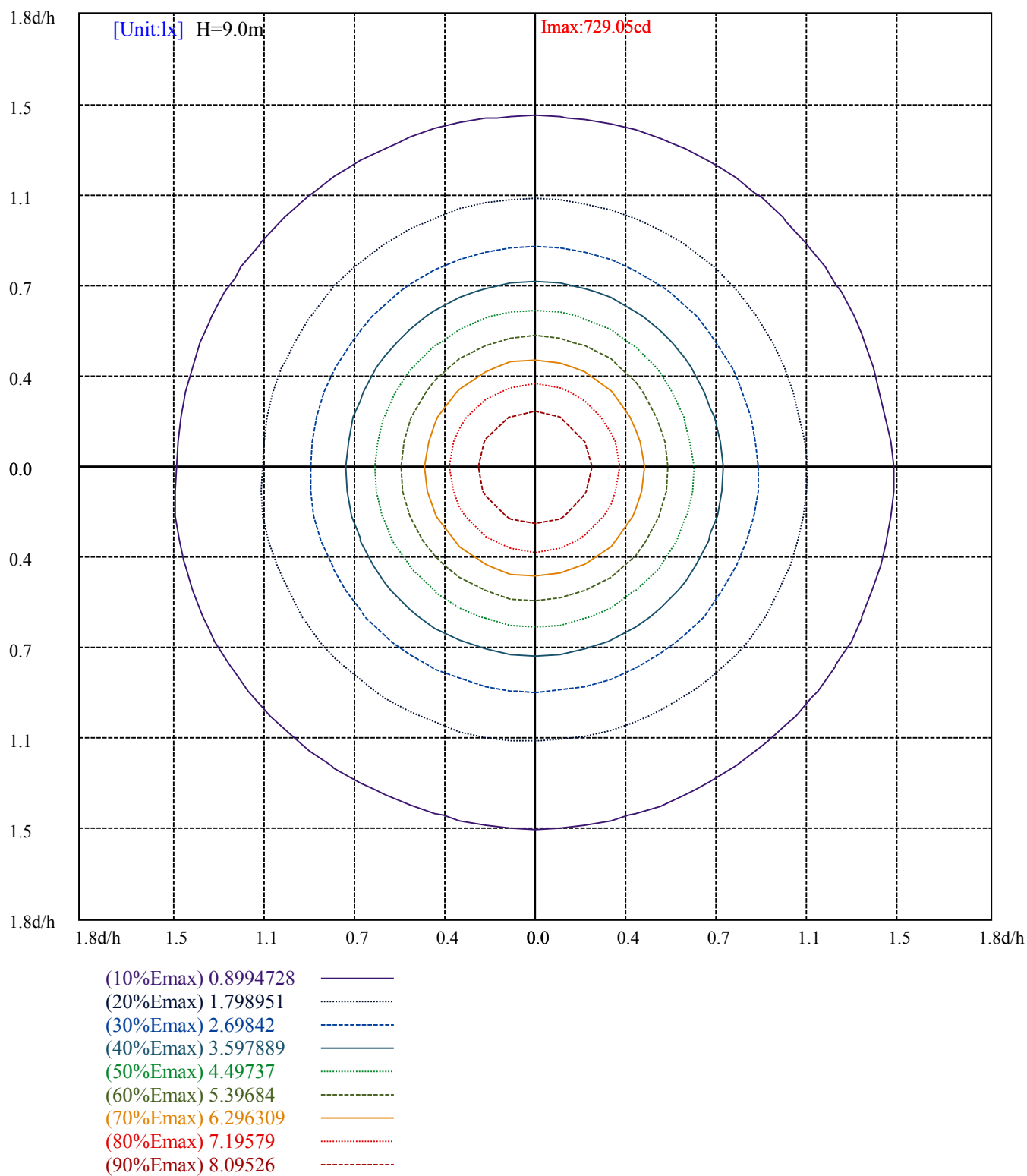


Equipment: HW-1015  
Temperature(°C): 25.4

Date: 2014/8/22  
Humidity(%): 60.6%

Operator: Alex Sung  
Distance(m): 8.90

ISO illuminance diagram



Equipment: HW-1015  
Temperature(°C): 25.4

Date: 2014/8/22  
Humidity(%): 60.6%

Operator: Alex Sung  
Distance(m): 8.90

## Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	728.89	724.61	715.74	699.90	678.59	652.37	618.87	581.96	538.07
10.0	727.70	723.66	713.21	697.29	675.42	647.54	612.93	573.48	530.23
20.0	727.70	723.66	713.52	697.92	675.90	646.51	613.48	575.14	528.25
30.0	728.18	723.42	713.84	696.97	674.63	647.70	612.21	574.03	528.65
40.0	728.42	723.11	713.60	697.52	674.00	646.91	613.56	572.69	527.46
50.0	728.73	723.42	713.05	698.55	675.11	648.49	614.27	572.69	529.44
60.0	728.18	723.82	714.24	697.60	676.22	648.41	613.24	575.06	528.09
70.0	728.57	724.14	714.39	698.47	676.61	648.02	614.75	574.43	530.63
80.0	728.10	724.38	714.08	697.05	675.90	647.78	613.96	573.96	530.07
90.0	727.94	723.98	714.87	697.76	675.98	647.94	613.96	576.02	529.68
100.0	728.10	724.14	714.16	698.00	677.32	648.97	614.59	576.33	529.84
110.0	727.94	723.74	715.11	697.92	676.29	649.52	616.33	576.17	531.34
120.0	728.65	723.98	715.03	699.27	677.72	649.60	616.65	577.20	532.45
130.0	728.65	724.93	715.11	699.82	678.67	650.63	617.76	578.47	532.77
140.0	728.10	724.69	715.27	701.33	680.26	653.24	619.66	579.03	535.93
150.0	729.05	725.72	716.22	701.25	680.57	653.80	622.51	581.96	537.84
160.0	728.26	725.72	717.72	702.91	684.06	656.10	623.54	586.71	541.24
170.0	728.89	725.88	717.56	703.31	684.22	656.49	625.52	585.60	541.24
180.0	728.89	726.75	717.88	704.34	684.06	657.68	626.16	587.18	544.17
190.0	727.70	725.33	717.88	703.94	685.80	660.29	630.12	593.20	555.02
200.0	727.70	725.80	718.12	705.13	685.72	660.69	629.01	591.94	554.55
210.0	728.18	726.43	717.80	704.97	685.48	659.66	630.12	594.87	550.35
220.0	728.42	725.80	718.12	705.52	685.96	660.45	630.04	595.98	554.55
230.0	728.73	725.56	718.83	705.05	685.25	659.58	629.09	597.01	556.21
240.0	728.18	726.36	719.07	705.36	686.35	660.61	629.88	592.89	557.24
250.0	728.57	726.12	718.20	705.44	685.80	659.98	628.21	591.14	549.08
260.0	728.10	726.99	718.36	704.57	687.46	661.88	630.75	592.89	555.42
270.0	727.94	726.67	718.36	704.49	686.12	660.45	628.61	592.33	555.50
280.0	728.10	726.67	718.36	704.89	686.43	660.45	628.69	595.74	552.57
290.0	727.94	726.04	718.04	704.81	684.53	659.90	628.93	592.49	552.65
300.0	728.65	726.20	717.64	704.49	684.53	658.63	627.82	593.68	551.22
310.0	728.65	725.72	717.09	704.02	683.74	657.60	627.42	590.35	551.06
320.0	728.10	725.33	717.64	703.07	682.39	657.36	631.22	594.47	551.14
330.0	729.05	725.80	716.93	701.80	680.89	655.54	624.57	588.45	545.52
340.0	728.26	725.56	715.90	700.77	681.05	653.72	620.85	587.10	542.83
350.0	728.89	725.33	715.90	701.33	680.89	653.48	622.35	584.73	544.25
360.0	728.89	724.61	715.74	699.90	678.59	652.37	618.87	581.96	538.07

## Intensity data(cd)

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	491.89	441.67	386.70	330.38	268.52	207.93	149.47	96.16	44.36
10.0	478.03	423.85	368.09	305.20	245.55	184.16	126.66	71.37	25.27
20.0	478.11	425.60	368.01	307.65	245.79	186.38	125.79	72.08	25.82
30.0	476.45	424.33	368.01	306.46	244.84	185.35	126.74	73.19	26.61
40.0	478.35	423.06	367.06	306.94	248.01	184.88	128.08	74.38	26.30
50.0	480.96	425.60	368.25	310.42	247.53	188.28	127.92	74.22	28.59
60.0	480.49	426.78	371.02	309.95	250.62	189.79	129.35	77.15	28.28
70.0	480.96	426.23	370.54	313.28	249.99	189.23	132.76	78.50	30.89
80.0	479.30	425.44	369.99	308.68	249.67	188.76	132.84	77.15	31.13
90.0	480.01	427.10	369.99	312.40	249.67	189.07	132.36	76.75	30.81
100.0	482.15	428.29	373.08	311.93	251.02	190.18	131.57	79.29	30.65
110.0	482.94	427.97	372.52	312.88	250.22	191.21	134.58	80.32	31.53
120.0	483.02	431.06	372.37	312.64	253.55	194.38	133.79	79.53	33.74
130.0	484.45	430.90	373.95	314.54	255.29	192.16	133.15	80.56	32.00
140.0	486.59	433.12	376.25	318.35	257.19	193.99	136.40	83.25	34.14
150.0	488.41	435.18	380.37	318.74	257.27	197.71	136.24	82.93	35.17
160.0	493.95	438.98	382.19	324.60	261.23	201.51	139.65	84.28	37.55
170.0	494.27	439.14	384.25	324.44	264.88	201.35	139.33	82.22	35.72
180.0	495.06	441.75	385.36	327.69	264.17	202.38	144.48	89.90	39.53
190.0	508.37	459.73	402.31	344.80	287.93	225.99	167.13	109.23	57.27
200.0	506.79	453.00	405.32	348.44	287.77	227.49	168.72	110.81	60.12
210.0	511.38	459.42	406.82	350.11	286.98	227.49	170.14	110.50	58.38
220.0	514.63	460.84	406.74	347.89	288.56	227.10	168.08	112.08	59.57
230.0	508.29	459.10	404.37	347.34	286.50	226.46	165.55	109.79	56.08
240.0	509.40	460.21	401.91	344.88	287.69	223.93	165.07	107.33	56.87
250.0	505.20	454.27	397.79	340.05	280.88	222.98	162.14	106.46	52.91
260.0	510.35	461.48	403.65	347.97	288.88	227.17	167.93	111.77	57.74
270.0	507.34	456.57	407.22	348.29	285.08	227.02	168.00	108.28	57.66
280.0	505.99	456.57	403.73	342.19	288.88	225.04	164.12	107.96	57.51
290.0	506.07	453.24	401.59	342.11	284.60	220.84	161.83	107.73	54.10
300.0	502.59	453.00	397.79	342.27	282.70	220.52	161.51	105.59	53.78
310.0	503.78	452.69	394.78	342.58	282.70	218.78	157.63	101.94	50.77
320.0	504.09	453.00	396.21	340.21	280.40	218.07	158.82	100.20	50.77
330.0	499.74	449.91	395.10	338.78	277.00	216.56	155.41	99.65	50.30
340.0	495.46	445.32	388.05	329.75	273.67	211.25	150.26	94.89	44.91
350.0	495.14	441.91	388.21	330.31	272.32	211.65	150.74	92.12	43.80
360.0	491.89	441.67	386.70	330.38	268.52	207.93	149.47	96.16	44.36



Intensity data(cd)									
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	3.80	0.63	0.63	0.63	0.55	0.55	0.63	0.63	0.71
10.0	0.71	0.55	0.71	0.63	0.55	0.79	0.71	0.71	0.79
20.0	0.63	0.63	0.71	0.63	0.63	0.71	0.71	0.71	0.71
30.0	0.63	0.71	0.63	0.63	0.71	0.63	0.71	0.71	0.71
40.0	0.71	0.63	0.63	0.71	0.71	0.71	0.79	0.79	0.71
50.0	0.63	0.71	0.55	0.71	0.71	0.71	0.79	0.79	0.71
60.0	0.71	0.63	0.71	0.63	0.71	0.63	0.71	0.71	0.79
70.0	0.71	0.55	0.63	0.63	0.63	0.63	0.71	0.79	0.79
80.0	0.71	0.55	0.55	0.63	0.71	0.79	0.63	0.71	0.71
90.0	0.63	0.63	0.63	0.63	0.71	0.71	0.71	0.71	0.87
100.0	0.55	0.63	0.55	0.63	0.63	0.79	0.63	0.71	0.79
110.0	0.63	0.63	0.55	0.63	0.71	0.63	0.63	0.63	0.79
120.0	0.63	0.63	0.63	0.63	0.63	0.71	0.63	0.79	0.87
130.0	0.71	0.63	0.63	0.63	0.71	0.71	0.71	0.71	0.79
140.0	0.63	0.63	0.71	0.79	0.63	0.71	0.71	0.71	0.79
150.0	0.79	0.63	0.71	0.63	0.71	0.63	0.63	0.71	0.79
160.0	0.79	0.63	0.71	0.63	0.63	0.71	0.71	0.79	0.79
170.0	0.79	0.63	0.63	0.63	0.63	0.71	0.71	0.79	0.79
180.0	2.38	0.79	0.63	0.71	0.71	0.79	0.63	0.63	0.71
190.0	14.02	0.71	0.63	0.55	0.55	0.63	0.71	0.71	0.63
200.0	16.00	0.63	0.63	0.63	0.63	0.63	0.71	0.63	0.63
210.0	15.76	0.55	0.55	0.63	0.55	0.63	0.55	0.79	0.63
220.0	13.94	0.55	0.55	0.55	0.63	0.63	0.63	0.71	0.79
230.0	14.57	0.63	0.55	0.55	0.63	0.63	0.55	0.71	0.79
240.0	11.33	0.63	0.55	0.63	0.63	0.63	0.63	0.63	0.79
250.0	10.38	0.71	0.55	0.63	0.55	0.63	0.63	0.71	0.71
260.0	15.45	0.55	0.55	0.55	0.55	0.71	0.71	0.71	0.63
270.0	12.91	0.71	0.48	0.63	0.63	0.55	0.63	0.63	0.79
280.0	12.91	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
290.0	11.72	0.71	0.63	0.63	0.63	0.63	0.71	0.55	0.71
300.0	11.80	0.63	0.63	0.71	0.55	0.55	0.63	0.71	0.71
310.0	9.51	0.55	0.63	0.63	0.71	0.71	0.63	0.63	0.79
320.0	7.52	0.63	0.55	0.55	0.63	0.63	0.48	0.63	0.55
330.0	7.13	0.63	0.63	0.55	0.55	0.55	0.63	0.63	0.71
340.0	5.07	0.63	0.55	0.63	0.63	0.63	0.63	0.55	0.79
350.0	3.41	0.55	0.55	0.63	0.55	0.55	0.71	0.63	0.63
360.0	3.80	0.63	0.63	0.63	0.55	0.55	0.63	0.63	0.71

Equipment: HW-1015  
Temperature(°C): 25.4

Date: 2014/8/22  
Humidity(%): 60.6%

Operator: Alex Sung  
Distance(m): 8.90

## Intensity data(cd)

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.71	0.71	0.79	0.71	0.79	0.63	0.87	0.79	0.79
10.0	0.71	0.79	0.79	0.79	0.87	0.79	0.87	0.87	0.79
20.0	0.71	0.79	0.79	0.79	0.95	0.87	0.79	0.79	0.71
30.0	0.71	0.79	0.87	0.79	0.87	0.79	0.87	0.87	0.87
40.0	0.71	0.71	0.79	0.79	0.79	0.87	0.87	0.87	0.87
50.0	0.87	0.79	0.79	0.87	0.87	0.79	0.87	0.79	0.87
60.0	0.79	0.87	0.87	0.87	0.79	0.87	0.79	0.87	0.87
70.0	0.79	0.79	0.79	0.79	0.87	0.87	0.87	0.87	0.79
80.0	0.79	0.79	0.79	0.87	0.79	0.87	0.87	0.87	0.79
90.0	0.79	0.87	0.87	0.79	0.87	0.79	0.87	0.79	0.87
100.0	0.71	0.79	0.79	0.71	0.87	0.87	0.87	0.79	0.87
110.0	0.79	0.79	0.87	0.87	0.87	0.87	0.79	0.79	0.79
120.0	0.79	0.87	0.79	0.79	0.87	0.87	0.87	0.87	0.87
130.0	0.63	0.79	0.87	0.79	0.71	0.87	0.87	0.87	0.79
140.0	0.71	0.71	0.79	0.71	0.95	0.79	0.71	0.87	0.79
150.0	0.71	0.79	0.71	0.79	0.79	0.87	0.87	0.87	0.87
160.0	0.71	0.71	0.87	0.79	0.79	0.79	0.87	0.79	0.79
170.0	0.87	0.79	0.79	0.79	0.87	0.71	0.87	0.87	0.87
180.0	0.87	0.79	0.79	0.79	0.87	0.87	0.79	0.87	0.87
190.0	0.71	0.71	0.79	0.71	0.79	0.71	0.71	0.87	0.71
200.0	0.63	0.63	0.71	0.71	0.71	0.79	0.79	0.71	0.79
210.0	0.71	0.71	0.71	0.71	0.71	0.79	0.79	0.87	0.79
220.0	0.63	0.79	0.71	0.79	0.79	0.71	0.71	0.87	0.79
230.0	0.63	0.71	0.71	0.71	0.71	0.79	0.79	0.79	0.71
240.0	0.63	0.71	0.79	0.79	0.79	0.79	0.71	0.79	0.71
250.0	0.71	0.71	0.71	0.71	0.79	0.71	0.79	0.79	0.79
260.0	0.71	0.71	0.79	0.71	0.55	0.87	0.71	0.71	0.79
270.0	0.71	0.79	0.87	0.71	0.71	0.71	0.71	0.79	0.71
280.0	0.71	0.71	0.71	0.71	0.71	0.79	0.79	0.71	0.79
290.0	0.63	0.71	0.71	0.71	0.71	0.71	0.71	0.87	0.87
300.0	0.71	0.71	0.71	0.79	0.79	0.71	0.79	0.79	0.79
310.0	0.71	0.55	0.71	0.71	0.71	0.71	0.79	0.79	0.71
320.0	0.71	0.71	0.87	0.63	0.71	0.71	0.79	0.79	0.79
330.0	0.63	0.71	0.63	0.71	0.71	0.87	0.71	0.79	0.79
340.0	0.63	0.71	0.71	0.63	0.79	0.79	0.71	0.87	0.71
350.0	0.71	0.79	0.71	0.71	0.87	0.71	0.79	0.79	0.79
360.0	0.71	0.71	0.79	0.71	0.79	0.63	0.87	0.79	0.79

Equipment: HW-1015  
Temperature(°C): 25.4

Date: 2014/8/22  
Humidity(%): 60.6%

Operator: Alex Sung  
Distance(m): 8.90

Intensity data(cd)

C/ $\gamma$ (°)	180.0
0.0	0.87
10.0	0.79
20.0	0.87
30.0	0.87
40.0	0.79
50.0	0.87
60.0	0.87
70.0	0.87
80.0	0.71
90.0	0.79
100.0	0.87
110.0	0.79
120.0	0.87
130.0	0.79
140.0	0.79
150.0	0.87
160.0	0.71
170.0	0.79
180.0	0.87
190.0	0.79
200.0	0.87
210.0	0.87
220.0	0.79
230.0	0.87
240.0	0.87
250.0	0.87
260.0	0.71
270.0	0.79
280.0	0.87
290.0	0.79
300.0	0.87
310.0	0.79
320.0	0.79
330.0	0.87
340.0	0.71
350.0	0.79
360.0	0.87



廣益全球驗證有限公司  
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**Great One Global Certification Co Ltd**  
9F-2, No.120, Qiaohe Rd., Zhonghe Dist.,  
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Email: sales@go-safety.com.tw

## 1. Luminaire Specification :

- (1) Input Voltage/Frequency : 220.00 Vac / 50 Hz
- (2) Input Watt : 23.22 W
- (3) Input Current : 0.115 A
- (4) Total Luminous Flux Output : 2137.45 lm
- (5) Luminaire Efficacy : 92.04 lm/W
- (6) Central Intensity (cd) : 728.890
- (7) Maximum Intensity(cd) : 729.049
- (8) PF : 0.920
- (9) Beam angle : (C0-C180) 113.8 (C90-C270) 114.2
- (10) Correlated Color Temperature (CCT) : 5920 K
- (11) Color Rendering Index (CRI) : 81.4

## 2. Description of EUT Setup :

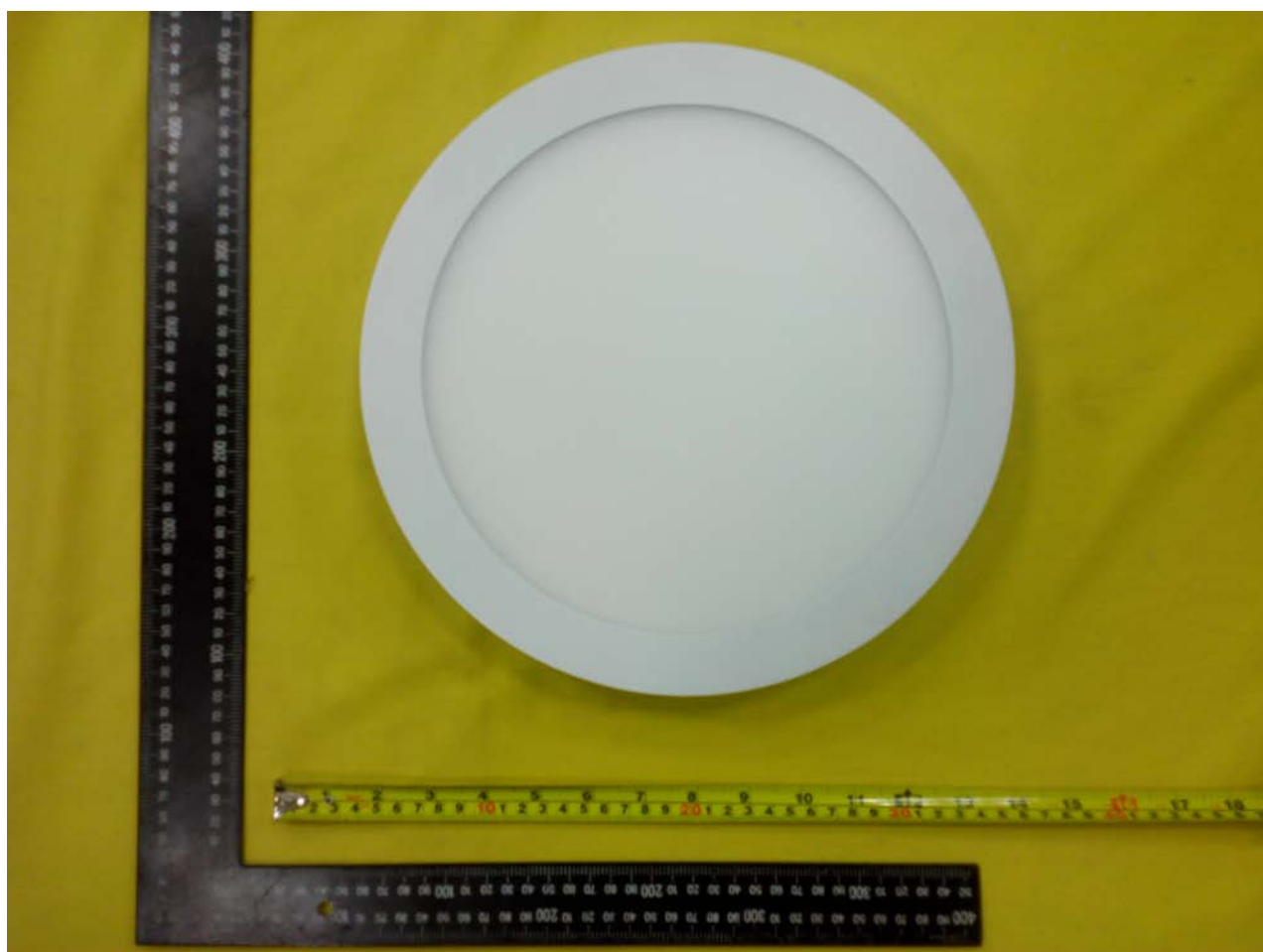
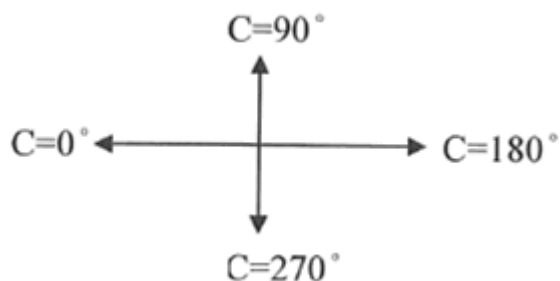
- (1) Operating Orientation : The light source is considered as horizontal
- (2) Light Source : LED
- (3) Stabilization time : 1 Hour
- (4) Environment Condition : Temperature:  $25 \pm 1$  °C , Humidity:  $60 \pm 20\%$



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### 3. Photograph of EUT :





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#### 4. Equipments List :

Equipment ID	Equipment Type	Cal. Date	Due Date	Range Used
L201	Integrating Sphere	N/A	N/A	
L202	Spetroradiometer	N/A	N/A	
L203	AC Power Source	N/A	N/A	
L204	Goniophotometer Photo Detector	N/A	N/A	
L218	Goniophotometer System	N/A	N/A	
L219	AC Power Source	N/A	N/A	AC 0~150VAC4.2A AC0~300VAC2.1A
L220	Power Meter	2013/8/25	2014/8/26	V : Auto (0~300Vac) A : Auto (0~20A)
L221	Luminous Intensity Lamp	2013/11/13	2014/11/12	
L222	Power Meter	2013/10/11	2014/10/10	V : Auto (0~300Vac) A : Auto (0~20A)
L244	Standard Light Source	2014/1/3	2015/1/2	