

IESNA LM-79: 2008

Measurement and Test Report

for

Green Creative Ltd.

Room 1206-7, New Victory House, 93-103 Wing Lok Street, Central, HONG KONG

July 07, 2016

Product Name:	PLV Lamp
Model No:	7PLSV/835/HYB/GX23
Test Engineer:	David Zhang 
Report No.:	BTR66.181.15.0047.29
Sample Received Date:	July 04, 2016
Test Performed Date:	July 04, 2016 to July 07, 2016
Reviewed By:	Steven Hsu 
Prepared By:	BEST Test Service Shenzhen Co., Ltd. 1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyao, Baoan, Shenzhen, China TEL: +86-755-28236006 FAX: +86-755-23467087-811 Email: certification@bestcert.cn



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1 - GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

Applicant	: Green Creative Ltd.
Product Name	: PLV Lamp
Model No	: 7PLSV/835/HYB/GX23
Brand	: GREEN CREATIVE
Nominal Operation Voltage	: AC120-277V 60Hz
Nominal Power	: 7W
Nominal CCT	: 3500K
Nominal CRI	: 80
Nominal Lumen Output	: 560 Lumens
Nominal Life Time	: 25000 Hours
Number of hours operated prior to measurement for new sample	: 0 Hours
Stabilization Time	: 1.0 hours
Total operating time for measurement include stabilization time	: 2.5 hours
Date of Receiving Sample	: July 04, 2016
Measurement quantities measured	: 1 pcs Base up
Orientation During Testing	: Electrical and Photometric Test Luminous Intensity Distribution Test

1.2 Objective

The following test report is prepared on behalf of Green Creative Ltd. in accordance with IESNA LM-79-08, used the following American National Standards or Illumination Engineering Society of North America test guides:

- ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products;
- ANSI C79.1- 2002: American National Standard for Electric Lamps – Nomenclature for Glass Bulbs Intended for Use with Electric Lamps;
- ANSI C78.20 – 2003: American National Standard for Electric Lamps – A, G, PS, and Similar Shapes with E26 Medium Screw Bases;
- ANSI C78.21 – 2011: American National Standard for Electric Lamps – PAR and R Shapes;
- ANSI C78.24 – 2001: American National Standard for Electric Lamps – Two-inch (51 mm); Integral-reflector Lamps with Front Covers and GU5.3 or GX 5.3 Bases;
- ANSI/IEC C81.61-2003: American National Standard for Electric Lamp Bases;
- ANSI/IEEE C62.41 – 1991 (01-May-1991): Surge Voltages in Low-Voltage AC Power Circuits, Recommended Practice for;
- CIE Publication No. 13.3 – 1995: Method of Measuring and Specifying Color Rendering of Light Sources;
- CIE Publication No. 18.2 – 1983: The Basis of Physical Photometry;
- IESNA LM-16-1993: Practical Guide to Colorimetry of Light Sources;
- IESNA LM-28-89 – 1989: Guide for the Selection, Care, and Use of Electrical Instruments in the Photometric Laboratory;
- IESNA LM-79-08 Electrical and Photometric Measurement of Solid State Lighting Products
- UL 1993 – 1999: Standard for Self-Ballasted Lamps and Lamp Adapters;
- UL 8750 – 2009: Light Emitting Diode (LED) Equipment for Use in Lighting Products.

1.3 Test Facility Description

The Energy Efficiency Lab used by BEST to collect energy efficiency measurement data is located in 1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyao, Baoan, Shenzhen, China. BEST Test Service Shenzhen Co., Ltd is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200770-0). BEST Test Service Shenzhen Co., Ltd is also an ELI accredited lab for lighting products (ELI Certificate No. ELI-L04-2010) and UL accredited lab for lighting products

1.4 Test Equipment List

Apparatus List	Device	Cal. Date	Cal Due Date
1	Integral Sphere+ Spectrophotometer System	Mar 10, 2016	Mar 09, 2017
2	Digital Power Meter	Oct 18, 2015	Oct 17, 2016
3	Goniophotometer+ Spectrophotometer System	Nov 20, 2015	Nov 19, 2016
4	Standard Light Source	Sep 17, 2015	Sep 16, 2016
5	Standard Light Source	Sep 17, 2015	Sep 16, 2016
6	Digital Storage Oscilloscope	Oct 18, 2015	Oct 17, 2016
7	Ultra Compact Simulator	Oct 20, 2015	Oct 19, 2016
8	Temperature Chamber	Oct 20, 2015	Oct 19, 2016
9	Digital Caliper	Nov 20, 2015	Nov 19, 2016
10	Digital CC&CV DC Power Supply(30V 5A)	N/A	N/A
11	5 1/2 Digital Multimeter	Oct 18, 2015	Oct 17, 2016
12	Digital CC&CV DC Power Supply(120V 10A)	N/A	N/A
13	6 1/2 Digital Multimeter	Oct 18, 2015	Oct 17, 2016
14	Digital Multimeter	Oct 18, 2015	Oct 17, 2016
15	Temperature Recorder+Thermocouple	Nov 20, 2015	Nov 19, 2016
16	Timer Controller	Nov 20, 2015	Nov 19, 2016

Statement of Traceability: BEST Test Service Shenzhen Co., Ltd. certifies that all calibration has been performed using suitable standards traceable to the NIM China.

2 - Test Method

2.1 Photometric and Electrical Measurement (Integrated Sphere Method)

Total light output (luminous flux) for the $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ambient temperature conditions is measured using a 1.6m 4Π geometry integrating sphere. Temperature is measured at a position inside the sphere. Spectral radiant flux measurements are made using Lab sphere to the detector port of the integrating sphere. Each lamp is operated at rated voltage in its designated orientation. Each lamp should be stable before measurements are made. The determining method of stable is as follows:

Step 1 Take 3 measurements of the lamp light output at 15 minute interval (total time=30mintues.)This time period is in addition to the recommended pre-burning time.

Step 2 Calculate the percent difference between the maximum measured value and the minimum measured value for the three consecutive measurements.

Step 3 if the value calculated in Step 2 does not exceed 0.5 percent, the lamp is considered stable. Luminous flux, chromaticity coordinates, correlated color temperature and color rendering index for each lamp are calculated from the spectral radiant flux measurements taken at 2 nm intervals over the range 350 to 1050 nm. The calibration of the sphere photometer-spectrometer system is traceable to the NIST USA. Lamp efficacy (lumens per watts) for each lamp model is computed based on the revised luminous flux result. Electrical measurements including voltage, current, power and power factor are measured using the digital power Meter.

The total uncertainty of the light output measurements is estimated, at the 95% confidence level, not to exceed $\pm 1.12\%$ over the wavelength range 350-1050 nm.

2.2 Photometric and Electrical Measurement (GonioPhotometer Method)

A Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample; the photometric distance is 24m. Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to be stable before measurement was made. Electrical measurements including voltage, current, power and power factor were measured using the Power Analyzer

Before each measurement, the method below should be used to determine the lamp is stable or not.

Step 1 Take 3 measurements of the lamp intensity at 15 minute interval (total time=30mintues.)This time period is in addition to the recommended pre-burning time.

Step 2 Calculate the percent difference between the maximum measured value and the minimum measured value for the three consecutive measurements.

Step 3 if the value calculated in Step 2 does not exceed 0.5 percent, the lamp is considered stable.

Some graphics were created with Photometric Plus software.

2.3 Deviation from standard operating procedure

None.

3 – Summary of Test Result

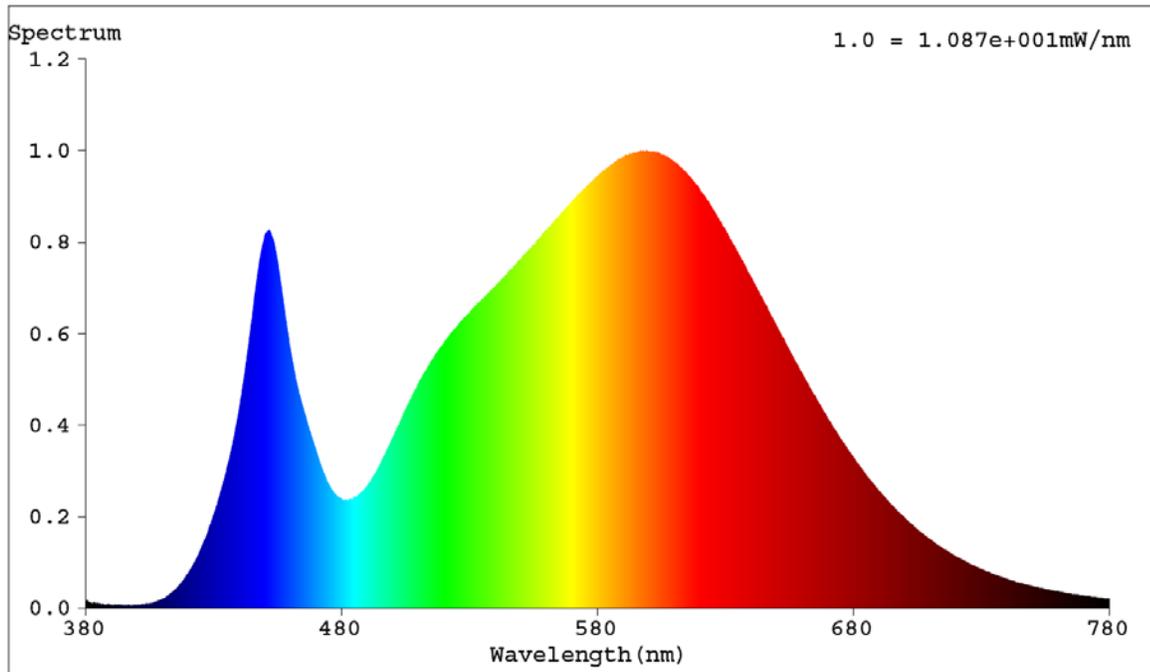
	Item	Test Result		Accreditation
Required Fields	Lumen Output (Lumens)	623.253		NVLAP/EPA
	Luminous Efficacy (lm/w)	89.54		NVLAP/EPA
	Correlated Color Temperature (CCT)	3542		NVLAP/EPA
	Color Rendering Index– CRI	83.3		NVLAP/EPA
	Input Power (W)	6.96		NVLAP/EPA
Optional Fields	Power Type	<input checked="" type="checkbox"/> AC	<input type="checkbox"/> DC	/
	Input Voltage (V)	120.0		NVLAP/EPA
	Input Current (A)	0.0591		NVLAP/EPA
	Power Factor	0.9820		NVLAP/EPA
	x(CIE 1931)	0.4013		NVLAP/EPA
	y(CIE 1931)	0.3849		NVLAP/EPA
	u' (CIE 1976)	0.2355		NVLAP/EPA
	v' (CIE 1976)	0.5082		NVLAP/EPA
	Duv(CIE 1976)	0.0017		NVLAP/EPA
	Beam Angle: (Degree)	107.5		NVLAP/EPA
	Center beam candlepower: (cd)	220		NVLAP/EPA
	Zonal lumen density (0-60°):	75.9%		NVLAP/EPA
	Zonal lumen density (60-90°):	22.9%		NVLAP/EPA
	Zonal lumen density (90-120°):	1.2%		NVLAP/EPA
Zonal lumen density (120-180°):	0.0%		NVLAP/EPA	

	CRI (R1)	82	NVLAP/EPA
	CRI (R2)	89	NVLAP/EPA
	CRI (R3)	94	NVLAP/EPA
	CRI (R4)	82	NVLAP/EPA
	CRI (R5)	82	NVLAP/EPA
	CRI (R6)	85	NVLAP/EPA
	CRI (R7)	86	NVLAP/EPA
	CRI (R8)	67	NVLAP/EPA
	CRI (R9)	18	NVLAP/EPA
	CRI (R10)	74	NVLAP/EPA
	CRI (R11)	80	NVLAP/EPA
	CRI (R12)	65	NVLAP/EPA
	CRI (R13)	83	NVLAP/EPA
	CRI (R14)	96	NVLAP/EPA

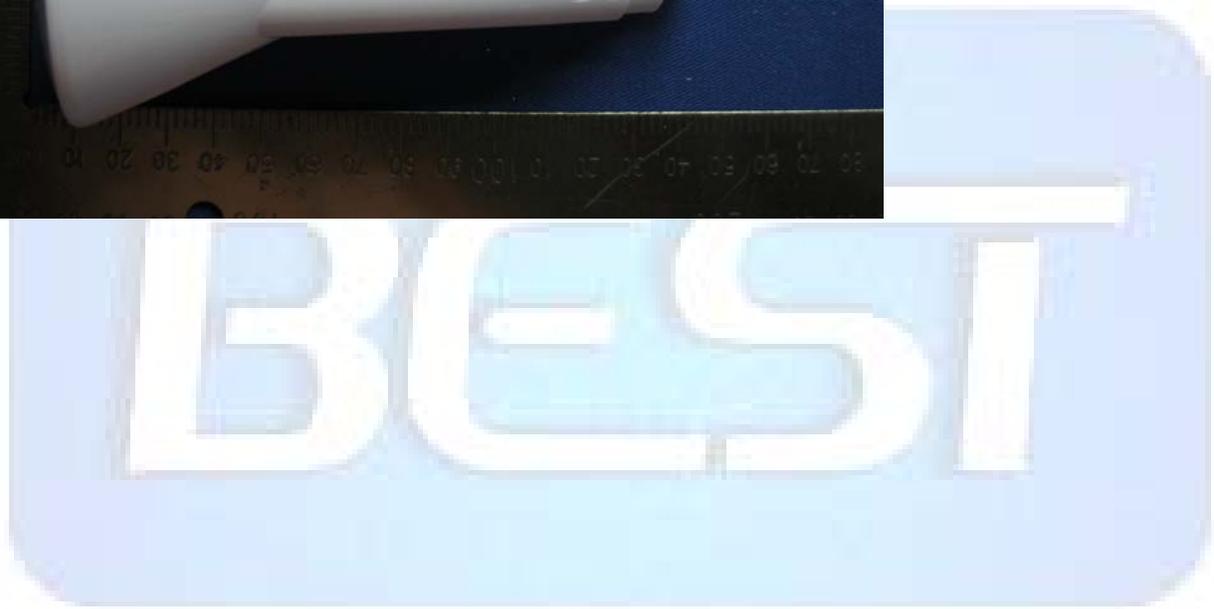
Lumen summary:

[OTHER]	Gamma(deg)	Fz(lm)	Ft(lm)	%Lum	%Lamp
[OTHER]	0- 10	20.75	20.75	3.33	3.33
[OTHER]	10- 20	59.02	79.77	12.80	12.80
[OTHER]	20- 30	88.25	168.02	26.96	26.96
[OTHER]	30- 40	104.39	272.41	43.71	43.71
[OTHER]	40- 50	106.15	378.57	60.74	60.74
[OTHER]	50- 60	94.65	473.22	75.93	75.93
[OTHER]	60- 70	73.29	546.51	87.69	87.69
[OTHER]	70- 80	47.03	593.54	95.23	95.23
[OTHER]	80- 90	22.36	615.91	98.82	98.82
[OTHER]	90-100	6.48	622.39	99.86	99.86
[OTHER]	100-110	0.84	623.23	100.00	100.00
[OTHER]	110-120	0.02	623.25	100.00	100.00
[OTHER]	120-130	0.00	623.25	100.00	100.00
[OTHER]	130-140	0.00	623.25	100.00	100.00
[OTHER]	140-150	0.00	623.25	100.00	100.00
[OTHER]	150-160	0.00	623.25	100.00	100.00
[OTHER]	160-170	0.00	623.25	100.00	100.00
[OTHER]	170-180	0.00	623.25	100.00	100.00

4 – Spectral Flux Plots



5 – EUT Photos



6 – Luminous Intensity Distribution Test Plots (CIE Chromaticity)

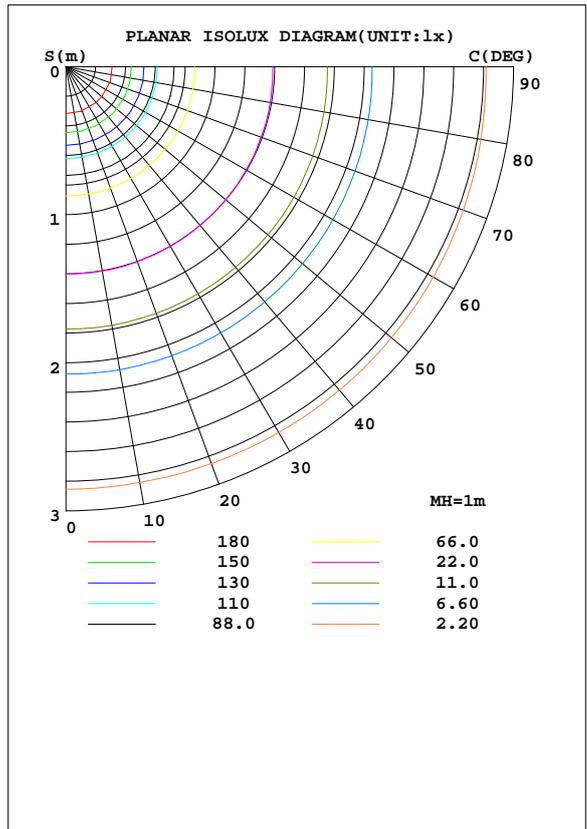
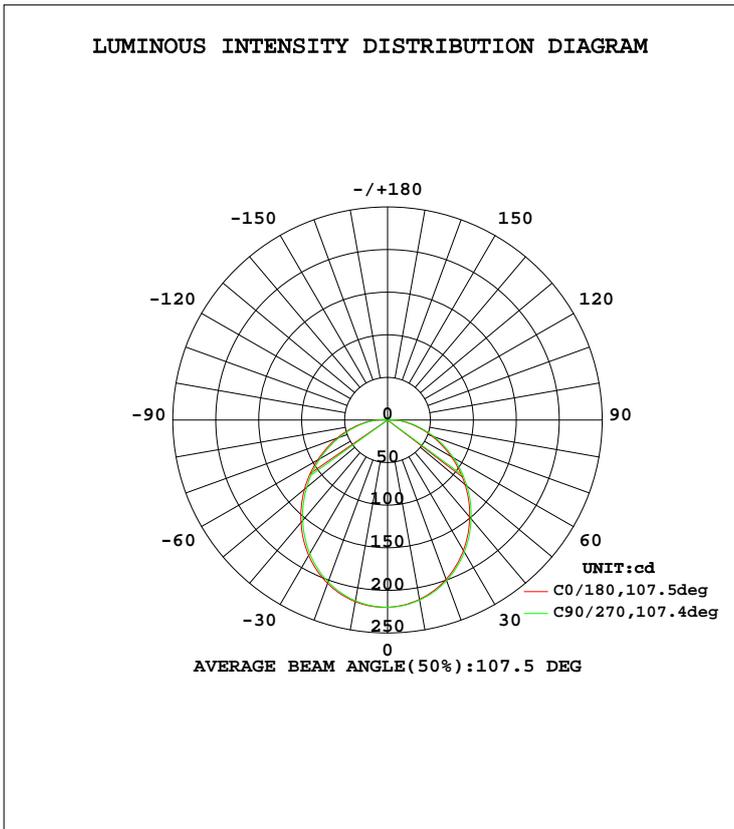
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LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 89.54 lm/W			
MODEL	7PLSV/835/HYB/GX23	I _{max} (cd)	219.9	S/MH(C0/180)	1.20
NOMINAL POWER(W)	7	LOR(%)	100.0	S/MH(C90/270)	1.22
RATED VOLTAGE(V)	120.0	TOTAL FLUX(lm)	623.25	η UP, DN(C0-180)	0.6, 49.9
NOMINAL FLUX(lm)	623.253	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.5, 48.9
LAMPS INSIDE	1	η up(%)	1.2	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120.0	η down(%)	98.8	CIBSE SHR MAX	1.35



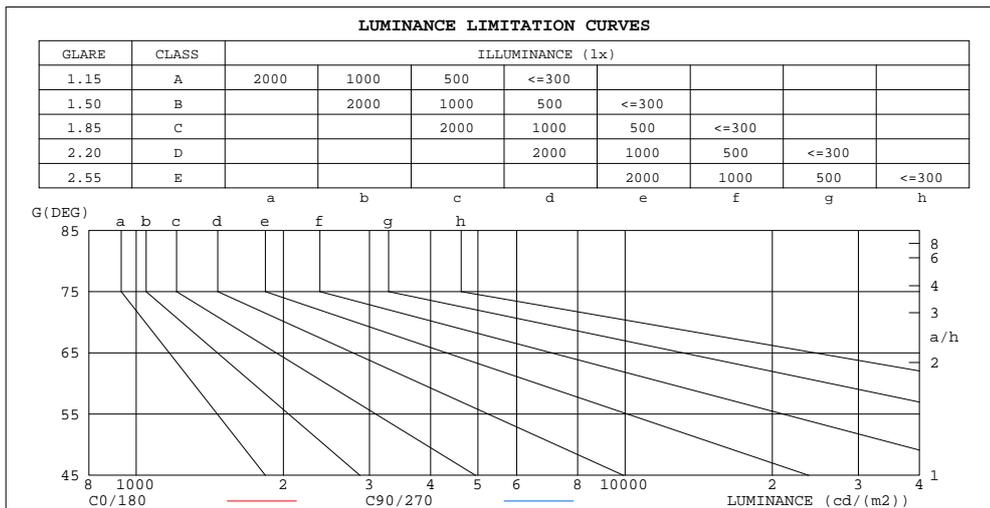
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

**ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES**

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	#lum,lamp
10	216.5	216.4	215.5	214.3	213.8	213.8	214.5	215.9	0- 10	20.75	20.75	3.33,3.33
20	204.2	204.0	202.3	200.1	199.1	199.1	200.6	202.9	10- 20	59.02	79.77	12.8,12.8
30	183.7	183.5	180.9	178.1	176.7	176.8	178.8	182.1	20- 30	88.25	168.0	27,27
40	156.9	156.5	153.7	150.2	148.7	148.9	151.3	155.1	30- 40	104.4	272.4	43.7,43.7
50	126.3	125.9	122.9	119.2	117.8	117.9	120.8	124.8	40- 50	106.2	378.6	60.7,60.7
60	94.13	93.77	90.87	87.12	85.54	85.72	88.55	92.53	50- 60	94.65	473.2	75.9,75.9
70	62.72	62.54	59.87	56.41	54.74	54.88	57.52	61.17	60- 70	73.29	546.5	87.7,87.7
80	34.65	34.45	32.26	29.36	27.90	28.07	30.19	33.11	70- 80	47.03	593.5	95.2,95.2
90	13.40	13.35	12.17	10.46	9.415	9.427	10.65	12.57	80- 90	22.36	615.9	98.8,98.8
100	2.673	2.757	2.419	1.846	1.506	1.438	1.801	2.354	90-100	6.484	622.4	99.9,99.9
110	0.1529	0.2184	0.2086	0.1170	0.0550	0.0733	0.0940	0.1250	100-110	0.8416	623.2	100,100
120	0	0	0	0	0	0.0047	0	0	110-120	0.0222	623.3	100,100
130	0	0	0	0	0	0	0	0	120-130	0.0000	623.3	100,100
140	0	0	0	0	0	0	0	0	130-140	0	623.3	100,100
150	0	0	0	0	0	0	0	0	140-150	0	623.3	100,100
160	0	0	0	0	0	0	0	0	150-160	0	623.3	100,100
170	0	0	0	0	0	0	0	0	160-170	0	623.3	100,100
180	0	0	0	0	0	0	0	0	170-180	0	623.3	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	130752	120268
80	99785	92895
75	93057	87746
70	91686	87529
65	92597	88796
60	94134	90867
55	96079	93180
50	98227	95609
45	100322	98034

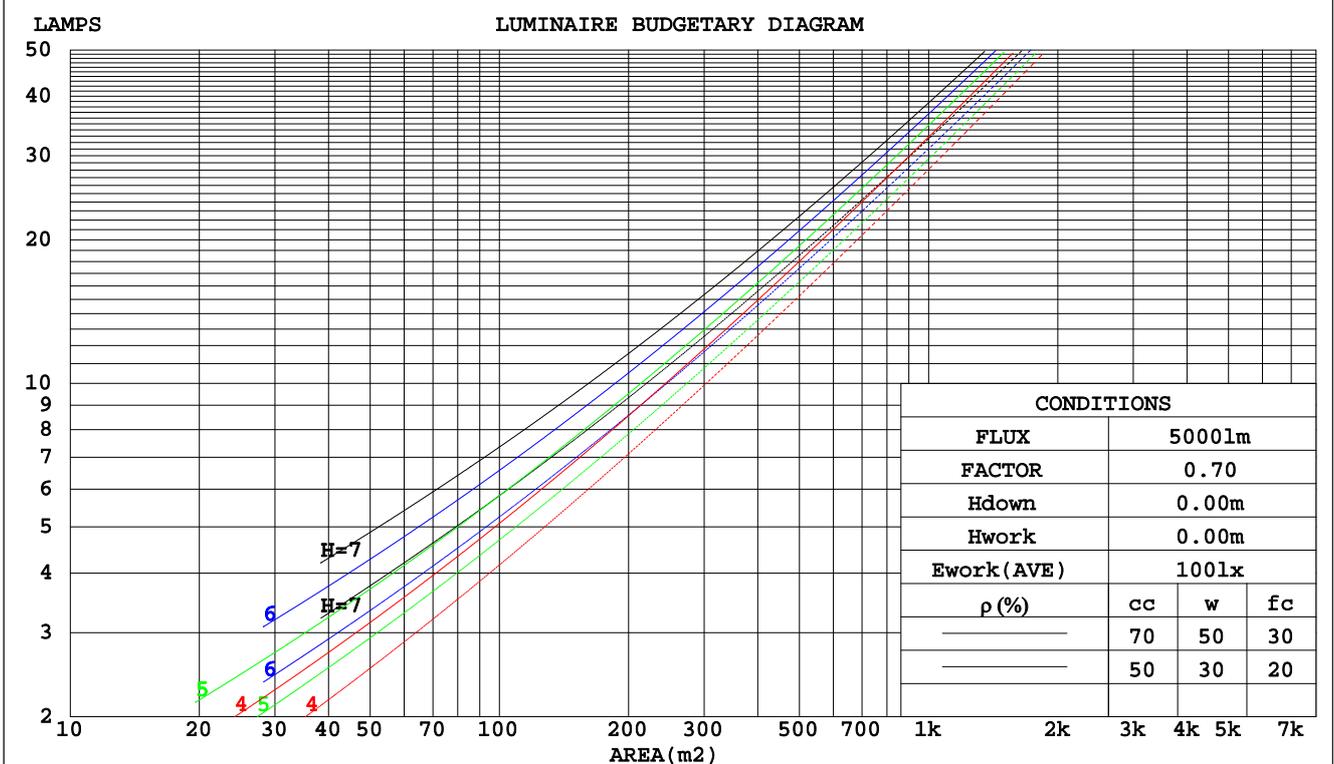
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio Coefficients of Utilization(CU)															
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.10	1.10	1.10	1.06	1.06	1.06	1.01	1.01	1.01	.99
1.0	1.03	.98	.94	1.00	.96	.92	.96	.92	.89	.92	.89	.86	.88	.86	.83	.81
2.0	.89	.82	.76	.87	.81	.75	.83	.78	.73	.80	.75	.71	.77	.73	.70	.67
3.0	.78	.70	.63	.77	.69	.63	.73	.67	.61	.71	.65	.60	.68	.63	.59	.57
4.0	.69	.60	.54	.68	.60	.53	.65	.58	.52	.63	.57	.51	.60	.55	.51	.48
5.0	.62	.53	.46	.61	.52	.46	.59	.51	.45	.56	.50	.45	.54	.49	.44	.42
6.0	.56	.47	.40	.55	.46	.40	.53	.45	.40	.51	.44	.39	.49	.43	.39	.37
7.0	.51	.42	.36	.50	.41	.35	.48	.41	.35	.47	.40	.35	.45	.39	.34	.32
8.0	.46	.38	.32	.46	.37	.32	.44	.37	.31	.43	.36	.31	.41	.35	.31	.29
9.0	.42	.34	.29	.42	.34	.29	.41	.33	.28	.39	.33	.28	.38	.32	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.36	.30	.25	.24



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.6DEG
 Operators: David
 Test Date: 2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity: 67.1%
 Test Distance: 2.471m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.328	.187	.059	.321	.183	.058	.307	.176	.056	.294	.169	.054	.282	.163	.053	
2.0	.301	.165	.051	.294	.162	.050	.282	.157	.049	.270	.152	.047	.260	.147	.046	
3.0	.275	.146	.044	.269	.144	.043	.258	.140	.043	.248	.136	.042	.238	.132	.041	
4.0	.252	.131	.039	.247	.129	.038	.237	.126	.038	.228	.122	.037	.220	.119	.036	
5.0	.232	.118	.034	.227	.117	.034	.219	.114	.034	.211	.111	.033	.203	.109	.033	
6.0	.215	.108	.031	.211	.106	.031	.203	.104	.030	.196	.102	.030	.189	.099	.030	
7.0	.199	.099	.028	.196	.098	.028	.189	.095	.027	.182	.093	.027	.176	.092	.027	
8.0	.186	.091	.026	.183	.090	.025	.177	.088	.025	.171	.086	.025	.165	.085	.025	
9.0	.174	.084	.024	.171	.083	.023	.166	.082	.023	.160	.080	.023	.155	.079	.023	
10.0	.164	.078	.022	.161	.078	.022	.156	.076	.022	.151	.075	.021	.147	.074	.021	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.199	.199	.199	.170	.170	.170	.116	.116	.116	.067	.067	.067	.021	.021	.021	
1.0	.191	.165	.142	.163	.142	.122	.112	.097	.085	.064	.056	.049	.021	.018	.016	
2.0	.183	.141	.106	.156	.121	.092	.107	.084	.064	.062	.049	.037	.020	.016	.012	
3.0	.175	.123	.083	.150	.107	.072	.103	.074	.050	.059	.043	.030	.019	.014	.010	
4.0	.167	.110	.067	.143	.095	.058	.098	.066	.041	.057	.039	.024	.018	.013	.008	
5.0	.159	.100	.056	.137	.086	.049	.094	.060	.034	.055	.035	.020	.018	.012	.007	
6.0	.152	.092	.048	.131	.079	.042	.090	.055	.030	.052	.033	.018	.017	.011	.006	
7.0	.145	.085	.042	.125	.073	.037	.086	.051	.026	.050	.030	.016	.016	.010	.005	
8.0	.138	.079	.038	.119	.068	.033	.082	.048	.023	.048	.028	.014	.016	.009	.005	
9.0	.132	.074	.035	.114	.064	.030	.079	.045	.021	.046	.027	.013	.015	.009	.004	
10.0	.127	.070	.032	.109	.060	.028	.076	.043	.020	.044	.025	.012	.014	.008	.004	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm										
NAME:					TYPE:7PLSV/835/HYB/GX23			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: Green Creative Ltd					SUR.:			PROTECTION ANGLE:		
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	28.7	30.2	29.0	30.4	30.6	28.5	30.1	28.8	30.3	30.5
3H	30.3	31.7	30.7	32.0	32.3	30.2	31.6	30.5	31.8	32.1
4H	31.1	32.4	31.4	32.7	33.0	30.9	32.2	31.2	32.5	32.8
6H	31.8	33.1	32.2	33.4	33.7	31.6	32.8	31.9	33.1	33.4
8H	32.1	33.3	32.5	33.7	34.0	31.9	33.1	32.2	33.4	33.7
12H	32.4	33.6	32.8	33.9	34.3	32.1	33.3	32.5	33.6	34.0
4H 2H	29.3	30.6	29.6	30.9	31.2	29.2	30.5	29.5	30.8	31.1
3H	31.2	32.4	31.5	32.7	33.0	31.0	32.2	31.4	32.5	32.9
4H	32.1	33.2	32.5	33.5	33.9	31.9	33.0	32.3	33.3	33.7
6H	33.0	33.9	33.4	34.3	34.7	32.7	33.7	33.2	34.1	34.5
8H	33.4	34.3	33.8	34.7	35.1	33.1	34.0	33.6	34.4	34.8
12H	33.8	34.6	34.2	35.0	35.5	33.5	34.3	34.0	34.7	35.2
8H 4H	32.5	33.3	32.9	33.7	34.1	32.3	33.2	32.7	33.6	34.0
6H	33.5	34.3	34.0	34.7	35.2	33.3	34.1	33.8	34.5	35.0
8H	34.1	34.8	34.6	35.2	35.7	33.9	34.5	34.3	35.0	35.5
12H	34.7	35.2	35.2	35.7	36.2	34.4	35.0	34.9	35.5	36.0
12H 4H	32.5	33.3	32.9	33.7	34.2	32.3	33.2	32.8	33.6	34.0
6H	33.7	34.3	34.1	34.8	35.2	33.5	34.1	33.9	34.6	35.1
8H	34.3	34.9	34.8	35.3	35.8	34.1	34.6	34.6	35.1	35.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117 Corrected 623.3 lm Total Lamp Luminous Flux.(8log(F/F0) = -1.6)

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:

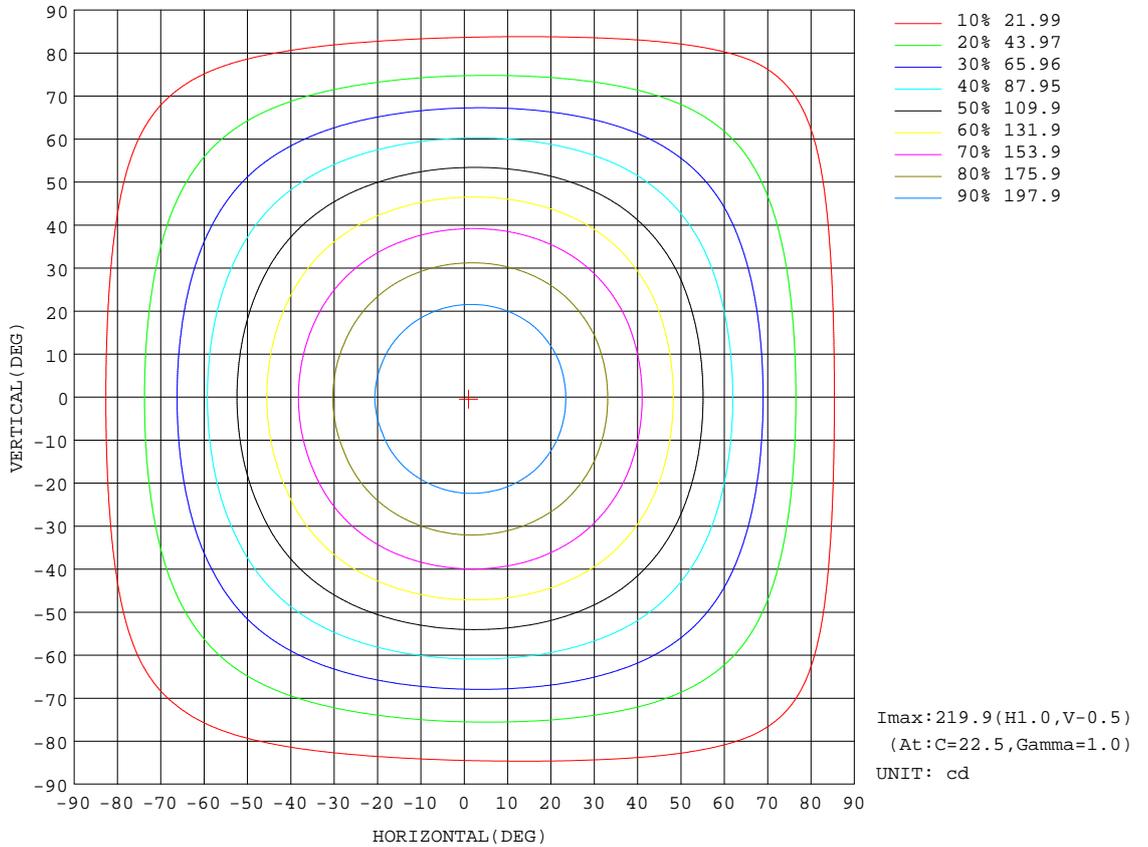
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	57	45	38	56	45	38	55	45	38	32
0.80	67	55	48	66	55	48	64	54	47	40
1.00	75	64	56	74	63	56	71	65	55	48
1.25	82	71	64	80	70	63	78	69	63	55
1.50	87	77	69	85	76	69	82	74	68	60
2.00	94	85	78	92	84	77	88	81	76	68
2.50	98	89	83	95	88	82	92	85	80	72
3.00	101	94	88	99	92	87	95	89	84	76
4.00	105	99	94	103	97	92	98	94	90	80
5.00	108	102	98	105	100	96	100	96	93	84
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:

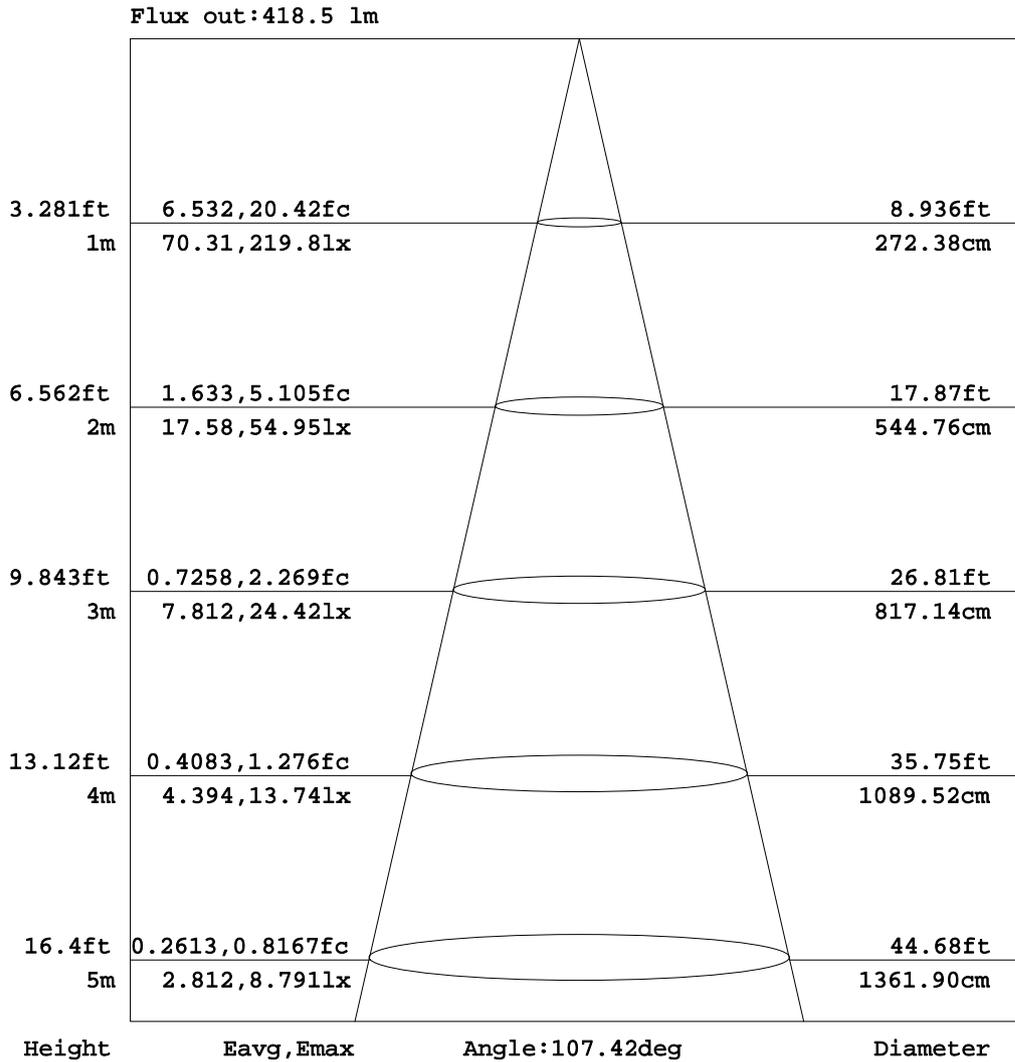


C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.6DEG
 Operators: David
 Test Date: 2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity: 67.1%
 Test Distance: 2.471m [K=1.0000]
 Remarks:

AAI Figure

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:



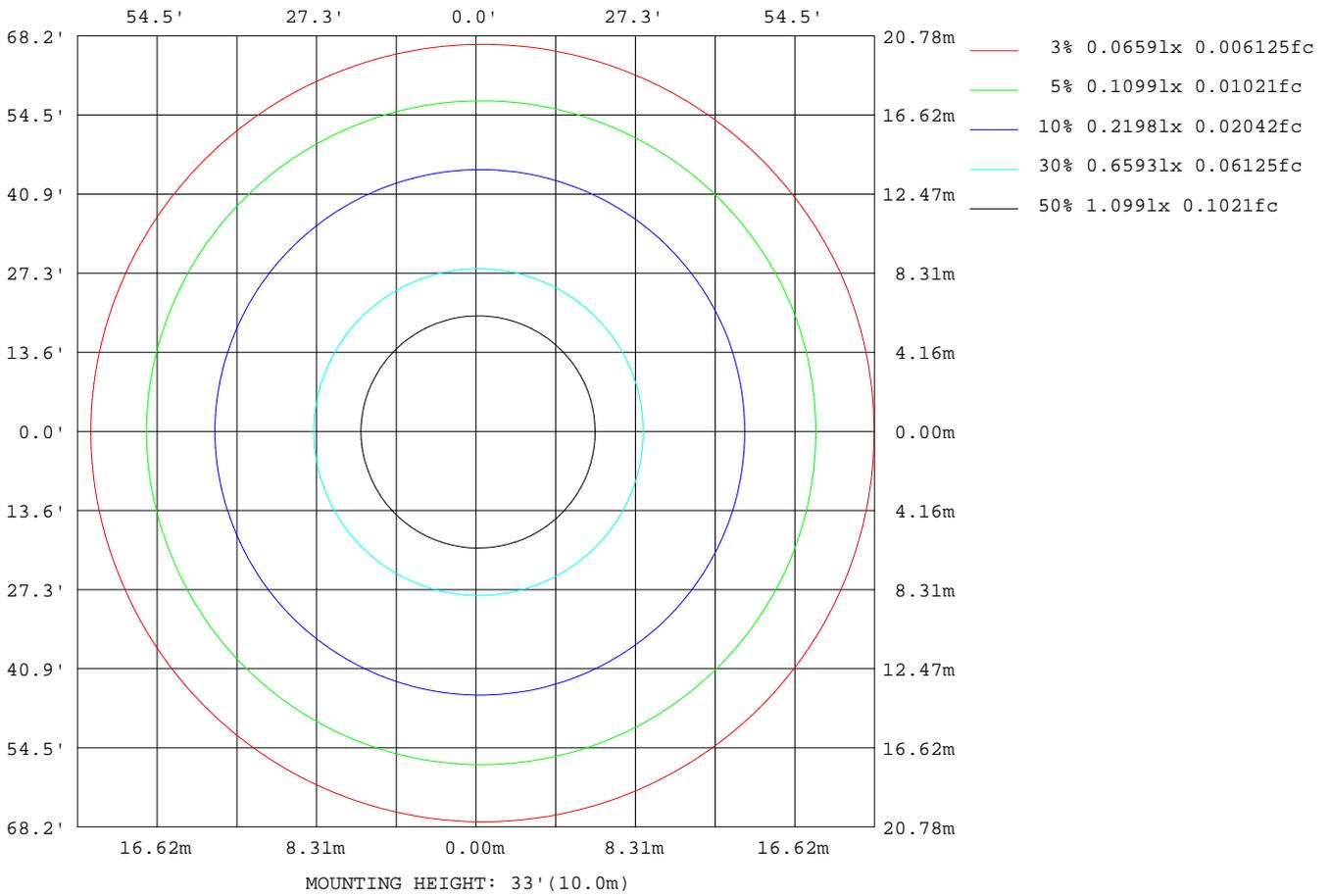
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

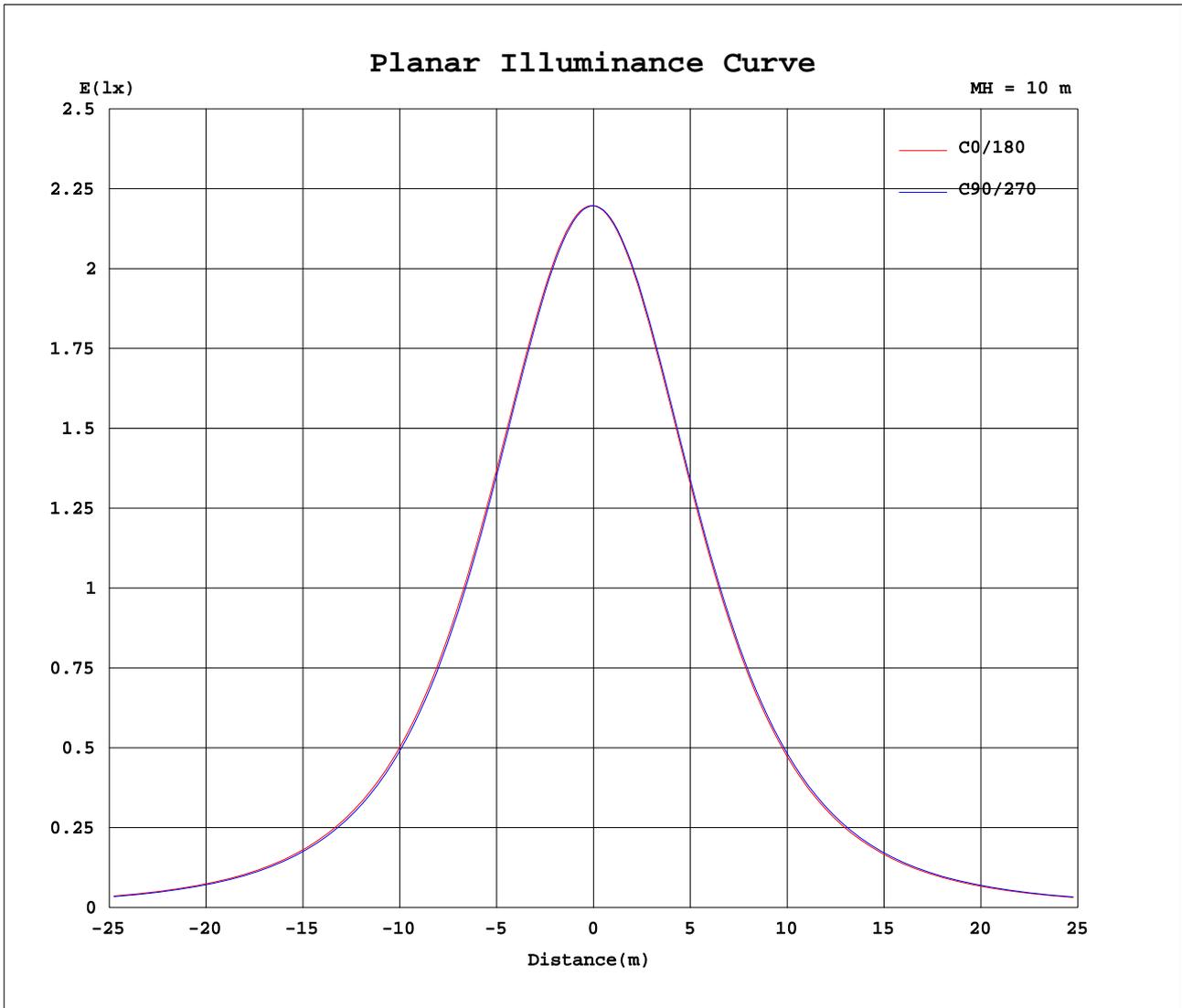
Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2016-07-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:2.471m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.0591A P:6.961W PF:0.9820 Lamp Flux:623.253x1 lm		
NAME:	TYPE:7PLSV/835/HYB/GX23	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Green Creative Ltd	SUR.:	PROTECTION ANGLE:

Table--1

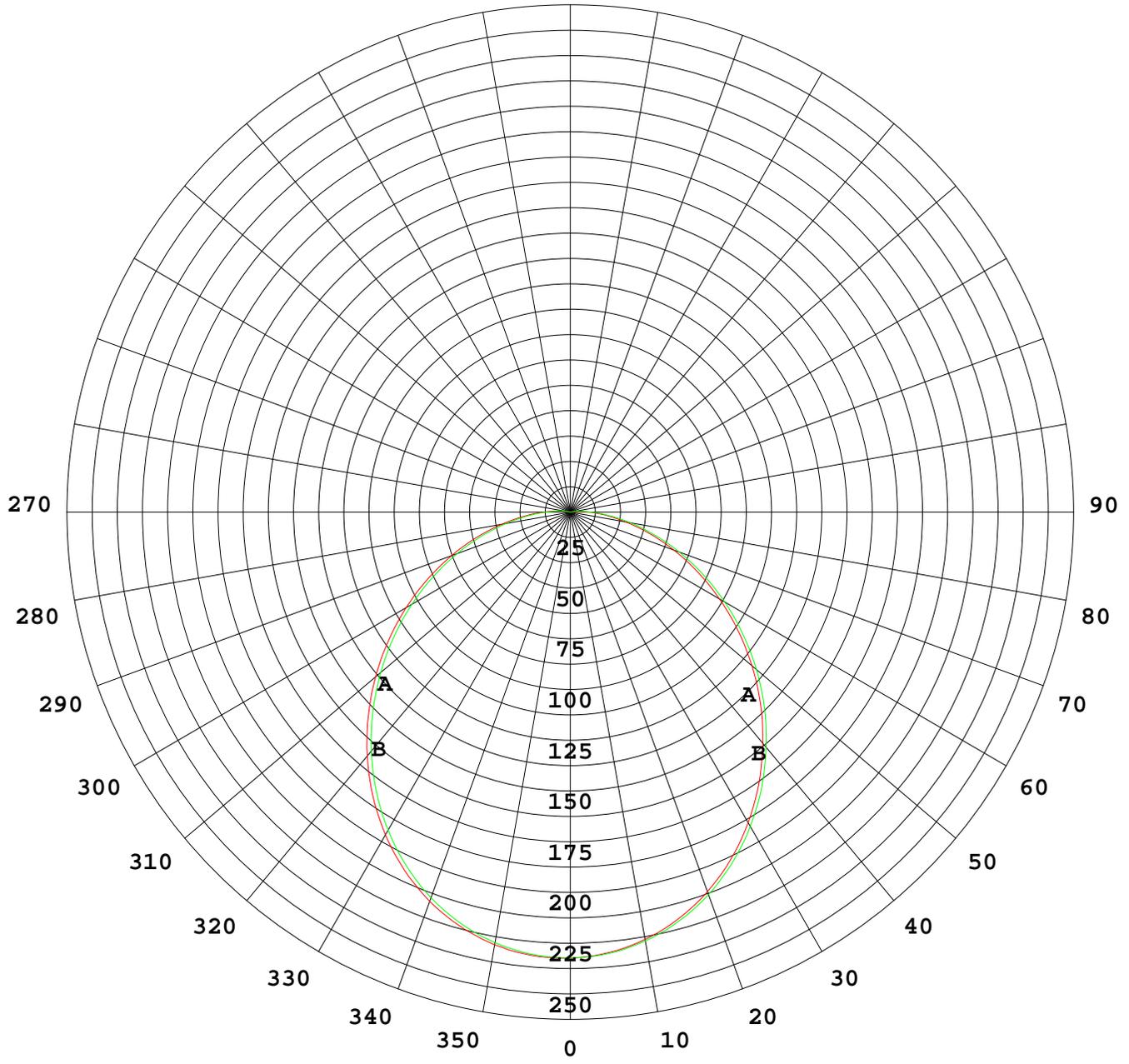
UNIT: cd

C(DEG) γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338			
0	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220			
5	219	219	219	219	219	218	218	218	218	218	218	218	218	219	219	219			
10	217	217	216	216	215	215	214	214	214	214	214	214	215	215	216	216			
15	211	212	211	211	210	209	208	207	207	207	208	208	209	210	210	211			
20	204	204	204	203	202	201	200	199	199	199	199	200	201	202	203	204			
25	195	195	195	194	193	191	190	189	189	188	189	189	191	192	193	194			
30	184	184	183	182	181	179	178	177	177	176	177	178	179	180	182	183			
35	171	171	171	169	168	166	165	163	163	163	163	164	166	167	169	171			
40	157	157	156	155	154	152	150	149	149	148	149	150	151	153	155	157			
45	142	142	142	140	139	137	135	133	134	133	134	135	136	138	140	142			
50	126	126	126	125	123	121	119	118	118	117	118	119	121	123	125	126			
55	110	110	110	109	107	105	103	102	102	101	102	103	105	107	109	110			
60	94.1	94.3	93.8	92.5	90.9	89.0	87.1	85.4	85.5	85.2	85.7	86.9	88.5	90.5	92.5	94.1			
65	78.3	78.4	77.9	76.7	75.1	73.2	71.4	69.8	69.8	69.5	70.0	71.1	72.8	74.6	76.6	78.2			
70	62.7	62.6	62.5	61.4	59.9	58.0	56.4	54.9	54.7	54.5	54.9	56.0	57.5	59.4	61.2	62.7			
75	48.2	48.4	47.9	46.9	45.4	43.7	42.1	40.7	40.6	40.4	40.8	41.7	43.1	44.8	46.5	47.9			
80	34.7	34.9	34.4	33.6	32.3	30.8	29.4	28.1	27.9	27.7	28.1	29.0	30.2	31.7	33.1	34.4			
85	22.8	23.0	22.7	22.0	21.0	19.8	18.6	17.6	17.4	17.2	17.5	18.2	19.2	20.4	21.5	22.6			
90	13.4	13.6	13.4	12.9	12.2	11.3	10.5	9.69	9.41	9.27	9.43	9.92	10.7	11.5	12.6	13.3			
95	6.71	6.84	6.76	6.58	6.09	5.58	4.90	4.42	4.28	4.16	4.21	4.52	4.98	5.53	6.09	6.57			
100	2.67	2.76	2.76	2.64	2.42	2.14	1.85	1.58	1.51	1.41	1.44	1.58	1.80	2.07	2.35	2.62			
105	0.80	0.86	0.88	0.86	0.78	0.67	0.55	0.44	0.40	0.37	0.38	0.42	0.49	0.59	0.68	0.77			
110	0.15	0.19	0.22	0.23	0.21	0.16	0.12	0.08	0.06	0.07	0.07	0.07	0.09	0.11	0.12	0.14			
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00			
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
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 Operators:David
 Test Date:2016-07-06

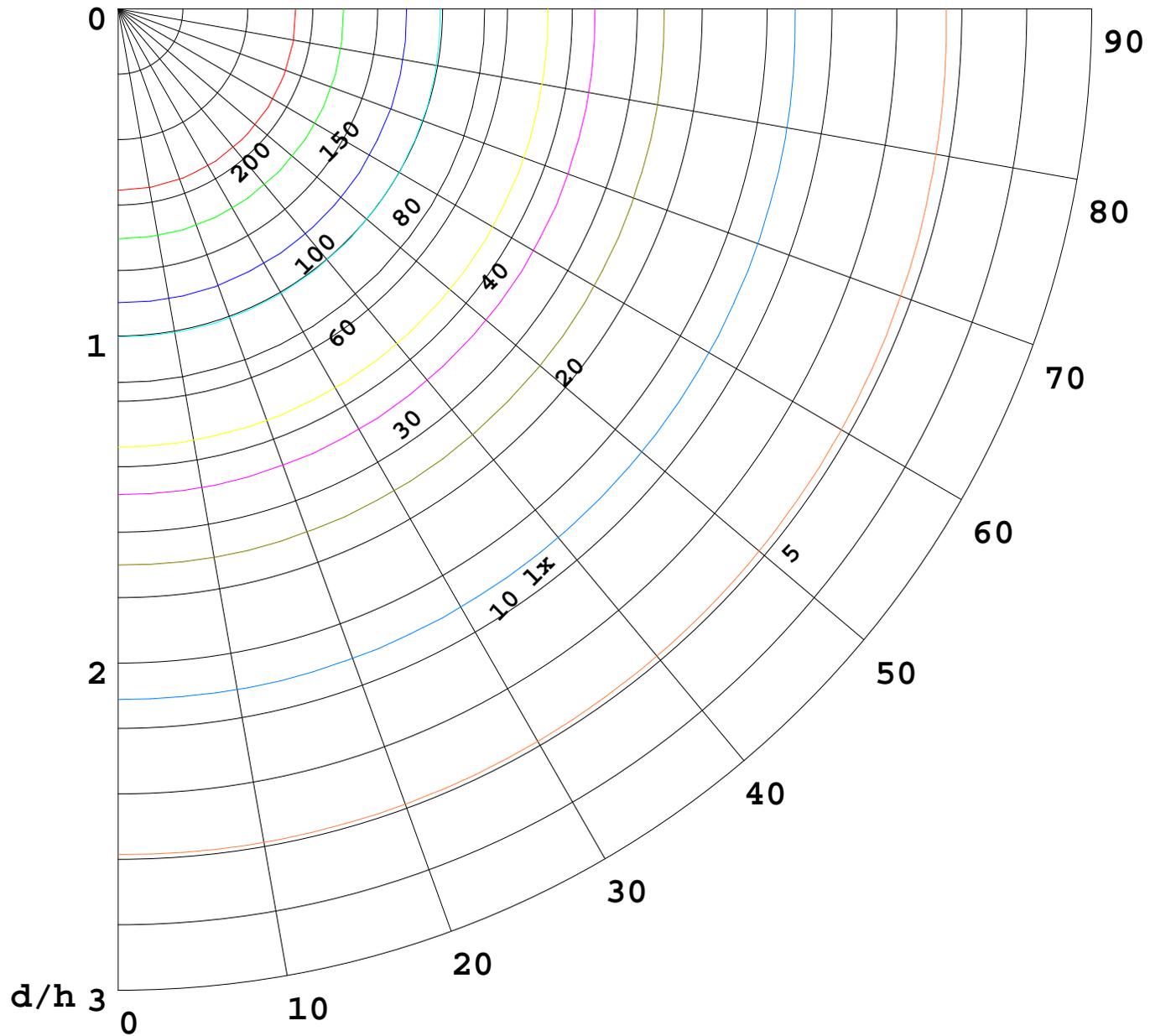
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.471m [K=1.0000]
 Remarks:

I(cd)



1000 lm

$K = 1$



F = 5000 lm
K = 0.7
Hcc = 0.0 m
Hfc = 0.0 m
Eave = 100 lx

	Pcc	Pw	Pfc
—————	70	50	30
—————	50	30	20

