

# 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

Mar 15, 2017

<b>Product Name:</b>	Downlight Solid State Retrofit kits
<b>Model No:</b>	11DL6DIM/8CCTD
<b>Test Engineer:</b>	David Zhang 
<b>Report No.:</b>	BTR66.181.16.0025.36-1
<b>Sample Received Date:</b>	Jan 09, 2017
<b>Test Performed Date:</b>	Jan 09, 2017 to Jan 16, 2017
<b>Reviewed By:</b>	Steven Huo 
<b>Prepared By:</b>	<b>BEST Test Service Shenzhen Co., Ltd.</b> 1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyan, Baoan, Shenzhen, China TEL: +86-755-28236006 FAX: +86-755-23467087-811 Email: <a href="mailto:certification@bestcert.cn">certification@bestcert.cn</a>



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## 1 - GENERAL INFORMATION

### 1.1 Product Description for Equipment under Test (EUT)

Applicant	: Green Creative Ltd.
Product Name	: Downlight Solid State Retrofit kits
Model No	: 11DL6DIM/8CCTD
Brand	: GREEN CREATIVE
Nominal Operation Voltage	: AC 120V/60Hz
Nominal Power	: 11 W
Nominal CCT	: 2700K
Nominal CRI	: 80
Nominal Lumen Output	: 700 Lumens
Nominal Life Time	: 40000 Hours
Number of hours operated prior to measurement for new sample	: 0 Hours
Stabilization Time	: 1.5 hours
Total operating time for measurement include stabilization time	: 3.5 hours
Date of Receiving Sample	: Jan 09, 2017
Measurement quantities measured	: 1 pcs
Orientation During Testing	: Base up
Test Requested	: 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, Shiyuan, 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	Sept 26, 2016	Sept 25, 2017
2	Digital Power Meter	Sept 18, 2016	Sept 17, 2017
3	Goniophotometer+ Spectrophotometer System	Sept 26, 2016	Sept 25, 2017
4	Standard Light Source	N/A	N/A
5	Standard Light Source	N/A	N/A
6	Digital Storage Oscilloscope	Sept 18, 2016	Sept 17, 2017
7	Ultra Compact Simulator	Sept 18, 2016	Sept 17, 2017
8	Temperature Chamber	Sept 22, 2016	Sept 21, 2017
9	Digital Caliper	Sept 18, 2016	Sept 17, 2017
10	Digital CC&CV DC Power Supply(30V 5A)	N/A	N/A
11	5 1/2 Digital Multimeter	Sept 18, 2016	Sept 17, 2017
12	Digital CC&CV DC Power Supply(120V 10A)	N/A	N/A
13	6 1/2 Digital Multimeter	Sept 18, 2016	Sept 17, 2017
14	Digital Multimeter	Sept 18, 2016	Sept 17, 2017
15	Temperature Recorder+Thermocouple	Sept 24, 2016	Sept 23, 2017
16	Timer Controller	Sept 24, 2016	Sept 23, 2017

**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

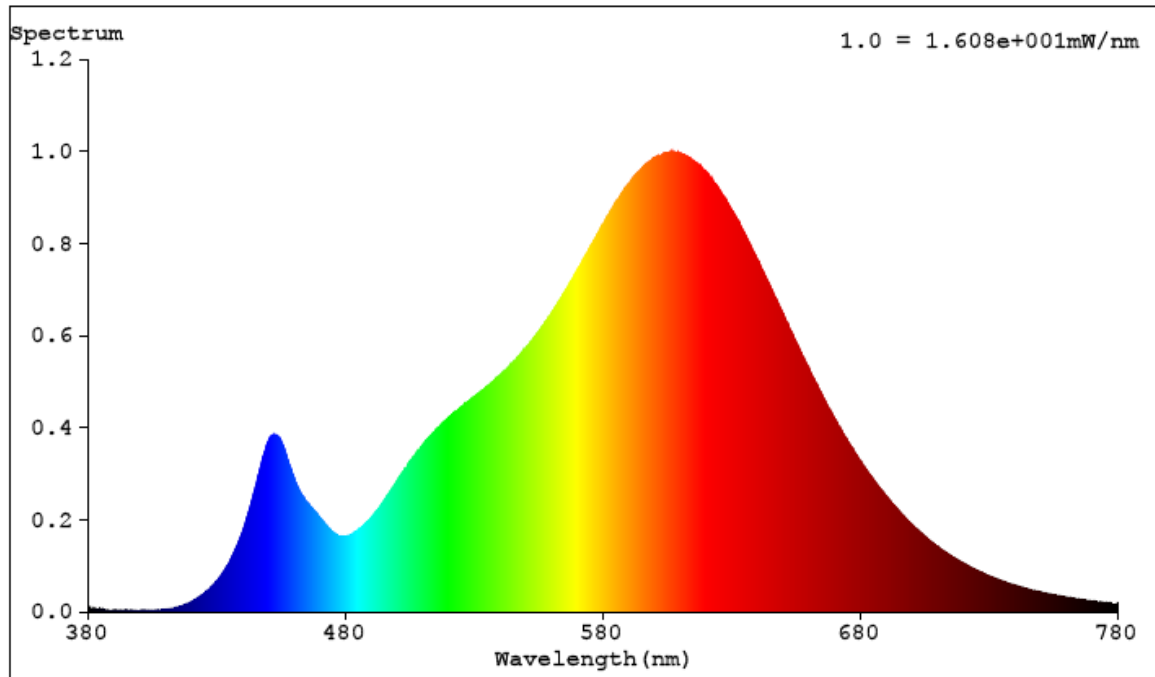
	Item	Test Result		Accreditation
Required Fields	Lumen Output (Lumens)	788.695		NVLAP/EPA
	Luminous Efficacy (lm/w)	75.82		NVLAP/EPA
	Correlated Color Temperature (CCT)	2788		NVLAP/EPA
	Color Rendering Index– CRI	83.3		NVLAP/EPA
	Input Power (W)	10.40		NVLAP/EPA
Optional Fields	Power Type	<input checked="" type="checkbox"/> AC	<input type="checkbox"/> DC	/
	Input Voltage (V)	120.0		NVLAP/EPA
	Input Current (A)	0.0909		NVLAP/EPA
	Power Factor	0.9524		NVLAP/EPA
	x(CIE 1931)	0.4544		NVLAP/EPA
	y(CIE 1931)	0.4118		NVLAP/EPA
	u' (CIE 1976)	0.2584		NVLAP/EPA
	v' (CIE 1976)	0.5270		NVLAP/EPA
	Duv(CIE 1976)	0.0010		NVLAP/EPA
	Beam Angle: (Degree)	108.9		NVLAP/EPA
	Center beam candlepower: (cd)	300.5		NVLAP/EPA
	Zonal lumen density (0-60°):	83.4%		NVLAP/EPA
	Zonal lumen density (60-90°):	16.6%		NVLAP/EPA
	Zonal lumen density (90-120°):	0		NVLAP/EPA
Zonal lumen density (120-180°):	0		NVLAP/EPA	

	CRI (R1)	82	NVLAP/EPA
	CRI (R2)	91	NVLAP/EPA
	CRI (R3)	97	NVLAP/EPA
	CRI (R4)	81	NVLAP/EPA
	CRI (R5)	82	NVLAP/EPA
	CRI (R6)	90	NVLAP/EPA
	CRI (R7)	84	NVLAP/EPA
	CRI (R8)	60	NVLAP/EPA
	CRI (R9)	12	NVLAP/EPA
	CRI (R10)	80	NVLAP/EPA
	CRI (R11)	81	NVLAP/EPA
	CRI (R12)	73	NVLAP/EPA
	CRI (R13)	84	NVLAP/EPA
	CRI (R14)	99	NVLAP/EPA

### Lumen summary:

[OTHER]	Gamma(deg)	Fz(lm)	Ft(lm)	%Lum	%Lamp
[OTHER]	0- 10	28.40	28.40	3.60	3.60
[OTHER]	10- 20	80.99	109.38	13.87	13.87
[OTHER]	20- 30	121.72	231.11	29.30	29.30
[OTHER]	30- 40	145.49	376.60	47.75	47.75
[OTHER]	40- 50	149.61	526.21	66.72	66.72
[OTHER]	50- 60	131.60	657.81	83.40	83.40
[OTHER]	60- 70	92.47	750.28	95.13	95.13
[OTHER]	70- 80	35.02	785.29	99.57	99.57
[OTHER]	80- 90	3.39	788.68	100.00	100.00
[OTHER]	90-100	0.00	788.69	100.00	100.00
[OTHER]	100-110	0.00	788.69	100.00	100.00
[OTHER]	110-120	0.00	788.69	100.00	100.00
[OTHER]	120-130	0.00	788.69	100.00	100.00
[OTHER]	130-140	0.00	788.69	100.00	100.00
[OTHER]	140-150	0.00	788.69	100.00	100.00
[OTHER]	150-160	0.00	788.69	100.00	100.00
[OTHER]	160-170	0.00	788.69	100.00	100.00
[OTHER]	170-180	0.00	788.70	100.00	100.00

## 4 – Spectral Flux Plots





## 5 – EUT Photos



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## 6 – Luminous Intensity Distribution Test Plots (CIE Chromaticity)

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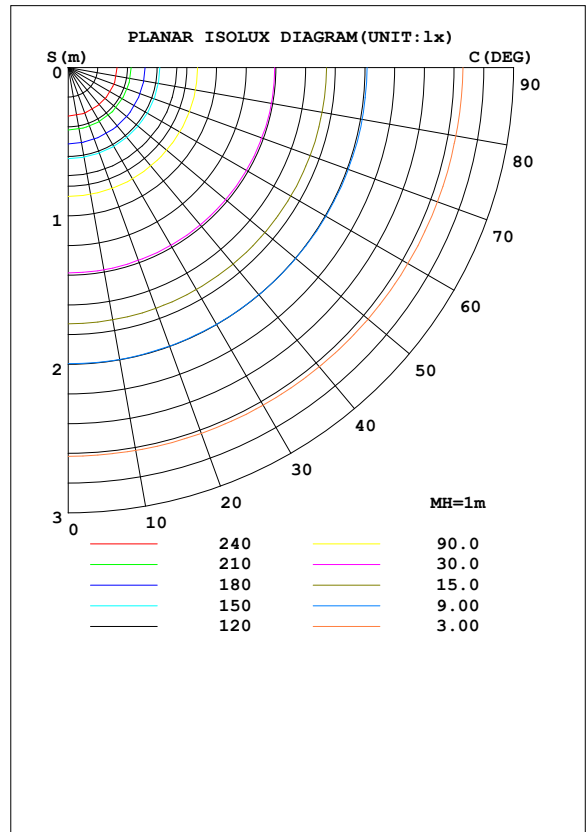
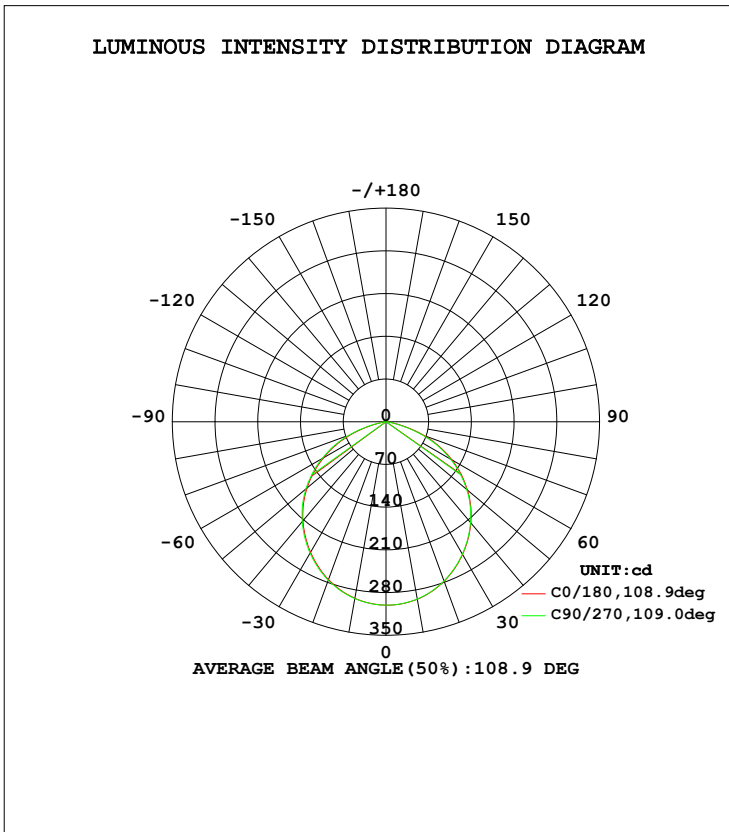
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LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 75.82 lm/W			
MODEL	11DL6DIM/8CCTD	I <sub>max</sub> (cd)	300.5	S/MH (C0/180)	1.24
NOMINAL POWER (W)	11	LOR (%)	100.0	S/MH (C90/270)	1.24
RATED VOLTAGE (V)	120.0	TOTAL FLUX (lm)	788.70	η UP, DN (C0-180)	0.0, 49.8
NOMINAL FLUX (lm)	788.695	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 50.2
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120.0	η down (%)	100.0	CIBSE SHR MAX	1.35



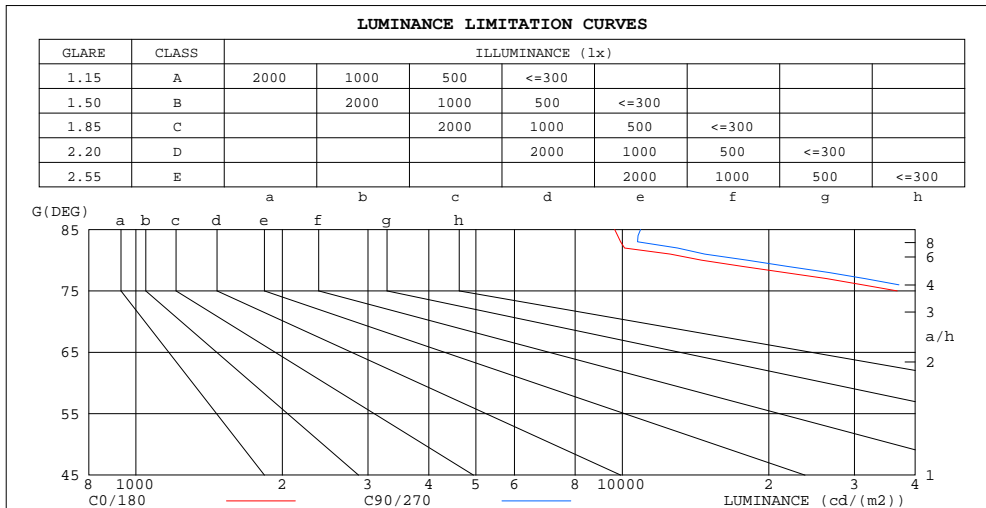
C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature: 25.6DEG  
 Operators: David  
 Test Date: 2017-01-11

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity: 67.1%  
 Test Distance: 2.564m [K=1.0000]  
 Remarks:

**ZONAL FLUX DIAGRAM  
AND LUMINANCE LIMITATION CURVES**

**ZONAL FLUX DIAGRAM:**

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\#lum$
10	293.8	293.8	294.3	294.7	295.3	295.3	295.0	294.3	0- 10	28.40	28.40	3.6
20	275.3	275.3	276.4	277.3	278.3	278.4	277.8	276.4	10- 20	80.99	109.4	13.9
30	247.2	247.2	248.7	250.0	251.0	251.2	250.4	248.8	20- 30	121.7	231.1	29.3
40	211.7	211.9	213.5	215.3	216.3	216.4	215.4	213.5	30- 40	145.5	376.6	47.7
50	168.9	169.2	171.3	173.3	174.4	174.1	172.7	170.7	40- 50	149.6	526.2	66.7
60	118.2	118.9	121.3	123.1	124.6	123.7	122.0	120.1	50- 60	131.6	657.8	83.4
70	60.35	61.98	64.64	66.49	67.23	65.67	63.46	61.58	60- 70	92.47	750.3	95.1
80	7.580	8.241	9.412	10.24	10.20	9.205	8.107	7.551	70- 80	35.02	785.3	99.6
90	0.0019	0.0050	0.0505	0.1593	0.1742	0.0259	0	0	80- 90	3.390	788.7	100
100	0	0	0	0	0	0	0	0	90-100	0.0028	788.7	100
110	0	0	0	0	0	0	0	0	100-110	0	788.7	100
120	0	0	0	0	0	0	0	0.0010	110-120	0.0000	788.7	100
130	0	0	0	0	0.0007	0.0029	0.0007	0.0046	120-130	0.0003	788.7	100
140	0.0005	0.0027	0	0.0007	0.0015	0.0024	0.0017	0.0037	130-140	0.0008	788.7	100
150	0.0071	0.0081	0.0059	0.0068	0.0025	0.0025	0.0025	0.0046	140-150	0.0018	788.7	100
160	0.0113	0.0110	0.0098	0.0103	0.0049	0.0059	0.0059	0.0069	150-160	0.0031	788.7	100
170	0.0098	0.0105	0.0086	0.0098	0.0037	0.0037	0.0039	0.0054	160-170	0.0024	788.7	100
180	0.0071	0.0054	0.0036	0.0053	0.0076	0.0059	0.0049	0.0051	170-180	0.0004	788.7	100
DEG	LUMINOUS INTENSITY:cd								UNIT:lm			



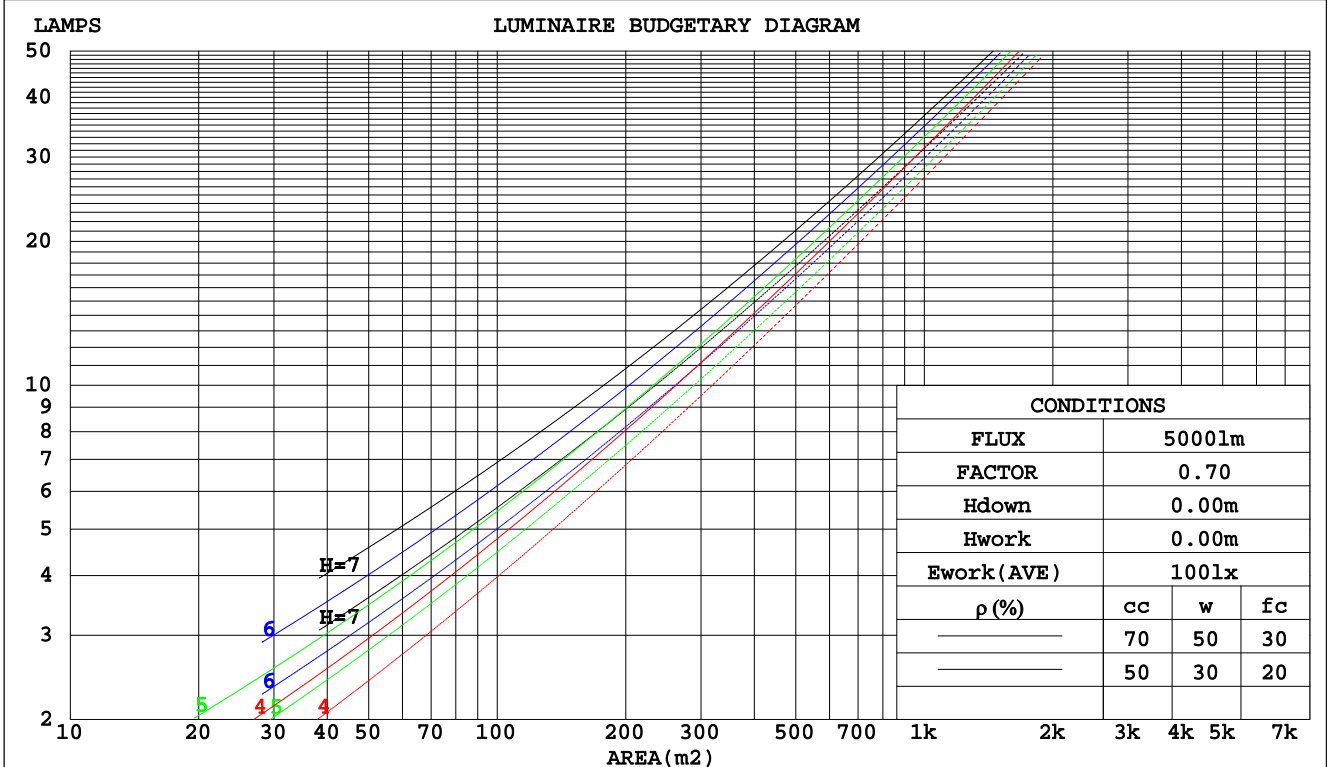
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 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-01-11

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:2.564m [K=1.0000]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	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	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	.00
1.0	1.05	1.02	.98	1.03	.90	.96	.99	.96	.93	.95	.93	.91	.92	.90	.88	.86
2.0	.93	.86	.81	.91	.85	.80	.87	.82	.78	.84	.80	.76	.81	.78	.74	.72
3.0	.82	.74	.68	.80	.73	.67	.77	.71	.66	.74	.69	.65	.72	.67	.64	.61
4.0	.72	.64	.57	.71	.63	.57	.69	.62	.56	.66	.60	.56	.64	.59	.55	.53
5.0	.65	.56	.50	.64	.55	.49	.62	.54	.49	.60	.53	.48	.58	.52	.48	.46
6.0	.58	.50	.43	.57	.49	.43	.56	.48	.43	.54	.47	.42	.52	.47	.42	.40
7.0	.53	.44	.38	.52	.44	.38	.51	.43	.38	.49	.43	.38	.48	.42	.37	.35
8.0	.48	.40	.34	.48	.40	.34	.46	.39	.34	.45	.39	.34	.44	.38	.33	.32
9.0	.44	.36	.31	.44	.36	.31	.43	.36	.31	.42	.35	.30	.41	.35	.30	.28
10.0	.41	.33	.28	.40	.33	.28	.39	.33	.28	.39	.32	.28	.38	.32	.28	.26



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature: 25.6DEG  
 Operators: David  
 Test Date: 2017-01-11

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity: 67.1%  
 Test Distance: 2.564m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	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	.280	.159	.050	.273	.156	.049	.260	.149	.048	.248	.143	.046	.237	.137	.044	
2.0	.272	.149	.046	.266	.146	.045	.254	.141	.044	.243	.137	.043	.234	.132	.042	
3.0	.256	.136	.041	.250	.134	.040	.240	.130	.040	.231	.126	.039	.222	.123	.038	
4.0	.239	.124	.036	.234	.122	.036	.225	.119	.036	.217	.116	.035	.209	.113	.035	
5.0	.222	.113	.033	.218	.112	.033	.210	.109	.032	.203	.107	.032	.196	.105	.031	
6.0	.207	.104	.030	.204	.103	.030	.197	.101	.029	.190	.099	.029	.184	.097	.029	
7.0	.194	.096	.027	.191	.095	.027	.184	.093	.027	.178	.091	.027	.173	.090	.026	
8.0	.182	.089	.025	.179	.088	.025	.173	.086	.025	.168	.085	.024	.163	.083	.024	
9.0	.171	.083	.023	.168	.082	.023	.163	.081	.023	.158	.079	.023	.153	.078	.023	
10.0	.161	.077	.021	.158	.077	.021	.154	.075	.021	.149	.074	.021	.145	.073	.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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.178	.156	.137	.153	.134	.118	.104	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.170	.132	.100	.145	.114	.087	.100	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.162	.114	.076	.139	.099	.066	.095	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.154	.101	.060	.132	.087	.052	.091	.061	.037	.053	.036	.022	.017	.012	.007	
5.0	.147	.090	.048	.126	.078	.042	.087	.055	.030	.050	.032	.018	.016	.010	.006	
6.0	.140	.082	.040	.120	.071	.035	.083	.050	.025	.048	.029	.015	.016	.010	.005	
7.0	.134	.075	.034	.115	.065	.030	.079	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.127	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.121	.064	.026	.105	.056	.022	.072	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.040	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-01-11

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:2.564m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm										
NAME:					TYPE:11DL6DIM/8CCTD			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: GREEN CREATIVE					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	28.2	29.7	28.5	29.9	30.1	28.3	29.8	28.6	30.0	30.2
3H	29.4	30.7	29.7	31.0	31.2	29.5	30.9	29.8	31.1	31.3
4H	29.6	30.9	29.9	31.1	31.4	29.8	31.1	30.1	31.3	31.6
6H	29.5	30.8	29.9	31.0	31.3	29.8	31.0	30.1	31.3	31.5
8H	29.5	30.7	29.8	30.9	31.2	29.7	30.9	30.1	31.2	31.5
12H	29.5	30.6	29.8	30.9	31.2	29.7	30.8	30.0	31.1	31.4
4H 2H	28.8	30.1	29.1	30.3	30.6	28.8	30.1	29.2	30.4	30.6
3H	30.0	31.1	30.4	31.4	31.7	30.2	31.3	30.5	31.6	31.9
4H	30.3	31.3	30.6	31.6	31.9	30.5	31.5	30.8	31.8	32.1
6H	30.3	31.2	30.7	31.5	31.9	30.5	31.4	30.9	31.7	32.1
8H	30.2	31.1	30.7	31.4	31.8	30.5	31.3	30.9	31.7	32.1
12H	30.2	31.0	30.6	31.4	31.8	30.4	31.2	30.9	31.6	32.0
8H 4H	30.3	31.2	30.7	31.5	31.9	30.5	31.3	30.9	31.7	32.1
6H	30.4	31.0	30.8	31.4	31.9	30.6	31.3	31.0	31.7	32.1
8H	30.3	30.9	30.8	31.4	31.8	30.6	31.2	31.0	31.6	32.0
12H	30.3	30.8	30.8	31.3	31.8	30.5	31.1	31.0	31.5	32.0
12H 4H	30.3	31.0	30.7	31.4	31.8	30.5	31.2	30.9	31.6	32.0
6H	30.3	30.9	30.8	31.4	31.8	30.5	31.1	31.0	31.6	32.0
8H	30.3	30.8	30.8	31.3	31.7	30.5	31.0	31.0	31.5	32.0
Variations with the observer position at spacings:										
S = 1.0H	+ 0.3 / - 0.3					+ 0.2 / - 0.3				
1.5H	+ 0.2 / - 0.5					+ 0.2 / - 0.4				
2.0H	+ 0.4 / - 0.4					+ 0.4 / - 0.4				

CIE Pub.117 Corrected 788.7 lm Total Lamp Luminous Flux.(8log(F/F0) = -0.8)

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-01-11

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:2.564m [K=1.0000]  
 Remarks:

## UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	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	59	48	41	58	47	41	57	47	41	34
0.80	69	58	51	68	58	51	67	57	50	44
1.00	78	67	60	77	67	60	75	68	60	53
1.25	85	75	68	84	75	68	81	73	67	60
1.50	90	81	74	89	80	74	86	78	73	65
2.00	97	89	83	95	88	82	92	86	81	73
2.50	101	93	88	99	92	87	95	89	85	77
3.00	104	98	92	102	96	91	98	93	89	81
4.00	108	102	98	105	101	97	101	97	94	86
5.00	110	105	102	107	104	100	103	100	97	88
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:2017-01-11

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:2.564m [K=1.0000]  
 Remarks:



ISOCANDELA DIAGRAM

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

452.23 lm

%lum = 57.3%

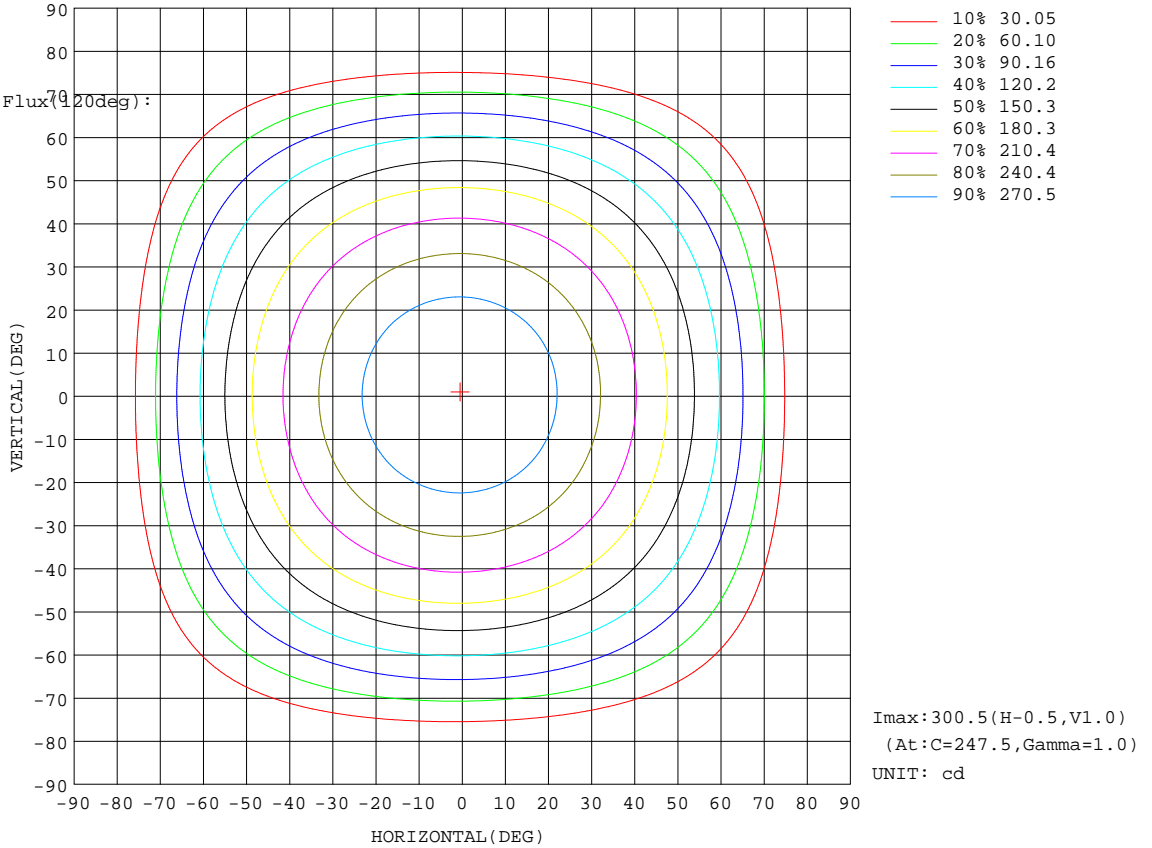
%lamp = 57.3%

Conical surface Flux(70deg):

657.81 lm

%lum = 83.4%

%lamp = 83.4%

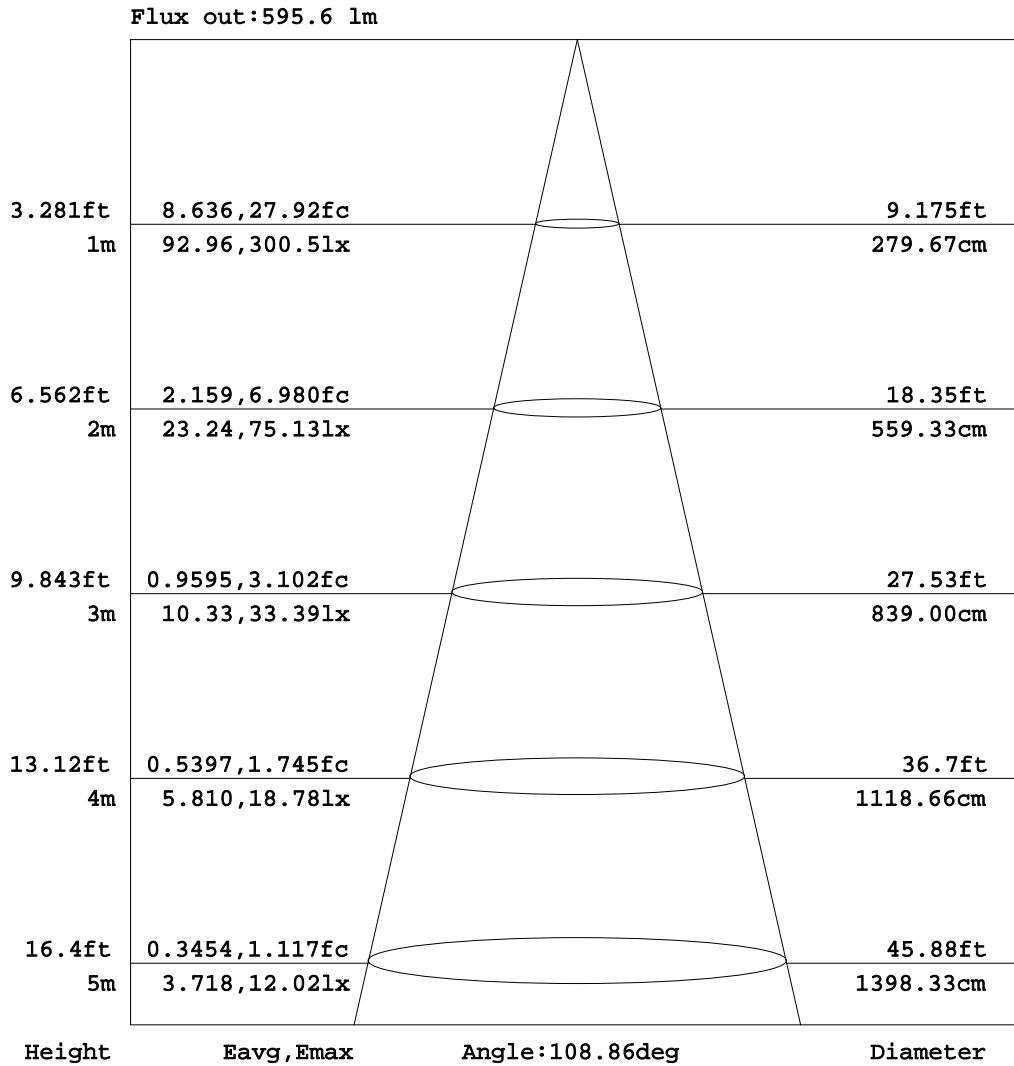


C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature: 25.6DEG  
 Operators: David  
 Test Date: 2017-01-11

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity: 67.1%  
 Test Distance: 2.564m [K=1.0000]  
 Remarks:

AAI Figure

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	SUR.:	PROTECTION ANGLE:



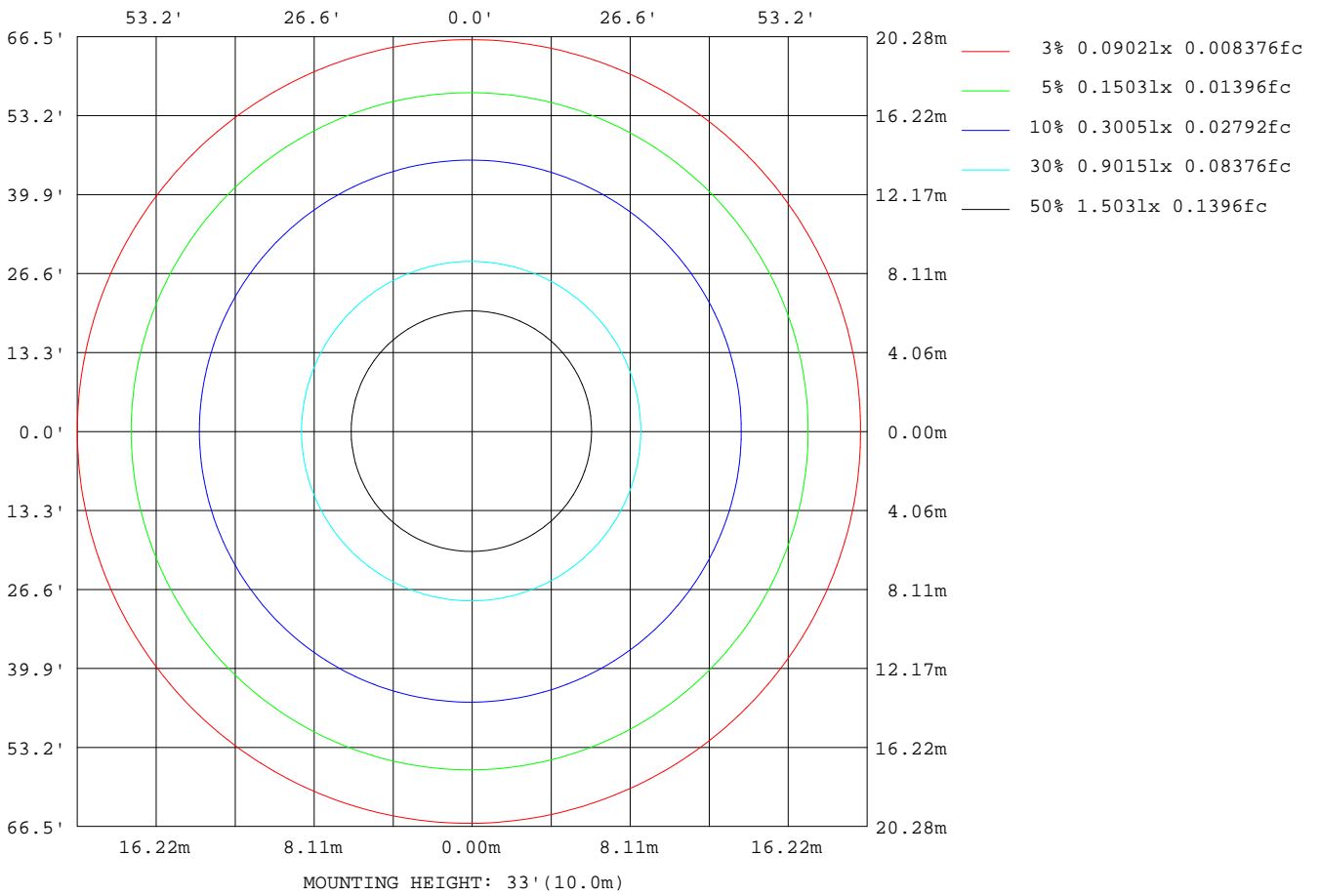
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-01-11

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:2.564m [K=1.0000]  
 Remarks:

ISOLUX DIAGRAM

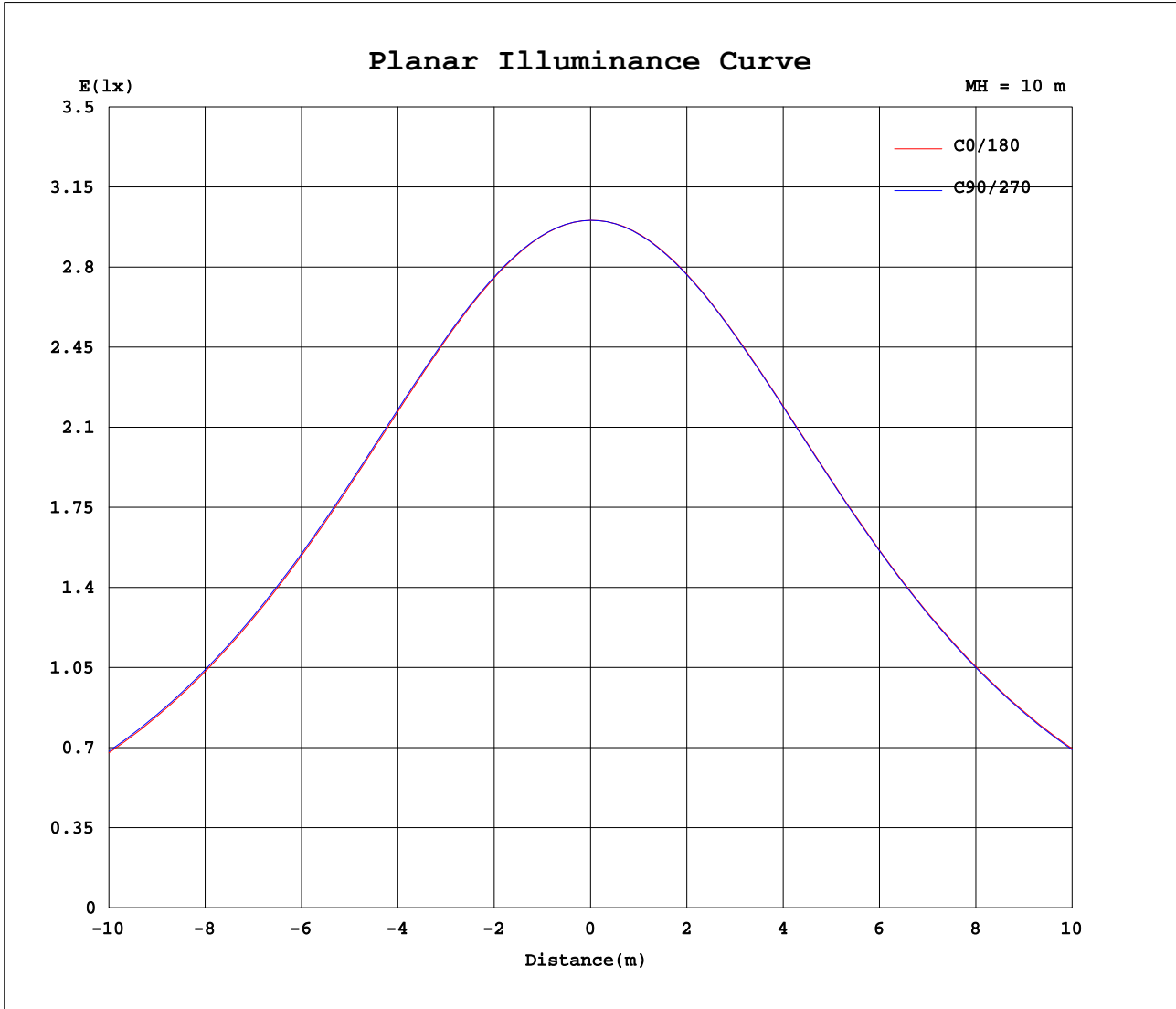
Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-01-11

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:2.564m [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: 2017-01-11

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
Humidity: 67.1%  
Test Distance: 2.564m [K=1.0000]  
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.0909A P:10.40W PF:0.9524 Lamp Flux:788.695x1 lm		
NAME:	TYPE:11DL6DIM/8CCTD	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: GREEN CREATIVE	SUR.:	PROTECTION ANGLE:

Table--1

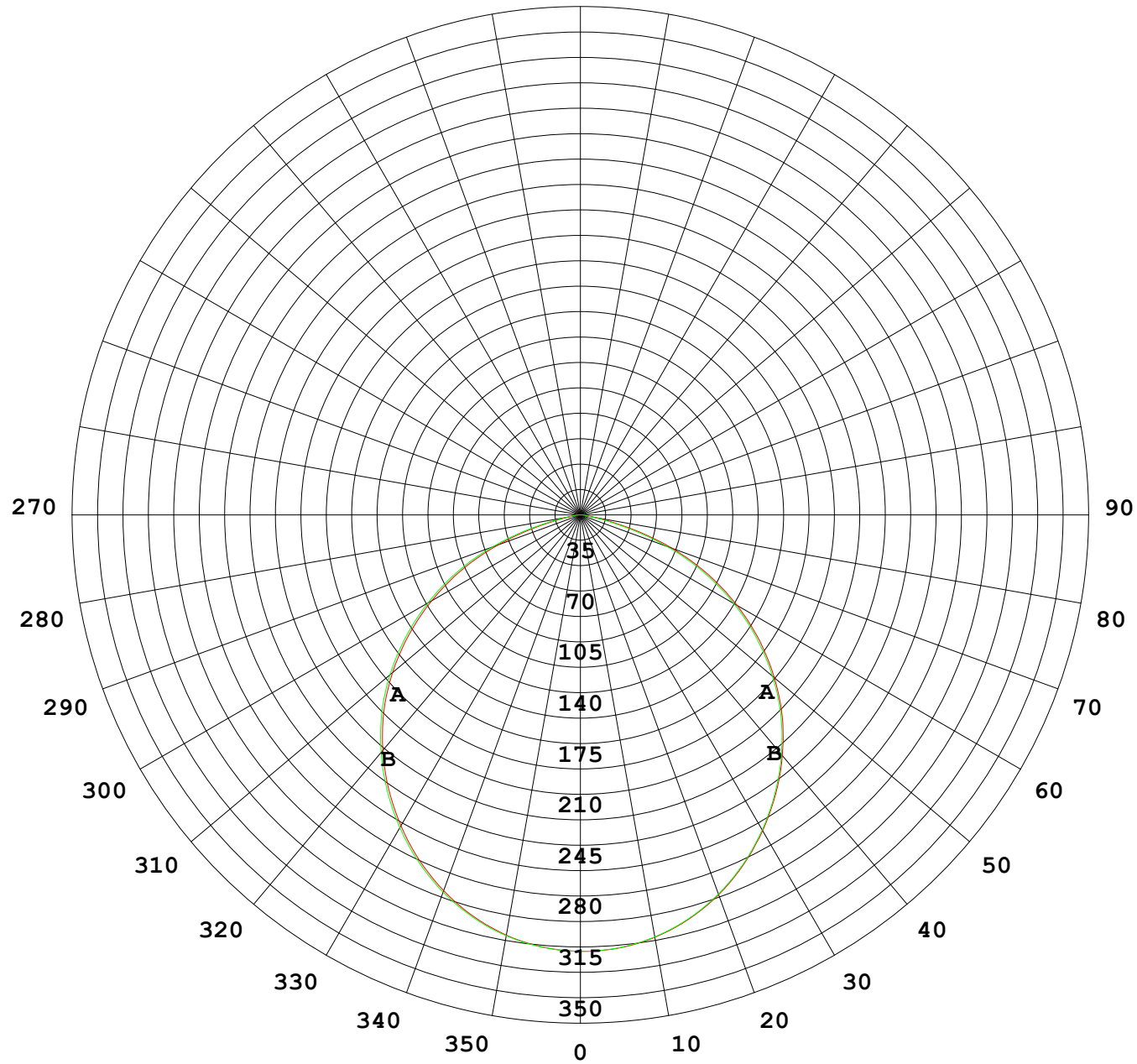
UNIT: cd

C (DEG) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338			
0	301	300	300	300	300	300	300	301	301	300	300	300	300	300	300	301			
5	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299			
10	294	294	294	294	294	294	295	295	295	295	295	295	295	295	294	294			
15	286	286	286	286	287	287	288	288	288	288	288	288	288	287	287	286			
20	275	275	275	276	276	277	277	278	278	278	278	278	278	277	276	276			
25	262	262	262	263	264	264	265	265	266	266	266	266	265	264	264	263			
30	247	247	247	248	249	249	250	251	251	251	251	251	250	250	249	248			
35	230	230	230	231	232	233	233	234	235	235	235	234	234	233	232	231			
40	212	211	212	213	213	214	215	216	216	216	216	216	215	214	213	213			
45	192	191	192	193	194	195	196	196	197	197	197	196	195	194	193	192			
50	169	169	169	170	171	172	173	174	174	174	174	174	173	172	171	170			
55	144	144	145	146	147	148	149	150	150	150	150	149	148	147	146	146			
60	118	118	119	120	121	122	123	124	125	124	124	123	122	121	120	119			
65	90.6	90.9	91.7	92.8	94.1	95.2	96.0	96.3	97.1	96.7	96.0	95.1	94.0	93.1	92.2	91.6			
70	60.3	60.8	62.0	63.2	64.6	65.8	66.5	66.8	67.2	66.6	65.7	64.5	63.5	62.4	61.6	61.1			
75	28.5	29.1	30.2	31.6	32.9	34.0	34.7	34.8	34.9	34.0	32.9	31.7	30.5	29.5	29.0	28.8			
80	7.58	7.83	8.24	8.83	9.41	9.92	10.2	10.3	10.2	9.79	9.21	8.61	8.11	7.75	7.55	7.58			
85	2.52	2.58	2.67	2.76	2.85	2.92	2.98	2.99	3.00	2.94	2.84	2.74	2.63	2.56	2.52	2.52			
90	0.00	0.00	0.00	0.01	0.05	0.11	0.16	0.17	0.17	0.10	0.03	0.00	0.00	0.00	0.00	0.00			
95	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			
100	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			
105	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			
110	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			
115	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			
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	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
155	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01			
160	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01			
165	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
170	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01			
175	0.01	0.00	0.01	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	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01			

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-01-11

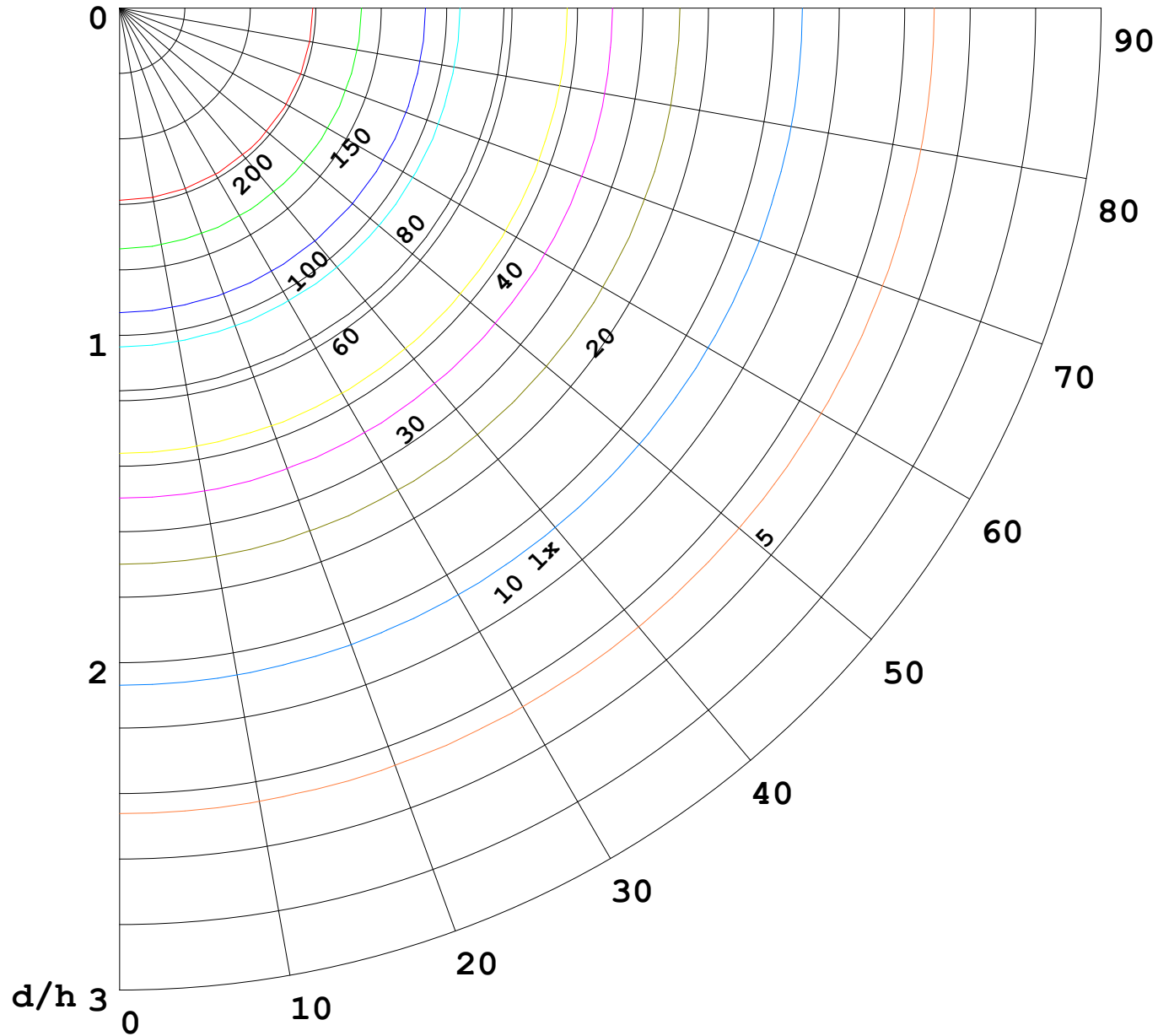
γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:2.564m [K=1.0000]  
 Remarks:

I (cd)



1000 lm

$\kappa = 1$



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

	<b>Pcc</b>	<b>Pw</b>	<b>Pfc</b>
—————	70	50	30
—————	50	30	20

