

IESNA LM-79: 2008

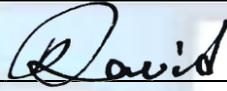
Measurement and Test Report

for

Venture Lighting International

32000 Aurora Road, Suite A, Solon , OH 44139, United states

Aug 14, 2015

Product Name:	LED corn bulb
Model No:	VL1-OR054-40E39-AE00
Test Engineer:	David Zhang 
Report No.:	BTR66.181.15.0009.26
Sample Received Date:	Aug 06, 2015
Test Performed Date:	Aug 06, 2015 to Aug 10, 2015
Reviewed By:	Steven Hsu 
Prepared By:	BEST Test Service Shenzhen Co., Ltd. 1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyuan, 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	: Venture Lighting International
Product Name	: LED corn bulb
Model No	: VL1-OR054-40E39-AE00
Brand	: Venture Lighting
Nominal Operation Voltage	: AC 100-277V
Nominal Power	: 54W
Nominal CCT	: 4000K
Nominal CRI	: >80
Nominal Lumen Output	: 6300Lumens
Nominal Life Time	: 50000Hours
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	: Aug 06, 2015
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 Venture Lighting International 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	Mar 10, 2015	Mar 09, 2016
2	Digital Power Meter	Oct 18, 2014	Oct 17, 2015
3	Goniophotometer+ Spectrophotometer System	Nov 20, 2014	Nov 19, 2015
4	Standard Light Source	Sep 17, 2014	Sep 16, 2015
5	Standard Light Source	Sep 17, 2014	Sep 16, 2015
6	Digital Storage Oscilloscope	Oct 18, 2014	Oct 17, 2015
7	Ultra Compact Simulator	Oct 20, 2014	Oct 19, 2015
8	Temperature Chamber	Oct 20, 2014	Oct 19, 2015
9	Digital Caliper	Nov 20, 2014	Nov 19, 2015
10	Digital CC&CV DC Power Supply(30V 5A)	N/A	N/A
11	5 1/2 Digital Multimeter	Oct 18, 2014	Oct 17, 2015
12	Digital CC&CV DC Power Supply(120V 10A)	N/A	N/A
13	6 1/2 Digital Multimeter	Oct 18, 2014	Oct 17, 2015
14	Digital Multimeter	Oct 18, 2014	Oct 17, 2015
15	Temperature Recorder+Thermocouple	Nov 20, 2014	Nov 19, 2015
16	Timer Controller	Nov 20, 2014	Nov 19, 2015

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.

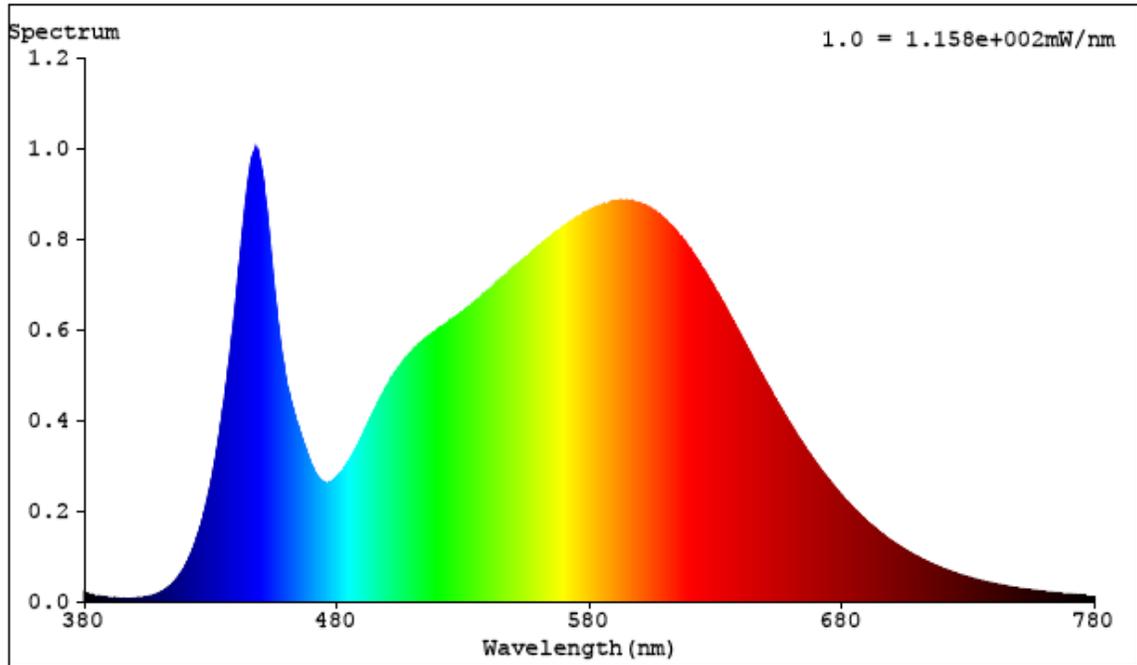
2.3 Deviation from standard operating procedure

None.

3 – Summary of Test Result

	Item	Test Result		Accreditation
Required Fields	Lumen Output (Lumens)	6371.96		NVLAP/EPA
	Luminous Efficacy (lm/w)	120.40		NVLAP/EPA
	Correlated Color Temperature (CCT)	4098		NVLAP/EPA
	Color Rendering Index– CRI	84.0		NVLAP/EPA
	Input Power (W)	52.92		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)	0.4508		NVLAP/EPA
	Power Factor	0.9777		NVLAP/EPA
	x(CIE 1931)	0.3757		NVLAP/EPA
	y(CIE 1931)	0.3723		NVLAP/EPA
	u' (CIE 1976)	0.2238		NVLAP/EPA
	v' (CIE 1976)	0.4989		NVLAP/EPA
	Duv(CIE 1976)	0.0007		NVLAP/EPA
	R9	16		NVLAP/EPA
	Beam Angle: (Degree)	288.9		NVLAP/EPA
	Center beam candlepower: (cd)	633.4		NVLAP/EPA
	Zonal lumen density (0-60°):	24.9%		NVLAP/EPA
	Zonal lumen density (60-90°):	29.9%		NVLAP/EPA
	Zonal lumen density (90-120°):	28.9%		NVLAP/EPA
Zonal lumen density (120-180°):	16.3%		NVLAP/EPA	

4 – Spectral Flux Plots



5 – EUT Photos



6 – Luminous Intensity Distribution Test Plots (CIE Chromaticity)

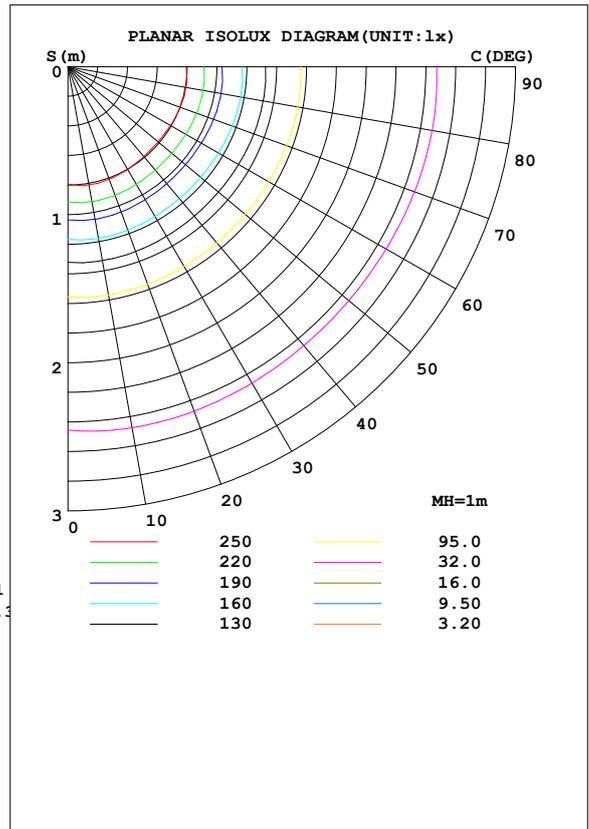
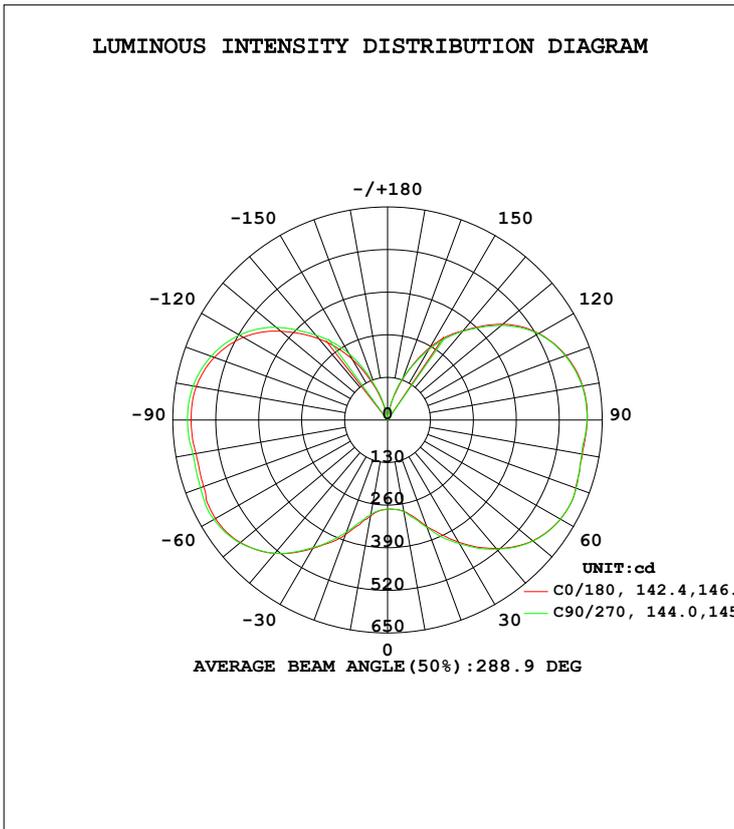
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LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 120.40 lm/W			
MODEL	VL1-OR054-40E39-AE00	I _{max} (cd)	633.4	S/MH (C0/180)	2.56
NOMINAL POWER (W)	54	LOR (%)	100.0	S/MH (C90/270)	2.57
RATED VOLTAGE (V)	120.0	TOTAL FLUX (lm)	6372.0	η UP, DN (C0-180)	22.3, 27.4
NOMINAL FLUX (lm)	6371.96	CIE CLASS	DIFFUSE	η UP, DN (C180-360)	22.9, 27.4
LAMPS INSIDE	1	η up (%)	45.2	CIBSE SHR NOM	2.00
TEST VOLTAGE (V)	120.0	η down (%)	54.8	CIBSE SHR MAX	0.00



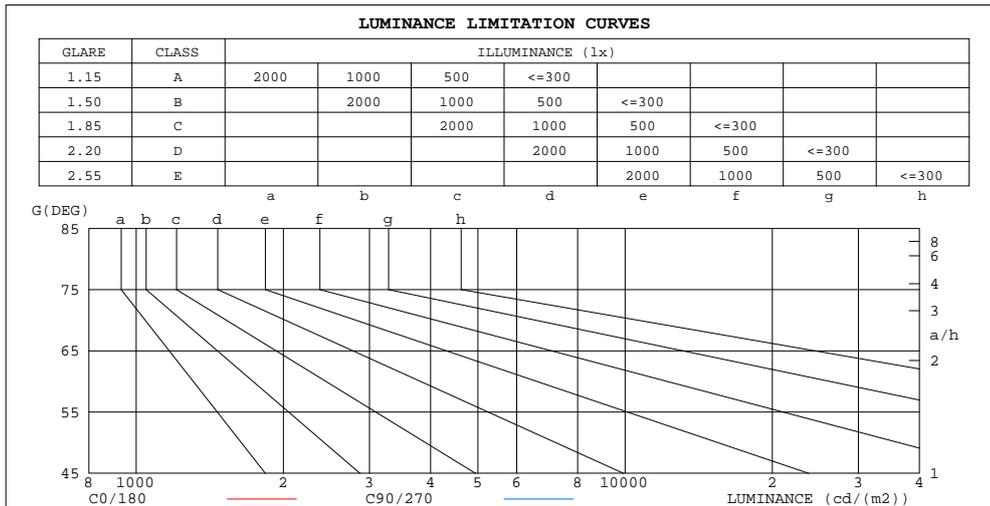
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.6DEG
 Operators: David
 Test Date: 2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity: 67.1%
 Test Distance: 2.455m [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	297.6	296.8	292.2	288.8	283.2	282.8	284.4	288.1	0- 10	26.72	26.72	0.42,0.42
20	371.8	372.6	363.8	355.5	345.6	348.6	349.0	359.6	10- 20	91.96	118.7	1.86,1.86
30	452.6	452.6	448.7	442.2	430.3	441.3	435.6	446.7	20- 30	188.1	306.8	4.81,4.81
40	531.0	529.7	530.9	522.9	511.4	522.5	514.3	532.9	30- 40	308.0	614.8	9.65,9.65
50	581.6	578.5	583.5	579.6	573.6	579.8	574.3	584.5	40- 50	432.9	1048	16.4,16.4
60	601.3	600.7	607.3	608.5	604.5	611.5	604.5	610.3	50- 60	537.6	1585	24.9,24.9
70	593.3	592.0	603.4	604.6	606.0	616.5	607.8	605.8	60- 70	607.5	2193	34.4,34.4
80	588.7	590.2	598.7	599.8	598.5	604.4	597.1	600.5	70- 80	639.5	2832	44.4,44.4
90	594.9	596.6	606.0	607.5	604.6	610.6	603.5	608.2	80- 90	661.1	3493	54.8,54.8
100	588.1	587.5	597.9	602.7	599.6	606.7	598.3	601.5	90-100	662.8	4156	65.2,65.2
110	558.4	558.5	568.8	576.9	574.8	584.0	572.8	575.3	100-110	625.5	4782	75,75
120	504.5	503.8	518.1	528.5	528.5	538.7	526.4	525.4	110-120	549.4	5331	83.7,83.7
130	421.8	418.8	440.2	450.0	454.6	464.1	448.9	443.0	120-130	439.2	5770	90.6,90.6
140	323.3	321.7	338.2	354.3	355.9	362.7	353.2	343.7	130-140	308.6	6079	95.4,95.4
150	214.3	217.0	234.3	246.2	255.1	253.1	246.6	229.2	140-150	187.6	6266	98.3,98.3
160	98.03	98.45	109.7	127.0	130.8	130.8	136.4	119.9	150-160	83.28	6350	99.7,99.7
170	17.38	17.90	20.56	28.69	31.91	34.07	34.38	24.03	160-170	21.09	6371	100,100
180	0.0152	0.0157	0	0	0.0186	0.0188	0.0176	0.0177	170-180	1.202	6372	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	851083	866142
80	423747	430943
75	284622	289715
70	216848	220535
65	177925	180084
60	150315	151817
55	129808	130479
50	113097	113475
45	99018	98884

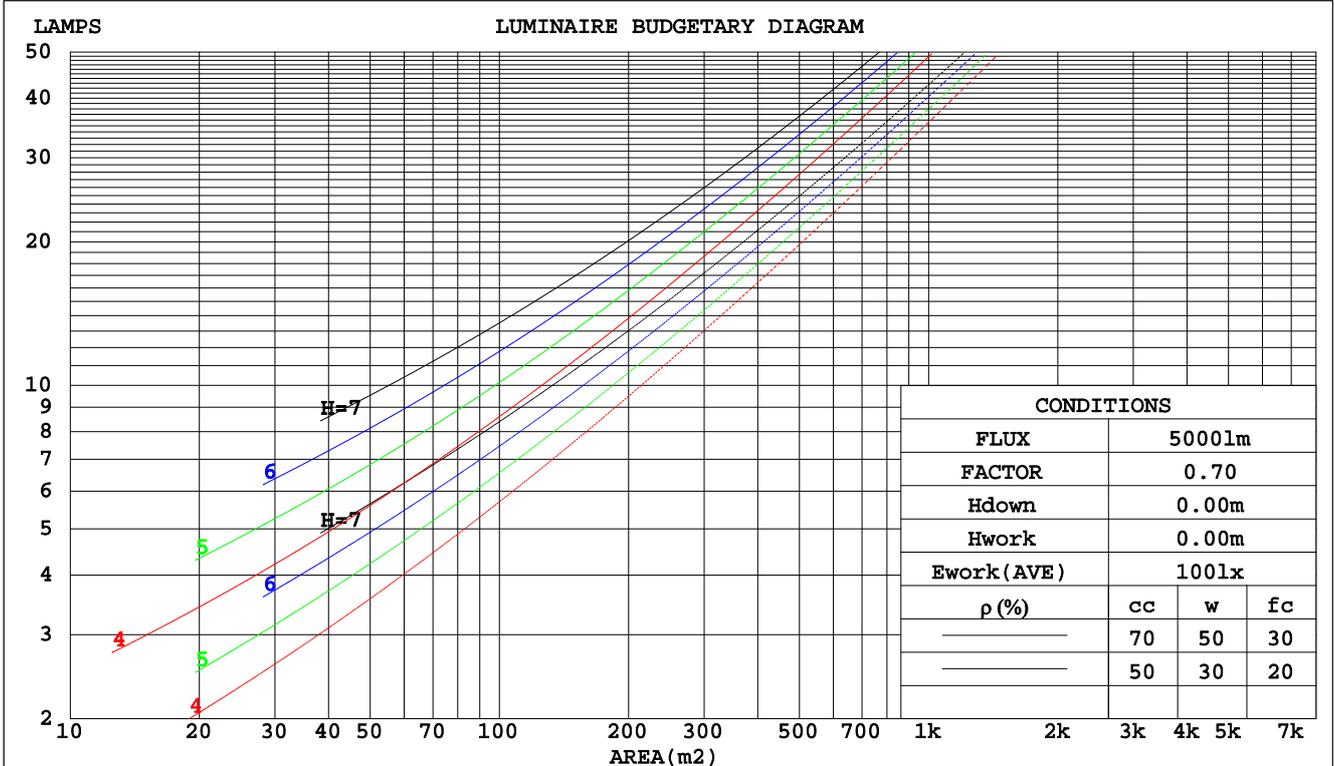
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.08	1.08	1.08	1.01	1.01	1.01	.86	.86	.86	.73	.73	.73	.61	.61	.61	.55
1.0	.87	.81	.76	.80	.75	.70	.68	.64	.60	.56	.53	.50	.45	.43	.41	.35
2.0	.73	.65	.58	.67	.60	.54	.56	.50	.45	.46	.42	.38	.37	.33	.30	.26
3.0	.63	.53	.46	.57	.49	.42	.48	.41	.36	.39	.34	.30	.31	.27	.24	.19
4.0	.54	.45	.37	.50	.41	.34	.42	.35	.29	.34	.28	.24	.27	.22	.19	.15
5.0	.48	.38	.31	.44	.35	.29	.37	.29	.24	.30	.24	.20	.23	.19	.16	.12
6.0	.42	.33	.26	.39	.30	.24	.32	.25	.20	.26	.21	.17	.21	.16	.13	.10
7.0	.38	.29	.22	.35	.26	.21	.29	.22	.17	.24	.18	.14	.19	.14	.11	.08
8.0	.34	.25	.19	.31	.23	.18	.26	.20	.15	.22	.16	.12	.17	.13	.10	.07
9.0	.31	.22	.17	.28	.21	.16	.24	.18	.13	.20	.14	.11	.16	.11	.08	.06
10.0	.28	.20	.15	.26	.19	.14	.22	.16	.12	.18	.13	.09	.14	.10	.07	.05



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	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	.425	.242	.077	.404	.231	.073	.365	.209	.067	.329	.190	.061	.295	.171	.055	
2.0	.354	.194	.059	.335	.184	.057	.299	.166	.052	.265	.149	.047	.235	.133	.042	
3.0	.308	.164	.049	.290	.155	.047	.257	.139	.042	.227	.124	.038	.199	.110	.034	
4.0	.273	.142	.042	.257	.135	.040	.227	.120	.036	.199	.107	.032	.173	.094	.029	
5.0	.246	.125	.036	.231	.119	.035	.204	.106	.031	.178	.094	.028	.154	.082	.025	
6.0	.224	.112	.032	.210	.106	.031	.185	.095	.028	.161	.084	.025	.139	.073	.022	
7.0	.205	.102	.029	.193	.096	.027	.169	.086	.025	.147	.075	.022	.126	.066	.019	
8.0	.190	.093	.026	.178	.088	.025	.156	.078	.022	.136	.069	.020	.116	.060	.017	
9.0	.176	.085	.024	.165	.081	.023	.145	.072	.020	.126	.063	.018	.108	.055	.016	
10.0	.164	.079	.022	.154	.075	.021	.135	.066	.019	.117	.058	.017	.100	.050	.014	

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	.535	.535	.535	.457	.457	.457	.312	.312	.312	.179	.179	.179	.057	.057	.057	
1.0	.535	.502	.472	.458	.431	.406	.313	.297	.281	.180	.172	.163	.058	.055	.053	
2.0	.530	.481	.440	.454	.414	.380	.311	.286	.265	.179	.167	.155	.058	.054	.051	
3.0	.523	.466	.420	.448	.402	.364	.308	.279	.256	.178	.163	.151	.057	.053	.049	
4.0	.516	.454	.408	.442	.393	.354	.304	.274	.249	.176	.160	.147	.057	.052	.048	
5.0	.508	.445	.399	.436	.385	.347	.301	.269	.245	.174	.158	.145	.056	.052	.048	
6.0	.501	.438	.393	.430	.379	.342	.297	.265	.242	.172	.156	.144	.056	.051	.048	
7.0	.494	.432	.388	.425	.374	.338	.294	.262	.240	.171	.155	.143	.055	.051	.047	
8.0	.487	.427	.385	.419	.370	.336	.290	.260	.238	.169	.153	.142	.055	.050	.047	
9.0	.481	.422	.382	.414	.366	.333	.287	.257	.237	.167	.152	.141	.054	.050	.047	
10.0	.475	.418	.380	.410	.363	.332	.284	.255	.236	.166	.151	.141	.054	.050	.047	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm										
NAME:					TYPE:VL1-OR054-40E39-AE00			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: Venture Lighting					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	27.2	28.3	28.0	29.2	30.2	27.2	28.3	28.0	29.2	30.2
3H	30.3	31.4	31.2	32.2	33.4	30.4	31.4	31.2	32.3	33.4
4H	32.1	33.1	33.0	34.0	35.1	32.1	33.1	33.0	34.0	35.2
6H	34.1	35.0	35.0	35.9	37.1	34.1	35.1	35.0	36.0	37.1
8H	35.2	36.1	36.1	37.0	38.2	35.3	36.2	36.2	37.1	38.3
12H	36.5	37.4	37.4	38.3	39.5	36.6	37.5	37.5	38.4	39.5
4H 2H	28.1	29.1	29.0	30.0	31.1	28.1	29.1	29.0	30.0	31.2
3H	31.4	32.3	32.3	33.2	34.4	31.5	32.3	32.3	33.2	34.4
4H	33.3	34.1	34.3	35.1	36.3	33.4	34.2	34.3	35.1	36.3
6H	35.5	36.2	36.4	37.2	38.4	35.5	36.2	36.5	37.2	38.4
8H	36.7	37.4	37.6	38.3	39.6	36.8	37.4	37.7	38.4	39.6
12H	38.1	38.7	39.1	39.7	40.9	38.2	38.8	39.1	39.8	41.0
8H 4H	34.0	34.7	35.0	35.7	36.9	34.1	34.7	35.0	35.7	36.9
6H	36.5	37.0	37.4	38.0	39.3	36.5	37.1	37.5	38.0	39.3
8H	37.9	38.4	38.9	39.4	40.7	37.9	38.4	38.9	39.4	40.7
12H	39.5	40.0	40.5	41.0	42.2	39.5	40.0	40.5	41.0	42.3
12H 4H	34.2	34.9	35.2	35.8	37.1	34.3	34.9	35.2	35.8	37.1
6H	36.8	37.3	37.8	38.3	39.6	36.8	37.3	37.8	38.3	39.6
8H	38.3	38.8	39.3	39.8	41.1	38.3	38.8	39.3	39.8	41.1
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.3 / - 0.4					+ 0.3 / - 0.4				

CIE Pub.117 Corrected 6372 lm Total Lamp Luminous Flux.(8log(F/F0) = 6.4)

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	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) x RCR = 5									
k = 0.60	36	23	15	34	22	15	31	20	14	7
0.80	44	30	22	42	29	21	37	26	19	10
1.00	52	37	28	48	35	27	43	34	24	13
1.25	59	44	34	55	42	33	48	37	29	16
1.50	64	50	40	60	47	38	52	41	34	19
2.00	72	59	49	67	55	46	58	48	41	24
2.50	77	65	55	71	60	52	61	53	46	27
3.00	81	70	61	75	65	57	64	57	50	29
4.00	86	77	68	80	71	64	69	62	56	33
5.00	90	81	74	83	76	69	71	65	60	36
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:2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

816.55 lm

%lum = 12.8%

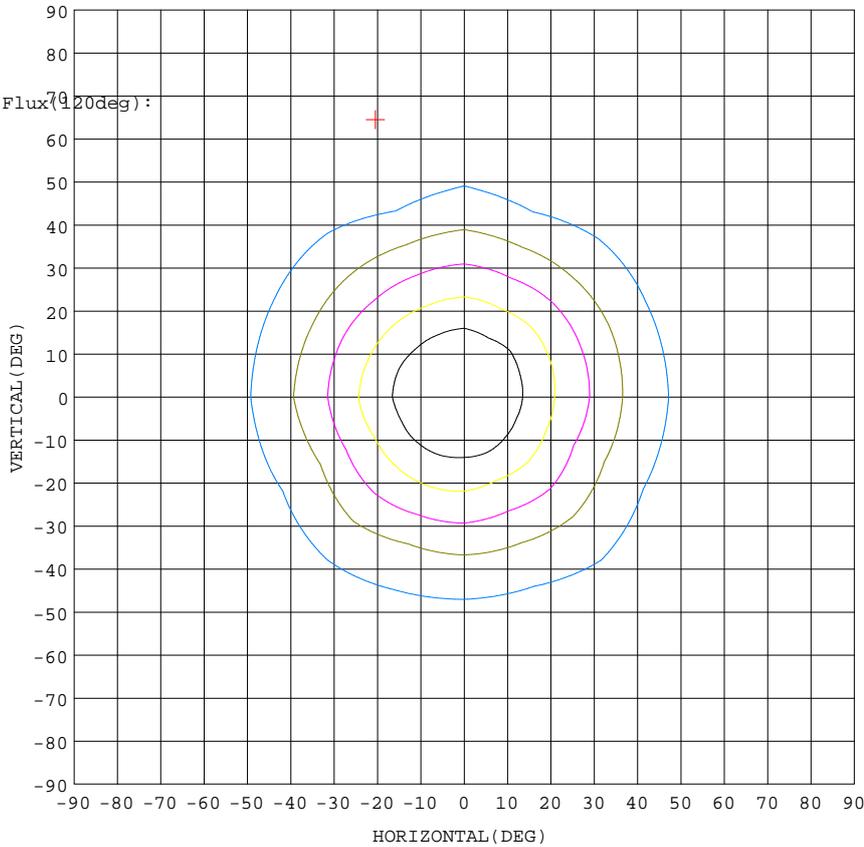
%lamp = 12.8%

Conical surface Flux(70deg):

1585.3 lm

%lum = 24.9%

%lamp = 24.9%



I_{max}:633.3(H=-20.5,V64.5)
(At:C=247.5,Gamma=67.0)

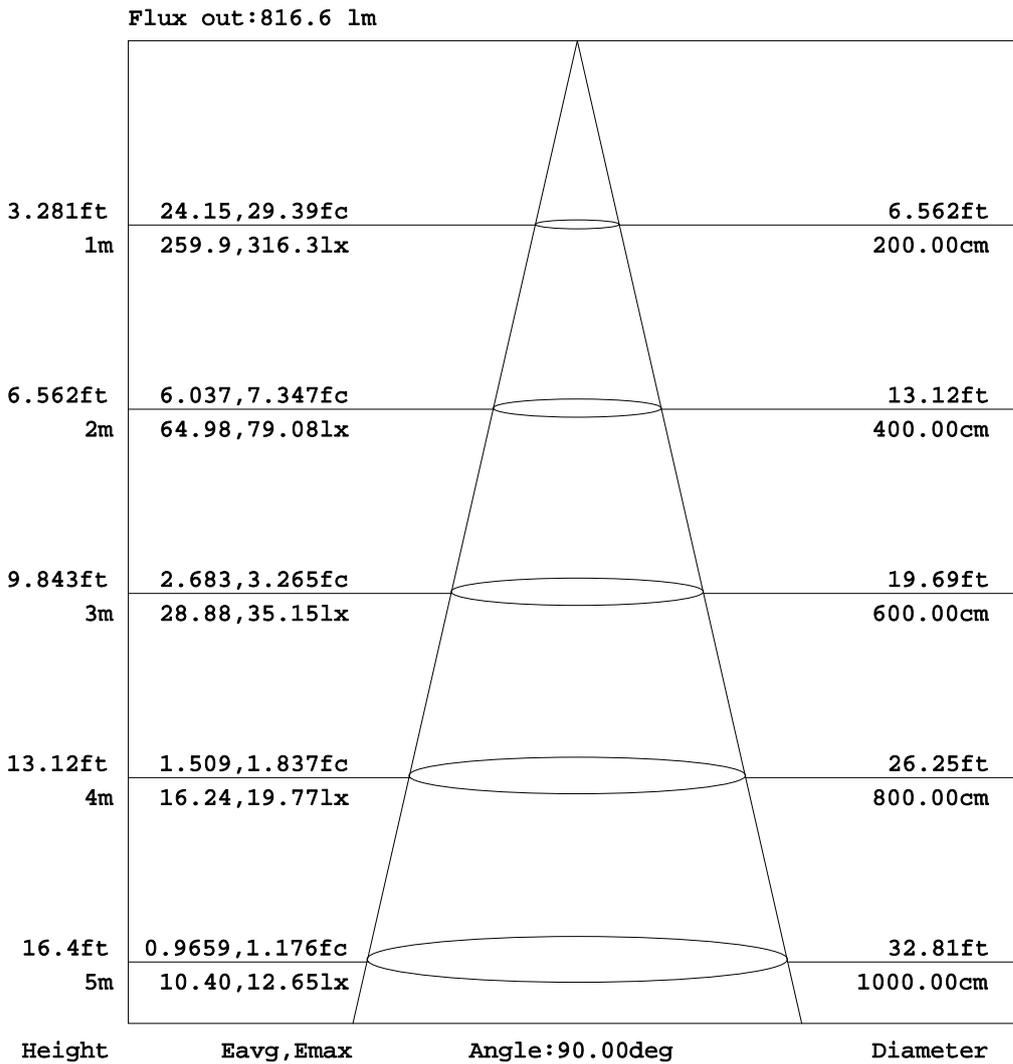
UNIT: cd

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2015-08-08

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

AAI Figure

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	SUR.:	PROTECTION ANGLE:



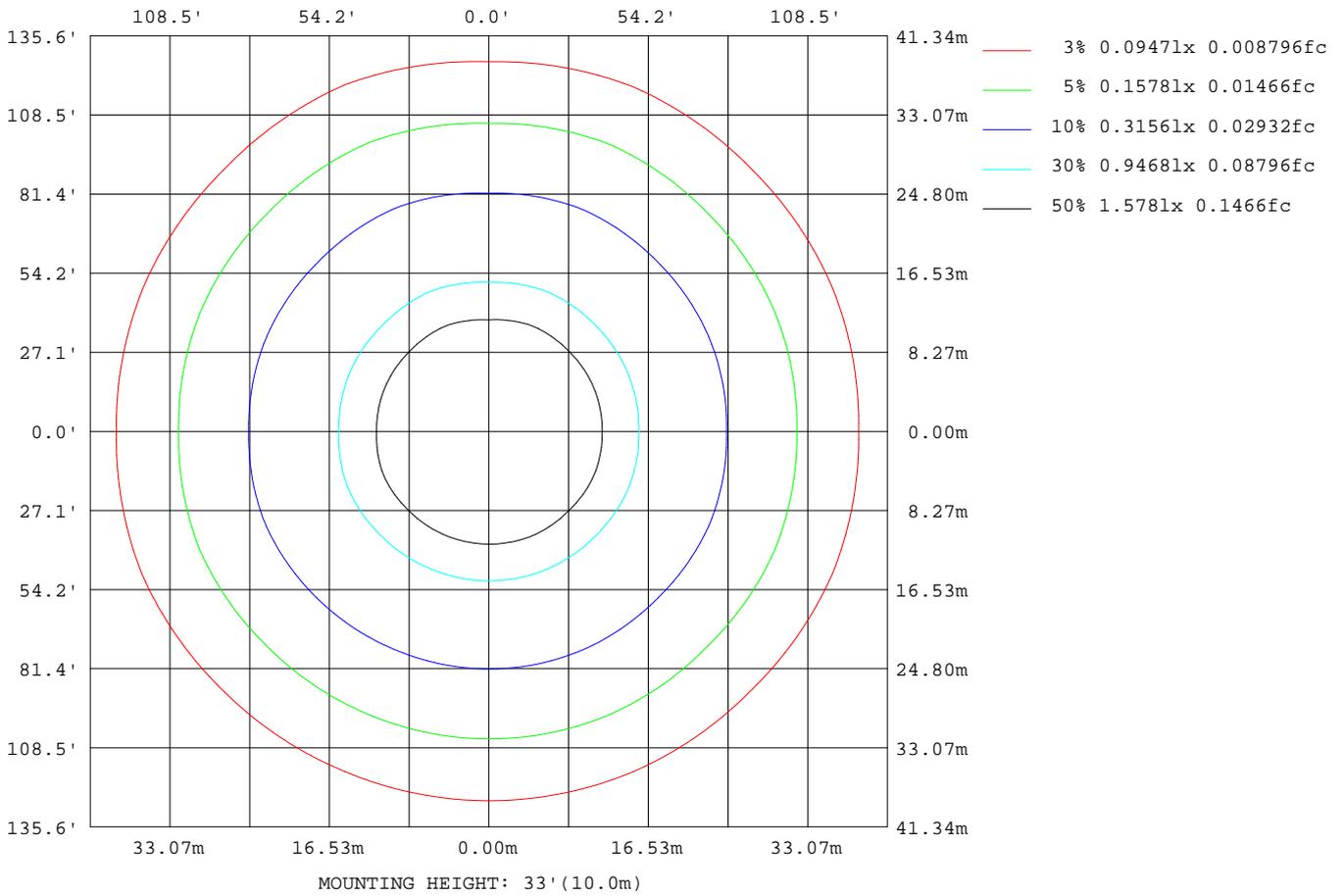
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

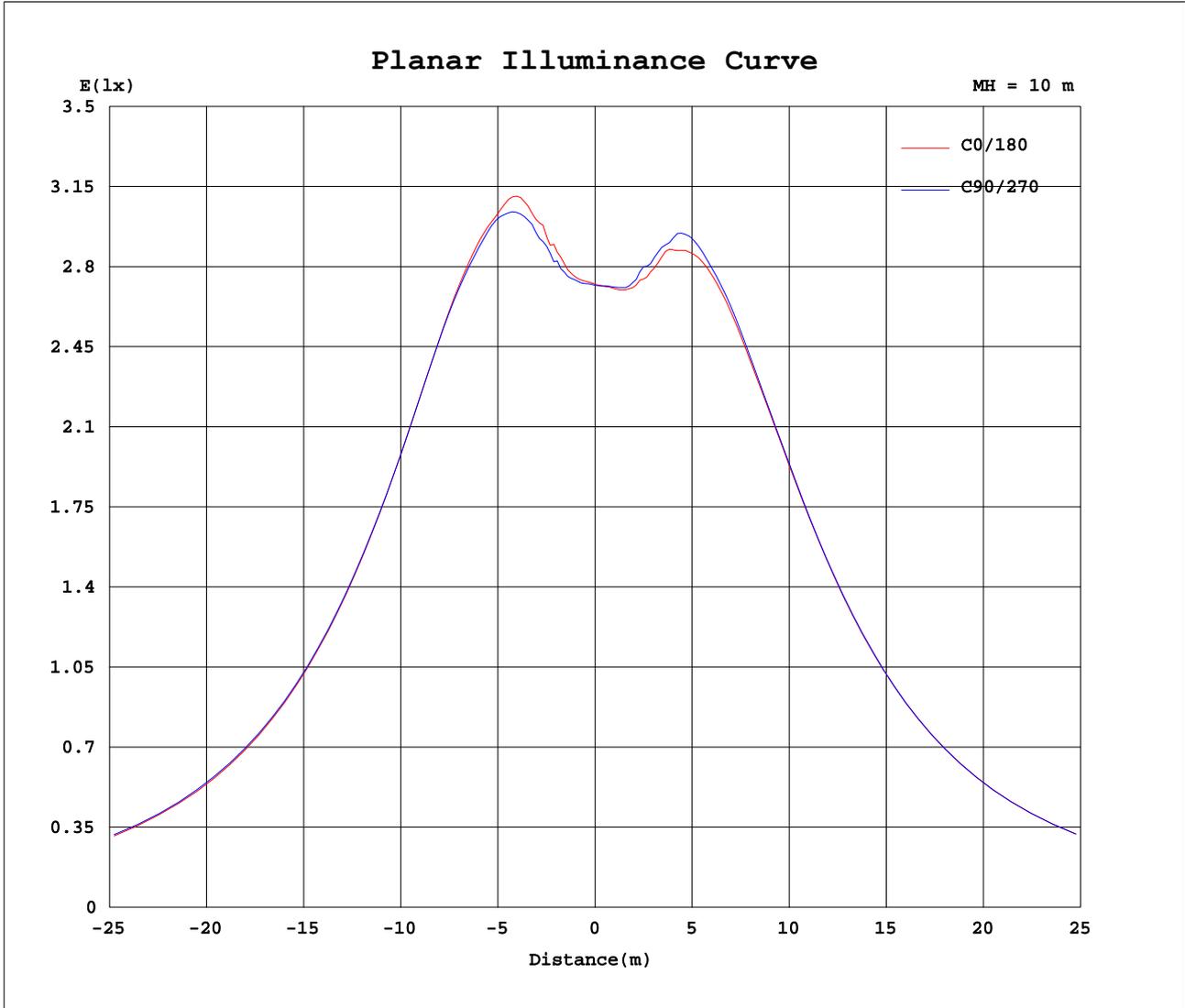
Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [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: 2015-08-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity: 67.1%
Test Distance: 2.455m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.4508A P:52.92W PF:0.9777 Lamp Flux:6371.96x1 lm		
NAME:	TYPE:VL1-OR054-40E39-AE00	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Venture Lighting	SUR.:	PROTECTION ANGLE:

Table--1

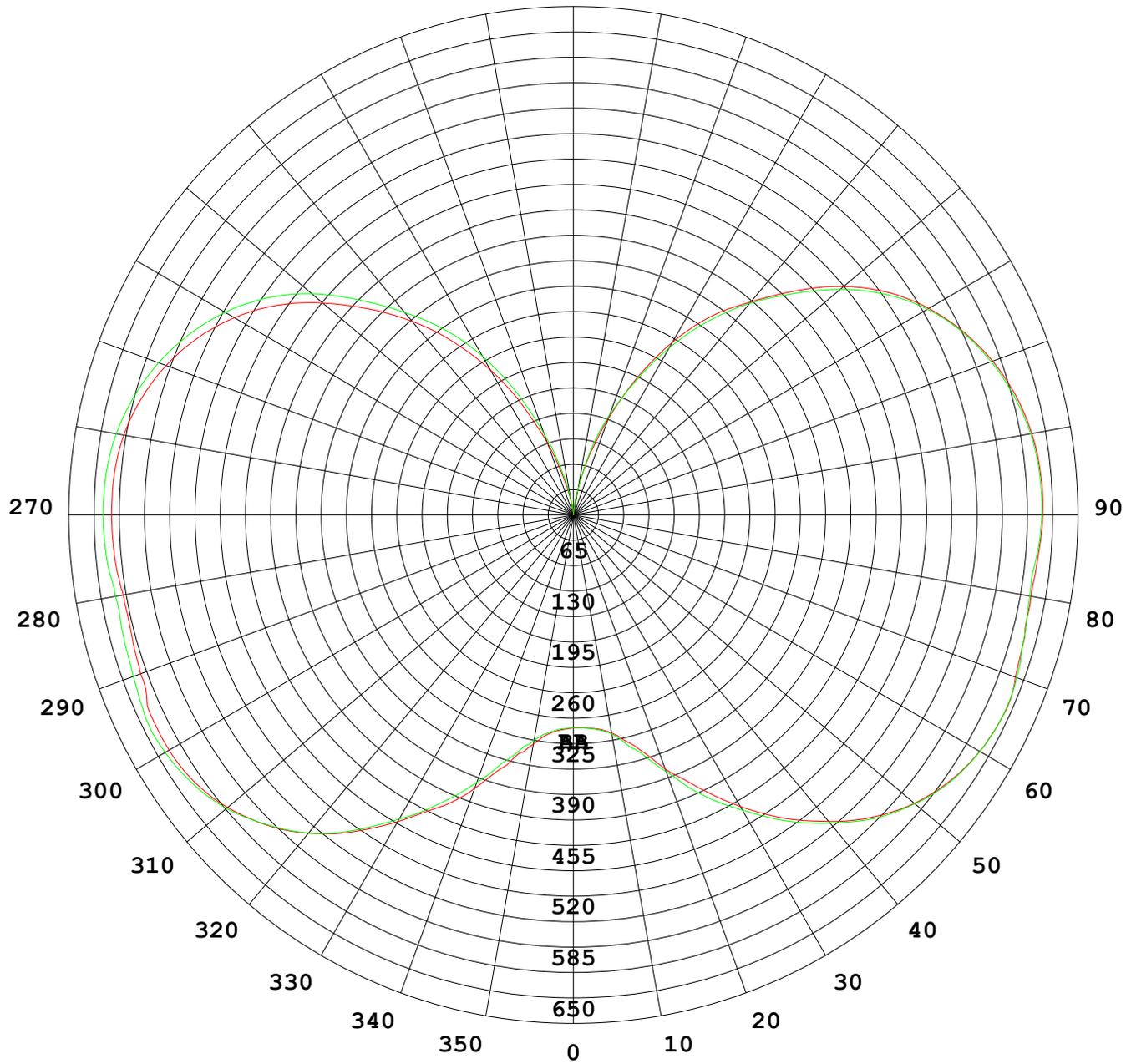
UNIT: cd

C (DEG) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338			
0	272	272	272	272	272	272	272	271	272	272	272	272	272	272	272	271			
5	278	278	278	277	277	275	274	274	274	273	273	274	274	275	275	276			
10	298	300	297	294	292	290	289	285	283	282	283	284	284	288	288	295			
15	331	332	328	325	323	319	316	312	306	308	310	312	311	318	316	326			
20	372	377	373	374	364	361	355	356	346	347	349	354	349	361	360	367			
25	413	422	411	415	407	404	401	399	386	393	395	401	395	406	404	410			
30	453	464	453	459	449	450	442	446	430	434	441	442	436	447	447	451			
35	494	504	493	499	492	495	485	495	473	479	483	485	477	490	492	492			
40	531	538	530	535	531	535	523	536	511	519	523	529	514	532	533	531			
45	560	567	557	564	559	561	556	564	546	552	556	567	549	568	562	563			
50	582	587	579	585	584	582	580	589	574	579	580	593	574	594	584	585			
55	596	601	593	599	599	596	598	609	592	601	599	614	594	613	602	600			
60	601	609	601	607	607	605	609	620	604	614	611	627	605	622	610	609			
65	602	611	603	609	609	608	613	625	610	620	617	633	610	627	612	610			
70	593	602	592	603	603	601	605	619	606	619	617	632	608	621	606	604			
75	589	600	590	600	600	598	602	616	602	612	608	626	601	618	602	602			
80	589	601	590	600	599	599	600	614	598	611	604	619	597	615	600	600			
85	593	607	596	605	604	604	603	616	601	611	605	621	599	618	605	605			
90	595	608	597	606	606	608	608	621	605	616	611	626	604	621	608	609			
95	594	606	594	604	604	607	607	621	604	616	611	626	603	620	607	607			
100	588	599	588	597	598	601	603	616	600	613	607	622	598	615	601	601			
105	576	586	576	585	586	590	592	606	590	603	598	612	588	604	591	589			
110	558	569	559	568	569	574	577	591	575	589	584	597	573	588	575	572			
115	535	545	535	545	546	552	556	570	555	569	565	576	553	565	553	548			
120	505	514	504	516	518	524	528	543	528	543	539	549	526	536	525	517			
125	467	475	465	479	484	487	493	509	496	509	505	516	492	498	489	480			
130	422	428	419	432	440	443	450	466	455	467	464	474	449	454	443	433			
135	373	381	370	382	388	394	401	417	405	418	414	425	400	404	393	382			
140	323	335	322	334	338	343	354	367	356	368	363	379	353	360	344	338			
145	271	283	272	285	289	289	306	315	310	318	310	330	302	305	287	290			
150	214	224	217	229	234	231	246	262	255	260	253	257	247	232	229	226			
155	154	162	156	167	172	173	186	200	193	195	192	178	188	165	172	150			
160	98.0	98.2	98.5	106	110	115	127	136	131	126	131	129	136	118	120	107			
165	49.4	53.1	52.1	55.4	60.0	62.3	76.4	78.8	78.9	76.6	80.4	84.2	85.6	75.0	65.5	62.1			
170	17.4	16.9	17.9	18.9	20.6	22.7	28.7	31.8	31.9	32.3	34.1	35.7	34.4	30.5	24.0	24.5			
175	2.12	2.08	1.64	2.99	4.20	5.03	6.14	7.27	8.15	8.27	8.73	9.16	8.36	7.23	6.06	3.65			
180	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2015-08-08

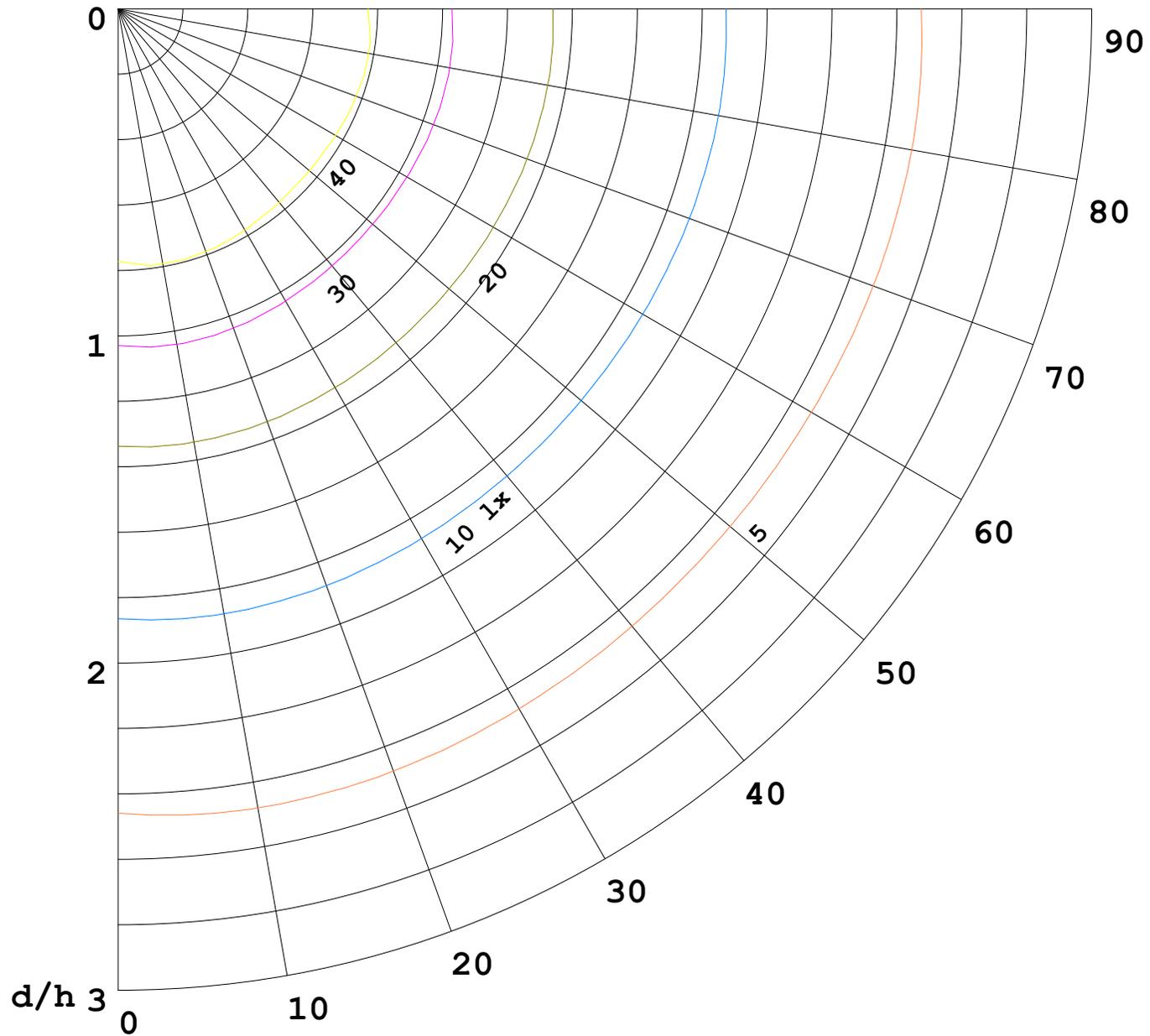
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.455m [K=1.0000]
 Remarks:

I (cd)



1000 lm

$\kappa = 1$



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

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

