



IESNA LM-79 TEST REPORT

Applicant's name	Blackjack lighting
Address	1553 Barclay Blvd. Buffalo Grove, IL 60089
Brand Name	Blackjack lighting
Report No.	BTR66.181.16.0005.31
Product Name	6" Quadra 4 Wire Pendant
Model Number	QDR-06P-PC (120V 3000K)
Tested by (printed name and signature)	David Zhang 
Title	Test Engineer
Approved by (printed name and signature)	Steven Su 
Title	Approved Signatory
Date of issue	Sep 26, 2016
Testing Laboratory Name	BEST Test Service Shenzhen Co., Ltd.
Address	1 st Floor, 1 st Building, Weitai Industrial Park, Yingrenshi, Shiyao, Baoan, Shenzhen, China
Accreditation	DLC/Lighting Facts/UL/ETL/ELI/NVLAP/EPA/DOE
Test specification	
Standard	IESNA LM-79
Test procedure	IESNA LM-79 Test Procedure
Non-standard test method	No
Test Report Form No.	BEST_LM-79
TRF originator	BEST Test Service Shenzhen Co., Ltd. Mr Tseng
Master TRF	BEST_LM-79.doc

Note:

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Product description:	
Test date	Sep 21, 2016 to Sep 26, 2016
Sample Quantity	1 unit
SKU.....	N/A
Rating(s) (V; Hz)	AC 120V/ 60Hz
Nominal Power.....	9.5W
Nominal Power Factor	0.9
Nominal Lumen Output.....	469 lm
Nominal CCT	3000K
Nominal CRI(Ra)	90
Number of hours operated prior to measurement	0H
Total operating time of the product for measurements including stabilization	2.5H
Ambient temperature	25°C
Orientation (burning position) of SSL product during test	Lighting Surface Down
Stabilization time	1.0 H
Photometric method	Sphere-spectroradiometer+Goniophotometer
reference standard used	DC 24V 100W Omni-Directional Halogen Calibrated by NIM China
Correction factors applied	Self absorbing applied
Photometric measurement conditions	See test method description below
Bandwidth of spectroradiometer	2nm
Statement of uncertainties	1.12%
Deviation from standard operating procedures,	None

Photometric and Electrical Measurement

Total light output (luminous flux) for the 25°C ±1°C ambient temperature conditions is measured using a EVERFINE 2.0 m 4 Π geometry integrating sphere. Temperature is measured at a position inside the sphere. Spectral radiant flux measurements are made using Integral Sphere to the detector port of the integrating sphere. Each lamp is operated at rated voltage in its designated orientation by a CHROMA 61602 AC SOURCE. Each lamp should be stable before measurements are made as below:

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 380 to 780 nm by EVERFINE HASS-2000. The calibration of the sphere photometer-spectrometer system is traceable to the NIM China by a calibrated halogen incandescent lamp. 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 YOKOGAWA WT310 digital power Meter.

The total uncertainty of the light output measurements is estimated, at the 95% confidence level, not to exceed ±1.12% over the wavelength range 380-780 nm.

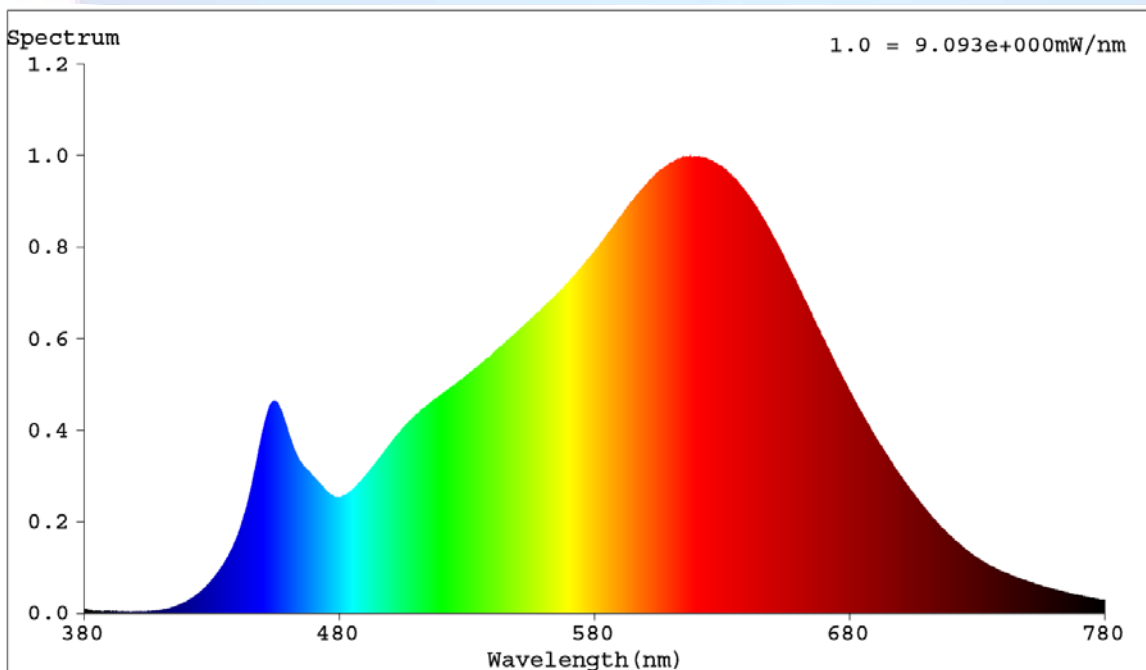
Luminous Intensity

A Everfine GOR-5000 Goniophotometer was used to measure the intensity at each angle of distribution, Luminous intensity (cd) is measured within each vertical plane at a 5° vertical angle increment (maximum) from 0° to 180° Luminous intensity (cd), measurements repeated in vertical planes about the lamp (polar) axis in maximum increments of 22.5° from 0° to 180°, and export the intensity (cd) with excel format. The test distance is 25meters from the Goniophotometer to the detector

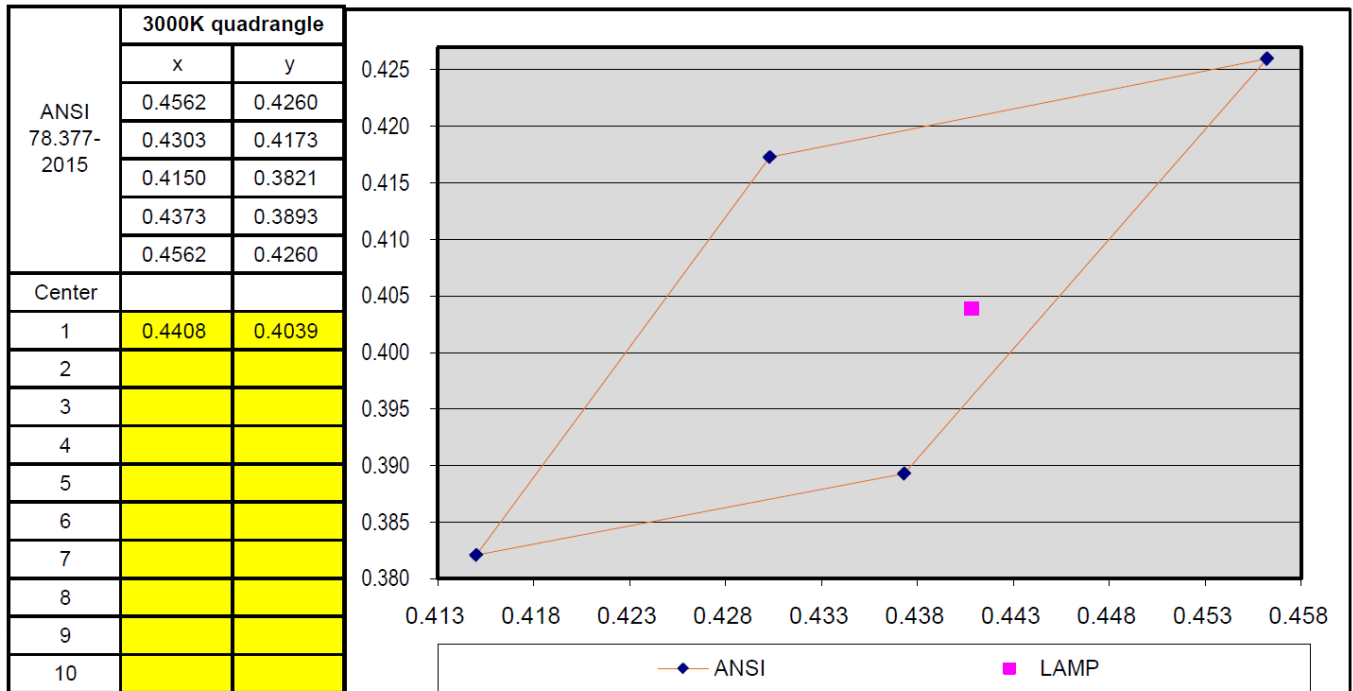
Photometric and Electrical Test Data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.081	/	9.38	0.967	469.59	50.07
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
2935	92.5	56	0.4408	0.4039	0.2531	0.5219	-0.0006

Spectrul Plots



7 Step Quadrangle



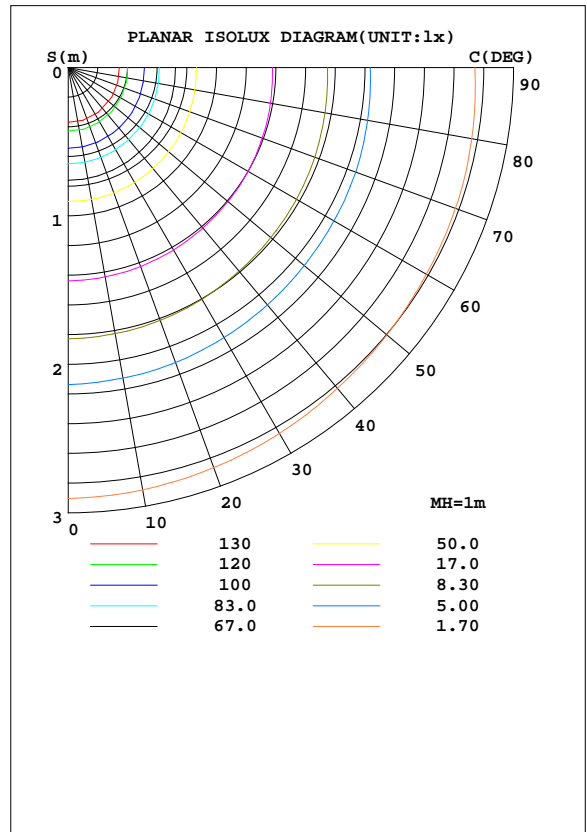
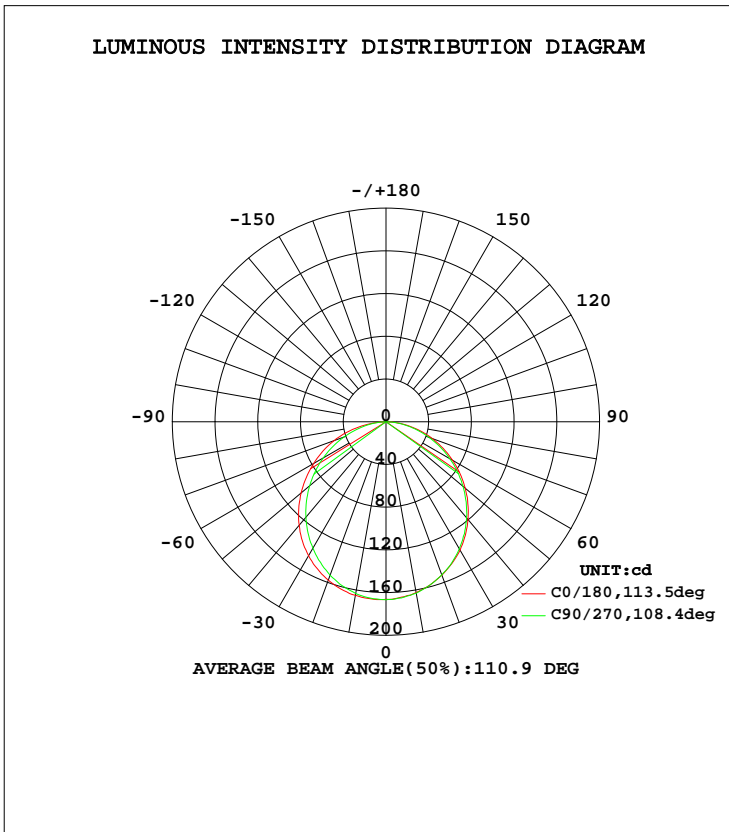
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LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack lighting	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 50.07 lm/W			
MODE:QDR-06P-PC(120V 3000K)		Imax(cd)	166.9	S/MH(C0/180)	1.24
NOMINAL POWER(W)	9.5	LOR(%)	100.0	S/MH(C90/270)	1.23
RATED VOLTAGE(V)	120.0	TOTAL FLUX(lm)	469.59	η UP, DN(C0-180)	0.0, 49.9
NOMINAL FLUX(lm)	469.587	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 50.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120.00	η down(%)	100.0	CIBSE SHR MAX	1.35



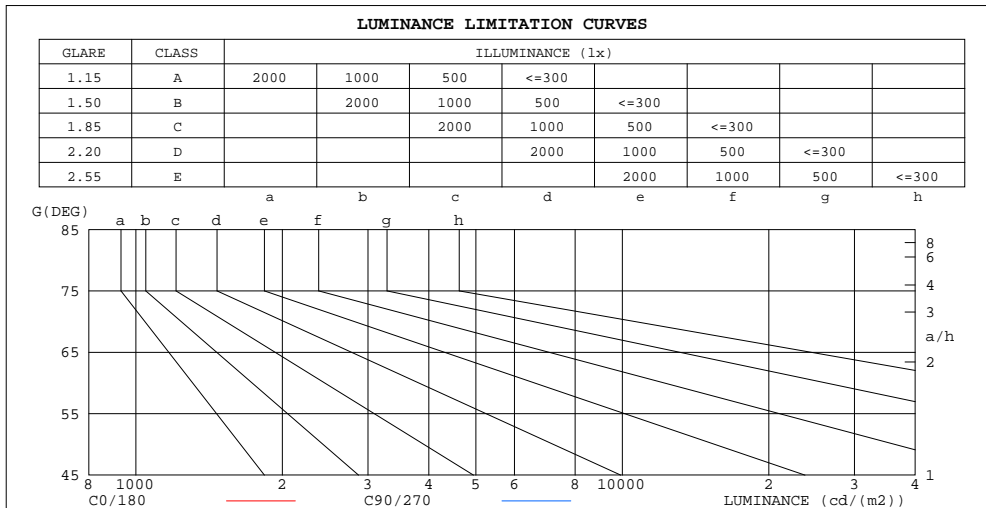
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [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	$\#lum$
10	165.0	164.6	163.3	162.5	162.4	162.1	163.1	164.0	0- 10	15.74	15.74	3.35
20	157.9	155.8	153.0	152.4	152.9	151.9	152.6	155.7	10- 20	44.96	60.70	12.9
30	145.0	141.6	136.8	136.6	138.7	136.6	137.3	142.3	20- 30	67.87	128.6	27.4
40	126.5	122.5	116.6	116.7	119.6	116.5	117.3	123.6	30- 40	81.39	210.0	44.7
50	103.7	99.42	93.36	93.42	96.86	93.29	94.12	100.5	40- 50	83.84	293.8	62.6
60	78.31	73.21	67.94	68.27	71.91	68.13	68.98	74.56	50- 60	75.34	369.1	78.6
70	51.78	46.19	41.84	42.47	46.20	42.42	42.96	47.66	60- 70	57.67	426.8	90.9
80	23.11	20.13	17.17	17.97	20.56	18.28	18.40	21.26	70- 80	34.00	460.8	98.1
90	0	0	0.0017	0.0002	0.0038	0.0009	0	0	80- 90	8.777	469.6	100
100	0	0	0	0	0	0	0	0	90-100	0.0001	469.6	100
110	0	0	0	0	0	0	0	0	100-110	0	469.6	100
120	0	0	0	0	0	0	0	0	110-120	0.0000	469.6	100
130	0	0	0	0	0	0	0	0	120-130	0.0000	469.6	100
140	0	0	0	0	0	0.0010	0	0.0006	130-140	0.0002	469.6	100
150	0	0	0	0	0	0.0065	0.0030	0.0088	140-150	0.0006	469.6	100
160	0	0	0	0	0	0	0.0053	0.0000	150-160	0.0008	469.6	100
170	0	0	0	0	0	0.0011	0.0002	0	160-170	0.0002	469.6	100
180	0	0	0	0	0	0	0	0	170-180	0.0000	469.6	100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	52353	38227
80	66556	49441
75	72898	56157
70	75703	61166
65	77108	65077
60	78312	67936
55	79534	70455
50	80667	72618
45	81708	74480

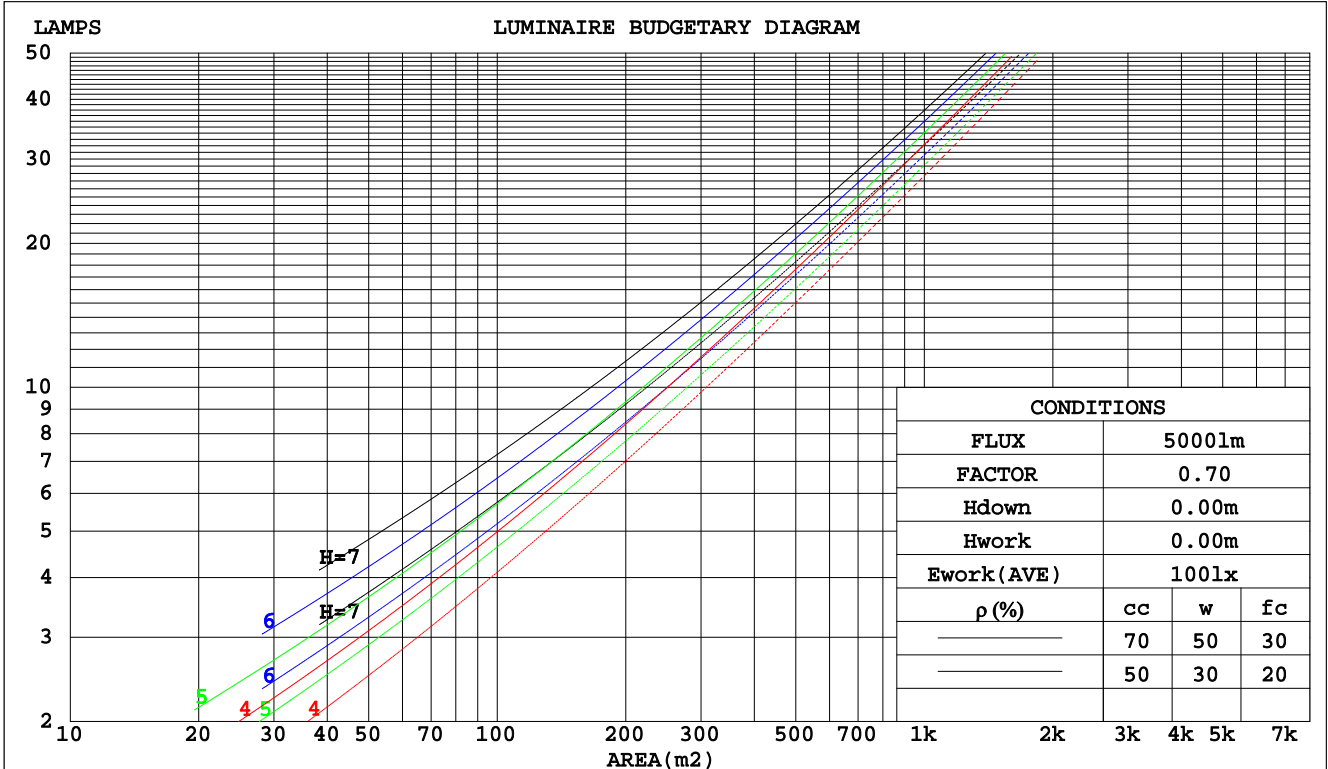
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack lighting	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																
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	1.04	.00	.96	1.02	.98	.94	.97	.94	.91	.93	.91	.88	.90	.88	.86	.84
2.0	.90	.84	.78	.89	.82	.77	.85	.80	.75	.82	.77	.73	.79	.75	.72	.69
3.0	.79	.71	.65	.78	.70	.64	.75	.68	.63	.72	.66	.62	.69	.65	.61	.58
4.0	.70	.61	.55	.69	.61	.54	.66	.59	.53	.64	.58	.53	.62	.56	.52	.50
5.0	.63	.54	.47	.62	.53	.47	.59	.52	.46	.57	.51	.46	.56	.50	.45	.43
6.0	.56	.47	.41	.56	.47	.41	.54	.46	.40	.52	.45	.40	.50	.44	.40	.38
7.0	.51	.42	.36	.50	.42	.36	.49	.41	.36	.47	.41	.36	.46	.40	.35	.33
8.0	.47	.38	.32	.46	.38	.32	.45	.37	.32	.43	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.29	.42	.34	.29	.41	.34	.29	.40	.33	.29	.39	.33	.28	.27
10.0	.40	.32	.26	.39	.31	.26	.38	.31	.26	.37	.31	.26	.36	.30	.26	.24



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack 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	.310	.177	.056	.303	.173	.055	.290	.166	.053	.278	.160	.051	.267	.155	.050	
2.0	.292	.160	.049	.286	.157	.049	.274	.152	.047	.263	.148	.046	.253	.143	.045	
3.0	.270	.144	.043	.265	.142	.043	.254	.138	.042	.245	.134	.041	.236	.131	.040	
4.0	.249	.130	.038	.244	.128	.038	.235	.125	.037	.227	.122	.037	.219	.119	.036	
5.0	.230	.117	.034	.226	.116	.034	.218	.113	.033	.210	.111	.033	.203	.109	.033	
6.0	.214	.107	.031	.210	.106	.031	.203	.104	.030	.196	.102	.030	.189	.100	.030	
7.0	.199	.098	.028	.195	.097	.028	.189	.096	.028	.183	.094	.027	.177	.092	.027	
8.0	.186	.091	.026	.183	.090	.025	.177	.088	.025	.171	.087	.025	.166	.085	.025	
9.0	.174	.084	.023	.171	.083	.023	.166	.082	.023	.161	.081	.023	.157	.079	.023	
10.0	.164	.078	.022	.161	.078	.022	.156	.077	.022	.152	.075	.021	.148	.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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.180	.156	.134	.154	.134	.116	.106	.092	.080	.061	.053	.046	.019	.017	.015	
2.0	.172	.132	.098	.148	.114	.085	.101	.079	.059	.058	.046	.035	.019	.015	.011	
3.0	.165	.114	.074	.141	.099	.064	.097	.069	.045	.056	.040	.027	.018	.013	.009	
4.0	.157	.101	.058	.135	.087	.051	.093	.061	.036	.054	.036	.021	.017	.012	.007	
5.0	.149	.091	.047	.128	.078	.041	.088	.055	.029	.051	.032	.017	.017	.010	.006	
6.0	.142	.082	.039	.122	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.004	
9.0	.123	.065	.025	.106	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm										
NAME:					TYPE:QDR-06P-PC(120V 3000K)			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: Blackjack 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	28.2	29.7	28.5	29.9	30.2	27.7	29.2	28.0	29.4	29.6
3H	29.9	31.3	30.2	31.5	31.8	29.2	30.6	29.5	30.8	31.0
4H	30.6	31.9	30.9	32.2	32.5	29.7	31.1	30.1	31.3	31.6
6H	31.1	32.4	31.5	32.7	32.9	30.1	31.4	30.5	31.7	32.0
8H	31.3	32.5	31.6	32.8	33.1	30.3	31.5	30.6	31.8	32.1
12H	31.4	32.6	31.7	32.9	33.2	30.3	31.5	30.7	31.8	32.1
4H 2H	28.8	30.1	29.1	30.4	30.6	28.4	29.7	28.7	30.0	30.2
3H	30.6	31.8	31.0	32.1	32.4	30.0	31.2	30.4	31.5	31.8
4H	31.5	32.6	31.9	32.9	33.2	30.7	31.8	31.1	32.1	32.5
6H	32.1	33.1	32.5	33.4	33.8	31.3	32.2	31.7	32.6	32.9
8H	32.4	33.3	32.8	33.6	34.0	31.4	32.3	31.8	32.7	33.1
12H	32.5	33.3	32.9	33.7	34.1	31.5	32.3	31.9	32.7	33.1
8H 4H	31.7	32.6	32.1	33.0	33.4	31.1	31.9	31.5	32.3	32.7
6H	32.5	33.3	33.0	33.7	34.1	31.7	32.5	32.2	32.9	33.3
8H	32.8	33.5	33.3	33.9	34.4	32.0	32.6	32.4	33.1	33.5
12H	33.0	33.6	33.5	34.1	34.5	32.2	32.7	32.6	33.2	33.6
12H 4H	31.7	32.5	32.2	32.9	33.3	31.1	31.9	31.5	32.3	32.7
6H	32.6	33.2	33.0	33.7	34.1	31.8	32.5	32.3	32.9	33.3
8H	32.9	33.5	33.4	33.9	34.4	32.1	32.7	32.6	33.1	33.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.1 / - 0.3					+ 0.2 / - 0.4				
2.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.4				

CIE Pub.117 Corrected 469.6 lm Total Lamp Luminous Flux. (8log(F/F0) = -2.6)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
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 Operators:David
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γ Range: 0 - 180DEG
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 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
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 Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack 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	58	46	39	57	46	39	56	45	39	32
0.80	68	56	49	67	56	48	65	55	48	41
1.00	76	65	58	75	64	57	73	66	57	50
1.25	83	73	65	82	72	65	79	70	64	57
1.50	88	78	71	86	77	71	83	75	70	62
2.00	95	86	80	93	85	79	90	83	78	70
2.50	99	91	85	97	90	84	93	87	82	74
3.00	102	95	90	100	94	89	96	91	87	78
4.00	106	101	96	104	99	94	100	95	92	83
5.00	109	104	100	106	102	98	102	98	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack lighting	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

252.28 lm

%lum = 53.7%

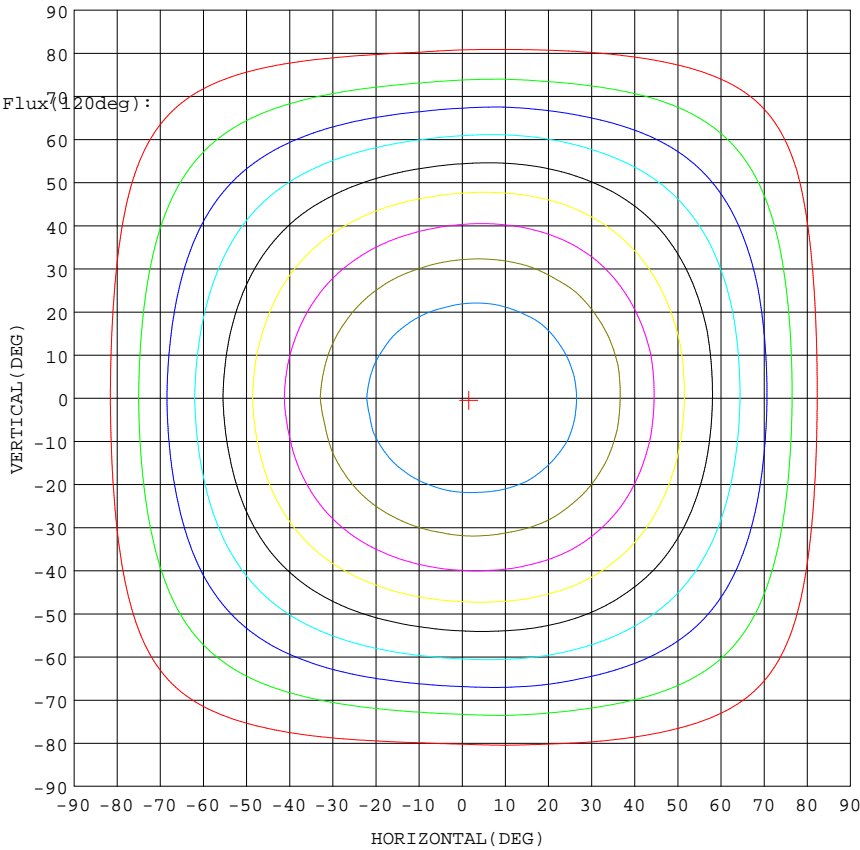
%lamp = 53.7%

Conical surface Flux(70deg):

369.14 lm

%lum = 78.6%

%lamp = 78.6%



I_{max}:166.8(H1.5,V-0.5)
(At:C=20.0,Gamma=1.0)

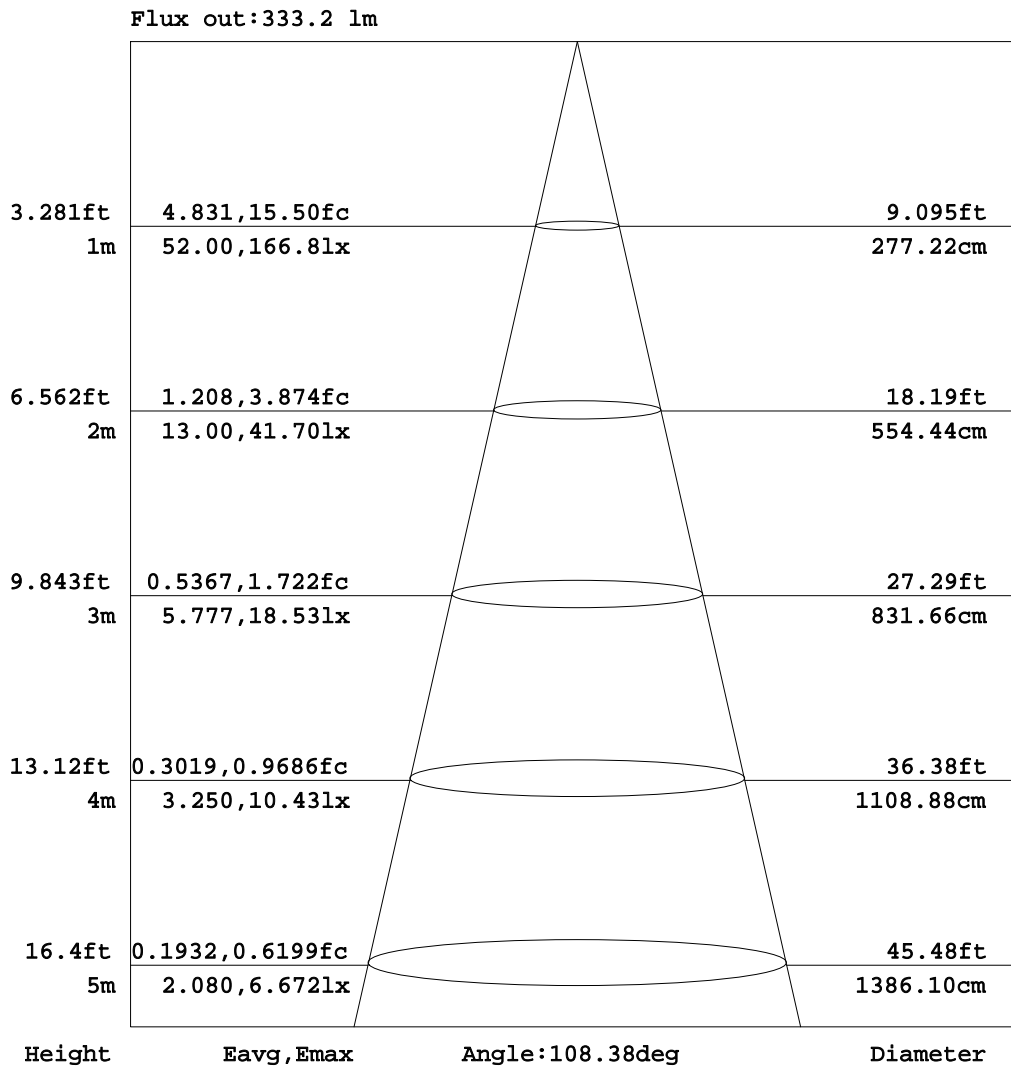
UNIT: cd

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2016-09-22

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:2.476m [K=1.0000]
Remarks:

AAI Figure

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack lighting	SUR.:	PROTECTION ANGLE:



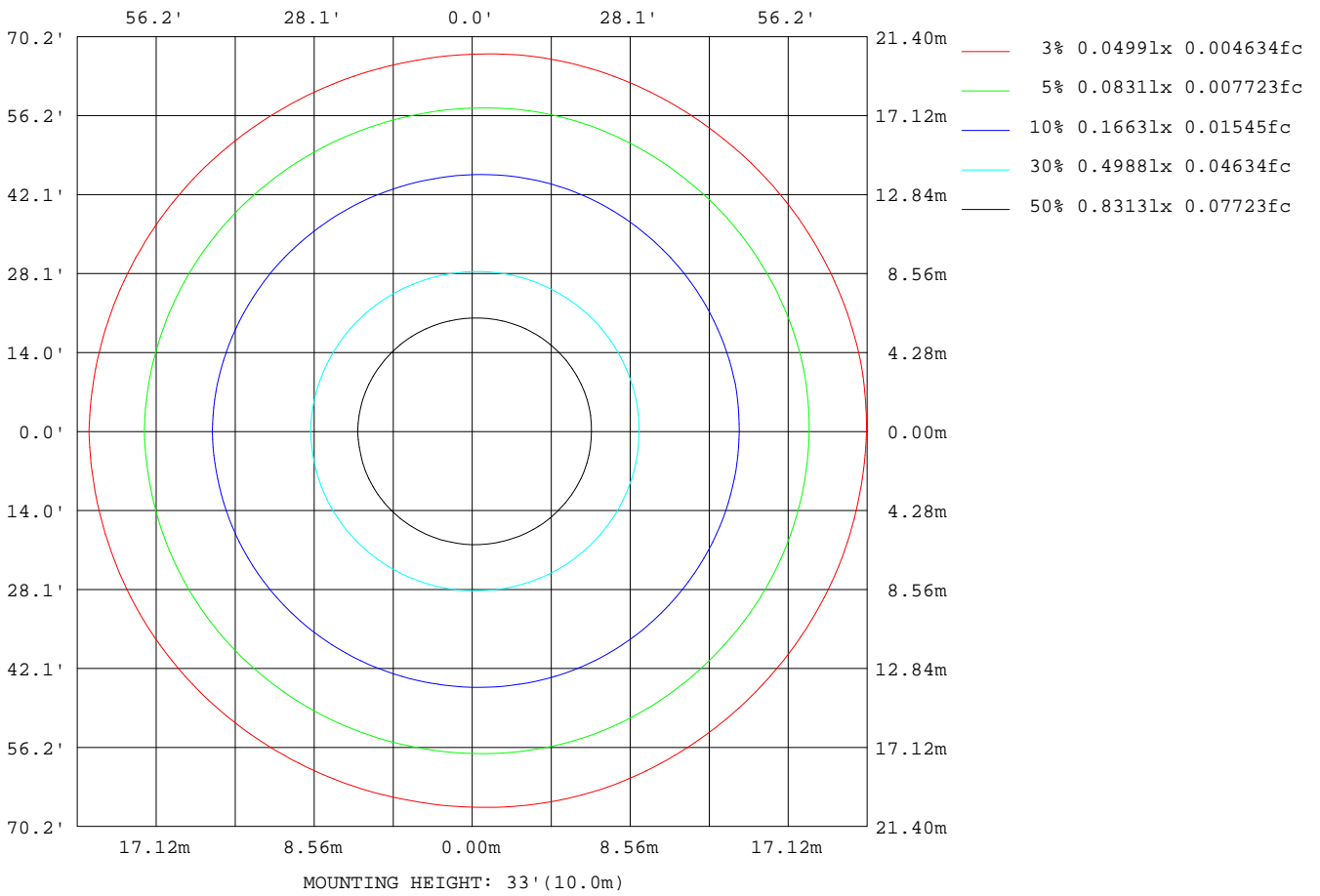
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

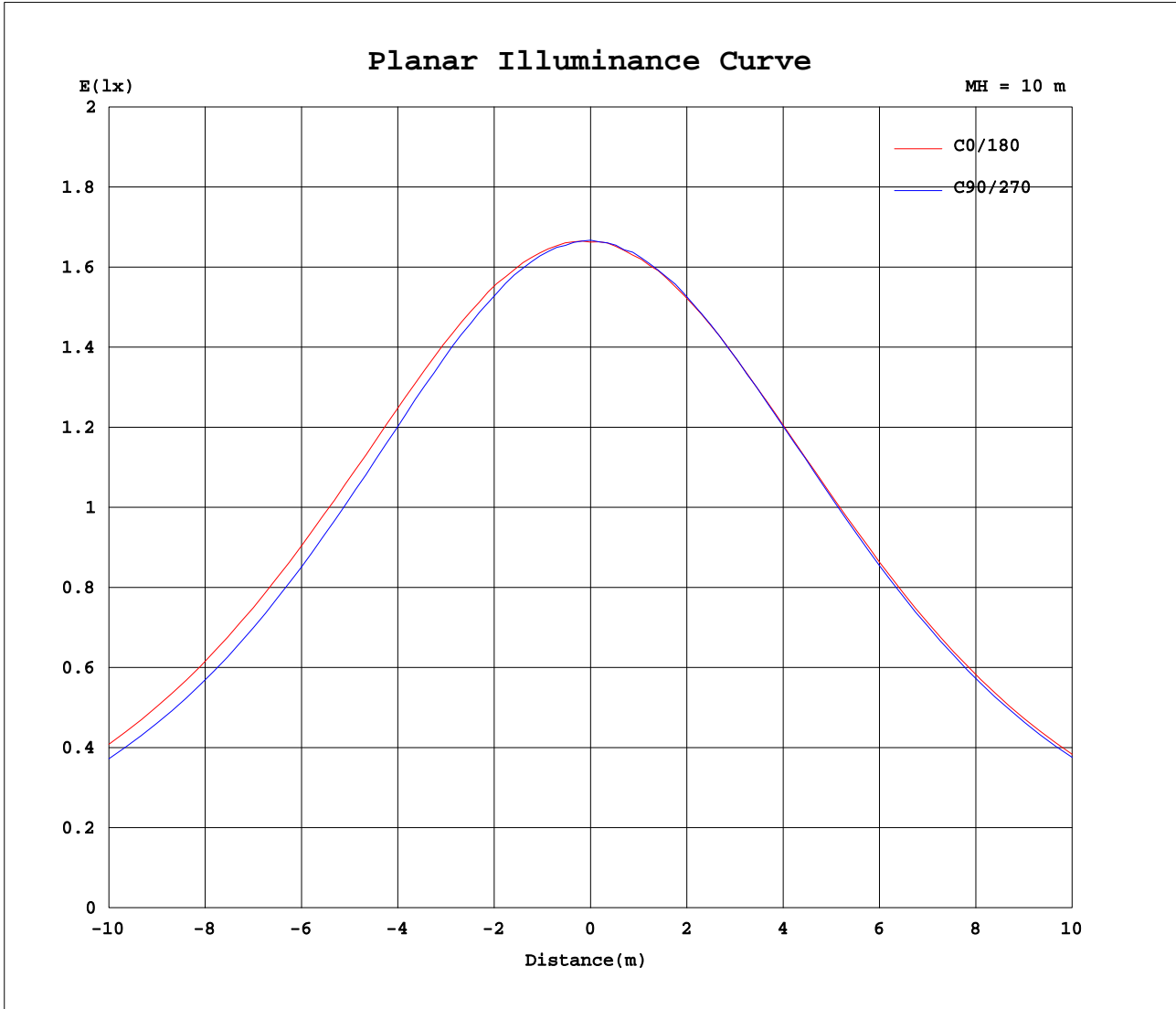
Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack lighting	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.6DEG
Operators: David
Test Date: 2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity: 67.1%
Test Distance: 2.476m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack lighting	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	166	167	167	167	166	166	167	166	166	167	167	166	166	166	167	166	166	166	166
5	166	167	167	166	166	166	166	166	166	166	166	166	165	165	165	165	165	165	165
10	165	165	165	165	165	165	164	164	164	163	163	163	163	163	162	163	162	162	162
15	162	162	162	162	161	161	160	159	159	159	158	158	158	158	158	158	158	158	158
20	158	158	158	157	156	155	155	154	153	153	152	152	152	152	153	152	153	152	153
25	152	152	152	151	150	149	148	147	146	145	145	145	145	145	145	145	146	146	146
30	145	145	144	143	142	141	140	139	138	137	136	136	136	136	137	137	138	138	139
35	136	137	136	135	133	132	131	129	128	127	127	126	127	127	127	128	128	128	130
40	126	126	126	124	123	122	120	119	118	117	116	116	116	116	117	118	118	119	120
45	116	115	114	113	112	111	109	108	106	105	105	104	105	105	106	107	107	108	108
50	104	103	102	101	100.0	98.9	97.5	96.1	94.5	93.4	92.6	92.3	92.5	93.0	93.8	94.6	95.4	96.0	96.9
55	91.2	90.7	89.6	88.3	87.1	86.0	84.8	83.5	81.9	80.8	80.1	80.0	80.3	80.7	81.4	82.2	83.1	83.6	84.5
60	78.3	77.6	76.4	75.2	73.7	72.7	71.7	70.6	69.2	67.9	67.2	67.1	67.3	67.8	68.7	69.5	70.3	71.0	71.9
65	65.2	64.0	63.1	61.7	60.3	59.2	58.3	57.6	56.4	55.0	54.3	54.2	54.5	55.1	55.8	56.7	57.5	58.3	59.1
70	51.8	50.9	49.7	48.4	46.8	45.6	44.7	44.1	43.2	41.8	41.2	41.2	41.4	42.0	42.9	43.8	44.7	45.4	46.2
75	37.7	37.0	36.0	34.9	33.6	32.5	31.5	30.9	30.3	29.1	28.6	28.6	29.0	29.6	30.4	31.2	32.0	32.6	33.4
80	23.1	22.4	21.7	21.0	20.4	19.9	19.2	18.5	18.1	17.2	16.8	16.9	17.3	17.8	18.1	18.7	19.3	19.8	20.6
85	9.13	8.85	8.34	7.96	7.59	7.39	7.38	7.48	7.13	6.66	6.56	6.52	6.55	6.57	6.74	6.94	7.26	7.61	8.39
90	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.00	0.00	0.00

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.0808A P:9.378W PF:0.9665 Lamp Flux:469.587x1 lm		
NAME:	TYPE:QDR-06P-PC(120V 3000K)	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack lighting	SUR.:	PROTECTION ANGLE:

Table--2

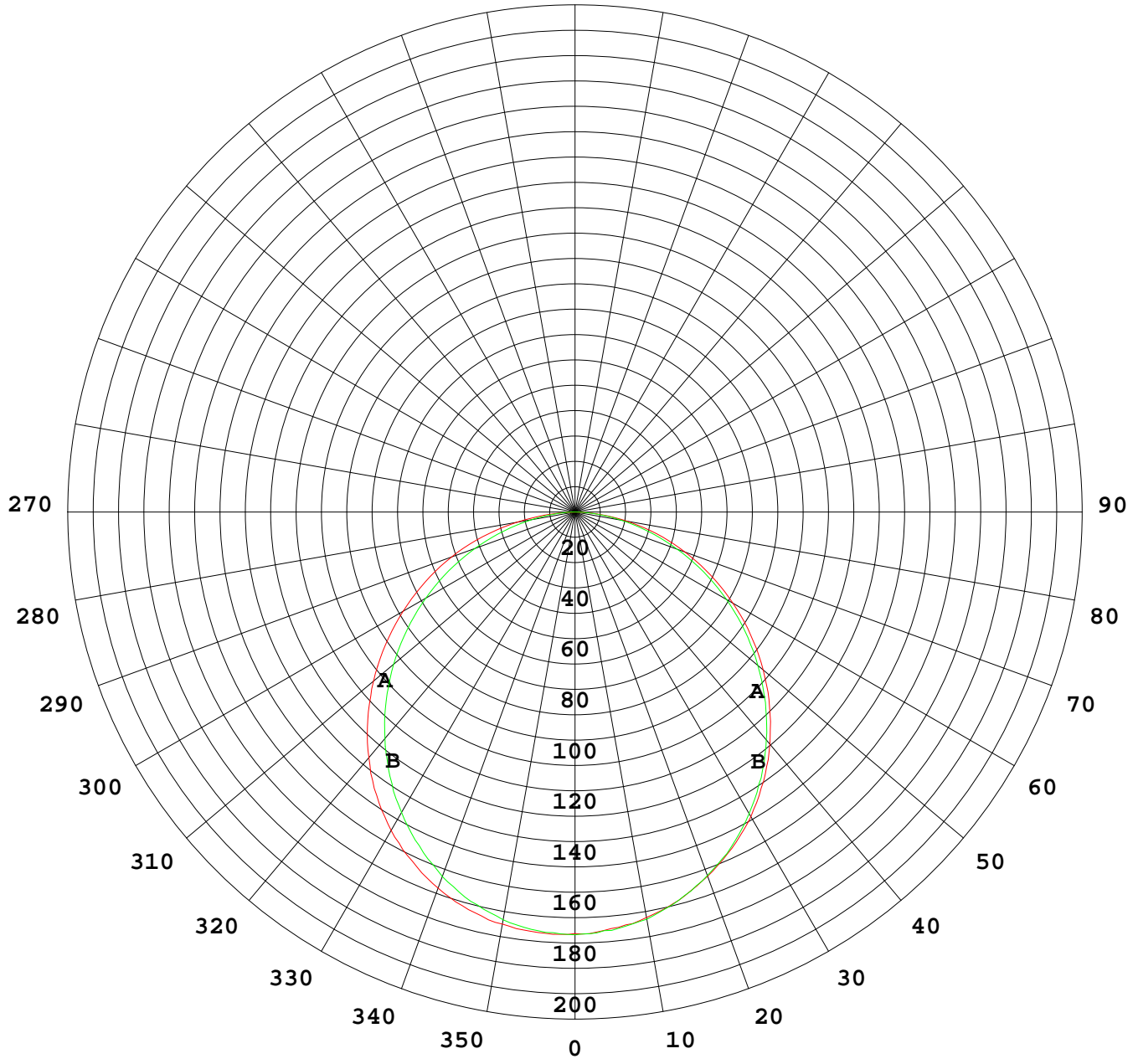
UNIT: cd

C(DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	167	167	167	166	166	167	166	166	167	167	166	166	166	167	166	166	166		
5	165	165	165	165	165	165	165	165	166	165	166	166	166	166	166	166	166		
10	162	162	162	162	162	162	162	163	163	163	163	164	164	164	164	164	165		
15	158	158	158	158	158	158	158	158	158	159	159	160	160	161	161	162	162		
20	153	152	152	152	152	152	152	152	153	153	154	155	155	156	157	158	158		
25	146	146	145	145	145	145	145	145	146	146	147	148	149	150	151	152	152		
30	138	138	137	137	137	136	136	137	137	138	139	141	142	143	144	145	145		
35	129	128	128	127	127	127	126	127	128	129	130	131	132	134	135	136	137		
40	119	118	117	117	116	116	116	117	117	119	120	121	123	124	125	126	127		
45	108	107	106	106	105	105	105	105	106	107	109	110	112	113	114	115	116		
50	96.2	95.4	94.4	93.7	92.9	92.7	92.7	93.0	94.1	95.7	97.3	98.8	99.9	101	102	103	104		
55	84.0	83.0	82.2	81.3	80.5	80.2	80.0	80.7	81.7	83.4	84.8	86.1	87.1	88.5	89.6	90.6	91.6		
60	71.2	70.3	69.4	68.6	67.7	67.3	67.3	67.8	69.0	70.6	71.9	72.8	73.9	75.2	76.2	77.5	78.6		
65	58.3	57.4	56.5	55.6	54.9	54.5	54.4	54.8	56.0	57.6	58.5	59.4	60.3	61.8	63.1	64.3	65.4		
70	45.4	44.6	43.6	42.8	42.0	41.6	41.5	41.8	43.0	44.4	45.0	45.8	46.9	48.4	49.7	51.0	52.0		
75	32.8	32.0	31.2	30.4	29.6	29.1	29.0	29.3	30.3	31.3	31.8	32.8	33.9	35.1	36.2	37.3	38.2		
80	20.1	19.5	19.0	18.5	18.0	17.6	17.3	17.5	18.4	18.9	19.6	20.3	21.0	21.6	22.2	23.0	23.7		
85	8.06	7.74	7.47	7.27	7.14	7.10	7.08	7.06	7.63	7.95	8.10	8.10	8.27	8.55	9.01	9.52	9.99		
90	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	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	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	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	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	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	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	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	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	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	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	0.00		
145	0.00	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	0.00		
150	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00		
155	0.00	0.00	0.00	0.00	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		
160	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
165	0.00	0.00	0.00	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		
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	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	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	0.00		

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-09-22

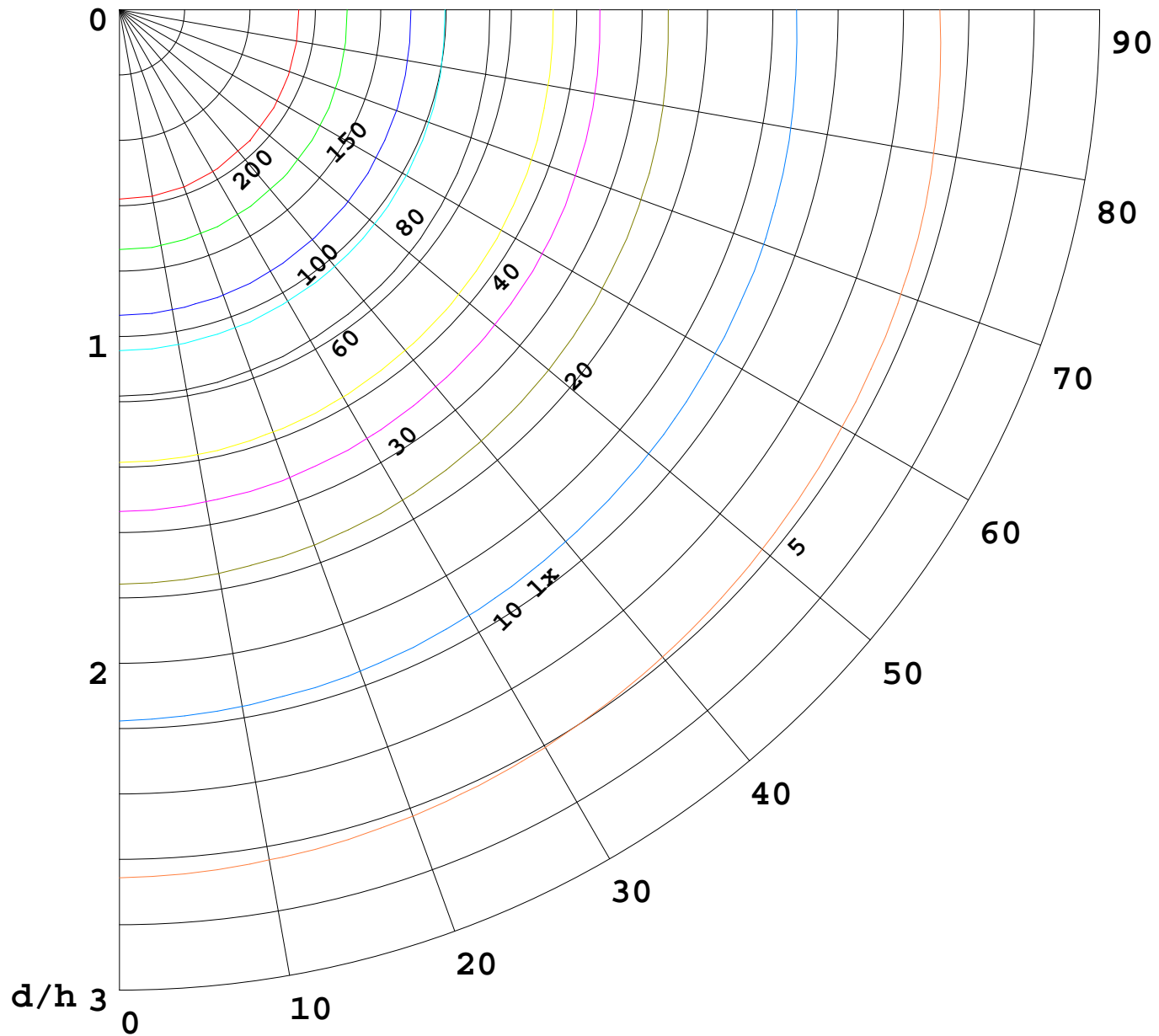
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.476m [K=1.0000]
 Remarks:

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

