




## IESNA LM-79 TEST REPORT

<b>Applicant's name</b> .....	: Blackjack lighting
<b>Address</b> .....	: 1553 Barclay Blvd. Buffalo Grove, IL 60089
<b>Brand Name</b> .....	: Blackjack lighting
<b>Report No.</b> .....	: BTR66.181.15.0035.07
<b>Product Name</b> .....	: Wall Mounted fixture
<b>Model Number</b> .....	: QDR-26V-PC
<b>Tested by</b> (printed name and signature) .....	: David Zhang 
<b>Title</b> .....	: <b>Test Engineer</b>
<b>Approved by</b> (printed name and signature) .....	: Steven Su 
<b>Title</b> .....	: <b>Approved Signatory</b>
<b>Date of issue</b> .....	: Mar 23, 2016
<b>Testing Laboratory Name</b> .....	: BEST Test Service Shenzhen Co., Ltd.
<b>Address</b> .....	: 1 <sup>st</sup> Floor, 1 <sup>st</sup> Building, Weitai Industrial Park, Yingrenshi, Shiyao, Baoan, Shenzhen, China
<b>Accreditation</b> .....	: DLC/Lighting Facts/UL/ETL/ELI/NVLAP/EPA/DOE
<b>Test specification</b>	
<b>Standard</b> .....	: IESNA LM-79
<b>Test procedure</b> .....	: IESNA LM-79 Test Procedure
<b>Non-standard test method</b> .....	: No
<b>Test Report Form No.</b>	BEST_LM-79
<b>TRF originator</b> .....	: BEST Test Service Shenzhen Co., Ltd. Mr Tseng
<b>Master TRF</b> .....	: BEST_LM-79.doc

Note:  
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<b>Product description:</b>	
Test date .....	Mar 15, 2016 to Mar 22, 2016
Sample Quantity .....	1 unit
SKU.....	N/A
Rating(s) (V; Hz) .....	120V 60HZ
Nominal Power .....	25W
Nominal Power Factor .....	N/A
Nominal Lumen Output.....	1550lm
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	3.5H
Ambient temperature	25°C
Orientation (burning position) of SSL product during test	Lighting Surface Down
Stabilization time	1.5 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 4Π 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.

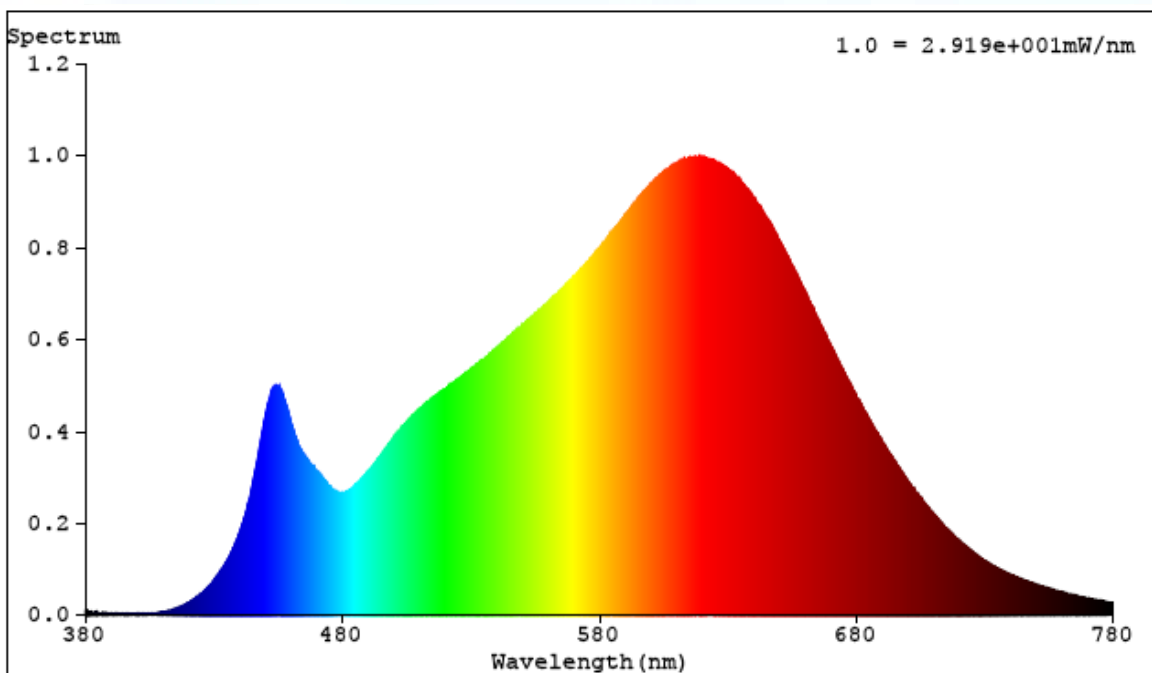
### Luminous Intensity

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

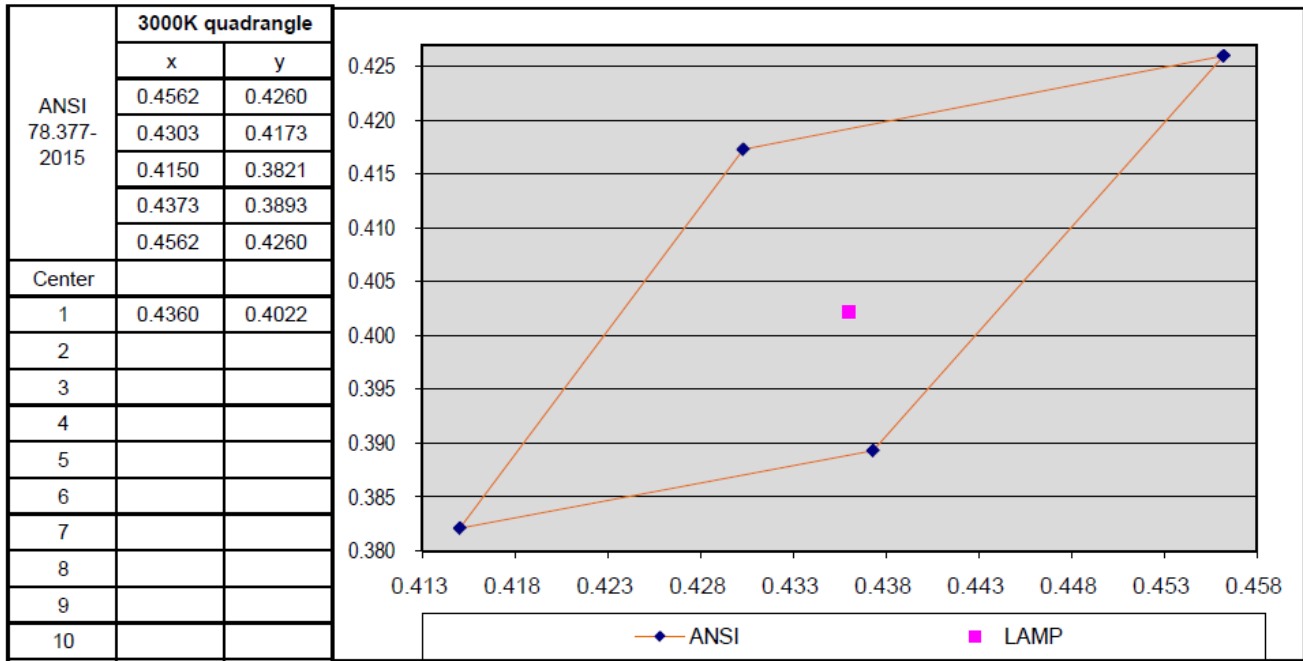
### Photometric and Electrical Test Data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.2012	/	24.00	0.9939	1590.56	66.28
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
3001	92.6	57	0.4360	0.4022	0.2507	0.5205	-0.0006

### Spectrul Plots



**7 Step Quadrangle**



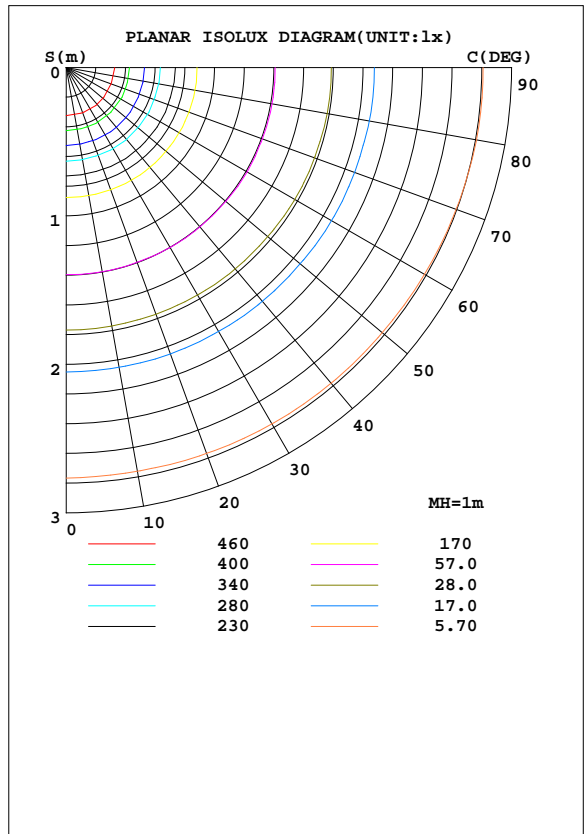
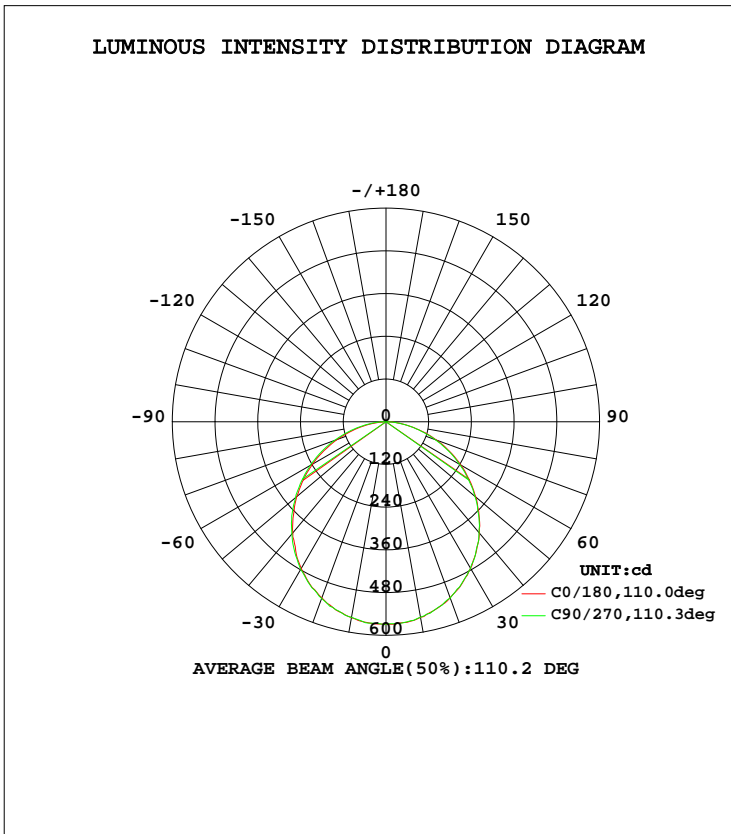
**EUT Photo**



LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 66.28 lm/W			
MODEL	QDR-26V-PC	I <sub>max</sub> (cd)	571.3	S/MH(C0/180)	1.24
NOMINAL POWER(W)	25	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1590.6	η UP, DN(C0-180)	0.1, 50.3
NOMINAL FLUX(lm)	1590.56	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.1, 49.6
LAMPS INSIDE	1	η up(%)	0.2	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120	η down(%)	99.8	CIBSE SHR MAX	1.35



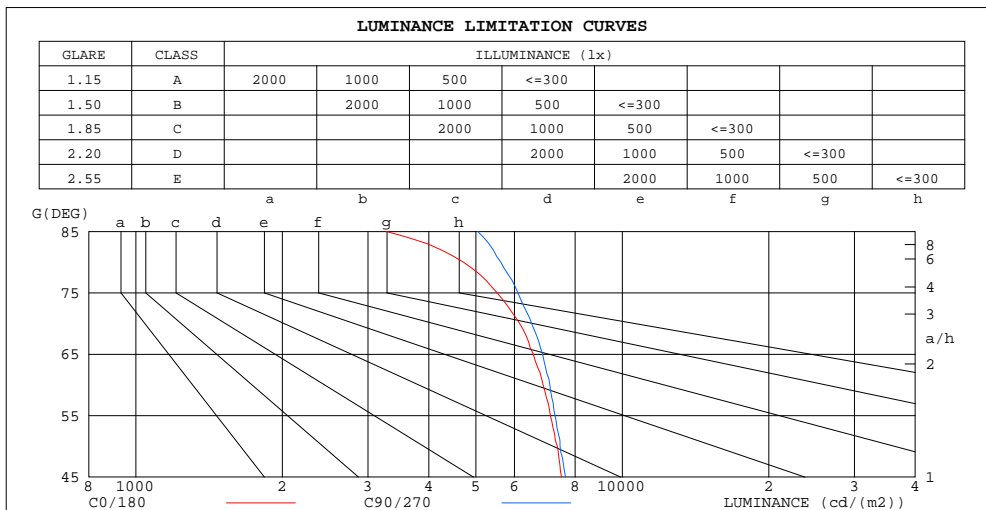
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [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	558.7	559.1	558.0	558.2	558.1	558.9	557.6	558.5	0- 10	53.83	53.83	3.38,3.38
20	526.9	526.9	528.4	529.1	526.5	526.2	527.0	525.2	10- 20	153.8	207.7	13.1,13.1
30	476.3	477.1	479.5	478.6	474.9	474.6	475.1	475.2	20- 30	232.0	439.6	27.6,27.6
40	407.4	410.2	411.6	411.9	408.2	407.1	406.6	405.6	30- 40	277.6	717.2	45.1,45.1
50	327.5	329.8	331.8	332.6	329.4	327.8	326.5	324.8	40- 50	285.2	1002	63,63
60	238.1	240.6	245.8	244.5	242.3	240.0	238.4	235.2	50- 60	255.0	1257	79.1,79.1
70	145.9	148.3	154.4	152.7	151.6	148.2	147.4	143.2	60- 70	192.6	1450	91.2,91.2
80	56.69	59.54	67.69	65.60	63.32	62.23	61.53	55.72	70- 80	109.9	1560	98.1,98.1
90	0.0568	0.0796	0.1026	0.1341	0.0916	0.0555	0.0551	0.0554	80- 90	28.08	1588	99.8,99.8
100	0.0367	0.0553	0.0551	0.0646	0.3676	0.1753	0.1652	0.1755	90-100	0.1069	1588	99.8,99.8
110	0.2203	0.0645	0.0551	0.0830	0.8995	0.3322	0.2940	0.3605	100-110	0.2241	1588	99.9,99.9
120	0.3300	0.2396	0.2386	0.2307	0.7169	0.4891	0.3854	0.5446	110-120	0.3488	1589	99.9,99.9
130	0.7857	0.2490	0.2570	0.2399	0.9362	0.5621	0.4772	0.5813	120-130	0.4095	1589	99.9,99.9
140	1.083	0.3500	0.3120	0.3598	1.008	0.6090	0.5501	0.5730	130-140	0.4209	1589	99.9,99.9
150	1.120	0.5712	0.5139	0.5352	0.8622	0.8019	0.5506	0.8952	140-150	0.4118	1590	100,100
160	1.120	0.5991	0.5139	0.5721	1.047	0.9121	0.6424	0.9872	150-160	0.3424	1590	100,100
170	1.029	0.7924	0.5323	0.9595	1.432	1.106	0.8071	0.9780	160-170	0.2336	1590	100,100
180	1.101	1.014	0.7709	1.273	1.267	1.087	0.8259	0.9874	170-180	0.0906	1591	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



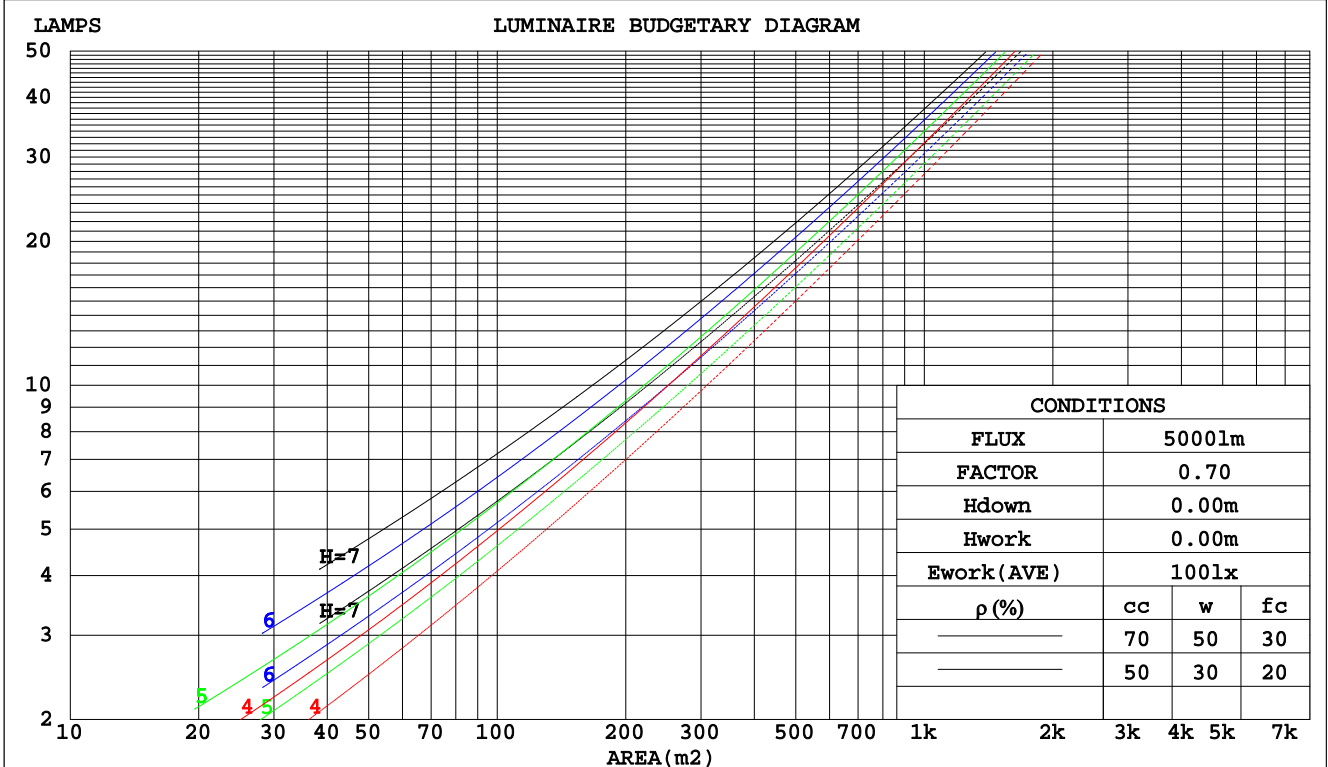
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	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	1.19	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	.91	.84	.78	.89	.82	.77	.85	.80	.75	.82	.77	.74	.79	.75	.72	.70
3.0	.80	.71	.65	.78	.70	.64	.75	.68	.63	.72	.67	.62	.70	.65	.61	.59
4.0	.70	.62	.55	.69	.61	.55	.67	.59	.54	.64	.58	.53	.62	.57	.52	.50
5.0	.63	.54	.47	.62	.53	.47	.60	.52	.47	.58	.51	.46	.56	.50	.45	.43
6.0	.57	.48	.41	.56	.47	.41	.54	.46	.41	.52	.45	.40	.51	.45	.40	.38
7.0	.51	.43	.36	.51	.42	.36	.49	.42	.36	.48	.41	.36	.46	.40	.35	.34
8.0	.47	.38	.33	.46	.38	.32	.45	.37	.32	.44	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.29	.42	.35	.29	.41	.34	.29	.40	.34	.29	.39	.33	.29	.27
10.0	.40	.32	.27	.39	.32	.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:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	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	.307	.175	.055	.300	.171	.054	.287	.164	.053	.274	.158	.051	.263	.153	.049	
2.0	.290	.159	.049	.283	.156	.048	.272	.151	.047	.261	.146	.046	.251	.142	.045	
3.0	.268	.143	.043	.263	.141	.042	.252	.137	.042	.243	.133	.041	.234	.130	.040	
4.0	.248	.129	.038	.243	.127	.038	.234	.124	.037	.225	.121	.036	.217	.118	.036	
5.0	.229	.117	.034	.225	.115	.034	.217	.113	.033	.209	.110	.033	.202	.108	.032	
6.0	.213	.107	.031	.209	.106	.030	.202	.103	.030	.195	.101	.030	.188	.099	.029	
7.0	.198	.098	.028	.195	.097	.028	.188	.095	.027	.182	.093	.027	.176	.092	.027	
8.0	.185	.090	.025	.182	.090	.025	.176	.088	.025	.171	.086	.025	.165	.085	.025	
9.0	.173	.084	.023	.171	.083	.023	.165	.082	.023	.161	.080	.023	.156	.079	.023	
10.0	.163	.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	.192	.192	.192	.164	.164	.164	.112	.112	.112	.064	.064	.064	.021	.021	.021	
1.0	.181	.157	.136	.155	.135	.117	.106	.093	.081	.061	.054	.047	.020	.017	.015	
2.0	.173	.133	.100	.148	.115	.086	.102	.079	.060	.059	.046	.035	.019	.015	.011	
3.0	.165	.116	.076	.142	.100	.066	.097	.069	.046	.056	.040	.027	.018	.013	.009	
4.0	.158	.102	.060	.135	.088	.052	.093	.062	.037	.054	.036	.022	.017	.012	.007	
5.0	.150	.092	.049	.129	.079	.042	.089	.055	.030	.052	.033	.018	.017	.011	.006	
6.0	.143	.083	.041	.123	.072	.035	.085	.051	.025	.049	.030	.015	.016	.010	.005	
7.0	.136	.077	.035	.117	.066	.030	.081	.047	.021	.047	.027	.013	.015	.009	.004	
8.0	.130	.071	.030	.112	.061	.026	.077	.043	.019	.045	.025	.011	.015	.008	.004	
9.0	.124	.066	.027	.107	.057	.023	.074	.040	.016	.043	.024	.010	.014	.008	.003	
10.0	.118	.062	.024	.102	.053	.021	.071	.038	.015	.041	.022	.009	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:



UGR(Unified Glare Rating) Table

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm										
NAME:					TYPE:QDR-26V-PC			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: Blackjack Lighting					SUR.:0.63*0.11			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	19.6	21.2	19.9	21.4	21.6	19.8	21.3	20.0	21.5	21.7
3H	21.1	22.5	21.4	22.7	23.0	21.3	22.7	21.6	22.9	23.2
4H	21.7	23.0	22.0	23.2	23.5	21.9	23.3	22.2	23.5	23.8
6H	22.0	23.3	22.4	23.6	23.8	22.4	23.6	22.7	23.9	24.2
8H	22.1	23.3	22.5	23.6	23.9	22.5	23.8	22.9	24.0	24.3
12H	22.2	23.3	22.5	23.6	23.9	22.6	23.8	23.0	24.1	24.4
4H 2H	20.3	21.6	20.6	21.8	22.1	20.4	21.7	20.7	21.9	22.2
3H	21.9	23.1	22.2	23.4	23.7	22.1	23.2	22.4	23.5	23.8
4H	22.6	23.6	22.9	24.0	24.3	22.8	23.9	23.2	24.2	24.5
6H	23.0	24.0	23.5	24.3	24.7	23.4	24.3	23.8	24.7	25.1
8H	23.2	24.1	23.6	24.4	24.8	23.6	24.5	24.0	24.9	25.2
12H	23.3	24.1	23.7	24.5	24.9	23.8	24.6	24.2	25.0	25.4
8H 4H	22.8	23.7	23.2	24.1	24.5	23.0	23.9	23.5	24.3	24.7
6H	23.4	24.2	23.9	24.6	25.0	23.8	24.5	24.2	24.9	25.3
8H	23.7	24.3	24.1	24.7	25.2	24.1	24.7	24.5	25.1	25.6
12H	23.8	24.3	24.3	24.8	25.3	24.3	24.9	24.8	25.3	25.8
12H 4H	22.8	23.6	23.3	24.0	24.4	23.0	23.9	23.5	24.2	24.7
6H	23.5	24.1	24.0	24.6	25.0	23.8	24.5	24.3	24.9	25.3
8H	23.7	24.3	24.2	24.7	25.2	24.1	24.7	24.6	25.1	25.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117 Corrected 1591 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.6)

C Range: 0 - 360DEG  
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 Test Speed: HIGH  
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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%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	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	33
0.80	68	56	49	67	56	49	65	55	48	41
1.00	76	65	58	75	65	58	73	66	57	50
1.25	83	73	66	82	72	65	79	71	65	57
1.50	88	78	71	87	78	71	84	76	70	62
2.00	95	87	80	93	85	79	90	83	78	70
2.50	99	91	85	97	90	84	93	87	82	74
3.00	102	96	90	100	94	89	96	91	87	78
4.00	106	101	96	104	99	95	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:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

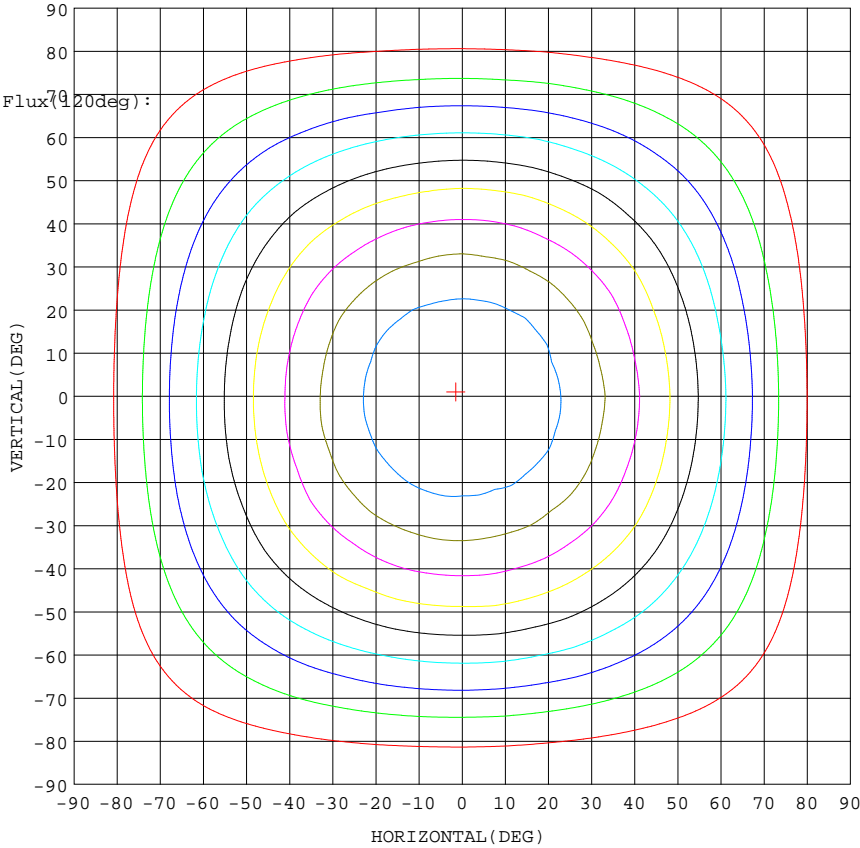
Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	PROTECTION ANGLE:

Conical surface Flux(90deg):

861.31 lm  
 %lum = 54.2%  
 %lamp = 54.2%

Conical surface Flux(70deg):

1257.4 lm  
 %lum = 79.1%  
 %lamp = 79.1%



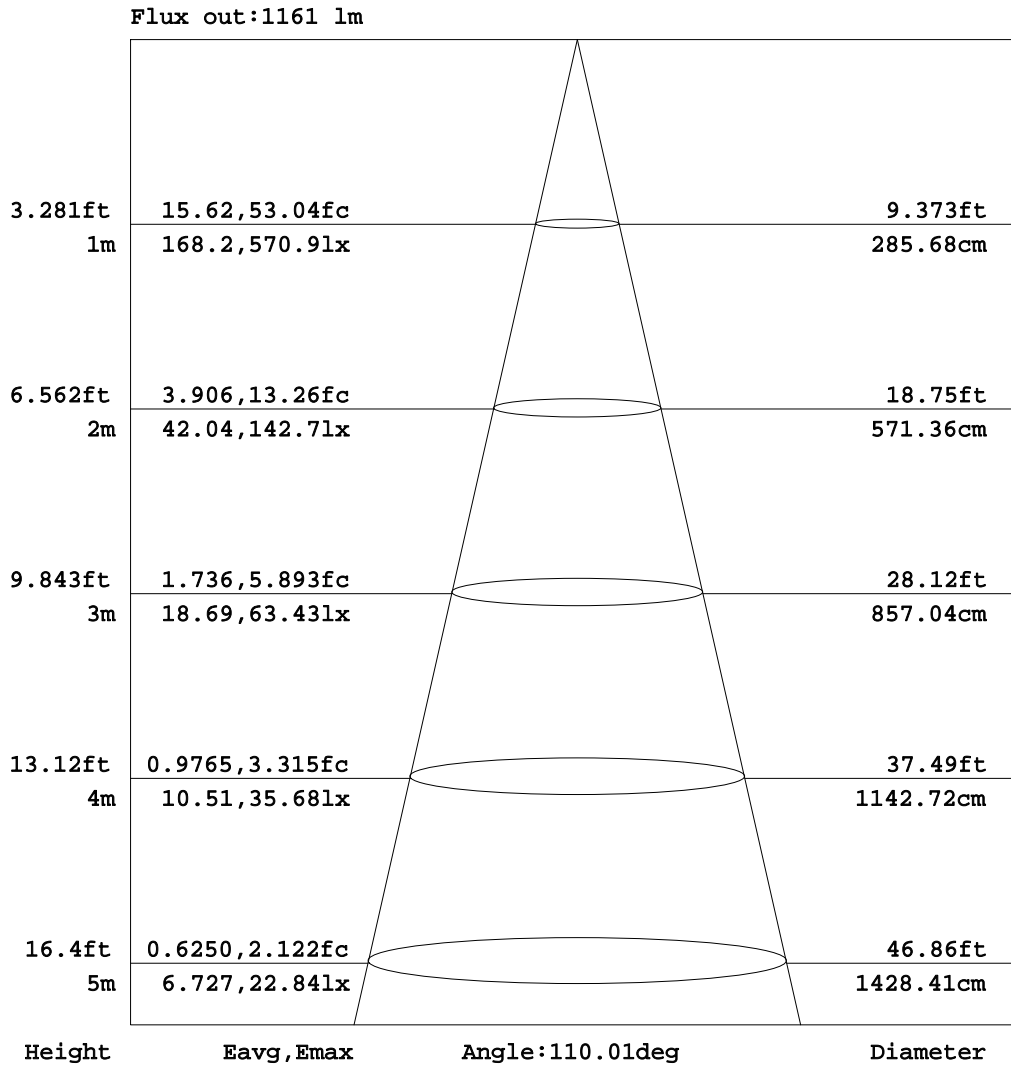
I<sub>max</sub>:570.5(H=-1.5,V1.0)  
 (At:C=210.0,Gamma=2.0)  
 UNIT: cd

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

AAI Figure

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	PROTECTION ANGLE:



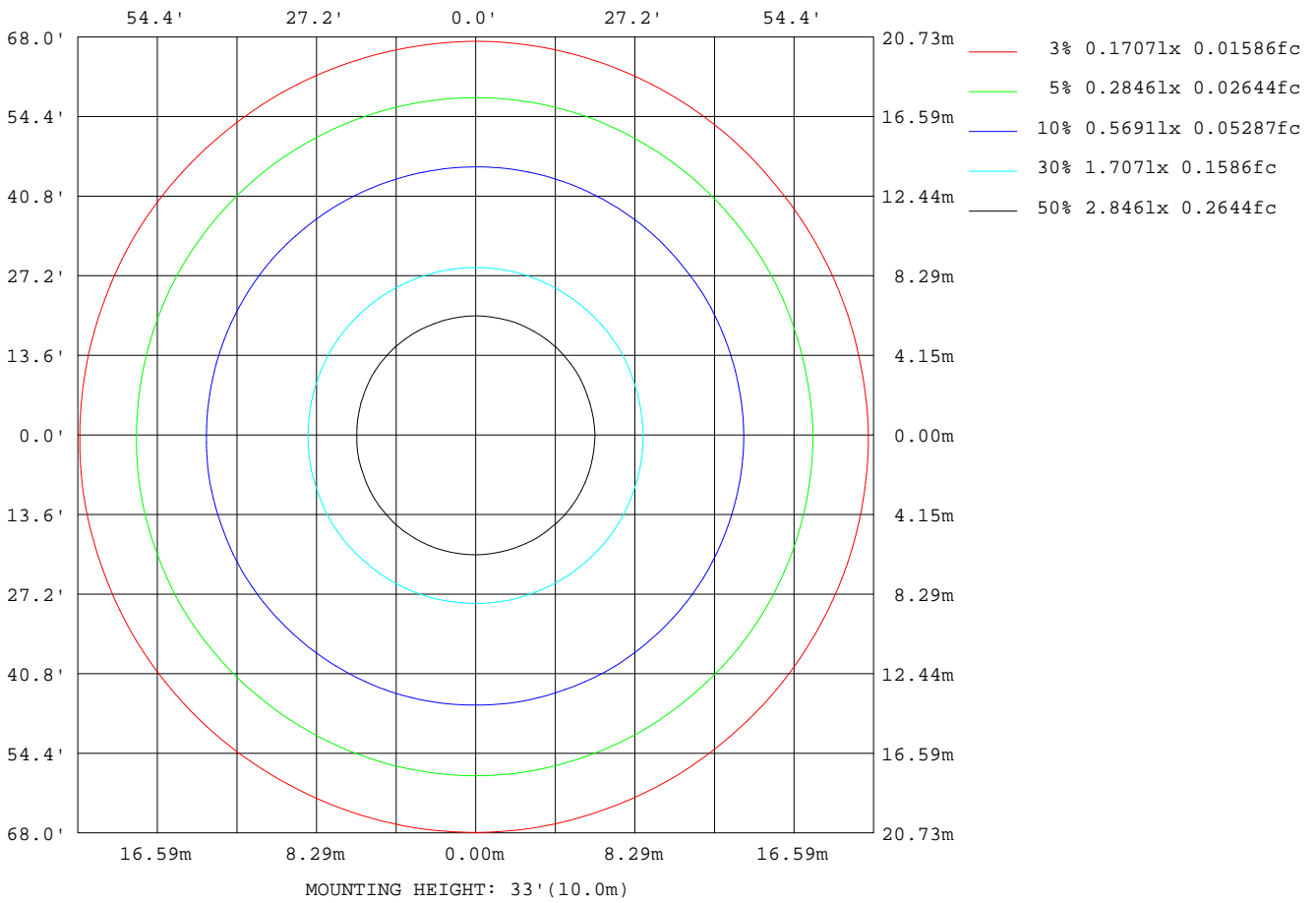
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

ISOLUX DIAGRAM

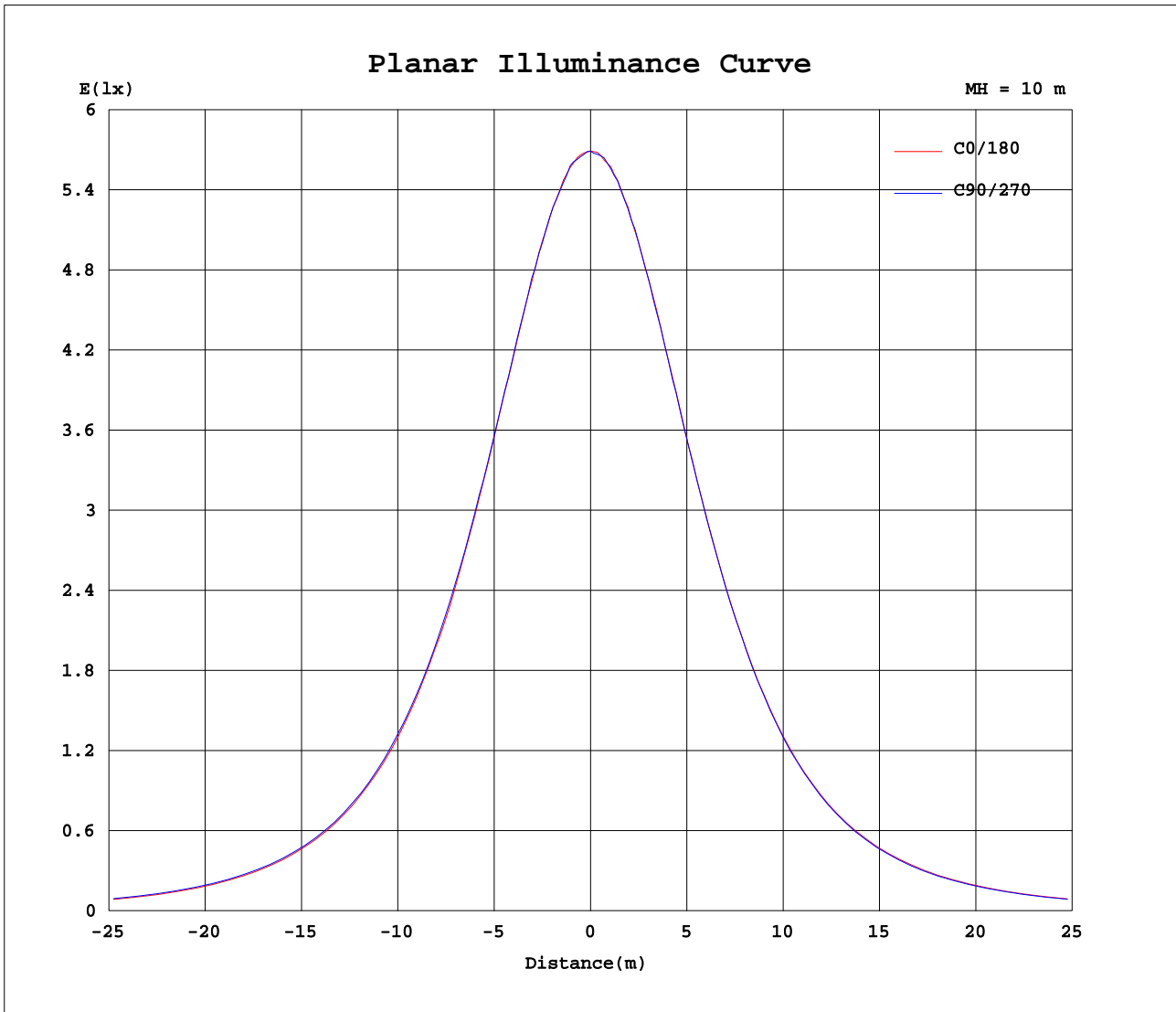
Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [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:2016-03-17

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
Humidity:67.1%  
Test Distance:26.000m [K=1.0000]  
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	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	569	568	569	571	570	568	571	569	569	569	568	570	571	571	568	569	567	569	569
5	567	567	567	569	568	566	568	565	566	568	566	568	568	569	566	567	566	566	566
10	559	560	560	559	560	558	560	558	559	558	559	560	559	559	558	559	557	557	558
15	547	544	545	547	546	545	546	546	546	547	547	548	548	546	546	547	544	544	545
20	527	527	528	529	528	526	529	527	529	528	529	529	529	530	528	527	525	526	526
25	505	504	504	506	504	504	506	504	504	506	505	505	507	506	505	505	504	503	503
30	476	475	476	477	477	477	478	476	477	480	478	480	479	480	478	478	476	476	475
35	443	443	443	445	446	444	445	446	446	447	446	446	447	449	447	446	445	445	443
40	407	408	408	409	411	409	411	411	413	412	412	413	411	411	412	412	408	410	408
45	367	367	369	371	371	371	373	373	373	375	374	373	372	375	373	374	372	371	370
50	327	327	327	329	330	330	332	331	334	332	332	333	332	332	333	333	330	330	329
55	283	283	283	285	286	287	289	288	290	289	290	290	289	289	289	290	288	289	287
60	238	238	239	240	241	241	243	244	246	246	246	246	244	244	245	246	244	244	242
65	192	192	193	193	194	195	197	198	200	201	200	199	199	199	199	199	198	199	197
70	146	145	146	147	148	149	150	152	154	154	154	154	153	153	153	154	153	153	152
75	99.2	99.4	100	101	102	103	105	107	109	109	110	109	109	109	108	107	107	107	106
80	56.7	57.0	57.3	57.7	58.6	60.4	62.7	64.8	67.1	67.7	67.4	67.5	66.7	65.9	65.3	64.9	64.6	64.9	63.3
85	19.8	19.7	19.9	20.5	21.5	22.9	24.6	27.0	29.2	30.5	30.2	29.6	28.7	27.7	27.1	26.7	26.5	26.7	25.6
90	0.06	0.08	0.09	0.11	0.06	0.10	0.10	0.10	0.14	0.10	0.11	0.15	0.16	0.14	0.13	0.17	0.21	0.22	0.09
95	0.04	0.06	0.09	0.09	0.06	0.06	0.09	0.09	0.09	0.06	0.06	0.07	0.07	0.07	0.06	0.06	0.09	0.11	0.17
100	0.04	0.06	0.09	0.09	0.06	0.06	0.09	0.09	0.09	0.06	0.06	0.07	0.07	0.07	0.06	0.06	0.09	0.11	0.37
105	0.05	0.07	0.09	0.09	0.06	0.06	0.09	0.09	0.09	0.06	0.06	0.07	0.07	0.07	0.06	0.06	0.09	0.13	0.61
110	0.22	0.22	0.24	0.20	0.07	0.06	0.09	0.09	0.09	0.06	0.06	0.07	0.09	0.09	0.07	0.07	0.24	0.24	0.90
115	0.22	0.22	0.24	0.22	0.24	0.24	0.26	0.22	0.26	0.18	0.18	0.22	0.20	0.22	0.24	0.24	0.24	0.24	0.92
120	0.33	0.31	0.24	0.24	0.24	0.24	0.24	0.24	0.26	0.24	0.28	0.24	0.22	0.22	0.24	0.24	0.24	0.29	0.72
125	0.51	0.50	0.37	0.29	0.24	0.24	0.24	0.26	0.26	0.26	0.26	0.24	0.22	0.22	0.24	0.24	0.33	0.50	1.06
130	0.79	0.57	0.51	0.48	0.26	0.24	0.26	0.29	0.28	0.26	0.26	0.26	0.24	0.24	0.24	0.24	0.48	0.55	0.94
135	0.97	0.81	0.55	0.54	0.31	0.28	0.28	0.29	0.29	0.27	0.26	0.29	0.24	0.26	0.24	0.28	0.50	0.61	0.96
140	1.08	0.84	0.57	0.53	0.41	0.29	0.35	0.44	0.38	0.31	0.37	0.35	0.37	0.37	0.35	0.54	0.55	0.77	1.01
145	1.12	0.84	0.61	0.59	0.52	0.40	0.46	0.53	0.55	0.48	0.51	0.52	0.53	0.53	0.53	0.54	0.72	0.81	0.90
150	1.12	0.84	0.79	0.81	0.63	0.52	0.53	0.53	0.53	0.51	0.53	0.53	0.53	0.54	0.53	0.68	0.83	1.10	0.86
155	1.12	0.88	0.79	0.83	0.68	0.52	0.53	0.53	0.53	0.51	0.57	0.53	0.53	0.55	0.59	0.83	0.83	1.07	0.79
160	1.12	0.86	0.79	0.85	0.68	0.52	0.53	0.53	0.53	0.51	0.57	0.53	0.53	0.55	0.59	0.83	0.83	0.94	1.05
165	1.12	0.86	0.81	0.85	0.68	0.52	0.53	0.53	0.53	0.51	0.57	0.53	0.53	0.55	0.59	0.83	0.83	0.92	1.34
170	1.03	0.86	0.86	0.81	0.79	0.79	0.57	0.57	0.53	0.53	0.57	0.55	0.61	0.81	1.11	0.83	0.92	1.10	1.43
175	1.06	0.99	1.01	1.03	0.94	0.81	0.79	0.72	0.64	0.60	0.61	0.63	0.83	0.90	1.29	1.20	1.05	1.36	1.38
180	1.10	1.12	1.10	1.09	1.07	0.96	0.79	0.83	0.83	0.77	0.70	0.76	0.83	1.14	1.40	1.42	1.12	1.40	1.27

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.2012A P:24.00W PF:0.9939 Lamp Flux:1590.56x1 lm		
NAME:	TYPE:QDR-26V-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.63*0.11	PROTECTION ANGLE:

Table--2

UNIT: cd

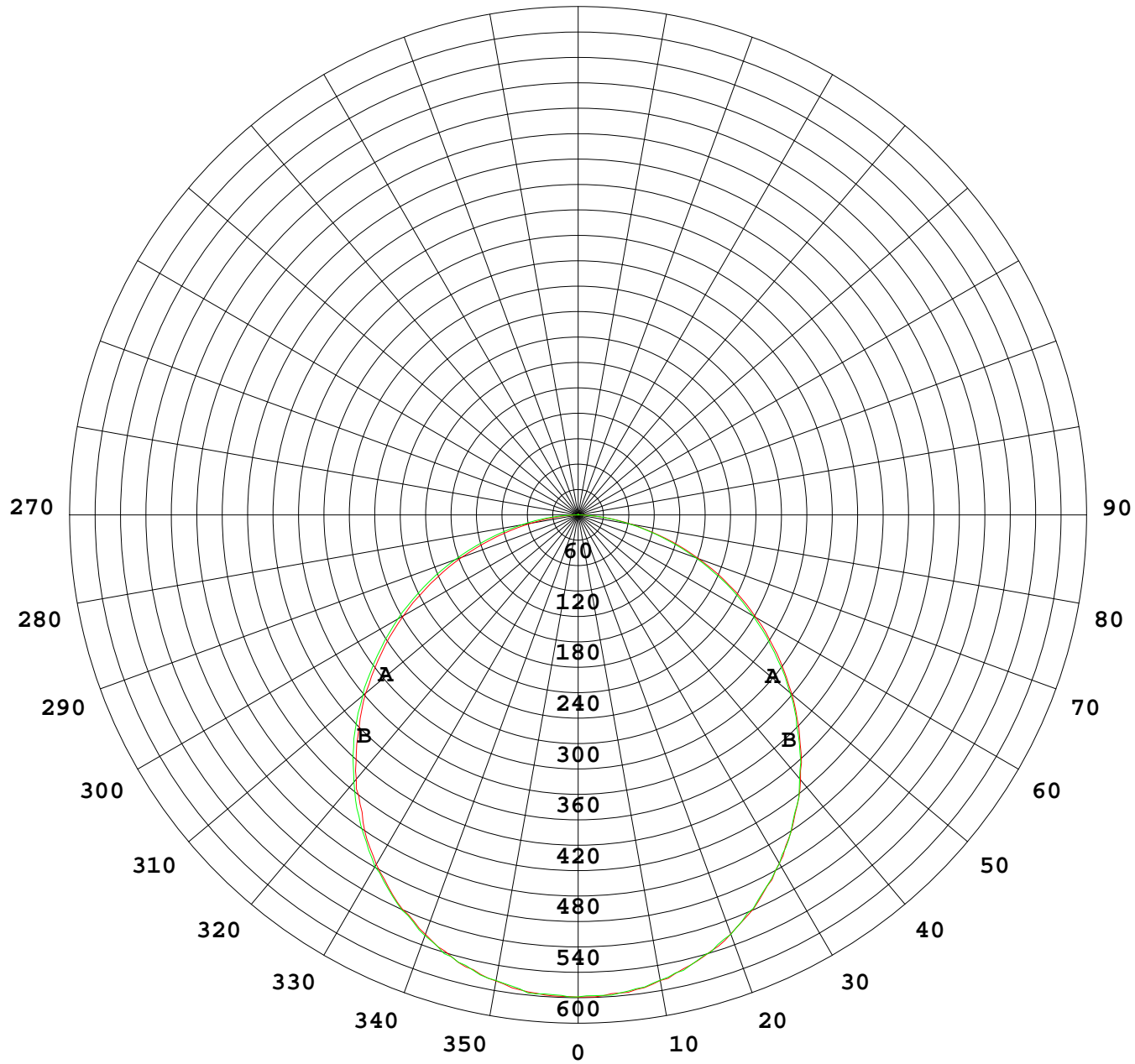
C( DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	568	569	571	570	568	571	569	569	569	568	570	571	571	568	569	567	569		
5	565	567	568	567	566	567	566	566	566	566	567	567	567	565	566	564	566		
10	557	558	560	560	558	559	559	558	558	557	559	558	559	558	558	557	558		
15	545	544	544	546	544	545	545	544	544	543	544	545	546	544	545	543	543		
20	526	525	527	527	525	525	525	525	527	525	526	526	525	525	526	524	525		
25	503	502	502	504	503	503	504	503	502	501	503	501	504	502	503	500	501		
30	475	475	476	475	474	474	472	474	475	473	475	474	477	474	475	472	473		
35	443	443	444	444	442	443	442	442	442	442	444	441	442	441	443	440	440		
40	408	407	409	407	407	407	407	406	407	407	406	406	405	406	407	406	405		
45	369	369	370	370	368	368	367	367	368	368	367	366	366	366	368	365	366		
50	329	328	328	329	327	328	325	325	327	326	328	326	325	325	326	325	325		
55	286	286	286	286	284	283	283	282	283	282	283	282	282	280	280	280	281		
60	242	241	241	240	240	239	238	238	238	238	237	236	236	235	236	235	235		
65	196	196	195	195	193	192	193	192	194	192	192	191	190	188	188	188	188		
70	151	150	150	149	147	147	147	147	147	147	147	145	144	142	142	142	142		
75	105	105	104	104	104	104	103	103	103	102	102	100	99.2	97.3	97.1	96.3	96.9		
80	62.6	62.2	62.2	62.5	62.0	62.1	61.3	61.7	61.5	60.8	60.0	57.8	56.3	55.2	54.4	54.1	54.3		
85	24.9	24.7	24.7	24.5	24.5	24.7	25.1	25.3	25.2	24.3	22.5	21.0	19.6	18.4	17.6	17.5	17.6		
90	0.06	0.06	0.04	0.06	0.06	0.06	0.05	0.04	0.06	0.07	0.06	0.06	0.02	0.09	0.07	0.07	0.07		
95	0.13	0.11	0.09	0.11	0.07	0.07	0.06	0.07	0.11	0.09	0.09	0.07	0.07	0.11	0.13	0.18	0.17		
100	0.31	0.24	0.17	0.18	0.17	0.13	0.13	0.15	0.17	0.15	0.17	0.13	0.15	0.20	0.24	0.31	0.44		
105	0.51	0.37	0.26	0.28	0.24	0.18	0.17	0.20	0.24	0.22	0.22	0.18	0.22	0.30	0.39	0.59	0.74		
110	0.77	0.53	0.44	0.33	0.33	0.28	0.26	0.28	0.29	0.28	0.28	0.28	0.33	0.39	0.63	0.83	0.97		
115	0.84	0.53	0.44	0.43	0.37	0.33	0.31	0.33	0.33	0.37	0.35	0.31	0.39	0.54	0.67	0.51	0.95		
120	0.55	0.37	0.48	0.52	0.46	0.39	0.35	0.35	0.39	0.39	0.39	0.35	0.48	0.61	0.74	0.92	0.96		
125	0.82	0.83	0.61	0.57	0.50	0.46	0.40	0.42	0.44	0.44	0.44	0.44	0.55	0.61	0.67	1.16	0.97		
130	0.68	0.83	0.81	0.57	0.55	0.46	0.46	0.48	0.48	0.50	0.46	0.50	0.55	0.61	0.83	1.16	0.86		
135	0.66	0.83	0.83	0.57	0.59	0.52	0.48	0.51	0.50	0.50	0.50	0.50	0.57	0.57	1.20	1.16	0.86		
140	0.66	0.83	0.76	0.63	0.59	0.52	0.51	0.57	0.55	0.53	0.52	0.53	0.57	0.57	1.22	1.16	0.83		
145	0.68	0.72	0.76	0.79	0.63	0.57	0.57	0.55	0.57	0.57	0.53	0.53	0.65	0.74	1.22	1.16	0.79		
150	0.62	0.70	0.76	0.90	0.70	0.63	0.59	0.61	0.55	0.57	0.53	0.63	0.74	1.05	1.22	1.16	0.77		
155	0.79	0.75	0.79	0.90	0.83	0.64	0.64	0.64	0.57	0.61	0.59	0.64	0.85	1.13	1.24	1.16	0.84		
160	0.92	0.83	0.85	0.92	0.90	0.66	0.64	0.64	0.64	0.64	0.61	0.64	0.85	1.13	1.26	1.21	0.83		
165	1.16	1.05	1.09	1.02	0.94	0.85	0.75	0.77	0.75	0.77	0.68	0.72	0.85	1.13	1.46	1.29	0.97		
170	1.39	1.10	1.14	1.11	1.10	0.94	0.83	0.86	0.81	0.75	0.68	0.76	0.83	1.13	1.46	1.47	1.12		
175	1.37	1.05	1.03	1.11	1.12	0.96	0.81	0.84	0.88	0.81	0.70	0.76	0.83	1.13	1.46	1.47	1.12		
180	1.10	1.07	1.11	1.09	1.09	0.96	0.79	0.83	0.83	0.77	0.70	0.76	0.83	1.14	1.46	1.41	1.14		

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2016-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.287  
 Humidity:67.1%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

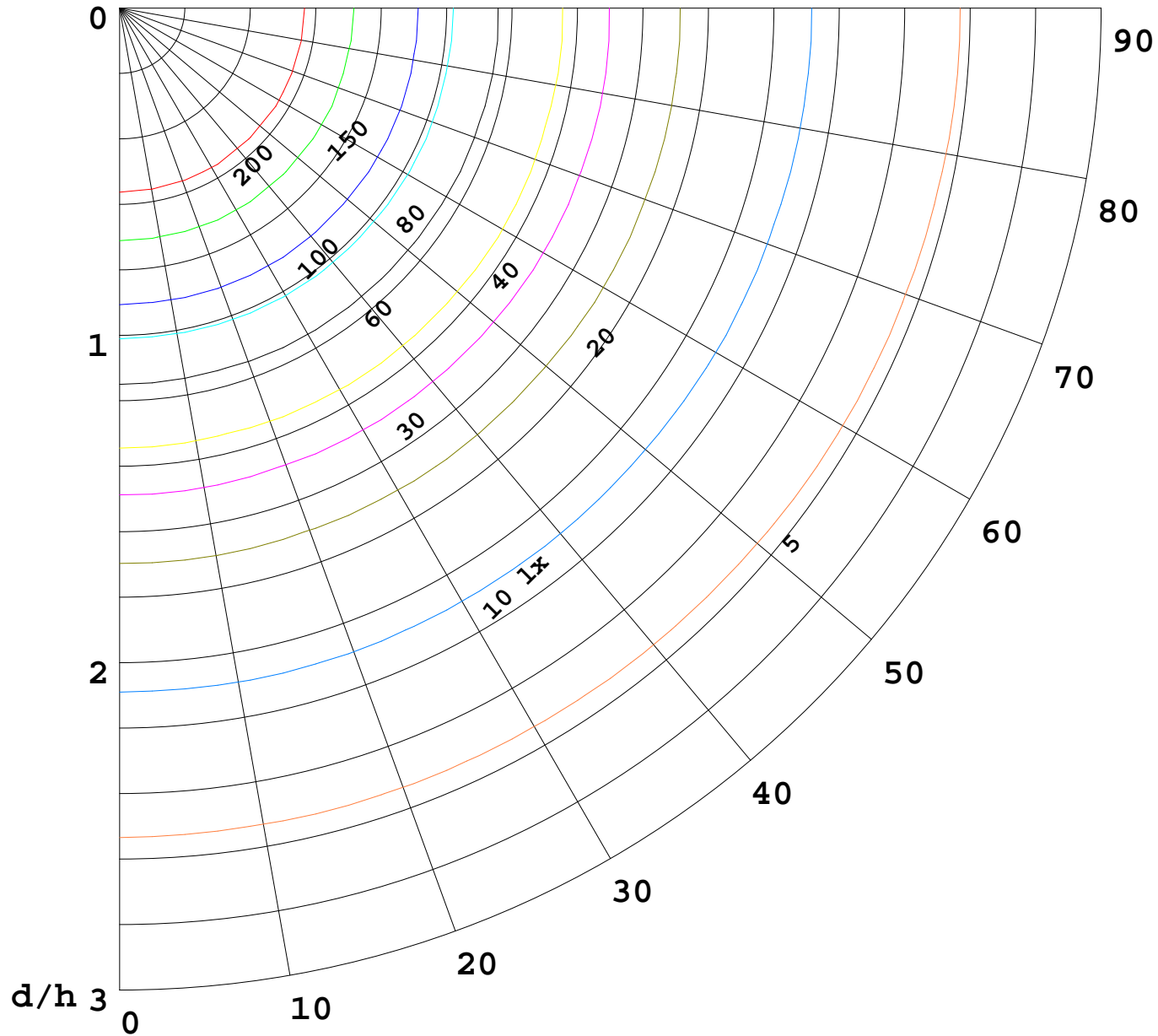


I(cd)



1000 lm

$K = 1$



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

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

