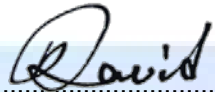




IESNA LM-79 TEST REPORT

Applicant's name	: Blackjack lighting
Address	: 1553 Barclay Blvd. Buffalo Grove, IL 60089
Brand Name	: Blackjack lighting
Report No.	: BTR66.181.15.0035.10
Product Name	: Ceiling Mounted fixture
Model Number	: QDR-12F-PC
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	: Mar 23, 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:
This report is not valid as a BEST Test Report unless signed by an approved BEST Test Service Shenzhen Co., Ltd. This report shall not be reproduced except in full without the written approval of the testing laboratory. The test report only allows to be revised within the retention period unless further standard or the requirement was noticed. This report is for the exclusive use of BEST's Client and is provided pursuant to the agreement between BEST and its Client. BEST's responsibility and Liability are limited to the terms and conditions of the agreement. BEST assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the BEST name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by BEST. The observations and test results in this report are relevant only to the sample tested. This report by itself does not cover that the material, product, of service is or has ever been under a BEST certification program. National Voluntary Laboratory Accreditation Program (NVLAP) has accredited this laboratory under ISO17025: 2005 for specific laboratory activities as listed in the NVLAP directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

Product description:	
Test date	Mar 15, 2016 to Mar 22, 2016
Sample Quantity	1 unit
SKU.....	N/A
Rating(s) (V; Hz)	120V 60HZ
Nominal Power	31W
Nominal Power Factor	N/A
Nominal Lumen Output.....	1650lm
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.

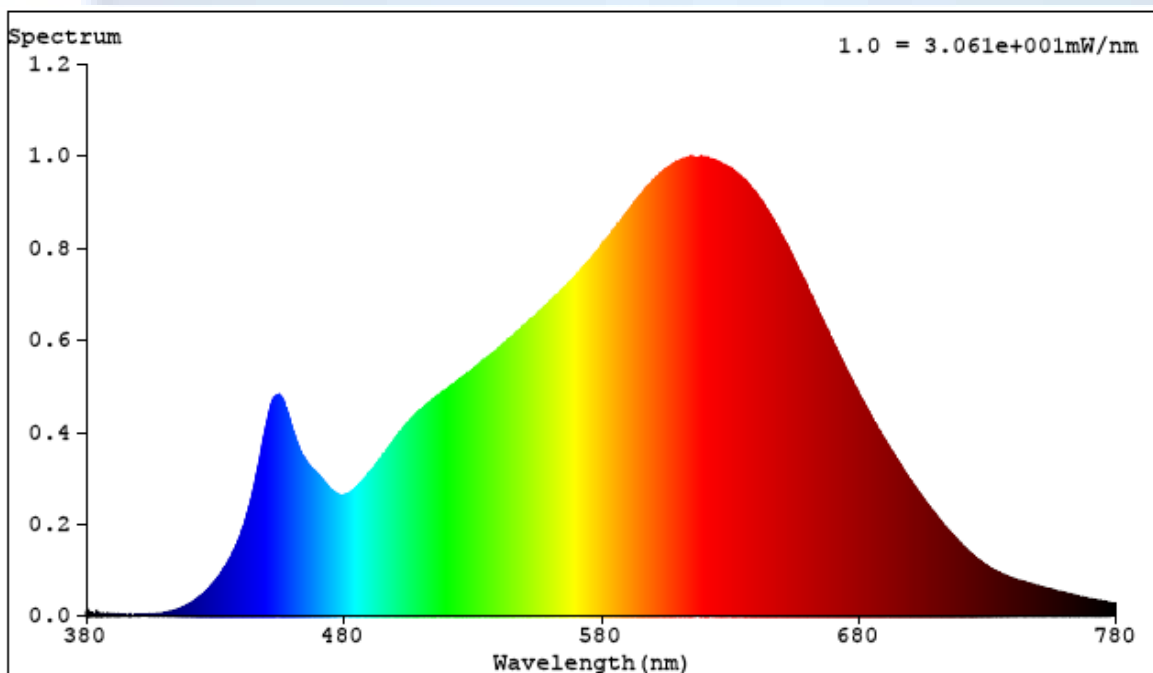
Luminous Intensity

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

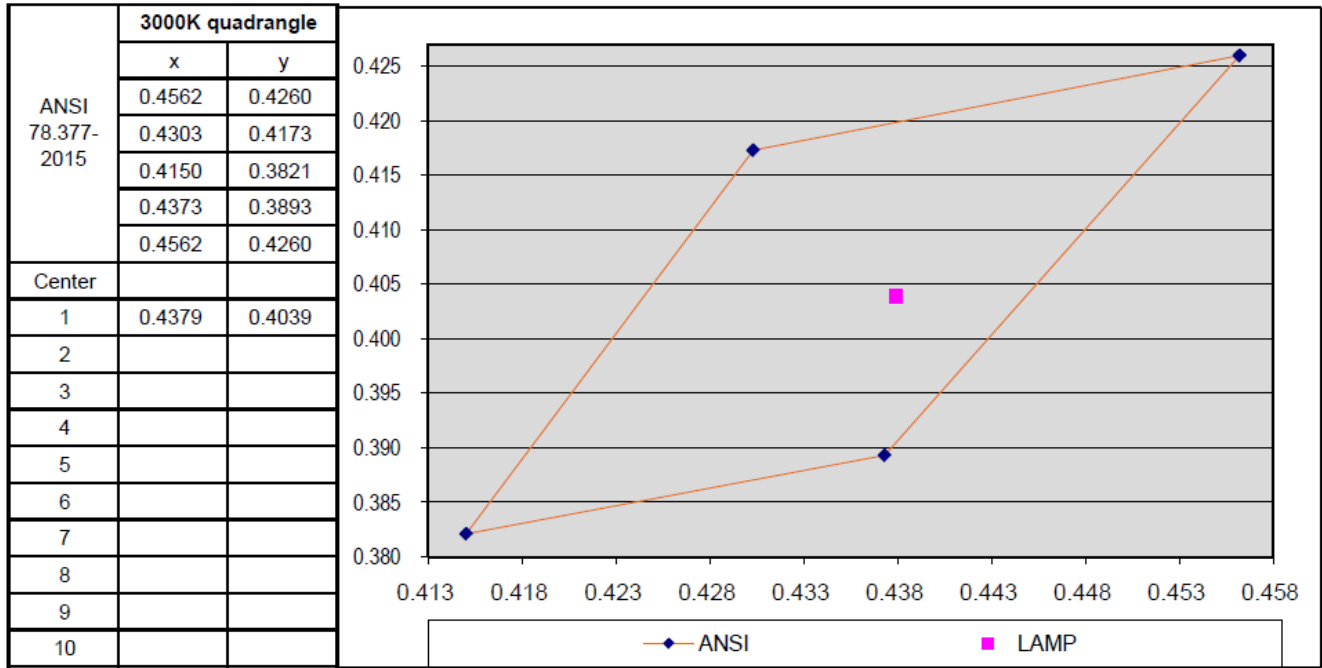
Photometric and Electrical Test Data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.2363	/	28.28	0.9970	1650.65	58.38
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
2982	92.4	56	0.4379	0.4039	0.2513	0.5214	-0.0002

Spectrul Plots



7 Step Quadrangle



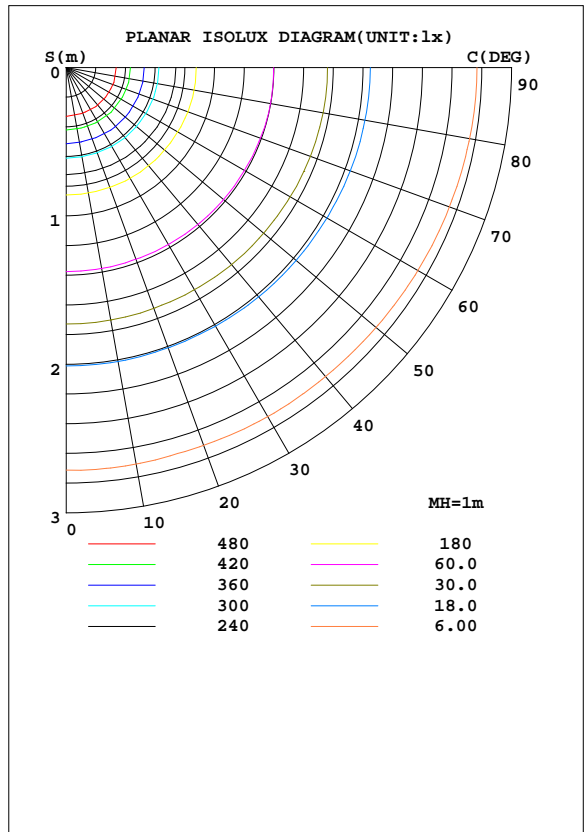
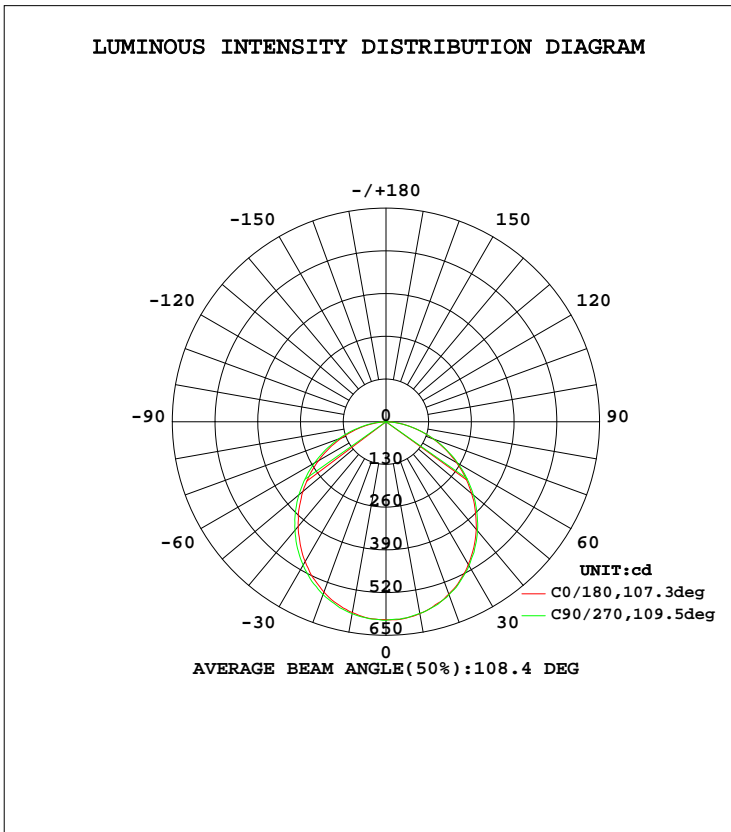
EUT Photo



LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 58.38 lm/W			
MODEL	QDR-12F-PC	I _{max} (cd)	606.2	S/MH(C0/180)	1.24
NOMINAL POWER(W)	31	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1650.7	η UP, DN(C0-180)	0.1, 49.8
NOMINAL FLUX(lm)	1650.65	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.1, 50.0
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



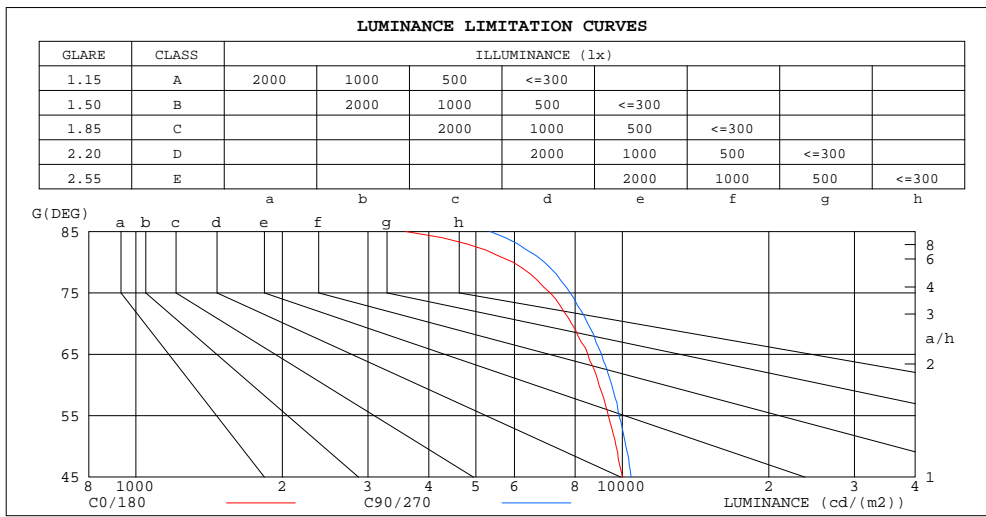
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-03-17

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	589.4	590.2	593.1	593.0	593.0	594.4	592.0	591.0	0- 10	57.08	57.08	3.46,3.46
20	552.0	555.4	560.0	559.6	558.4	560.1	560.3	556.0	10- 20	162.9	220.0	13.3,13.3
30	491.7	498.1	504.0	504.9	501.2	505.8	505.6	498.1	20- 30	245.0	465.0	28.2,28.2
40	415.5	423.3	431.0	432.0	427.5	431.4	432.9	423.5	30- 40	291.4	756.5	45.8,45.8
50	330.3	335.4	345.8	343.6	340.2	344.3	347.1	336.1	40- 50	296.9	1053	63.8,63.8
60	236.8	240.7	251.7	248.5	247.5	249.5	252.3	241.1	50- 60	262.7	1316	79.7,79.7
70	142.4	144.2	153.7	151.9	153.1	152.9	155.4	144.7	60- 70	195.7	1512	91.6,91.6
80	54.81	56.09	63.50	62.39	64.18	62.97	64.55	56.86	70- 80	109.6	1621	98.2,98.2
90	0.1447	0.1812	0.1631	0.1454	0.0541	0.0632	0.0726	0.0814	80- 90	26.37	1648	99.8,99.8
100	0.1319	0.1880	0.1892	0.1572	0.1270	0.1488	0.1979	0.1992	90-100	0.1996	1648	99.8,99.8
110	0.2309	0.2570	0.2601	0.2509	0.3083	0.3259	0.3981	0.3533	100-110	0.2521	1648	99.8,99.8
120	0.3843	0.4462	0.5121	0.4243	0.4167	0.4658	0.4839	0.4738	110-120	0.3602	1649	99.9,99.9
130	0.5613	0.5310	0.5686	0.5322	0.6565	0.5253	0.6695	0.5071	120-130	0.4625	1649	99.9,99.9
140	0.8149	0.5660	0.7665	0.5761	0.7789	0.6310	0.7784	0.5753	130-140	0.4879	1649	99.9,99.9
150	0.8504	0.7404	0.8502	0.6044	0.7453	0.7619	0.7668	0.7247	140-150	0.4714	1650	100,100
160	0.8810	0.8790	0.8829	0.7783	0.7788	0.8607	0.8602	0.8214	150-160	0.3717	1650	100,100
170	0.9209	1.039	1.084	1.004	1.065	1.061	1.007	0.9711	160-170	0.2513	1651	100,100
180	1.087	1.132	1.140	1.113	1.159	1.141	1.104	0.9863	170-180	0.0996	1651	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



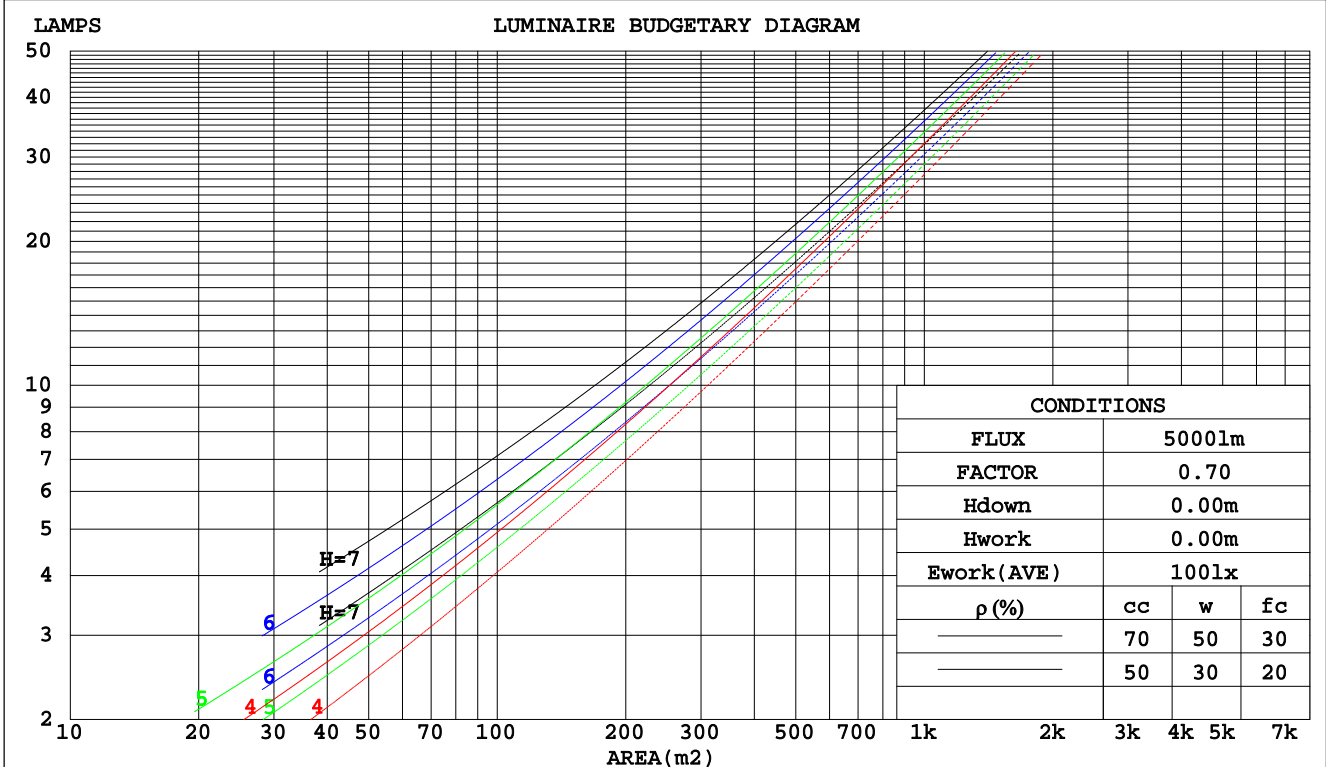
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2016-03-17

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:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	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	.95	.98	.94	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.78	.89	.83	.78	.85	.80	.76	.82	.78	.74	.79	.75	.72	.70
3.0	.80	.72	.65	.78	.71	.65	.75	.69	.64	.73	.67	.62	.70	.65	.61	.59
4.0	.71	.62	.55	.70	.61	.55	.67	.60	.54	.65	.59	.54	.62	.57	.53	.51
5.0	.63	.54	.48	.62	.54	.48	.60	.53	.47	.58	.52	.46	.56	.51	.46	.44
6.0	.57	.48	.42	.56	.48	.42	.54	.47	.41	.53	.46	.41	.51	.45	.40	.38
7.0	.52	.43	.37	.51	.43	.37	.49	.42	.37	.48	.41	.36	.47	.41	.36	.34
8.0	.47	.39	.33	.47	.38	.33	.45	.38	.33	.44	.37	.32	.43	.37	.32	.30
9.0	.43	.35	.30	.43	.35	.30	.42	.34	.29	.41	.34	.29	.40	.34	.29	.27
10.0	.40	.32	.27	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.26	.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:

WEC AND CCEC

Test:U:120.0V I:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	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	.303	.172	.055	.296	.169	.054	.283	.162	.052	.270	.156	.050	.259	.150	.048	
2.0	.287	.157	.048	.280	.154	.048	.269	.149	.046	.258	.145	.045	.248	.140	.044	
3.0	.266	.142	.042	.261	.140	.042	.250	.136	.041	.241	.132	.040	.232	.128	.040	
4.0	.246	.128	.038	.241	.126	.037	.232	.123	.037	.223	.120	.036	.215	.117	.036	
5.0	.228	.116	.034	.223	.115	.033	.215	.112	.033	.208	.110	.033	.201	.107	.032	
6.0	.211	.106	.030	.208	.105	.030	.200	.103	.030	.194	.101	.030	.187	.099	.029	
7.0	.197	.097	.028	.194	.096	.027	.187	.095	.027	.181	.093	.027	.175	.091	.027	
8.0	.184	.090	.025	.181	.089	.025	.175	.088	.025	.170	.086	.025	.165	.085	.025	
9.0	.173	.084	.023	.170	.083	.023	.165	.081	.023	.160	.080	.023	.155	.079	.023	
10.0	.162	.078	.022	.160	.077	.022	.155	.076	.021	.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	.158	.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	.012	
3.0	.165	.116	.076	.142	.100	.066	.097	.069	.046	.056	.040	.027	.018	.013	.009	
4.0	.157	.102	.060	.135	.088	.052	.093	.062	.037	.054	.036	.022	.017	.012	.007	
5.0	.150	.092	.049	.129	.079	.043	.089	.056	.030	.051	.033	.018	.017	.011	.006	
6.0	.143	.083	.041	.123	.072	.036	.085	.051	.025	.049	.030	.015	.016	.010	.005	
7.0	.136	.077	.035	.117	.066	.030	.081	.047	.022	.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	.017	.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:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm										
NAME:				TYPE:QDR-12F-PC				WEIGHT:		
SPEC.:				DIM.:				SERIAL No.:		
MFR.: Blackjack Lighting				SUR.:0.23*0.23				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	20.5	22.0	20.8	22.2	22.4	20.7	22.2	21.0	22.4	22.7
3H	21.9	23.3	22.2	23.5	23.7	22.2	23.6	22.5	23.8	24.1
4H	22.4	23.7	22.7	24.0	24.2	22.8	24.1	23.1	24.3	24.6
6H	22.8	24.0	23.1	24.3	24.5	23.2	24.4	23.5	24.7	25.0
8H	22.8	24.0	23.2	24.3	24.6	23.3	24.5	23.6	24.8	25.1
12H	22.8	24.0	23.2	24.3	24.6	23.3	24.5	23.7	24.8	25.1
4H 2H	21.1	22.4	21.4	22.7	22.9	21.3	22.6	21.6	22.8	23.1
3H	22.6	23.8	23.0	24.1	24.4	22.9	24.1	23.3	24.4	24.7
4H	23.3	24.3	23.7	24.7	25.0	23.6	24.7	24.0	25.0	25.3
6H	23.7	24.7	24.1	25.0	25.4	24.1	25.1	24.5	25.4	25.8
8H	23.9	24.7	24.3	25.1	25.5	24.3	25.2	24.7	25.5	25.9
12H	23.9	24.7	24.3	25.1	25.5	24.4	25.2	24.8	25.6	26.0
8H 4H	23.5	24.4	23.9	24.8	25.2	23.8	24.7	24.2	25.1	25.4
6H	24.1	24.8	24.5	25.2	25.7	24.5	25.2	24.9	25.6	26.0
8H	24.3	24.9	24.7	25.4	25.8	24.7	25.3	25.2	25.8	26.2
12H	24.4	24.9	24.8	25.4	25.9	24.8	25.4	25.3	25.9	26.3
12H 4H	23.5	24.3	24.0	24.7	25.1	23.8	24.6	24.2	25.0	25.4
6H	24.1	24.8	24.6	25.2	25.7	24.5	25.1	25.0	25.6	26.0
8H	24.4	24.9	24.8	25.4	25.8	24.8	25.3	25.2	25.8	26.2
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 1651 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.7)

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:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	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	47	40	57	46	40	56	46	40	33
0.80	68	57	49	67	56	49	65	56	49	42
1.00	77	66	58	75	65	58	73	66	58	51
1.25	84	73	66	82	73	66	80	71	65	58
1.50	89	79	72	87	78	72	84	76	70	63
2.00	95	87	81	94	86	80	90	84	78	71
2.50	99	92	86	97	90	85	93	88	83	75
3.00	103	96	90	100	94	89	96	91	87	79
4.00	107	101	96	104	99	95	100	96	92	83
5.00	109	104	100	106	102	99	102	99	96	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

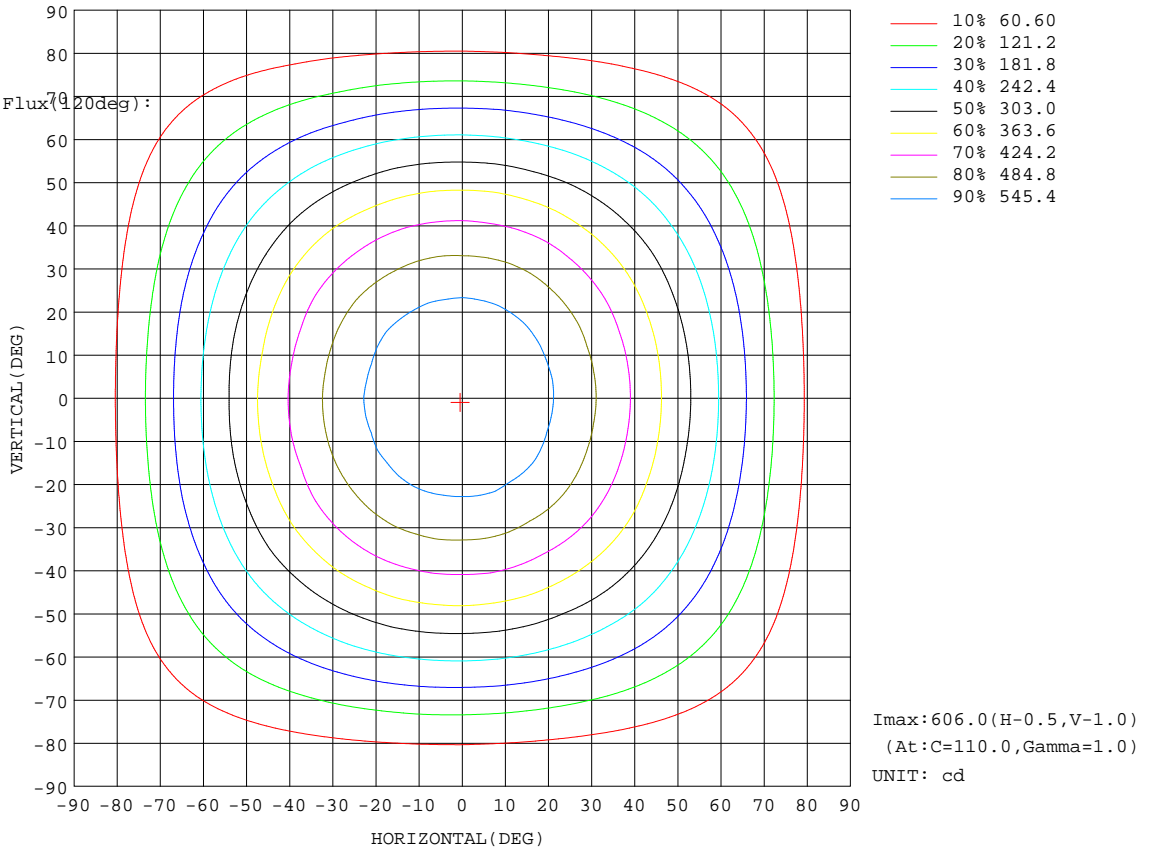
Test:U:120.0V I:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	PROTECTION ANGLE:

Conical surface Flux(90deg):

906.8 lm
 %lum = 54.9%
 %lamp = 54.9%

Conical surface Flux(70deg):

1316 lm
 %lum = 79.7%
 %lamp = 79.7%

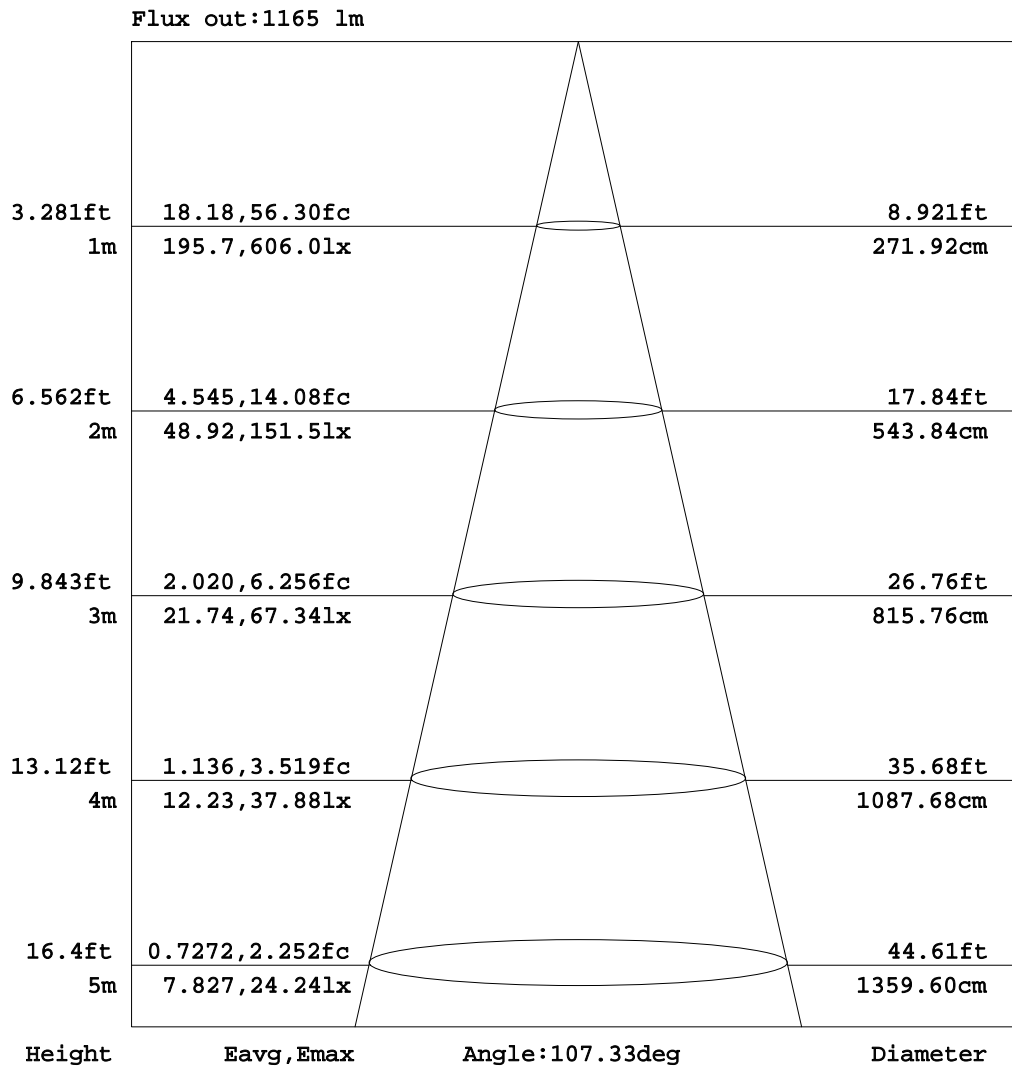


C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2016-03-17

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:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	PROTECTION ANGLE:



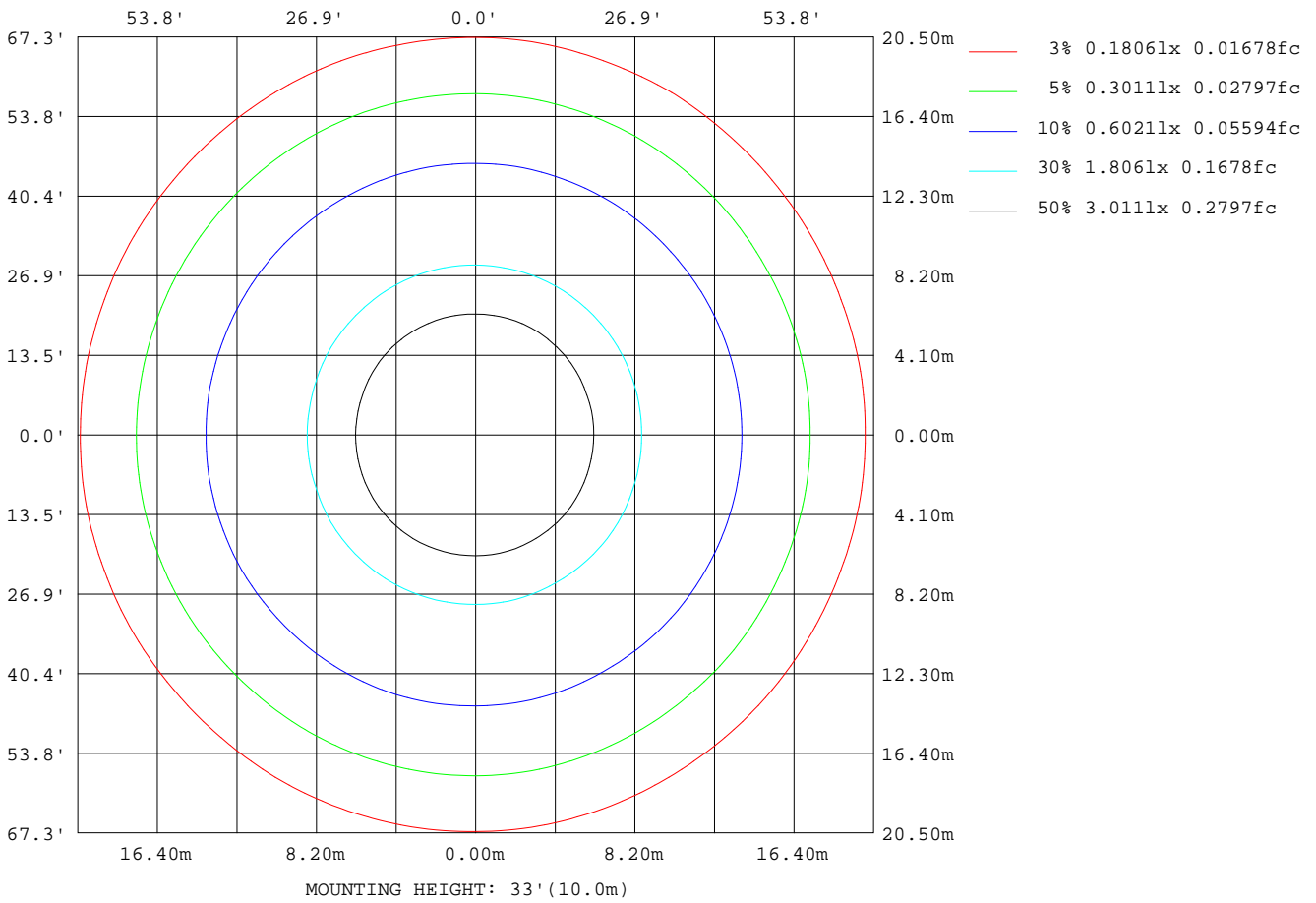
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

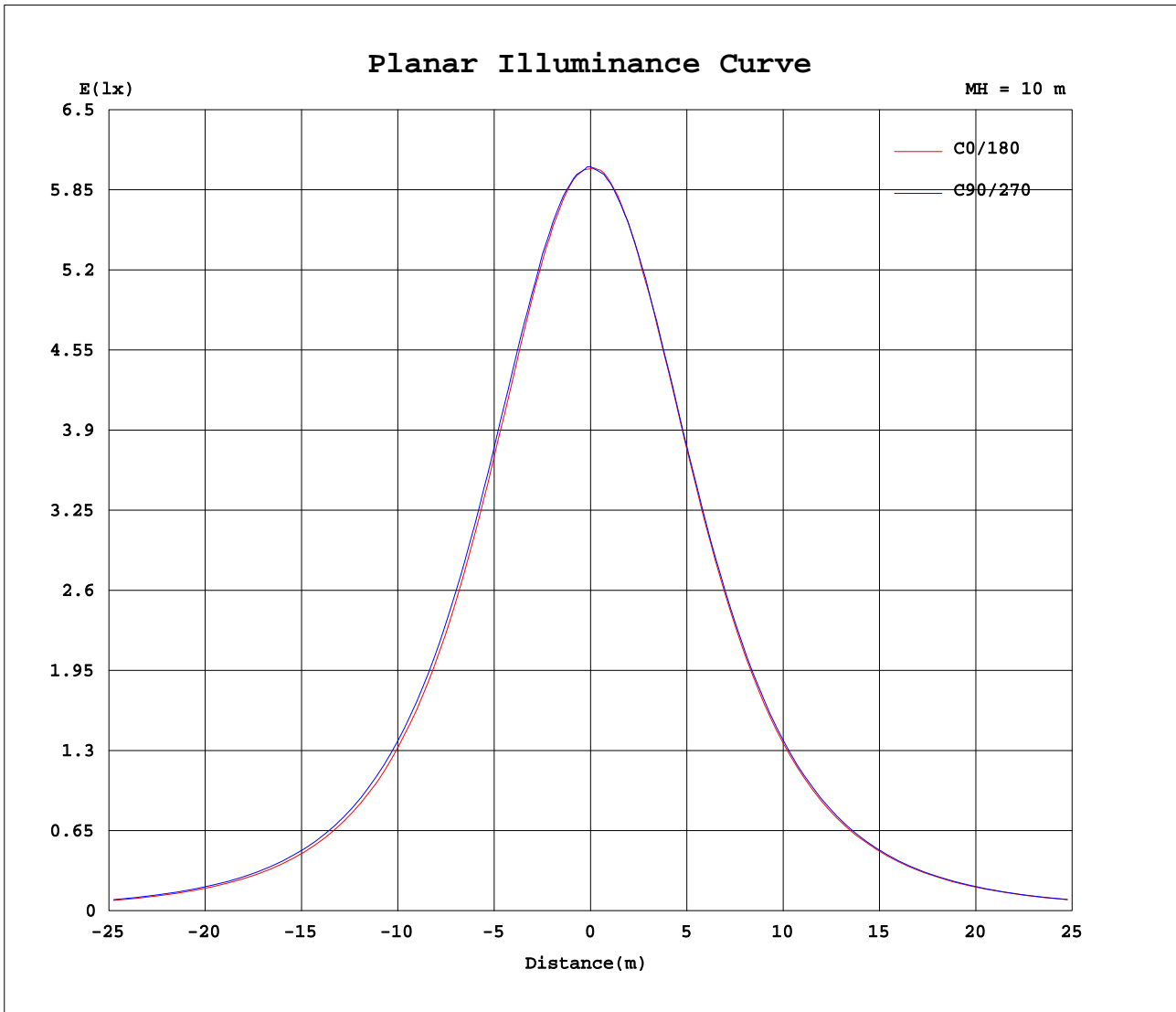
Test:U:120.0V I:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	PROTECTION ANGLE:



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

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:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	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	602	603	604	604	604	605	604	605	604	604	604	606	606	604	604	604	603	605	602
5	600	597	599	601	601	600	600	601	601	601	601	602	602	601	601	602	600	603	602
10	589	589	588	590	591	590	592	592	592	593	595	594	593	593	593	593	592	593	593
15	574	573	574	574	576	577	577	577	578	579	580	580	580	579	579	580	580	579	577
20	552	551	552	553	555	556	557	558	560	560	560	560	561	560	560	558	557	558	558
25	525	523	523	527	529	530	531	532	534	535	535	538	536	536	535	534	532	533	533
30	492	491	492	495	498	499	500	502	505	504	505	505	507	505	505	503	502	501	501
35	455	454	457	459	462	464	466	468	470	470	471	472	473	470	471	468	466	466	466
40	415	416	417	420	423	424	425	429	432	431	432	433	433	433	431	430	426	427	427
45	374	374	374	377	380	381	383	386	389	390	391	393	391	389	388	387	384	385	385
50	330	329	330	333	334	336	339	343	345	346	347	346	346	344	344	342	341	341	340
55	284	284	285	286	288	290	292	296	298	299	300	301	299	297	296	297	295	296	295
60	237	237	237	238	240	241	244	248	251	252	252	251	251	249	248	248	248	248	248
65	190	189	189	190	192	193	196	199	201	203	203	203	202	200	200	200	200	201	200
70	142	142	141	143	143	145	147	150	152	154	154	154	154	152	152	152	152	153	153
75	97.4	96.5	96.3	96.6	97.5	99.1	101	103	106	107	108	107	107	105	105	105	106	107	107
80	54.8	54.1	53.8	54.5	55.4	56.7	57.9	59.7	61.9	63.5	63.7	63.3	62.9	62.4	62.3	62.4	62.8	63.8	64.2
85	16.5	16.1	16.0	16.4	17.2	18.4	20.0	21.8	23.1	24.6	24.9	24.7	24.5	24.0	23.7	23.5	23.7	24.2	25.2
90	0.14	0.13	0.15	0.16	0.18	0.18	0.14	0.20	0.22	0.16	0.18	0.29	0.15	0.16	0.13	0.16	0.15	3.13	0.05
95	0.14	0.15	0.15	0.16	0.18	0.19	0.14	0.18	0.21	0.17	0.20	0.23	0.15	0.15	0.15	0.18	0.15	1.60	0.08
100	0.13	0.17	0.15	0.15	0.18	0.19	0.14	0.15	0.20	0.19	0.21	0.18	0.15	0.16	0.16	0.21	0.16	0.95	0.13
105	0.18	0.19	0.14	0.18	0.22	0.25	0.20	0.22	0.21	0.21	0.22	0.22	0.22	0.20	0.16	0.25	0.16	0.29	0.18
110	0.23	0.23	0.26	0.22	0.25	0.26	0.27	0.25	0.25	0.26	0.26	0.25	0.26	0.24	0.27	0.26	0.22	0.25	0.31
115	0.25	0.24	0.29	0.26	0.29	0.29	0.29	0.29	0.33	0.41	0.47	0.42	0.33	0.27	0.30	0.27	0.25	0.25	0.39
120	0.38	0.27	0.31	0.29	0.42	0.47	0.38	0.46	0.51	0.51	0.54	0.54	0.43	0.40	0.45	0.29	0.36	0.29	0.42
125	0.49	0.52	0.47	0.29	0.50	0.54	0.53	0.51	0.55	0.54	0.56	0.54	0.53	0.49	0.50	0.34	0.50	0.49	0.62
130	0.56	0.52	0.52	0.49	0.51	0.55	0.53	0.53	0.57	0.57	0.58	0.55	0.53	0.53	0.53	0.47	0.54	0.53	0.66
135	0.61	0.56	0.60	0.67	0.52	0.56	0.54	0.54	0.59	0.61	0.62	0.58	0.54	0.56	0.56	0.53	0.67	0.56	0.70
140	0.81	0.65	0.76	0.80	0.55	0.58	0.59	0.67	0.80	0.77	0.83	0.76	0.74	0.58	0.58	0.62	0.83	0.78	0.78
145	0.82	0.73	0.84	0.83	0.63	0.59	0.78	0.83	0.82	0.81	0.84	0.80	0.82	0.56	0.60	0.79	0.84	0.81	0.76
150	0.85	0.82	0.83	0.85	0.87	0.61	0.82	0.83	0.82	0.85	0.84	0.80	0.83	0.61	0.60	0.85	0.85	0.82	0.75
155	0.87	0.83	0.87	0.86	0.92	0.80	0.83	0.83	0.83	0.87	0.85	0.81	0.84	0.66	0.76	0.90	0.87	0.84	0.76
160	0.88	0.87	0.87	0.86	0.91	0.84	0.85	0.83	0.84	0.88	0.89	0.82	0.85	0.74	0.81	0.96	0.88	0.85	0.78
165	0.90	0.88	0.87	0.87	0.91	0.86	0.86	0.83	0.86	0.89	0.99	0.84	0.87	0.81	0.87	1.01	0.89	0.86	0.82
170	0.92	1.03	0.96	0.98	1.08	0.99	0.87	0.87	0.87	1.08	1.05	0.86	0.88	0.90	1.10	1.06	0.94	0.94	1.06
175	1.09	1.10	1.04	1.09	1.12	1.07	0.88	0.99	1.10	1.12	1.10	0.92	0.89	1.08	1.12	1.10	1.11	1.12	1.13
180	1.09	1.16	1.10	1.10	1.20	1.07	0.87	1.10	1.09	1.14	1.10	1.03	0.87	1.10	1.12	1.09	1.14	1.18	1.16

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:0.2363A P:28.28W PF:0.9970 Lamp Flux:1650.65x1 lm		
NAME:	TYPE:QDR-12F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.23*0.23	PROTECTION ANGLE:

Table--2

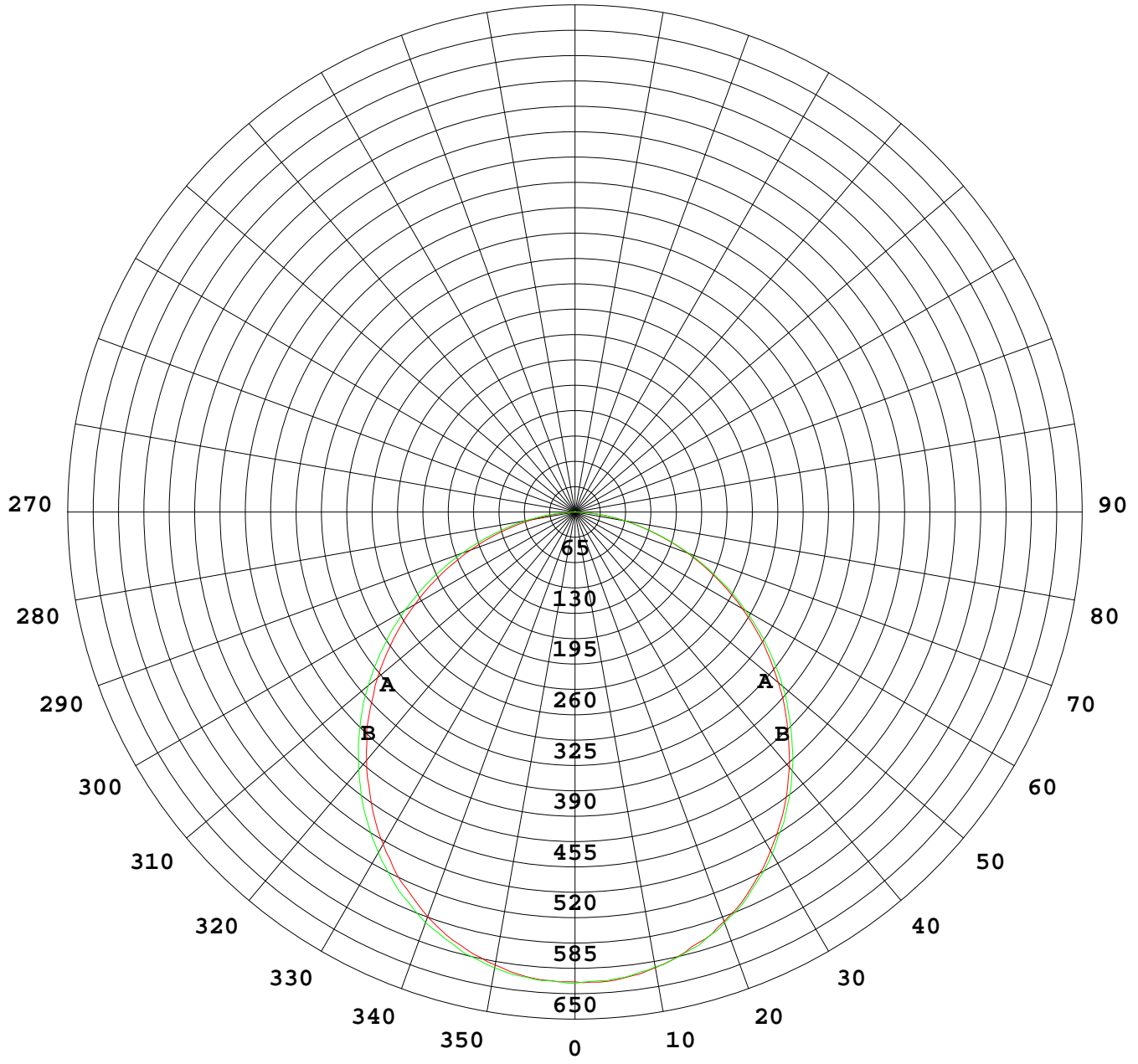
UNIT: cd

C(DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	603	604	604	604	605	604	605	604	604	604	606	606	604	604	604	603	605		
5	601	601	601	603	601	601	602	602	600	601	600	602	600	600	600	599	599		
10	592	591	595	595	593	593	595	594	592	594	594	591	591	591	591	589	590		
15	579	577	579	580	580	579	581	581	580	580	578	579	576	576	576	574	575		
20	557	557	558	561	559	560	562	561	560	561	558	559	556	555	552	551	553		
25	532	532	534	536	536	535	537	536	535	535	534	533	530	529	528	524	523		
30	500	501	505	505	506	506	507	506	506	505	503	502	499	497	495	493	493		
35	464	466	469	471	471	472	471	472	471	471	468	467	463	463	458	457	455		
40	426	426	430	431	432	433	434	434	433	432	431	429	425	422	420	417	417		
45	385	385	388	389	390	390	392	393	391	391	389	386	382	380	377	375	374		
50	339	340	342	344	345	345	348	349	347	347	344	341	337	335	332	331	331		
55	295	295	295	297	298	299	302	302	301	300	297	294	291	288	286	285	285		
60	247	247	248	249	250	252	253	253	252	252	249	246	242	240	238	238	238		
65	200	200	200	200	201	203	204	204	203	203	200	197	194	192	190	189	190		
70	153	152	152	153	153	153	155	156	155	154	151	148	146	144	142	142	143		
75	107	106	106	106	106	107	108	109	108	106	105	102	99.5	98.8	97.7	96.6	96.6		
80	63.7	63.1	63.0	63.2	62.7	63.7	64.0	64.6	64.5	63.2	61.0	59.5	57.6	56.2	55.0	54.2	54.3		
85	24.8	24.4	24.3	24.7	25.0	25.4	25.7	25.7	25.9	24.5	23.2	21.8	20.0	18.5	17.5	16.8	16.7		
90	0.07	0.09	0.07	0.05	0.07	0.07	0.09	0.09	0.07	0.07	0.07	0.07	0.09	0.07	0.05	0.05	0.07		
95	0.09	0.11	0.09	0.07	0.09	0.13	0.13	0.13	0.11	0.11	0.13	0.14	0.14	0.13	0.09	0.11	0.13		
100	0.16	0.18	0.18	0.15	0.15	0.20	0.18	0.22	0.20	0.18	0.16	0.20	0.20	0.20	0.16	0.18	0.18		
105	0.22	0.20	0.24	0.22	0.25	0.29	0.31	0.27	0.31	0.29	0.29	0.29	0.29	0.29	0.24	0.25	0.25		
110	0.33	0.31	0.31	0.31	0.34	0.37	0.40	0.40	0.40	0.40	0.40	0.42	0.38	0.33	0.33	0.33	0.38		
115	0.40	0.34	0.37	0.40	0.40	0.43	0.48	0.49	0.44	0.47	0.47	0.46	0.43	0.42	0.40	0.35	0.42		
120	0.41	0.40	0.45	0.45	0.48	0.47	0.51	0.50	0.48	0.50	0.50	0.51	0.52	0.42	0.43	0.45	0.47		
125	0.63	0.56	0.53	0.50	0.52	0.56	0.56	0.56	0.54	0.54	0.58	0.58	0.55	0.43	0.47	0.60	0.60		
130	0.65	0.63	0.65	0.53	0.52	0.61	0.65	0.68	0.67	0.65	0.66	0.65	0.58	0.43	0.58	0.68	0.64		
135	0.70	0.68	0.74	0.56	0.60	0.65	0.67	0.72	0.70	0.71	0.72	0.67	0.63	0.45	0.71	0.74	0.73		
140	0.72	0.74	0.79	0.63	0.63	0.67	0.70	0.73	0.78	0.78	0.74	0.68	0.64	0.51	0.76	0.80	0.79		
145	0.74	0.82	0.79	0.76	0.66	0.70	0.73	0.74	0.78	0.77	0.75	0.70	0.65	0.67	0.78	0.80	0.80		
150	0.75	0.76	0.76	0.80	0.72	0.72	0.76	0.76	0.77	0.76	0.75	0.71	0.67	0.78	0.79	0.81	0.80		
155	0.72	0.73	0.73	0.82	0.81	0.75	0.77	0.82	0.76	0.80	0.77	0.74	0.65	0.84	0.80	0.82	0.79		
160	0.76	0.74	0.74	0.85	0.87	0.78	0.79	0.82	0.86	0.85	0.82	0.78	0.77	0.87	0.83	0.85	0.78		
165	0.81	0.80	0.78	0.89	0.95	0.87	0.80	0.84	0.94	0.91	0.84	0.84	0.80	0.91	0.91	0.87	0.82		
170	1.08	1.12	1.04	1.08	1.04	1.10	0.83	1.10	1.01	1.00	0.96	1.00	0.84	1.10	1.10	0.96	1.05		
175	1.15	1.21	1.09	1.10	1.14	1.10	0.86	1.10	1.08	1.10	1.08	1.02	0.87	1.10	1.12	1.05	1.14		
180	1.08	1.15	1.10	1.11	1.18	1.07	0.87	1.11	1.10	1.14	1.12	1.03	0.87	1.10	1.12	1.09	1.14		

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

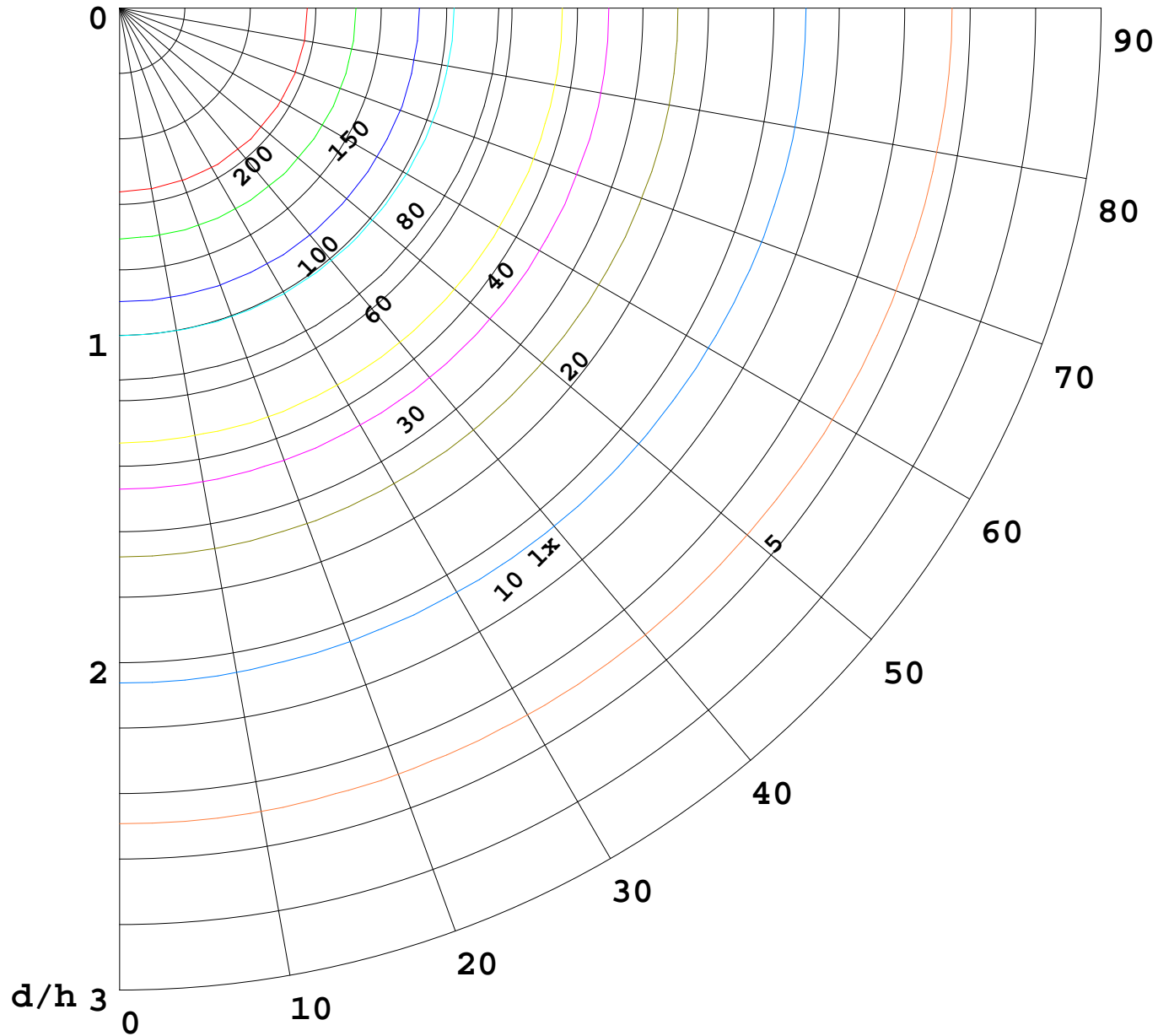
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:26.000m [K=1.0000]
 Remarks:

I(cd)



1000 lm

$K = 1$



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

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

