IESNA LM-79 TEST REPORT

Applicant's name ..... :	Blackjack lighting
Address ..... :	1553 Barclay Blvd. Buffalo Grove, IL 60089
Brand Name.....:	Blackjack lighting
Report No. .....:	BTR66.181.15.0035.09
Product Name.....:	Ceiling Mounted fixture
Model Number .....:	QDR-06F-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 .....:	1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyan, Baoan, Shenzhen, China
Accrediation .....:	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

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.....:	9W
Nominal Power Factor.....:	N/A
Nominal Lumen Output.....:	500lm
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℃
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℃ ±1℃ ambient temperature conditions is measured using a EVERFINE 2.0 m 4∏ 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.

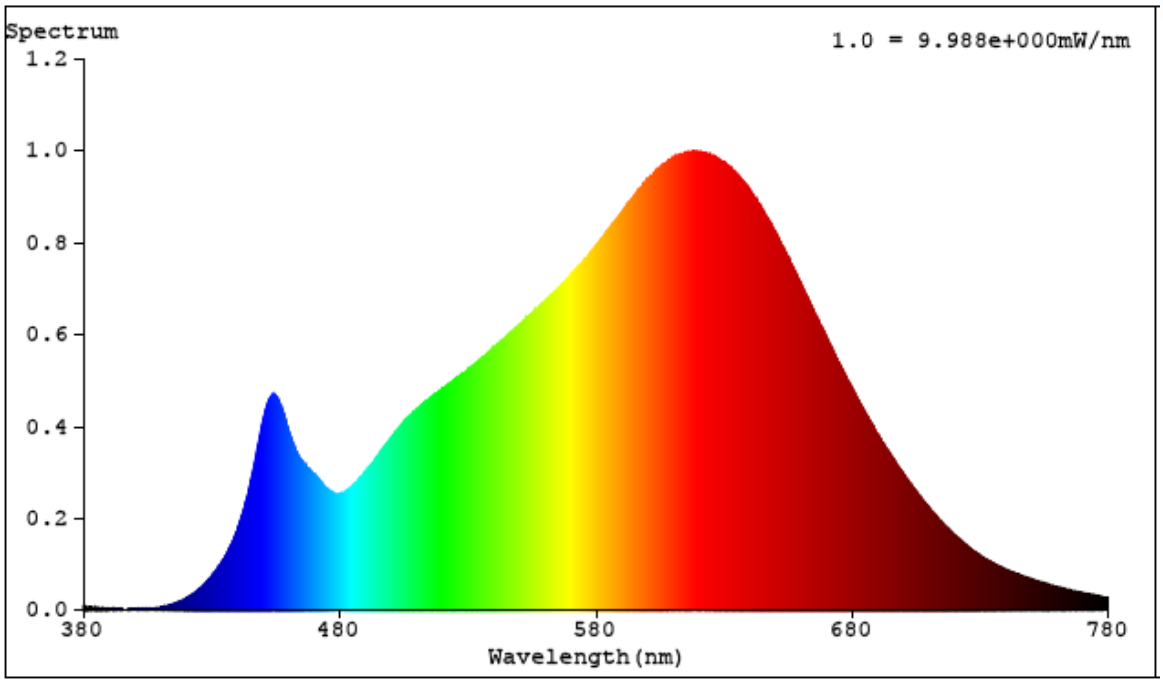
Luminious Intensity

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

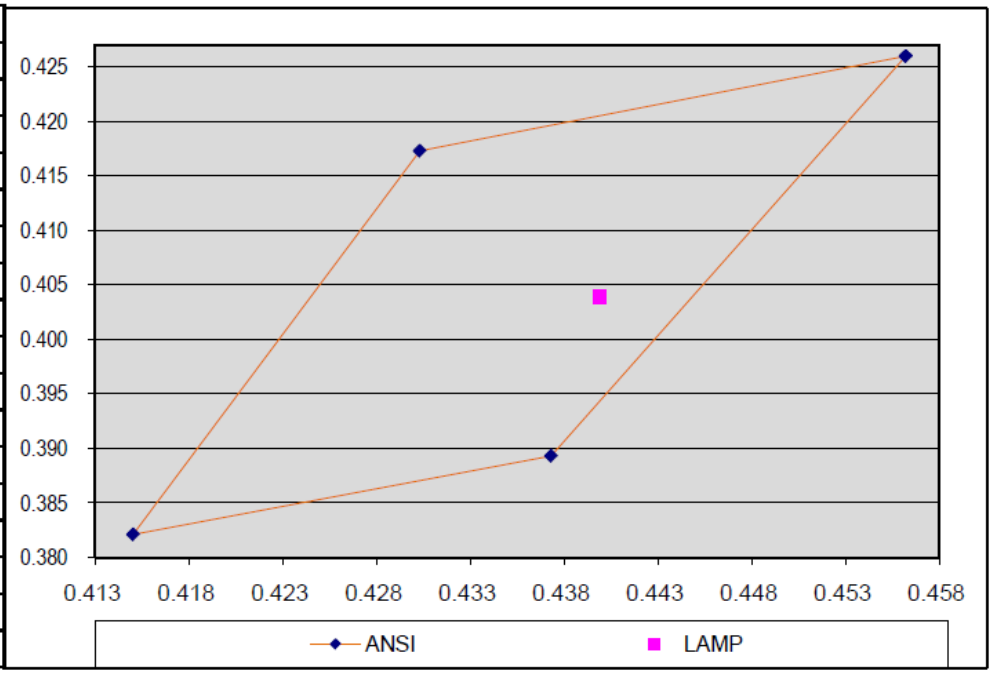
Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.0798	/	9.22	0.9622	508.38	55.16
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
2949	92.5	56	0.4399	0.4039	0.2526	0.5218	-0.0005

Spectrul Plots



7 Step Quadrangle

	3000K quadrangle	
	x	y
ANSI 78.377-2015	0.4562	0.4260
	0.4303	0.4173
	0.4150	0.3821
	0.4373	0.3893
	0.4562	0.4260
Center		
1	0.4399	0.4039
2		
3		
4		
5		
6		
7		
8		
9		
10		



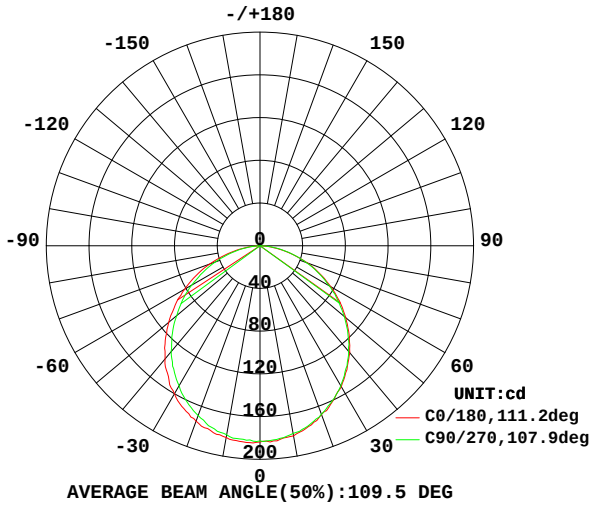
EUT Photo

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*0.11	PROTECTION ANGLE:

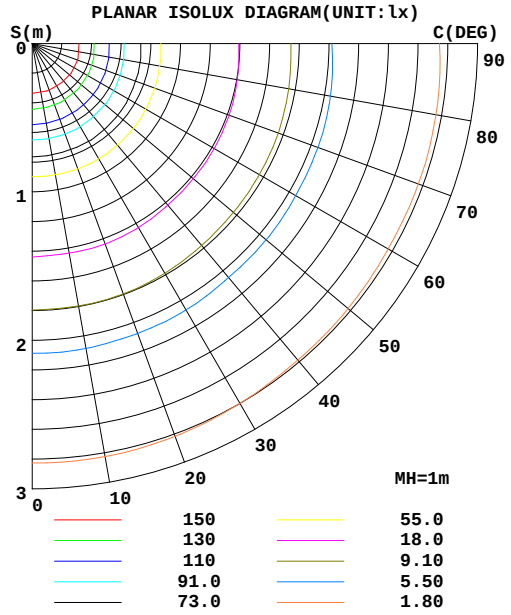
DATA OF LAMP		PHOTOMETRIC DATA Eff: 55.16 lm/W			
MODEL	QDR-06F-PC	Imax(cd)	185.8	S/MH(C0/180)	1.24
NOMINAL POWER(W)	9	LOR(%)	100.0	S/MH(C90/270)	1.23
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	508.38	η UP,DN(C0-180)	0.0,49.9
NOMINAL FLUX(lm)	508.377	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.1,49.9
LAMPS INSIDE	1	η up(%)	0.1	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120	η down(%)	99.9	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):109.5 DEG

PLANAR ISOLUX DIAGRAM(UNIT:lx)



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:

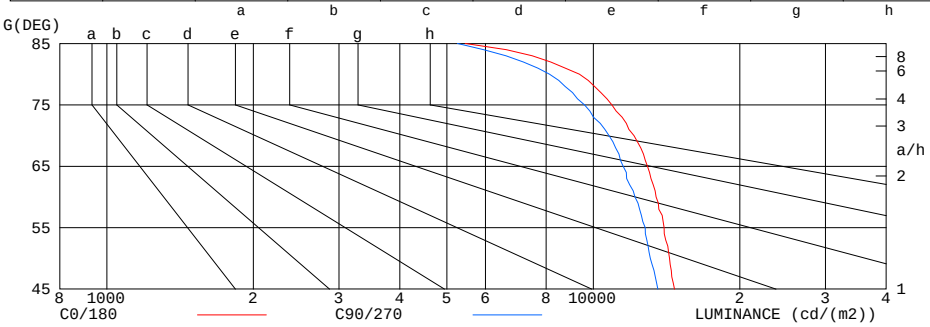
ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	182.3	182.5	179.7	180.0	180.8	179.8	178.5	181.5	0- 10	17.42	17.42	3.43,3.43
20	174.8	173.4	169.3	168.8	168.2	168.1	167.9	172.1	10- 20	49.82	67.25	13.2,13.2
30	160.2	158.0	151.4	152.0	152.3	150.9	151.5	156.2	20- 30	75.13	142.4	28,28
40	138.4	136.3	129.5	128.9	130.8	128.5	129.1	135.1	30- 40	89.85	232.2	45.7,45.7
50	111.5	109.0	101.9	102.4	105.0	102.6	103.2	108.3	40- 50	91.95	324.2	63.8,63.8
60	81.44	78.57	73.69	73.50	76.36	74.31	74.85	78.62	50- 60	81.66	405.8	79.8,79.8
70	50.15	47.11	44.58	44.07	47.20	45.56	46.08	48.15	60- 70	61.01	466.8	91.8,91.8
80	19.67	17.29	17.07	15.99	18.39	18.03	19.61	18.83	70- 80	33.74	500.6	98.5,98.5
90	0.0187	0.0457	0.0539	0.0186	0	0	0.0178	0	80- 90	7.179	507.8	99.9,99.9
100	0.0181	0.0271	0.0360	0.0090	0.0001	0.0182	0.0539	0.0361	90-100	0.0164	507.8	99.9,99.9
110	0.0181	0.0271	0.0360	0.0090	0.0727	0.0724	0.0899	0.0813	100-110	0.0366	507.8	99.9,99.9
120	0.0181	0.0271	0.0360	0.0090	0.1086	0.1174	0.1259	0.1354	110-120	0.0587	507.9	99.9,99.9
130	0.1075	0.0271	0.1249	0.0090	0.1810	0.1447	0.1618	0.1445	120-130	0.0763	508.0	99.9,99.9
140	0.2172	0.0543	0.2338	0.0181	0.1810	0.1716	0.1618	0.1536	130-140	0.1051	508.1	99.9,99.9
150	0.2353	0.1986	0.2697	0.1534	0.1810	0.1987	0.1618	0.1897	140-150	0.1219	508.2	100,100
160	0.2706	0.2348	0.2697	0.1986	0.1991	0.2346	0.1978	0.1988	150-160	0.1028	508.3	100,100
170	0.2715	0.2530	0.2697	0.2438	0.2533	0.2439	0.2697	0.2618	160-170	0.0702	508.4	100,100
180	0.2715	0.2530	0.2697	0.2528	0.2353	0.2439	0.2697	0.2618	170-180	0.0249	508.4	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

LUMINANCE LIMITATION CURVES

GLARE	CLASS	ILLUMINANCE (lx)							
1.15	A	2000	1000	500	<=300				
1.50	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.20	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	5456	5254
80	9362	8124
75	10920	9595
70	12119	10771
65	12922	11516
60	13462	12181
55	13983	12780
50	14339	13100
45	14682	13569

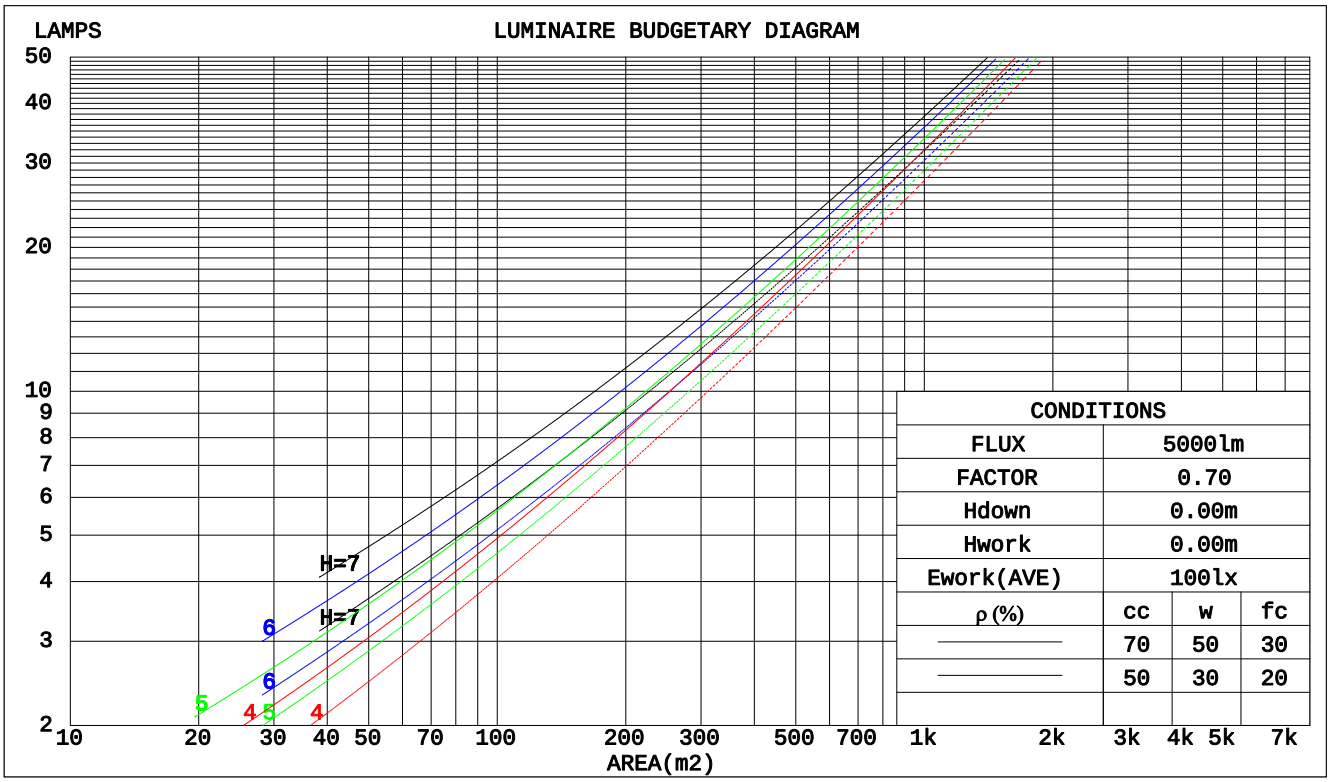
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2016-03-17

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:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*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			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	1.00	.96	1.02	.98	.95	.98	.95	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.79	.89	.83	.78	.86	.80	.76	.82	.78	.74	.79	.76	.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	.58	.54	.62	.57	.53	.51
5.0	.63	.54	.48	.62	.54	.47	.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	.36	.48	.41	.36	.47	.40	.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	.40	.34	.29	.39	.33	.29	.27
10.0	.40	.32	.27	.39	.32	.27	.38	.31	.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:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*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 Coeffcients(WEC)									
0.0																
1.0	.302	.172	.054	.295	.168	.053	.281	.161	.052	.269	.155	.050	.258	.149	.048	
2.0	.286	.157	.048	.280	.154	.048	.268	.149	.046	.258	.144	.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	.224	.120	.036	.216	.117	.036	
5.0	.228	.116	.034	.224	.115	.033	.215	.112	.033	.208	.110	.033	.201	.107	.032	
6.0	.212	.106	.030	.208	.105	.030	.201	.103	.030	.194	.101	.030	.187	.099	.029	
7.0	.197	.098	.028	.194	.097	.028	.187	.095	.027	.181	.093	.027	.176	.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	.082	.023	.160	.080	.023	.155	.079	.023	
10.0	.163	.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	.191	.191	.191	.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	.019	.017	.015	
2.0	.172	.133	.100	.148	.114	.086	.101	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.165	.115	.076	.141	.099	.066	.097	.069	.046	.056	.040	.027	.018	.013	.009	
4.0	.157	.102	.060	.135	.088	.052	.093	.061	.037	.054	.036	.022	.017	.012	.007	
5.0	.150	.091	.048	.129	.079	.042	.089	.055	.030	.051	.032	.018	.017	.011	.006	
6.0	.143	.083	.040	.123	.072	.035	.085	.050	.025	.049	.030	.015	.016	.010	.005	
7.0	.136	.076	.034	.117	.066	.030	.081	.046	.021	.047	.027	.013	.015	.009	.004	
8.0	.129	.070	.030	.111	.061	.026	.077	.043	.018	.045	.025	.011	.015	.008	.004	
9.0	.123	.065	.026	.106	.057	.023	.074	.040	.016	.043	.024	.010	.014	.008	.003	
10.0	.118	.061	.023	.101	.053	.020	.070	.037	.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:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*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	22.2	23.7	22.4	23.9	24.1	21.8	23.3	22.1	23.5	23.7
3H	23.6	25.0	23.9	25.3	25.5	23.2	24.6	23.5	24.8	25.1
4H	24.2	25.5	24.5	25.8	26.0	23.7	25.0	24.0	25.3	25.5
6H	24.6	25.8	24.9	26.1	26.4	24.0	25.3	24.4	25.6	25.8
8H	24.7	25.9	25.0	26.2	26.4	24.1	25.3	24.5	25.6	25.9
12H	24.7	25.8	25.0	26.1	26.4	24.1	25.3	24.5	25.6	25.9
4H 2H	22.7	24.0	23.0	24.3	24.5	22.4	23.7	22.7	24.0	24.3
3H	24.4	25.5	24.7	25.8	26.1	24.0	25.1	24.3	25.4	25.7
4H	25.0	26.1	25.4	26.4	26.7	24.6	25.7	25.0	26.0	26.3
6H	25.5	26.5	25.9	26.8	27.2	25.1	26.0	25.5	26.4	26.7
8H	25.7	26.5	26.1	26.9	27.3	25.2	26.1	25.6	26.4	26.8
12H	25.7	26.5	26.1	26.9	27.3	25.2	26.0	25.7	26.4	26.8
8H 4H	25.2	26.1	25.6	26.5	26.9	24.9	25.7	25.3	26.1	26.5
6H	25.8	26.6	26.3	27.0	27.4	25.4	26.1	25.9	26.6	27.0
8H	26.0	26.7	26.5	27.1	27.6	25.6	26.2	26.1	26.7	27.1
12H	26.1	26.7	26.6	27.1	27.6	25.7	26.2	26.2	26.7	27.2
12H 4H	25.2	26.0	25.7	26.4	26.8	24.9	25.7	25.3	26.1	26.5
6H	25.9	26.5	26.3	26.9	27.4	25.5	26.1	25.9	26.5	27.0
8H	26.1	26.6	26.6	27.1	27.6	25.7	26.2	26.1	26.7	27.1
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				

CIE Pub.117 Corrected 508.4 lm Total Lamp Luminous Flux.(8log(F/F0) = -2.4)

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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%
Test Distance:26.000m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*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	47	40	57	46	40	56	46	39	33
0.80	68	57	49	67	56	49	65	55	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	91	100	94	89	96	91	87	79
4.00	107	101	96	104	99	95	100	96	92	84
5.00	109	104	100	107	102	99	102	99	96	87
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

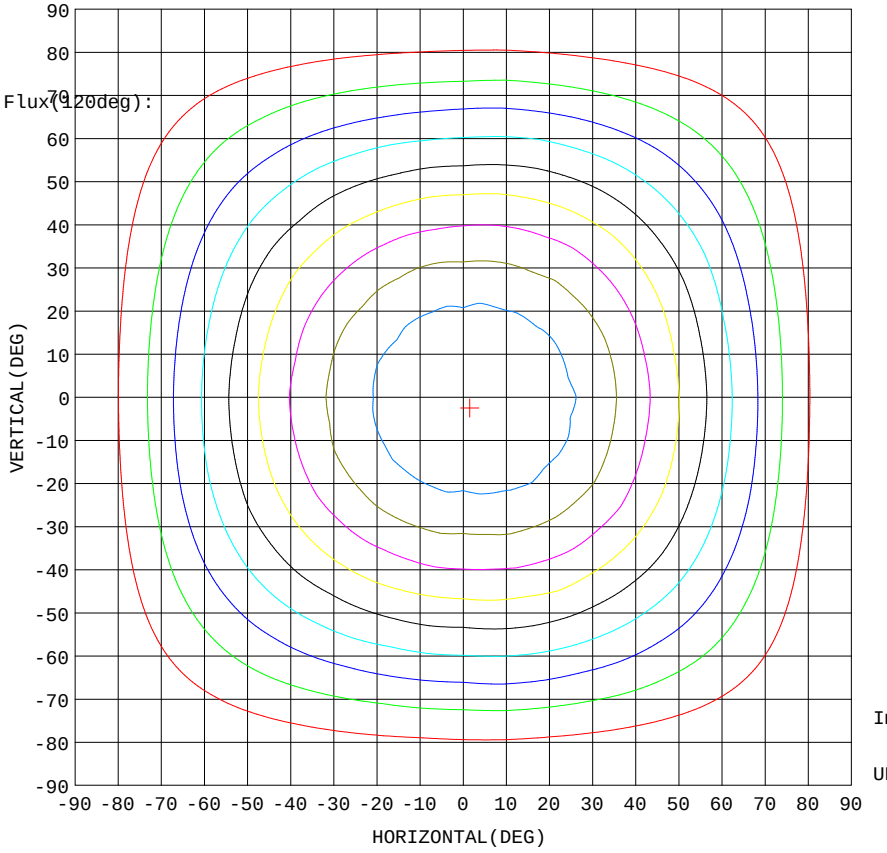
γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*0.11	PROTECTION ANGLE:

Conical surface Flux(90deg):
278.75 lm
%lum = 54.8%
%lamp = 54.8%

Conical surface Flux(120deg):
405.84 lm
%lum = 79.8%
%lamp = 79.8%



10% 18.55
20% 37.11
30% 55.66
40% 74.22
50% 92.77
60% 111.3
70% 129.9
80% 148.4
90% 167.0

Imax:185.5(H1.5,V-2.5)
(At:C=70.0,Gamma=0.0)
UNIT: cd

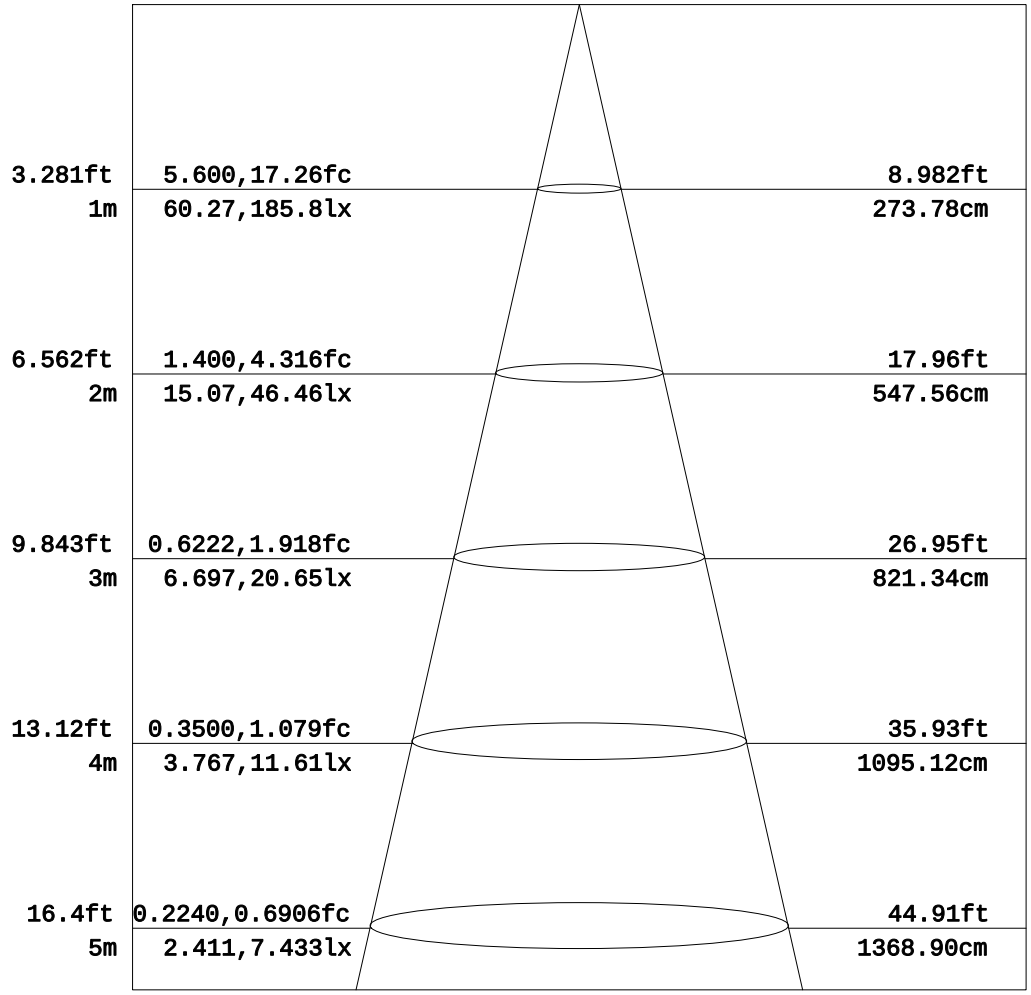
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2016-03-17

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:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*0.11	PROTECTION ANGLE:

Flux out:358.7 lm



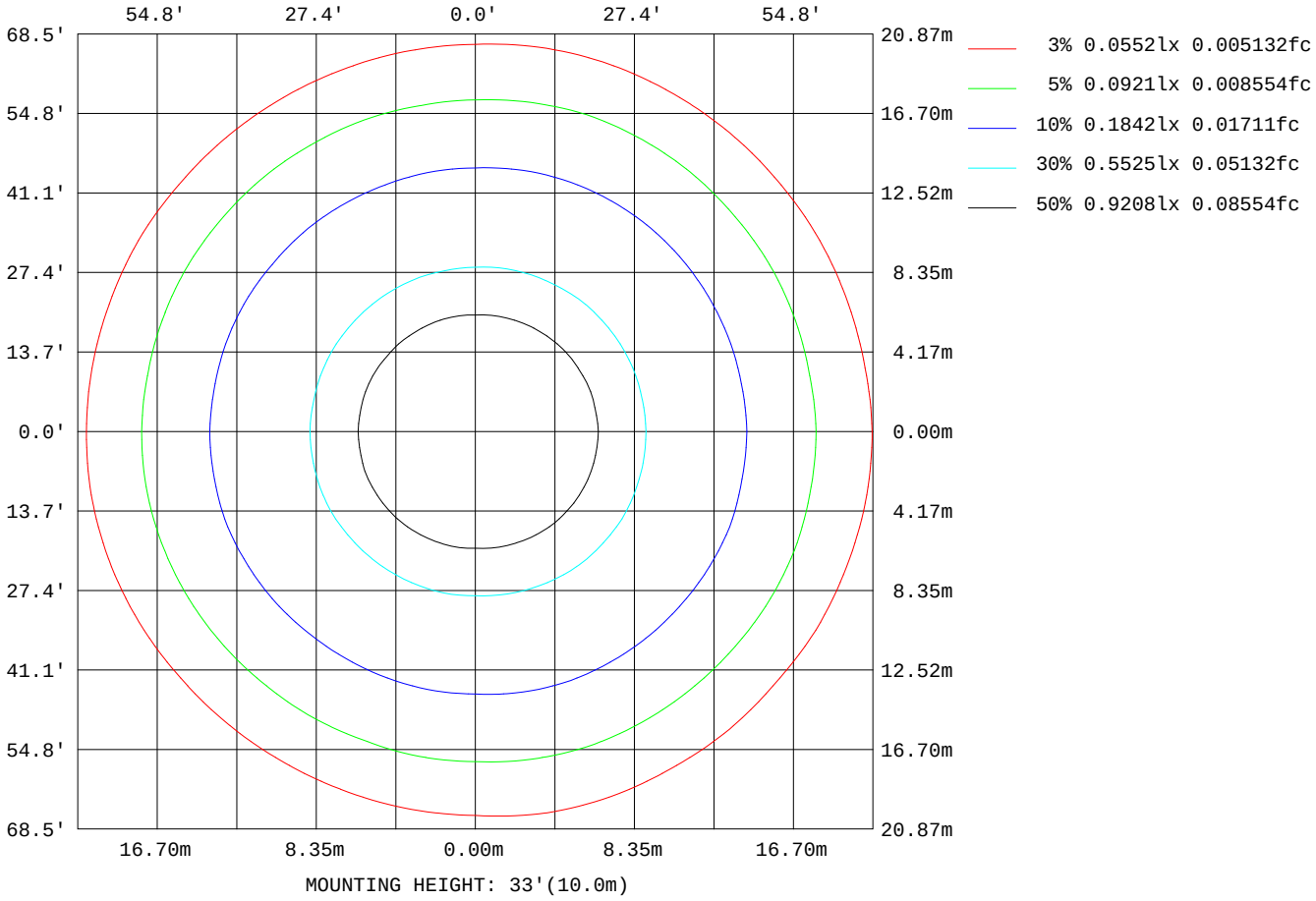
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

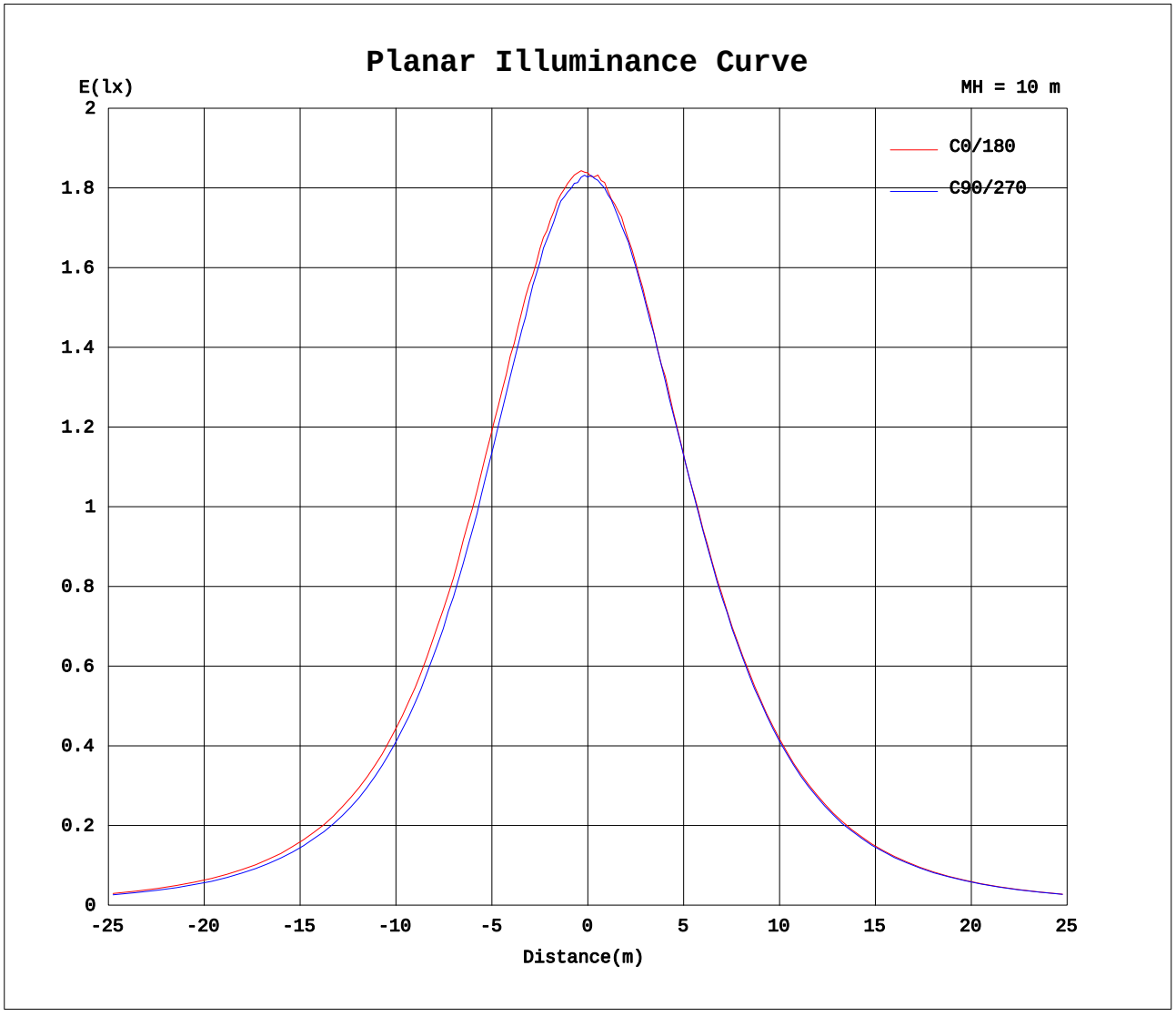
Test:U:120.0V I:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*0.11	PROTECTION ANGLE:



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

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:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*0.11	PROTECTION ANGLE:

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	184	184	184	185	183	185	184	186	184	183	185	184	184	184	184	184	184	184	184
5	184	184	184	184	184	185	184	184	184	182	184	183	183	183	184	182	183	182	183
10	182	182	183	182	182	183	182	182	181	180	183	181	180	180	180	180	180	180	181
15	179	179	180	180	179	179	180	178	177	176	177	176	176	175	175	176	175	174	175
20	175	174	174	174	173	174	173	171	172	169	170	169	169	169	169	169	169	168	168
25	168	167	168	168	166	167	165	164	164	162	162	161	162	161	161	161	161	160	161
30	160	161	159	160	158	158	156	155	154	151	152	152	152	152	152	152	152	151	152
35	149	149	150	150	148	148	146	144	143	141	142	141	141	141	141	142	142	141	142
40	138	138	138	139	136	136	134	132	131	129	129	129	129	129	129	130	130	130	131
45	126	125	126	125	124	123	122	120	118	116	116	116	116	115	117	117	118	117	118
50	112	112	112	111	109	109	108	106	105	102	102	102	102	102	103	104	104	104	105
55	97.0	96.3	97.3	95.8	94.0	93.0	92.7	91.7	90.3	88.7	87.8	87.5	86.8	87.8	88.6	89.8	90.9	90.2	91.1
60	81.4	81.0	81.5	80.3	79.0	78.1	77.5	77.2	75.5	73.7	73.6	72.4	72.9	73.1	73.9	74.9	75.6	76.4	76.4
65	66.1	65.7	65.1	64.7	63.2	62.3	61.9	61.5	61.1	58.9	58.4	58.4	57.7	58.5	58.9	60.3	61.3	61.8	61.5
70	50.2	50.2	49.4	48.4	47.3	46.9	46.2	46.2	45.8	44.6	43.9	43.3	43.2	43.9	44.2	45.5	46.1	47.1	47.2
75	34.2	33.9	33.4	32.7	31.8	31.7	31.3	30.9	31.0	30.0	29.2	29.2	29.2	29.5	29.7	30.3	31.2	31.4	32.1
80	19.7	19.3	18.7	18.0	17.5	17.1	17.1	17.1	17.4	17.1	16.4	16.3	15.9	15.9	16.0	16.4	16.9	17.7	18.4
85	5.75	5.45	5.02	5.16	4.91	4.81	4.89	5.00	5.33	5.54	5.17	4.79	4.51	4.37	4.45	4.50	4.65	5.06	5.63
90	0.02	0.02	0.00	0.00	0.05	0.04	0.04	0.00	0.04	0.05	0.04	0.04	0.02	0.00	0.04	0.04	0.05	0.02	0.00
95	0.02	0.00	0.00	0.00	0.04	0.04	0.04	0.00	0.02	0.04	0.04	0.04	0.00	0.00	0.02	0.02	0.02	0.02	0.00
100	0.02	0.00	0.00	0.00	0.02	0.04	0.04	0.00	0.02	0.04	0.04	0.04	0.00	0.00	0.02	0.02	0.02	0.02	0.00
105	0.02	0.00	0.00	0.00	0.02	0.04	0.04	0.00	0.02	0.04	0.04	0.04	0.00	0.00	0.02	0.02	0.02	0.02	0.04
110	0.02	0.00	0.00	0.00	0.02	0.04	0.04	0.00	0.02	0.04	0.04	0.04	0.00	0.00	0.02	0.02	0.02	0.02	0.07
115	0.02	0.00	0.00	0.00	0.02	0.04	0.04	0.00	0.02	0.04	0.04	0.04	0.00	0.00	0.02	0.02	0.02	0.02	0.11
120	0.02	0.00	0.00	0.00	0.02	0.04	0.04	0.00	0.02	0.04	0.04	0.04	0.00	0.00	0.02	0.02	0.02	0.02	0.11
125	0.02	0.00	0.00	0.00	0.02	0.04	0.05	0.00	0.02	0.04	0.04	0.04	0.05	0.00	0.02	0.02	0.04	0.05	0.18
130	0.11	0.02	0.00	0.02	0.02	0.04	0.07	0.00	0.11	0.12	0.13	0.11	0.05	0.00	0.02	0.02	0.20	0.11	0.18
135	0.16	0.07	0.04	0.13	0.02	0.07	0.11	0.02	0.14	0.16	0.22	0.18	0.09	0.00	0.02	0.05	0.23	0.14	0.18
140	0.22	0.18	0.05	0.20	0.02	0.09	0.16	0.09	0.16	0.23	0.25	0.23	0.18	0.02	0.02	0.23	0.23	0.23	0.18
145	0.22	0.16	0.23	0.24	0.18	0.11	0.18	0.11	0.23	0.25	0.27	0.25	0.23	0.04	0.11	0.23	0.23	0.23	0.18
150	0.24	0.22	0.24	0.24	0.23	0.16	0.25	0.22	0.25	0.27	0.27	0.27	0.27	0.09	0.22	0.25	0.23	0.25	0.18
155	0.24	0.23	0.25	0.24	0.23	0.22	0.24	0.24	0.25	0.27	0.27	0.27	0.27	0.14	0.25	0.25	0.25	0.25	0.18
160	0.27	0.23	0.25	0.25	0.23	0.24	0.25	0.24	0.27	0.27	0.27	0.27	0.27	0.14	0.25	0.25	0.25	0.25	0.20
165	0.25	0.25	0.25	0.25	0.23	0.25	0.25	0.24	0.27	0.27	0.27	0.29	0.27	0.20	0.25	0.25	0.25	0.25	0.22
170	0.27	0.25	0.25	0.25	0.23	0.27	0.27	0.25	0.27	0.27	0.27	0.29	0.27	0.23	0.25	0.25	0.25	0.25	0.25
175	0.27	0.25	0.25	0.25	0.23	0.27	0.27	0.25	0.27	0.27	0.27	0.29	0.27	0.25	0.25	0.25	0.25	0.25	0.24
180	0.27	0.25	0.25	0.25	0.23	0.27	0.27	0.25	0.27	0.27	0.27	0.29	0.27	0.25	0.25	0.25	0.25	0.27	0.24

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:

LUMINOUS DISTRIBUTION INTENSITY DATA

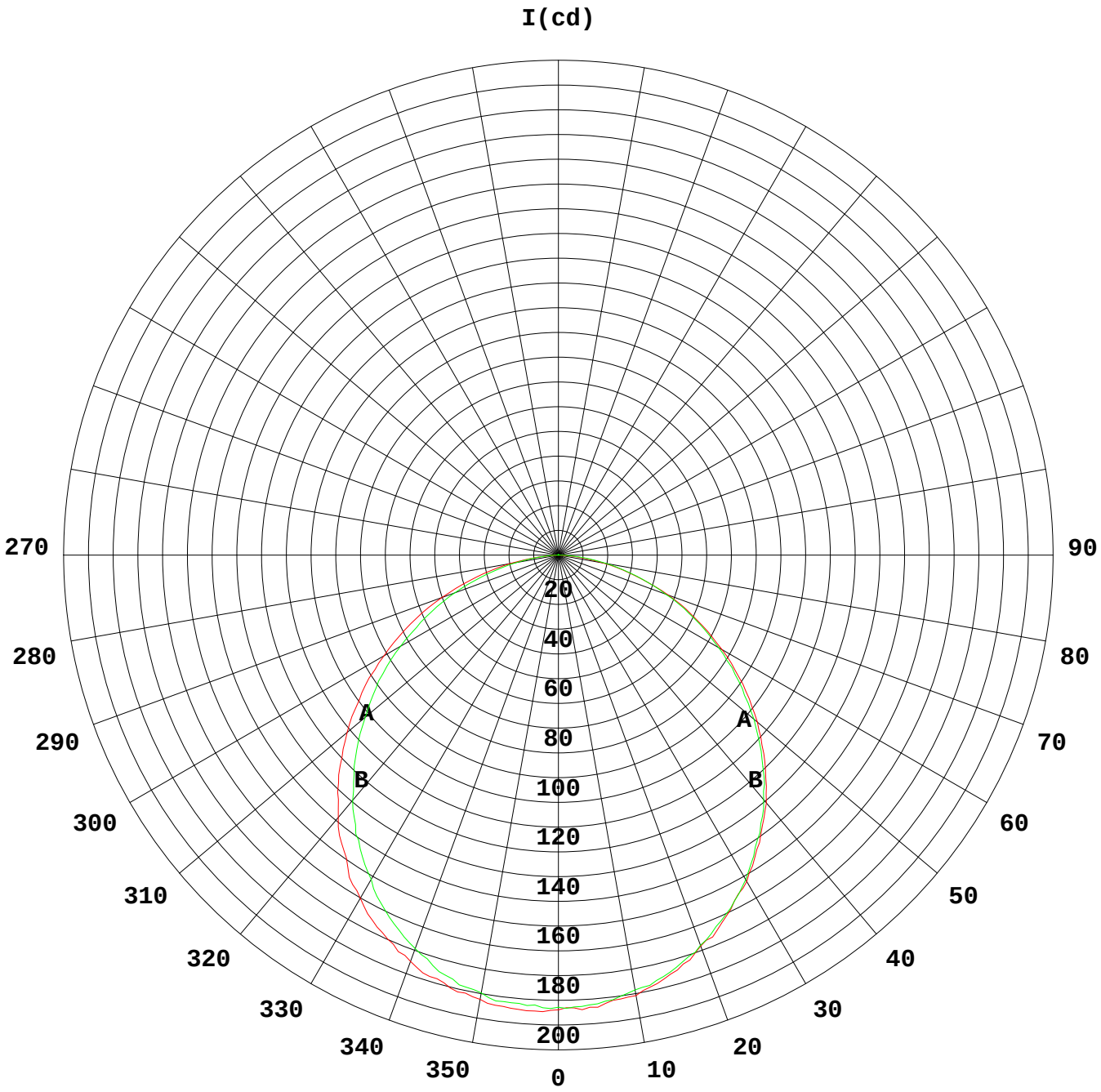
Test:U:120.0V I:0.0798A P:9.217W PF:0.9622 Lamp Flux:508.377x1 lm		
NAME:	TYPE:QDR-06F-PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.11*0.11	PROTECTION ANGLE:

Table--2 UNIT: cd

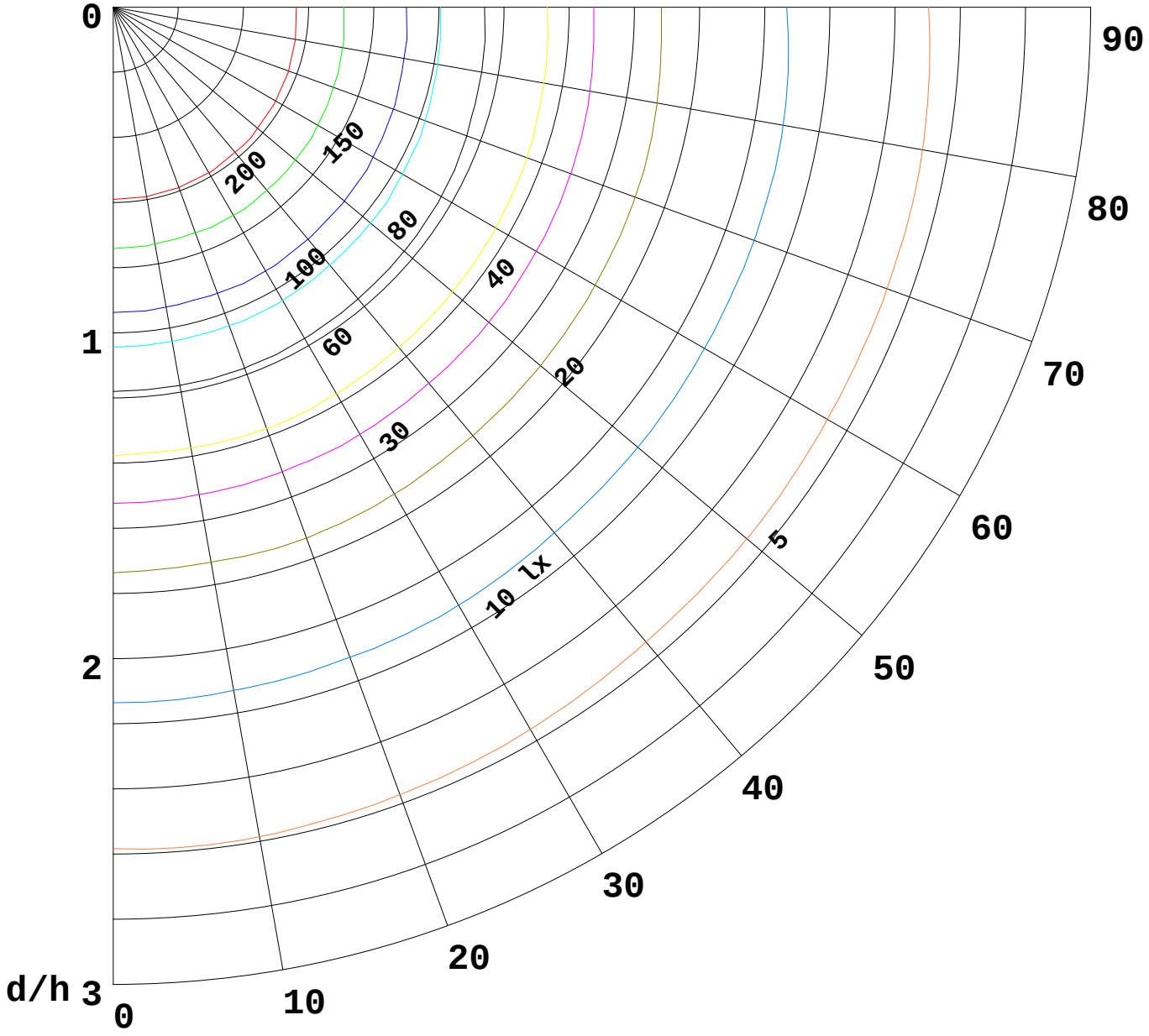
γ (DEG) \ C(DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	184	184	185	183	185	184	186	184	183	185	184	184	184	184	184	184	184		
5	182	184	183	182	183	184	184	183	182	184	184	184	184	183	184	184	184		
10	179	180	180	179	180	181	180	180	178	181	180	181	181	182	181	182	182		
15	174	175	175	175	175	176	176	175	175	176	176	177	177	178	178	178	179		
20	169	169	168	167	169	168	168	169	168	169	170	170	172	172	173	174	174		
25	160	161	160	160	160	159	160	161	160	162	162	163	164	165	166	166	166		
30	151	152	151	150	152	151	150	151	151	152	154	155	155	157	158	159	159		
35	141	141	140	140	140	140	139	141	140	143	143	144	146	147	148	149	149		
40	129	129	129	129	128	129	129	128	129	131	132	133	135	135	137	137	137		
45	117	117	117	116	116	116	116	116	116	118	119	120	122	123	124	124	124		
50	104	104	103	103	103	103	103	103	103	105	106	107	108	109	110	110	110		
55	90.1	90.3	89.1	88.6	88.4	88.1	88.4	88.6	89.1	91.2	92.5	93.0	93.9	94.2	94.7	95.4	95.7		
60	75.4	75.3	75.0	74.3	74.3	73.9	74.3	74.0	74.9	76.3	77.9	78.4	78.8	78.4	79.7	80.2	80.0		
65	61.0	61.1	61.0	59.9	59.8	59.3	59.9	60.4	60.6	62.3	63.0	63.1	63.2	63.5	64.4	64.7	64.9		
70	46.8	46.3	46.2	45.7	45.5	45.4	45.3	45.9	46.1	48.0	48.2	48.2	48.0	48.3	48.5	49.1	49.1		
75	31.8	31.8	31.5	31.3	31.6	31.5	31.7	31.7	32.6	33.9	33.5	33.1	33.0	33.1	33.2	33.4	33.9		
80	18.1	18.0	18.0	17.9	18.1	18.5	18.7	19.0	19.6	20.2	19.8	19.2	18.9	18.8	18.9	19.2	19.3		
85	5.58	5.61	5.62	5.91	6.13	6.50	7.06	7.44	7.80	7.75	7.14	6.63	6.23	6.01	5.86	5.72	5.75		
90	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
95	0.00	0.00	0.02	0.04	0.00	0.00	0.04	0.02	0.02	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00		
100	0.00	0.04	0.04	0.04	0.00	0.02	0.05	0.05	0.05	0.04	0.02	0.04	0.04	0.04	0.00	0.00	0.02		
105	0.04	0.04	0.05	0.05	0.04	0.05	0.09	0.09	0.07	0.05	0.05	0.05	0.07	0.04	0.00	0.04	0.04		
110	0.07	0.11	0.09	0.09	0.05	0.09	0.11	0.11	0.09	0.07	0.07	0.09	0.09	0.07	0.05	0.05	0.07		
115	0.11	0.09	0.11	0.11	0.09	0.09	0.14	0.14	0.11	0.11	0.09	0.11	0.11	0.09	0.07	0.05	0.11		
120	0.11	0.13	0.13	0.13	0.11	0.13	0.14	0.14	0.13	0.14	0.11	0.13	0.14	0.13	0.07	0.11	0.11		
125	0.14	0.18	0.14	0.14	0.13	0.13	0.18	0.16	0.14	0.13	0.13	0.16	0.16	0.13	0.09	0.14	0.14		
130	0.14	0.18	0.20	0.16	0.13	0.13	0.18	0.20	0.16	0.16	0.14	0.18	0.16	0.13	0.13	0.14	0.14		
135	0.14	0.22	0.20	0.16	0.14	0.16	0.20	0.20	0.16	0.16	0.16	0.18	0.16	0.13	0.16	0.14	0.16		
140	0.14	0.22	0.22	0.20	0.14	0.16	0.23	0.22	0.16	0.18	0.18	0.18	0.16	0.14	0.18	0.20	0.22		
145	0.14	0.22	0.22	0.22	0.16	0.16	0.22	0.23	0.16	0.20	0.20	0.20	0.16	0.20	0.20	0.20	0.23		
150	0.14	0.22	0.22	0.22	0.18	0.16	0.24	0.23	0.16	0.20	0.20	0.20	0.18	0.20	0.20	0.20	0.23		
155	0.14	0.22	0.22	0.22	0.18	0.18	0.24	0.23	0.16	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.23		
160	0.22	0.25	0.22	0.23	0.23	0.22	0.24	0.23	0.20	0.20	0.20	0.22	0.20	0.20	0.22	0.20	0.23		
165	0.24	0.27	0.25	0.25	0.24	0.24	0.25	0.25	0.27	0.25	0.24	0.25	0.24	0.22	0.25	0.25	0.23		
170	0.27	0.27	0.25	0.25	0.24	0.27	0.27	0.25	0.27	0.27	0.27	0.29	0.27	0.25	0.25	0.25	0.25		
175	0.27	0.27	0.25	0.25	0.24	0.27	0.27	0.25	0.27	0.27	0.27	0.29	0.27	0.25	0.25	0.25	0.25		
180	0.27	0.25	0.25	0.25	0.24	0.27	0.27	0.25	0.27	0.27	0.27	0.29	0.27	0.25	0.25	0.25	0.25		

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:


I(cd)
90
80
70
60
50
40
30
20
10
0
350
340
330
320
310
300
290
280
270
20
40
60
80
100
120
140
160
180
200
A
B
A
B

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