IESNA LM-79 TEST REPORT

Applicant's name .....:	Blackjack Lighting
Address .....:	1553 Barclay Blvd. Buffalo Grove, IL 60089
Brand Name.....:	Blackjack Lighting
Report No......:	BTR66.181.17.0031.06
Product Name.....:	Halos 11" Flush Mount - Satin Nickel
Model Number .....:	HAL-11F-SN

Tested by
(printed name and signature) .....: David Zhang .....
Title .....: **Test Engineer**

Approved by
(printed name and signature) .....: Steven Huo .....
Title .....: **Approved Signatory**

Date of issue .....: Jun 07, 2018

Testing Laboratory Name .....:	BEST Test Service Shenzhen Co., Ltd.
Address .....:	1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyan, Baoan, Shenzhen, China Tel:+86-755-28236006, Email: certification@bestcert.cn
Accrediation .....:	DLC/Lighting Facts/UL/ETL/ELI/CEC/EPA/DOE NVLAP Testing Lab Code: 200770-0

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

description:	
Test date.....:	May 29, 2018 to Jun 07, 2018
Sample Quantity .....:	1 unit
SKU.....:	N/A
Rating(s) (V; Hz) .....:	120V 60HZ
Nominal Power.....:	15.5W
Nominal Power Factor .....:	N/A
Nominal Lumen Output.....:	940lm
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	24.7℃
Orientation (burning position) of SSL product during test	Lighting Surface Down or Base Up
Stabilization time	1.5 H
Photometric method	Sphere-spectroradiometer+Goniophotometer
Calibration standard lamp used	DC 24V 100W Omni-Directional Halogen Calibrated by NIM China(Sphere) DC 120V 500W Omni-Directional Halogen Calibrated by NIM China(Goniophotometer)
Correction factors applied	Self absorbing applied
Photometric measurement conditions	See test method description below
Equipments used	EVERFINE HASS-2000 Sphere System CHROMA 61602 AC Source YOKOGAWA WT 310 Power Meter FLUKE 52II EVERFINE GOR-5000 Goniophotometer CALIFORNIA INSTRUMENT 1501I AC Source YOKOGAWA WT 210 Power Meter FLUKE 233 Temperature Meter
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 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.

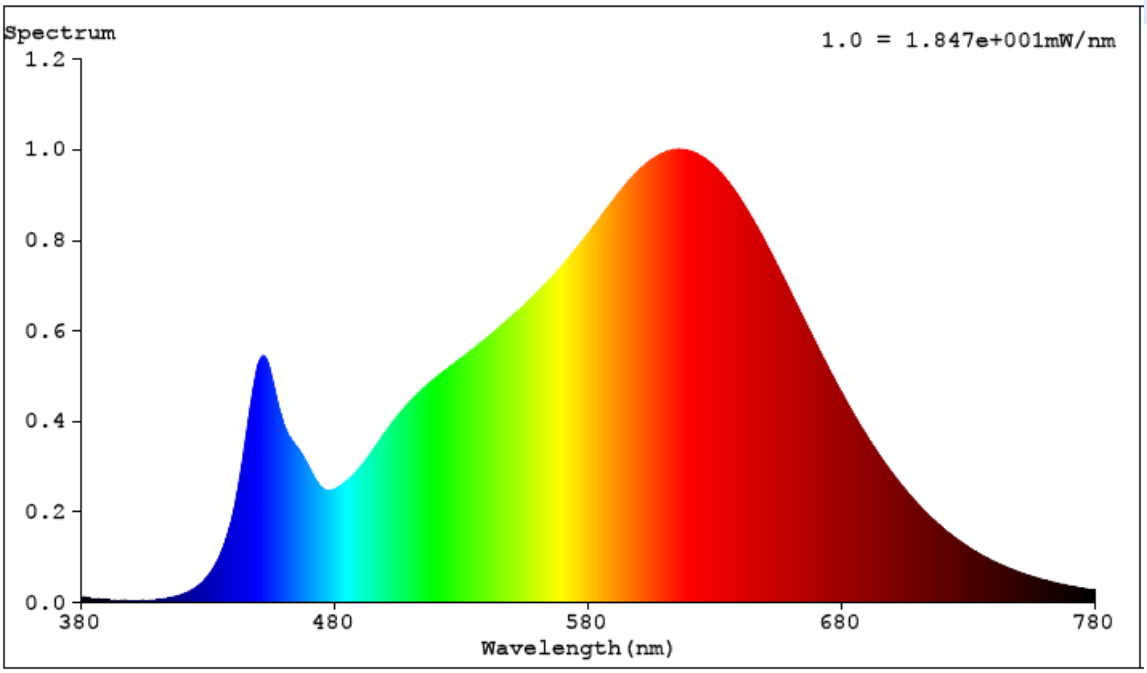
Luminious Intensity

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

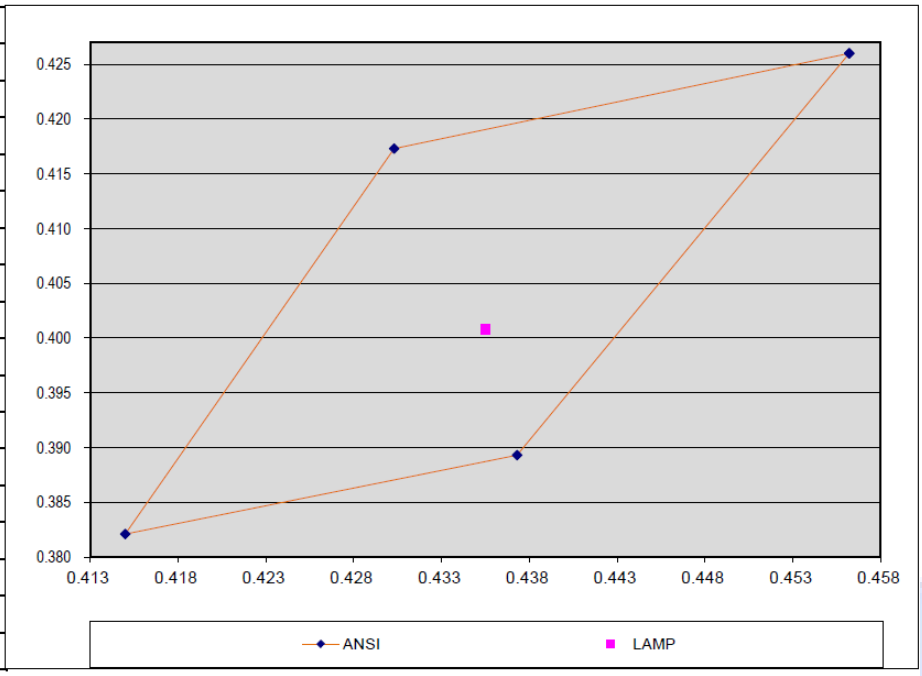
Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.1306	/	15.51	0.9897	943.52	60.82
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
2997	91.5	51	0.4355	0.4008	0.2511	0.5199	-0.0011

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	0.4355	0.4008
2		
3		
4		
5		
6		
7		
8		
9		
10		



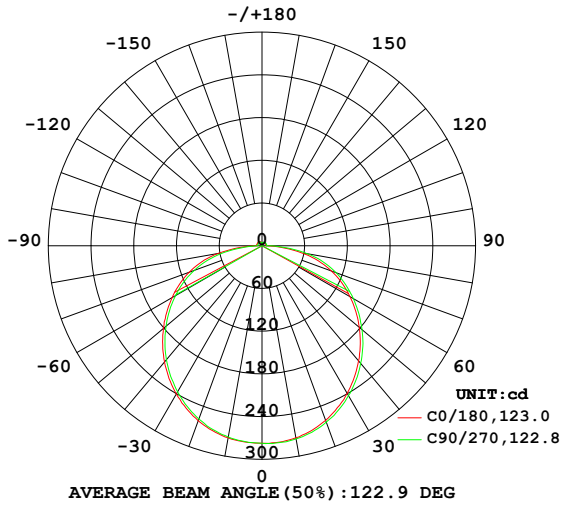
EUT Photo

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:

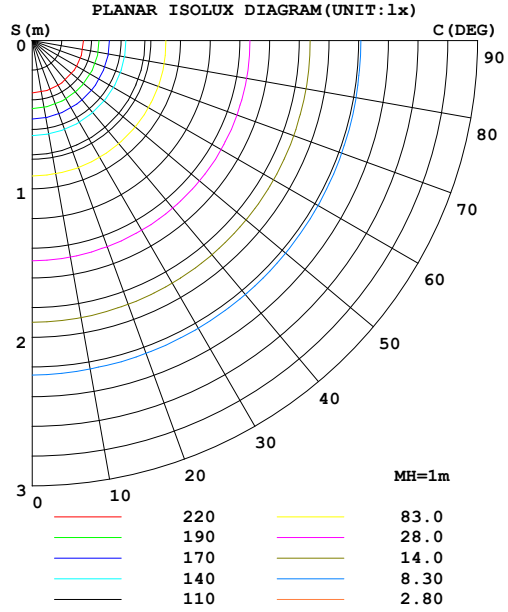
DATA OF LAMP		PHOTOMETRIC DATA Eff: 60.82 lm/W			
MODEL	HAL-11F-SN	Imax(cd)	278.3	S/MH(C0/180)	1.28
NOMINAL POWER(W)	15.5	LOR(%)	100.0	S/MH(C90/270)	1.30
RATED VOLTAGE(V)	120.0	TOTAL FLUX(lm)	943.52	η UP,DN(C0-180)	2.1,47.1
NOMINAL FLUX(lm)	943.524	CIE CLASS	DIRECT	η UP,DN(C180-360)	2.1,48.6
LAMPS INSIDE	1	η up(%)	4.3	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	120.0	η down(%)	95.7	CIBSE SHR MAX	1.50

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):122.9 DEG

PLANAR ISOLUX DIAGRAM(UNIT:lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	274.0	272.9	272.7	273.0	273.9	274.9	275.4	275.4	0- 10	26.34	26.34	2.79,2.79
20	261.6	259.9	259.2	259.4	261.1	262.7	263.7	263.7	10- 20	75.90	102.2	10.8,10.8
30	240.5	238.0	237.0	237.0	239.5	241.7	243.1	243.5	20- 30	116.0	218.2	23.1,23.1
40	213.0	210.6	209.0	208.6	211.0	213.8	215.7	215.9	30- 40	142.0	360.2	38.2,38.2
50	180.9	178.1	175.9	175.9	178.4	181.0	183.5	183.5	40- 50	151.6	511.8	54.2,54.2
60	145.7	142.6	140.4	140.2	142.7	145.6	148.0	148.5	50- 60	145.1	656.9	69.6,69.6
70	108.7	104.8	101.4	101.8	103.8	107.2	110.7	111.1	60- 70	124.4	781.3	82.8,82.8
80	62.52	57.58	53.06	52.94	55.77	60.28	64.80	64.73	70- 80	88.62	869.9	92.2,92.2
90	9.699	7.217	6.975	5.614	5.763	6.485	8.489	9.234	80- 90	33.44	903.4	95.7,95.7
100	7.550	6.811	6.033	5.874	5.890	6.132	6.780	7.467	90-100	7.058	910.4	96.5,96.5
110	7.423	6.677	5.983	5.809	5.819	6.029	6.693	7.382	100-110	6.947	917.4	97.2,97.2
120	7.337	6.738	6.197	5.946	5.833	5.921	6.521	7.171	110-120	6.379	923.8	97.9,97.9
130	7.633	7.183	6.716	6.480	6.257	6.277	6.756	7.359	120-130	5.958	929.7	98.5,98.5
140	7.491	7.142	6.736	6.535	6.176	6.249	6.683	7.209	130-140	5.306	935.0	99.1,99.1
150	6.842	6.589	6.215	6.058	5.613	5.660	6.135	6.491	140-150	4.104	939.1	99.5,99.5
160	5.813	5.704	5.398	5.234	4.657	4.787	5.228	5.419	150-160	2.675	941.8	99.8,99.8
170	4.817	4.759	4.434	4.279	3.789	3.889	4.399	4.480	160-170	1.378	943.2	100,100
180	0.7927	0.8221	0.9749	1.117	0.9580	0.8214	0.4188	0.9267	170-180	0.3510	943.5	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

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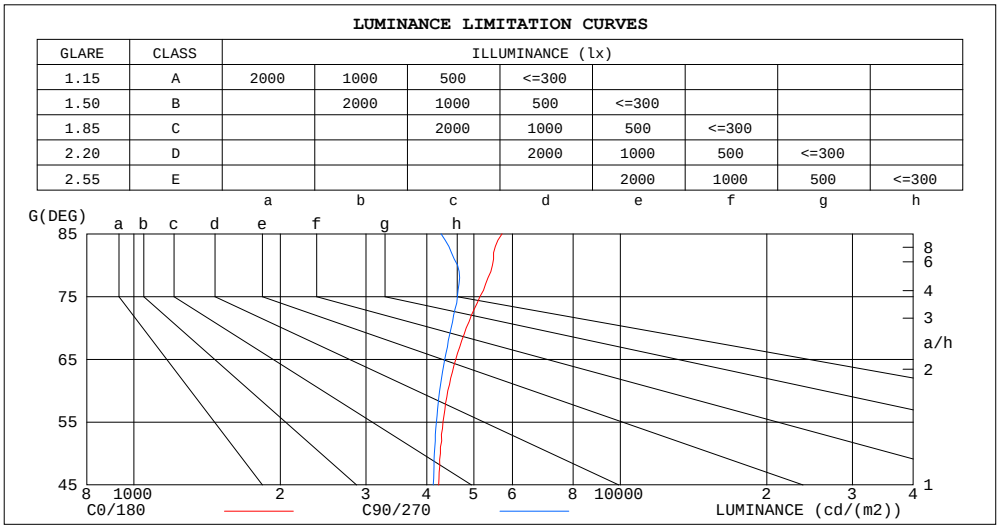
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	5713	4279
80	5459	4628
75	5145	4624
70	4821	4489
65	4588	4357
60	4420	4252
55	4318	4187
50	4267	4146
45	4232	4126

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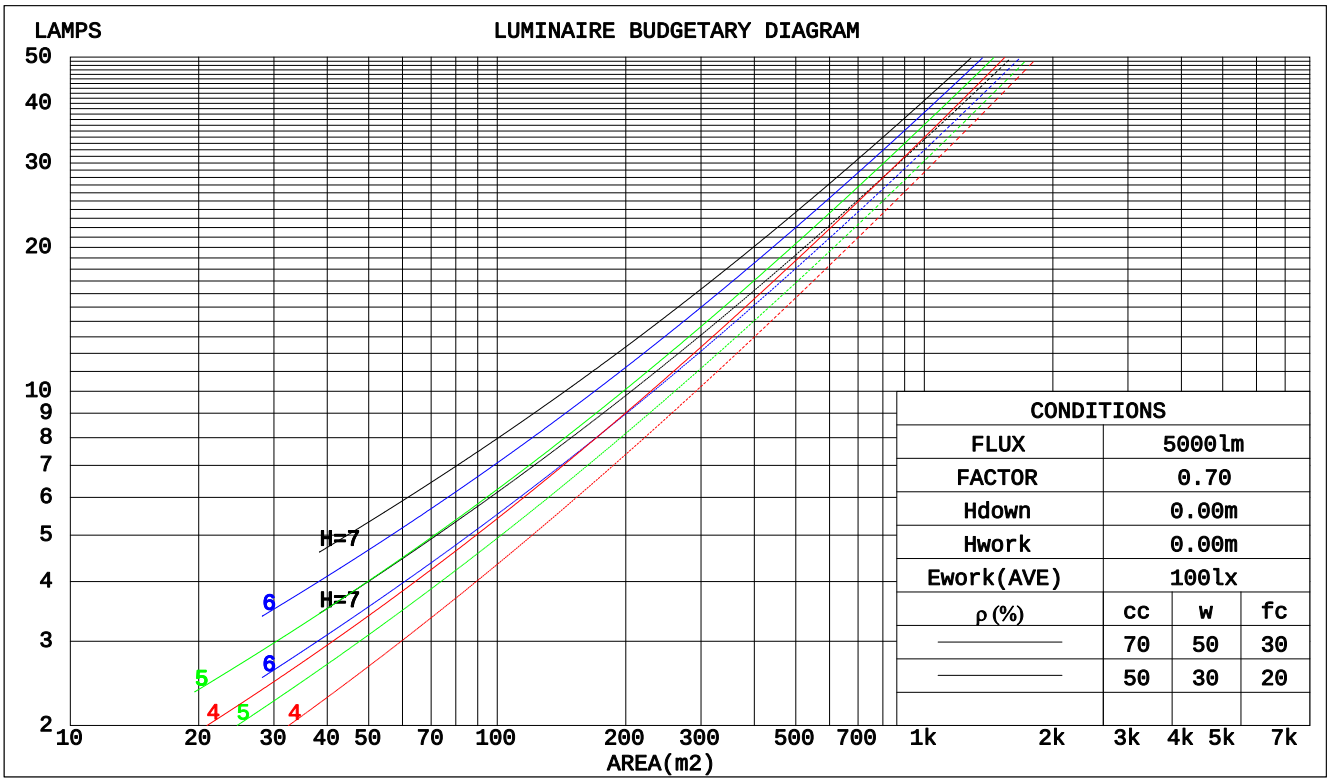
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding 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	1.18	1.18	1.18	1.15	1.15	1.15	1.09	1.09	1.09	1.03	1.03	1.03	.98	.98	.98	.96
1.0	1.01	.96	.92	.98	.94	.90	.93	.90	.86	.89	.86	.83	.84	.82	.80	.77
2.0	.87	.80	.73	.85	.78	.72	.80	.75	.70	.77	.72	.68	.73	.69	.65	.63
3.0	.76	.67	.60	.74	.66	.59	.70	.63	.58	.67	.61	.56	.64	.59	.55	.52
4.0	.67	.58	.50	.65	.57	.50	.62	.55	.49	.59	.53	.48	.56	.51	.46	.44
5.0	.59	.50	.43	.58	.49	.43	.55	.48	.42	.53	.46	.41	.51	.45	.40	.38
6.0	.53	.44	.37	.52	.43	.37	.50	.42	.36	.48	.41	.36	.46	.40	.35	.33
7.0	.48	.39	.33	.47	.39	.33	.45	.38	.32	.43	.37	.31	.42	.36	.31	.29
8.0	.44	.35	.29	.43	.35	.29	.41	.34	.28	.40	.33	.28	.38	.32	.28	.26
9.0	.40	.32	.26	.39	.31	.26	.38	.31	.26	.37	.30	.25	.35	.29	.25	.23
10.0	.37	.29	.24	.36	.29	.23	.35	.28	.23	.34	.27	.23	.33	.27	.23	.21



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C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding 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	.344	.195	.062	.335	.191	.061	.319	.183	.058	.305	.176	.056	.291	.169	.054	
2.0	.314	.172	.053	.307	.169	.052	.293	.163	.051	.279	.157	.049	.267	.151	.048	
3.0	.286	.152	.046	.279	.150	.045	.267	.144	.044	.255	.140	.043	.244	.135	.042	
4.0	.261	.136	.040	.255	.133	.039	.244	.129	.039	.233	.125	.038	.223	.121	.037	
5.0	.239	.122	.035	.234	.120	.035	.224	.117	.034	.214	.113	.034	.206	.110	.033	
6.0	.220	.111	.032	.216	.109	.031	.207	.106	.031	.198	.103	.030	.190	.100	.030	
7.0	.204	.101	.029	.200	.100	.028	.192	.097	.028	.184	.094	.027	.177	.092	.027	
8.0	.190	.093	.026	.186	.092	.026	.179	.089	.025	.172	.087	.025	.165	.085	.025	
9.0	.177	.086	.024	.174	.085	.024	.167	.083	.023	.161	.081	.023	.155	.079	.023	
10.0	.166	.080	.022	.163	.079	.022	.157	.077	.022	.151	.075	.021	.146	.073	.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	.223	.223	.223	.191	.191	.191	.130	.130	.130	.075	.075	.075	.024	.024	.024	
1.0	.215	.189	.164	.184	.162	.141	.126	.111	.098	.073	.064	.057	.023	.021	.018	
2.0	.208	.165	.128	.178	.142	.111	.122	.098	.077	.070	.057	.045	.023	.018	.015	
3.0	.201	.147	.105	.172	.127	.091	.118	.088	.064	.068	.052	.038	.022	.017	.012	
4.0	.193	.134	.090	.166	.116	.078	.114	.081	.055	.066	.047	.033	.021	.015	.011	
5.0	.185	.124	.079	.159	.108	.069	.110	.075	.049	.064	.044	.029	.020	.014	.010	
6.0	.178	.116	.072	.153	.101	.062	.106	.070	.044	.061	.041	.026	.020	.014	.009	
7.0	.171	.109	.066	.147	.095	.058	.102	.066	.041	.059	.039	.024	.019	.013	.008	
8.0	.164	.104	.062	.141	.090	.054	.098	.063	.038	.057	.037	.023	.018	.012	.008	
9.0	.158	.099	.058	.136	.086	.051	.094	.060	.036	.055	.036	.022	.018	.012	.007	
10.0	.152	.094	.056	.131	.082	.049	.091	.058	.035	.053	.034	.021	.017	.011	.007	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
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γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding 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	17.8	19.3	18.1	19.6	19.9	17.6	19.1	18.0	19.4	19.7
3H	19.8	21.2	20.2	21.5	21.9	19.6	21.0	19.9	21.3	21.6
4H	20.8	22.1	21.2	22.5	22.8	20.5	21.8	20.8	22.1	22.5
6H	21.7	22.9	22.1	23.3	23.7	21.2	22.5	21.6	22.8	23.2
8H	22.0	23.2	22.4	23.6	24.0	21.5	22.7	21.9	23.0	23.4
12H	22.3	23.4	22.7	23.8	24.2	21.6	22.8	22.0	23.2	23.6
4H 2H	18.5	19.8	18.9	20.2	20.5	18.4	19.7	18.8	20.0	20.4
3H	20.7	21.9	21.1	22.3	22.7	20.5	21.7	20.9	22.1	22.5
4H	21.9	22.9	22.3	23.3	23.8	21.6	22.6	22.0	23.0	23.5
6H	22.9	23.9	23.4	24.3	24.7	22.4	23.4	22.9	23.8	24.3
8H	23.3	24.2	23.8	24.6	25.1	22.8	23.7	23.2	24.1	24.6
12H	23.6	24.4	24.1	24.9	25.4	23.0	23.8	23.5	24.3	24.8
8H 4H	22.3	23.2	22.7	23.6	24.1	22.0	22.9	22.5	23.3	23.8
6H	23.5	24.2	24.0	24.7	25.2	23.1	23.8	23.6	24.3	24.8
8H	24.0	24.7	24.5	25.2	25.7	23.5	24.2	24.0	24.7	25.2
12H	24.4	25.0	25.0	25.5	26.1	23.8	24.4	24.4	24.9	25.5
12H 4H	22.3	23.1	22.8	23.6	24.1	22.0	22.9	22.5	23.3	23.8
6H	23.6	24.2	24.1	24.7	25.3	23.2	23.9	23.7	24.4	24.9
8H	24.2	24.7	24.7	25.3	25.8	23.7	24.3	24.2	24.8	25.4

Variations with the observer position at spacings:		
S = 1.0H	+ 0.1 / - 0.1	+ 0.1 / - 0.1
1.5H	+ 0.2 / - 0.2	+ 0.2 / - 0.3
2.0H	+ 0.1 / - 0.3	+ 0.1 / - 0.3

CIE Pub.117, 943.5 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = -0.2)

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:

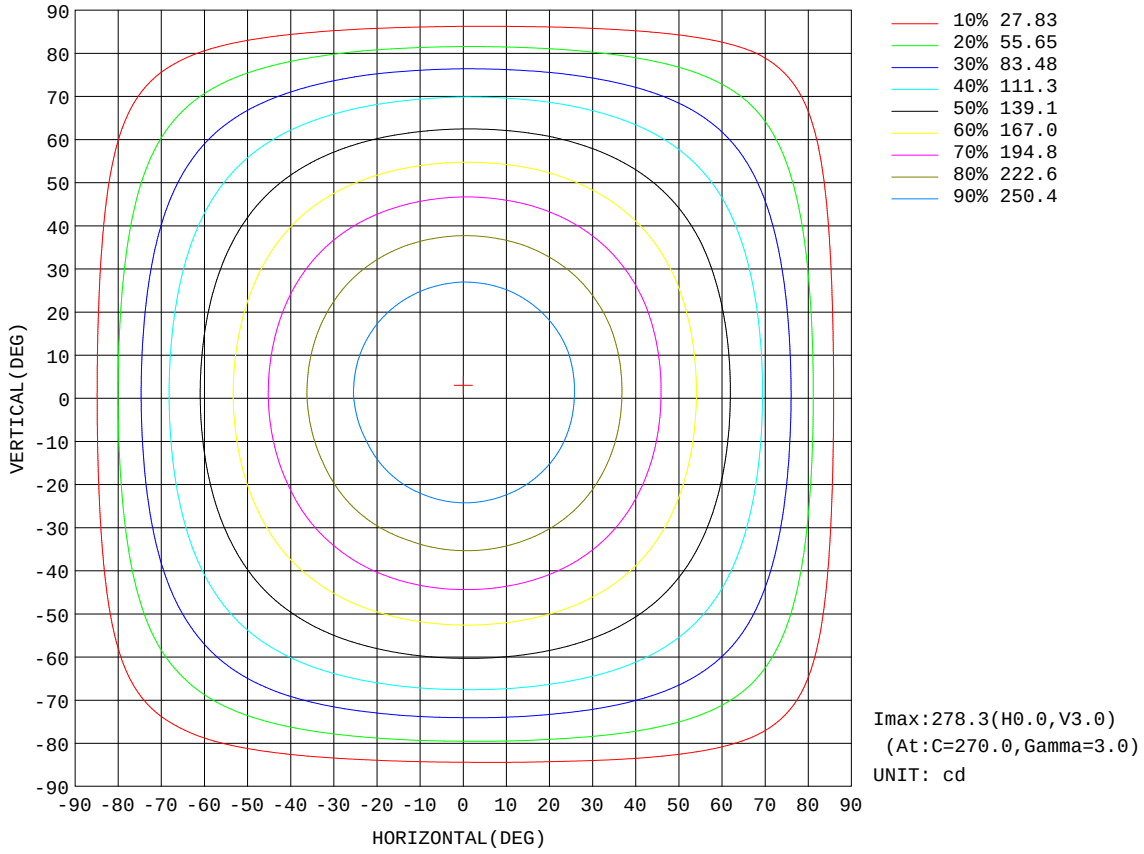
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	54	42	35	53	42	35	52	41	34	28
0.80	64	51	44	62	51	43	60	50	43	35
1.00	72	60	52	70	59	52	68	60	51	43
1.25	79	68	60	77	67	59	74	65	58	50
1.50	84	73	66	82	72	65	78	70	64	55
2.00	91	82	74	89	80	74	85	77	72	63
2.50	95	87	80	93	85	79	88	82	77	67
3.00	99	91	85	96	89	84	92	86	81	71
4.00	103	97	92	101	95	90	95	91	87	76
5.00	106	101	96	103	98	94	98	94	90	80
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:



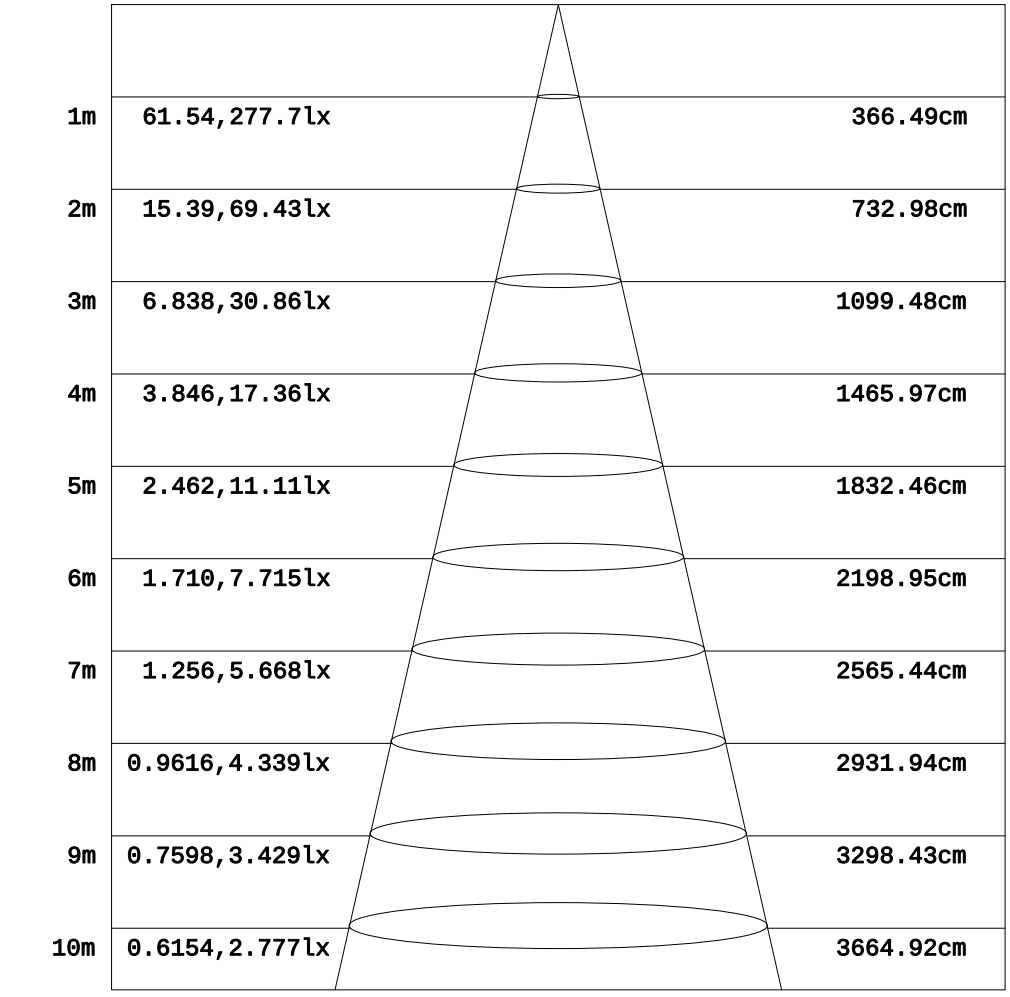
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

AAI Figure

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:

Flux out:683.9 lm



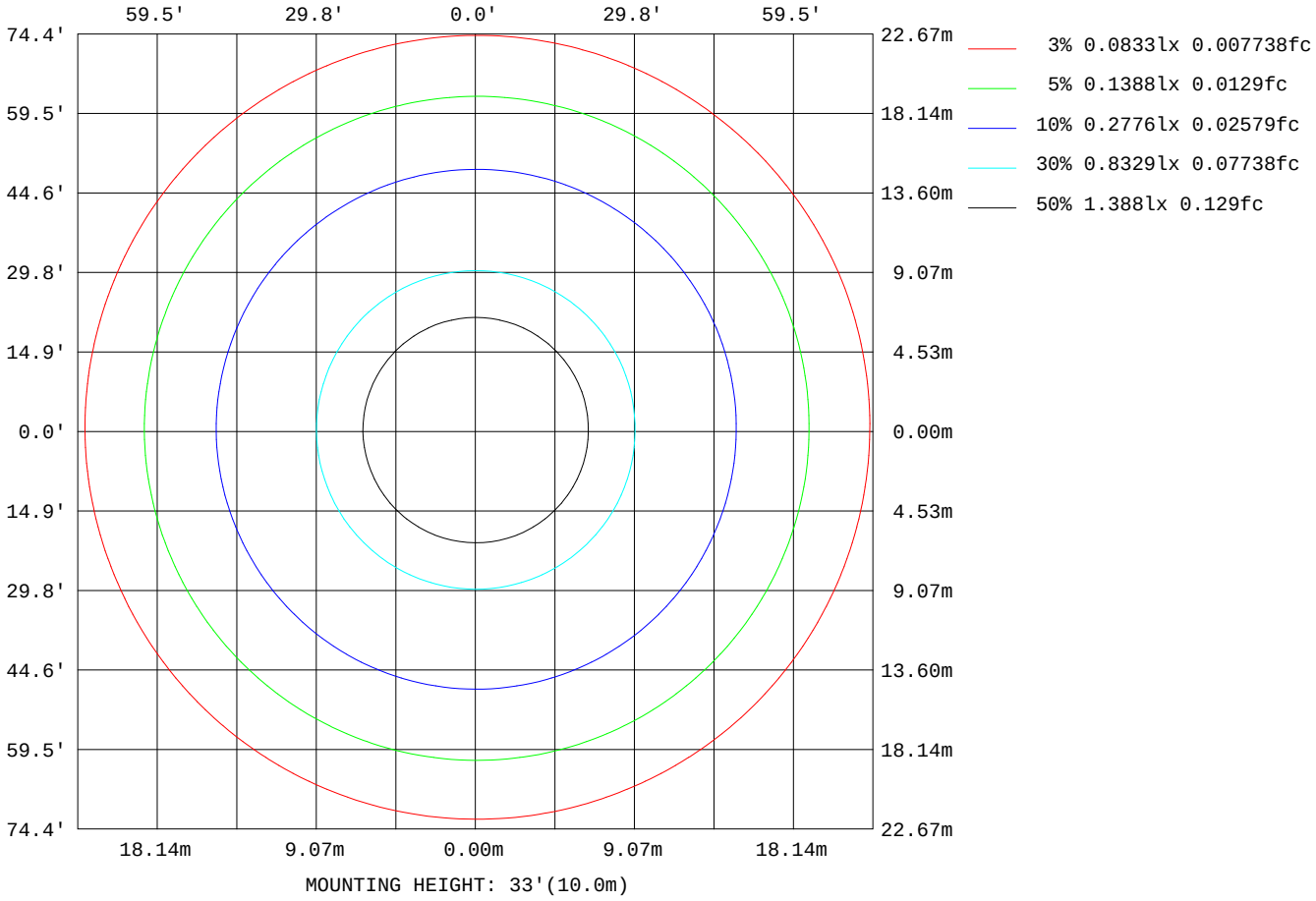
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:

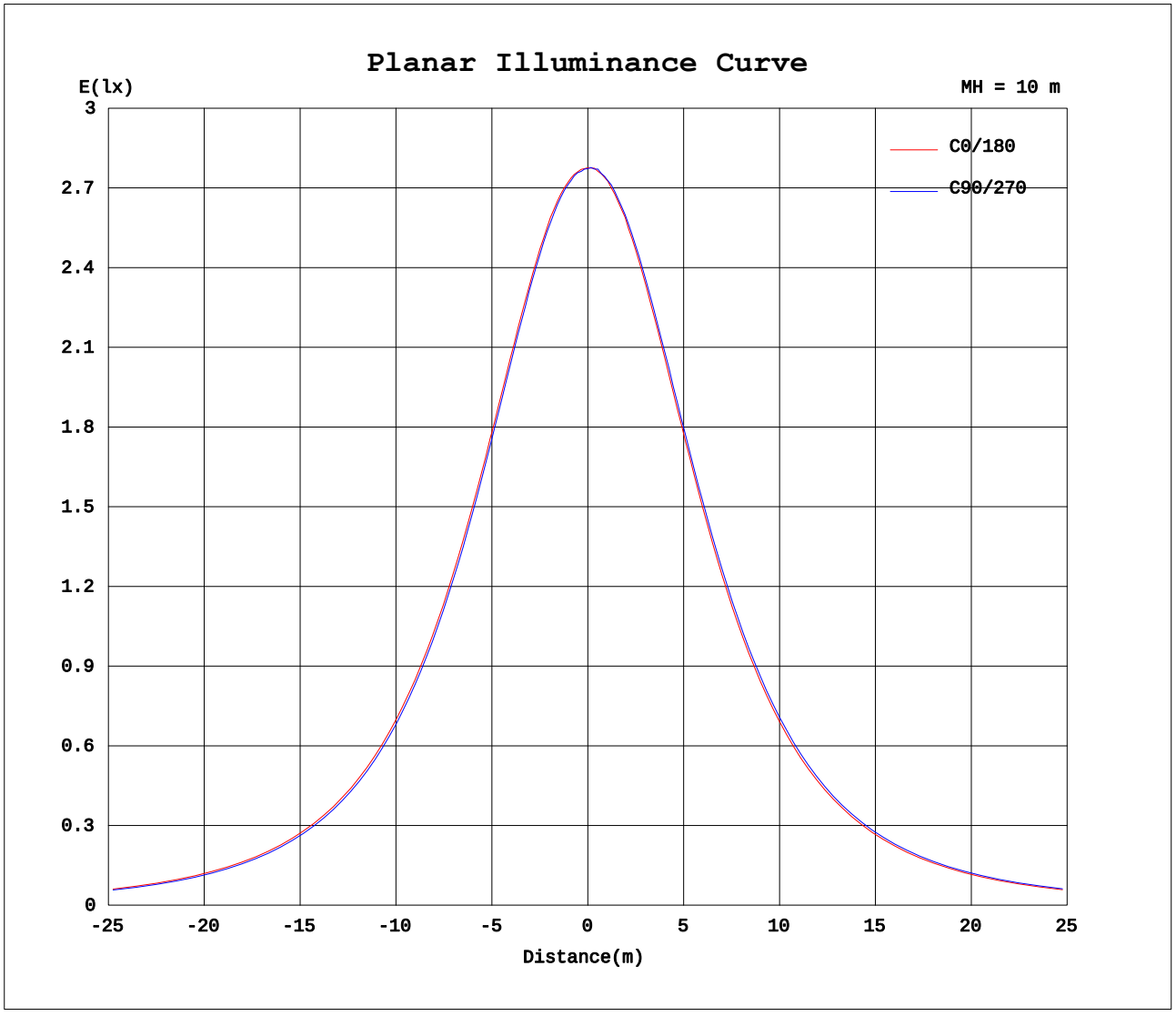
AvgL	cd/m2
L_0~180(65)av	4511
L_0~180(75)av	4970
L_0~180(85)av	5211
L_90~270(65)av	4506
L_90~270(75)av	4941
L_90~270(85)av	5174
L_45(65)av	4512
L_45(75)av	4952
L_45(85)av	5183

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

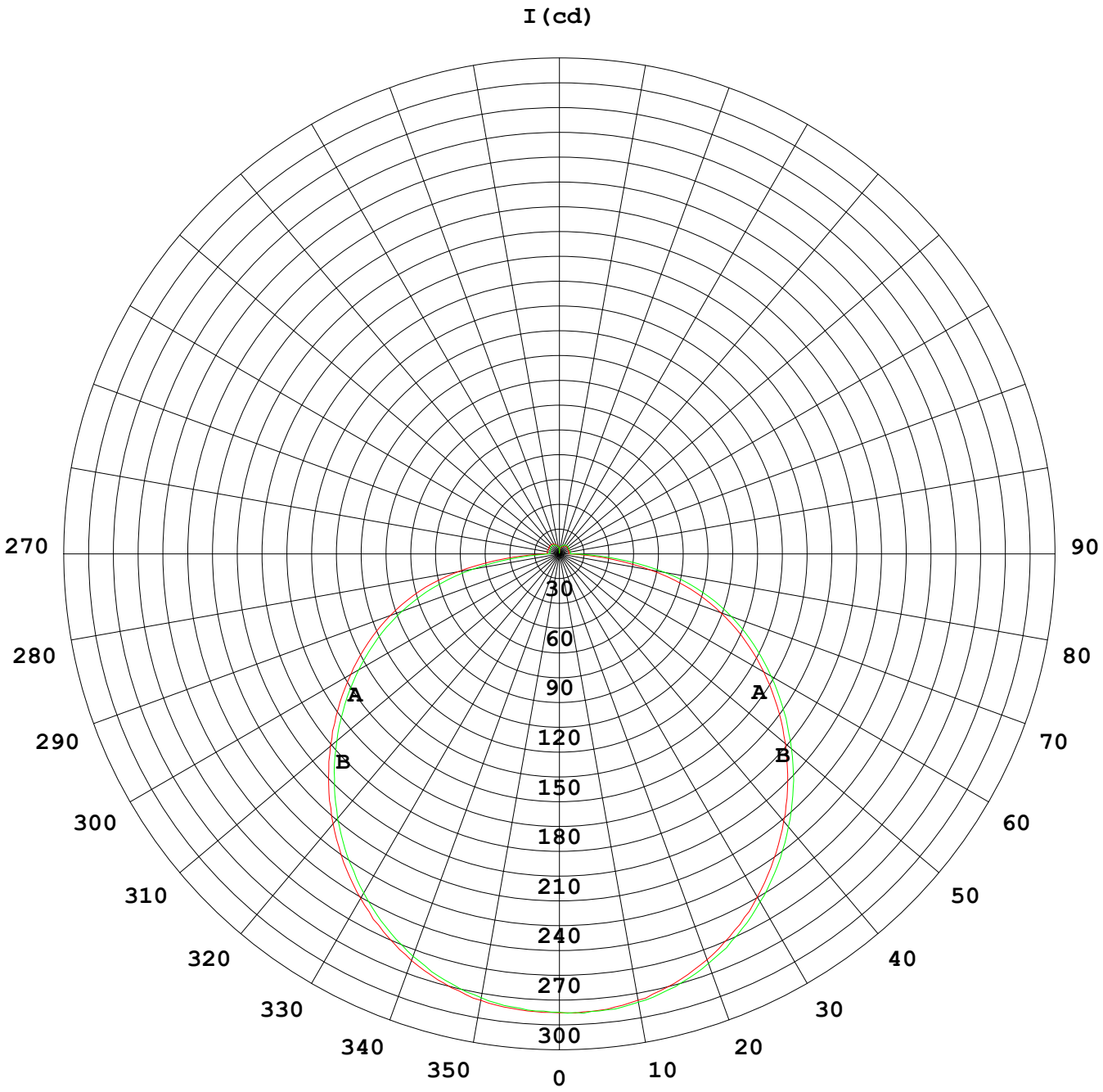
Test:U:120.00V I:0.1306A P:15.514W PF:0.9897 Freq:60.00Hz Lamp Flux:943.524x1 lm		
NAME:	TYPE:HAL-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.145*0.145*3.14	Shielding Angle:

Table--1 UNIT: cd

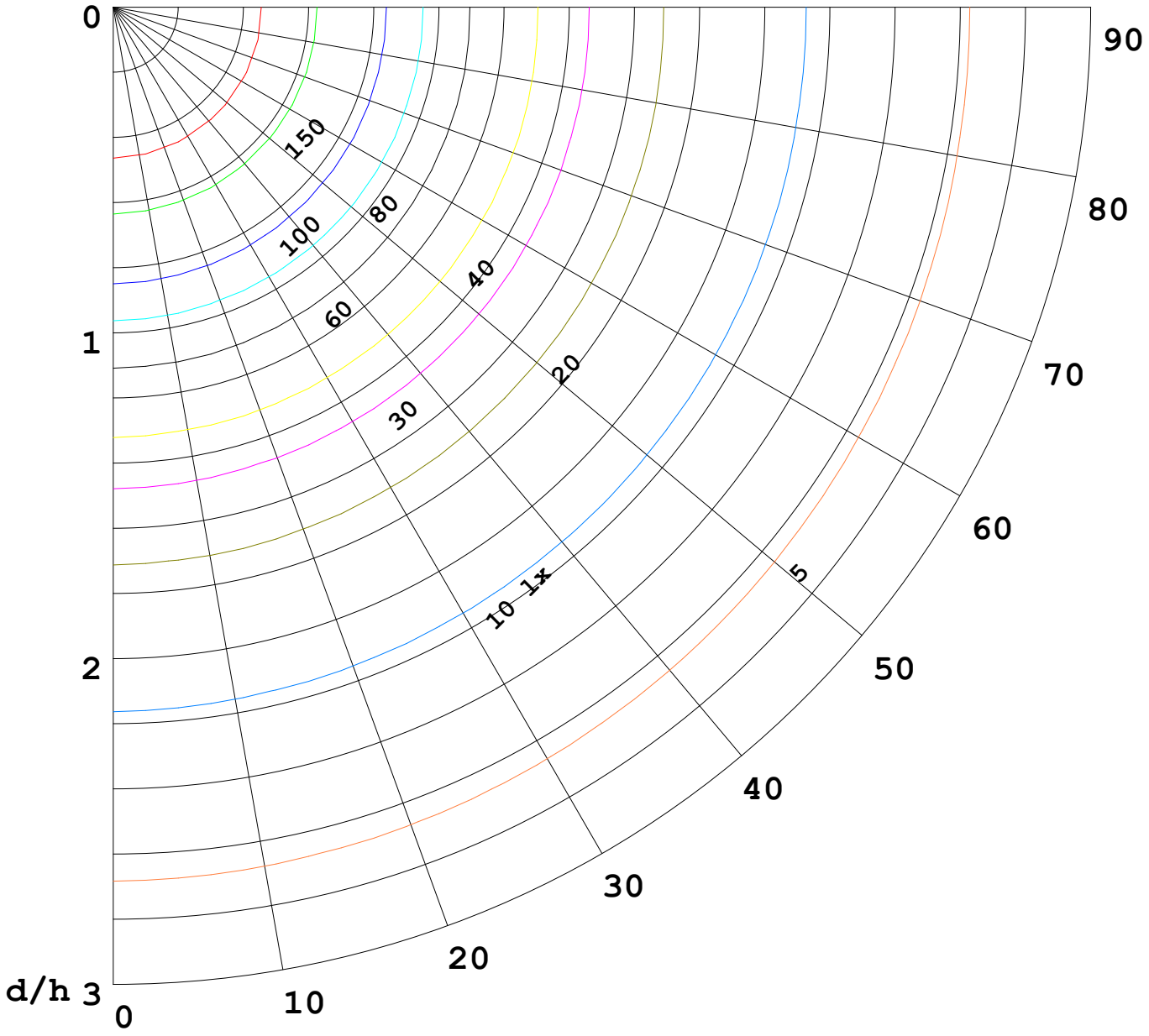
γ (DEG) \ C(DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	277	277	277	277	277	277	277	277	277	277	277	277	277	277	277	277			
5	277	276	276	276	276	276	277	277	277	277	277	277	278	277	277	277			
10	274	273	273	273	273	272	273	273	274	275	275	275	275	275	275	275			
15	269	268	268	267	267	266	267	268	269	269	270	271	271	271	271	270			
20	262	260	260	259	259	258	259	260	261	262	263	263	264	264	264	263			
25	252	251	250	249	249	248	249	250	251	252	253	254	255	254	254	254			
30	240	239	238	237	237	236	237	238	239	240	242	242	243	244	244	243			
35	228	226	225	224	224	223	224	224	226	227	228	230	230	230	231	230			
40	213	212	211	209	209	208	209	209	211	213	214	215	216	216	216	216			
45	197	196	194	193	193	192	193	194	195	197	198	199	200	201	201	200			
50	181	179	178	177	176	175	176	177	178	179	181	182	183	184	184	183			
55	163	162	161	159	159	158	158	159	161	162	164	165	166	166	166	166			
60	146	144	143	141	140	140	140	141	143	144	146	147	148	149	149	148			
65	128	126	124	122	122	121	122	122	124	125	127	128	130	130	130	130			
70	109	107	105	102	101	101	102	102	104	105	107	109	111	111	111	111			
75	87.8	86.2	83.3	80.5	79.0	78.9	79.8	80.0	82.0	83.4	85.5	88.3	89.8	90.0	89.8	89.6			
80	62.5	60.9	57.6	54.5	53.1	52.6	52.9	53.4	55.8	57.6	60.3	63.3	64.8	64.9	64.7	64.5			
85	32.8	31.1	28.6	26.0	24.6	24.1	24.4	25.0	27.1	28.6	31.1	33.4	34.9	35.3	35.2	35.0			
90	9.70	8.69	7.22	7.39	6.97	5.53	5.61	5.77	5.76	5.83	6.48	7.51	8.49	9.09	9.23	8.99			
95	7.39	7.05	6.64	6.05	5.81	5.71	5.71	5.78	5.74	5.75	6.06	6.39	6.68	7.09	7.30	7.50			
100	7.55	7.21	6.81	6.30	6.03	5.88	5.87	5.93	5.89	5.92	6.13	6.43	6.78	7.22	7.47	7.67			
105	7.57	7.22	6.80	6.34	6.07	5.90	5.90	5.94	5.92	5.96	6.15	6.41	6.81	7.24	7.51	7.69			
110	7.42	7.08	6.68	6.26	5.98	5.82	5.81	5.83	5.82	5.87	6.03	6.30	6.69	7.13	7.38	7.54			
115	7.32	7.00	6.64	6.29	6.01	5.84	5.81	5.79	5.75	5.80	5.91	6.16	6.56	6.97	7.23	7.39			
120	7.34	7.06	6.74	6.46	6.20	6.01	5.95	5.90	5.83	5.84	5.92	6.16	6.52	6.90	7.17	7.35			
125	7.49	7.25	6.98	6.75	6.50	6.30	6.24	6.12	6.08	6.01	6.08	6.31	6.62	6.97	7.23	7.44			
130	7.63	7.43	7.18	6.94	6.72	6.53	6.48	6.33	6.26	6.19	6.28	6.52	6.76	7.11	7.36	7.59			
135	7.64	7.47	7.24	6.96	6.79	6.60	6.58	6.39	6.27	6.26	6.34	6.59	6.78	7.15	7.34	7.58			
140	7.49	7.38	7.14	6.89	6.74	6.53	6.54	6.30	6.18	6.17	6.25	6.50	6.68	7.02	7.21	7.42			
145	7.22	7.11	6.90	6.67	6.52	6.33	6.35	6.09	5.95	5.95	6.00	6.26	6.48	6.77	6.93	7.12			
150	6.84	6.76	6.59	6.35	6.22	6.00	6.06	5.77	5.61	5.63	5.66	5.94	6.14	6.37	6.49	6.71			
155	6.35	6.30	6.16	5.96	5.84	5.66	5.67	5.37	5.17	5.19	5.24	5.54	5.70	5.89	5.97	6.16			
160	5.81	5.79	5.70	5.51	5.40	5.24	5.23	4.92	4.66	4.66	4.79	5.06	5.23	5.37	5.42	5.56			
165	5.30	5.32	5.24	5.06	4.93	4.82	4.81	4.52	4.18	4.17	4.31	4.60	4.82	4.89	4.92	5.02			
170	4.82	4.85	4.76	4.60	4.43	4.34	4.28	4.09	3.79	3.78	3.89	4.17	4.40	4.47	4.48	4.56			
175	3.96	3.90	3.74	3.49	3.29	3.13	3.05	2.99	3.00	3.01	3.11	3.33	3.53	3.68	3.77	3.85			
180	0.79	0.64	0.82	0.90	0.97	1.06	1.12	0.12	0.96	0.92	0.82	0.29	0.42	0.69	0.93	1.14			

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:04 June 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:67.1%
Test Distance:2.455m [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
30
60
90
120
150
180
210
240
270
300
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