



IESNA LM-79 TEST REPORT

Applicant's name	Blackjack Lighting
Address	1553 Barclay Blvd. Buffalo Grove, IL 60089
Brand Name	Blackjack Lighting
Report No.	BTR66.181.17.0011.32
Product Name	Frost 11" Surface Mount - Satin Nickel
Model Number	FRS-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	Nov 24, 2017	

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/CEC/EPA/DOE NVLAP Testing Lab Code: 200770-0
	Tel:+86-755-28236006 , Email: certification@bestcert.cn

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

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description:	
Test date	Nov 20, 2017 to Nov 24, 2017
Sample Quantity	1 unit
SKU.....	N/A
Rating(s) (V; Hz)	120V 60Hz
Nominal Power.....	22W
Nominal Power Factor	N/A
Nominal Lumen Output.....	1660 lm
Nominal CCT	3000K
Nominal CRI(Ra)	90
Number of hours operated prior to measurement	0H
Total operating time of the product for measurements including stabilization	3.5H
Ambient temperature	24.7°C
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°C ±1°C ambient temperature conditions is measured using a EVERFINE 2.0 m 4 Π geometry integrating sphere. Temperature is measured at a position inside the sphere. Spectral radiant flux measurements are made using Integral Sphere to the detector port of the integrating sphere. Each lamp is operated at rated voltage in its designated orientation by a CHROMA 61602 AC SOURCE. Each lamp should be stable before measurements are made as below:

Step 1 Take 3 measurements of the lamp light output at 15 minute interval (total time=30mintues.)This time period is in addition to the recommended pre-burning time.

Step 2 Calculate the percent difference between the maximum measured value and the minimum measured value for the three consecutive measurements.

Step 3 if the value calculated in Step 2 does not exceed 0.5 percent, the lamp is considered stable.

Luminous flux, chromaticity coordinates, correlated color temperature and color rendering index for each lamp are calculated from the spectral radiant flux measurements taken at 2 nm intervals over the range 380 to 780 nm by EVERFINE HASS-2000. The calibration of the sphere photometer-spectrometer system is traceable to the NIM China by a calibrated halogen incandescent lamp. Lamp efficacy (lumens per watts) for each lamp model is computed based on the revised luminous flux result. Electrical measurements including voltage, current, power and power factor are measured using the YOKOGAWA WT310 digital power Meter.

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

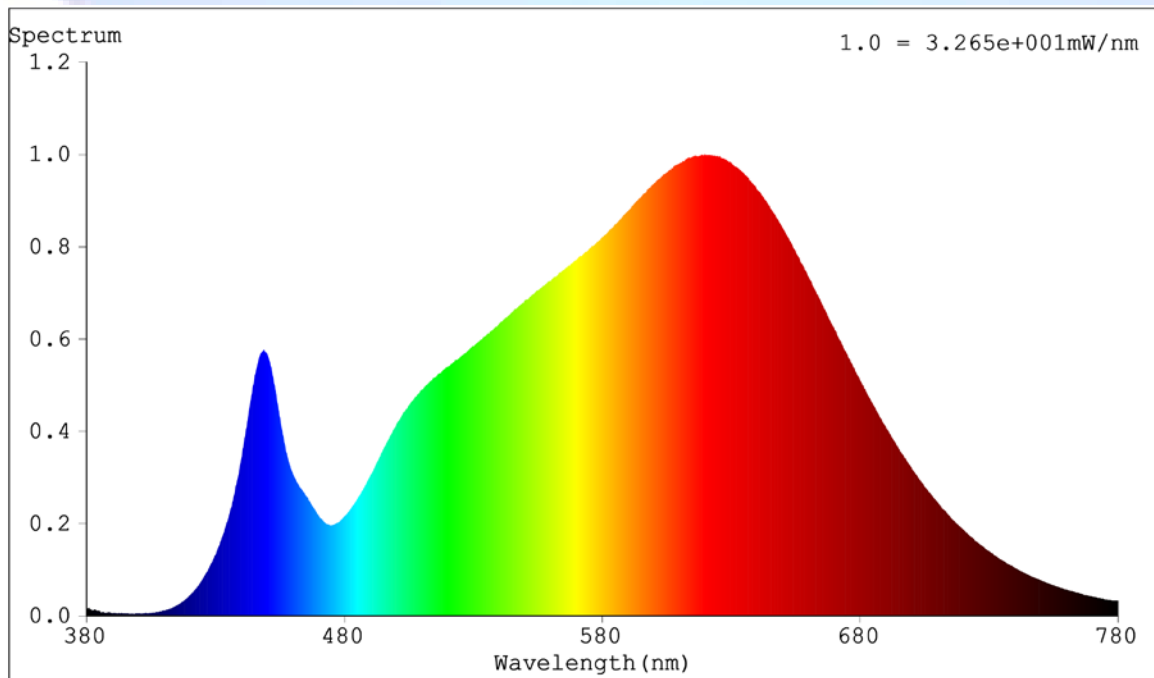
Luminous Intensity

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

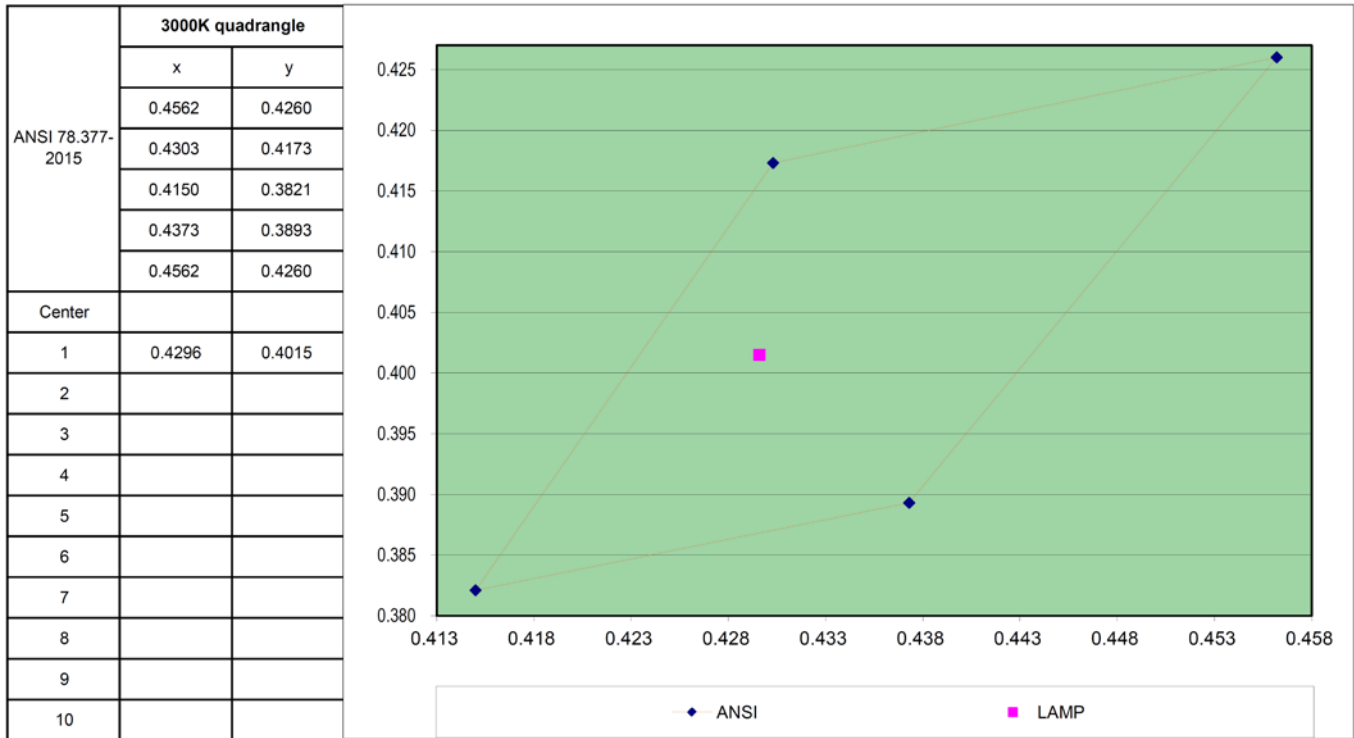
Photometric and Electrical Test Data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.1812	/	21.67	0.9960	1807.45	83.41
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
3107	91.9	59	0.4296	0.4015	0.2469	0.5193	0.00003

Spectrul Plots



7 Step Quadrangle



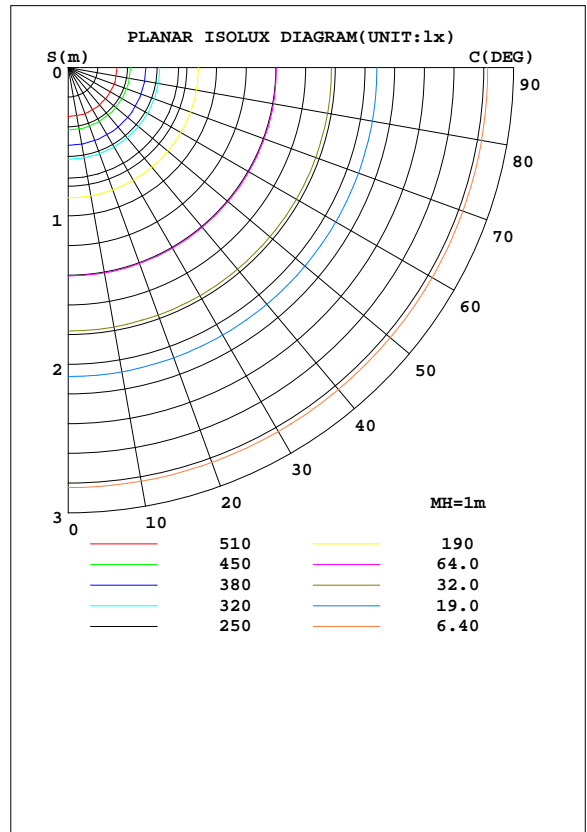
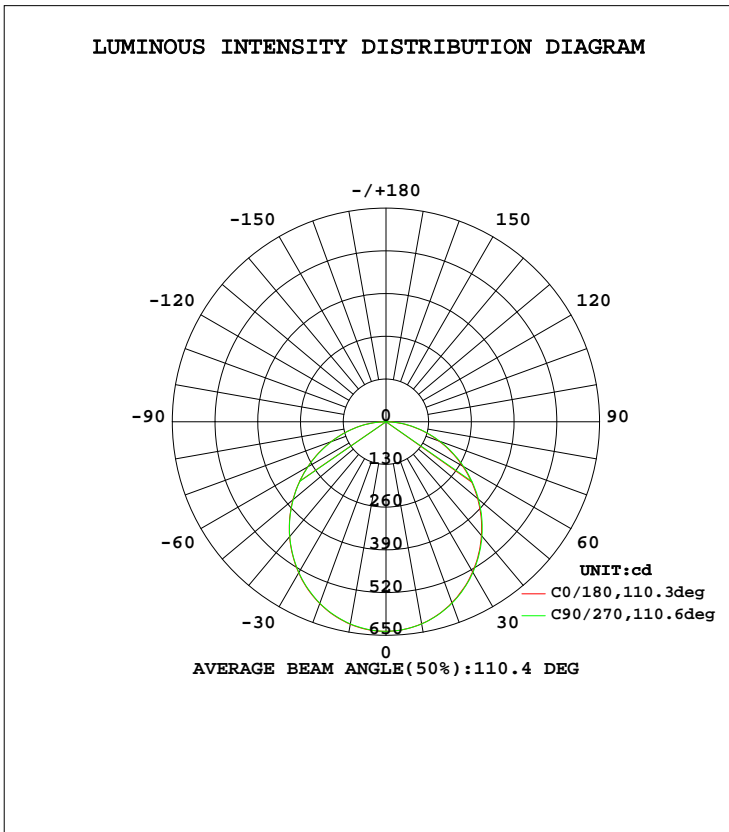
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LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 83.41 lm/W			
MODEL	FRS-11F-SN	I _{max} (cd)	637.9	S/MH(C0/180)	1.24
NOMINAL POWER(W)	22	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	120.0	TOTAL FLUX(lm)	1807.4	η UP, DN(C0-180)	0.2, 49.9
NOMINAL FLUX(lm)	1807.45	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.2, 49.7
LAMPS INSIDE	1	η up(%)	0.3	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120.0	η down(%)	99.7	CIBSE SHR MAX	1.35



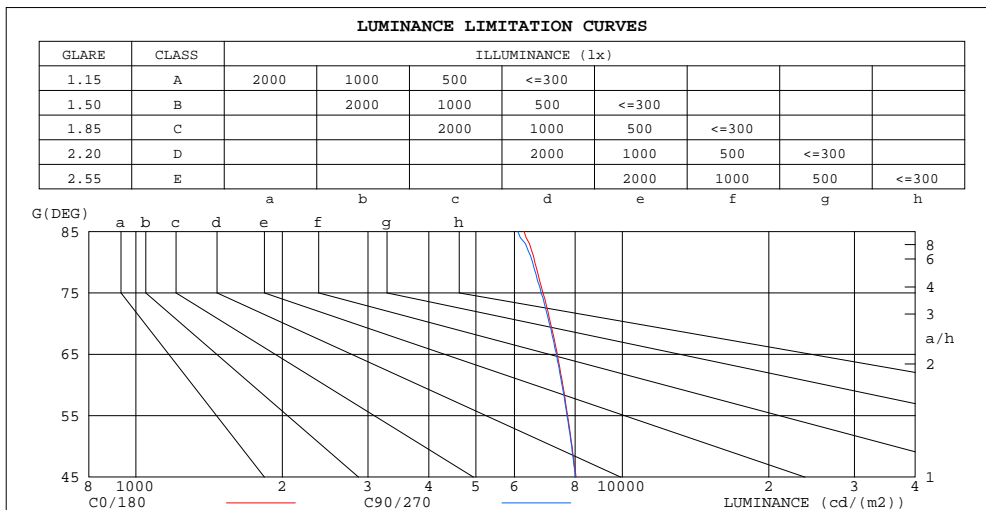
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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	$\#lum$
10	625.6	625.3	624.7	624.0	624.4	624.3	624.7	625.0	0- 10	60.24	60.24	3.33
20	589.1	589.0	588.0	586.4	586.5	586.9	587.4	588.2	10- 20	171.8	232.0	12.8
30	531.3	531.3	530.2	528.1	527.4	528.0	529.6	530.5	20- 30	258.4	490.5	27.1
40	456.7	457.1	455.6	452.7	451.8	452.6	454.2	455.6	30- 40	308.9	799.3	44.2
50	369.9	370.4	369.2	365.7	364.3	365.1	367.5	369.2	40- 50	318.0	1117	61.8
60	275.4	275.9	274.4	270.7	268.9	269.7	272.3	273.8	50- 60	286.7	1404	77.7
70	177.9	178.4	176.7	173.1	171.4	172.1	175.0	176.5	60- 70	221.6	1626	89.9
80	83.76	84.02	82.86	79.18	78.11	78.27	80.68	82.31	70- 80	134.6	1760	97.4
90	0.4978	0.5890	0.5401	0.4767	0.2313	0.2120	0.2312	0.2312	80- 90	41.28	1801	99.7
100	0.3084	0.3372	0.3275	0.3468	0.3471	0.3180	0.3277	0.3083	90-100	0.3310	1802	99.7
110	0.5396	0.3660	0.4234	0.4713	0.7334	0.5879	0.6170	0.5688	100-110	0.4115	1802	99.7
120	0.9626	0.6256	0.8469	0.6545	1.292	0.8486	0.9645	0.8585	110-120	0.6534	1803	99.7
130	1.753	0.9153	1.157	0.9924	1.735	1.137	1.291	1.137	120-130	0.8786	1804	99.8
140	2.408	1.147	1.464	1.137	2.275	1.349	1.638	1.359	130-140	0.9691	1805	99.9
150	2.736	1.455	1.753	1.474	2.815	1.522	2.004	1.541	140-150	0.9847	1806	99.9
160	2.814	1.512	2.060	1.560	2.910	1.600	2.119	1.628	150-160	0.8395	1807	100
170	3.045	2.069	2.349	2.184	3.315	2.487	2.601	2.398	160-170	0.6085	1807	100
180	3.702	3.749	3.931	3.737	3.700	3.738	3.989	3.805	170-180	0.2784	1807	100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	6279	6097
80	6607	6536
75	6865	6811
70	7124	7077
65	7352	7324
60	7546	7517
55	7716	7693
50	7883	7869
45	8032	8013

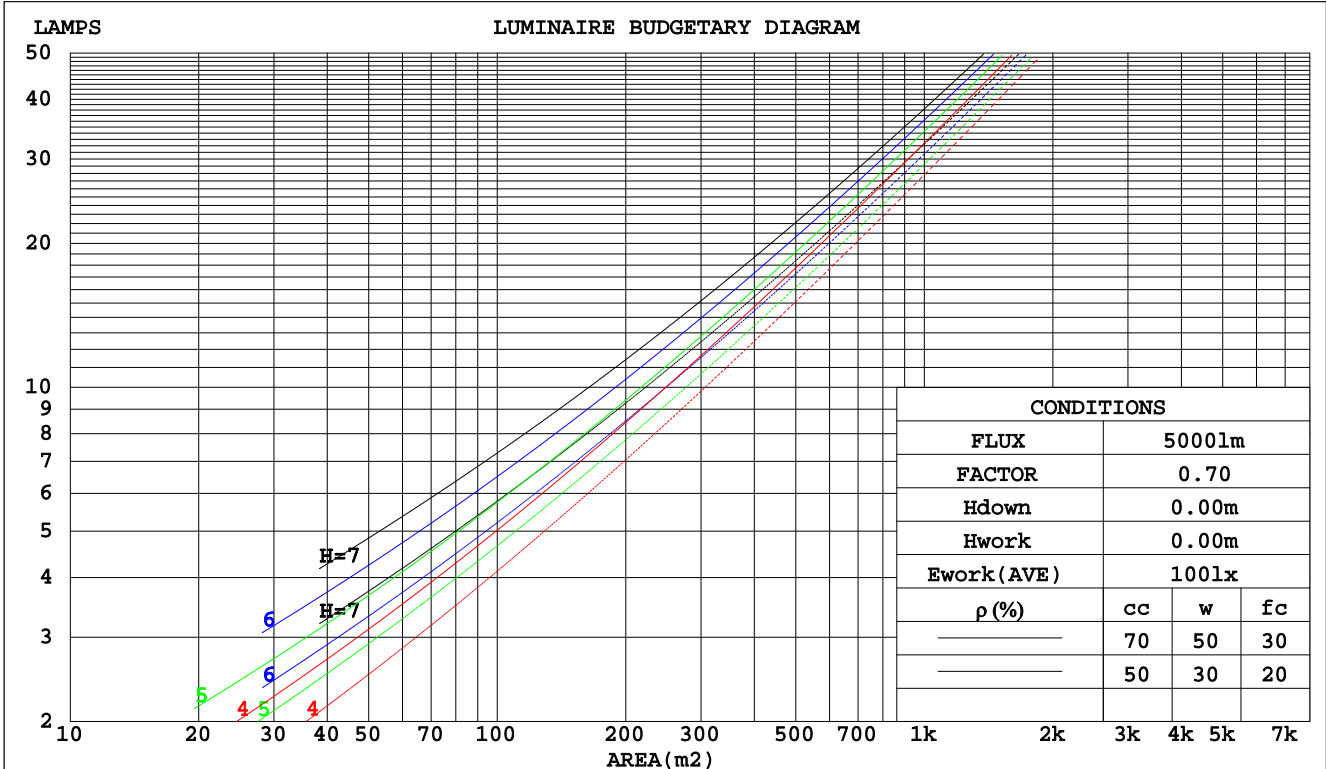
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	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	1.03	.99	.95	1.01	.97	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.82	.76	.84	.79	.74	.81	.77	.73	.78	.74	.71	.69
3.0	.79	.71	.64	.77	.70	.63	.74	.68	.62	.71	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.54	.69	.60	.54	.66	.59	.53	.64	.57	.52	.61	.56	.51	.49
5.0	.62	.53	.47	.61	.53	.46	.59	.52	.46	.57	.50	.45	.55	.49	.45	.43
6.0	.56	.47	.41	.55	.47	.40	.53	.46	.40	.52	.45	.40	.50	.44	.39	.37
7.0	.51	.42	.36	.50	.42	.36	.49	.41	.35	.47	.40	.35	.46	.40	.35	.33
8.0	.46	.38	.32	.46	.38	.32	.44	.37	.32	.43	.36	.31	.42	.36	.31	.29
9.0	.43	.34	.29	.42	.34	.29	.41	.34	.29	.40	.33	.28	.39	.33	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.36	.30	.26	.24



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm								
NAME: Frost 11"Surface Mount-Satin Nickel			TYPE:FRS-11F-SN			WEIGHT:		
SPEC.:			DIM.:			SERIAL No.:		
MFR.: Blackjack Lighting			SUR.:0.27*0.27			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	.316	.180	.057	.308	.176	.056	.295	.169	.054	.283	.163	.052	.271	.157	.051	
2.0	.295	.162	.050	.289	.159	.049	.277	.154	.048	.266	.149	.047	.256	.145	.046	
3.0	.272	.145	.043	.266	.143	.043	.256	.139	.042	.246	.135	.041	.237	.131	.041	
4.0	.251	.130	.038	.246	.129	.038	.236	.125	.037	.228	.122	.037	.219	.119	.036	
5.0	.231	.118	.034	.227	.116	.034	.219	.114	.034	.211	.111	.033	.204	.109	.033	
6.0	.214	.107	.031	.210	.106	.031	.203	.104	.030	.196	.102	.030	.190	.100	.030	
7.0	.199	.099	.028	.196	.098	.028	.189	.096	.028	.183	.094	.027	.177	.092	.027	
8.0	.186	.091	.026	.183	.090	.025	.177	.088	.025	.171	.087	.025	.166	.085	.025	
9.0	.174	.084	.024	.171	.084	.023	.166	.082	.023	.161	.081	.023	.156	.079	.023	
10.0	.164	.079	.022	.161	.078	.022	.156	.077	.022	.152	.075	.021	.148	.074	.021	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.193	.193	.193	.165	.165	.165	.113	.113	.113	.065	.065	.065	.021	.021	.021	
1.0	.183	.159	.136	.157	.136	.117	.107	.094	.081	.062	.054	.047	.020	.017	.015	
2.0	.175	.134	.100	.150	.116	.087	.103	.080	.060	.059	.047	.035	.019	.015	.012	
3.0	.167	.117	.077	.144	.101	.066	.099	.070	.047	.057	.041	.027	.018	.013	.009	
4.0	.160	.104	.061	.137	.090	.053	.094	.062	.037	.055	.037	.022	.018	.012	.007	
5.0	.152	.093	.050	.131	.081	.043	.090	.056	.030	.052	.033	.018	.017	.011	.006	
6.0	.145	.085	.042	.125	.073	.036	.086	.051	.026	.050	.030	.015	.016	.010	.005	
7.0	.138	.078	.036	.119	.068	.031	.082	.047	.022	.048	.028	.013	.015	.009	.004	
8.0	.132	.072	.031	.113	.063	.027	.078	.044	.019	.046	.026	.012	.015	.008	.004	
9.0	.126	.067	.028	.108	.058	.024	.075	.041	.017	.044	.024	.010	.014	.008	.003	
10.0	.120	.063	.025	.103	.055	.022	.072	.038	.016	.042	.023	.009	.014	.007	.003	

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm										
NAME: Frost 11"Surface Mount-Satin Nickel					TYPE:FRS-11F-SN			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: Blackjack Lighting					SUR.:0.27*0.27			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	20.0	21.5	20.2	21.7	21.9	19.9	21.5	20.2	21.7	21.9
3H	21.6	23.0	21.9	23.2	23.4	21.5	22.9	21.8	23.2	23.4
4H	22.2	23.6	22.5	23.8	24.1	22.2	23.6	22.5	23.8	24.1
6H	22.8	24.0	23.1	24.3	24.6	22.7	24.0	23.1	24.3	24.6
8H	23.0	24.2	23.3	24.5	24.8	22.9	24.2	23.3	24.4	24.7
12H	23.1	24.3	23.5	24.6	24.9	23.1	24.2	23.4	24.5	24.9
4H 2H	20.6	21.9	20.9	22.2	22.4	20.6	21.9	20.9	22.2	22.4
3H	22.4	23.6	22.7	23.9	24.2	22.4	23.5	22.7	23.8	24.2
4H	23.2	24.3	23.6	24.6	24.9	23.2	24.3	23.6	24.6	24.9
6H	23.9	24.8	24.3	25.2	25.6	23.9	24.8	24.3	25.2	25.5
8H	24.1	25.0	24.5	25.4	25.8	24.1	25.0	24.5	25.4	25.8
12H	24.3	25.1	24.8	25.5	25.9	24.3	25.1	24.7	25.5	25.9
8H 4H	23.5	24.4	23.9	24.8	25.2	23.5	24.4	23.9	24.8	25.2
6H	24.4	25.1	24.8	25.5	25.9	24.3	25.1	24.8	25.5	25.9
8H	24.7	25.4	25.2	25.8	26.3	24.7	25.4	25.2	25.8	26.2
12H	25.0	25.6	25.5	26.0	26.5	25.0	25.5	25.5	26.0	26.5
12H 4H	23.5	24.3	24.0	24.7	25.2	23.5	24.3	23.9	24.7	25.1
6H	24.4	25.1	24.9	25.5	26.0	24.4	25.1	24.9	25.5	26.0
8H	24.8	25.4	25.3	25.9	26.4	24.8	25.4	25.3	25.8	26.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117 Corrected 1807 lm Total Lamp Luminous Flux.(8log(F/F0) = 2.1)

C Range: 0 - 360DEG
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 Test Speed: HIGH
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 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:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	PROTECTION ANGLE:

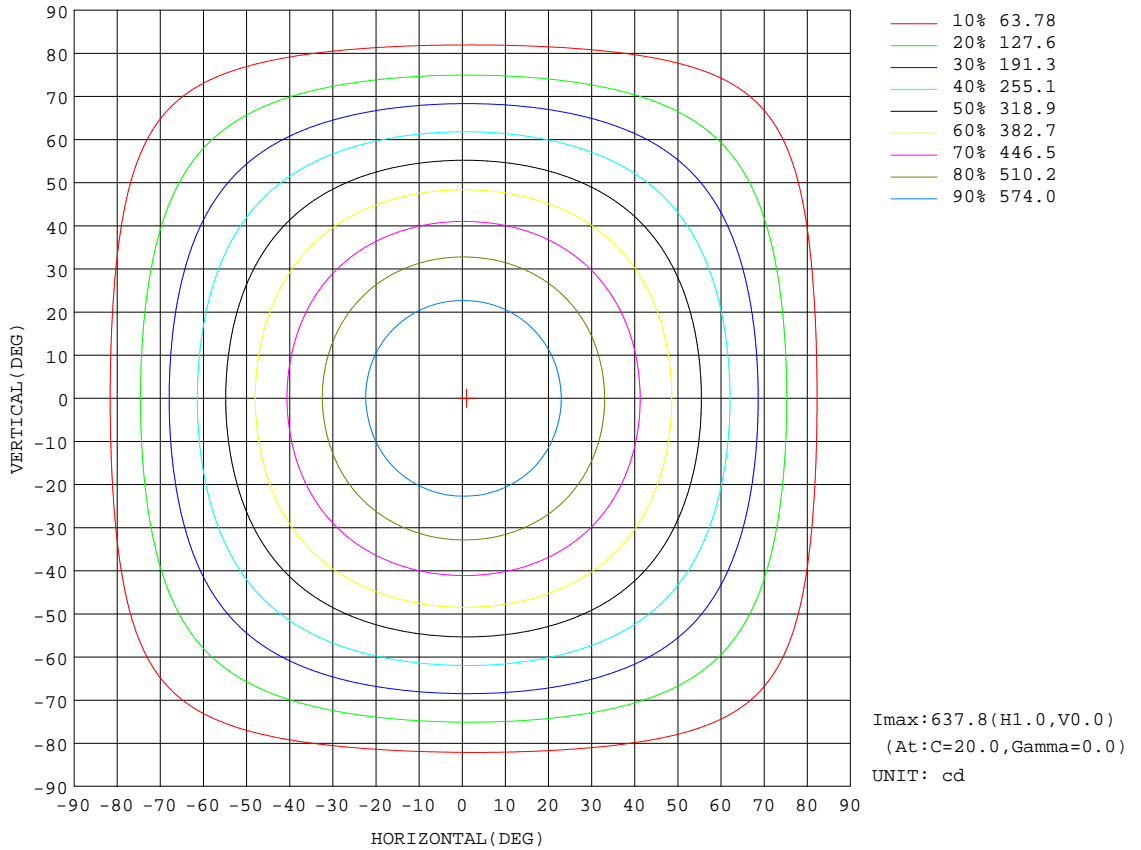
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	57	46	39	57	45	39	55	45	38	32
0.80	67	56	48	66	55	48	64	54	48	41
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	64	78	70	64	56
1.50	88	78	71	86	77	70	83	75	69	61
2.00	95	86	79	93	85	79	89	82	77	69
2.50	98	91	84	96	89	84	92	86	82	73
3.00	102	95	89	100	93	88	96	90	86	77
4.00	106	100	95	103	98	94	99	95	91	82
5.00	108	103	99	106	101	98	101	98	95	85
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:2017-11-21

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:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	PROTECTION ANGLE:

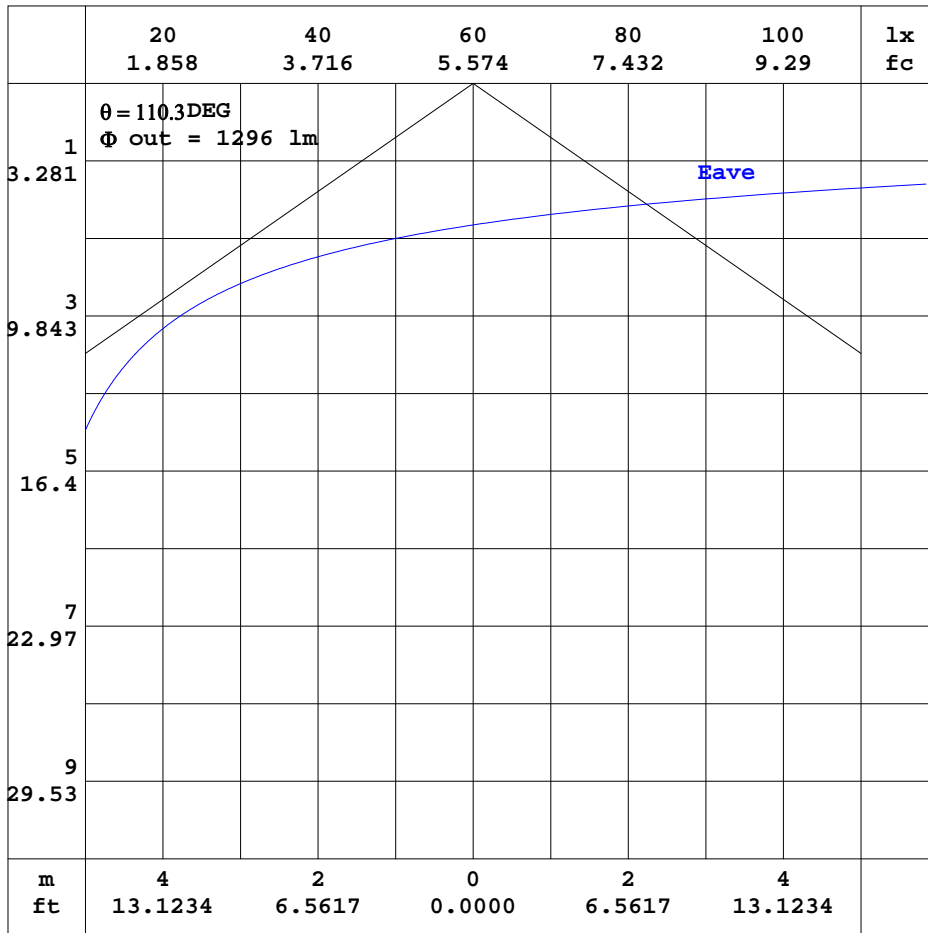


C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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 CURVES

Test:U:120.0V I:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	PROTECTION ANGLE:



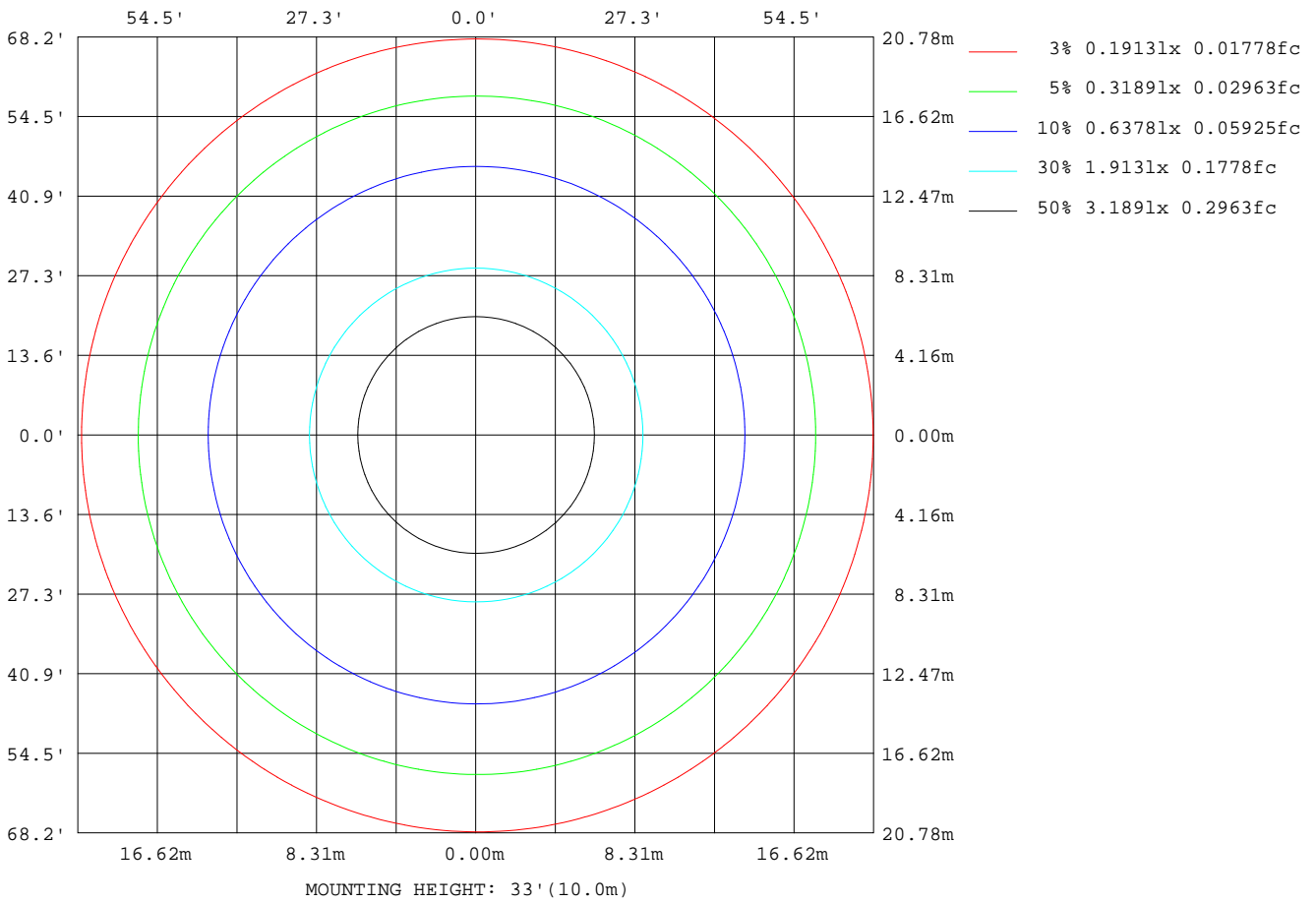
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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

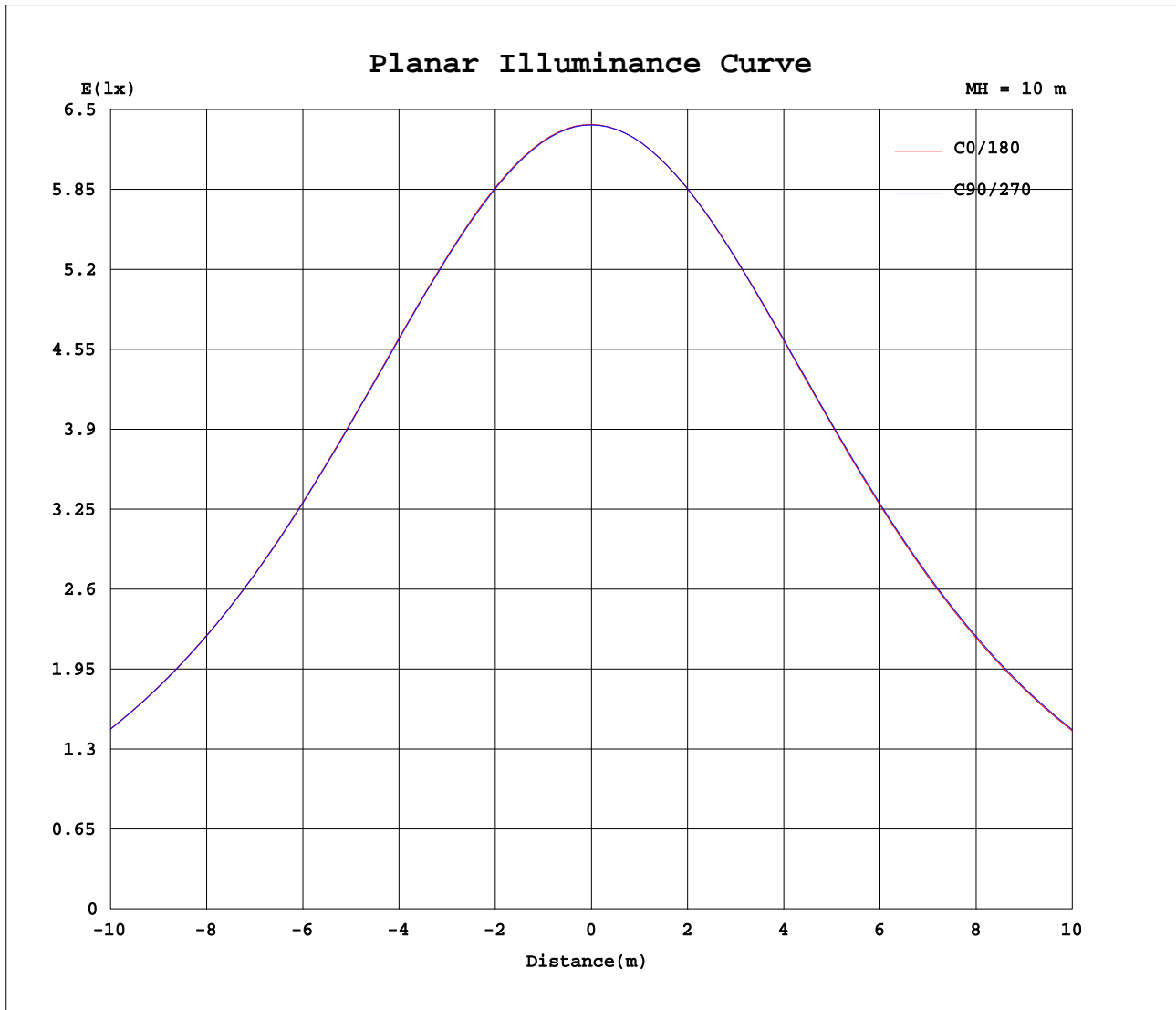
Test:U:120.0V I:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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: 2017-11-21

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:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	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	638	638	638	638	638	638	637	638	638	637	638	637	637	637	637	637	637	637	637	638
5	635	635	635	635	635	635	634	635	634	634	634	634	634	634	634	634	634	634	634	634
10	626	626	626	626	625	625	625	625	625	625	625	625	624	624	624	624	624	624	624	624
15	610	610	610	610	610	610	610	610	609	609	609	609	608	608	608	608	608	608	608	608
20	589	589	589	589	589	589	589	589	588	588	588	587	587	587	586	586	586	586	586	586
25	563	563	563	562	563	562	562	562	562	561	561	561	560	560	559	559	559	559	559	559
30	531	531	531	531	531	531	531	531	531	530	530	529	529	528	528	527	527	527	527	527
35	496	496	496	496	496	496	496	495	495	495	494	494	493	492	492	492	491	491	491	491
40	457	457	457	457	457	457	457	457	456	456	455	454	454	453	452	452	451	451	451	452
45	415	415	415	415	415	415	415	415	414	414	413	412	412	411	410	410	409	409	409	409
50	370	370	370	370	370	370	370	370	370	369	368	368	367	366	365	365	364	364	364	364
55	323	323	323	324	324	324	324	323	323	322	321	320	320	319	318	318	317	317	317	317
60	275	275	275	276	276	276	276	276	275	274	274	273	272	271	270	270	269	269	269	269
65	227	227	227	227	227	227	227	227	226	226	225	224	223	223	222	221	221	220	220	220
70	178	178	178	178	178	178	178	178	177	177	176	175	174	173	173	172	172	172	171	171
75	130	130	130	130	130	130	130	130	129	129	128	127	126	125	125	124	124	124	124	124
80	83.8	83.8	83.9	84.0	84.1	83.9	83.7	83.6	83.4	82.9	82.0	81.2	80.3	79.5	78.8	78.3	78.2	78.2	78.1	78.1
85	39.9	39.8	40.1	40.2	40.2	39.9	39.8	39.7	39.4	38.8	37.9	37.0	36.4	36.1	35.6	35.0	34.7	34.5	34.5	34.5
90	0.50	0.48	0.48	0.48	0.60	0.58	0.59	0.56	0.46	0.54	0.41	0.45	0.47	0.49	0.46	0.43	0.40	0.44	0.23	0.23
95	0.31	0.29	0.31	0.33	0.35	0.33	0.33	0.33	0.35	0.33	0.33	0.33	0.33	0.37	0.37	0.33	0.31	0.33	0.23	0.23
100	0.31	0.29	0.31	0.33	0.35	0.33	0.31	0.33	0.35	0.33	0.31	0.31	0.33	0.35	0.35	0.33	0.31	0.31	0.35	0.35
105	0.33	0.29	0.31	0.33	0.35	0.33	0.31	0.33	0.35	0.33	0.31	0.31	0.33	0.35	0.35	0.33	0.31	0.31	0.48	0.48
110	0.54	0.33	0.35	0.35	0.39	0.35	0.33	0.35	0.40	0.42	0.33	0.33	0.37	0.46	0.48	0.35	0.35	0.56	0.73	0.73
115	0.83	0.54	0.52	0.52	0.54	0.54	0.54	0.54	0.56	0.58	0.52	0.52	0.52	0.54	0.54	0.52	0.54	0.64	1.06	1.06
120	0.96	0.62	0.62	0.62	0.64	0.62	0.64	0.60	0.69	0.85	0.60	0.60	0.64	0.65	0.65	0.62	0.65	0.85	1.29	1.29
125	1.41	0.85	0.87	0.83	0.85	0.87	0.83	0.85	0.83	0.92	0.85	0.85	0.89	0.89	0.87	0.85	0.85	1.16	1.50	1.50
130	1.75	0.92	0.92	0.91	0.92	0.91	0.89	0.91	0.98	1.16	0.92	0.91	0.92	1.02	0.96	0.92	0.94	1.27	1.73	1.73
135	2.08	1.16	1.08	0.98	1.04	0.96	0.94	1.06	1.14	1.27	1.02	0.94	0.96	1.08	1.12	1.10	1.18	1.52	1.99	1.99
140	2.41	1.31	1.18	1.16	1.16	1.14	1.18	1.16	1.27	1.46	1.18	1.14	1.14	1.14	1.14	1.18	1.25	1.83	2.28	2.28
145	2.68	1.52	1.39	1.25	1.25	1.21	1.20	1.27	1.46	1.56	1.31	1.21	1.19	1.23	1.29	1.37	1.43	2.35	2.53	2.53
150	2.74	1.87	1.56	1.46	1.46	1.45	1.46	1.43	1.77	1.75	1.48	1.44	1.50	1.48	1.46	1.50	1.77	2.68	2.81	2.81
155	2.79	2.10	1.79	1.54	1.46	1.46	1.46	1.50	1.81	1.87	1.71	1.44	1.48	1.48	1.50	1.58	1.89	2.99	2.89	2.89
160	2.81	2.41	1.83	1.60	1.54	1.48	1.48	1.58	1.85	2.06	1.77	1.52	1.50	1.52	1.60	1.75	2.14	2.99	2.91	2.91
165	2.99	3.02	2.08	1.79	1.79	1.64	1.71	1.77	2.08	2.08	1.96	1.79	1.66	1.75	1.77	2.08	2.64	3.01	2.93	2.93
170	3.05	3.18	2.87	2.31	2.08	2.06	2.08	2.10	2.37	2.35	2.06	2.10	2.08	2.06	2.31	2.71	3.27	3.08	3.31	3.31
175	3.10	3.18	3.29	3.33	3.25	3.02	2.90	2.77	2.69	2.65	2.62	2.65	2.90	3.12	3.29	3.30	3.32	3.10	3.33	3.33
180	3.70	3.68	3.66	3.76	3.74	3.76	3.72	3.91	3.95	3.93	3.93	3.91	3.80	3.72	3.76	3.62	3.62	3.66	3.70	3.70

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

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:0.1812A P:21.67W PF:0.9960 Lamp Flux:1807.45x1 lm		
NAME: Frost 11"Surface Mount-Satin Nickel	TYPE:FRS-11F-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.27*0.27	PROTECTION ANGLE:

Table--2

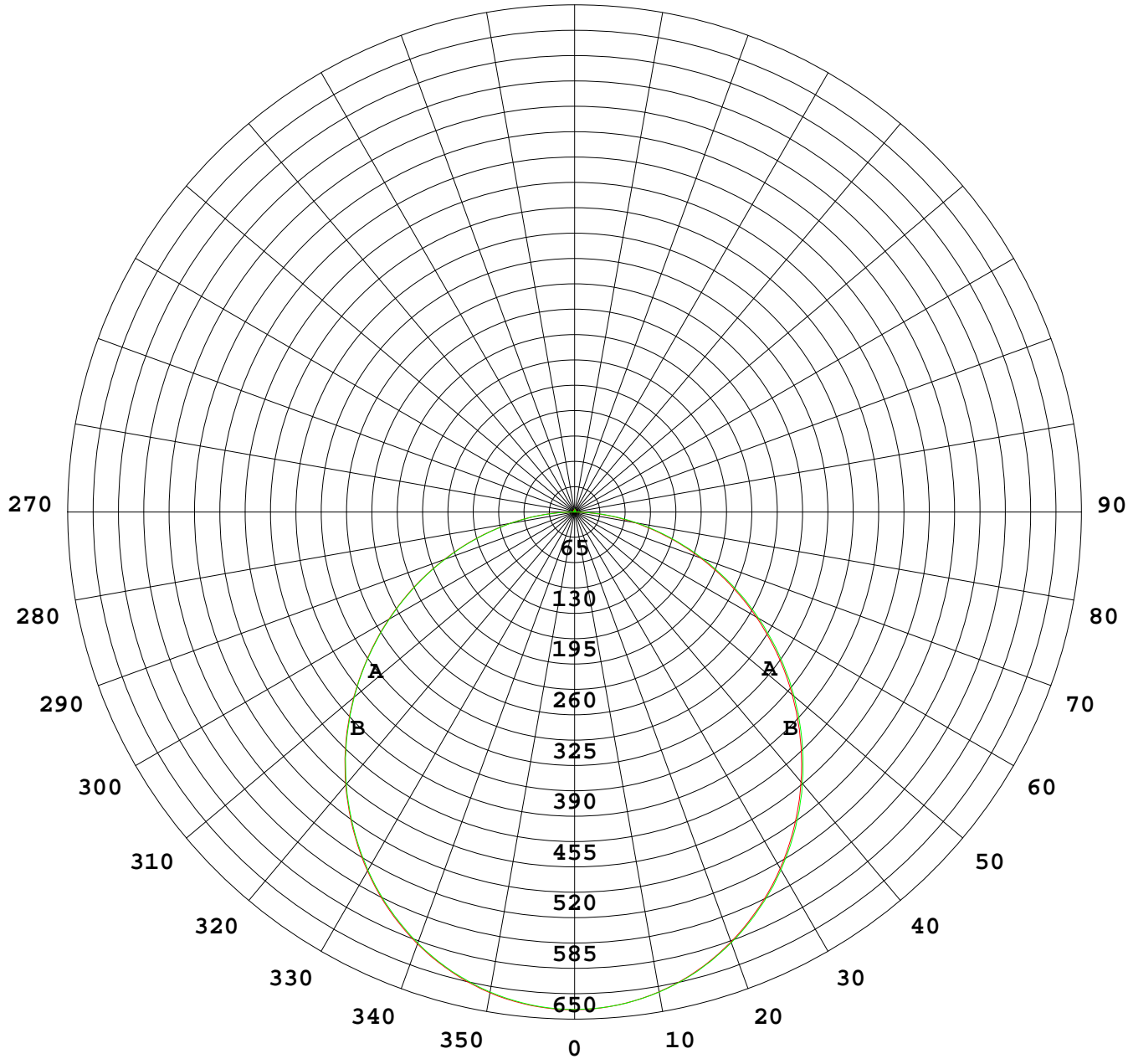
UNIT: cd

C(DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	638	638	638	638	638	637	638	638	637	638	637	637	637	637	637	637	637		
5	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	634	635	
10	624	624	624	624	624	624	625	625	625	625	625	625	625	625	625	625	625	625	
15	608	608	608	608	608	608	609	609	609	609	609	609	610	609	610	610	610	610	
20	587	587	587	587	587	587	587	587	587	588	588	588	588	588	588	588	589	589	
25	559	559	560	560	560	560	561	561	561	561	561	561	561	562	562	562	562	562	
30	527	528	528	528	528	528	529	529	530	530	530	530	530	531	531	531	531	531	
35	491	492	492	492	492	493	493	494	494	494	495	495	495	495	495	496	496	496	
40	452	452	452	452	453	453	454	454	454	455	455	455	455	456	456	456	456	456	
45	409	409	410	410	410	411	411	412	412	412	413	413	413	414	414	415	415	415	
50	364	365	365	365	365	366	367	367	368	368	369	369	369	369	370	370	370	370	
55	317	317	318	318	318	319	320	320	321	321	322	322	322	322	322	323	323	323	
60	269	269	269	269	270	271	271	272	272	273	273	273	274	274	274	275	275	275	
65	220	220	220	220	221	222	222	223	224	224	225	225	225	226	226	226	226	226	
70	171	171	172	172	172	173	174	174	175	176	176	176	176	177	177	177	178	178	
75	124	124	124	124	125	125	126	126	127	127	127	128	128	129	129	129	130	130	
80	77.9	77.8	77.8	78.0	78.6	79.2	80.0	80.5	80.7	81.1	81.5	81.8	82.1	82.6	83.1	83.5	83.9	83.9	
85	34.4	34.5	34.4	34.7	35.1	35.5	36.1	36.6	37.2	37.6	38.0	38.5	38.9	39.3	39.6	40.0	40.1	40.1	
90	0.23	0.23	0.23	0.21	0.21	0.23	0.25	0.25	0.23	0.21	0.25	0.25	0.23	0.23	0.27	0.35	0.44	0.44	
95	0.23	0.27	0.27	0.25	0.27	0.25	0.25	0.25	0.25	0.27	0.29	0.25	0.25	0.25	0.25	0.27	0.25	0.25	
100	0.31	0.33	0.31	0.31	0.33	0.35	0.35	0.31	0.33	0.31	0.35	0.33	0.31	0.31	0.33	0.31	0.33	0.33	
105	0.42	0.42	0.44	0.41	0.44	0.44	0.44	0.42	0.46	0.46	0.41	0.42	0.44	0.42	0.44	0.42	0.46	0.46	
110	0.60	0.60	0.58	0.58	0.60	0.62	0.58	0.60	0.62	0.58	0.60	0.56	0.56	0.58	0.60	0.62	0.64	0.64	
115	0.75	0.73	0.71	0.71	0.71	0.75	0.73	0.75	0.79	0.71	0.75	0.77	0.73	0.69	0.73	0.75	0.87	0.87	
120	0.89	0.87	0.87	0.83	0.87	0.89	0.87	0.91	0.96	0.87	0.87	0.91	0.85	0.87	0.87	0.91	1.12	1.12	
125	1.08	1.04	1.02	1.00	1.00	1.02	1.02	1.06	1.14	1.04	1.02	1.04	1.02	1.02	1.08	1.08	1.45	1.45	
130	1.23	1.14	1.12	1.14	1.14	1.16	1.14	1.21	1.29	1.14	1.14	1.14	1.14	1.14	1.14	1.23	1.64	1.64	
135	1.37	1.27	1.25	1.25	1.25	1.25	1.25	1.41	1.45	1.23	1.21	1.21	1.23	1.25	1.29	1.35	1.85	1.85	
140	1.60	1.43	1.39	1.35	1.35	1.37	1.35	1.62	1.64	1.37	1.31	1.33	1.35	1.37	1.41	1.52	2.06	2.06	
145	1.93	1.58	1.52	1.48	1.50	1.50	1.50	1.79	1.83	1.50	1.46	1.45	1.50	1.48	1.58	1.79	2.33	2.33	
150	2.24	1.75	1.60	1.52	1.52	1.54	1.60	1.89	2.00	1.62	1.54	1.50	1.52	1.56	1.73	2.14	2.58	2.58	
155	2.27	1.91	1.62	1.52	1.52	1.56	1.64	1.89	2.00	1.66	1.56	1.50	1.52	1.58	1.75	2.16	2.62	2.62	
160	2.51	2.23	1.85	1.64	1.56	1.60	1.76	1.91	2.12	1.79	1.66	1.58	1.60	1.66	2.02	2.22	2.72	2.72	
165	2.87	2.34	2.20	1.99	1.78	1.74	1.89	1.99	2.20	2.05	1.85	1.74	1.76	1.95	2.20	2.30	2.78	2.78	
170	3.35	3.16	2.76	2.53	2.45	2.41	2.41	2.39	2.60	2.56	2.45	2.39	2.39	2.41	2.58	2.87	3.28	3.28	
175	3.35	3.37	3.30	3.13	3.05	2.90	2.80	2.79	2.90	2.91	2.93	2.90	2.92	3.11	3.30	3.42	3.47	3.47	
180	3.66	3.68	3.64	3.70	3.78	3.76	3.74	3.91	3.99	3.95	3.95	3.95	3.87	3.74	3.66	3.64	3.64	3.64	

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-11-21

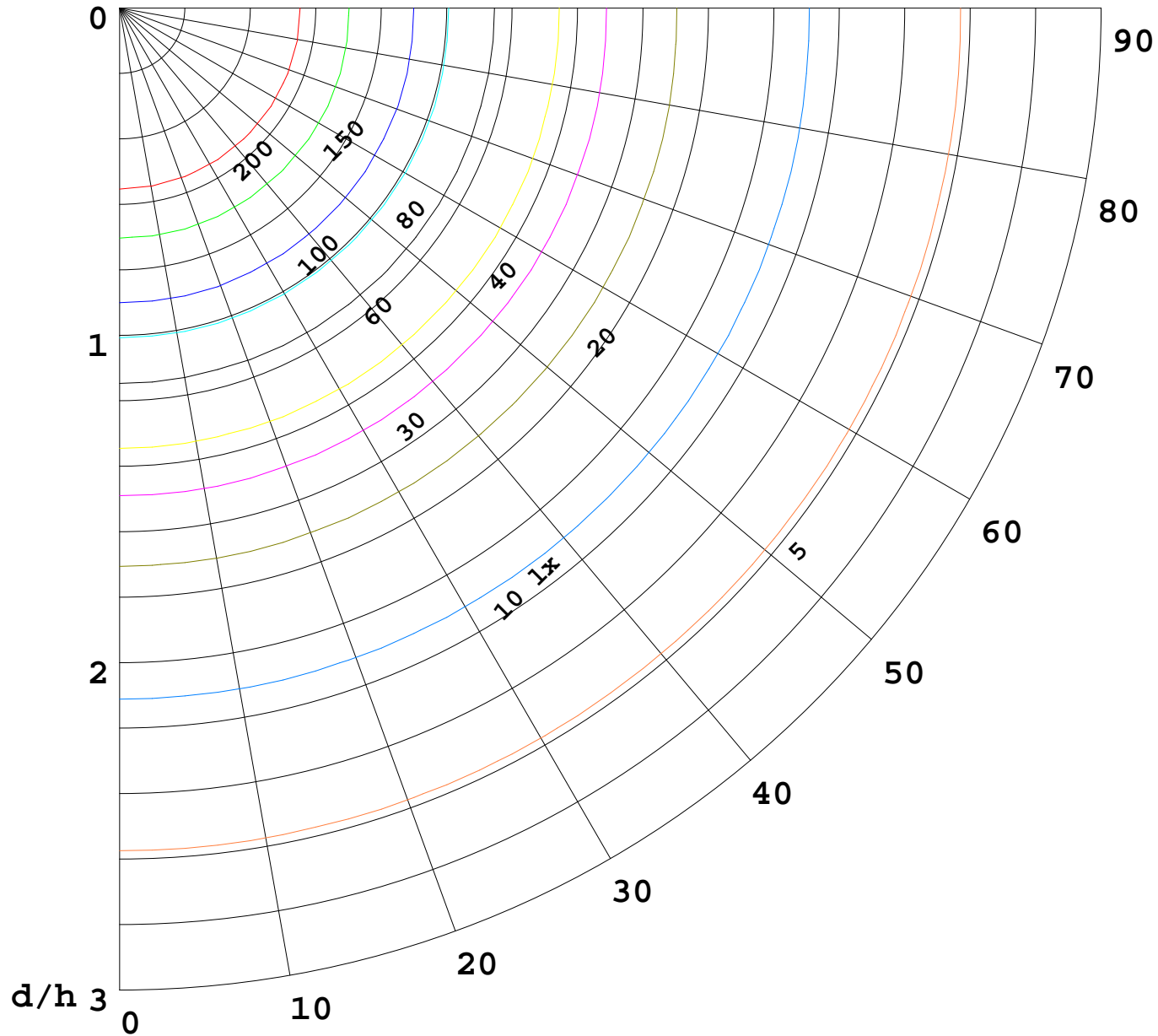
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:26.000m [K=1.0000]
 Remarks:

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

