



### IESNA LM-79 TEST REPORT

<b>Applicant's name</b> .....	Blackjack Lighting
<b>Address</b> .....	1553 Barclay Blvd. Buffalo Grove, IL 60089
<b>Brand Name</b> .....	Blackjack Lighting
<b>Report No.</b> .....	BTR66.181.17.0014.34
<b>Product Name</b> .....	Frost 25" Vanity, Satin Nickel
<b>Model Number</b> .....	FRS-25V-SN

<b>Tested by</b> (printed name and signature) .....	David Zhang	
<b>Title</b> .....	<b>Test Engineer</b>	.....
<b>Approved by</b> (printed name and signature) .....	Steven Huo	
<b>Title</b> .....	<b>Approved Signatory</b>	.....
<b>Date of issue</b> .....	Nov 30, 2017	

<b>Testing Laboratory Name</b> .....	BEST Test Service Shenzhen Co., Ltd.
<b>Address</b> .....	1 <sup>st</sup> Floor, 1 <sup>st</sup> Building, Weitai Industrial Park, Yingrenshi, Shiyao, Baoan, Shenzhen, China <a href="tel:+86-755-28236006">Tel:+86-755-28236006</a> , Email: <a href="mailto:certification@bestcert.cn">certification@bestcert.cn</a>
<b>Accreditation</b> .....	DLC/Lighting Facts/UL/ETL/ELI/CEC/EPA/DOE NVLAP Testing Lab Code: 200770-0

<b>Test specification</b>	
<b>Standard</b> .....	IESNA LM-79
<b>Test procedure</b> .....	IESNA LM-79 Test Procedure
<b>Non-standard test method</b> .....	No

<b>Test Report Form No.</b>	BEST_LM-79
<b>TRF originator</b> .....	BEST Test Service Shenzhen Co., Ltd. Mr Tseng
<b>Master TRF</b> .....	BEST_LM-79.doc

Note:  
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<b>description:</b>	
Test date .....	Nov 29, 2017
Sample Quantity .....	1 unit
SKU.....	N/A
Rating(s) (V; Hz) .....	AC 120V/60Hz
Nominal Power.....	22W
Nominal Power Factor .....	N/A
Nominal Lumen Output.....	1350lm
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.

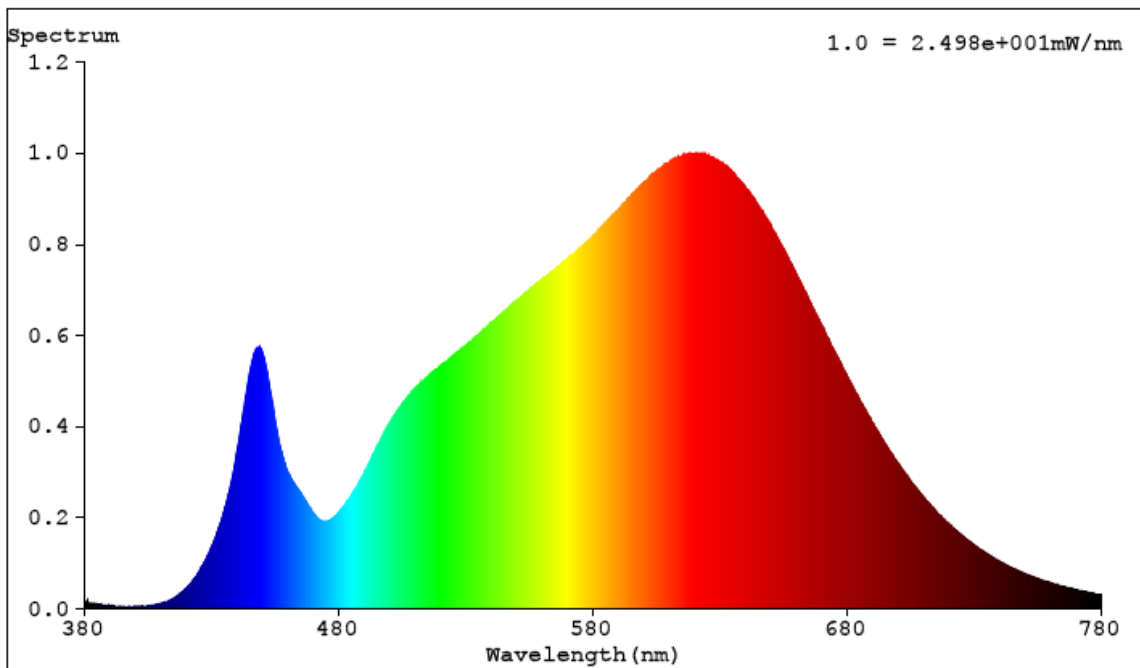
**Luminous Intensity**

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

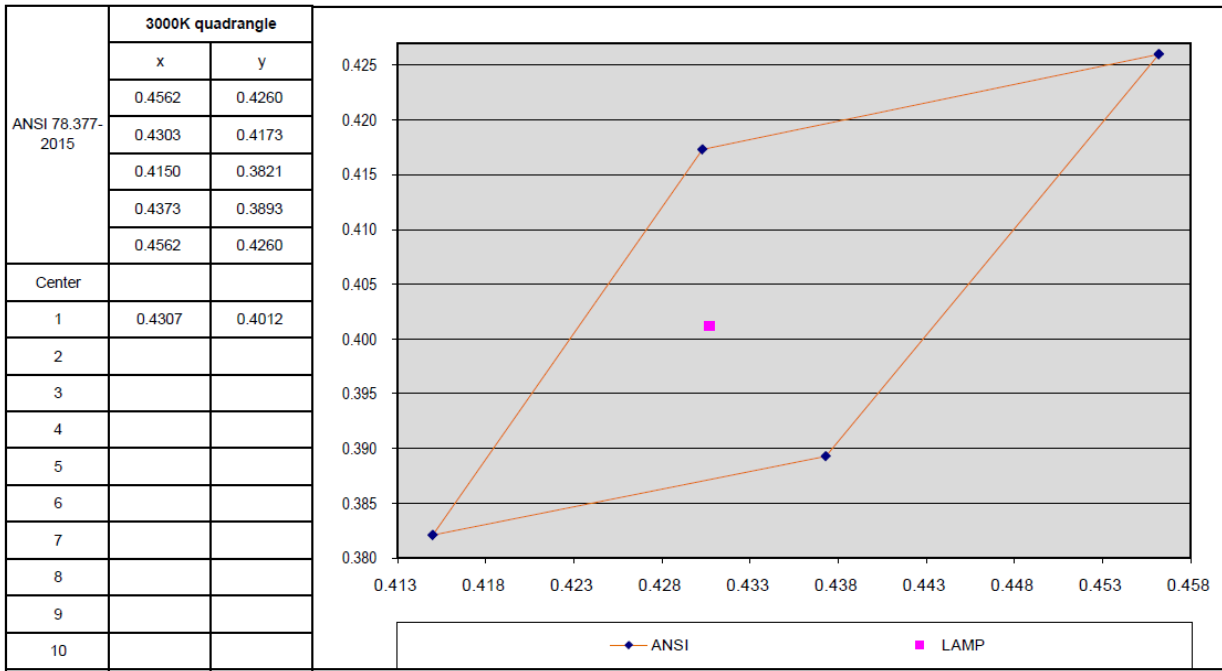
**Photometric and Electrical Test Data**

Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.1776	/	21.22	0.9955	1439.53	67.84
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
3085	91.8	59	0.4307	0.4012	0.2478	0.5193	-0.0003

**Spectrul Plots**



### 7 Step Quadrangle



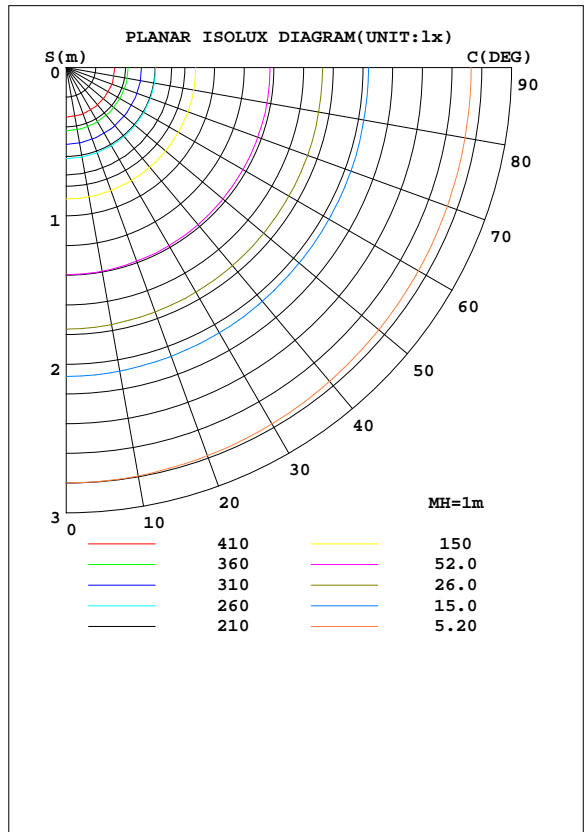
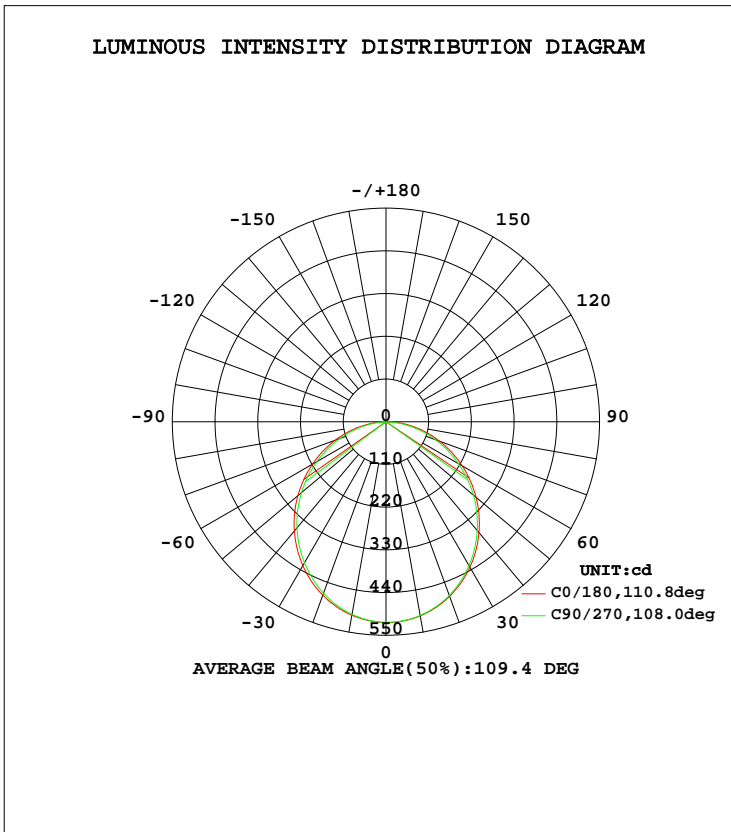
### EUT Photo



LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 67.84 lm/W			
MODEL	FRS-25V-SN	Imax(cd)	516.9	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)	1439.5	η UP, DN(C0-180)	0.2,49.3
NOMINAL FLUX(lm)	1439.53	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.2,50.3
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



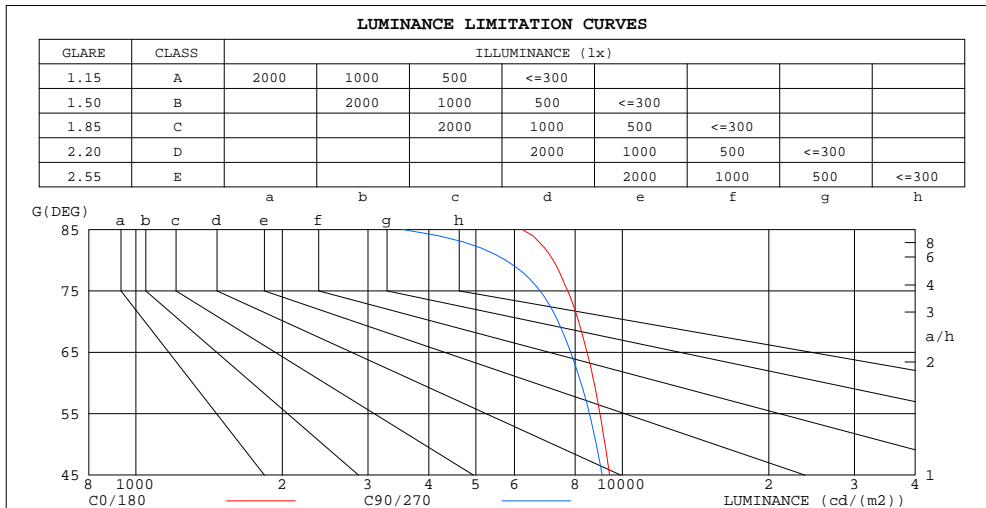
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-29

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:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\#lum$
10	505.8	504.6	503.8	505.8	507.4	507.6	506.5	505.4	0- 10	48.79	48.79	3.39
20	475.6	472.2	470.2	475.1	478.5	478.3	475.9	474.6	10- 20	139.0	187.8	13
30	428.1	422.7	419.6	427.1	432.4	431.6	427.6	426.5	20- 30	208.6	396.4	27.5
40	367.2	360.1	356.7	365.6	372.4	371.0	365.3	364.5	30- 40	248.6	645.0	44.8
50	296.2	288.0	284.1	294.2	303.0	300.3	294.1	292.6	40- 50	255.0	900.1	62.5
60	218.7	210.4	205.5	217.1	226.5	222.8	215.2	215.0	50- 60	228.5	1129	78.4
70	139.1	131.0	126.2	137.7	147.2	143.0	135.5	136.1	60- 70	174.8	1303	90.5
80	62.61	53.97	50.01	60.50	70.80	65.31	58.47	59.52	70- 80	103.6	1407	97.7
90	0.2217	0.2464	0.2186	0.3038	1.320	0.4588	0.1367	0.0979	80- 90	27.91	1435	99.7
100	0.5268	0.2258	0.1957	0.2057	0.4109	0.1375	0.1176	0.1673	90-100	0.1865	1435	99.7
110	1.193	0.2748	0.2545	0.2547	1.135	0.3441	0.3137	0.4018	100-110	0.2986	1435	99.7
120	1.466	0.5498	0.5481	0.5681	1.603	0.5793	0.5688	0.6373	110-120	0.5198	1436	99.7
130	1.779	0.8822	0.8809	0.8023	1.978	0.7954	0.8222	0.8524	120-130	0.6964	1437	99.8
140	2.405	0.9326	1.116	0.9012	2.543	1.021	1.038	1.107	130-140	0.8101	1437	99.8
150	2.698	1.178	1.311	1.195	2.777	1.139	1.174	1.234	140-150	0.8079	1438	99.9
160	2.737	1.256	1.527	1.224	2.716	1.237	1.175	1.283	150-160	0.6641	1439	100
170	2.734	1.931	1.780	1.623	2.660	2.003	1.762	1.822	160-170	0.4629	1439	100
180	3.753	3.456	2.621	3.535	3.696	3.526	1.975	3.312	170-180	0.2417	1440	100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



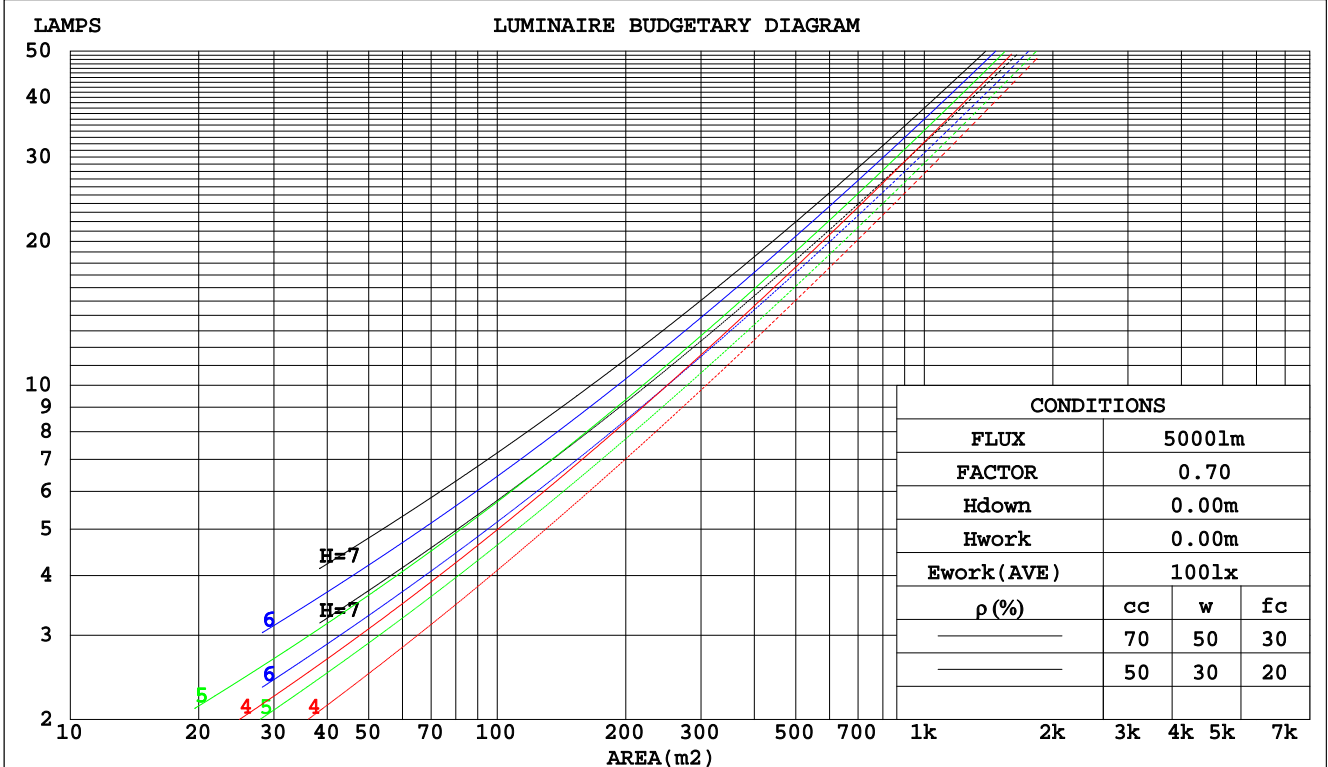
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.6DEG  
 Operators: David  
 Test Date: 2017-11-29

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

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.0V I:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	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	.99	.96	1.01	.98	.94	.97	.94	.91	.93	.91	.88	.90	.87	.85	.83
2.0	.90	.83	.78	.88	.82	.77	.85	.80	.75	.81	.77	.73	.78	.75	.71	.69
3.0	.79	.71	.65	.78	.70	.64	.75	.68	.63	.72	.66	.62	.69	.65	.61	.58
4.0	.70	.61	.55	.69	.61	.54	.66	.59	.53	.64	.58	.53	.62	.56	.52	.50
5.0	.63	.54	.47	.62	.53	.47	.59	.52	.46	.57	.51	.46	.56	.50	.45	.43
6.0	.57	.48	.41	.56	.47	.41	.54	.46	.41	.52	.45	.40	.50	.44	.40	.38
7.0	.51	.42	.36	.50	.42	.36	.49	.41	.36	.47	.41	.36	.46	.40	.35	.33
8.0	.47	.38	.32	.46	.38	.32	.45	.37	.32	.43	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.29	.42	.34	.29	.41	.34	.29	.40	.33	.29	.39	.33	.29	.27
10.0	.40	.32	.26	.39	.32	.26	.38	.31	.26	.37	.31	.26	.36	.30	.26	.24



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-29

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:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	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	.310	.176	.056	.303	.173	.055	.290	.166	.053	.277	.160	.051	.266	.154	.050	
2.0	.292	.160	.049	.285	.157	.048	.274	.152	.047	.263	.147	.046	.252	.143	.045	
3.0	.270	.144	.043	.264	.141	.043	.254	.137	.042	.244	.134	.041	.235	.130	.040	
4.0	.249	.129	.038	.244	.128	.038	.235	.124	.037	.226	.121	.037	.218	.118	.036	
5.0	.230	.117	.034	.226	.116	.034	.217	.113	.033	.210	.111	.033	.202	.108	.032	
6.0	.213	.107	.031	.209	.106	.030	.202	.103	.030	.195	.101	.030	.189	.099	.029	
7.0	.198	.098	.028	.195	.097	.028	.188	.095	.027	.182	.093	.027	.176	.092	.027	
8.0	.185	.091	.025	.182	.090	.025	.176	.088	.025	.171	.086	.025	.165	.085	.025	
9.0	.174	.084	.023	.171	.083	.023	.166	.082	.023	.161	.080	.023	.156	.079	.023	
10.0	.163	.078	.022	.161	.078	.022	.156	.076	.022	.151	.075	.021	.147	.074	.021	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.193	.193	.193	.165	.165	.165	.113	.113	.113	.065	.065	.065	.021	.021	.021	
1.0	.183	.159	.137	.156	.136	.118	.107	.094	.081	.062	.054	.047	.020	.017	.015	
2.0	.175	.134	.101	.150	.116	.087	.103	.080	.061	.059	.047	.036	.019	.015	.012	
3.0	.167	.117	.077	.143	.101	.067	.098	.070	.047	.057	.041	.028	.018	.013	.009	
4.0	.159	.104	.061	.137	.089	.053	.094	.062	.037	.054	.037	.022	.017	.012	.007	
5.0	.152	.093	.050	.130	.081	.043	.090	.056	.031	.052	.033	.018	.017	.011	.006	
6.0	.145	.085	.042	.124	.073	.036	.086	.051	.026	.050	.030	.015	.016	.010	.005	
7.0	.138	.078	.036	.119	.067	.031	.082	.047	.022	.048	.028	.013	.015	.009	.004	
8.0	.131	.072	.031	.113	.062	.027	.078	.044	.019	.046	.026	.012	.015	.008	.004	
9.0	.125	.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  
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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:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	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	20.4	21.9	20.7	22.1	22.3	20.1	21.7	20.4	21.9	22.1
3H	21.9	23.4	22.3	23.6	23.8	21.6	23.0	21.9	23.2	23.5
4H	22.6	23.9	22.9	24.2	24.5	22.2	23.5	22.5	23.7	24.0
6H	23.1	24.3	23.4	24.6	24.9	22.5	23.8	22.9	24.1	24.4
8H	23.3	24.5	23.6	24.8	25.1	22.6	23.8	23.0	24.1	24.4
12H	23.4	24.5	23.7	24.8	25.1	22.6	23.8	23.0	24.1	24.4
4H 2H	21.0	22.3	21.3	22.5	22.8	20.8	22.1	21.1	22.4	22.6
3H	22.7	23.9	23.1	24.2	24.5	22.4	23.6	22.8	23.9	24.2
4H	23.5	24.5	23.9	24.9	25.2	23.1	24.1	23.5	24.5	24.8
6H	24.1	25.1	24.5	25.4	25.8	23.6	24.5	24.0	24.9	25.2
8H	24.3	25.2	24.7	25.6	26.0	23.7	24.6	24.1	25.0	25.3
12H	24.5	25.3	24.9	25.7	26.1	23.7	24.6	24.2	25.0	25.4
8H 4H	23.7	24.6	24.1	25.0	25.4	23.4	24.2	23.8	24.6	25.0
6H	24.5	25.2	24.9	25.6	26.1	24.0	24.7	24.4	25.1	25.6
8H	24.8	25.5	25.3	25.9	26.3	24.2	24.8	24.6	25.3	25.7
12H	25.0	25.6	25.5	26.0	26.5	24.3	24.8	24.8	25.3	25.8
12H 4H	23.7	24.5	24.2	24.9	25.3	23.4	24.2	23.8	24.6	25.0
6H	24.5	25.2	25.0	25.6	26.1	24.0	24.7	24.5	25.1	25.6
8H	24.9	25.4	25.4	25.9	26.4	24.3	24.8	24.7	25.3	25.8
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				

CIE Pub.117 Corrected 1440 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.3)

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

## UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	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) $k(RI) \times RCR = 5$									
k = 0.60	58	46	39	57	46	39	56	45	39	32
0.80	68	56	49	67	56	49	65	55	48	41
1.00	76	65	58	75	64	57	72	66	57	50
1.25	83	73	65	82	72	65	79	70	64	57
1.50	88	78	71	86	77	71	83	75	70	62
2.00	95	86	80	93	85	79	89	83	78	70
2.50	99	91	85	97	90	84	93	87	82	74
3.00	102	95	90	100	94	89	96	91	86	78
4.00	106	100	96	104	99	94	99	95	92	83
5.00	109	104	100	106	102	98	102	98	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-29

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

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	PROTECTION ANGLE:

Conical surface Flux(90deg):

773.88 lm

%lum = 53.8%

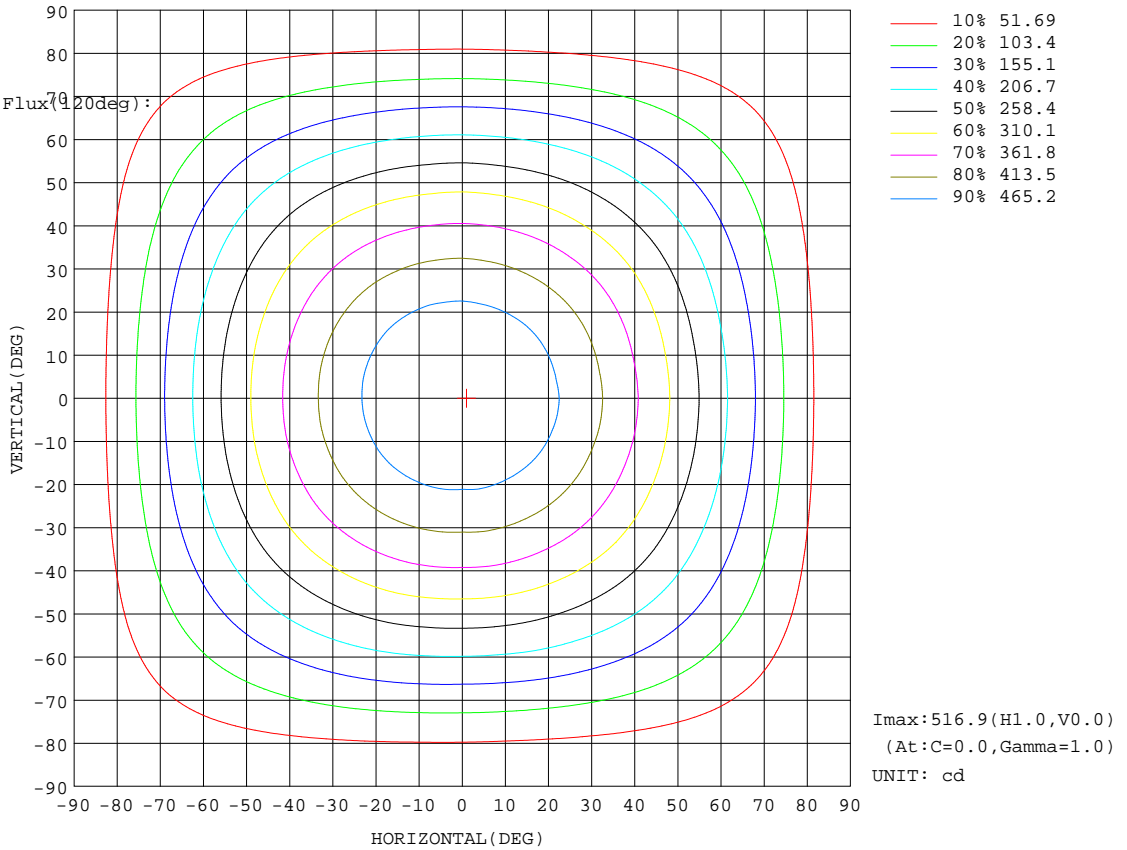
%lamp = 53.8%

Conical surface Flux(70deg):

1128.6 lm

%lum = 78.4%

%lamp = 78.4%

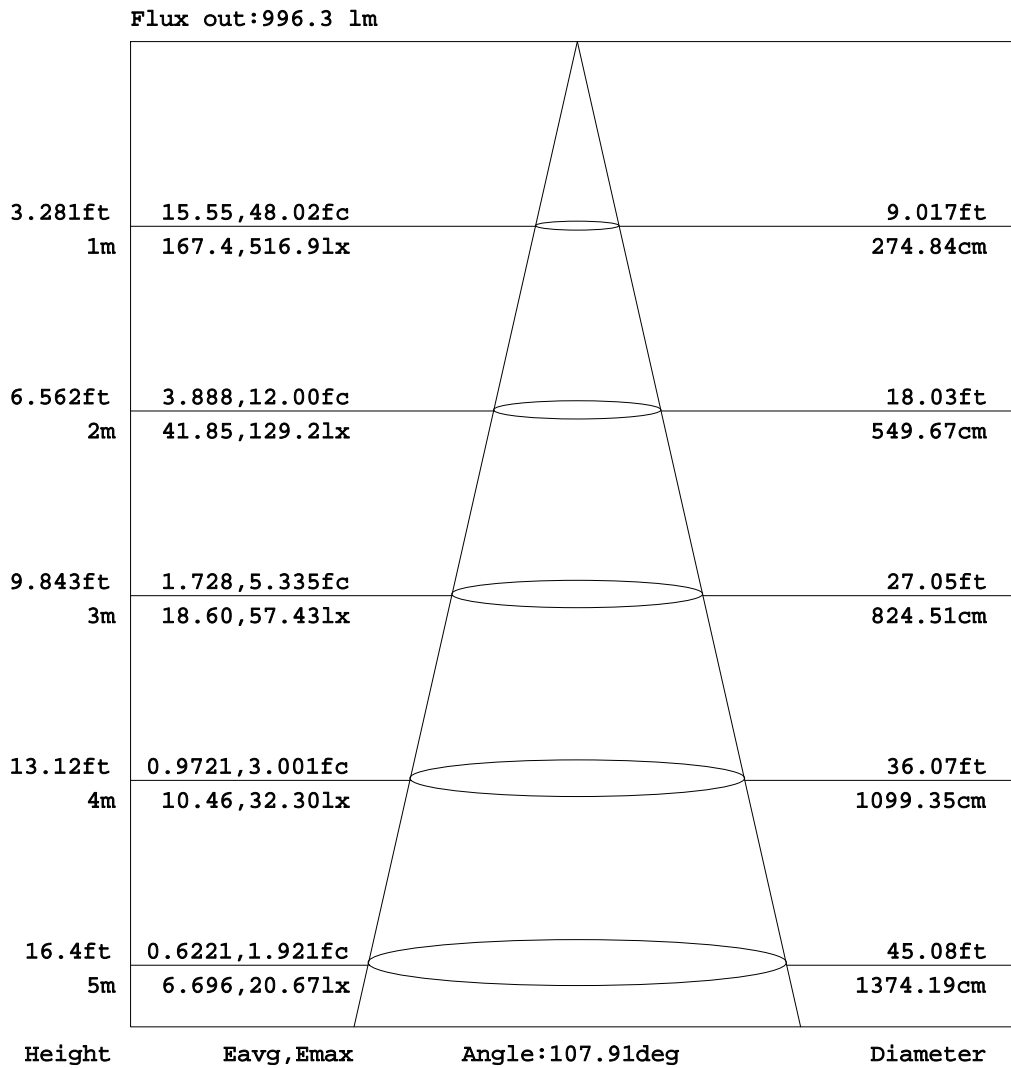


C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.6DEG  
 Operators: David  
 Test Date: 2017-11-29

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:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	PROTECTION ANGLE:



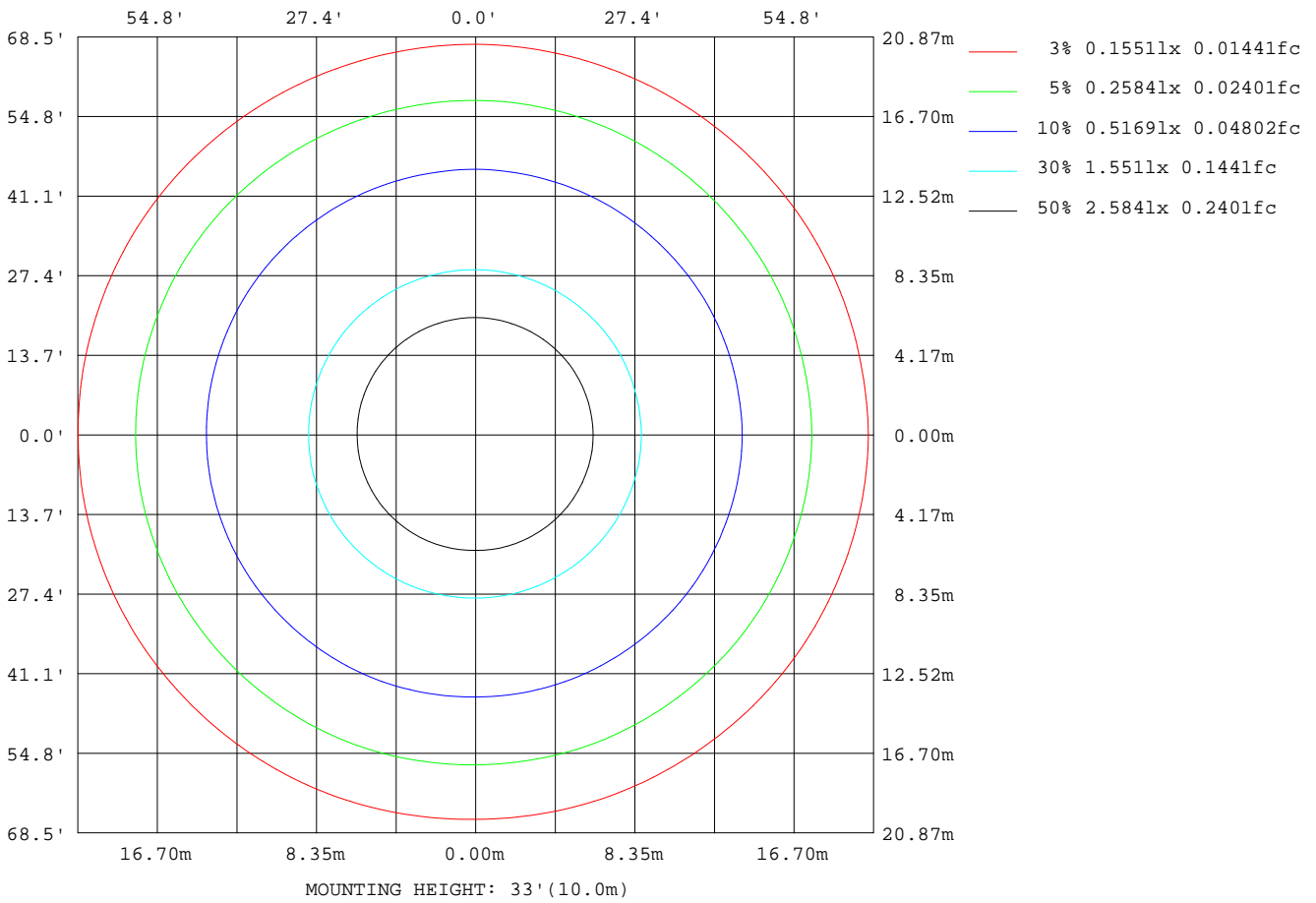
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-29

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

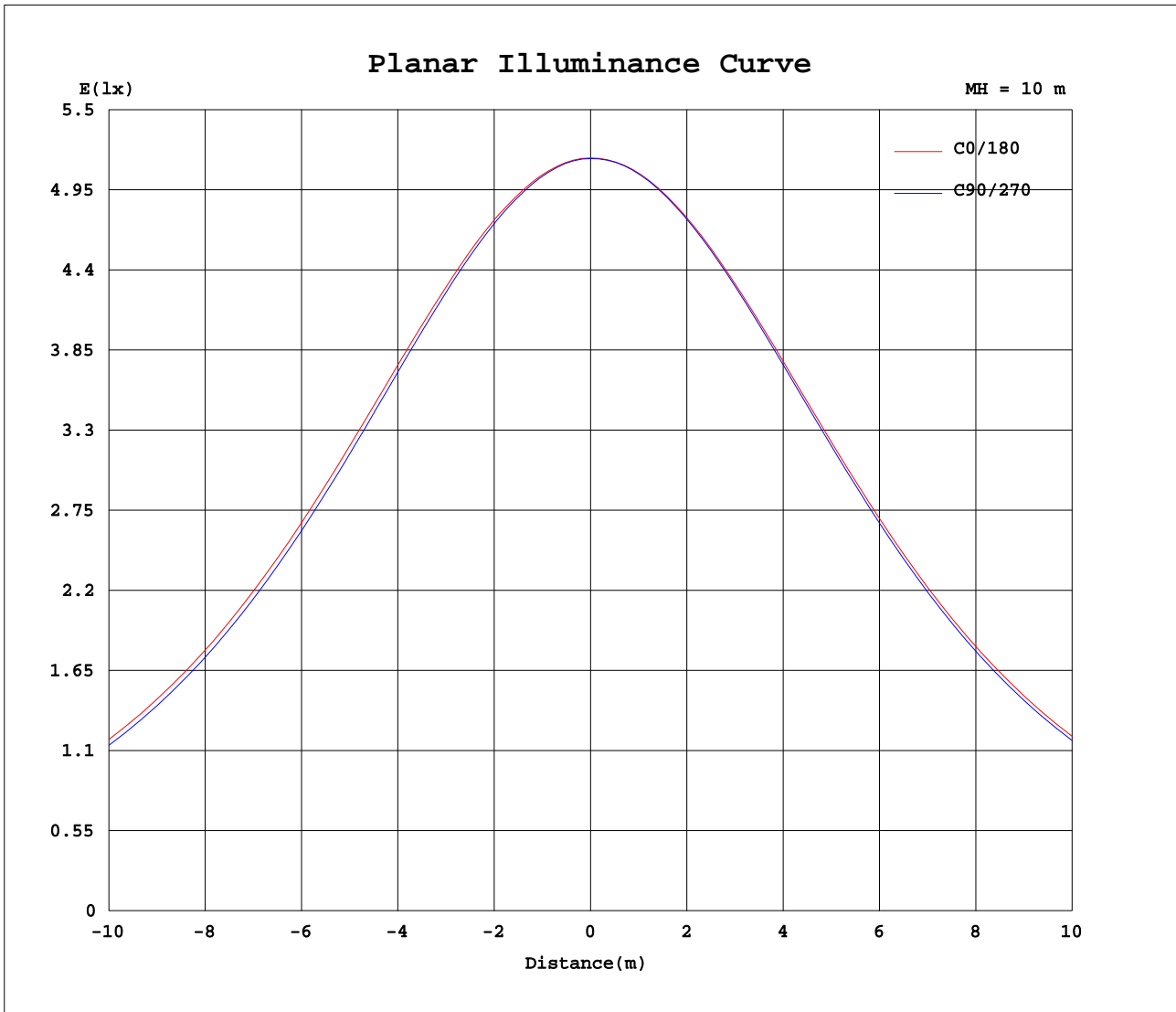
Test:U:120.0V I:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-29

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: 2017-11-29

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

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	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	517	517	516	517	517	517	517	516	517	517	516	516	516	516	516	516	516	516	516	517
5	514	514	513	513	513	513	513	513	513	513	513	513	514	514	514	514	514	514	514	515
10	506	506	505	505	505	504	504	504	504	504	504	505	505	506	506	506	506	507	507	507
15	493	493	492	491	491	490	490	490	490	489	490	491	492	492	493	494	494	495	495	495
20	476	475	474	473	473	472	471	471	471	470	472	472	473	475	476	477	477	478	479	479
25	454	453	452	451	450	449	448	448	448	446	448	450	451	452	454	455	456	457	457	457
30	428	427	426	424	423	422	421	421	421	420	421	423	424	426	428	430	431	432	432	432
35	399	398	396	395	394	392	391	391	391	390	391	393	395	397	399	401	402	404	404	404
40	367	366	364	362	361	359	358	358	357	357	358	360	362	364	367	369	371	372	372	372
45	333	331	329	328	326	324	323	322	322	321	323	326	328	330	332	335	337	338	339	339
50	296	295	292	291	289	287	285	285	285	284	286	289	291	293	296	298	301	302	303	303
55	258	256	254	253	251	248	247	246	245	245	247	250	252	255	258	261	263	265	265	265
60	219	217	215	214	212	209	208	207	206	206	208	211	213	216	219	222	224	226	227	227
65	179	178	176	174	172	169	168	167	166	166	168	171	173	176	179	182	184	186	187	187
70	139	138	136	134	132	130	128	127	126	126	128	131	134	136	139	142	145	146	147	147
75	100.0	98.7	97.1	95.4	93.5	91.2	89.1	87.6	87.0	87.7	89.0	91.4	94.4	97.3	100	103	106	107	108	108
80	62.6	61.5	59.6	57.8	55.2	52.8	50.7	49.5	49.2	50.0	51.0	53.2	56.0	58.9	62.1	65.2	67.9	69.8	70.8	70.8
85	27.1	25.6	23.3	20.9	18.7	16.6	15.3	14.8	14.9	15.4	16.3	17.7	20.0	22.5	25.4	28.5	31.6	33.9	35.1	35.1
90	0.22	0.22	0.20	0.22	0.26	0.24	0.22	0.20	0.20	0.22	0.22	0.22	0.25	0.29	0.32	0.32	0.39	0.68	1.32	1.32
95	0.20	0.18	0.18	0.20	0.22	0.22	0.20	0.18	0.20	0.20	0.20	0.16	0.18	0.22	0.22	0.18	0.20	0.20	0.16	0.16
100	0.53	0.18	0.18	0.20	0.24	0.22	0.20	0.18	0.20	0.20	0.18	0.16	0.18	0.22	0.20	0.18	0.18	0.18	0.41	0.41
105	0.92	0.25	0.23	0.26	0.26	0.27	0.23	0.24	0.27	0.27	0.25	0.25	0.23	0.27	0.25	0.21	0.25	0.20	0.78	0.78
110	1.19	0.27	0.25	0.26	0.27	0.27	0.25	0.25	0.25	0.25	0.25	0.27	0.26	0.25	0.25	0.25	0.25	0.25	1.14	1.14
115	1.27	0.49	0.45	0.47	0.51	0.51	0.39	0.35	0.37	0.45	0.35	0.33	0.31	0.37	0.39	0.35	0.37	0.51	1.45	1.45
120	1.47	0.53	0.57	0.57	0.55	0.55	0.57	0.57	0.53	0.55	0.59	0.55	0.55	0.55	0.59	0.57	0.57	0.53	1.60	1.60
125	1.54	0.67	0.63	0.61	0.63	0.61	0.57	0.59	0.59	0.67	0.59	0.55	0.57	0.59	0.61	0.57	0.61	0.65	1.76	1.76
130	1.78	0.86	0.86	0.86	0.90	0.86	0.74	0.67	0.70	0.88	0.72	0.63	0.67	0.70	0.90	0.84	0.84	0.86	1.98	1.98
135	2.05	0.98	0.88	0.90	0.90	0.86	0.88	0.86	0.88	0.90	0.88	0.84	0.90	0.86	0.92	0.92	0.88	0.94	2.17	2.17
140	2.41	1.23	0.96	0.94	0.96	0.90	0.90	0.88	0.92	1.12	0.88	0.88	0.88	0.86	0.94	1.06	1.00	1.23	2.54	2.54
145	2.44	1.51	1.16	1.18	1.14	1.08	1.06	0.98	1.11	1.17	1.12	0.94	0.94	0.96	1.10	1.19	1.15	1.51	2.60	2.60
150	2.70	1.82	1.37	1.24	1.18	1.18	1.18	1.18	1.17	1.31	1.18	1.14	1.18	1.22	1.17	1.27	1.47	1.74	2.78	2.78
155	2.74	1.88	1.53	1.26	1.22	1.18	1.18	1.18	1.21	1.53	1.20	1.16	1.24	1.22	1.21	1.41	1.49	1.80	2.80	2.80
160	2.74	2.11	1.57	1.43	1.30	1.22	1.18	1.21	1.31	1.53	1.27	1.18	1.24	1.22	1.23	1.47	1.60	2.09	2.72	2.72
165	2.35	2.21	1.78	1.63	1.51	1.35	1.33	1.29	1.49	1.53	1.47	1.24	1.24	1.25	1.29	1.53	1.58	2.19	2.29	2.29
170	2.73	2.45	2.41	2.10	2.02	1.84	1.78	1.76	1.80	1.78	1.76	1.53	1.43	1.49	1.76	1.95	2.42	2.72	2.66	2.66
175	3.52	3.36	3.25	3.06	2.96	2.55	2.45	2.39	2.39	2.13	1.86	1.88	2.33	2.58	2.99	3.30	3.63	3.65	3.70	3.70
180	3.75	3.52	3.41	3.50	3.54	3.38	3.33	3.36	2.51	2.62	3.11	3.24	3.45	3.35	3.72	3.77	3.73	3.77	3.70	3.70

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-29

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:0.1776A P:21.22W PF:0.9955 Lamp Flux:1439.53x1 lm		
NAME: Frost 25''Vanity,Satin Nickel	TYPE:FRS-25V-SN	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.6*0.08	PROTECTION ANGLE:

Table--2

UNIT: cd

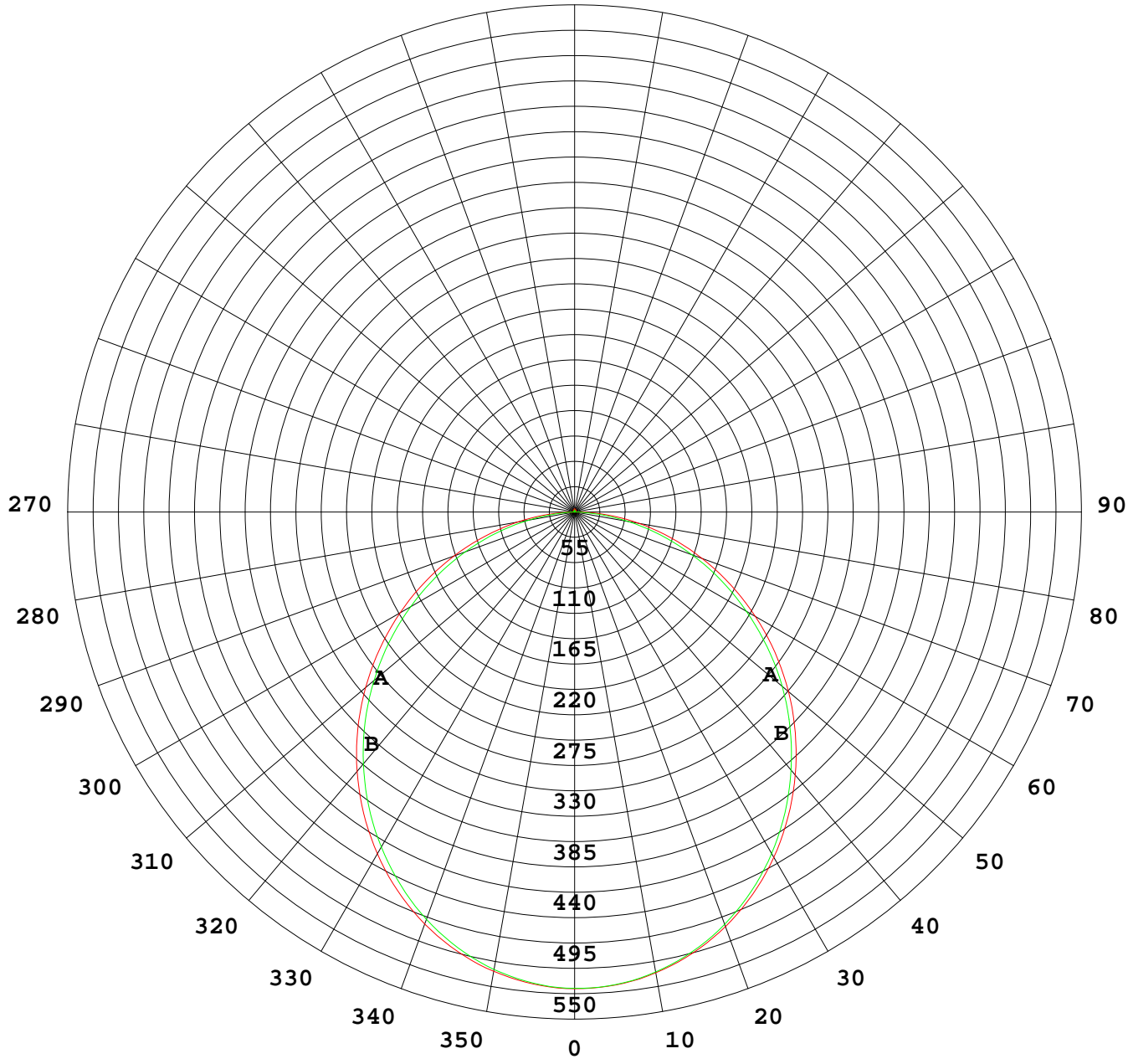
C( DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	517	516	517	517	517	517	516	517	517	516	516	516	516	516	516	516	516		
5	515	514	515	515	515	515	515	515	514	514	514	514	514	513	513	513	513		
10	508	507	508	508	508	507	507	507	506	506	505	506	506	505	505	505	505		
15	496	495	496	495	495	495	494	494	494	493	492	492	492	492	492	492	492		
20	479	479	479	479	478	477	477	476	476	475	474	474	475	475	475	474	474		
25	458	458	458	457	457	456	455	454	454	453	452	452	452	453	453	452	452		
30	433	433	433	432	431	430	429	428	428	426	426	426	426	427	427	427	427		
35	404	404	404	403	402	401	399	398	398	397	396	396	396	397	398	398	397		
40	373	373	372	372	370	369	367	366	365	364	364	364	364	365	366	366	366		
45	339	339	339	338	336	334	332	331	331	329	329	329	329	330	331	331	331		
50	303	303	303	301	299	297	295	294	294	293	292	292	292	293	295	295	295		
55	266	265	265	263	261	259	257	255	255	254	254	254	254	255	256	256	256		
60	227	226	226	224	222	219	217	216	215	215	214	214	215	215	217	217	217		
65	187	187	186	184	182	179	177	176	175	175	174	175	175	176	177	177	177		
70	148	147	146	144	142	139	138	136	136	135	135	135	136	136	137	138	138		
75	109	108	107	105	103	100	98.4	96.8	96.5	96.0	95.9	96.4	97.2	98.0	98.8	99.3	99.3		
80	71.1	70.2	68.8	66.5	64.1	61.8	59.9	58.7	58.5	57.9	57.7	58.2	59.0	60.0	61.4	62.1	62.5		
85	35.0	33.7	31.7	29.5	27.1	25.2	23.9	22.8	22.2	21.6	21.7	22.1	22.8	23.9	25.1	26.2	27.1		
90	0.91	0.64	0.57	0.47	0.45	0.43	0.33	0.23	0.14	0.10	0.12	0.12	0.10	0.10	0.16	0.16	0.16		
95	0.10	0.14	0.10	0.10	0.08	0.08	0.12	0.08	0.08	0.10	0.12	0.12	0.10	0.14	0.16	0.20	0.16		
100	0.18	0.18	0.16	0.14	0.14	0.18	0.14	0.12	0.12	0.12	0.18	0.14	0.16	0.18	0.23	0.25	0.23		
105	0.33	0.27	0.24	0.24	0.20	0.22	0.24	0.22	0.20	0.20	0.24	0.24	0.24	0.27	0.33	0.35	0.39		
110	0.51	0.43	0.39	0.33	0.35	0.33	0.35	0.33	0.31	0.31	0.35	0.37	0.39	0.41	0.51	0.53	0.65		
115	0.71	0.61	0.55	0.43	0.45	0.49	0.45	0.43	0.45	0.41	0.47	0.51	0.49	0.53	0.65	0.74	0.90		
120	0.88	0.77	0.67	0.57	0.59	0.59	0.55	0.51	0.57	0.51	0.57	0.61	0.61	0.67	0.80	0.96	1.12		
125	1.06	0.94	0.81	0.69	0.69	0.65	0.65	0.63	0.67	0.65	0.67	0.69	0.71	0.80	1.02	1.19	1.35		
130	1.19	1.08	0.94	0.83	0.77	0.76	0.74	0.70	0.82	0.74	0.77	0.81	0.78	0.92	1.17	1.43	1.58		
135	1.41	1.29	1.10	0.92	0.86	0.86	0.86	0.82	0.94	0.84	0.86	0.88	0.92	1.04	1.31	1.58	1.78		
140	1.70	1.39	1.26	1.06	0.98	0.94	0.92	0.96	1.04	0.96	0.94	0.96	1.02	1.19	1.62	1.78	2.03		
145	1.78	1.47	1.43	1.22	1.10	1.04	0.98	1.04	1.16	1.00	0.98	1.00	1.12	1.31	1.72	1.90	2.07		
150	2.00	1.47	1.36	1.20	1.08	1.04	0.98	1.02	1.17	1.00	0.98	1.00	1.12	1.35	1.72	1.97	2.23		
155	2.13	1.53	1.38	1.22	1.12	1.06	1.04	1.04	1.12	1.02	0.98	1.00	1.12	1.35	1.72	1.97	2.27		
160	2.46	1.74	1.45	1.32	1.16	1.12	1.10	1.08	1.17	1.20	1.08	1.08	1.16	1.41	1.80	1.97	2.31		
165	2.14	1.94	1.67	1.44	1.28	1.18	1.16	1.16	1.23	1.28	1.20	1.14	1.20	1.43	1.86	2.00	2.37		
170	2.56	2.33	2.28	2.12	1.88	1.73	1.72	1.70	1.76	1.84	1.85	1.75	1.75	1.90	2.33	2.50	2.89		
175	3.70	3.39	3.11	3.09	2.79	2.40	2.22	2.25	2.39	2.49	2.36	2.40	2.61	2.86	3.25	3.56	3.72		
180	3.70	3.53	3.42	3.52	3.53	3.41	3.36	2.69	1.97	2.80	3.04	3.16	3.26	3.37	3.64	3.71	3.73		

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-29

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

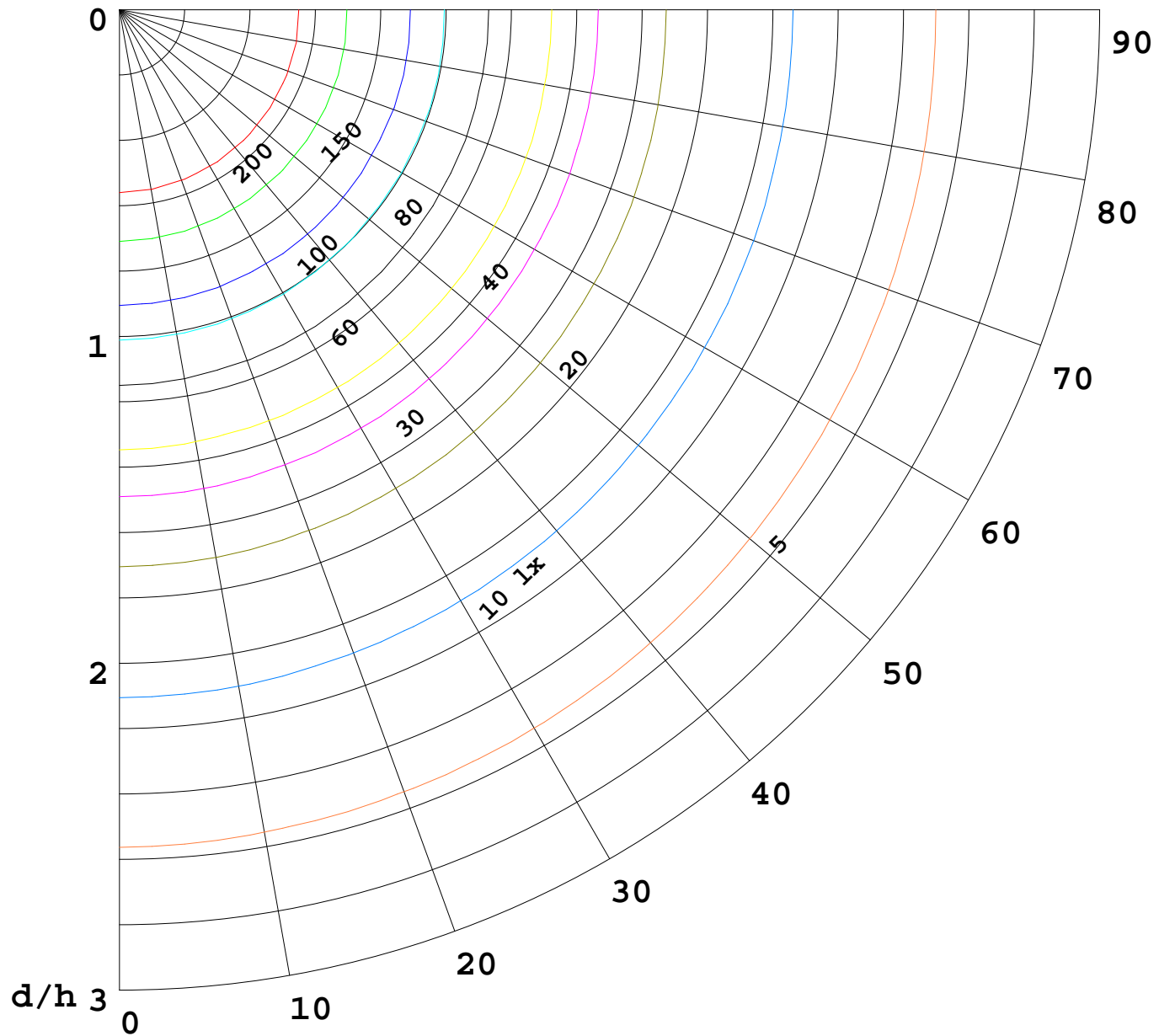


I(cd)



1000 lm

$K = 1$



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

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

