



### 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> .....	BTR66.181.17.0011.29
<b>Product Name</b> .....	Nano, 12" Surface Mount, Satin Nicke or Polished Chrome
<b>Model Number</b> .....	NAN-12F-SN or PC

<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 24, 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>Accrediation</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

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<b>description:</b>	
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.....	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°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 II 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.

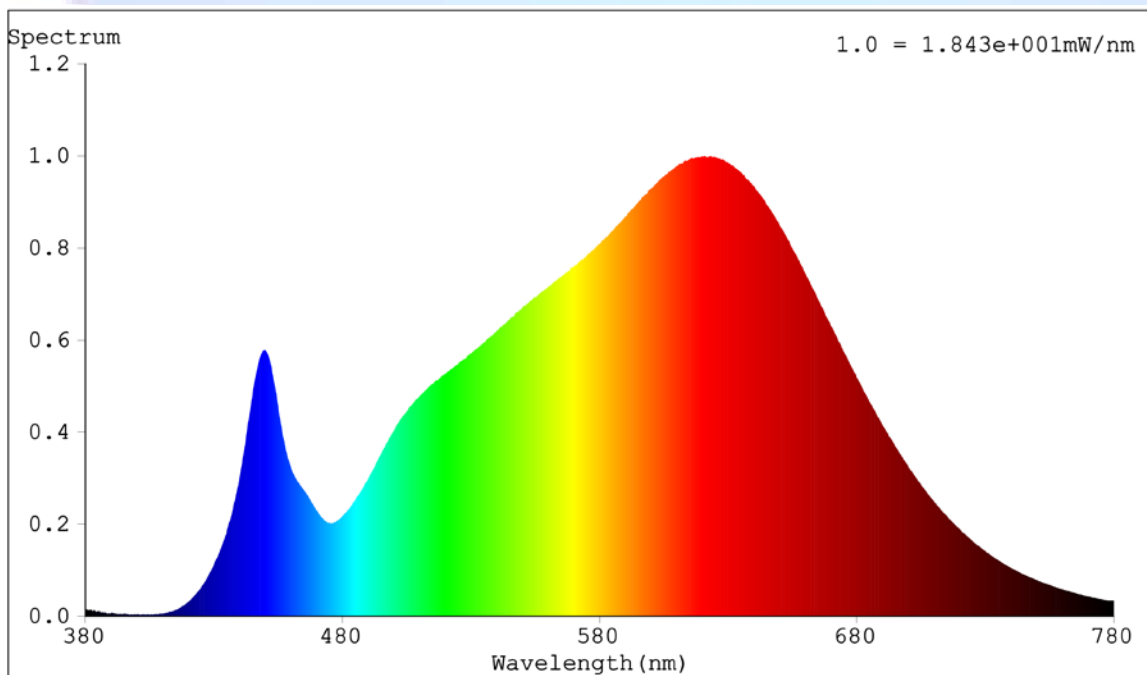
### Luminous Intensity

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

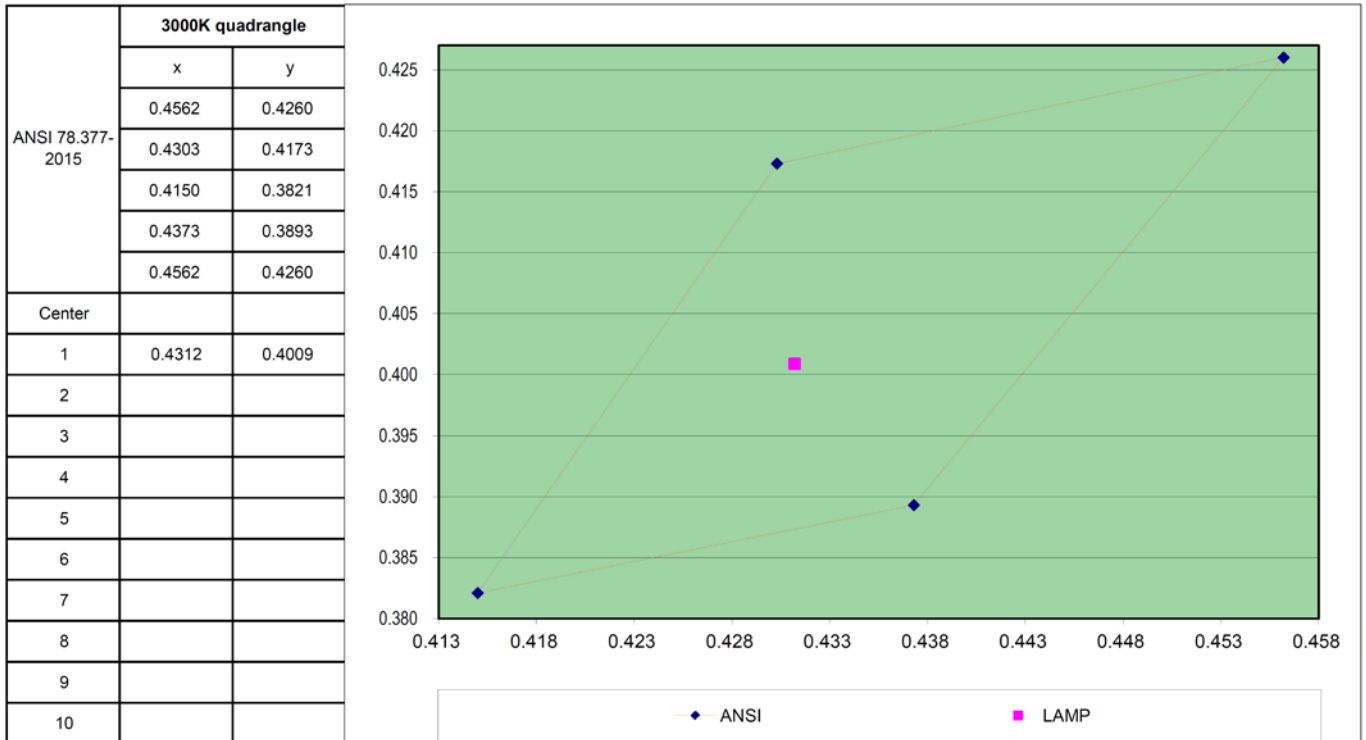
### Photometric and Electrical Test Data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
120.0	60.0	0.1737	/	20.76	0.9956	995.965	47.97
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
3073	92.5	61	0.4312	0.4009	0.2482	0.5193	-0.0005

### Spectrul Plots



### 7 Step Quadrangle



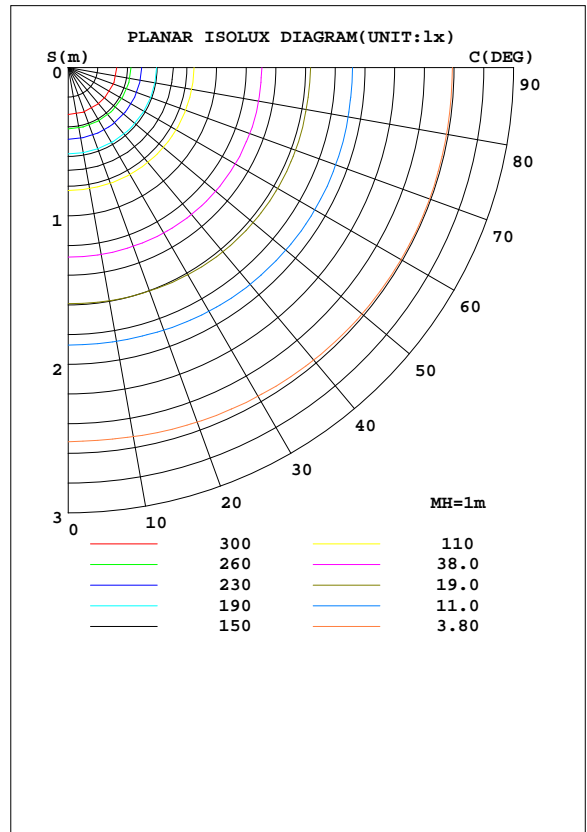
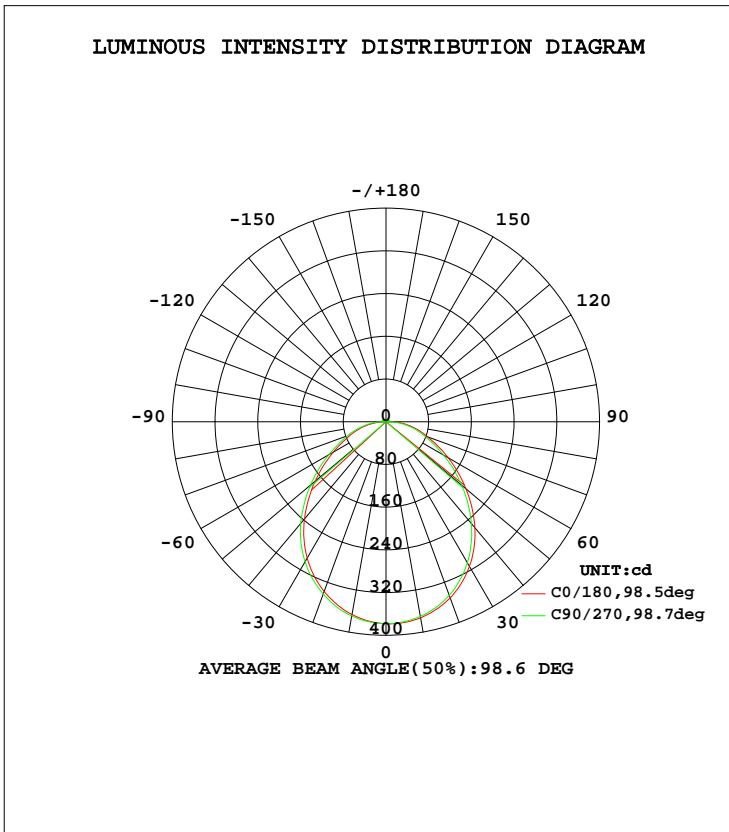
### EUT Photo



LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome	TYPE: Nano-12F-SN or PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 47.97 lm/W			
MODEL	NAN-12F-SN or PC	Imax(cd)	378.6	S/MH(C0/180)	1.23
NOMINAL POWER(W)	22	LOR(%)	100.0	S/MH(C90/270)	1.20
RATED VOLTAGE(V)	120.0	TOTAL FLUX(lm)	995.97	$\eta$ UP, DN(C0-180)	1.7,48.1
NOMINAL FLUX(lm)	995.965	CIE CLASS	DIRECT	$\eta$ UP, DN(C180-360)	1.7,48.5
LAMPS INSIDE	1	$\eta$ up(%)	3.4	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120.0	$\eta$ down(%)	96.6	CIBSE SHR MAX	1.35



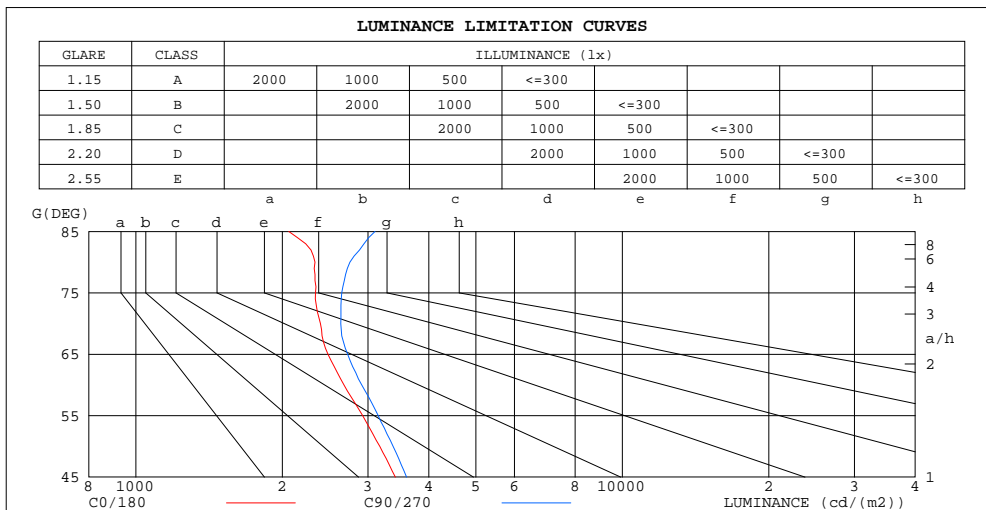
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.6DEG  
 Operators:David  
 Test Date:2017-11-21

$\gamma$  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:

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	366.5	366.8	369.3	370.9	372.7	372.1	370.3	367.4	0- 10	35.67	35.67	3.58
20	338.3	340.0	343.4	348.0	351.1	349.9	346.1	341.1	10- 20	101.2	136.9	13.7
30	295.2	297.7	303.0	309.2	312.7	311.9	304.8	299.0	20- 30	150.1	287.0	28.8
40	237.3	242.7	248.5	257.0	258.8	259.6	248.8	243.3	30- 40	173.8	460.8	46.3
50	173.4	180.1	184.6	195.5	195.9	197.3	185.1	180.6	40- 50	168.4	629.2	63.2
60	113.8	122.8	123.8	136.3	134.6	137.4	124.5	123.6	50- 60	139.8	769.0	77.2
70	69.62	75.57	76.66	85.76	82.76	85.70	76.07	75.48	60- 70	100.7	869.7	87.3
80	34.46	41.89	40.65	50.53	46.53	50.35	40.64	41.69	70- 80	64.51	934.3	93.8
90	4.864	6.208	2.962	11.87	10.60	11.93	2.569	6.084	80- 90	27.81	962.1	96.6
100	7.764	10.18	7.091	9.774	6.515	9.553	7.129	10.11	90-100	7.910	970.0	97.4
110	7.167	8.862	6.958	8.850	6.335	8.527	6.473	8.599	100-110	8.836	978.8	98.3
120	6.007	6.882	5.839	6.934	5.483	6.684	5.465	6.675	110-120	6.924	985.7	99
130	4.522	4.833	4.523	4.909	3.997	4.815	4.229	4.737	120-130	4.773	990.5	99.5
140	3.230	2.958	3.308	3.044	2.974	3.045	3.108	2.956	130-140	2.901	993.4	99.7
150	1.974	1.571	2.148	1.667	1.873	1.674	2.029	1.529	140-150	1.511	994.9	99.9
160	1.140	0.9911	1.140	1.016	1.135	1.077	1.124	1.066	150-160	0.6396	995.6	100
170	1.023	1.015	1.012	0.9719	1.217	1.172	1.146	1.177	160-170	0.2969	995.9	100
180	1.178	1.161	1.159	1.161	1.198	1.171	1.140	1.152	170-180	0.1069	996.0	100
DEG	LUMINOUS INTENSITY:cd								UNIT:lm			



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2062	3101
80	2334	2754
75	2341	2649
70	2395	2637
65	2483	2725
60	2679	2913
55	2926	3149
50	3173	3378
45	3414	3600

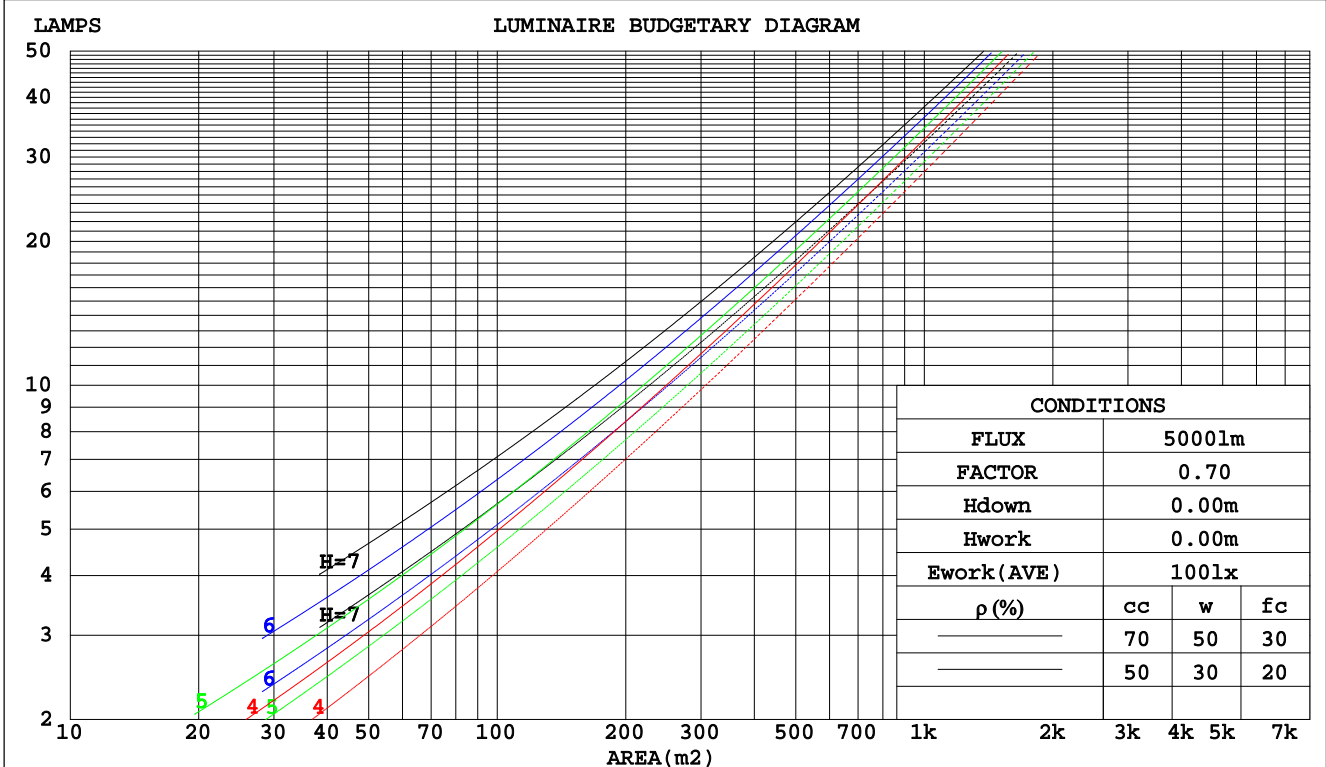
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:25.6DEG  
Operators:David  
Test Date:2017-11-21

$\gamma$  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:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome-12F-SN or PC		WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	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	1.18	1.18	1.18	1.15	1.15	1.15	1.09	1.09	1.09	1.04	1.04	1.04	.99	.99	.99	.97
1.0	1.03	.99	.95	1.00	.97	.93	.96	.92	.89	.91	.89	.86	.87	.85	.83	.81
2.0	.90	.83	.78	.88	.82	.77	.84	.79	.74	.80	.76	.72	.77	.73	.70	.68
3.0	.80	.72	.65	.78	.70	.64	.74	.68	.63	.71	.66	.61	.68	.64	.60	.58
4.0	.71	.62	.56	.69	.61	.55	.66	.59	.54	.64	.58	.53	.61	.56	.52	.50
5.0	.64	.55	.48	.62	.54	.48	.60	.52	.47	.57	.51	.46	.55	.50	.45	.43
6.0	.57	.49	.42	.56	.48	.42	.54	.47	.41	.52	.46	.41	.50	.45	.40	.38
7.0	.52	.44	.38	.51	.43	.37	.49	.42	.37	.48	.41	.36	.46	.40	.36	.34
8.0	.48	.39	.34	.47	.39	.33	.45	.38	.33	.44	.37	.33	.42	.37	.32	.30
9.0	.44	.36	.30	.43	.35	.30	.42	.35	.30	.40	.34	.30	.39	.33	.29	.27
10.0	.41	.33	.28	.40	.32	.27	.39	.32	.27	.38	.31	.27	.36	.31	.27	.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:

WEC AND CCEC

Test:U:120.0V I:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome	TYPE:RHM-12F-SN or PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	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	.309	.176	.056	.301	.172	.055	.286	.164	.052	.272	.157	.050	.259	.150	.048	
2.0	.286	.157	.048	.279	.154	.047	.265	.148	.046	.253	.142	.044	.241	.137	.043	
3.0	.263	.140	.042	.257	.138	.041	.245	.133	.040	.234	.128	.039	.224	.124	.038	
4.0	.242	.126	.037	.237	.124	.037	.226	.120	.036	.216	.116	.035	.207	.113	.034	
5.0	.224	.114	.033	.219	.113	.033	.210	.109	.032	.201	.106	.032	.193	.103	.031	
6.0	.208	.104	.030	.204	.103	.030	.195	.100	.029	.187	.097	.029	.180	.095	.028	
7.0	.194	.096	.027	.190	.095	.027	.182	.092	.027	.175	.090	.026	.168	.087	.026	
8.0	.181	.089	.025	.178	.087	.025	.171	.085	.024	.164	.083	.024	.158	.081	.024	
9.0	.170	.082	.023	.167	.081	.023	.160	.079	.022	.155	.077	.022	.149	.076	.022	
10.0	.160	.077	.021	.157	.076	.021	.151	.074	.021	.146	.072	.021	.141	.071	.020	

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	.216	.216	.216	.185	.185	.185	.126	.126	.126	.073	.073	.073	.023	.023	.023	
1.0	.206	.182	.161	.177	.156	.138	.121	.108	.096	.070	.062	.056	.022	.020	.018	
2.0	.198	.158	.125	.169	.136	.108	.116	.094	.075	.067	.055	.044	.021	.018	.014	
3.0	.190	.141	.102	.163	.121	.088	.112	.084	.062	.064	.049	.036	.021	.016	.012	
4.0	.182	.127	.086	.156	.110	.075	.107	.077	.053	.062	.045	.031	.020	.015	.010	
5.0	.174	.117	.075	.150	.101	.065	.103	.071	.046	.060	.042	.027	.019	.014	.009	
6.0	.167	.109	.067	.144	.094	.058	.099	.066	.041	.057	.039	.024	.019	.013	.008	
7.0	.160	.102	.061	.138	.088	.053	.095	.062	.037	.055	.036	.022	.018	.012	.007	
8.0	.154	.096	.056	.133	.083	.049	.092	.058	.035	.053	.034	.021	.017	.011	.007	
9.0	.148	.091	.053	.128	.079	.046	.088	.056	.033	.051	.033	.019	.017	.011	.006	
10.0	.142	.087	.050	.123	.075	.043	.085	.053	.031	.050	.031	.018	.016	.010	.006	

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:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm										
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome-12F-SN or PC								WEIGHT:		
SPEC.:				DIM.:				SERIAL No.:		
MFR.: Blackjack Lighting				SUR.:0.29*0.29				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	15.9	17.3	16.2	17.6	17.9	16.2	17.7	16.6	17.9	18.2
3H	17.2	18.5	17.5	18.8	19.1	17.6	18.9	17.9	19.2	19.5
4H	17.7	19.0	18.1	19.3	19.6	18.2	19.5	18.6	19.8	20.1
6H	18.2	19.4	18.6	19.8	20.1	18.8	20.0	19.2	20.3	20.7
8H	18.4	19.6	18.8	19.9	20.3	19.1	20.2	19.5	20.6	20.9
12H	18.5	19.7	19.0	20.0	20.4	19.3	20.4	19.7	20.7	21.1
4H 2H	16.5	17.7	16.8	18.0	18.4	16.7	18.0	17.1	18.3	18.6
3H	17.9	19.1	18.4	19.4	19.8	18.3	19.4	18.7	19.8	20.1
4H	18.7	19.7	19.1	20.1	20.5	19.1	20.1	19.5	20.5	20.9
6H	19.4	20.2	19.8	20.7	21.1	19.9	20.8	20.3	21.2	21.6
8H	19.6	20.4	20.1	20.9	21.3	20.2	21.0	20.7	21.5	21.9
12H	19.8	20.6	20.3	21.0	21.5	20.5	21.3	21.0	21.7	22.2
8H 4H	19.0	19.9	19.5	20.3	20.8	19.4	20.2	19.9	20.7	21.1
6H	19.9	20.6	20.4	21.1	21.6	20.4	21.1	20.9	21.5	22.0
8H	20.3	20.9	20.8	21.4	21.9	20.9	21.5	21.4	22.0	22.5
12H	20.6	21.1	21.1	21.6	22.2	21.3	21.8	21.8	22.3	22.9
12H 4H	19.1	19.9	19.6	20.3	20.8	19.4	20.2	19.9	20.7	21.1
6H	20.1	20.7	20.6	21.2	21.7	20.5	21.1	21.0	21.6	22.1
8H	20.5	21.0	21.0	21.5	22.1	21.0	21.6	21.6	22.1	22.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.1 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.2				

CIE Pub.117 Corrected 996.0 lm Total Lamp Luminous Flux.(8log(F/F0) = -0.0)

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:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome-12F-SN or PC	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	PROTECTION ANGLE:

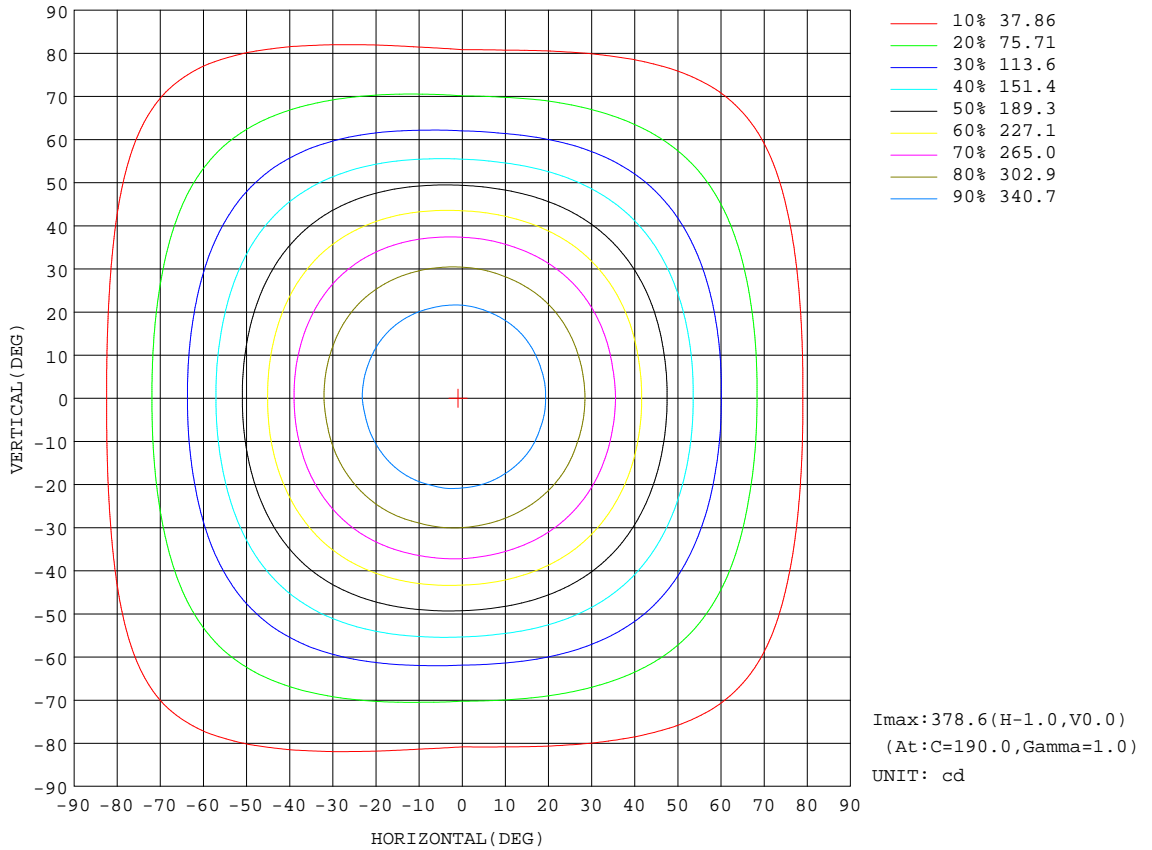
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	58	47	40	58	47	40	56	46	40	34
0.80	68	57	50	67	56	50	65	55	49	42
1.00	76	65	58	75	65	58	73	66	57	50
1.25	83	73	66	82	72	65	79	70	64	57
1.50	88	78	71	86	77	71	83	75	69	62
2.00	94	86	80	92	85	79	89	82	77	69
2.50	98	90	84	96	89	83	92	86	81	72
3.00	101	95	89	99	93	88	95	89	85	76
4.00	105	100	95	103	97	93	98	94	90	80
5.00	108	103	99	105	101	97	100	96	93	83
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:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome	TYPE:12F-SN or PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	PROTECTION ANGLE:

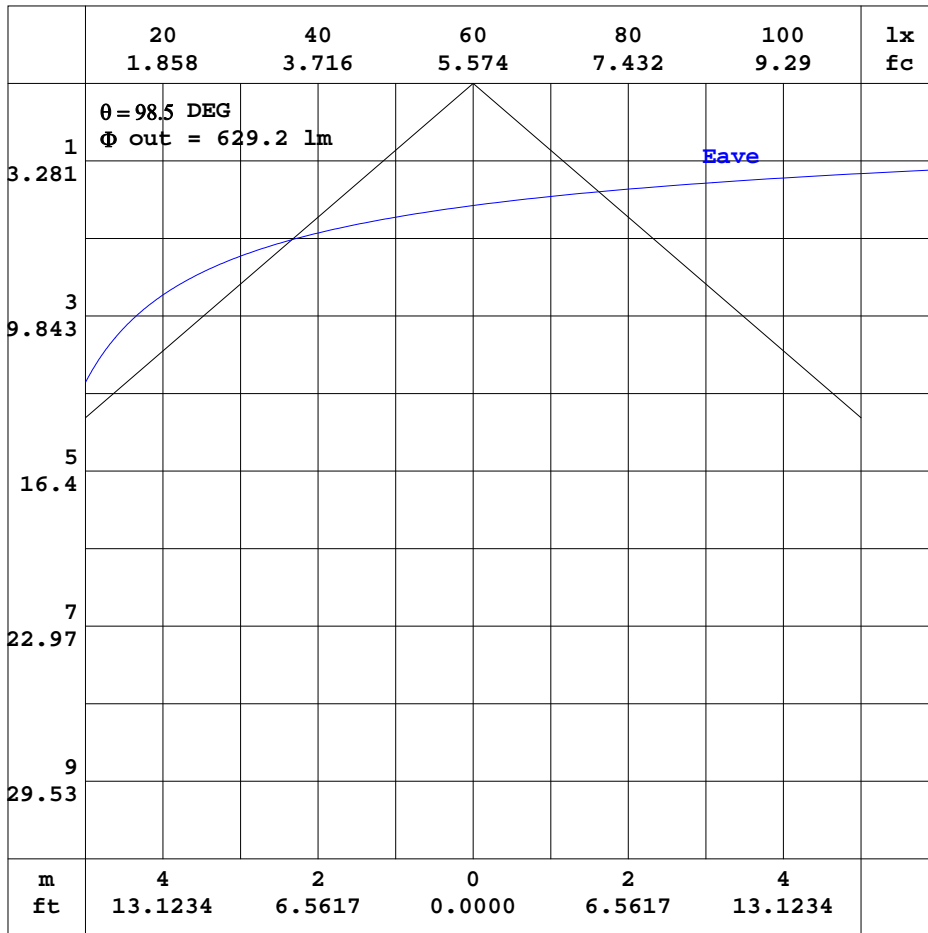


C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.6DEG  
 Operators: David  
 Test Date: 2017-11-21

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:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome	TYPE:12F-SN or PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	PROTECTION ANGLE:



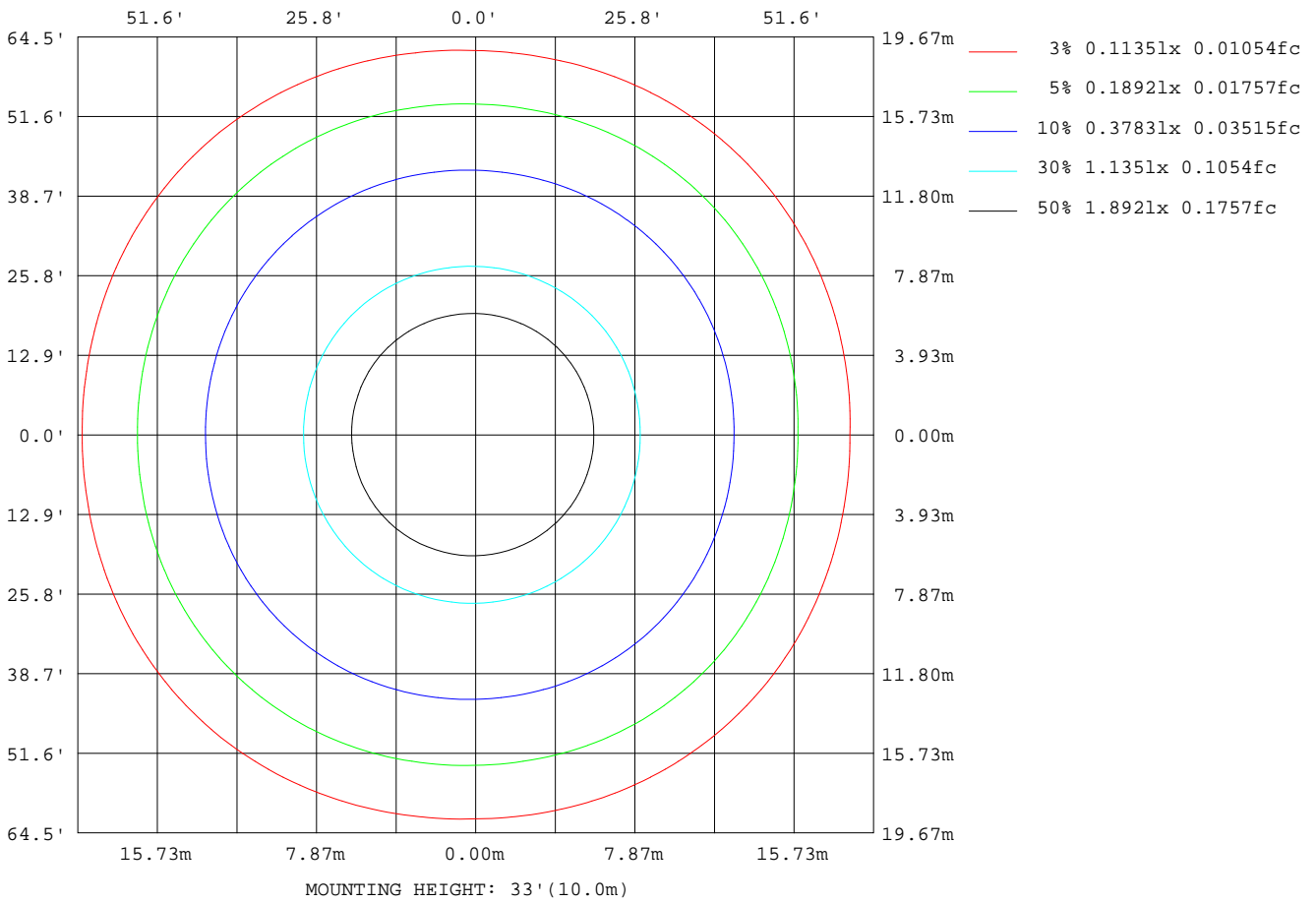
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

$\gamma$  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:

ISOLUX DIAGRAM

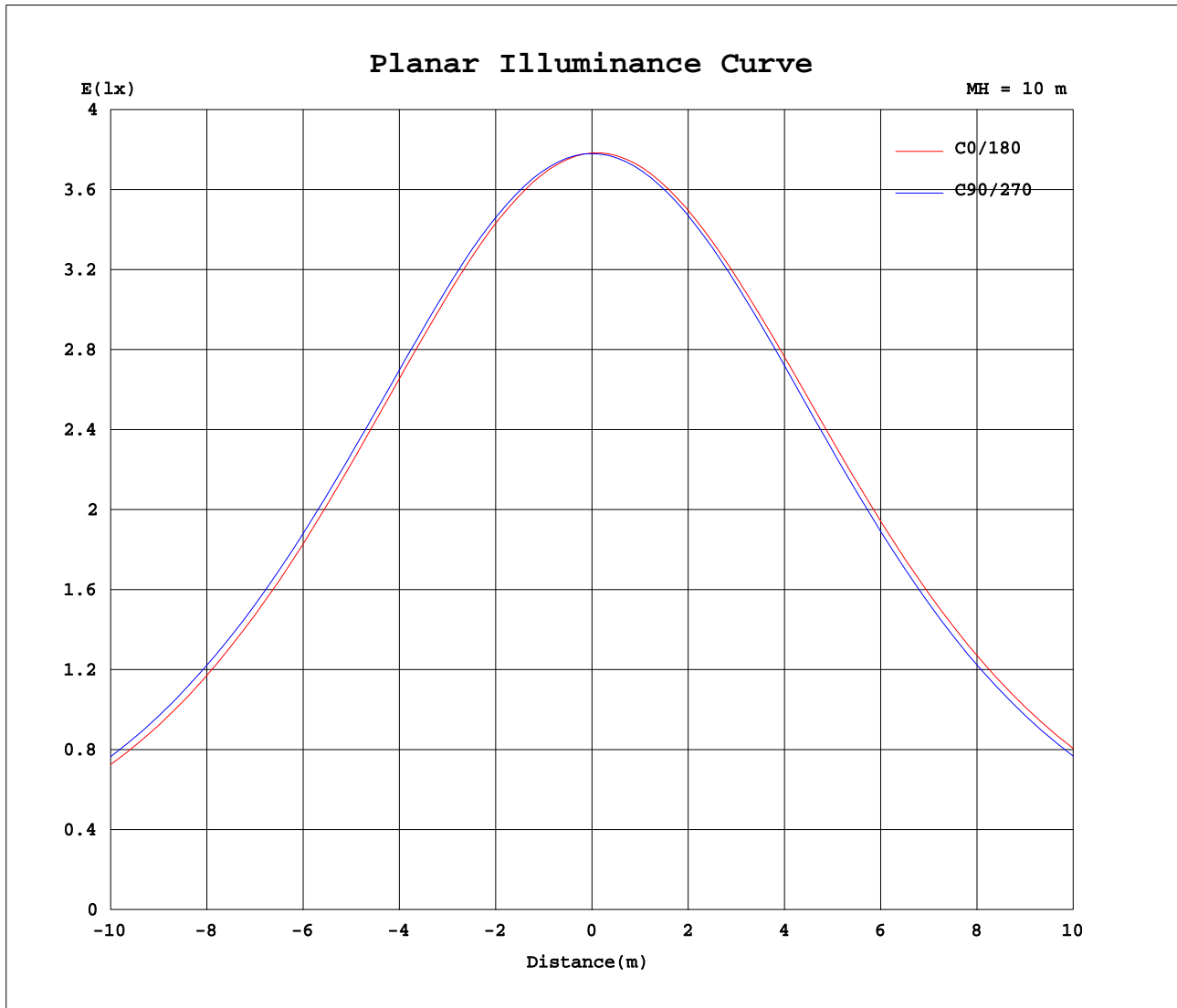
Test:U:120.0V I:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome	TYPE: NSM-12F-SN or PC	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	PROTECTION ANGLE:



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

$\gamma$  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:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome-12F-SN or PC	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	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	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378
5	375	374	374	374	374	374	375	375	375	376	376	376	376	376	377	377	377	377	378
10	367	366	366	366	367	367	367	368	369	369	370	370	371	371	371	371	372	372	373
15	354	355	354	355	355	356	356	357	358	359	360	360	361	361	362	362	363	363	364
20	338	339	338	339	340	340	341	342	343	343	345	345	347	348	348	349	349	350	351
25	319	319	319	320	321	321	322	323	324	325	326	327	329	330	331	332	332	333	334
30	295	295	295	296	297	298	299	300	301	303	304	305	307	309	310	311	311	312	313
35	268	268	268	270	271	272	273	274	276	277	279	280	282	284	285	286	287	287	287
40	237	238	239	240	242	244	245	246	247	249	250	252	254	256	258	258	259	259	259
45	205	206	207	209	211	212	214	215	215	216	219	222	224	226	228	228	228	228	228
50	173	174	175	177	179	181	182	183	183	185	187	190	193	195	196	197	196	196	196
55	143	143	145	147	150	151	152	152	152	154	156	159	162	164	166	166	165	164	164
60	114	115	117	119	122	124	124	124	123	124	127	130	133	136	137	137	136	135	135
65	89.2	89.9	91.9	94.4	96.5	97.8	98.3	98.3	97.8	97.9	100	104	107	109	110	110	109	107	107
70	69.6	70.1	71.9	73.6	75.1	76.1	76.7	76.9	76.7	76.7	78.7	81.2	83.5	85.4	86.2	86.1	85.3	83.9	82.8
75	51.5	52.4	54.4	56.5	58.2	59.2	59.5	59.0	58.4	58.3	60.3	62.9	65.5	67.3	68.0	67.5	66.4	65.1	64.5
80	34.5	35.6	37.7	39.8	41.4	42.3	42.6	42.1	41.2	40.7	43.0	45.9	48.4	50.2	50.9	50.6	49.5	47.7	46.5
85	15.3	16.9	19.2	21.2	22.8	23.9	24.1	23.9	23.2	23.0	25.2	28.1	30.7	32.4	33.1	33.0	32.0	30.4	29.0
90	4.86	4.97	5.65	6.01	6.23	6.18	5.84	5.23	4.05	2.96	4.67	7.27	9.58	11.3	12.4	13.0	12.8	11.6	10.6
95	6.82	7.22	8.13	8.85	9.27	9.18	8.64	7.73	6.60	5.82	6.10	6.81	7.32	7.56	7.34	6.93	6.26	5.46	4.98
100	7.76	7.98	8.86	9.82	10.2	10.2	9.82	8.71	7.80	7.09	7.42	8.36	9.17	9.81	9.74	9.24	8.33	7.26	6.51
105	7.63	7.79	8.56	9.30	9.74	9.71	9.34	8.53	7.57	7.34	7.52	8.36	9.14	9.60	9.63	9.24	8.45	7.32	6.87
110	7.17	7.15	7.84	8.49	8.89	8.84	8.47	7.76	7.07	6.96	6.92	7.71	8.43	8.85	8.85	8.51	7.79	6.99	6.33
115	6.55	6.53	7.01	7.60	7.92	7.89	7.54	6.96	6.41	6.40	6.45	6.90	7.54	7.92	7.94	7.60	7.00	6.27	5.93
120	6.01	5.83	6.07	6.61	6.91	6.86	6.59	6.05	5.77	5.84	5.70	5.99	6.58	6.93	6.94	6.65	6.13	5.67	5.48
125	5.26	5.14	5.20	5.63	5.91	5.86	5.59	5.18	5.11	5.13	5.12	5.20	5.59	5.89	5.93	5.68	5.25	5.02	4.71
130	4.52	4.48	4.35	4.64	4.86	4.81	4.63	4.38	4.43	4.52	4.39	4.44	4.64	4.90	4.92	4.71	4.38	4.34	4.00
135	3.92	3.79	3.57	3.71	3.89	3.86	3.70	3.63	3.80	3.87	3.85	3.75	3.79	3.93	3.95	3.78	3.57	3.68	3.55
140	3.23	3.09	2.94	2.87	2.97	2.95	2.91	2.99	3.22	3.31	3.19	3.07	3.04	3.04	3.05	2.93	2.87	3.08	2.97
145	2.55	2.53	2.36	2.15	2.13	2.17	2.27	2.41	2.63	2.69	2.63	2.51	2.40	2.31	2.21	2.17	2.31	2.48	2.38
150	1.97	1.94	1.82	1.63	1.53	1.61	1.71	1.90	2.09	2.15	2.11	1.97	1.84	1.72	1.61	1.65	1.84	2.00	1.87
155	1.43	1.41	1.33	1.22	1.14	1.12	1.20	1.38	1.55	1.59	1.53	1.43	1.28	1.18	1.18	1.26	1.42	1.51	1.27
160	1.14	1.08	1.08	1.04	1.01	0.97	0.95	1.03	1.12	1.14	1.08	1.06	0.97	1.01	1.03	1.08	1.14	1.20	1.14
165	0.95	0.93	0.97	0.95	0.99	0.94	0.91	0.93	0.99	0.95	0.95	0.96	0.94	0.96	0.95	0.97	0.99	1.01	1.12
170	1.02	0.90	0.92	1.02	1.04	0.99	0.91	0.94	0.95	1.01	1.00	1.00	0.96	0.98	0.97	1.02	0.97	1.05	1.22
175	1.12	1.12	1.16	1.20	1.16	1.16	1.14	1.14	1.12	1.12	1.06	1.12	1.12	1.20	1.12	1.20	1.08	1.16	1.20
180	1.18	1.14	1.14	1.18	1.16	1.16	1.18	1.16	1.14	1.16	1.14	1.14	1.12	1.18	1.14	1.18	1.20	1.28	1.20

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:0.1737A P:20.76W PF:0.9956 Lamp Flux:995.965x1 lm		
NAME: Nano,12"Surface Mount,Satin Nicke or Polished Chrome-12F-SN or PC	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: Blackjack Lighting	SUR.:0.29*0.29	PROTECTION ANGLE:

Table--2

UNIT: cd

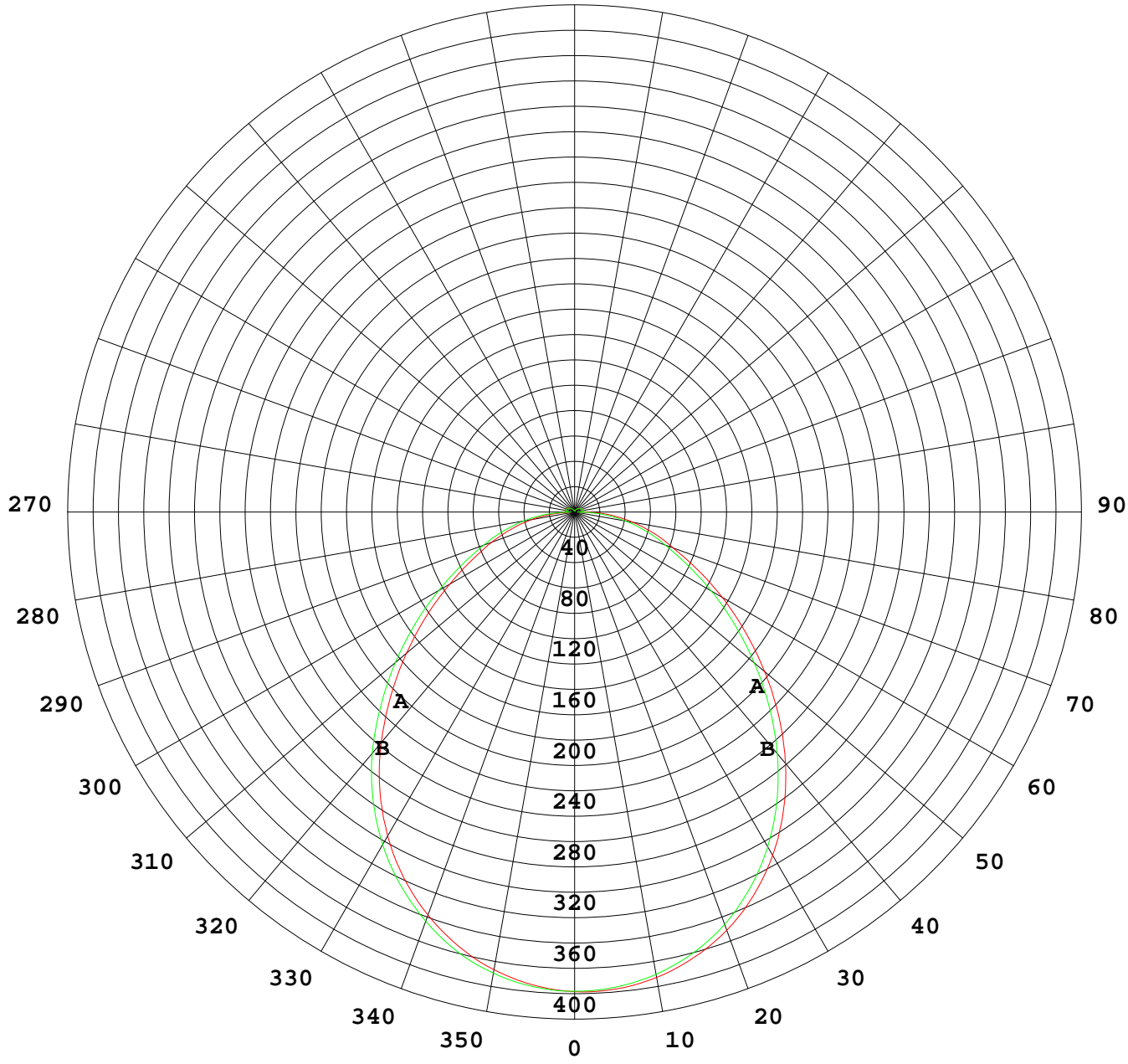
C(DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378		
5	378	378	377	377	377	377	377	377	376	376	375	375	375	374	374	374	374		
10	373	373	373	372	372	372	371	371	370	370	369	368	368	367	367	366	366		
15	364	364	363	363	363	362	361	361	360	359	358	357	357	356	355	354	354		
20	351	351	351	350	350	349	348	347	346	345	343	343	342	341	340	339	339		
25	334	334	334	333	332	331	330	328	327	326	324	323	322	321	320	319	319		
30	313	313	313	313	311	310	308	306	305	303	302	300	300	298	297	296	295		
35	288	288	289	288	287	285	283	281	278	277	275	274	273	272	271	269	268		
40	260	260	261	260	259	257	254	251	249	247	246	245	244	243	241	239	238		
45	229	230	230	230	228	226	223	220	217	216	214	214	213	211	210	208	206		
50	197	198	198	198	197	194	191	188	185	183	182	182	181	180	178	177	174		
55	165	166	167	167	165	163	160	157	154	152	152	152	151	150	149	147	144		
60	136	137	138	138	137	135	131	127	125	124	124	125	124	123	121	118	116		
65	108	109	111	111	110	107	104	100	97.7	97.2	97.9	98.4	98.1	97.0	95.2	93.0	90.4		
70	83.7	85.3	86.1	86.1	85.3	83.3	81.1	78.3	76.1	75.9	76.5	76.4	75.9	75.1	74.1	72.8	71.1		
75	65.4	66.5	67.3	67.6	67.2	65.7	63.2	60.5	58.3	58.1	58.6	59.2	59.0	58.3	56.9	55.0	53.1		
80	47.8	49.3	50.4	50.6	50.1	48.6	46.1	43.2	40.6	40.7	41.6	42.1	42.1	41.3	39.9	38.0	35.8		
85	30.1	31.6	32.7	33.1	32.4	30.7	28.3	25.3	22.6	22.7	23.4	23.6	23.4	22.6	21.2	19.6	17.3		
90	11.6	12.7	13.0	12.5	11.3	9.52	7.25	4.50	2.57	3.61	4.81	5.57	5.99	6.18	6.16	5.93	5.34		
95	5.39	6.08	6.71	7.18	7.48	7.40	6.96	6.19	5.77	6.43	7.53	8.48	9.09	9.25	9.00	8.30	7.36		
100	7.02	8.10	9.04	9.50	9.61	8.91	8.51	7.53	7.13	7.46	8.52	9.47	10.1	10.1	9.80	9.12	8.18		
105	7.12	7.93	8.71	9.19	9.25	8.87	8.23	7.35	6.97	7.07	7.94	8.83	9.40	9.48	9.16	8.54	7.64		
110	6.61	7.34	8.02	8.51	8.54	8.16	7.40	6.48	6.47	6.53	7.32	8.05	8.56	8.63	8.40	7.73	6.95		
115	6.01	6.68	7.28	7.64	7.63	7.30	6.65	6.06	6.07	6.03	6.51	7.13	7.60	7.69	7.46	6.86	6.33		
120	5.35	5.75	6.35	6.67	6.70	6.35	5.79	5.46	5.47	5.45	5.62	6.22	6.63	6.72	6.49	6.00	5.57		
125	4.75	4.90	5.44	5.74	5.77	5.46	4.96	4.78	4.83	4.81	4.82	5.27	5.64	5.75	5.52	5.11	4.86		
130	4.05	4.15	4.52	4.81	4.82	4.55	4.24	4.21	4.23	4.23	4.18	4.38	4.68	4.80	4.57	4.24	4.22		
135	3.46	3.40	3.67	3.90	3.93	3.72	3.60	3.58	3.69	3.61	3.59	3.61	3.81	3.92	3.70	3.54	3.62		
140	2.97	2.78	2.86	3.03	3.06	2.98	2.96	3.04	3.11	3.07	2.97	2.97	2.95	2.96	2.84	2.82	2.96		
145	2.39	2.33	2.18	2.26	2.37	2.38	2.40	2.51	2.68	2.58	2.41	2.37	2.18	2.11	2.11	2.21	2.38		
150	1.85	1.80	1.76	1.62	1.72	1.80	1.86	2.03	2.03	2.03	1.99	1.78	1.59	1.47	1.55	1.76	1.80		
155	1.43	1.35	1.22	1.25	1.18	1.18	1.29	1.46	1.47	1.47	1.45	1.22	1.14	1.11	1.12	1.18	1.22		
160	1.12	1.13	1.15	1.10	1.06	1.09	1.09	1.16	1.12	1.02	1.14	1.10	1.10	1.04	1.07	1.10	1.14		
165	1.13	1.10	1.13	1.07	1.13	1.03	1.01	1.10	0.99	1.02	1.04	1.06	1.14	1.07	1.10	1.11	1.11		
170	1.15	1.21	1.17	1.13	1.21	1.14	1.20	1.18	1.15	1.21	1.17	1.12	1.16	1.20	1.13	1.23	1.13		
175	1.16	1.17	1.20	1.20	1.19	1.16	1.18	1.17	1.15	1.19	1.17	1.17	1.15	1.19	1.15	1.19	1.17		
180	1.14	1.18	1.14	1.18	1.16	1.16	1.18	1.16	1.14	1.18	1.16	1.14	1.12	1.18	1.14	1.18	1.18		

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:

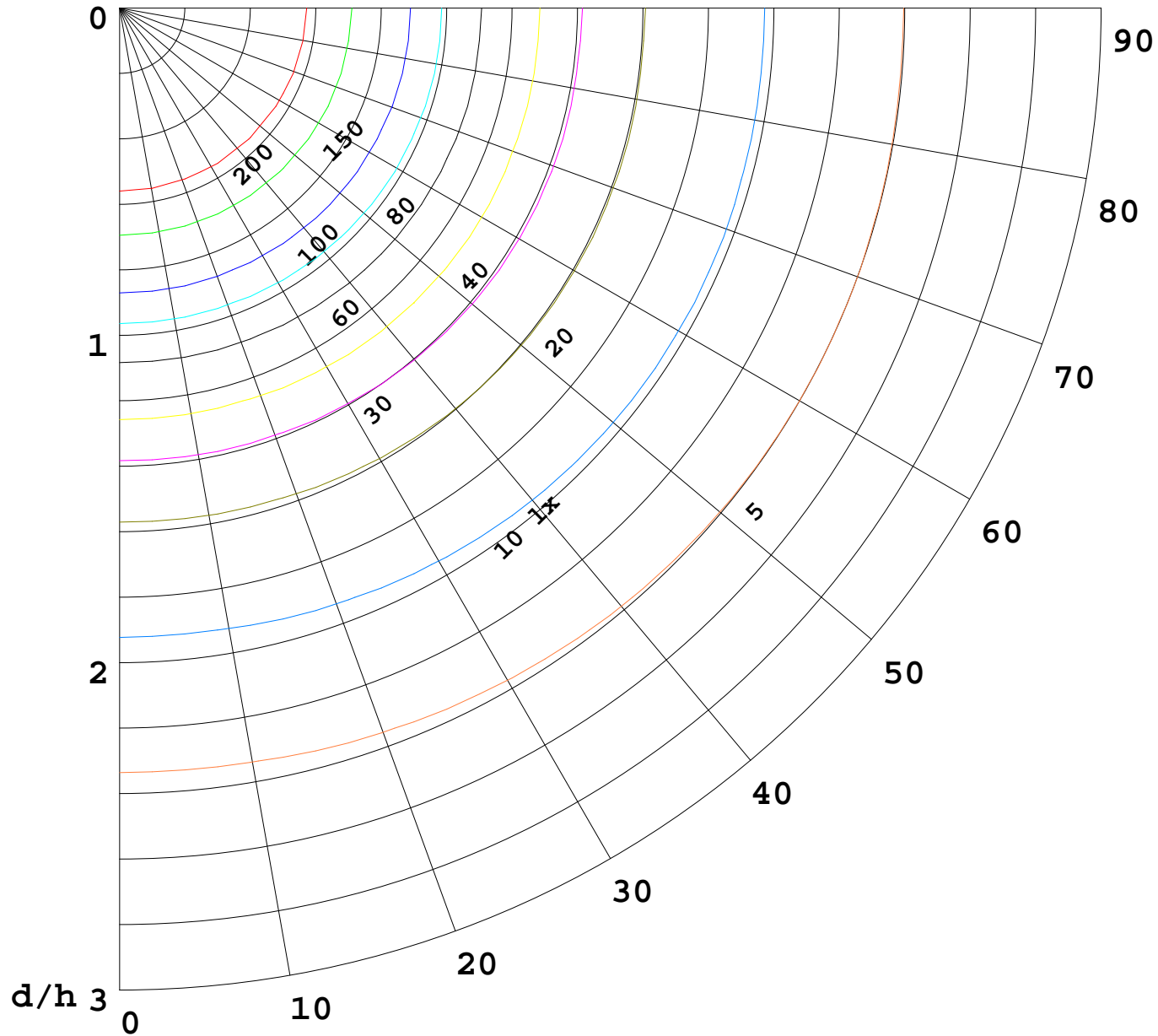


I (cd)



1000 lm

$K = 1$



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

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

