



IESNA LM-79 TEST REPORT

Applicant's name	BlackJack Lighting LLC
Address	1547 Barclay Blvd. Buffalo Grove, IL 60089
Brand Name	Blackjack Lighting
Report No.	BTR66.181.19.0007.14
Product Name	48" Kona Pendant - White or Black
Model Number	KNA-48P-WH-27U-30K;KNA-48P-BL-27U-30K

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	Aug 26, 2019	

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

Test specification	
Standard	IESNA LM-79
Test procedure/method	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

Note:
The laboratory has not been responsible for the sampling stage (e.g. the sample has been provided by the customer), the results relate only to the items tested.
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Description:	
The date of sampling	Aug 13, 2019
The date of receipt of the test sample / requirement /item(s).....	Aug 13, 2019
Test date.....	Aug 13, 2019 to Aug 22, 2019
Description	48" Kona Pendant - White or Black
The condition of the item	N/A
Sampling method.....	Provided by the customer
Sample Quantity	1 unit
SKU.....	N/A
Rating(s) (V; Hz)	AC 120V, 60Hz
Nominal Power.....	20W
Nominal Power Factor	N/A
Nominal Lumen Output.....	452lm
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	1.5H
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	3.1%
Deviation	None

Note: These models are all the same except for color. Here we choose KNA-48P-WH-27U-30K to be tested and the other to share the test data.

Photometric and Electrical Measurement

Total light output (luminous flux) for the 25°C ±1°C ambient temperature conditions was measured using a ø2.0m 4π geometry integrating sphere. Temperature was measured at a position inside the sphere. Spectral radiant flux were measured using the photo detector built in the integrating sphere. Each lamp was operated at rated voltage in its designated orientation. Each lamp was in a stable state before measurements are done as below:

- Step 1 Take 3 measurements of the lamp light output at 15 minute interval (total time=30mintues.), the pre-burning time is not included in the formal testing time period.
- Step 2 Calculate the difference in percentage between the maximum measured value and the minimum measured value with 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 were calculated from the spectral radiant flux measurements taken at 2 nm increment over the range of 380 to 780 nm. The calibration of the sphere photometer-spectrometer system can be traced back to the NIST USA. Lamp efficacy (lumens per watt) for each lamp model was computed based on the luminous flux result revised taking the self-absorbing correction factor into consideration. Electrical measurements including voltage, current, power and power factor were measured using the digital power meter.

The total uncertainty of the light output measurements is estimated, at the 95% confidence level, not to exceed ±3.1% over the wavelength range of 380-780 nm.

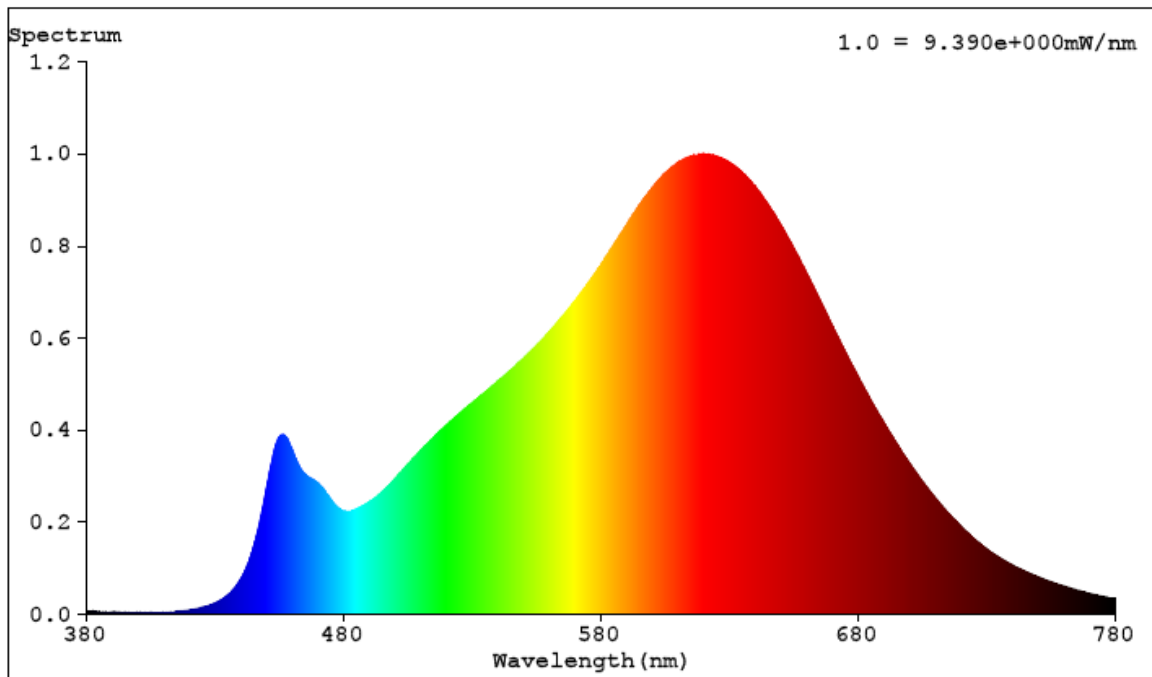
Luminous Intensity

An Everfine GOR-5000 Goniophotometer was used to measure the intensity distribution at each angle, Luminous intensity (cd) was measured within each vertical plane at a 5° vertical angle increment (maximum) from 0° to 360°, measurements were repeated in vertical planes about the lamp (polar) axis in an increments of 22.5° from 0° to 180°, and the intensity data were exported to a file in excel format.

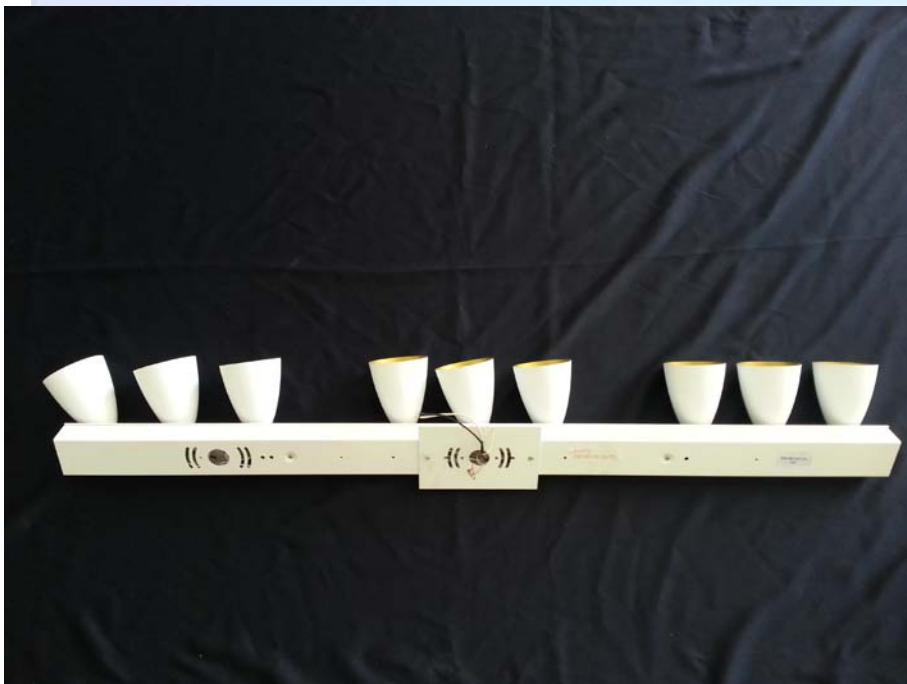
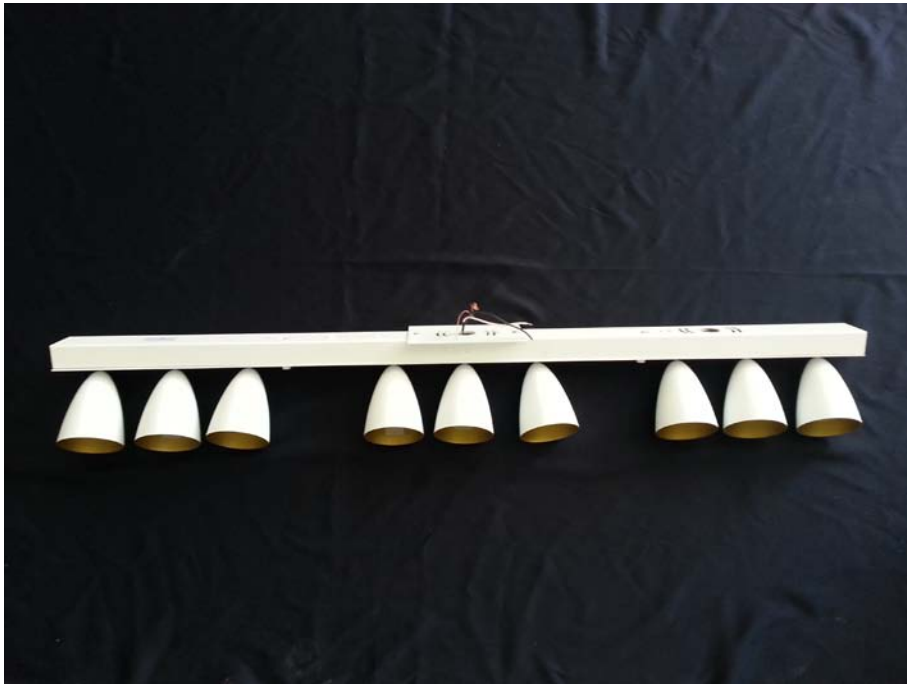
Photometric and Electrical Test Data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency (Lumen/W)
120	60.0	0.1707	/	19.87	0.9699	452.06	22.75
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
2683	91.3	52	0.4608	0.4100	0.2633	0.5273	-0.0003

Spectral Plots




EUT Photo



Annex

Please see the next page for the luminous intensity test data

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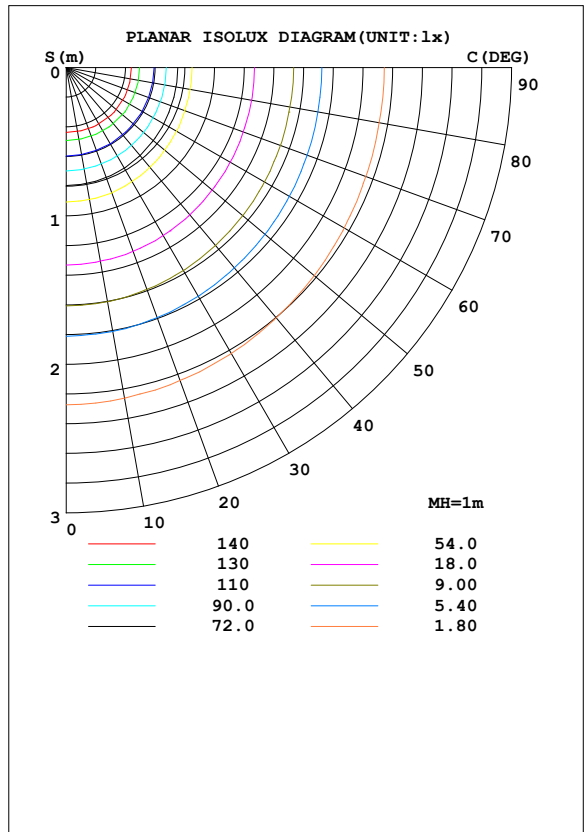
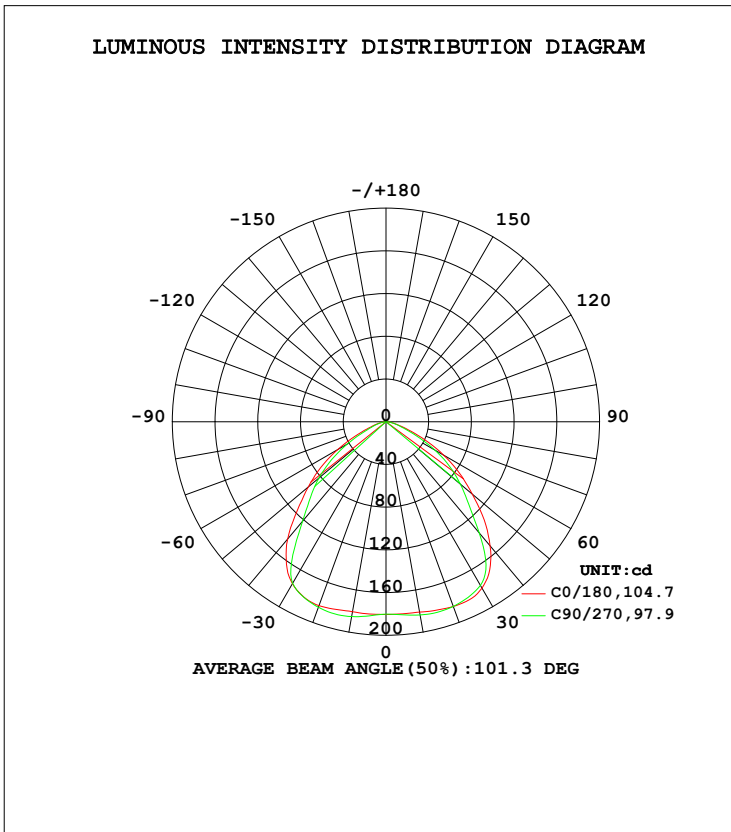


BEST

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 22.75 lm/W			
MODEL	KNA-48P-WH-27U-30K	I _{max} (cd)	186.3	S/MH (C0/180)	1.43
NOMINAL POWER (W)	20	LOR (%)	100.0	S/MH (C90/270)	1.34
RATED VOLTAGE (V)	120	TOTAL FLUX (lm)	452.06	η UP, DN (C0-180)	0.0, 48.4
NOMINAL FLUX (lm)	452	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 51.6
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120	η down (%)	100.0	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Mark
 Test Date: 15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity: 59.2%
 Test Distance: 2.463m [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	180.6	183.5	185.3	184.0	181.0	182.9	183.7	182.1	0- 10	17.35	17.35	3.84,3.84
20	183.2	184.7	184.9	185.6	184.1	184.5	184.0	184.1	10- 20	52.19	69.54	15.4,15.4
30	175.2	174.4	174.8	176.3	179.8	177.6	176.9	176.7	20- 30	83.98	153.5	34,34
40	143.3	132.0	121.6	135.0	151.7	145.3	135.6	142.3	30- 40	100.2	253.7	56.1,56.1
50	95.00	87.05	81.81	89.51	105.4	96.80	90.78	95.01	40- 50	88.04	341.7	75.6,75.6
60	52.47	45.85	41.88	48.51	61.88	57.39	52.47	54.75	50- 60	64.85	406.6	89.9,89.9
70	17.29	14.86	13.61	15.85	22.36	20.02	17.77	19.01	60- 70	32.24	438.8	97.1,97.1
80	4.524	4.017	3.765	4.391	6.236	5.779	5.295	5.449	70- 80	10.80	449.6	99.5,99.5
90	0	0.0010	0.0016	0.0170	0.2284	0.3255	0.3122	0.2487	80- 90	2.242	451.9	100,100
100	0	0	0	0	0	0	0	0	90-100	0.0103	451.9	100,100
110	0	0	0	0	0	0	0	0	100-110	0	451.9	100,100
120	0.0083	0.0104	0.0128	0.0103	0	0.0007	0	0.0001	110-120	0.0014	451.9	100,100
130	0.0385	0.0391	0.0394	0.0419	0.0234	0.0244	0.0219	0.0239	120-130	0.0153	451.9	100,100
140	0.0744	0.0760	0.0785	0.0767	0.0479	0.0471	0.0479	0.0478	130-140	0.0362	451.9	100,100
150	0.1066	0.1051	0.1076	0.1059	0.0613	0.0583	0.0604	0.0599	140-150	0.0456	452.0	100,100
160	0.1166	0.1226	0.1254	0.1231	0.0715	0.0668	0.0709	0.0707	150-160	0.0413	452.0	100,100
170	0.1187	0.1227	0.1267	0.1228	0.0888	0.0854	0.0873	0.0881	160-170	0.0283	452.1	100,100
180	0.1168	0.1170	0.1270	0.1203	0.1160	0.1149	0.1226	0.1208	170-180	0.0106	452.1	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 300.2 lm

%lum = 66.4%
 %lamp = 66.4%

Conical surface Flux(120deg): 406.6 lm

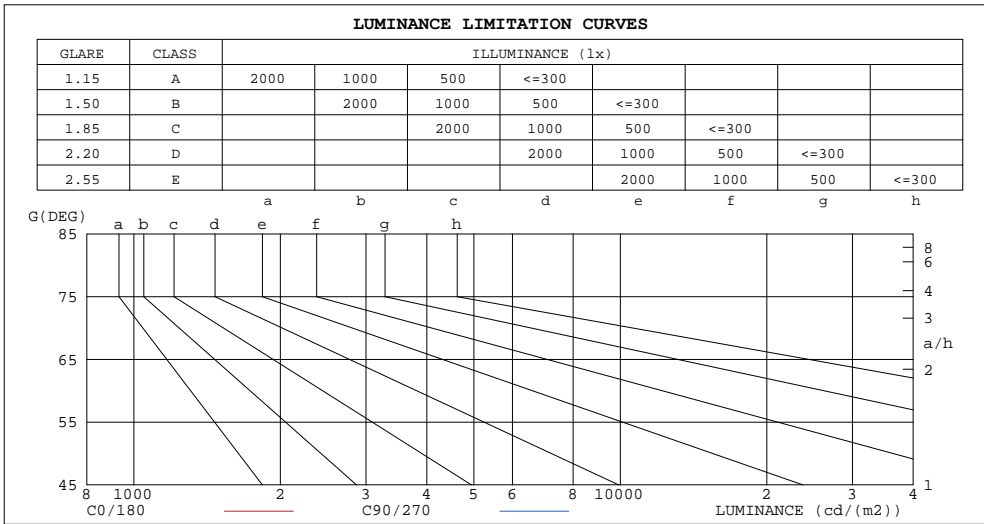
%lum = 89.9%
 %lamp = 89.9%

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	16	15
80	26	22
75	37	30
70	51	40
65	76	56
60	105	84
55	130	109
50	148	127
45	166	141

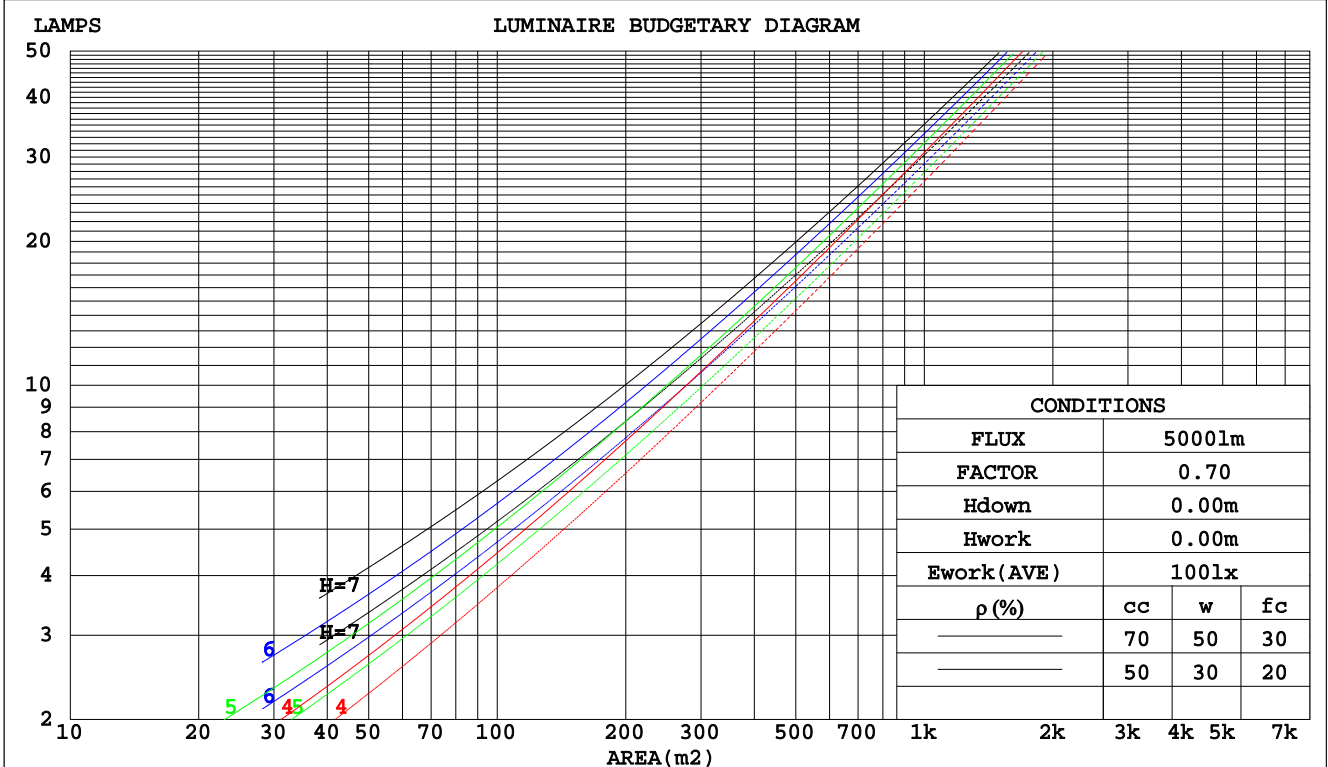
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 Humidity:59.2%
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 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding 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	1.07	1.03	.00	1.04	1.01	.98	1.00	.98	.95	.96	.94	.92	.93	.91	.90	.88
2.0	.95	.89	.84	.93	.88	.83	.90	.85	.81	.87	.83	.80	.84	.81	.78	.76
3.0	.85	.78	.72	.83	.77	.71	.80	.75	.70	.78	.73	.69	.75	.71	.68	.66
4.0	.76	.68	.62	.75	.67	.62	.72	.66	.61	.70	.65	.60	.68	.63	.59	.57
5.0	.68	.60	.54	.67	.60	.54	.65	.59	.53	.63	.57	.53	.62	.56	.52	.50
6.0	.62	.54	.48	.61	.53	.48	.59	.52	.47	.58	.52	.47	.56	.51	.46	.45
7.0	.56	.48	.43	.56	.48	.42	.54	.47	.42	.53	.47	.42	.52	.46	.42	.40
8.0	.52	.44	.38	.51	.43	.38	.50	.43	.38	.49	.42	.38	.47	.42	.37	.36
9.0	.48	.40	.35	.47	.40	.34	.46	.39	.34	.45	.39	.34	.44	.38	.34	.32
10.0	.44	.36	.31	.43	.36	.31	.42	.36	.31	.42	.35	.31	.41	.35	.31	.29



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	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 Coefficients(WEC)									
0.0																
1.0	.255	.145	.046	.248	.142	.045	.235	.135	.043	.223	.129	.041	.212	.123	.040	
2.0	.248	.136	.042	.242	.133	.041	.231	.128	.040	.220	.124	.039	.211	.119	.038	
3.0	.235	.125	.038	.230	.123	.037	.220	.119	.036	.211	.116	.035	.202	.112	.035	
4.0	.222	.115	.034	.217	.114	.034	.208	.110	.033	.200	.107	.032	.192	.105	.032	
5.0	.208	.106	.031	.204	.105	.031	.196	.102	.030	.189	.100	.030	.182	.097	.029	
6.0	.196	.098	.028	.192	.097	.028	.185	.095	.028	.179	.093	.027	.172	.091	.027	
7.0	.184	.091	.026	.181	.090	.026	.175	.088	.025	.169	.087	.025	.163	.085	.025	
8.0	.174	.085	.024	.171	.084	.024	.165	.082	.024	.160	.081	.023	.155	.079	.023	
9.0	.164	.079	.022	.161	.079	.022	.156	.077	.022	.151	.076	.022	.147	.075	.022	
10.0	.155	.074	.021	.153	.074	.021	.148	.073	.020	.144	.071	.020	.140	.070	.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	.191	.191	.191	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.177	.157	.139	.151	.135	.120	.103	.093	.083	.060	.054	.048	.019	.017	.016	
2.0	.167	.132	.104	.143	.114	.090	.098	.079	.062	.056	.046	.037	.018	.015	.012	
3.0	.158	.114	.080	.136	.099	.069	.093	.069	.048	.054	.040	.029	.017	.013	.009	
4.0	.150	.101	.063	.129	.087	.055	.089	.061	.038	.051	.036	.023	.017	.012	.007	
5.0	.143	.090	.051	.123	.078	.044	.085	.054	.031	.049	.032	.019	.016	.010	.006	
6.0	.137	.082	.042	.117	.071	.037	.081	.049	.026	.047	.029	.015	.015	.010	.005	
7.0	.130	.075	.036	.112	.065	.031	.077	.045	.022	.045	.027	.013	.015	.009	.004	
8.0	.124	.069	.031	.107	.060	.027	.074	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.119	.064	.027	.102	.055	.023	.071	.039	.017	.041	.023	.010	.013	.008	.003	
10.0	.113	.060	.024	.098	.052	.021	.068	.036	.015	.040	.022	.009	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 10.0DEG
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 Operators:Mark
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γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	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	5.2	6.5	5.4	6.7	6.9	4.3	5.7	4.6	5.9	6.1
3H	5.5	6.8	5.8	7.0	7.2	4.5	5.8	4.8	6.0	6.3
4H	5.6	6.7	5.9	7.0	7.2	4.6	5.8	4.9	6.0	6.3
6H	5.5	6.7	5.9	6.9	7.2	4.6	5.7	4.9	5.9	6.2
8H	5.5	6.6	5.9	6.9	7.2	4.5	5.6	4.9	5.9	6.2
12H	5.5	6.5	5.8	6.8	7.1	4.5	5.5	4.8	5.8	6.1
4H 2H	5.3	6.5	5.6	6.7	7.0	4.5	5.7	4.8	6.0	6.2
3H	5.7	6.7	6.0	7.0	7.3	4.9	5.9	5.2	6.2	6.5
4H	5.8	6.7	6.2	7.1	7.4	4.9	5.9	5.3	6.2	6.5
6H	5.8	6.7	6.2	7.0	7.4	5.0	5.8	5.3	6.1	6.5
8H	5.8	6.6	6.2	7.0	7.3	4.9	5.7	5.4	6.1	6.4
12H	5.8	6.5	6.2	6.9	7.3	4.9	5.6	5.3	6.0	6.4
8H 4H	5.8	6.5	6.2	6.9	7.3	4.9	5.7	5.3	6.0	6.4
6H	5.8	6.5	6.3	6.9	7.3	5.0	5.6	5.4	6.0	6.4
8H	5.8	6.4	6.3	6.8	7.3	5.0	5.5	5.4	6.0	6.4
12H	5.8	6.3	6.3	6.7	7.2	5.0	5.4	5.5	5.9	6.4
12H 4H	5.7	6.4	6.1	6.8	7.2	4.9	5.6	5.3	6.0	6.4
6H	5.8	6.4	6.3	6.8	7.2	5.0	5.5	5.4	5.9	6.4
8H	5.8	6.3	6.3	6.7	7.2	5.0	5.4	5.4	5.9	6.4
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.7					+ 0.6 / - 0.8				
1.5H	+ 0.3 / - 0.7					+ 0.2 / - 0.4				
2.0H	+ 1.2 / - 1.8					+ 1.1 / - 1.9				

CIE Pub.117, 452.1 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = -2.8)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

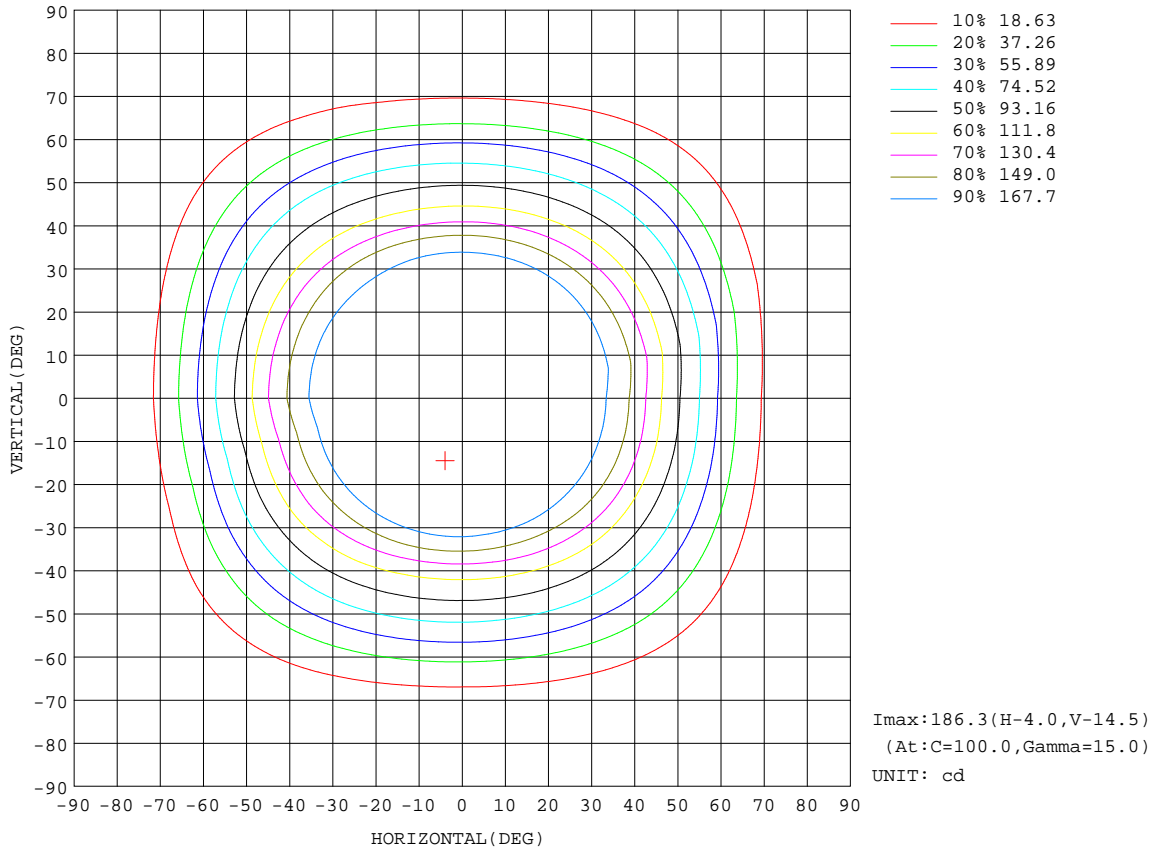
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	64	53	47	63	53	47	62	53	47	41
0.80	74	64	57	73	63	57	71	63	57	51
1.00	83	73	67	81	72	66	79	73	66	60
1.25	89	80	74	88	80	74	85	78	73	67
1.50	94	86	80	92	85	79	90	83	78	72
2.00	100	93	87	98	92	87	95	89	85	78
2.50	103	97	92	101	95	91	97	93	89	81
3.00	106	100	96	104	99	95	100	96	92	85
4.00	109	104	101	107	103	99	103	99	96	88
5.00	111	107	104	108	105	102	104	101	99	90
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:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

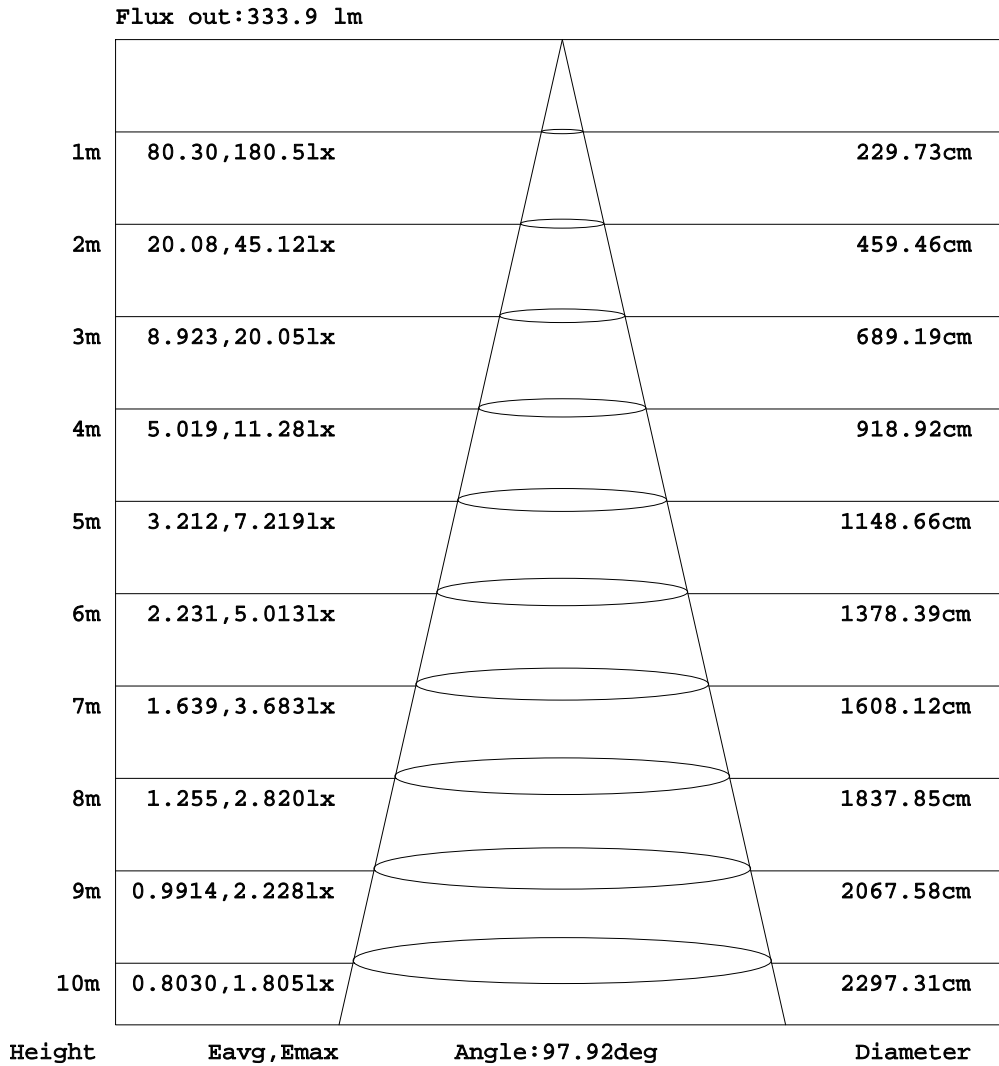


C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

AAI Figure

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:



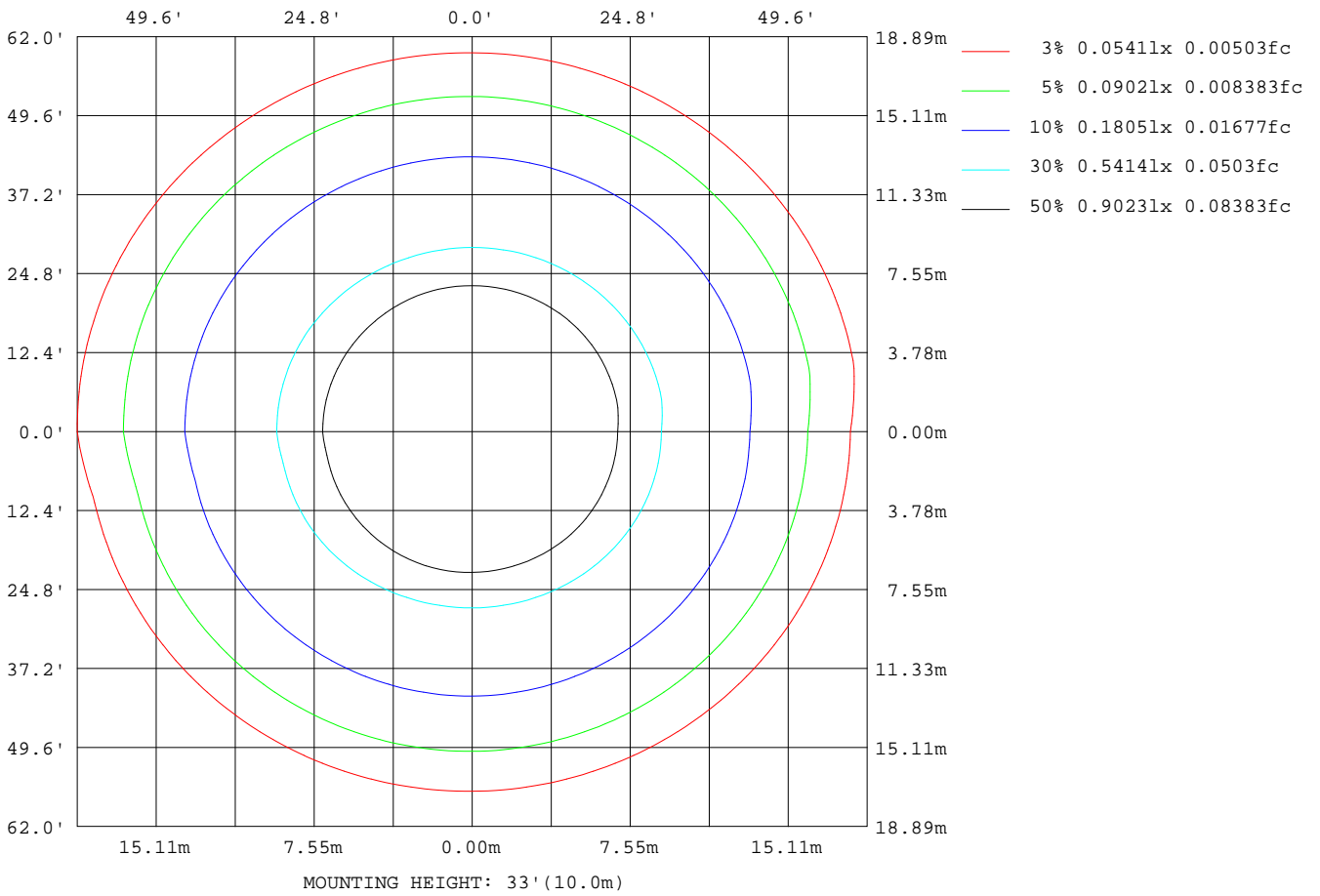
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

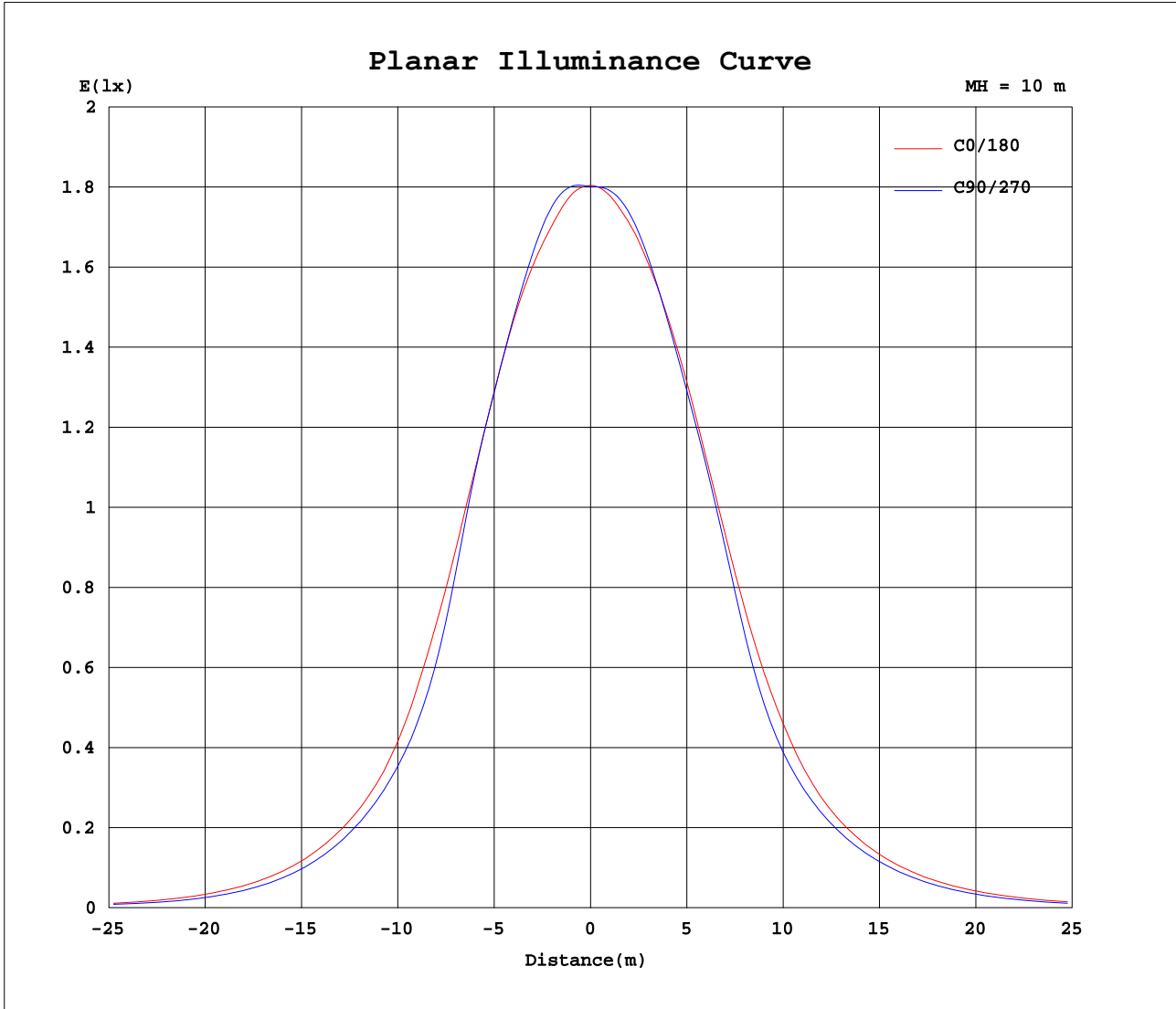
AvgL	cd/m2
L_0~180 (65) av	85
L_0~180 (75) av	42
L_0~180 (85) av	22
L_90~270 (65) av	66
L_90~270 (75) av	34
L_90~270 (85) av	20
L_45 (65) av	74
L_45 (75) av	38
L_45 (85) av	21

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Mark
Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:59.2%
Test Distance:2.463m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding 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	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
5	181	181	181	181	181	182	182	182	182	182	182	182	182	182	181	181	181	180	180
10	181	181	181	182	183	184	184	185	185	185	185	185	185	184	184	183	182	181	181
15	182	182	183	184	184	185	186	186	186	186	186	186	186	186	185	185	184	183	183
20	183	183	184	184	185	185	185	185	185	185	185	185	185	186	186	185	185	184	184
25	181	181	182	182	182	182	182	182	182	182	182	182	182	183	183	183	184	184	184
30	175	175	175	175	174	174	174	175	175	175	174	174	175	176	177	177	178	178	180
35	163	162	161	159	158	156	154	152	152	152	153	155	157	159	161	162	164	165	169
40	143	143	141	138	134	130	127	124	122	122	123	125	129	133	137	141	144	145	152
45	117	116	114	111	108	106	103	101	100	100.0	101	102	105	108	112	117	120	123	130
50	95.0	94.0	92.4	90.5	88.1	85.9	84.1	82.8	82.0	81.8	82.3	83.6	85.5	88.0	91.0	94.1	97.1	99.1	105
55	74.5	73.6	72.0	69.9	67.7	65.8	64.1	63.0	62.3	62.4	63.0	64.3	66.0	68.3	70.8	73.4	75.9	77.6	83.8
60	52.5	51.6	50.3	48.6	46.7	45.0	43.5	42.4	41.9	41.9	42.5	43.6	45.3	47.4	49.6	52.0	54.3	55.9	61.9
65	31.9	31.3	30.1	28.8	27.3	26.0	24.8	23.9	23.6	23.6	24.0	24.8	26.2	27.8	29.7	31.6	33.5	34.9	40.3
70	17.3	16.8	16.3	15.8	15.1	14.6	14.1	13.8	13.6	13.6	13.8	14.1	14.6	15.4	16.3	17.3	18.3	19.0	22.4
75	9.50	9.33	9.05	8.81	8.48	8.13	7.95	7.78	7.69	7.69	7.80	8.00	8.24	8.68	9.06	9.55	10.1	10.4	12.2
80	4.52	4.45	4.34	4.22	4.08	3.95	3.85	3.79	3.76	3.76	3.83	3.93	4.10	4.28	4.50	4.74	4.97	5.12	6.24
85	1.36	1.33	1.31	1.30	1.30	1.28	1.26	1.26	1.26	1.28	1.31	1.36	1.42	1.50	1.58	1.67	1.74	1.79	2.50
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.23
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
125	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
130	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02
135	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04
140	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.05
145	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.06
150	0.11	0.11	0.11	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.06
155	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.12	0.06
160	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.07
165	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.08
170	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.09
175	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.11
180	0.12	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:119.99V I:0.1707A P:19.870W PF:0.9699 Freq:60.00Hz Lamp Flux:452.063x1 lm		
NAME: 48"Kona Pendant	TYPE:KNA-48P-WH-27U-30K	WEIGHT:3.1KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

Table--2

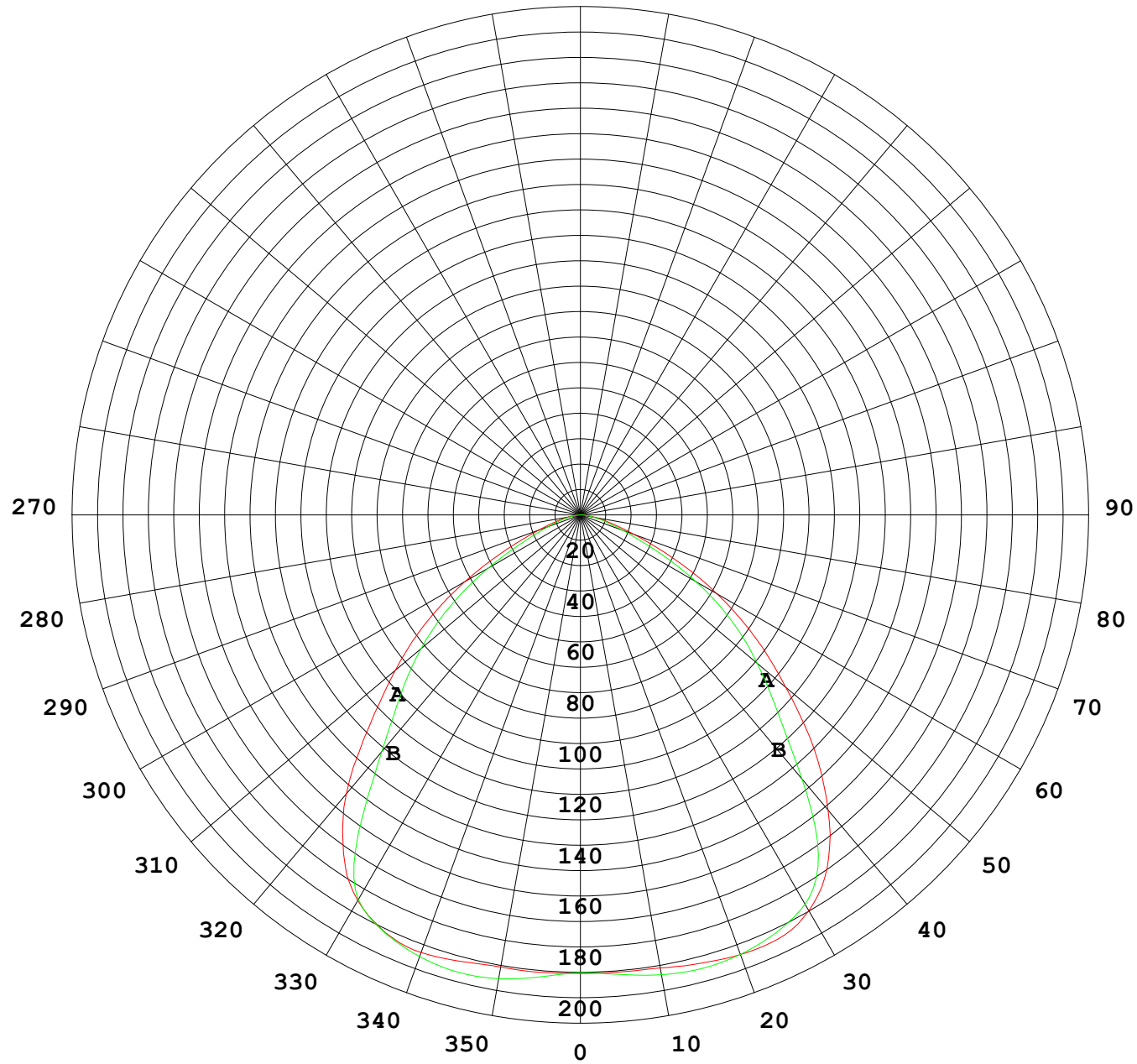
UNIT: cd

C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350			
0	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180			
5	181	181	181	181	181	181	181	181	181	182	181	181	181	181	181	180	180	180		
10	181	182	182	183	183	183	184	184	184	184	183	183	182	182	181	181	180			
15	183	183	184	184	185	185	185	185	185	185	184	184	184	183	183	182	181			
20	184	184	184	185	185	184	184	184	184	184	184	184	184	184	184	183	183			
25	184	184	183	183	182	182	182	182	182	182	182	182	182	183	183	182	182	182		
30	180	179	179	178	177	177	177	177	177	177	177	177	177	177	177	177	177	177		
35	169	168	167	166	165	165	164	164	163	163	164	165	165	166	166	166	166	166		
40	151	150	149	147	144	140	138	136	136	136	138	139	141	143	146	147	148			
45	129	127	124	120	116	113	111	110	110	110	111	113	115	118	120	122	123			
50	105	103	101	98.0	95.6	93.6	92.1	91.2	90.8	91.0	91.6	92.7	94.2	95.9	97.6	98.9	99.6			
55	83.7	82.8	81.2	79.3	77.4	75.7	74.2	73.2	72.6	72.5	72.8	73.5	74.6	76.0	77.4	78.5	79.2			
60	61.9	61.2	60.0	58.3	56.5	55.1	53.8	52.9	52.5	52.5	52.8	53.3	54.2	55.3	56.4	57.1	57.5			
65	40.2	39.5	38.4	36.8	35.4	34.0	33.1	32.3	32.0	32.0	32.2	32.8	33.6	34.5	35.4	36.1	36.4			
70	22.3	21.8	21.0	20.5	19.6	19.2	18.3	17.9	17.8	17.8	18.0	18.3	18.7	19.3	19.8	20.2	20.3			
75	12.2	12.0	11.7	11.3	10.9	10.5	10.3	10.1	10.1	10.1	10.2	10.3	10.5	10.7	10.9	11.0	11.1			
80	6.25	6.18	6.05	5.87	5.69	5.54	5.41	5.33	5.29	5.28	5.30	5.35	5.42	5.48	5.54	5.58	5.57			
85	2.52	2.51	2.48	2.42	2.36	2.31	2.25	2.22	2.20	2.18	2.17	2.17	2.17	2.16	2.14	2.09	2.04			
90	0.24	0.26	0.30	0.32	0.33	0.33	0.33	0.33	0.32	0.31	0.30	0.30	0.28	0.26	0.23	0.19	0.13	0.07		
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
125	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
130	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.03		
135	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04		
140	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05		
145	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.06	0.05	0.06	0.06	0.06	0.06	0.06		
150	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06		
155	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06		
160	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07		
165	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08		
170	0.09	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		
175	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11		
180	0.12	0.11	0.12	0.12	0.11	0.12	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12		

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:15 August 2019

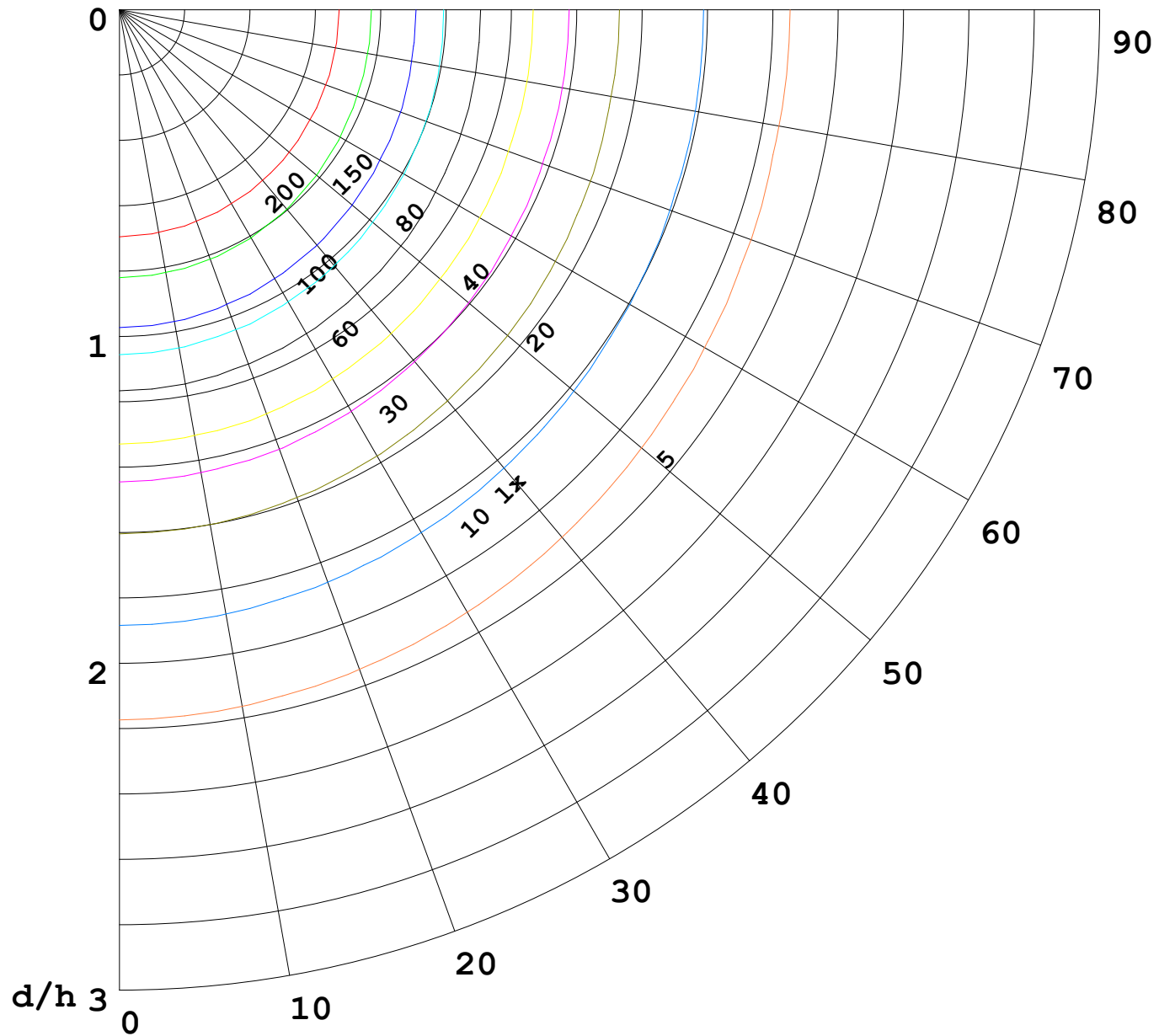
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

I (cd)



1000 lm

$\kappa = 1$



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

