



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......: BTR66.181.19.0008.07

Product Name.....: 12" Glass Sphere Pendant

Model Number: MSSC-12P-PC-12P-30K;MSSS-12P-BL-12P-30K;
MSSF-12P-PC-12P-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 27, 2019

Testing Laboratory Name: BEST Test Service Shenzhen Co., Ltd.

Address: 1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyan, Baoan,
Shenzhen, China
[Tel:+86-755-28236006](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 26, 2019
The date of receipt of the test sample / requirement /item(s).....	Aug 26, 2019
Test date.....	Aug 26, 2019 to Aug 27, 2019
Description	12" Glass Sphere Pendant
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.....	7W
Nominal Power Factor	N/A
Nominal Lumen Output.....	396lm
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:	2.5H
Ambient temperature	24.7°C
Orientation (burning position) of SSL product during test	Lighting Surface Down or Base Up
Stabilization time	1.0H
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 MSSC-12P-PC-12P-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.

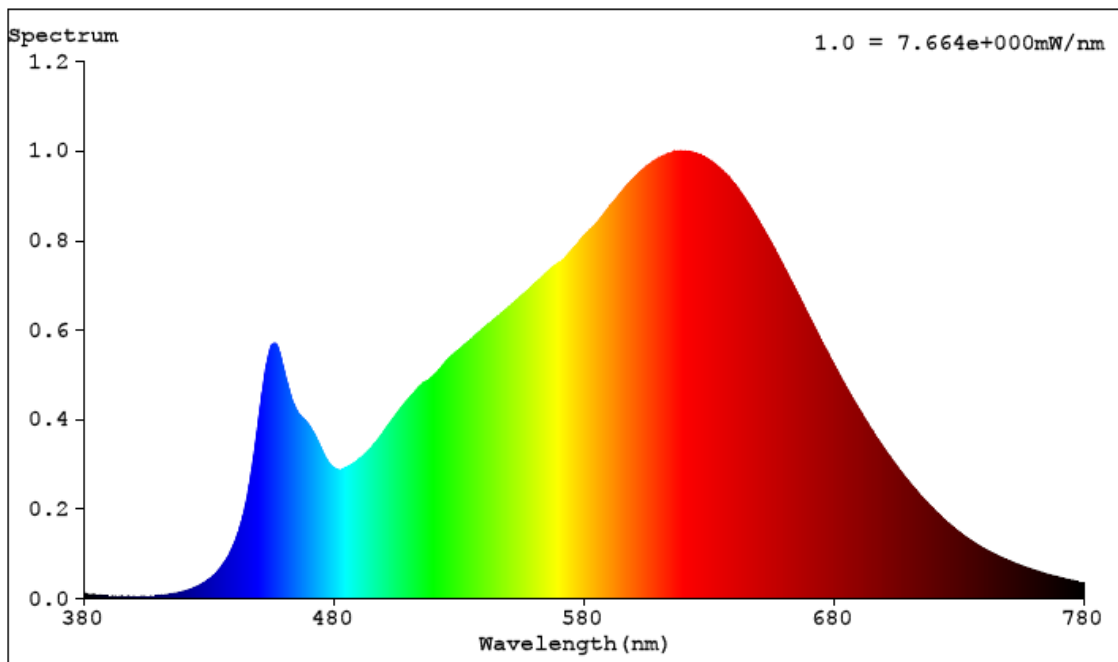
Luminous Intensity

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	0.0715	/	6.87	0.8007	396.67	57.75
CCT (K)	CRI (Ra)	R9	x CIE1931	y CIE1931	u' CIE1976	v' CIE1976	Duv CIE1976
3034	92.7	60	0.4345	0.4031	0.2494	0.5206	-0.00005

Spectral Plots



EUT Photo



Annex

Please see the next page for the luminous intensity test data

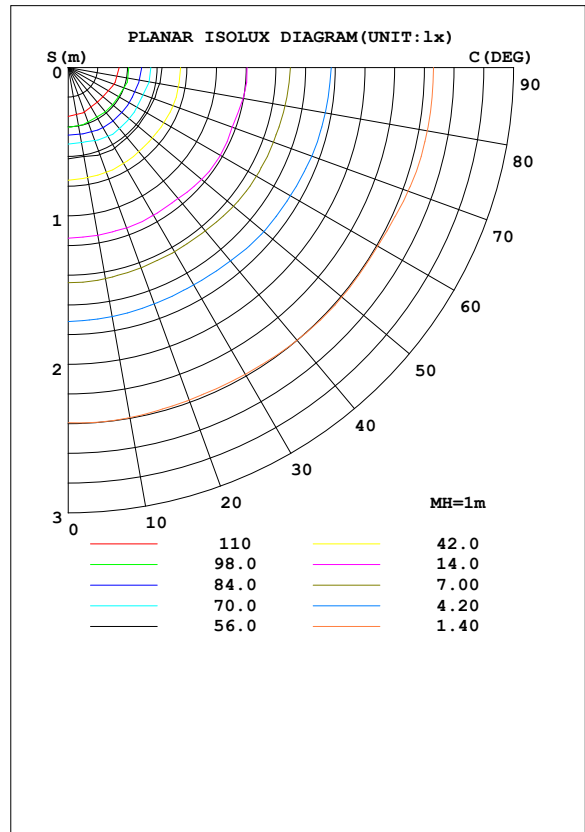
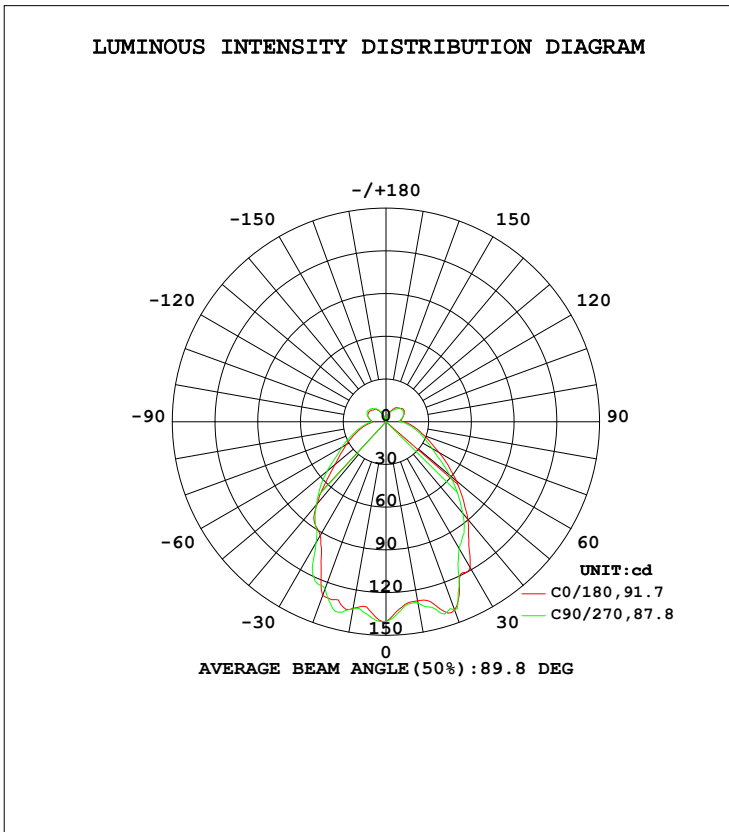
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LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 57.75 lm/W			
MODEL	MSSC-12P-PC-12P-30K	I _{max} (cd)	145.4	S/MH (C0/180)	1.23
NOMINAL POWER (W)	7	LOR (%)	100.0	S/MH (C90/270)	1.11
RATED VOLTAGE (V)	120	TOTAL FLUX (lm)	396.67	η UP, DN (C0-180)	9.2, 39.4
NOMINAL FLUX (lm)	396	CIE CLASS	SEMI-D.	η UP, DN (C180-360)	9.2, 42.1
LAMPS INSIDE	1	η up (%)	18.5	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120	η down (%)	81.5	CIBSE SHR MAX	1.25



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Mark
 Test Date: 27 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	%lamp
10	133.0	133.7	133.5	129.3	127.7	131.1	129.1	132.1	0- 10	12.62	12.62	3.18
20	129.8	121.8	125.0	128.0	140.7	140.6	140.7	138.3	10- 20	38.00	50.62	12.8
30	92.55	94.80	98.23	114.0	118.4	109.8	102.8	101.5	20- 30	54.82	105.4	26.6
40	75.26	72.47	76.28	81.68	89.59	88.35	83.97	81.61	30- 40	57.85	163.3	41.2
50	46.84	48.20	54.20	58.07	64.81	60.41	58.24	53.29	40- 50	52.36	215.6	54.4
60	32.33	32.23	35.77	39.11	42.93	40.05	37.24	35.76	50- 60	40.50	256.2	64.6
70	22.08	22.19	24.16	26.73	28.51	27.33	26.35	24.52	60- 70	30.32	286.5	72.2
80	14.67	14.68	16.15	18.16	19.75	18.68	17.71	16.67	70- 80	22.18	308.6	77.8
90	9.832	9.682	9.939	11.36	12.61	11.90	10.71	9.851	80- 90	14.83	323.5	81.5
100	11.86	11.88	11.62	11.53	11.24	10.68	10.84	11.48	90-100	11.52	335.0	84.5
110	13.74	13.93	13.98	14.02	13.23	13.00	13.08	13.77	100-110	13.27	348.3	87.8
120	13.91	14.48	15.06	14.82	14.90	14.61	14.30	14.44	110-120	14.12	362.4	91.4
130	12.78	13.11	14.05	13.96	14.49	14.37	13.93	13.71	120-130	12.85	375.2	94.6
140	11.68	10.21	11.82	12.27	12.81	12.43	11.82	11.34	130-140	10.07	385.3	97.1
150	8.134	8.740	8.191	10.08	10.33	10.11	9.199	8.654	140-150	6.668	392.0	98.8
160	3.220	4.013	5.069	6.601	7.494	7.257	6.726	6.830	150-160	3.622	395.6	99.7
170	0.6456	0.6414	0.7236	1.374	2.230	1.426	0.9374	0.7528	160-170	0.9966	396.6	100
180	0	0	0	0	0.0129	0.0115	0.0217	0.0143	170-180	0.0641	396.7	100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 190.83 lm

%lum = 48.1%
 %lamp = 48.1%

Conical surface Flux(120deg): 256.15 lm

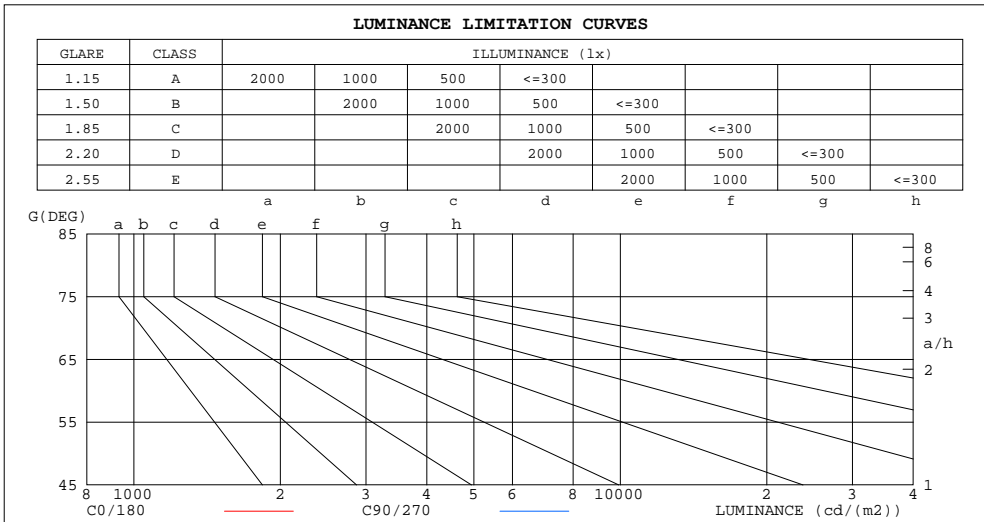
%lum = 64.6%
 %lamp = 64.6%

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	129	148
80	85	93
75	70	78
70	65	71
65	63	70
60	65	72
55	67	75
50	73	85
45	85	93

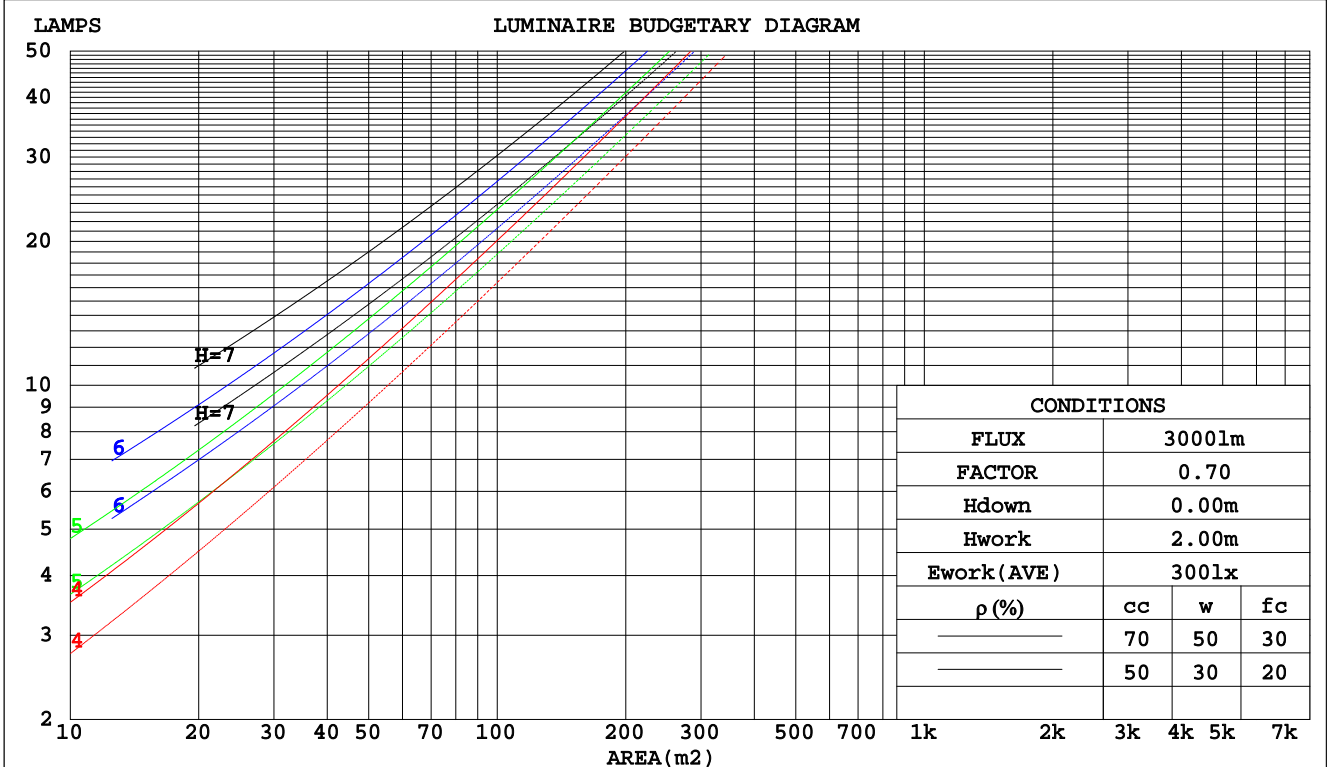
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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
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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	1.15	1.15	1.15	1.10	1.10	1.10	1.01	1.01	1.01	.93	.93	.93	.85	.85	.85	.82
1.0	.99	.95	.91	.95	.91	.88	.88	.85	.82	.81	.78	.76	.74	.72	.71	.67
2.0	.87	.81	.75	.84	.78	.73	.77	.72	.68	.71	.67	.64	.66	.63	.60	.57
3.0	.77	.69	.63	.74	.67	.61	.69	.63	.58	.63	.59	.55	.59	.55	.52	.49
4.0	.69	.60	.54	.66	.59	.53	.62	.55	.50	.57	.52	.48	.53	.49	.45	.42
5.0	.62	.53	.47	.60	.52	.46	.56	.49	.44	.52	.46	.42	.48	.43	.40	.37
6.0	.56	.48	.41	.54	.46	.41	.50	.44	.39	.47	.41	.37	.44	.39	.35	.33
7.0	.51	.43	.37	.49	.42	.36	.46	.39	.35	.43	.37	.33	.40	.35	.32	.30
8.0	.47	.39	.33	.45	.38	.32	.42	.36	.31	.40	.34	.30	.37	.32	.29	.27
9.0	.43	.35	.30	.42	.34	.29	.39	.33	.28	.37	.31	.27	.35	.30	.26	.24
10.0	.40	.32	.27	.38	.31	.27	.36	.30	.26	.34	.29	.25	.32	.27	.24	.22



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
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	.310	.177	.056	.298	.170	.054	.274	.157	.050	.252	.146	.047	.232	.135	.043	
2.0	.280	.154	.047	.269	.148	.046	.248	.138	.043	.228	.128	.040	.210	.119	.037	
3.0	.256	.136	.041	.245	.131	.040	.226	.123	.037	.208	.114	.035	.192	.106	.033	
4.0	.234	.122	.036	.225	.118	.035	.208	.110	.033	.192	.103	.031	.177	.096	.029	
5.0	.216	.110	.032	.208	.107	.031	.192	.100	.029	.177	.094	.028	.164	.087	.026	
6.0	.201	.101	.029	.193	.098	.028	.179	.092	.027	.165	.086	.025	.153	.080	.024	
7.0	.187	.092	.026	.180	.090	.026	.167	.084	.024	.154	.079	.023	.143	.074	.022	
8.0	.175	.085	.024	.168	.083	.023	.156	.078	.022	.145	.073	.021	.134	.069	.020	
9.0	.164	.079	.022	.158	.077	.022	.147	.073	.021	.136	.068	.020	.126	.064	.019	
10.0	.155	.074	.021	.149	.072	.020	.139	.068	.019	.129	.064	.018	.120	.060	.017	

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	.331	.331	.331	.283	.283	.283	.193	.193	.193	.111	.111	.111	.035	.035	.035	
1.0	.322	.298	.276	.276	.256	.238	.188	.176	.164	.108	.102	.096	.035	.033	.031	
2.0	.313	.275	.242	.268	.236	.209	.184	.164	.146	.106	.095	.086	.034	.031	.028	
3.0	.305	.258	.220	.262	.222	.191	.180	.154	.134	.104	.090	.079	.033	.029	.026	
4.0	.297	.245	.205	.255	.211	.178	.175	.147	.125	.101	.086	.074	.033	.028	.024	
5.0	.290	.235	.194	.249	.203	.169	.171	.142	.119	.099	.083	.071	.032	.027	.023	
6.0	.283	.226	.186	.243	.196	.162	.168	.137	.115	.097	.081	.068	.031	.026	.022	
7.0	.276	.220	.180	.238	.191	.157	.164	.134	.111	.095	.079	.066	.031	.026	.022	
8.0	.270	.214	.176	.233	.186	.153	.161	.130	.109	.094	.077	.065	.030	.025	.021	
9.0	.264	.209	.172	.228	.182	.150	.158	.128	.107	.092	.075	.064	.030	.025	.021	
10.0	.259	.205	.170	.223	.178	.148	.155	.125	.105	.090	.074	.063	.029	.024	.021	

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
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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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
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	1.3	2.6	1.8	3.0	3.6	1.8	3.0	2.3	3.5	4.1
3H	2.8	3.9	3.4	4.5	5.0	3.3	4.5	3.9	5.0	5.6
4H	3.6	4.7	4.2	5.2	5.8	4.2	5.2	4.7	5.8	6.4
6H	4.5	5.5	5.1	6.0	6.7	5.0	6.0	5.6	6.6	7.2
8H	5.0	5.9	5.5	6.5	7.1	5.5	6.5	6.1	7.1	7.7
12H	5.5	6.4	6.1	7.0	7.6	6.1	7.0	6.7	7.6	8.3
4H 2H	1.8	2.9	2.4	3.4	4.0	2.2	3.3	2.8	3.8	4.4
3H	3.5	4.5	4.1	5.0	5.7	4.0	4.9	4.6	5.5	6.1
4H	4.5	5.4	5.1	6.0	6.7	5.0	5.8	5.6	6.4	7.1
6H	5.6	6.3	6.2	7.0	7.7	6.1	6.8	6.7	7.4	8.2
8H	6.2	6.8	6.8	7.5	8.3	6.7	7.4	7.3	8.0	8.8
12H	6.8	7.4	7.5	8.1	8.9	7.3	8.0	8.0	8.6	9.4
8H 4H	4.9	5.6	5.6	6.2	7.0	5.3	6.0	5.9	6.6	7.4
6H	6.2	6.8	6.9	7.5	8.3	6.6	7.2	7.3	7.9	8.7
8H	6.9	7.4	7.6	8.1	9.0	7.4	7.9	8.1	8.6	9.4
12H	7.8	8.2	8.5	8.9	9.8	8.3	8.7	9.0	9.4	10.3
12H 4H	5.0	5.6	5.6	6.3	7.0	5.3	6.0	6.0	6.6	7.4
6H	6.4	6.9	7.1	7.6	8.4	6.7	7.3	7.5	8.0	8.8
8H	7.2	7.6	7.9	8.3	9.2	7.6	8.0	8.3	8.8	9.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.1 / - 0.1					+ 0.1 / - 0.2				
2.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.3				

CIE Pub.117, 396.7 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = -3.2)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

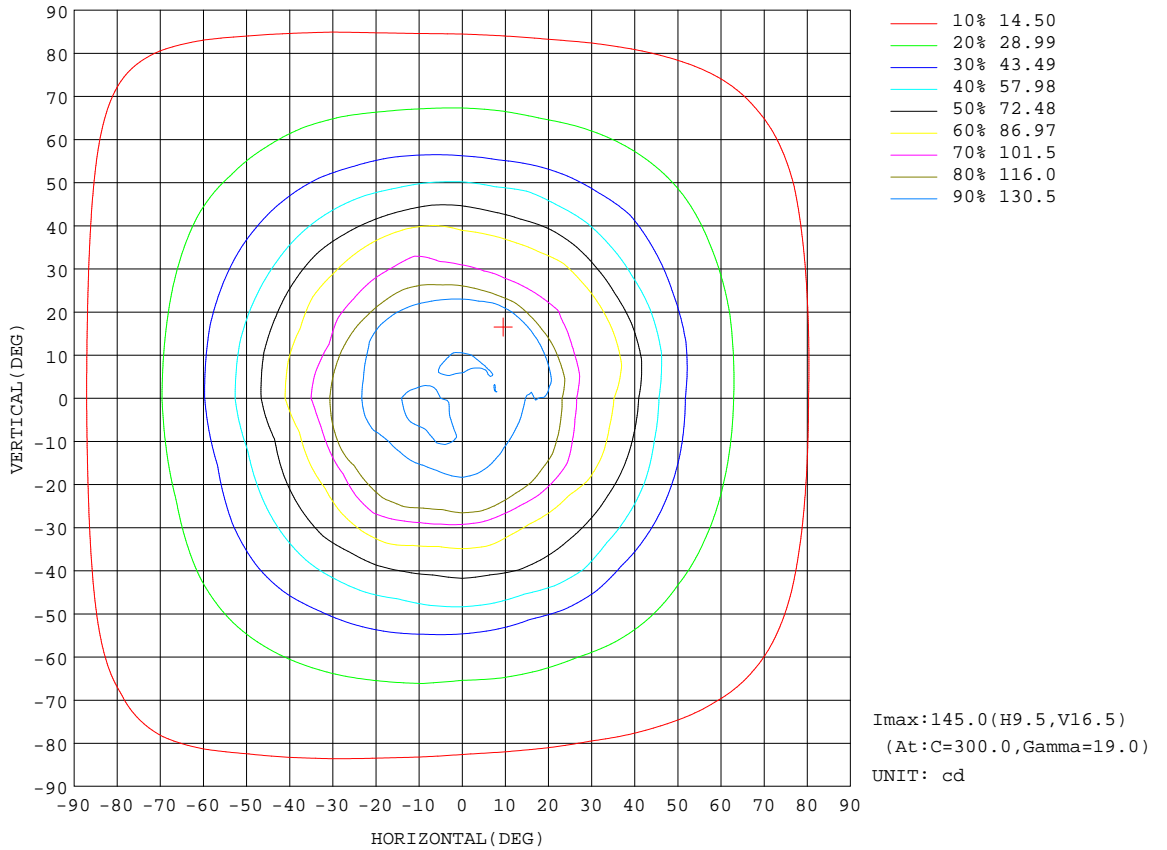
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	55	44	38	54	44	37	52	42	37	30
0.80	64	53	46	63	52	46	60	51	45	37
1.00	72	61	54	70	60	53	66	59	52	44
1.25	79	68	61	76	66	60	72	64	58	49
1.50	83	73	66	81	71	65	76	68	62	53
2.00	90	81	74	87	78	72	81	74	69	58
2.50	93	85	79	90	83	77	84	78	73	61
3.00	97	89	83	93	86	81	86	81	77	64
4.00	101	94	89	97	91	86	90	85	81	67
5.00	103	98	93	99	94	90	91	88	84	70
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:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

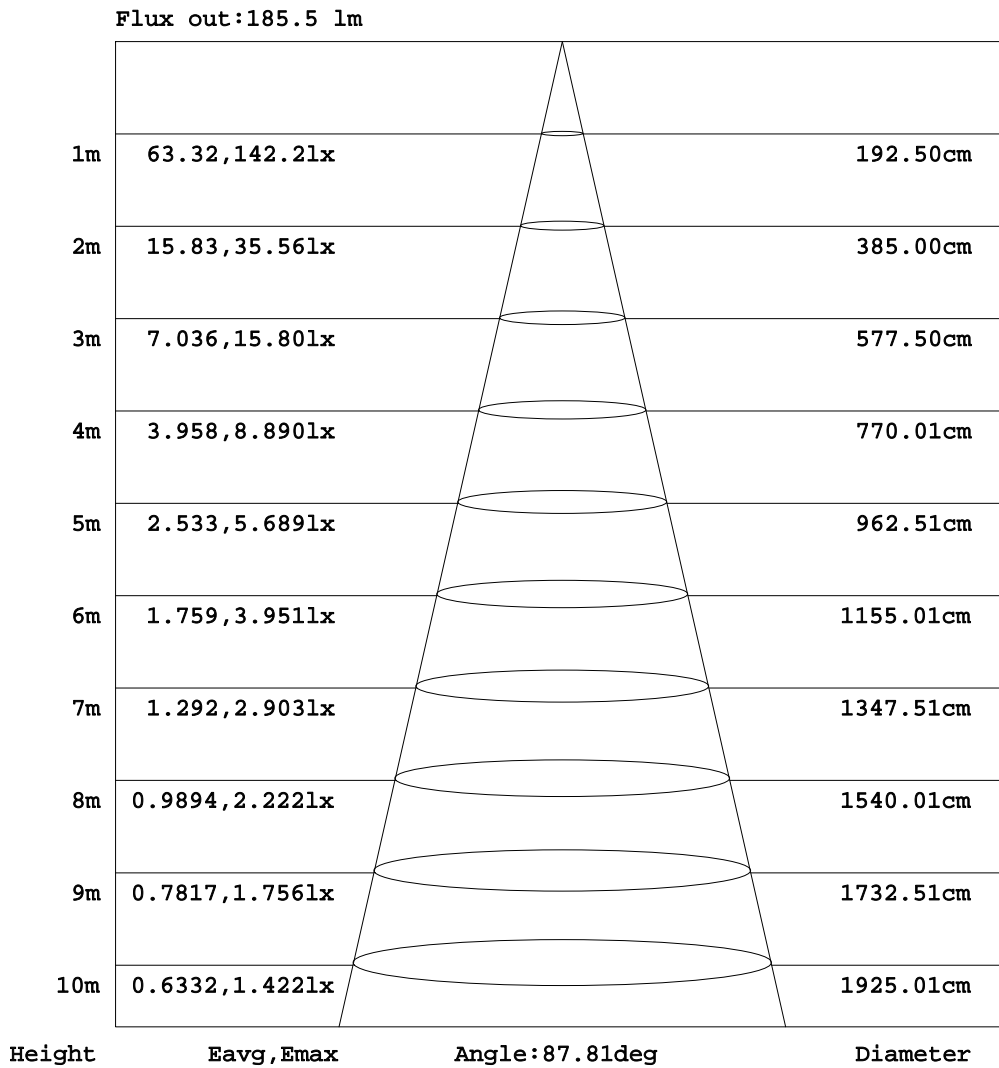


C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Mark
 Test Date: 27 August 2019

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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:



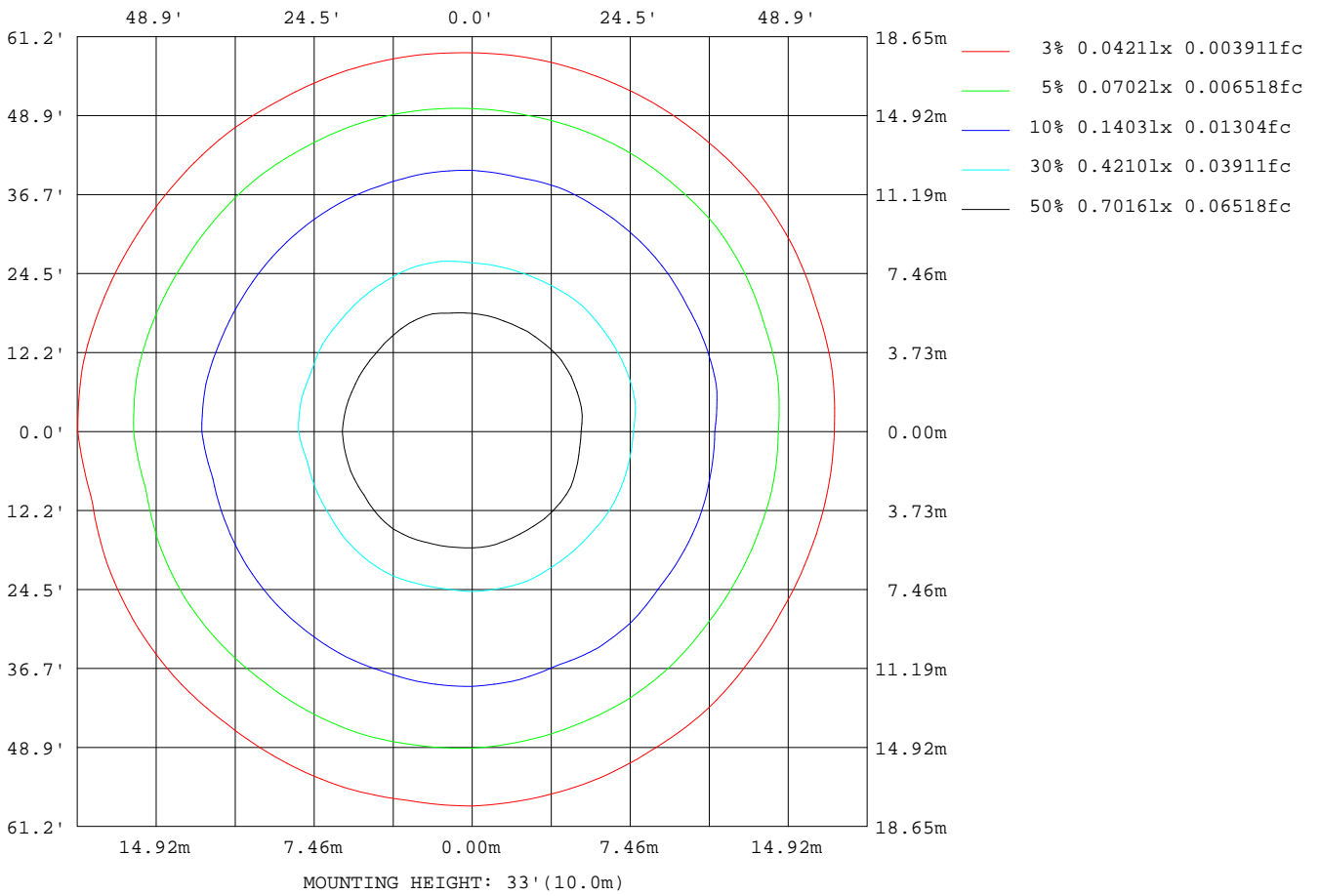
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
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:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

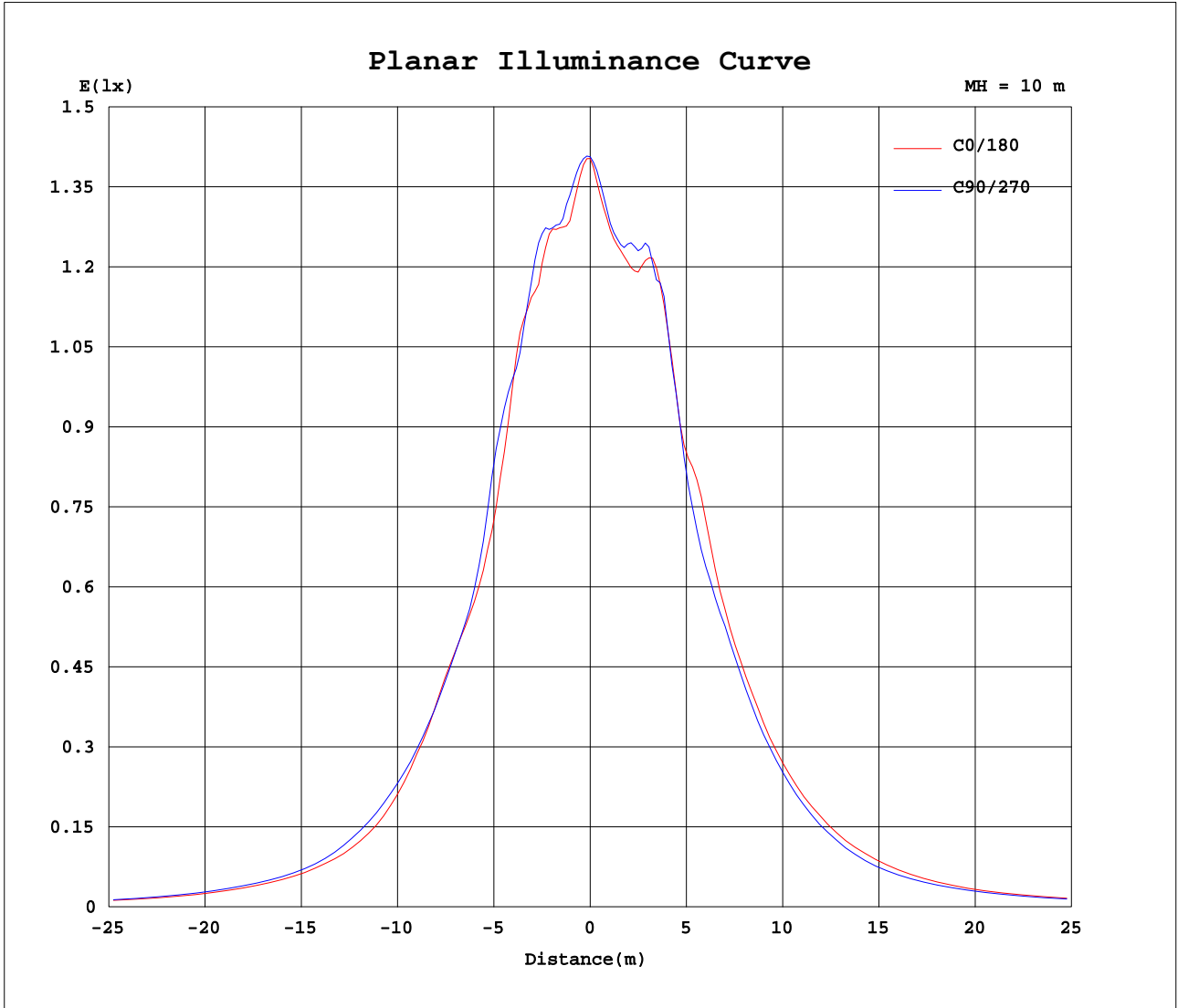
AvgL	cd/m2
L_0~180 (65) av	73
L_0~180 (75) av	81
L_0~180 (85) av	156
L_90~270 (65) av	72
L_90~270 (75) av	80
L_90~270 (85) av	155
L_45 (65) av	72
L_45 (75) av	80
L_45 (85) av	155

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Mark
Test Date:27 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:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
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	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
5	133	133	133	134	136	137	137	138	138	137	135	133	131	130	129	128	128	129	131
10	133	132	132	132	133	134	136	137	136	134	131	129	129	129	129	128	127	127	128
15	129	129	129	128	129	130	133	136	138	138	135	134	133	134	135	135	135	135	133
20	130	128	126	123	122	122	122	122	124	125	125	126	127	128	128	130	135	139	141
25	108	108	111	114	114	116	116	118	121	120	119	120	123	121	119	120	126	127	122
30	92.5	91.9	94.4	96.6	95.3	94.3	93.0	93.8	97.0	98.2	99.6	103	109	114	114	114	119	121	118
35	87.2	86.5	86.3	85.4	83.0	83.0	83.2	85.0	86.2	86.6	86.4	88.7	92.7	95.9	94.9	92.6	94.4	96.3	102
40	75.3	73.9	72.9	71.8	72.1	72.8	74.5	76.3	75.4	76.3	75.7	77.5	80.2	81.2	82.2	82.3	83.5	83.8	89.6
45	59.8	59.0	60.3	60.0	60.3	62.4	62.7	63.2	64.5	65.5	64.4	64.9	67.0	68.1	70.7	71.4	71.7	71.6	76.5
50	46.8	46.5	46.6	46.6	46.8	49.6	51.2	50.3	52.8	54.2	54.7	54.7	56.3	57.3	58.8	59.3	60.0	60.3	64.8
55	38.6	38.3	37.4	37.2	37.5	38.9	39.9	40.0	41.3	42.7	43.7	45.4	46.7	47.6	48.5	49.7	49.9	50.0	53.2
60	32.3	31.8	31.3	31.1	31.7	32.7	33.1	34.2	34.9	35.8	35.8	37.0	37.7	38.3	39.9	40.7	41.1	40.4	42.9
65	26.7	26.5	26.0	26.0	26.6	27.0	27.2	28.3	29.1	29.4	30.5	31.2	31.8	32.3	32.8	33.4	33.7	33.4	34.8
70	22.1	22.2	21.8	21.7	22.0	22.4	22.4	23.3	24.0	24.2	25.2	26.0	26.4	26.6	26.9	27.3	27.7	27.6	28.5
75	18.2	18.2	18.2	18.0	18.0	18.4	18.7	19.3	19.8	20.0	20.5	21.2	21.7	21.8	22.1	22.7	22.8	23.0	23.9
80	14.7	14.7	14.5	14.4	14.6	14.8	15.1	15.5	15.9	16.2	16.6	17.2	17.8	18.0	18.3	18.6	18.9	18.7	19.7
85	11.3	11.3	11.2	11.1	11.2	11.5	11.6	12.0	12.4	12.9	13.3	13.7	14.1	14.5	14.7	15.0	15.3	15.3	15.9
90	9.83	9.82	9.83	9.80	9.68	9.69	9.65	9.60	9.73	9.94	10.1	10.5	10.9	11.3	11.4	11.6	11.7	11.9	12.6
95	10.6	10.6	10.7	10.7	10.6	10.5	10.5	10.4	10.4	10.5	10.4	10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.3
100	11.9	11.7	11.9	11.8	11.9	11.9	11.8	11.9	11.7	11.6	11.6	11.8	11.6	11.5	11.5	11.5	11.6	11.6	11.2
105	12.9	12.8	12.8	13.0	13.1	12.9	12.9	13.1	13.0	12.9	12.9	12.9	13.0	12.9	12.8	12.9	12.7	12.6	12.3
110	13.7	13.9	13.8	13.8	13.9	14.0	13.9	14.1	14.1	14.0	14.1	14.1	14.1	14.1	14.1	14.0	13.9	13.5	13.2
115	13.8	14.0	14.2	14.6	14.7	14.6	14.7	14.9	14.9	14.7	14.8	14.7	14.7	14.6	14.6	14.5	14.4	14.4	14.2
120	13.9	14.0	14.1	14.3	14.5	14.4	14.7	15.1	15.1	15.1	15.1	14.9	14.9	14.8	14.8	14.9	14.9	15.0	14.9
125	13.5	13.6	13.8	13.8	13.9	14.0	14.2	14.1	14.4	14.6	14.8	14.7	14.5	14.5	14.4	14.5	14.7	15.0	15.1
130	12.8	12.6	12.7	12.9	13.1	13.1	13.4	13.6	13.8	14.0	14.1	14.0	14.0	14.0	13.9	14.2	14.6	14.6	14.5
135	12.0	11.9	11.9	12.0	12.3	12.5	12.5	12.6	12.9	13.3	13.5	13.9	13.7	13.8	13.6	13.7	13.7	13.5	13.4
140	11.7	11.5	11.3	11.4	11.6	8.87	10.8	11.6	11.7	11.8	12.0	12.2	12.2	12.4	12.2	12.2	12.3	12.4	12.8
145	9.94	10.1	9.88	10.1	10.3	7.60	6.85	9.73	10.3	10.8	11.1	11.0	10.8	10.4	11.2	11.6	11.7	11.8	12.0
150	8.13	8.33	8.39	8.77	9.07	8.41	7.09	6.92	8.22	8.19	10.4	10.7	9.99	9.84	10.3	10.3	10.1	9.96	10.3
155	6.30	6.57	6.74	7.13	7.38	7.18	6.18	6.59	7.61	8.01	8.04	8.48	8.24	8.36	8.57	8.58	8.43	8.20	8.41
160	3.22	3.10	3.21	3.42	3.73	4.29	3.66	4.02	4.64	5.07	5.70	5.69	5.79	6.44	6.76	6.79	6.71	6.93	7.49
165	0.95	0.96	1.08	1.26	1.65	2.17	1.94	2.19	2.85	3.29	2.96	3.08	3.89	3.66	3.47	3.11	3.32	3.63	4.76
170	0.65	0.63	0.62	0.62	0.63	0.65	0.66	0.68	0.70	0.72	0.73	0.75	0.84	1.21	1.54	1.79	2.05	2.02	2.23
175	0.55	0.54	0.53	0.52	0.52	0.51	0.51	0.51	0.52	0.52	0.52	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62
180	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	0.01

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:27 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:120.03V I:0.0715A P:6.8692W PF:0.8007 Freq:60.00Hz Lamp Flux:396.667x1 lm		
NAME: 12"Glass Sphere Pendant	TYPE:MSSC-12P-PC-12P-30K	WEIGHT:1.4KG
SPEC.:	DIM.:	SERIAL No.:
MFR.: BlackJack Lighting LLC	SUR.:	Shielding Angle:

Table--2

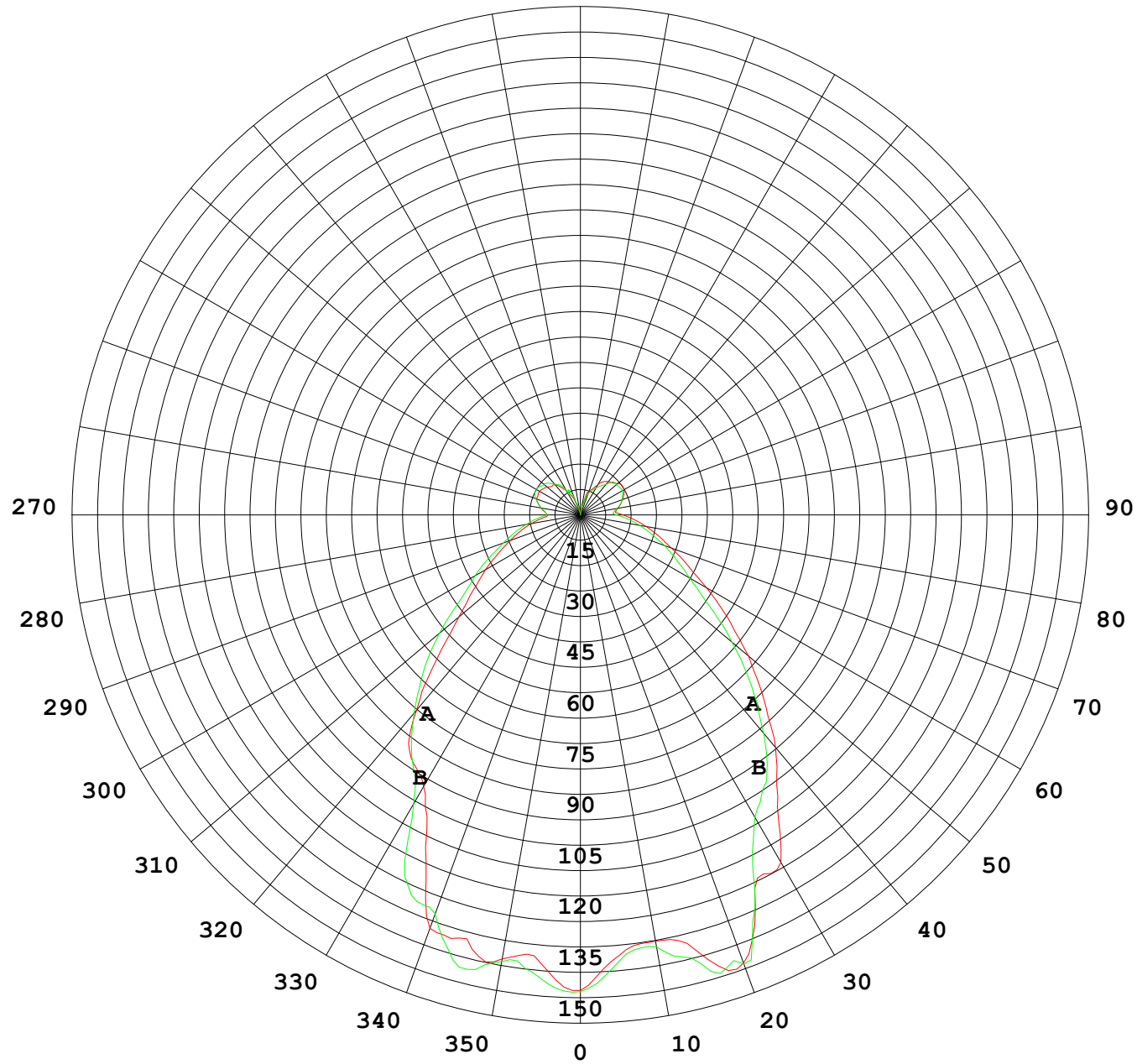
UNIT: cd

C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140		
5	131	131	131	132	132	131	131	131	132	132	133	134	135	136	136	136	137		
10	130	131	131	131	131	131	130	129	129	129	131	132	132	132	133	133	134		
15	136	137	137	137	136	136	136	136	137	138	140	138	137	135	135	136	134		
20	141	140	139	140	141	140	138	139	141	143	145	144	140	137	136	134	133		
25	123	127	130	131	129	127	125	123	122	118	117	117	114	112	113	112	113		
30	117	115	112	110	110	111	111	105	103	101	101	100	101	102	100	98.5	96.8		
35	100	97.2	98.9	98.4	99.3	99.0	100	97.3	95.6	94.2	94.4	92.8	94.5	94.6	95.4	93.6	91.6		
40	89.8	87.6	89.0	88.3	88.4	89.3	89.9	88.2	84.0	82.3	81.2	82.3	82.6	80.6	80.0	81.2	81.5		
45	77.2	76.6	75.9	75.6	74.0	73.2	72.8	72.9	71.3	68.7	68.5	67.7	66.9	65.1	64.3	65.6	65.0		
50	64.5	62.2	61.1	60.7	60.1	59.8	58.9	58.7	58.2	56.7	57.3	55.2	53.9	52.7	51.0	51.0	50.8		
55	53.5	52.1	51.0	50.6	50.4	49.5	48.7	47.5	46.0	44.7	45.0	44.2	43.6	43.6	42.2	40.8	40.6		
60	43.4	42.0	41.0	40.3	39.8	38.8	38.5	37.9	37.2	36.9	36.5	36.2	35.8	35.7	34.9	33.7	33.5		
65	34.7	34.0	33.0	32.6	32.4	32.1	31.8	31.4	31.2	30.9	30.2	30.2	29.9	29.4	28.9	28.2	27.8		
70	28.3	28.0	27.4	27.2	27.4	27.1	26.5	26.3	26.3	26.1	25.3	24.9	24.6	24.4	24.0	23.6	23.2		
75	23.7	23.2	23.0	22.7	22.7	22.6	22.3	21.8	21.6	21.3	21.0	20.6	20.3	20.5	20.0	19.8	19.4		
80	19.8	19.3	19.1	18.8	18.6	18.6	18.3	17.9	17.7	17.3	17.1	17.0	16.8	16.5	16.0	15.8	15.8		
85	15.8	15.6	15.4	15.2	15.0	14.8	14.5	14.2	14.1	13.9	13.5	13.3	13.0	12.8	12.5	12.3	12.1		
90	12.4	12.4	12.1	11.9	11.9	11.5	11.1	10.8	10.7	10.5	10.3	10.2	9.90	9.80	9.79	9.79	9.84		
95	10.3	10.2	9.89	9.86	9.89	9.73	9.79	9.77	9.90	9.74	9.98	10.2	10.2	10.4	10.5	10.3	10.4		
100	11.1	11.0	10.7	10.7	10.7	10.5	10.6	10.6	10.8	10.8	11.0	11.3	11.3	11.6	11.7	11.6	11.8		
105	12.2	12.1	12.1	11.9	11.8	11.6	11.9	11.9	12.1	12.1	12.3	12.7	12.7	12.7	12.7	12.9	12.9		
110	13.2	13.2	13.0	13.0	13.0	12.9	13.1	13.1	13.1	13.1	13.2	13.6	13.8	13.7	13.7	13.9	13.9		
115	14.1	13.9	13.9	14.1	14.1	13.9	13.9	13.9	13.7	13.8	13.9	14.2	14.4	14.4	14.4	14.5	14.3		
120	14.9	14.8	14.8	14.8	14.4	14.3	14.2	14.3	14.3	14.2	14.2	14.2	14.3	14.5	14.6	14.4	14.3		
125	15.1	14.8	14.6	14.6	14.5	14.6	14.7	14.4	14.2	14.7	14.8	14.9	14.3	13.9	14.4	14.2	13.9		
130	14.2	14.1	14.1	14.3	14.5	14.4	14.1	13.5	13.9	14.4	13.6	14.0	13.9	13.6	13.4	13.3	13.2		
135	13.6	13.7	13.8	13.5	13.8	13.2	12.8	13.1	13.7	12.8	12.5	12.6	12.6	12.5	12.7	12.7	12.4		
140	13.1	12.9	12.5	12.4	12.5	12.1	12.5	12.7	11.8	11.4	11.4	11.4	11.4	11.3	11.2	11.8	12.0		
145	11.7	11.4	11.3	11.6	11.5	11.4	11.0	10.4	10.5	10.5	10.3	10.1	9.99	9.91	9.91	10.1	10.4		
150	9.98	10.0	10.3	10.2	9.97	9.33	9.12	9.06	9.20	9.14	9.08	9.16	8.79	8.51	8.45	8.38	8.47		
155	8.66	8.73	8.62	8.45	8.28	8.09	7.97	7.92	7.77	7.87	8.15	8.42	8.33	7.72	7.23	6.87	6.68		
160	7.75	7.86	7.48	7.25	7.27	7.18	7.02	6.77	6.73	6.88	6.90	6.93	7.01	6.65	5.76	5.11	4.69		
165	4.88	4.85	4.65	4.43	4.20	3.96	3.45	3.18	3.01	2.95	3.19	3.55	3.56	3.18	2.61	2.09	1.68		
170	2.22	1.85	1.60	1.44	1.41	1.24	1.17	0.99	0.94	0.89	0.83	0.79	0.76	0.75	0.73	0.71	0.68		
175	0.62	0.62	0.61	0.61	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.66	0.65	0.64	0.63	0.62	0.61		
180	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02		

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Mark
 Test Date:27 August 2019

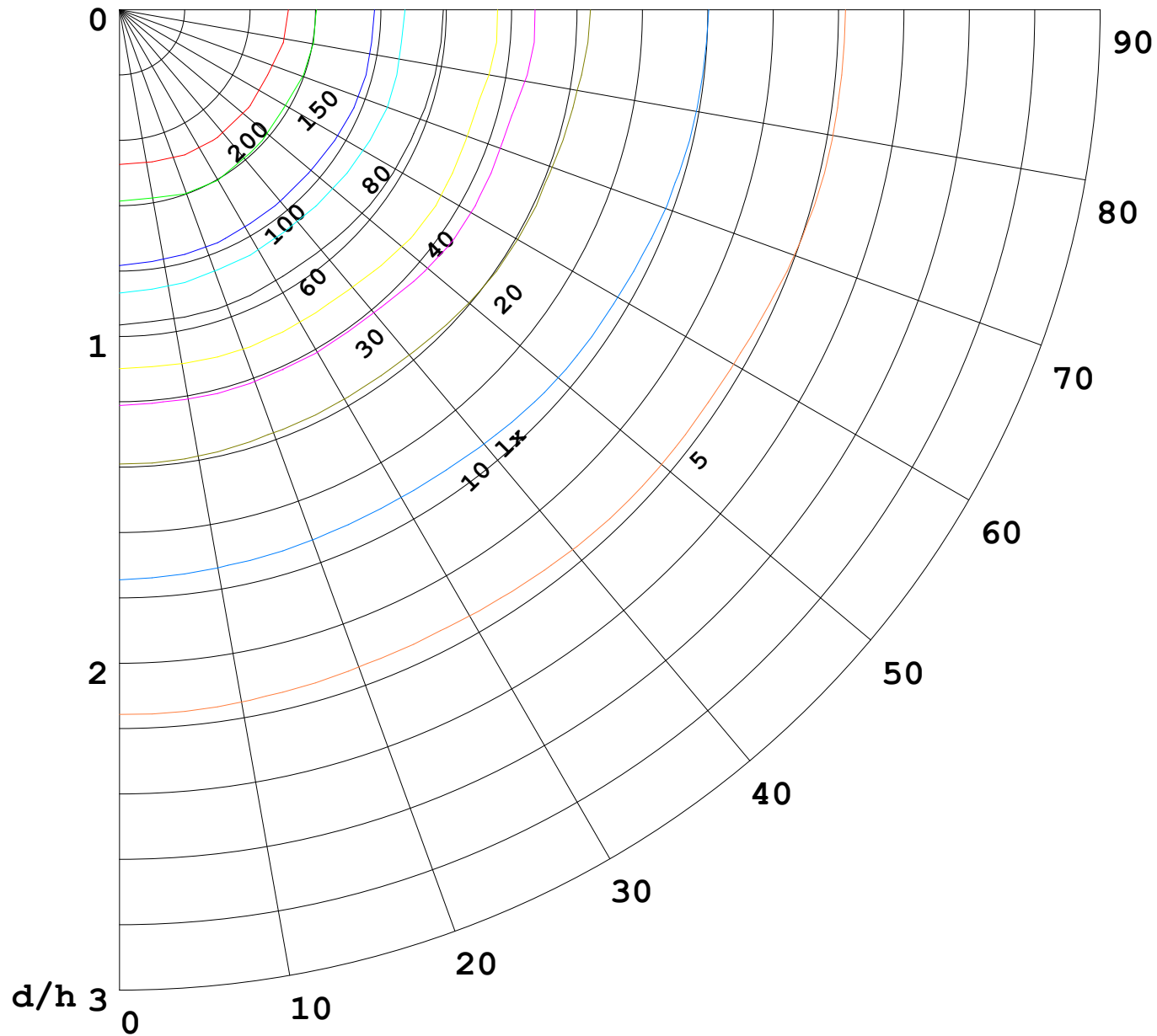
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:59.2%
 Test Distance:2.463m [K=1.0000]
 Remarks:

I (cd)



1000 lm

$\kappa = 1$



F = 3000 lm
K = 0.7
Hcc = 2.0 m
Hfc = 0.0 m
Eave = 300 lx

	Pcc	Pw	Pfc
—————	70	50	30
—————	50	30	20

