

LED Light



Light Output Ratio:	100.0%	
Luminaire Power:	2 W	
SHR Nominal:	0.50	Calculated using the TM5
SHR Maximum:	0.55	fine grid method.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 28DEG
Operators: TGB
Test Date: 2016-10-10

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 85.0%
Test Distance: 8.820m [K=1.0000]
Remarks:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

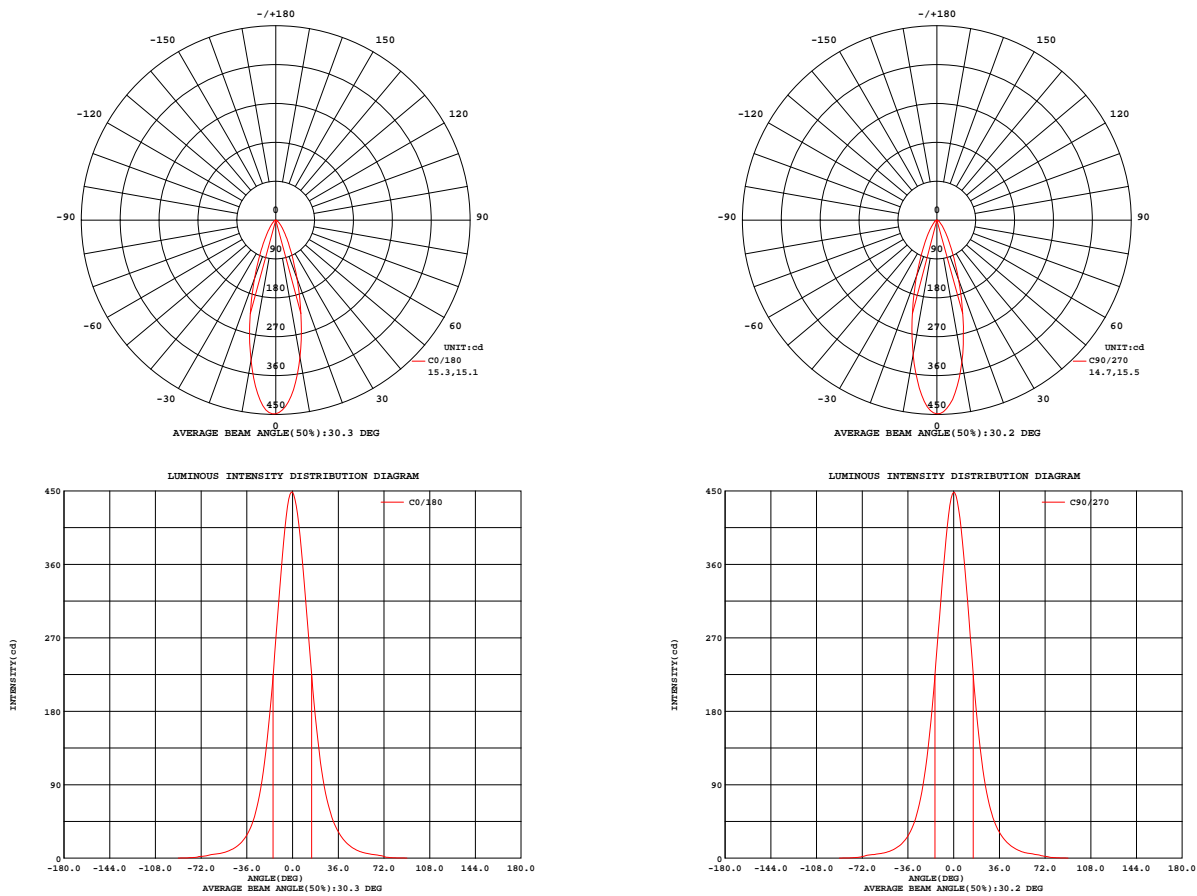


Fig. C0/C180

Fig. C90/C270

C Range: 0 - 360DEG
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Humidity: 85.0%
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Remarks:

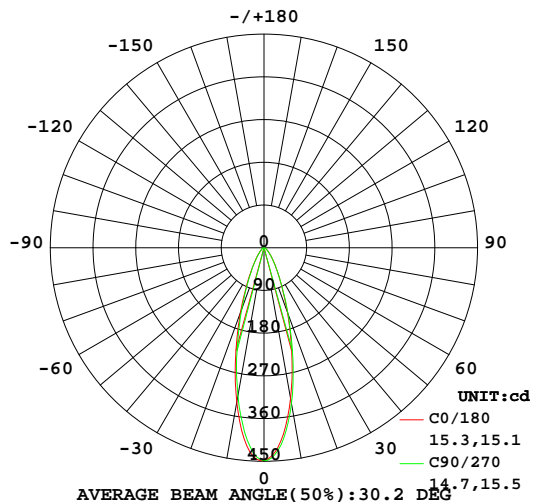
EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINAIRE PHOTOMETRIC TEST REPORT

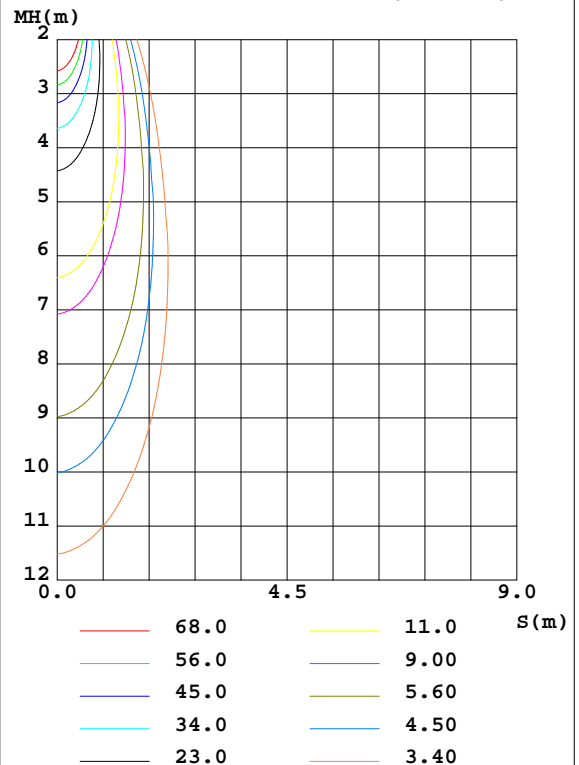
Test:U:12.00V I:0.1700A P:2.000W PF:1.000 Lamp Flux:183.703x1 lm		
NAME: Led Spot Light	TYPE:LED	WEIGHT:
SPEC.:	DIM.: D50x52mm	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 91.85 lm/W			
MODEL	CT-4012-16	Imax(cd)	448.4	S/MH(C0/180)	0.51
NOMINAL POWER(W)	2	LOR(%)	100.0	S/MH(C90/270)	0.49
RATED VOLTAGE(V)	12	TOTAL FLUX(lm)	183.70	η UP,DN(C0-180)	0.0,50.7
NOMINAL FLUX(lm)	183.703	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.3
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	12	η down(%)	100.0	CIBSE SHR MAX	0.55

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:28DEG
Operators:TGB
Test Date:2016-10-10

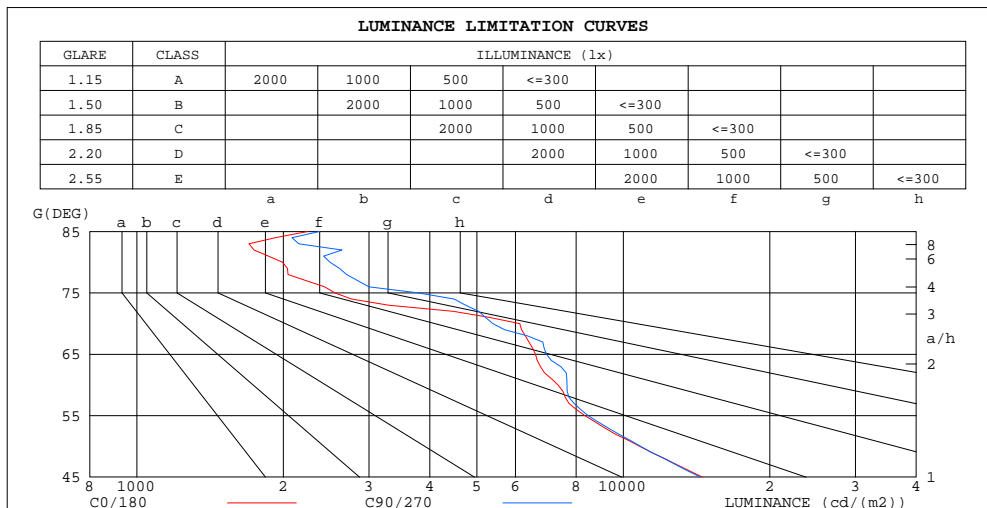
γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity:85.0%
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EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ZONAL FLUX DIAGRAM AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	$\%lum, lamp$
10	322.4	330.6	333.2	319.8	330.6	320.1	316.5	330.5	0- 10	36.50	36.50	19.9,19.9
20	144.9	149.7	148.1	138.0	144.9	138.2	136.6	148.2	10- 20	62.25	98.76	53.8,53.8
30	55.18	57.17	54.68	48.62	50.78	47.88	48.61	54.99	20- 30	40.38	139.1	75.7,75.7
40	23.11	24.45	22.81	19.48	19.79	18.58	19.04	22.38	30- 40	21.03	160.2	87.2,87.2
50	10.37	11.15	10.48	8.969	9.178	8.503	8.765	10.19	40- 50	11.19	171.4	93.3,93.3
60	5.477	6.157	5.746	4.978	5.162	5.163	5.201	5.697	50- 60	6.336	177.7	96.7,96.7
70	3.125	3.041	2.769	3.077	2.506	2.731	2.675	2.545	60- 70	4.191	181.9	99,99
80	0.5159	0.5662	0.6500	0.6155	0.5967	0.5893	0.5789	0.6024	70- 80	1.481	183.4	99.8,99.8
90	0.1826	0.1790	0.1511	0.1723	0.1542	0.2035	0.1960	0.1805	80- 90	0.3434	183.7	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2248	2373
80	1992	2494
75	2556	3788
70	6126	5394
65	6595	6951
60	7343	7657
55	8337	8465
50	10813	10860
45	14538	14410

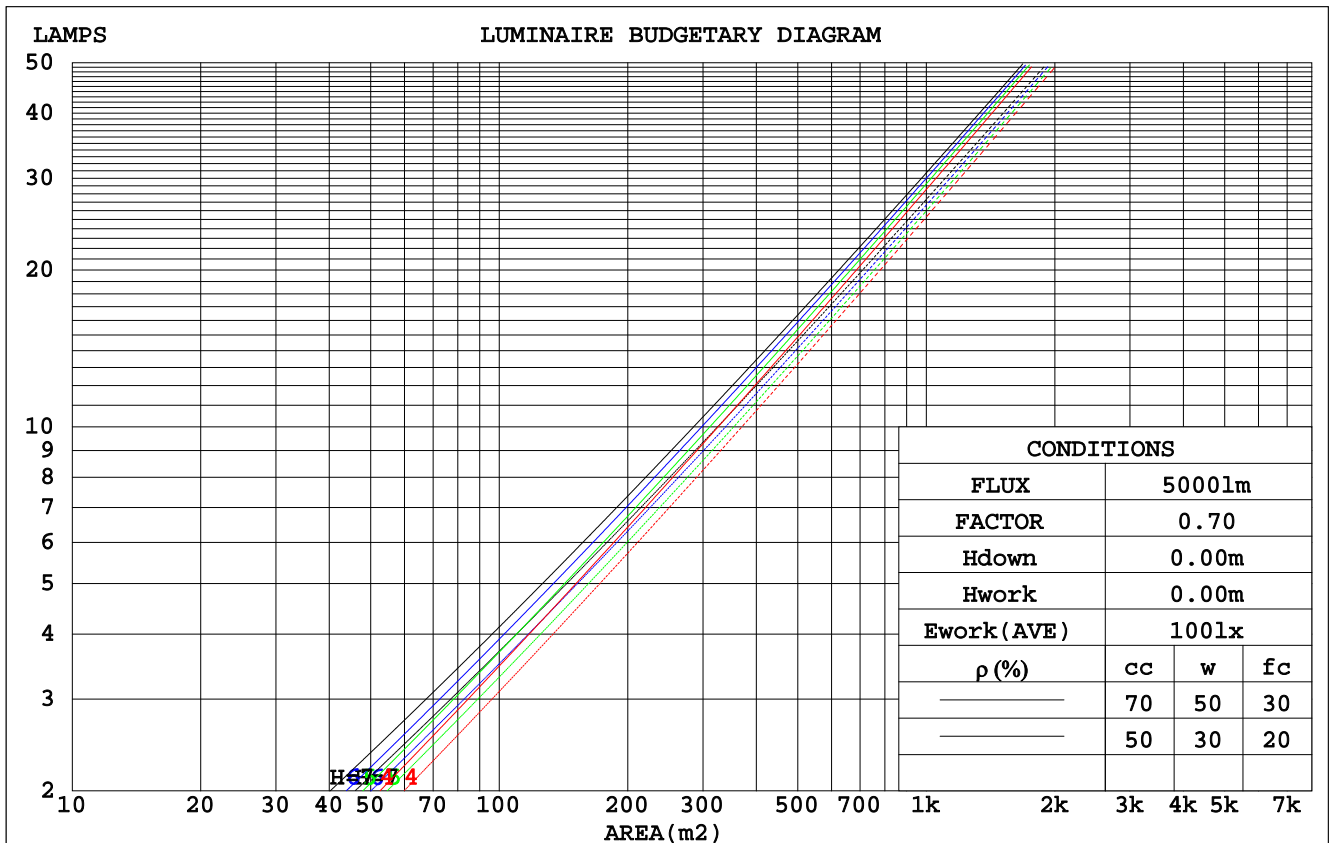
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γ Range: 0 - 90DEG
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 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
 Humidity: 85.0%
 Test Distance: 8.820m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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	1.11	1.08	1.06	1.09	1.06	1.04	1.05	1.03	1.01	1.01	.99	.98	.97	.96	.95	.94
2.0	1.03	.99	.96	1.02	.98	.95	.98	.95	.93	.95	.93	.91	.93	.91	.89	.87
3.0	.97	.92	.88	.95	.91	.87	.93	.89	.86	.90	.87	.85	.88	.86	.83	.82
4.0	.91	.86	.82	.90	.85	.81	.88	.83	.80	.86	.82	.79	.84	.81	.78	.77
5.0	.86	.80	.76	.85	.80	.76	.83	.79	.75	.82	.78	.75	.80	.77	.74	.73
6.0	.81	.76	.72	.81	.75	.71	.79	.74	.71	.78	.74	.71	.76	.73	.70	.69
7.0	.77	.72	.68	.77	.71	.68	.75	.71	.67	.74	.70	.67	.73	.69	.67	.65
8.0	.74	.68	.64	.73	.68	.64	.72	.67	.64	.71	.67	.64	.70	.66	.63	.62
9.0	.70	.65	.61	.70	.65	.61	.69	.64	.61	.68	.64	.61	.67	.63	.61	.59
10.0	.67	.62	.59	.67	.62	.58	.66	.62	.58	.65	.61	.58	.65	.61	.58	.57



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 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

WEC AND CCEC

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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.178	.101	.032	.171	.098	.031	.158	.091	.029	.147	.085	.027	.136	.079	.025	
2.0	.169	.092	.028	.163	.090	.028	.152	.085	.026	.143	.080	.025	.134	.076	.024	
3.0	.159	.084	.025	.154	.082	.025	.145	.079	.024	.137	.075	.023	.129	.071	.022	
4.0	.150	.078	.023	.145	.076	.022	.138	.073	.022	.130	.070	.021	.124	.067	.020	
5.0	.141	.072	.021	.138	.071	.021	.131	.068	.020	.125	.066	.020	.119	.063	.019	
6.0	.133	.067	.019	.130	.066	.019	.124	.064	.019	.119	.062	.018	.114	.060	.018	
7.0	.127	.063	.018	.124	.062	.018	.119	.060	.017	.114	.058	.017	.109	.057	.017	
8.0	.120	.059	.017	.118	.058	.016	.113	.057	.016	.109	.055	.016	.105	.054	.016	
9.0	.115	.055	.015	.112	.055	.015	.108	.054	.015	.105	.052	.015	.101	.051	.015	
10.0	.109	.052	.015	.108	.052	.014	.104	.051	.014	.100	.050	.014	.097	.049	.014	

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			Ceiling Cavity Exitance Coefficients(CCEC)												
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.171	.157	.145	.146	.135	.125	.100	.093	.086	.058	.054	.050	.018	.017	.016	
2.0	.156	.133	.113	.133	.114	.098	.091	.079	.068	.053	.046	.040	.017	.015	.013	
3.0	.143	.114	.090	.123	.098	.078	.084	.068	.055	.049	.040	.032	.016	.013	.011	
4.0	.132	.099	.073	.114	.085	.064	.078	.059	.045	.045	.035	.026	.015	.011	.009	
5.0	.123	.087	.060	.106	.075	.053	.073	.053	.037	.042	.031	.022	.014	.010	.007	
6.0	.115	.078	.051	.099	.067	.044	.068	.047	.031	.040	.028	.019	.013	.009	.006	
7.0	.108	.070	.043	.093	.061	.038	.064	.042	.027	.037	.025	.016	.012	.008	.005	
8.0	.102	.063	.037	.088	.055	.032	.061	.039	.023	.035	.023	.014	.011	.007	.005	
9.0	.097	.058	.032	.083	.050	.028	.058	.035	.020	.034	.021	.012	.011	.007	.004	
10.0	.092	.054	.028	.079	.047	.025	.055	.033	.018	.032	.019	.010	.010	.006	.003	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 28DEG
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γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
 Humidity: 85.0%
 Test Distance: 8.820m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

UGR(Unified Glare Rating) Table

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	17.1	18.0	17.3	18.2	18.3	17.2	18.1	17.5	18.3	18.5
3H	17.7	18.6	18.0	18.8	19.0	17.7	18.6	18.0	18.8	19.0
4H	17.8	18.6	18.0	18.8	19.0	17.8	18.6	18.1	18.9	19.1
6H	17.7	18.5	18.0	18.7	19.0	17.8	18.6	18.1	18.8	19.1
8H	17.7	18.4	18.0	18.7	18.9	17.8	18.5	18.1	18.8	19.1
12H	17.7	18.4	18.0	18.6	18.9	17.8	18.5	18.1	18.8	19.0
4H 2H	17.4	18.2	17.7	18.4	18.6	17.5	18.3	17.8	18.5	18.7
3H	18.1	18.8	18.5	19.1	19.4	18.1	18.8	18.4	19.0	19.3
4H	18.2	18.8	18.5	19.1	19.4	18.2	18.9	18.6	19.2	19.5
6H	18.2	18.7	18.5	19.0	19.4	18.3	18.8	18.6	19.2	19.5
8H	18.1	18.6	18.5	19.0	19.4	18.3	18.8	18.7	19.1	19.5
12H	18.1	18.6	18.5	19.0	19.3	18.2	18.7	18.6	19.1	19.5
8H 4H	18.1	18.7	18.5	19.0	19.4	18.2	18.7	18.6	19.1	19.5
6H	18.1	18.6	18.6	19.0	19.4	18.3	18.7	18.7	19.1	19.5
8H	18.1	18.5	18.6	18.9	19.4	18.3	18.7	18.7	19.1	19.5
12H	18.1	18.4	18.6	18.9	19.4	18.3	18.6	18.7	19.0	19.5
12H 4H	18.1	18.6	18.5	19.0	19.3	18.2	18.7	18.6	19.0	19.4
6H	18.1	18.5	18.6	18.9	19.3	18.2	18.6	18.7	19.0	19.5
8H	18.1	18.4	18.6	18.9	19.3	18.2	18.6	18.7	19.0	19.5
Variations with the observer position at spacings:										
S = 1.0H	+ 1.0 / - 1.4					+ 1.0 / - 1.3				
1.5H	+ 1.3 / - 1.0					+ 1.4 / - 1.1				
2.0H	+ 1.9 / - 1.1					+ 1.6 / - 1.1				

CIE Pub.117 Corrected 183.7 lm Total Lamp Luminous Flux.(8log(F/F0) = -5.9)

C Range: 0 - 360DEG
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Test Speed: HIGH
Temperature:28DEG
Operators:TGB
Test Date:2016-10-10

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity:85.0%
Test Distance:8.820m [K=1.0000]
Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

UTILIZATION FACTORS TABLE

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	84	77	72	83	76	72	82	76	72	68
0.80	91	85	81	91	84	80	89	84	80	76
1.00	96	90	86	95	90	86	94	90	85	81
1.25	101	95	91	100	94	91	98	93	90	85
1.50	104	98	95	102	98	94	100	96	93	88
2.00	107	102	99	105	101	98	103	99	96	91
2.50	109	105	101	107	103	100	104	101	99	92
3.00	111	107	104	109	105	103	105	103	101	94
4.00	113	110	107	111	108	106	107	105	103	96
5.00	114	112	110	112	110	108	108	107	105	97
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended				SHRNOM = 1.25		

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EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM

Conical surface Flux(90deg):

166.6 lm

%lum = 90.7%

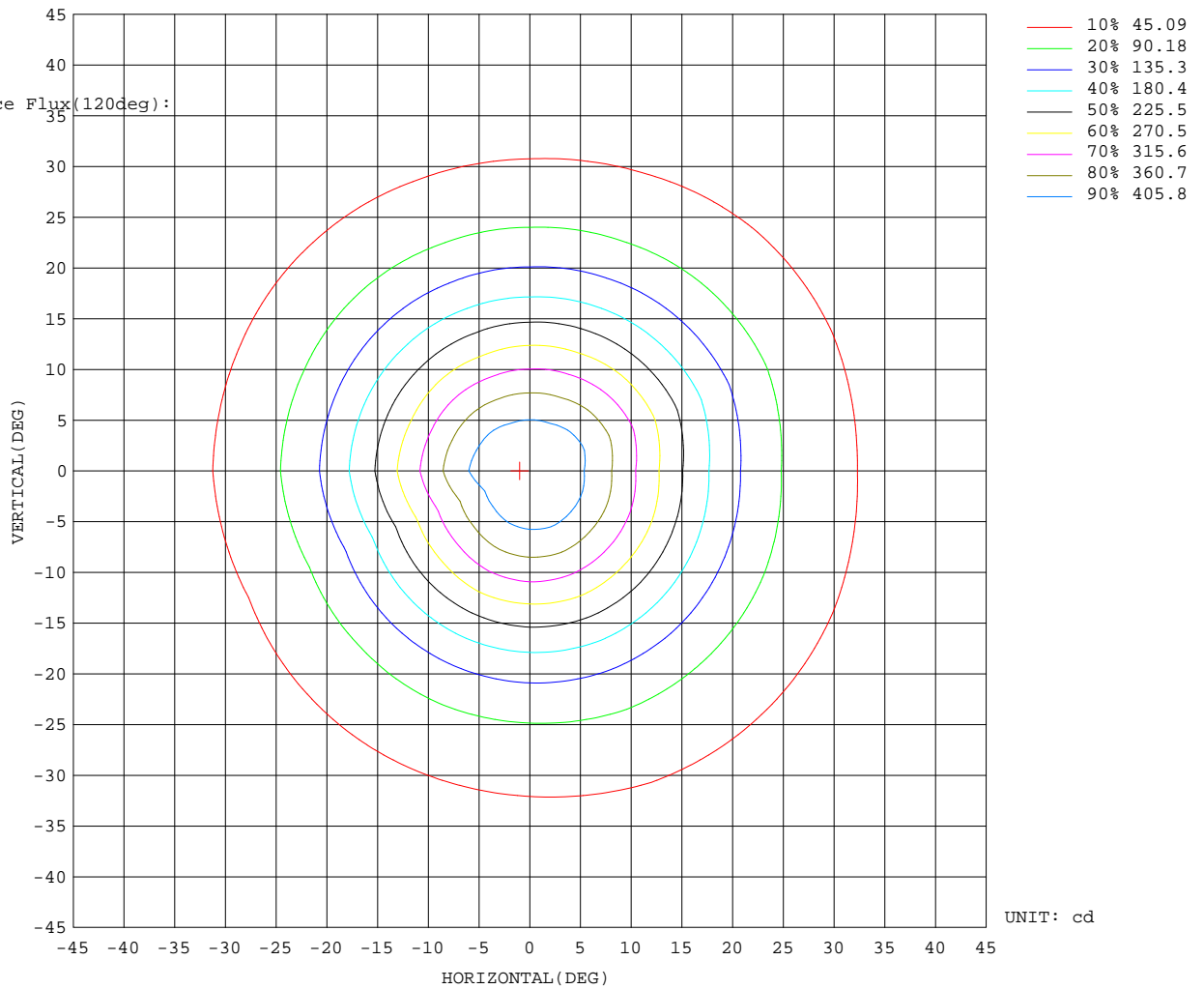
%lamp = 90.7%

Conical surface Flux(120deg):

177.69 lm

%lum = 96.7%

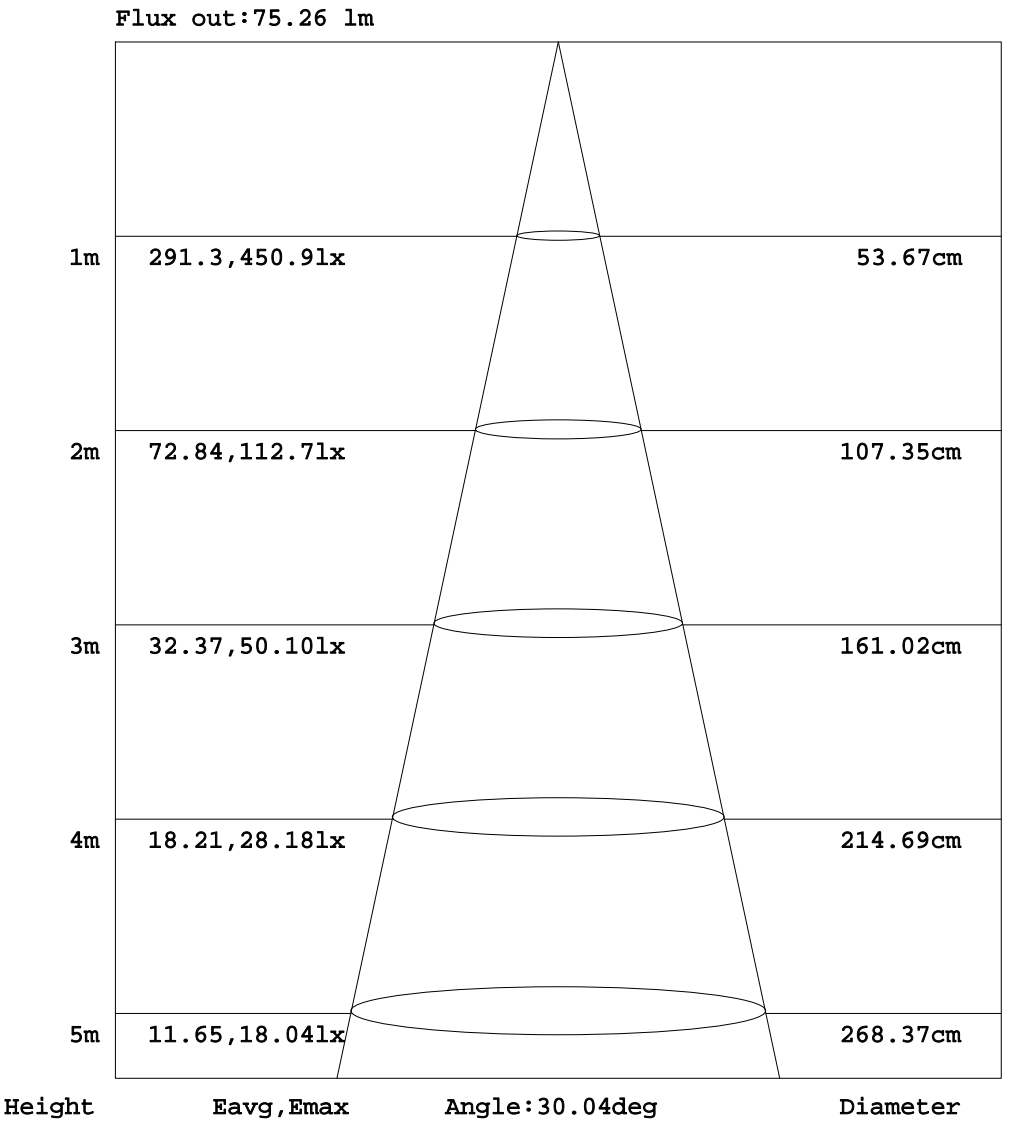
%lamp = 96.7%



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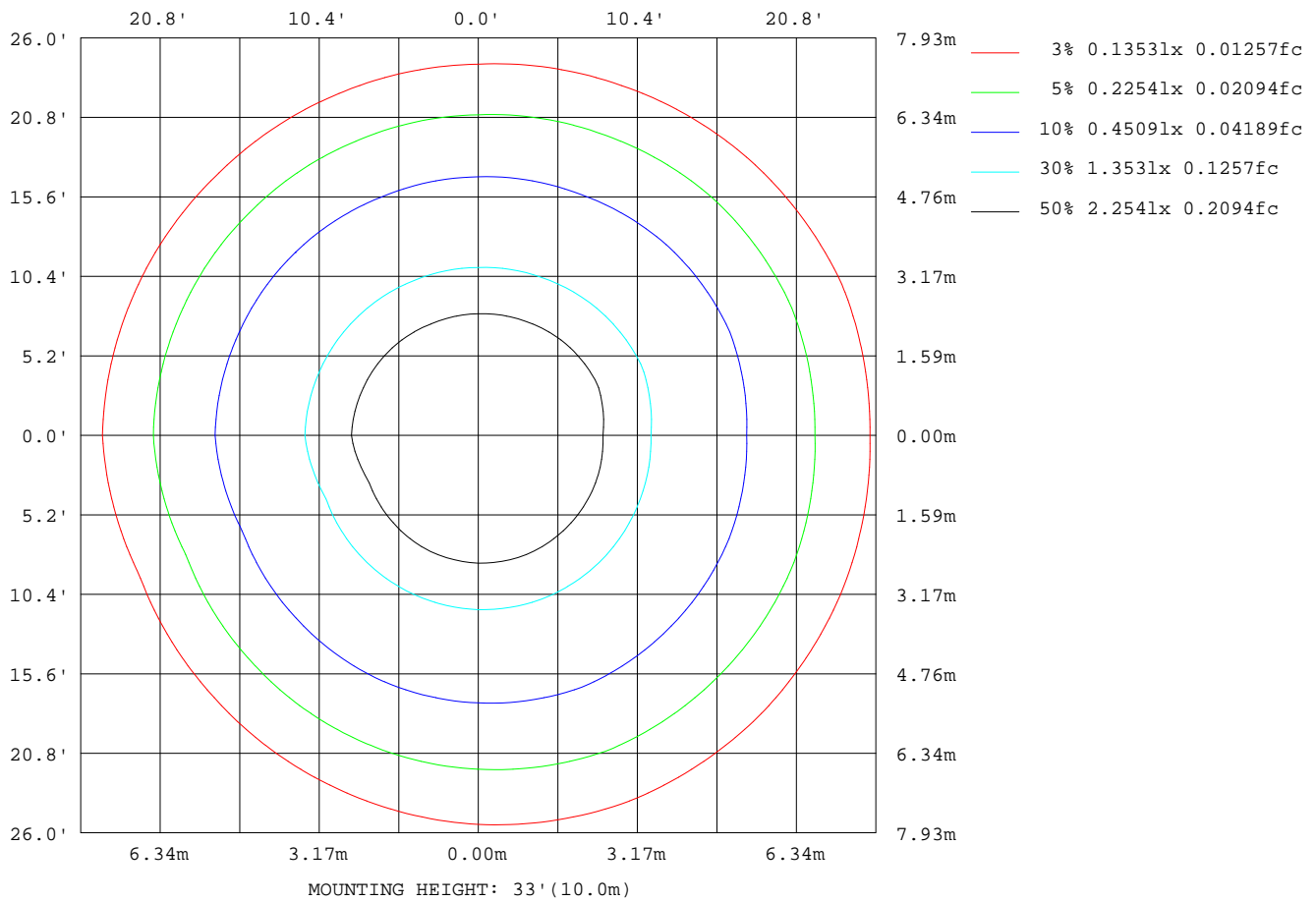
AAI Figure



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

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM



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Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

LED Avg.L Report

Test:U:12.00V I:0.1700A P:2.000W PF:1.000 Lamp Flux:183.703x1 lm		
NAME: Led Spot Light	TYPE:LED	WEIGHT:
SPEC.:	DIM.: D50x52mm	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

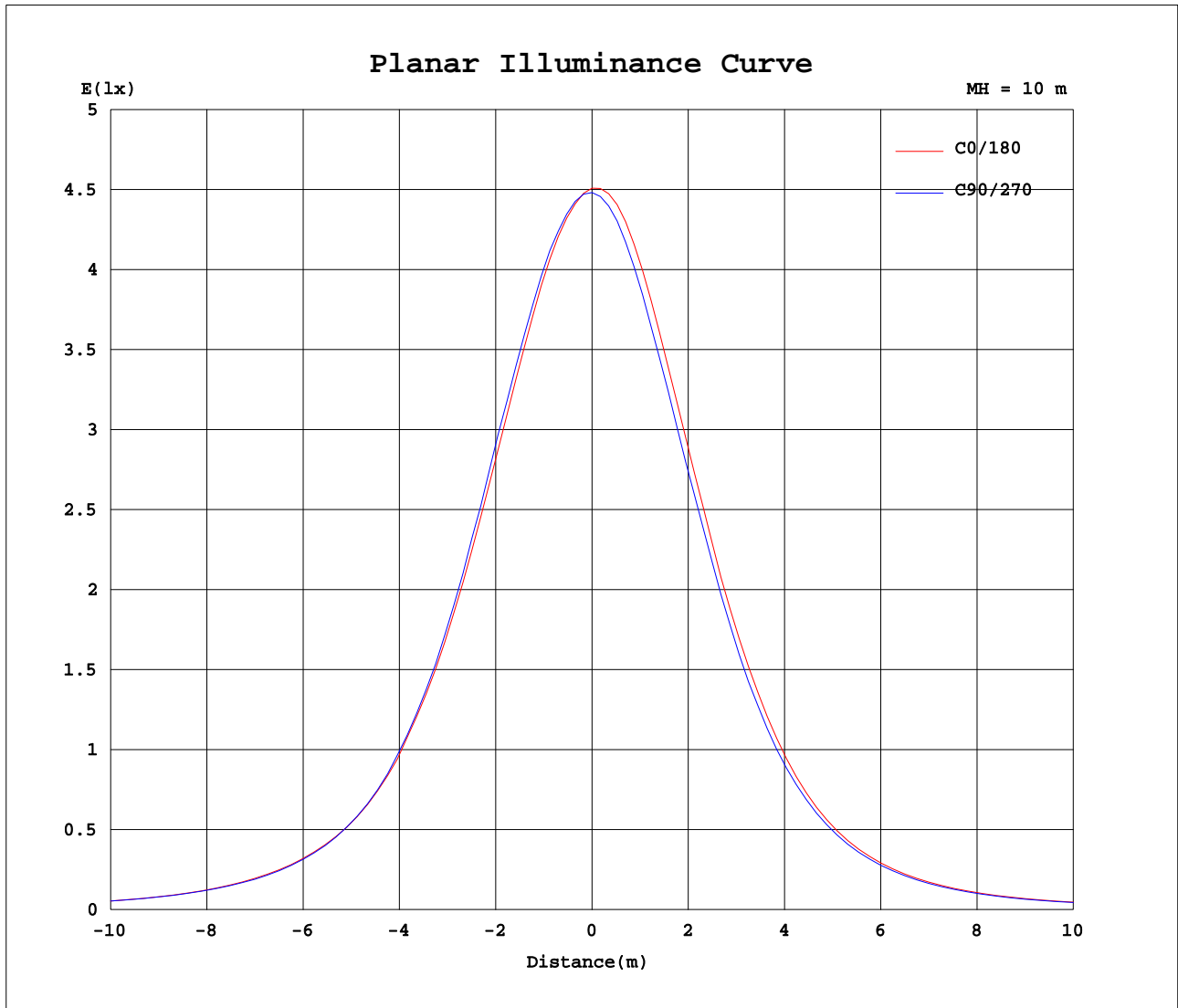
AvgL	cd/m2
L_0~180(65)av	6487
L_0~180(75)av	2894
L_0~180(85)av	2220
L_90~270(65)av	6759
L_90~270(75)av	3229
L_90~270(85)av	2374
L_45(65)av	6854
L_45(75)av	3083
L_45(85)av	2321

Standard: GB/T 29293-2012

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Planar Illuminance Curve



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EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: cd

[illegible]

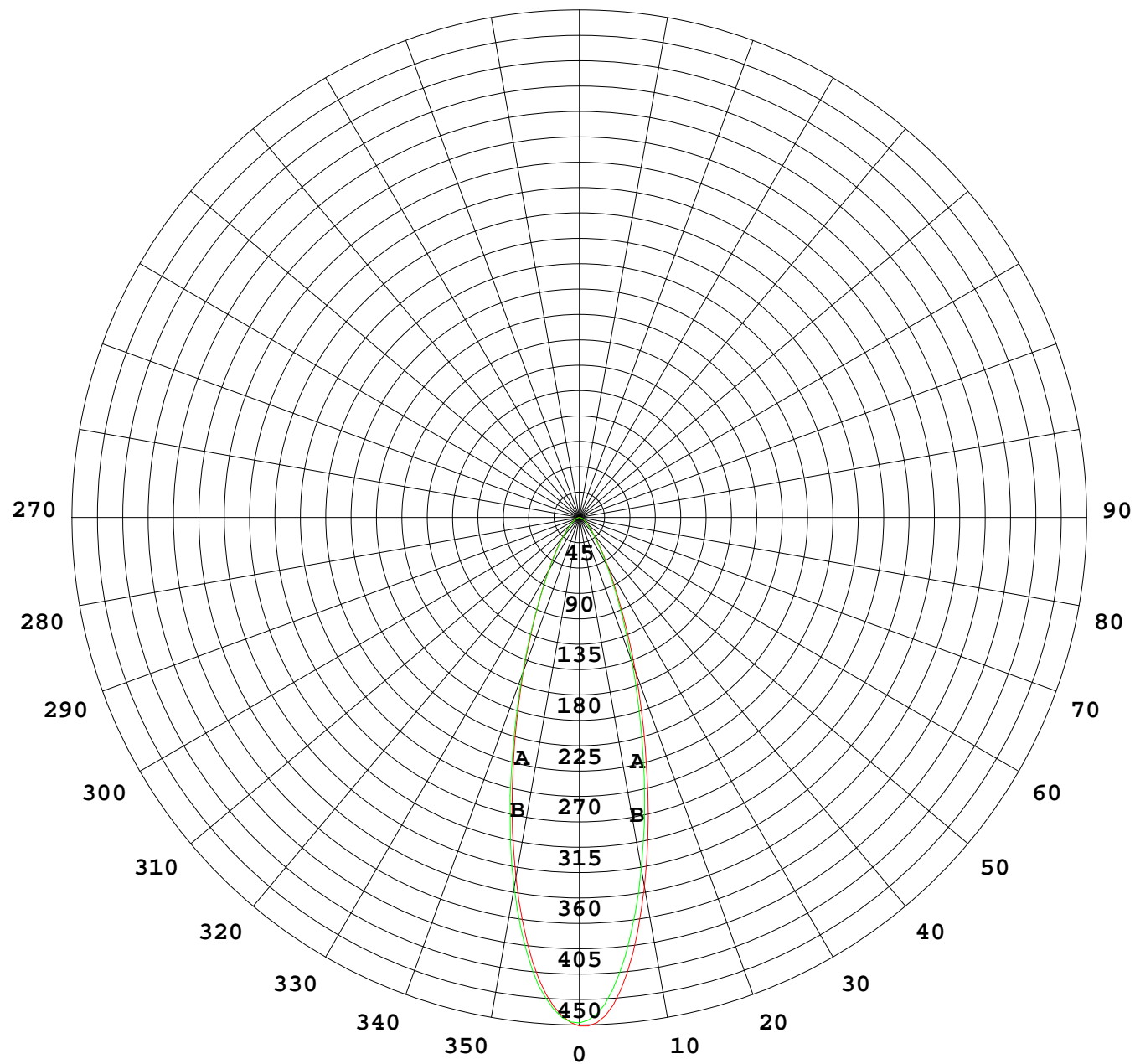
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Range: 0 - 90DEG
Interval: 1.0DEG
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Humidity:85.0%
Test Distance:8.820m [K=1.0000]
Remarks:

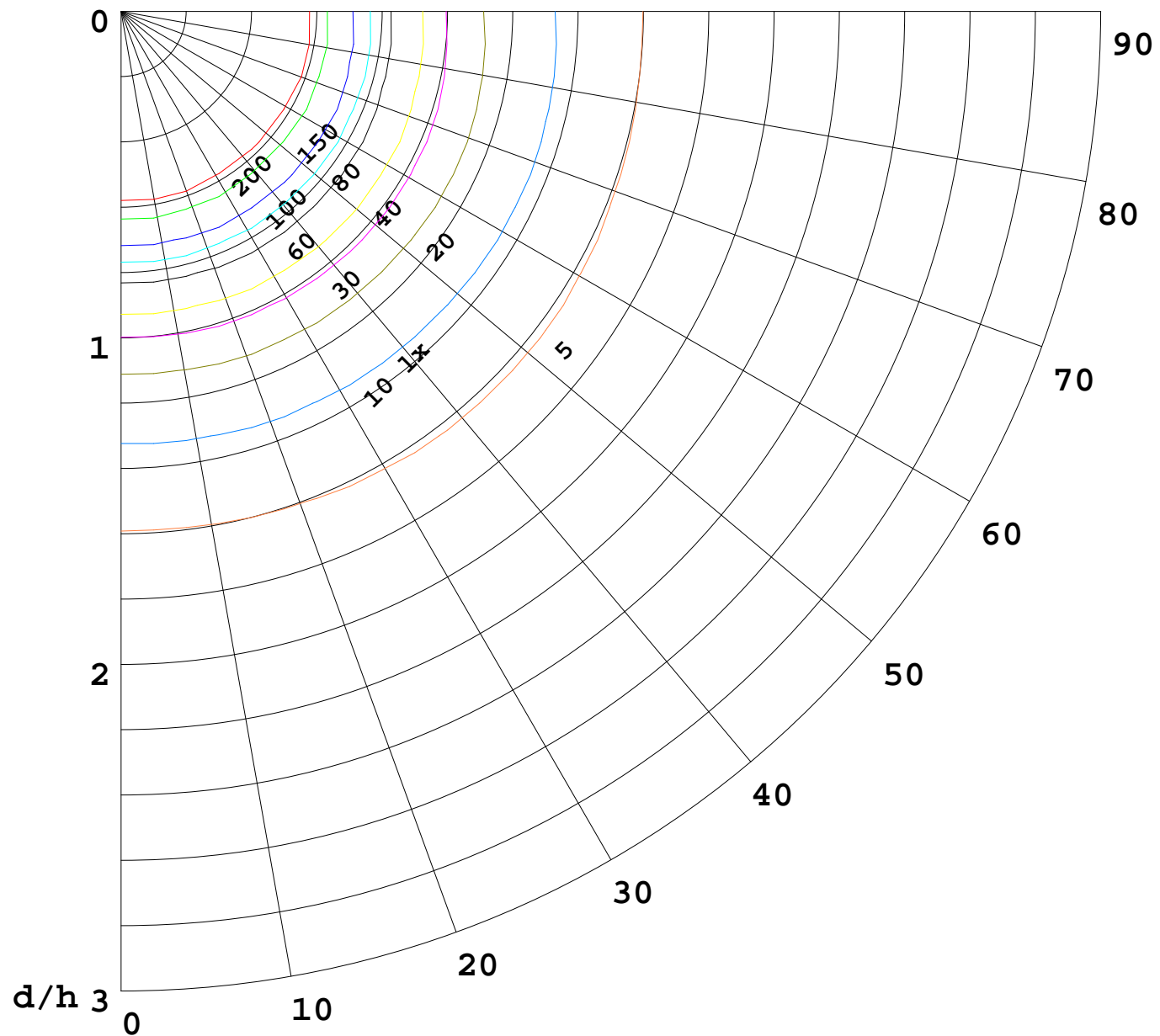
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I(cd)



1000 lm

$K = 1$



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

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

