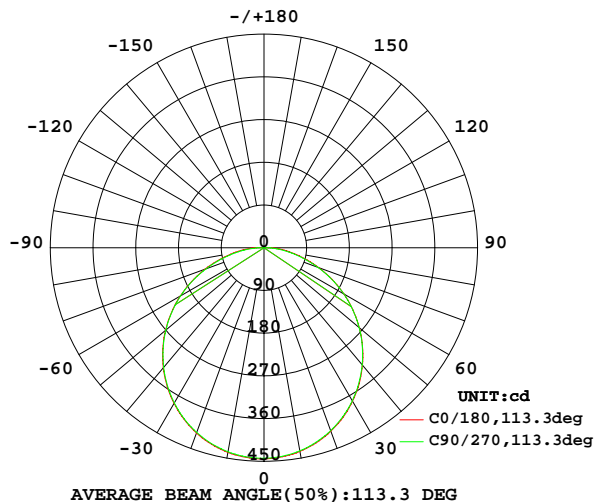


## LUMINAIRE PHOTOMETRIC TEST REPORT

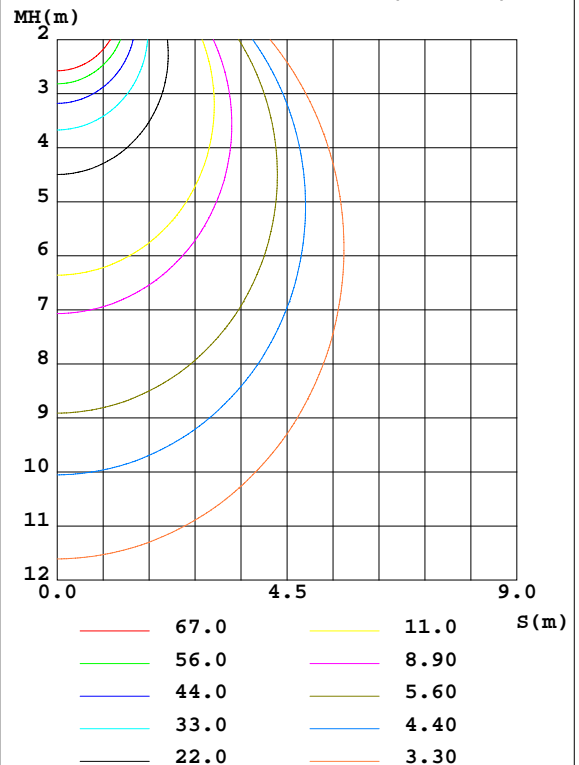
Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 86.57 lm/W			
MODEL	HM15-DR6-15W-120-LKL	I <sub>max</sub> (cd)	444.7	S/MH(C0/180)	1.27
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	1.27
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1307.2	η UP,DN(C0-180)	0.3,48.8
NOMINAL FLUX(lm)	1307.17	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.4,50.5
LAMPS INSIDE	1	η up(%)	0.7	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120	η down(%)	99.3	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

$\gamma$	C0	C90	C180	C270					$\gamma$	$\Phi$ zone	$\Phi$ total	$\%lum, lamp$
10	435.7	434.5	437.9	436.5					0- 10	42.01	42.01	3.21,3.21
20	411.4	410.2	415.5	414.1					10- 20	120.3	162.3	12.4,12.4
30	373.1	372.3	378.8	377.7					20- 30	182.4	344.7	26.4,26.4
40	322.8	322.0	329.9	329.0					30- 40	220.3	565.0	43.2,43.2
50	262.4	261.7	271.0	269.9					40- 50	229.2	794.2	60.8,60.8
60	194.3	194.0	203.9	202.8					50- 60	208.4	1003	76.7,76.7
70	122.7	120.8	132.4	129.8					60- 70	161.1	1164	89,89
80	58.67	53.73	65.85	60.60					70- 80	96.94	1261	96.4,96.4
90	14.87	6.647	19.22	8.509					80- 90	37.00	1298	99.3,99.3
100	0.3380	0.3473	0.4153	0.5663					90-100	4.448	1302	99.6,99.6
110	0.5344	0.6761	0.5986	0.6987					100-110	0.5398	1303	99.7,99.7
120	0.7809	0.9501	0.8773	0.8677					110-120	0.7329	1303	99.7,99.7
130	1.018	1.041	1.124	0.9819					120-130	0.8578	1304	99.8,99.8
140	1.233	1.183	1.361	1.165					130-140	0.8746	1305	99.8,99.8
150	1.443	1.338	1.558	1.398					140-150	0.8390	1306	99.9,99.9
160	1.512	1.366	1.516	1.530					150-160	0.6779	1307	100,100
170	1.599	1.466	1.594	1.635					160-170	0.4315	1307	100,100
180	1.631	1.530	1.631	1.535					170-180	0.1507	1307	100,100
DEG	LUMINOUS INTENSITY:cd								UNIT:lm			

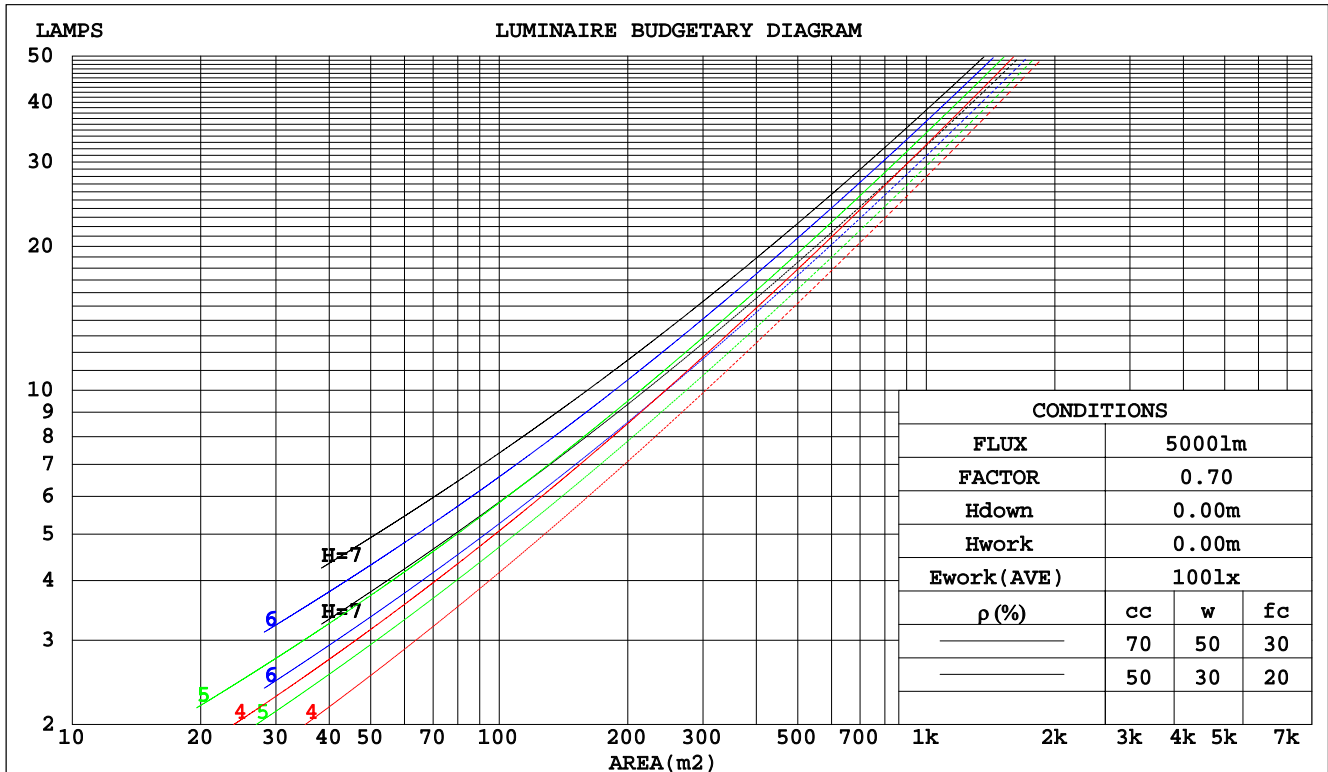
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	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	1.01	1.01	1.01	.99
1.0	1.03	.99	.95	1.01	.97	.93	.96	.93	.90	.92	.89	.87	.88	.86	.84	.82
2.0	.90	.83	.77	.88	.81	.76	.84	.78	.74	.80	.76	.72	.77	.74	.70	.68
3.0	.78	.70	.63	.77	.69	.63	.74	.67	.62	.71	.65	.60	.68	.63	.59	.57
4.0	.69	.60	.54	.68	.60	.53	.65	.58	.52	.63	.57	.52	.61	.55	.51	.49
5.0	.62	.53	.46	.61	.52	.46	.59	.51	.45	.56	.50	.45	.55	.49	.44	.42
6.0	.56	.47	.40	.55	.46	.40	.53	.45	.39	.51	.44	.39	.49	.43	.39	.37
7.0	.50	.42	.35	.50	.41	.35	.48	.40	.35	.46	.40	.35	.45	.39	.34	.32
8.0	.46	.37	.32	.45	.37	.31	.44	.36	.31	.43	.36	.31	.41	.35	.31	.29
9.0	.42	.34	.28	.42	.34	.28	.40	.33	.28	.39	.33	.28	.38	.32	.28	.26
10.0	.39	.31	.26	.38	.31	.26	.37	.30	.25	.36	.30	.25	.35	.29	.25	.23



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators:  
 Test Date: 2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity: 65.0%  
 Test Distance: 8.200m [K=1.0000]  
 Remarks:

## WEC AND CCEC

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm									
NAME:				TYPE:LED			WEIGHT:		
SPEC.:				DIM.:			SERIAL No.:		
MFR.:				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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.322	.183	.058	.315	.180	.057	.301	.173	.055	.288	.166	.053	.277	.160	.052	
2.0	.299	.164	.050	.292	.161	.050	.280	.156	.048	.269	.151	.047	.259	.146	.046	
3.0	.275	.146	.044	.269	.144	.043	.258	.140	.043	.248	.136	.042	.239	.132	.041	
4.0	.252	.131	.039	.247	.129	.038	.238	.126	.038	.229	.123	.037	.221	.120	.037	
5.0	.233	.119	.034	.228	.117	.034	.220	.114	.034	.212	.112	.033	.204	.109	.033	
6.0	.215	.108	.031	.211	.107	.031	.204	.104	.030	.197	.102	.030	.190	.100	.030	
7.0	.200	.099	.028	.197	.098	.028	.190	.096	.028	.184	.094	.027	.178	.092	.027	
8.0	.187	.091	.026	.184	.090	.026	.178	.089	.025	.172	.087	.025	.166	.085	.025	
9.0	.175	.085	.024	.172	.084	.024	.167	.082	.023	.161	.081	.023	.157	.080	.023	
10.0	.164	.079	.022	.162	.078	.022	.157	.077	.022	.152	.076	.021	.148	.074	.021	

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	.196	.196	.196	.168	.168	.168	.114	.114	.114	.066	.066	.066	.021	.021	.021	
1.0	.187	.162	.139	.160	.139	.120	.109	.095	.083	.063	.055	.048	.020	.018	.016	
2.0	.179	.138	.103	.153	.118	.089	.105	.082	.062	.061	.048	.036	.019	.015	.012	
3.0	.171	.120	.079	.147	.104	.069	.101	.072	.048	.058	.042	.028	.019	.014	.009	
4.0	.163	.107	.064	.140	.092	.055	.096	.064	.039	.056	.038	.023	.018	.012	.008	
5.0	.156	.096	.053	.134	.083	.046	.092	.058	.032	.053	.034	.019	.017	.011	.006	
6.0	.149	.088	.045	.128	.076	.039	.088	.053	.027	.051	.031	.016	.016	.010	.005	
7.0	.142	.081	.039	.122	.070	.034	.084	.049	.024	.049	.029	.014	.016	.010	.005	
8.0	.135	.075	.034	.116	.065	.030	.081	.046	.021	.047	.027	.013	.015	.009	.004	
9.0	.129	.070	.031	.111	.061	.027	.077	.043	.019	.045	.025	.011	.015	.008	.004	
10.0	.123	.066	.028	.106	.057	.025	.074	.040	.017	.043	.024	.010	.014	.008	.003	

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks:

## UGR(Unified Glare Rating) Table

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm											
NAME:					TYPE:LED			WEIGHT:			
SPEC.:					DIM.:			SERIAL No.:			
MFR.:					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	17.6	19.1	17.8	19.3	19.5	17.5	19.1	17.8	19.3	19.5	
	3H	19.1	20.5	19.4	20.8	21.0	19.1	20.5	19.4	20.7	21.0
	4H	19.7	21.1	20.1	21.3	21.6	19.7	21.0	20.0	21.3	21.6
	6H	20.3	21.5	20.6	21.8	22.1	20.1	21.4	20.5	21.7	22.0
	8H	20.5	21.7	20.8	22.0	22.3	20.3	21.5	20.7	21.8	22.1
	12H	20.7	21.8	21.0	22.1	22.5	20.4	21.6	20.8	21.9	22.2
4H	2H	18.2	19.5	18.5	19.8	20.0	18.2	19.5	18.5	19.8	20.0
	3H	19.9	21.1	20.3	21.4	21.7	19.9	21.0	20.2	21.4	21.7
	4H	20.7	21.7	21.0	22.1	22.4	20.6	21.7	21.0	22.0	22.4
	6H	21.3	22.3	21.7	22.6	23.0	21.2	22.2	21.6	22.5	22.9
	8H	21.6	22.5	22.0	22.9	23.3	21.4	22.3	21.9	22.7	23.1
	12H	21.9	22.7	22.3	23.1	23.5	21.6	22.5	22.1	22.8	23.3
8H	4H	20.9	21.8	21.4	22.2	22.6	20.9	21.8	21.3	22.2	22.6
	6H	21.8	22.5	22.2	22.9	23.4	21.7	22.4	22.1	22.8	23.3
	8H	22.2	22.8	22.6	23.3	23.7	22.0	22.7	22.5	23.1	23.6
	12H	22.5	23.1	23.0	23.6	24.1	22.3	22.9	22.8	23.3	23.8
12H	4H	21.0	21.8	21.4	22.2	22.6	20.9	21.7	21.3	22.1	22.6
	6H	21.8	22.5	22.3	23.0	23.4	21.7	22.4	22.2	22.8	23.3
	8H	22.3	22.9	22.8	23.3	23.8	22.1	22.7	22.6	23.2	23.7
Variations with the observer position at spacings:											
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2					
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3					
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3					

CIE Pub.117 Corrected 1307 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.9)

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks:

## UTILIZATION FACTORS TABLE

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

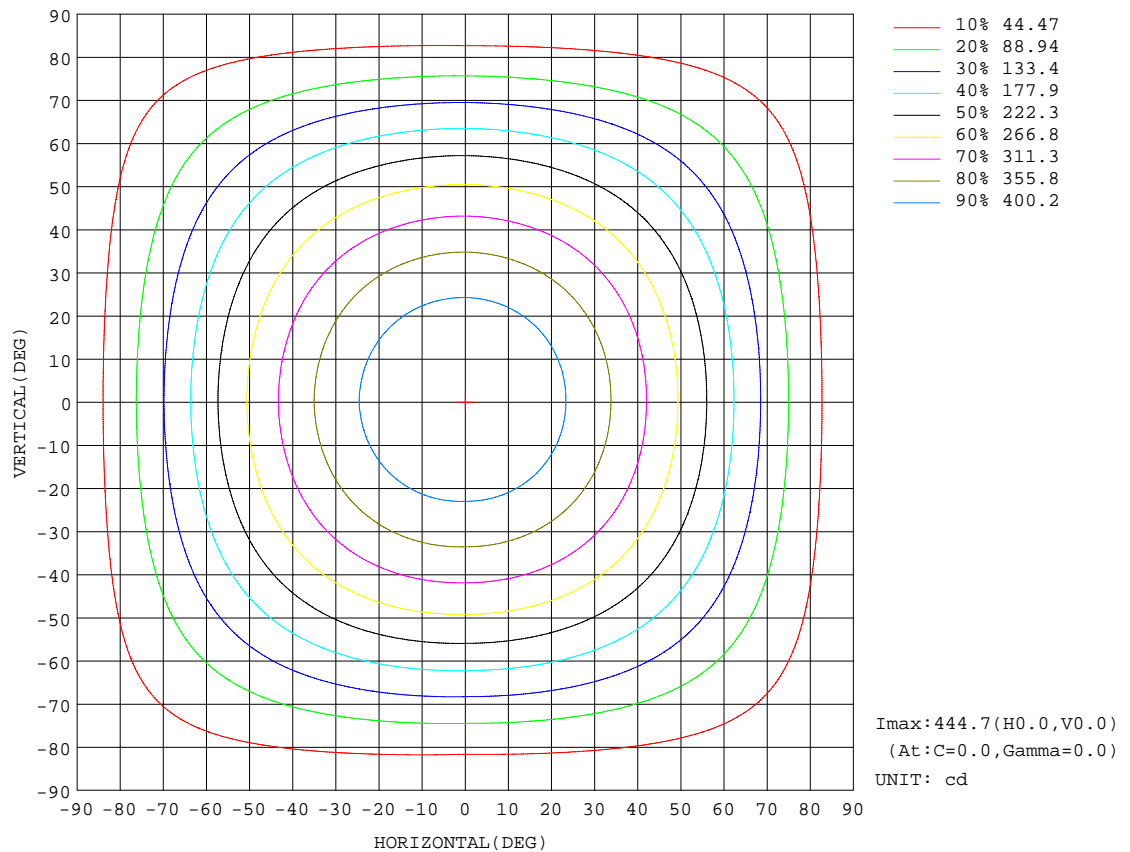
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	57	45	38	56	45	38	55	44	38	31
0.80	67	55	47	66	54	47	64	54	47	40
1.00	75	64	56	74	63	56	71	65	55	48
1.25	82	71	64	81	71	64	78	69	63	55
1.50	87	77	70	85	76	69	82	74	68	60
2.00	94	85	79	92	84	78	88	82	76	68
2.50	98	90	84	96	89	83	92	86	81	72
3.00	101	94	88	99	93	87	95	90	85	76
4.00	105	99	95	103	98	93	99	94	90	81
5.00	108	103	99	105	101	97	101	97	94	84
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks:

## ISOCANDELA DIAGRAM

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

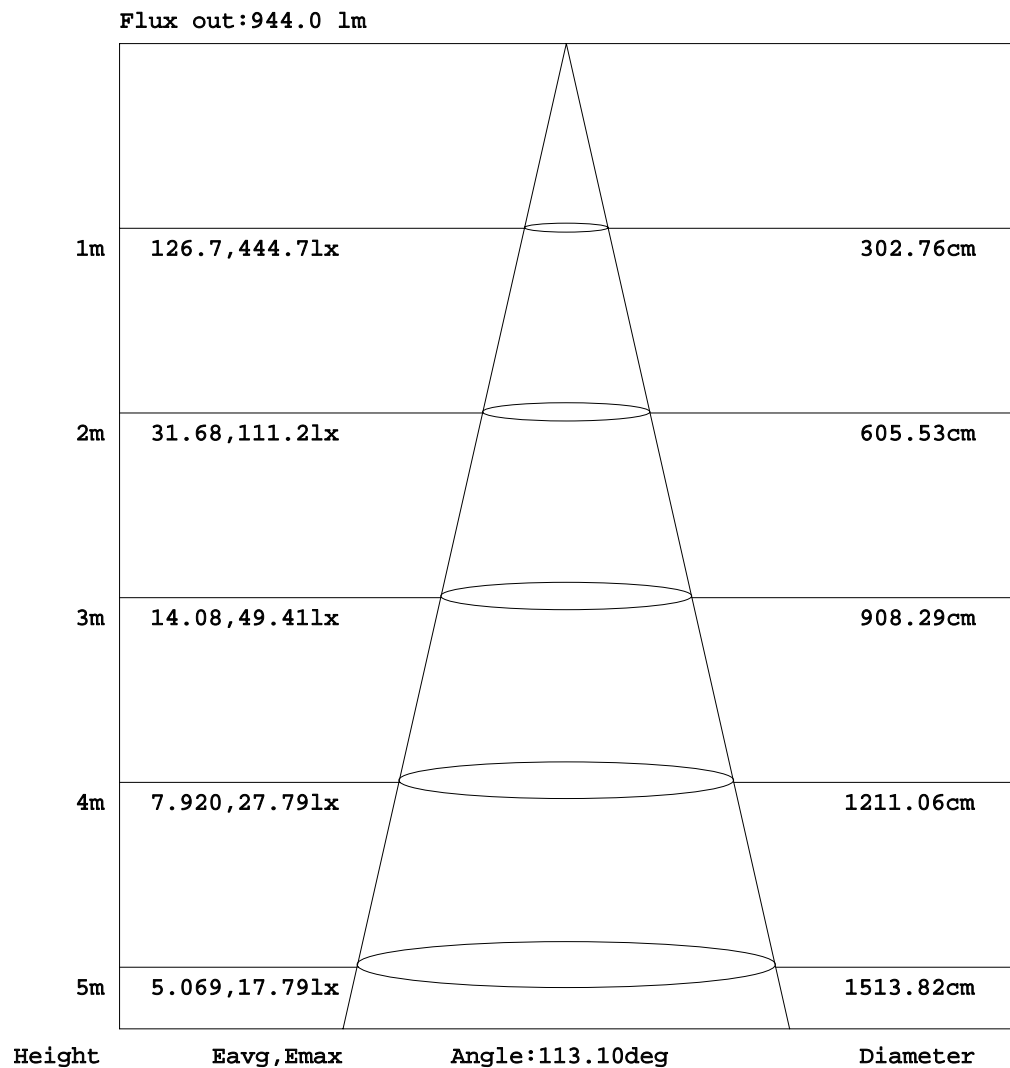


C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators:  
Test Date: 2020-02-27

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 8.200m [K=1.0000]  
Remarks:

## AAI Figure

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



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

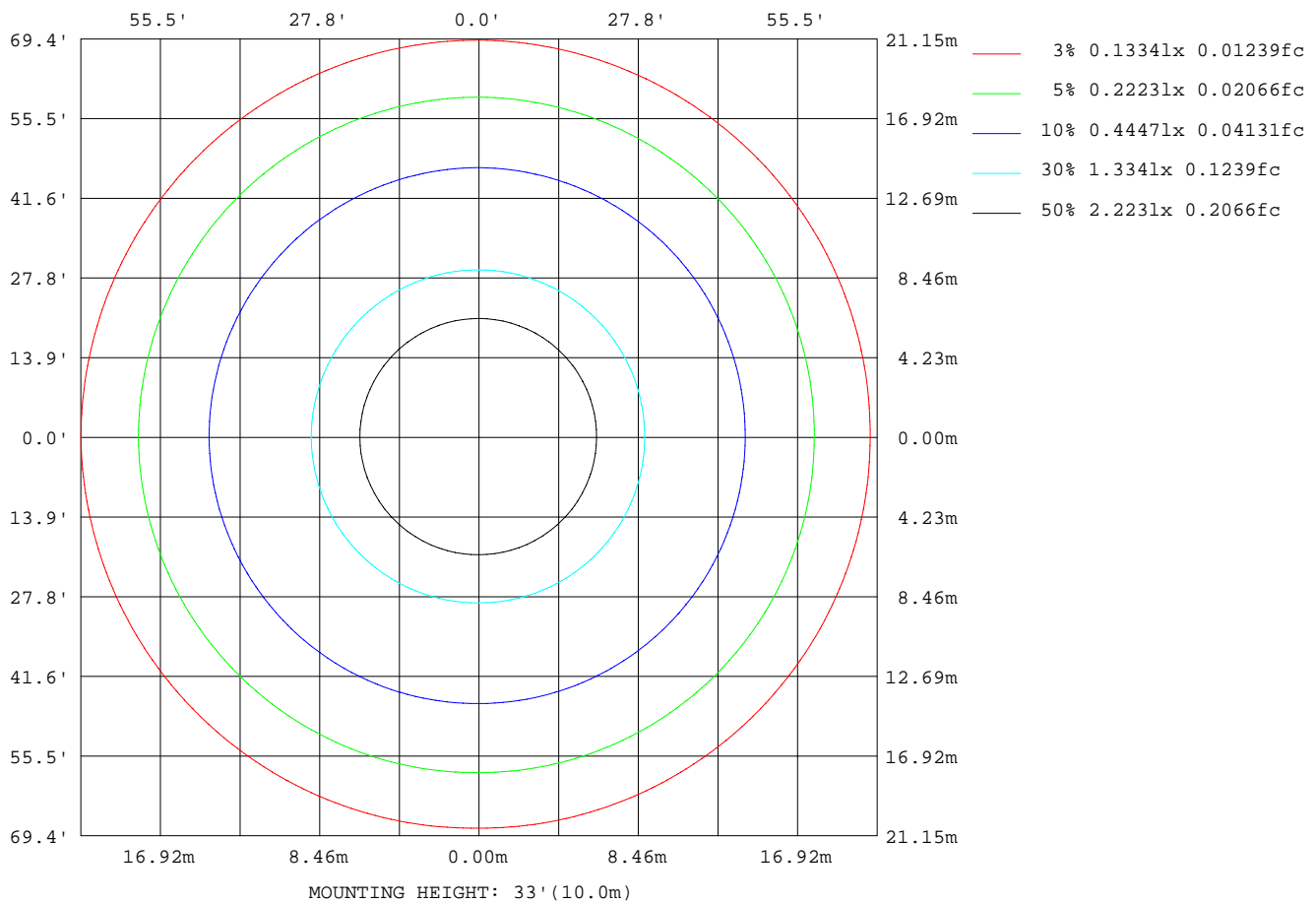
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks:



## ISOLUX DIAGRAM

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators:  
 Test Date: 2020-02-27

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity: 65.0%  
 Test Distance: 8.200m [K=1.0000]  
 Remarks:

## LED Avg.L Report

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

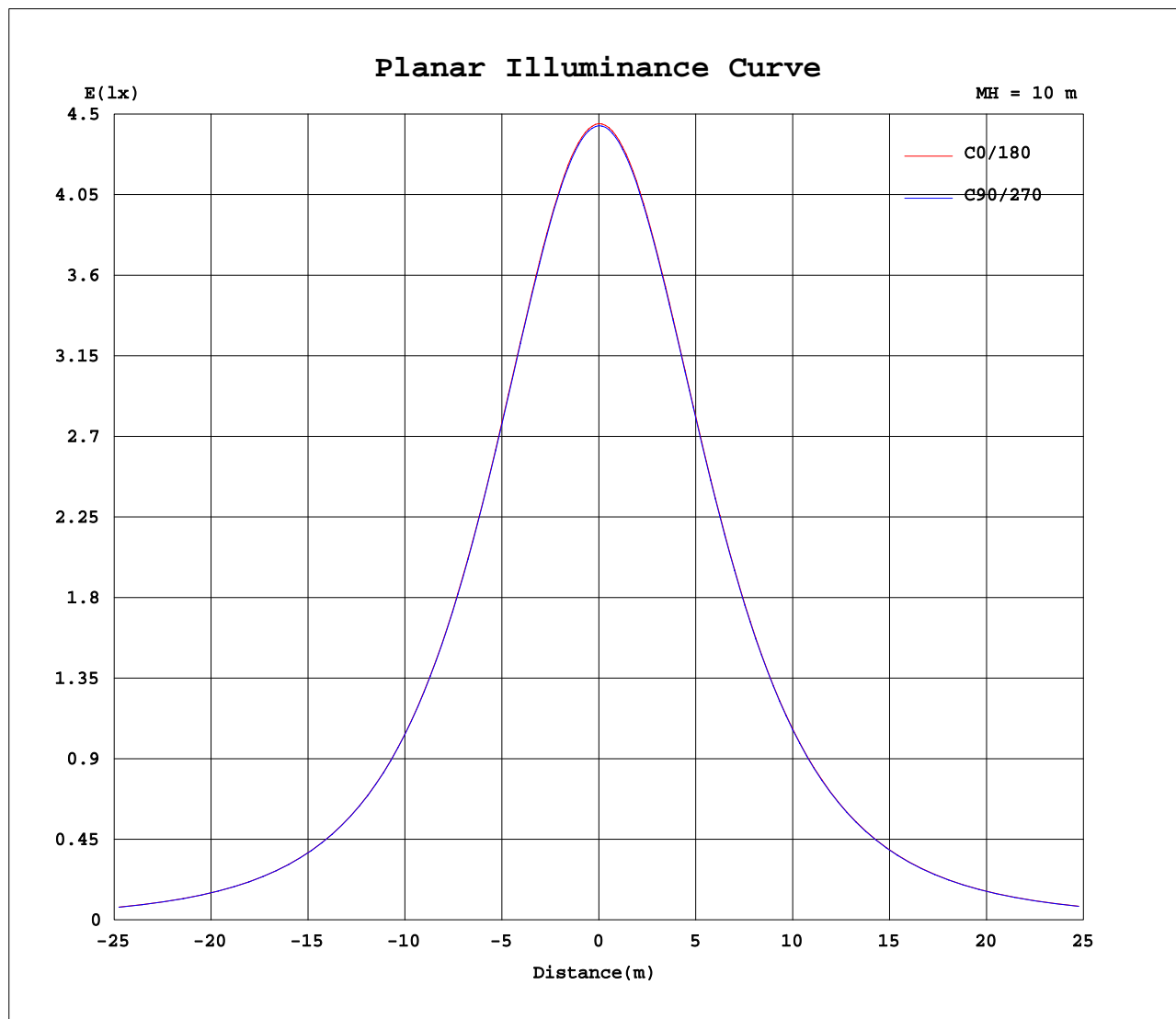
AvgL	cd/m2
L_0~180(65)av	3867
L_0~180(75)av	3594
L_0~180(85)av	4205
L_90~270(65)av	3840
L_90~270(75)av	3457
L_90~270(85)av	3372
L_45(65)av	3857
L_45(75)av	3519
L_45(85)av	3705

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators:  
Test Date: 2020-02-27

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 8.200m [K=1.0000]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.7V I:0.1380A P:15.10W PF:0.9070 Lamp Flux:1307.17x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	90	180	270														
0	445	444	445	444														
5	442	441	443	442														
10	436	435	438	437														
15	426	424	428	427														
20	411	410	415	414														
25	394	393	399	398														
30	373	372	379	378														
35	350	348	356	355														
40	323	322	330	329														
45	294	293	302	301														
50	262	262	271	270														
55	229	229	238	237														
60	194	194	204	203														
65	159	158	168	167														
70	123	121	132	130														
75	88.7	85.4	97.3	93.6														
80	58.7	53.7	65.9	60.6														
85	33.7	27.2	39.5	31.6														
90	14.9	6.65	19.2	8.51														
95	3.49	0.84	6.01	0.96														
100	0.34	0.35	0.42	0.57														
105	0.42	0.50	0.47	0.61														
110	0.53	0.68	0.60	0.70														
115	0.65	0.78	0.74	0.78														
120	0.78	0.95	0.88	0.87														
125	0.90	0.99	1.02	0.91														
130	1.02	1.04	1.12	0.98														
135	1.12	1.09	1.24	1.06														
140	1.23	1.18	1.36	1.16														
145	1.34	1.26	1.46	1.31														
150	1.44	1.34	1.56	1.40														
155	1.54	1.34	1.53	1.46														
160	1.51	1.37	1.52	1.53														
165	1.54	1.43	1.57	1.58														
170	1.60	1.47	1.59	1.63														
175	1.61	1.49	1.60	1.62														
180	1.63	1.53	1.63	1.53														

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2020-02-27

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:8.200m [K=1.0000]  
 Remarks: