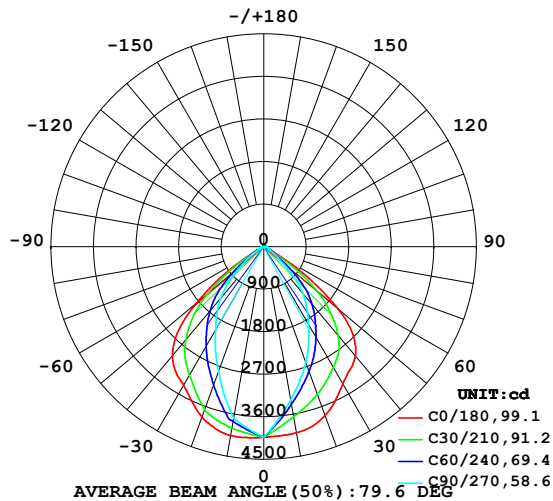


## LUMINAIRE PHOTOMETRIC TEST REPORT

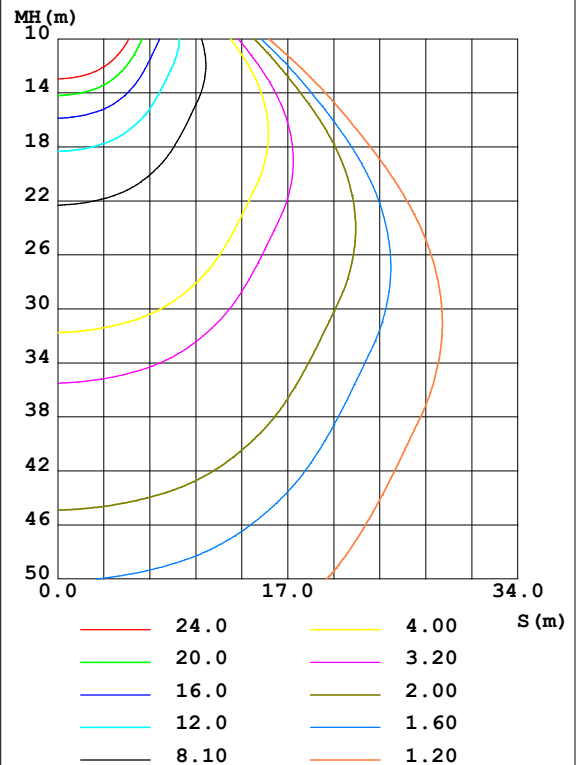
Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 124.56 lm/W			
MODEL	LHB-50W-6090	I <sub>max</sub> (cd)	4062	S/MH (C0/180)	1.26
NOMINAL POWER(W)	50	LOR(%)	99.9	S/MH (C90/270)	0.84
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	6338.2	η UP,DN(C0-180)	0.0,48.5
NOMINAL FLUX(lm)	6344.36	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,51.4
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	220	η down (%)	99.9	CIBSE SHR MAX	1.10

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-28

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
 Humidity:65.0%  
 Test Distance:7.290m [K=1.0000]  
 Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum,lamp
5	4016	3761	3659	3790	4055	3928	3861	3902	0- 5	93.72	93.72	1.48,1.48
10	3997	3505	3285	3562	4059	3824	3690	3784	5- 10	269.8	363.5	5.74,5.73
15	3938	3276	2946	3352	3980	3682	3243	3643	10- 15	425.7	789.2	12.5,12.4
20	3799	3054	2606	3146	3835	3387	2797	3357	15- 20	552.7	1342	21.2,21.2
25	3590	2836	2249	2940	3610	3108	2418	3088	20- 25	649.6	1991	31.4,31.4
30	3353	2591	1893	2698	3389	2816	2039	2812	25- 30	715.7	2707	42.7,42.7
35	3182	2292	1594	2404	3243	2482	1732	2509	30- 35	753.8	3461	54.6,54.6
40	3015	1952	1295	2067	3002	2128	1424	2188	35- 40	762.7	4224	66.6,66.6
45	2687	1547	874.9	1621	2586	1696	1013	1776	40- 45	721.2	4945	78,77.9
50	2055	1071	454.7	1102	1864	1181	601.7	1289	45- 50	599.5	5544	87.5,87.4
55	1171	570.4	293.4	575.7	1018	614.9	363.7	699.8	50- 55	401.3	5946	93.8,93.7
60	351.5	179.6	132.2	170.5	282.8	161.8	125.6	190.1	55- 60	191.7	6137	96.8,96.7
65	126.9	128.2	120.7	122.1	109.8	94.87	103.7	105.0	60- 65	71.91	6209	98,97.9
70	90.91	95.01	109.3	91.80	76.50	60.63	81.73	65.52	65- 70	47.32	6257	98.7,98.6
75	69.61	73.55	80.81	70.87	54.17	43.16	63.34	46.87	70- 75	36.61	6293	99.3,99.2
80	47.51	53.16	52.33	50.90	35.72	28.23	44.96	30.66	75- 80	26.70	6320	99.7,99.6
85	25.92	17.06	0	16.29	22.19	8.167	0	8.788	80- 85	15.38	6335	100,99.9
90	18.47	0	0	0	14.35	0	0	0	85- 90	2.932	6338	100,99.9
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 4944.9 lm

%lum = 78.0%

%lamp = 77.9%

Conical surface Flux(120deg): 6137.3 lm

%lum = 96.8%

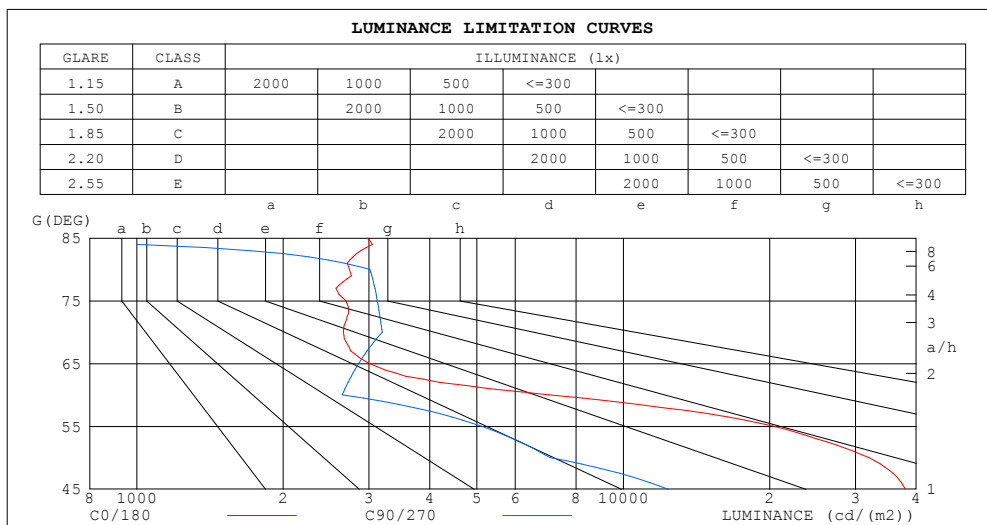
%lamp = 96.7%

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
 Humidity:65.0%  
 Test Distance:7.290m [K=1.0000]  
 Remarks:

## LUMINANCE LIMITATION CURVES

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	2973	0
80	2736	3014
75	2689	3122
70	2658	3196
65	3004	2857
60	7029	2644
55	20411	5116
50	31973	7074
45	38006	12373

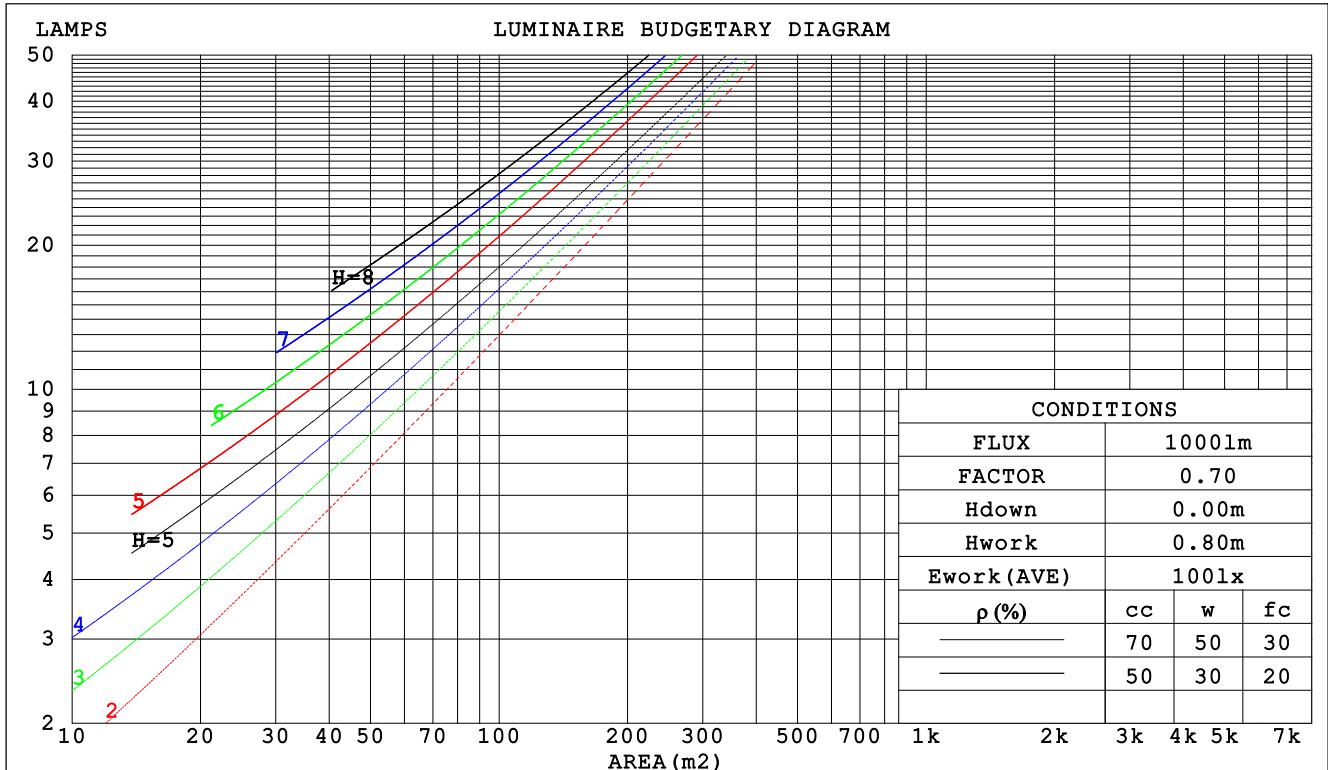
C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-02-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity:65.0%  
Test Distance:7.290m [K=1.0000]  
Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	Coefficients of Utilization(CU)															
RCR:Room Cavity Ratio																
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	1.08	1.05	1.02	1.06	1.03	1.01	1.02	.00	.98	.98	.96	.95	.95	.93	.92	.90
2.0	.98	.93	.89	.96	.92	.88	.93	.89	.86	.90	.87	.84	.87	.84	.82	.80
3.0	.89	.83	.78	.88	.82	.77	.85	.80	.76	.82	.78	.74	.80	.76	.73	.71
4.0	.81	.74	.69	.80	.73	.68	.77	.72	.67	.75	.70	.66	.73	.69	.66	.64
5.0	.74	.66	.61	.73	.66	.61	.71	.65	.60	.69	.64	.60	.67	.63	.59	.57
6.0	.68	.60	.55	.67	.60	.55	.65	.59	.54	.64	.58	.54	.62	.57	.53	.52
7.0	.62	.55	.49	.61	.54	.49	.60	.54	.49	.59	.53	.49	.57	.52	.48	.47
8.0	.57	.50	.45	.57	.50	.45	.55	.49	.45	.54	.49	.44	.53	.48	.44	.42
9.0	.53	.46	.41	.52	.46	.41	.51	.45	.41	.50	.45	.41	.50	.44	.40	.39
10.0	.49	.42	.38	.49	.42	.38	.48	.42	.37	.47	.41	.37	.46	.41	.37	.36



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
 Humidity:65.0%  
 Test Distance:7.290m [K=1.0000]  
 Remarks:

## WEC AND CCEC

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm					
NAME:			TYPE:LED		WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ			DIM.:		SERIAL No.:1
MFR.: EVERFINE			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	.223	.127	.040	.216	.123	.039	.203	.116	.037	.191	.110	.035	.180	.105	.034		
2.0	.217	.119	.036	.211	.116	.036	.200	.111	.035	.190	.106	.033	.180	.102	.032		
3.0	.207	.110	.033	.202	.108	.033	.193	.104	.032	.184	.101	.031	.176	.097	.030		
4.0	.197	.103	.030	.193	.101	.030	.184	.098	.029	.177	.095	.029	.169	.092	.028		
5.0	.187	.095	.028	.183	.094	.027	.176	.092	.027	.169	.089	.026	.162	.087	.026		
6.0	.177	.089	.025	.174	.088	.025	.167	.086	.025	.161	.084	.025	.155	.082	.024		
7.0	.168	.083	.024	.165	.082	.023	.159	.081	.023	.154	.079	.023	.148	.077	.023		
8.0	.160	.078	.022	.157	.077	.022	.152	.076	.022	.147	.074	.021	.142	.073	.021		
9.0	.152	.073	.020	.149	.073	.020	.144	.071	.020	.140	.070	.020	.136	.069	.020		
10.0	.144	.069	.019	.142	.069	.019	.138	.068	.019	.134	.066	.019	.130	.065	.019		

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	.174	.157	.141	.149	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.162	.132	.107	.139	.114	.092	.095	.079	.064	.055	.046	.038	.018	.015	.012	
3.0	.152	.114	.083	.131	.098	.072	.090	.068	.050	.052	.040	.030	.017	.013	.010	
4.0	.144	.100	.066	.124	.086	.057	.085	.060	.040	.049	.035	.024	.016	.011	.008	
5.0	.137	.089	.054	.117	.077	.047	.081	.054	.033	.047	.032	.020	.015	.010	.006	
6.0	.130	.080	.044	.112	.069	.039	.077	.049	.027	.045	.029	.016	.014	.009	.005	
7.0	.124	.073	.037	.107	.063	.033	.074	.044	.023	.043	.026	.014	.014	.009	.005	
8.0	.118	.067	.032	.102	.058	.028	.070	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.113	.062	.028	.097	.054	.024	.067	.038	.017	.039	.022	.010	.013	.007	.003	
10.0	.108	.058	.024	.093	.050	.021	.065	.035	.015	.038	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-02-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity:65.0%  
Test Distance:7.290m [K=1.0000]  
Remarks:

### UGR(Unified Glare Rating) Table

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm											
NAME:					TYPE:LED			WEIGHT:			
SPEC.:C470SP-Q2-P-03A 230V50HZ					DIM.:			SERIAL No.:1			
MFR.: EVERFINE					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	2H	22.8	24.1	23.1	24.3	24.4	17.8	19.0	18.0	19.2	19.4
	3H	22.7	23.8	23.0	24.1	24.3	17.9	19.0	18.1	19.2	19.4
	4H	22.7	23.7	22.9	23.9	24.2	17.9	19.0	18.2	19.2	19.5
	6H	22.6	23.6	22.9	23.8	24.1	18.0	19.0	18.3	19.3	19.5
	8H	22.6	23.5	22.9	23.8	24.1	18.0	19.0	18.3	19.2	19.5
	12H	22.5	23.5	22.9	23.7	24.0	18.0	18.9	18.3	19.2	19.5
4H	2H	22.6	23.7	22.9	23.9	24.1	17.9	18.9	18.2	19.2	19.4
	3H	22.5	23.4	22.8	23.7	24.0	18.0	18.9	18.4	19.2	19.5
	4H	22.5	23.3	22.8	23.6	23.9	18.2	19.0	18.5	19.3	19.6
	6H	22.5	23.2	22.8	23.5	23.9	18.3	19.0	18.7	19.4	19.7
	8H	22.4	23.1	22.8	23.5	23.8	18.3	19.0	18.7	19.4	19.7
	12H	22.4	23.0	22.9	23.4	23.8	18.3	18.9	18.7	19.3	19.7
8H	4H	22.4	23.0	22.8	23.4	23.8	18.2	18.8	18.6	19.2	19.6
	6H	22.4	22.9	22.8	23.3	23.8	18.4	18.9	18.8	19.3	19.8
	8H	22.4	22.9	22.9	23.3	23.8	18.4	18.9	18.9	19.3	19.8
	12H	22.5	22.9	22.9	23.3	23.8	18.4	18.8	18.9	19.3	19.7
12H	4H	22.3	22.9	22.7	23.3	23.7	18.1	18.7	18.6	19.1	19.5
	6H	22.4	22.8	22.8	23.3	23.7	18.4	18.9	18.9	19.3	19.8
	8H	22.4	22.8	22.9	23.3	23.7	18.5	18.9	19.0	19.3	19.8
Variations with the observer position at spacings:											
S = 1.0H	+ 1.2 / - 2.3					+ 1.8 / - 2.7					
1.5H	+ 1.7 / - 3.3					+ 1.9 / - 2.7					
2.0H	+ 4.2 / - 7.6					+ 2.8 / - 2.9					

CIE Pub.117 Corrected 6344 lm Total Lamp Luminous Flux.(8log(F/F0) = 6.4)

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-02-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity:65.0%  
Test Distance:7.290m [K=1.0000]  
Remarks:

### UTILIZATION FACTORS TABLE

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

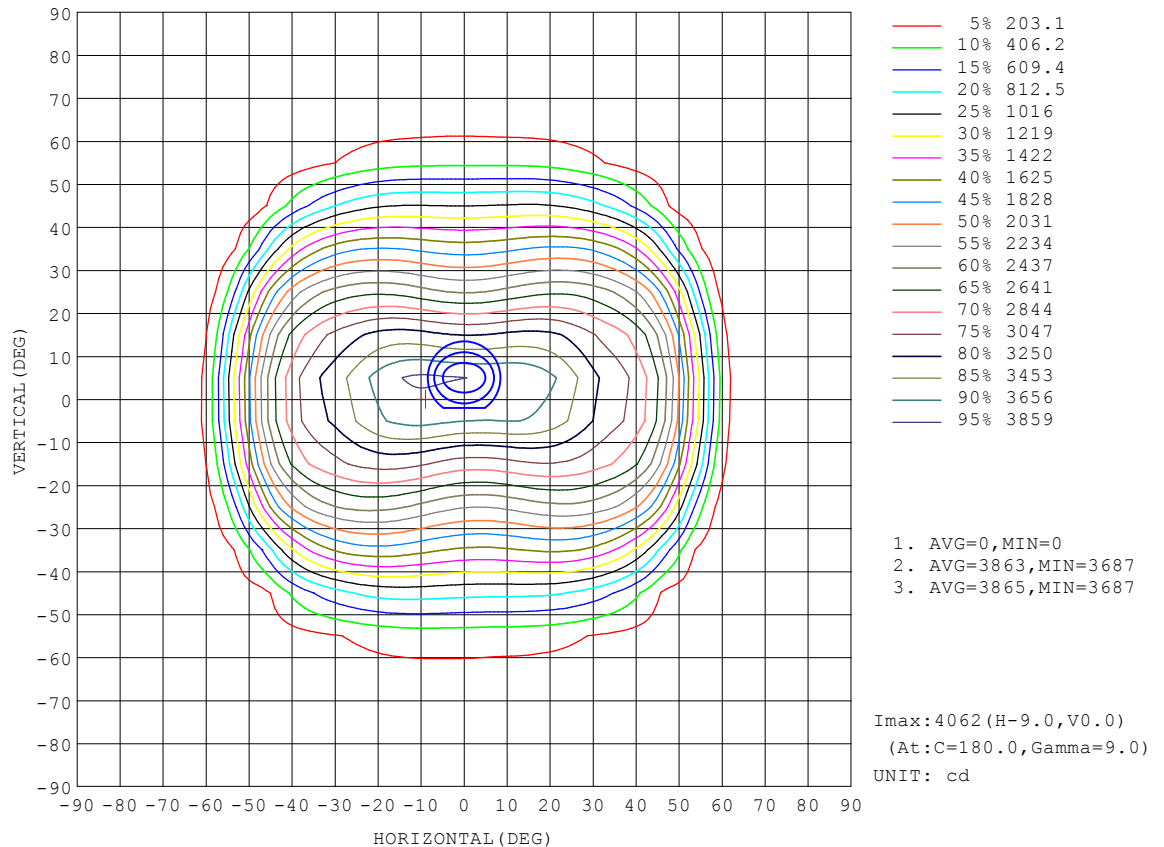
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	70	61	55	69	60	55	68	60	55	49
0.80	80	71	65	79	71	65	78	70	65	59
1.00	88	80	74	87	79	74	85	80	74	68
1.25	94	87	81	93	86	81	91	85	80	75
1.50	98	91	86	97	90	86	94	89	85	79
2.00	103	97	93	102	96	92	99	94	90	84
2.50	106	100	96	104	99	95	100	96	93	86
3.00	108	103	99	106	102	98	102	99	96	89
4.00	110	106	103	108	105	102	104	102	99	91
5.00	112	109	106	110	107	104	105	103	101	93
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-02-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity:65.0%  
Test Distance:7.290m [K=1.0000]  
Remarks:

## ISOCANDELA DIAGRAM

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:



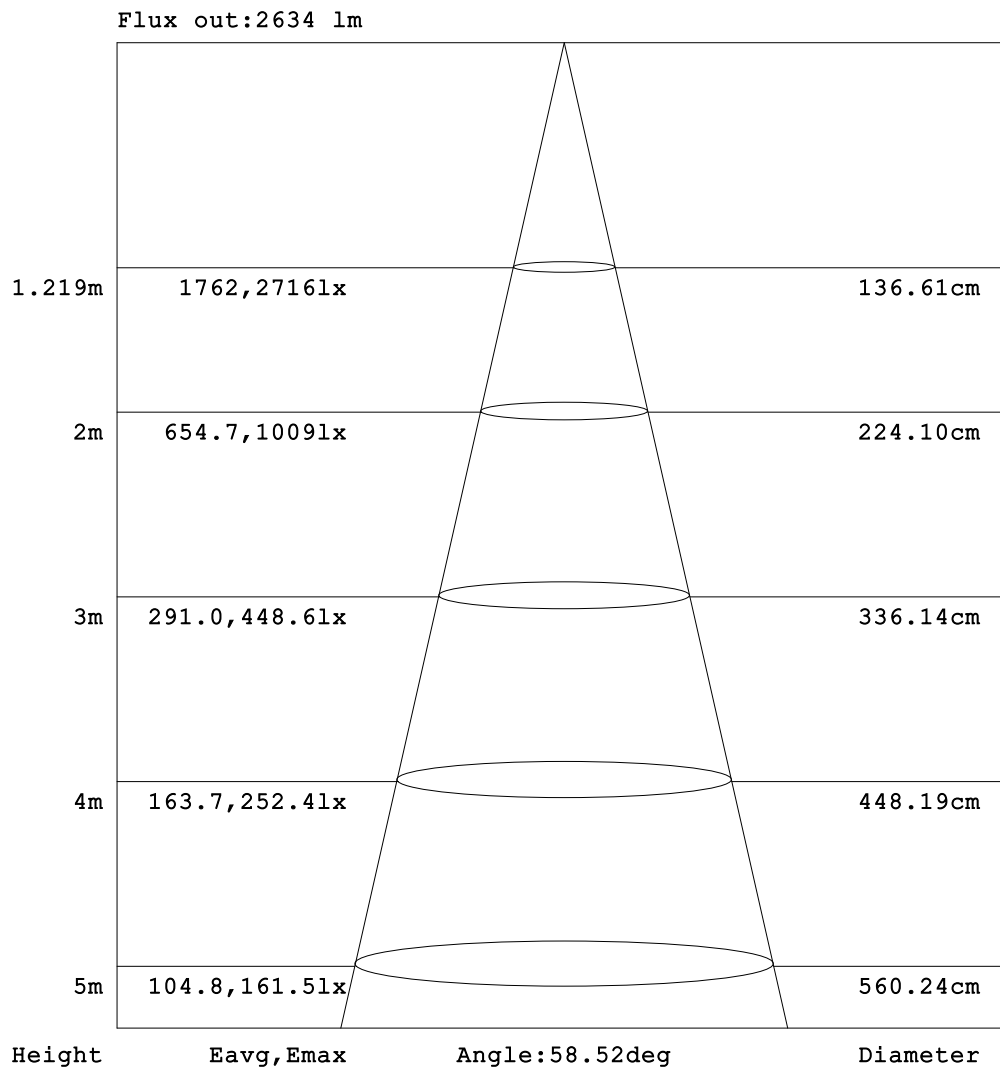
C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-02-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity:65.0%  
Test Distance:7.290m [K=1.0000]  
Remarks:



### AAI Figure

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:



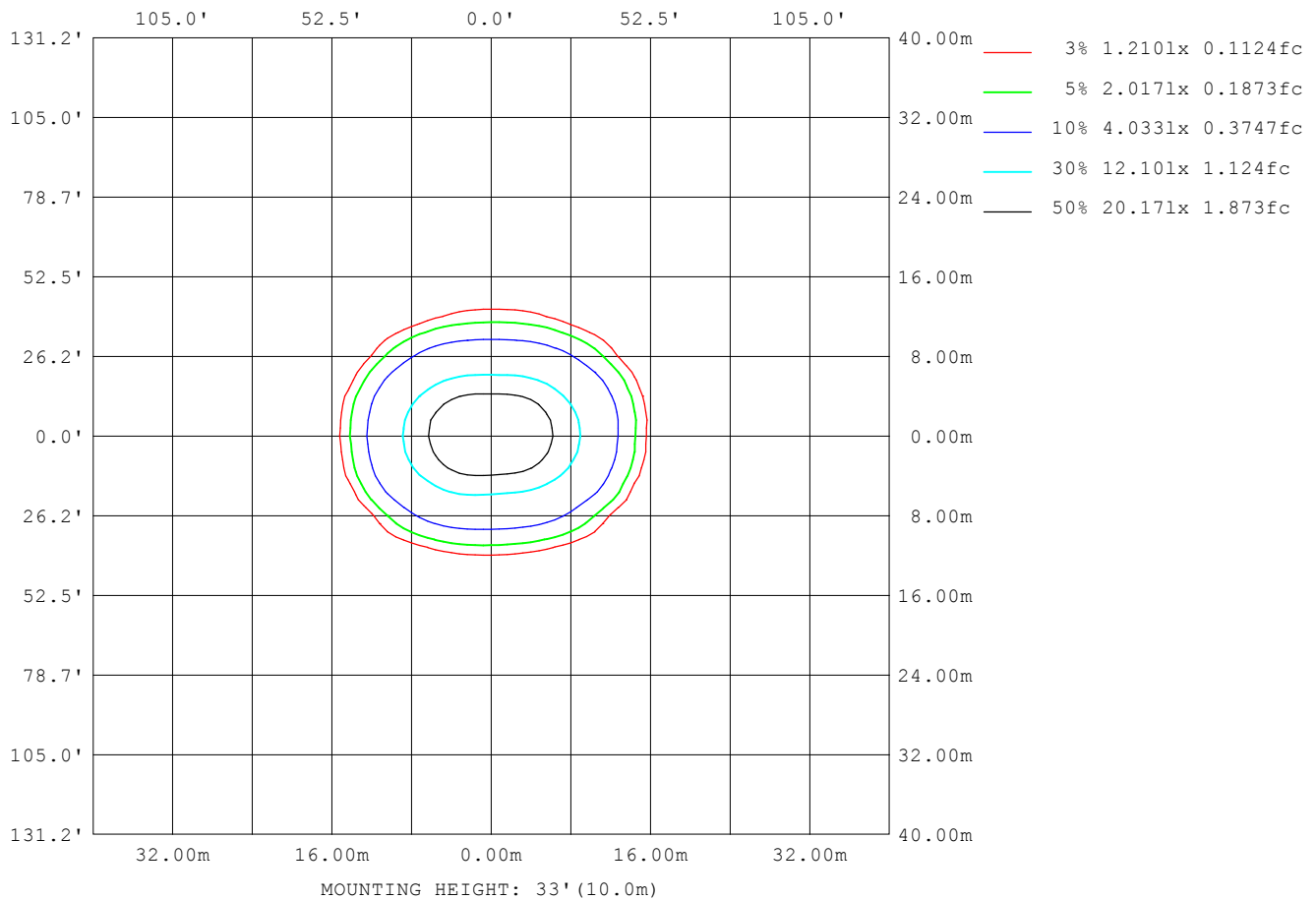
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-28

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
 Humidity:65.0%  
 Test Distance:7.290m [K=1.0000]  
 Remarks:

### ISOLUX DIAGRAM

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-02-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity:65.0%  
Test Distance:7.290m [K=1.0000]  
Remarks:

## LED Avg.L Report

Test:U:220.4V I:0.2365A P:50.88W PF:0.9764 Lamp Flux:6344.36x1 lm		
NAME:	TYPE:LED	WEIGHT:
SPEC.:C470SP-Q2-P-03A 230V50HZ	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

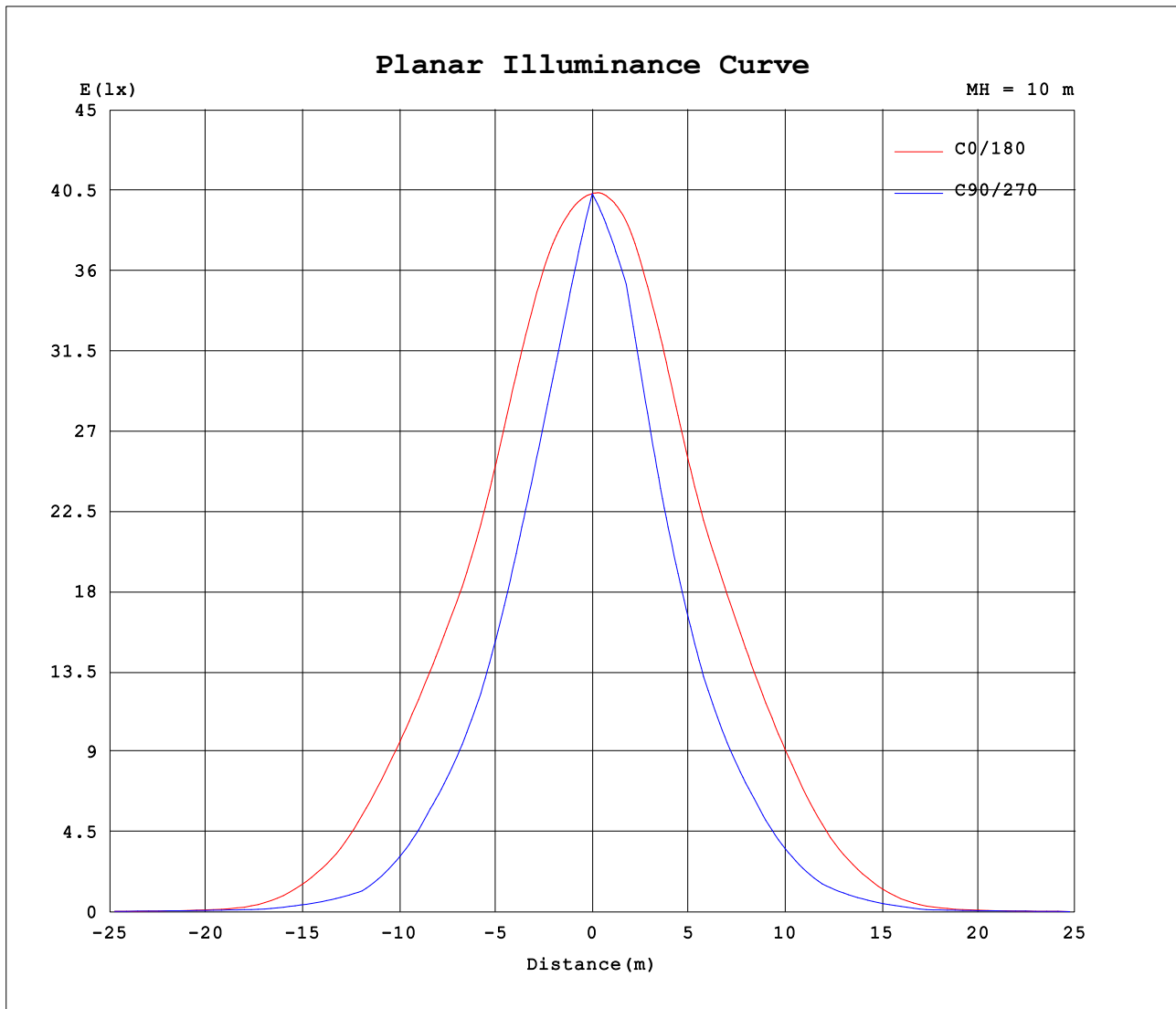
AvgL	cd/m2
L_0~180 (65) av	2801
L_0~180 (75) av	2391
L_0~180 (85) av	2760
L_90~270 (65) av	2655
L_90~270 (75) av	2785
L_90~270 (85) av	0
L_45 (65) av	2663
L_45 (75) av	2264
L_45 (85) av	1443

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-02-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity:65.0%  
Test Distance:7.290m [K=1.0000]  
Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2017-02-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.351  
Humidity: 65.0%  
Test Distance: 7.290m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:7.290m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:7.290m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:7.290m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:7.290m [K=1.0000]
Remarks:

```