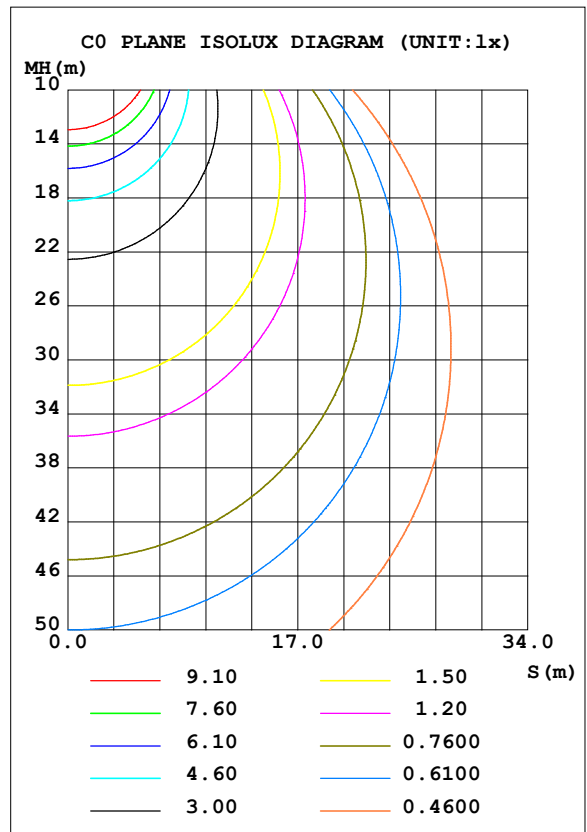
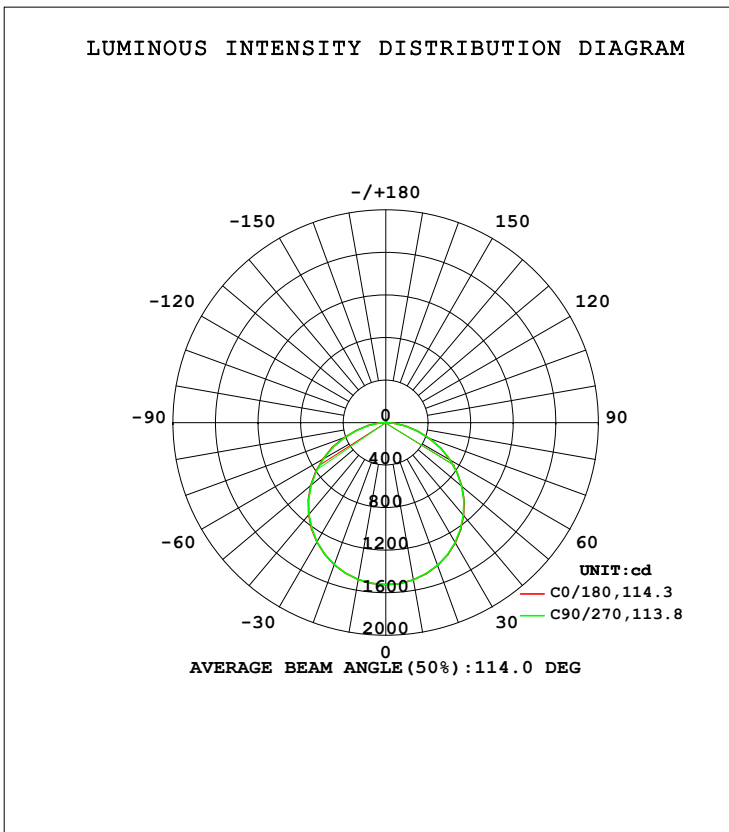


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME:SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	PL6060-60-48W	Imax (cd)	1525	S/MH (C0/180)	1.27
NOMINAL POWER (W)	48	LOR (%)	100.0	S/MH (C90/270)	1.26
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	4449.4	η UP, DN (C0-180)	0.1, 50.4
NOMINAL FLUX (lm)	4449.41	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.1, 49.4
LAMPS INSIDE	1	η up (%)	0.3	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	220.0	η down (%)	99.7	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: King  
 Test Date: 2023-06-08

γ Range: 0 - 120DEG  
 γ Interval: 5.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity: 65.0%  
 Test Distance: 9.950m [K=1.0251]  
 Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

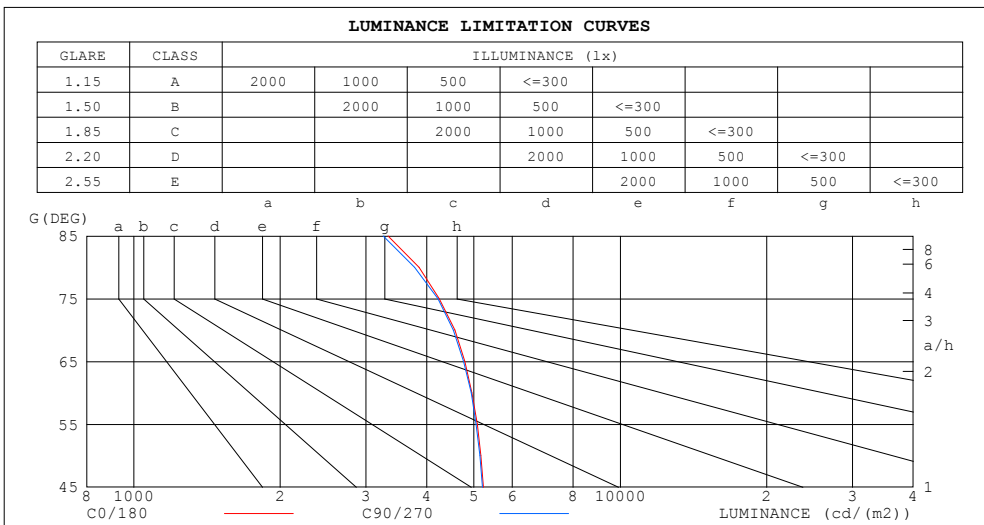
$\gamma$	C0	C90	C180	C270				$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1501	1500	1499	1498				0- 10	144.3	144.3	3.24,3.24
20	1429	1426	1422	1421				10- 20	414.4	558.7	12.6,12.6
30	1307	1303	1298	1295				20- 30	630.7	1189	26.7,26.7
40	1141	1137	1130	1125				30- 40	764.5	1954	43.9,43.9
50	937.6	932.6	922.9	916.4				40- 50	797.7	2752	61.8,61.8
60	698.6	696.1	683.2	676.0				50- 60	724.8	3476	78.1,78.1
70	441.3	437.8	422.8	414.0				60- 70	554.0	4030	90.6,90.6
80	189.0	184.9	172.0	165.4				70- 80	317.8	4348	97.7,97.7
90	4.791	5.427	2.004	1.995				80- 90	89.52	4438	99.7,99.7
100	2.316	2.412	2.973	2.891				90-100	2.864	4441	99.8,99.8
110	3.401	3.570	4.167	4.092				100-110	3.407	4444	99.9,99.9
120	4.356	4.669	5.208	5.150				110-120	4.302	4448	100,100
130	0	0	0	0				120-130	1.120	4449	100,100
140	0	0	0	0				130-140	0	4449	100,100
150	0	0	0	0				140-150	0	4449	100,100
160	0	0	0	0				150-160	0	4449	100,100
170	0	0	0	0				160-170	0	4449	100,100
180	0	0	0	0				170-180	0	4449	100,100
DEG	LUMINOUS INTENSITY:cd								UNIT:lm		

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

$\gamma$  Range: 0 - 120DEG  
 $\gamma$  Interval: 5.0DEG  
 $\gamma$  Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	3333	3255
80	3859	3776
75	4246	4221
70	4575	4539
65	4790	4766
60	4955	4937
55	5084	5055
50	5172	5145
45	5229	5209

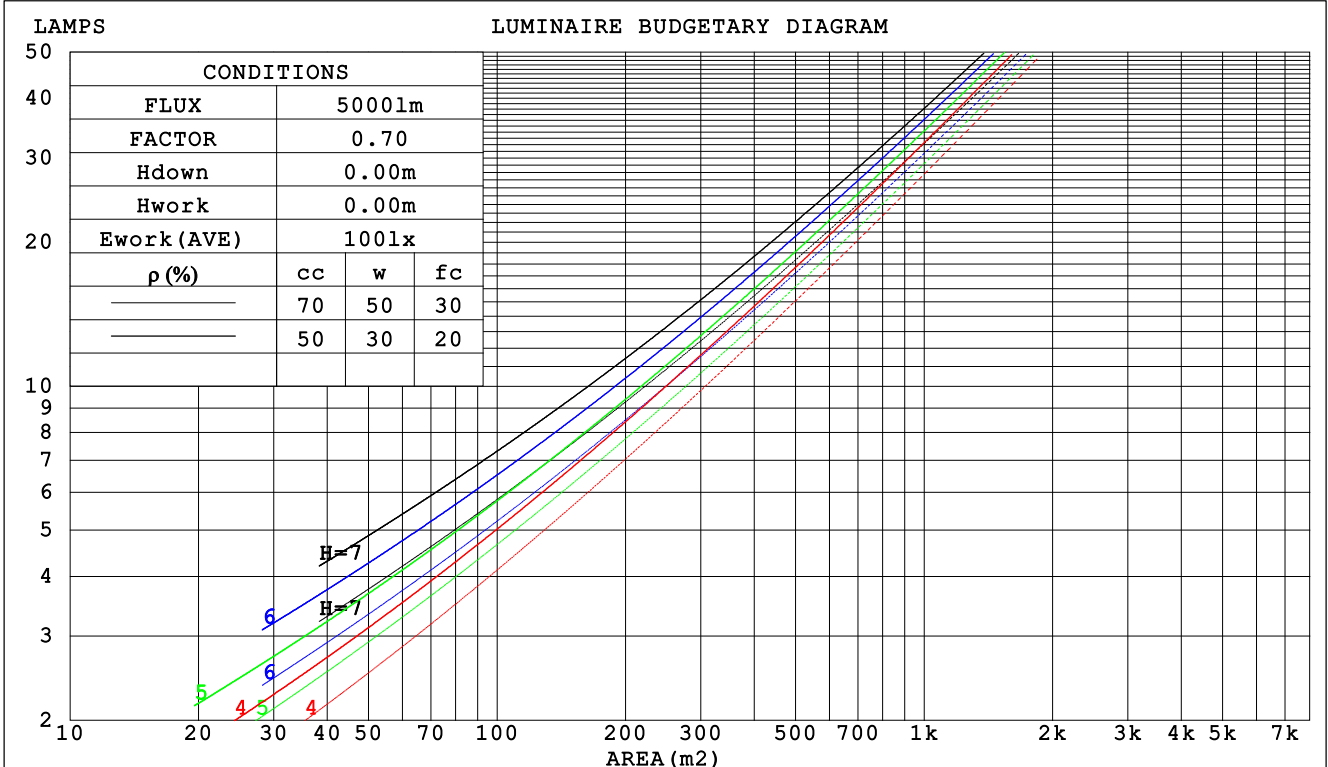
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

$\gamma$  Range: 0 - 120DEG  
 $\gamma$  Interval: 5.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	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						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	1.04	.99	.95	1.01	.97	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.82	.76	.85	.79	.75	.81	.77	.73	.78	.75	.71	.69
3.0	.79	.71	.64	.77	.70	.64	.74	.68	.62	.72	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.54	.69	.60	.54	.66	.59	.53	.64	.57	.52	.61	.56	.52	.49
5.0	.62	.53	.47	.61	.53	.46	.59	.52	.46	.57	.50	.45	.55	.49	.45	.43
6.0	.56	.47	.41	.55	.47	.40	.53	.46	.40	.52	.45	.40	.50	.44	.39	.37
7.0	.51	.42	.36	.50	.42	.36	.48	.41	.35	.47	.40	.35	.46	.39	.35	.33
8.0	.46	.38	.32	.46	.37	.32	.44	.37	.32	.43	.36	.31	.42	.36	.31	.29
9.0	.43	.34	.29	.42	.34	.29	.41	.33	.28	.40	.33	.28	.39	.33	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.36	.30	.25	.24



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

γ Range: 0 - 120DEG  
 γ Interval: 5.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks:

WEC AND CCEC

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	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	.313	.178	.056	.305	.174	.055	.292	.168	.054	.280	.161	.052	.268	.156	.050	
2.0	.294	.161	.049	.287	.158	.049	.276	.153	.048	.265	.148	.046	.255	.144	.045	
3.0	.272	.145	.043	.266	.142	.043	.256	.138	.042	.246	.135	.041	.237	.131	.041	
4.0	.250	.130	.038	.246	.129	.038	.236	.125	.037	.228	.122	.037	.220	.119	.036	
5.0	.231	.118	.034	.227	.117	.034	.219	.114	.034	.211	.111	.033	.204	.109	.033	
6.0	.215	.108	.031	.211	.106	.031	.203	.104	.030	.196	.102	.030	.190	.100	.030	
7.0	.200	.099	.028	.196	.098	.028	.190	.096	.028	.183	.094	.027	.178	.092	.027	
8.0	.186	.091	.026	.183	.090	.025	.177	.089	.025	.172	.087	.025	.167	.086	.025	
9.0	.175	.084	.024	.172	.084	.023	.166	.082	.023	.161	.081	.023	.157	.080	.023	
10.0	.164	.079	.022	.162	.078	.022	.157	.077	.022	.152	.076	.022	.148	.074	.021	

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	.192	.192	.192	.165	.165	.165	.112	.112	.112	.065	.065	.065	.021	.021	.021	
1.0	.183	.158	.136	.156	.136	.117	.107	.093	.081	.061	.054	.047	.020	.017	.015	
2.0	.175	.134	.100	.149	.115	.086	.102	.080	.060	.059	.046	.035	.019	.015	.011	
3.0	.167	.116	.076	.143	.100	.066	.098	.070	.046	.057	.041	.027	.018	.013	.009	
4.0	.159	.103	.060	.137	.089	.052	.094	.062	.037	.054	.036	.022	.017	.012	.007	
5.0	.152	.093	.049	.130	.080	.043	.090	.056	.030	.052	.033	.018	.017	.011	.006	
6.0	.145	.084	.041	.124	.073	.036	.086	.051	.025	.050	.030	.015	.016	.010	.005	
7.0	.138	.077	.035	.119	.067	.031	.082	.047	.022	.048	.028	.013	.015	.009	.004	
8.0	.131	.072	.031	.113	.062	.027	.078	.044	.019	.045	.026	.011	.015	.008	.004	
9.0	.125	.067	.027	.108	.058	.024	.075	.041	.017	.044	.024	.010	.014	.008	.003	
10.0	.119	.062	.024	.103	.054	.021	.071	.038	.015	.042	.023	.009	.014	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

γ Range: 0 - 120DEG  
 γ Interval: 5.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks:

## UGR(Unified Glare Rating) Table

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm										
NAME: SUN P.60-182102					TYPE:LED			WEIGHT:		
SPEC.:3000K					DIM.:			SERIAL No.:01		
MANUFACTURE:BBT LIGHTING					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	18.6	20.1	18.9	20.3	20.5	18.6	20.1	18.8	20.3	20.5
3H	20.1	21.5	20.4	21.8	22.0	20.1	21.5	20.4	21.8	22.0
4H	20.7	22.1	21.0	22.3	22.6	20.7	22.0	21.0	22.3	22.6
6H	21.1	22.4	21.5	22.7	23.0	21.1	22.4	21.4	22.6	22.9
8H	21.3	22.5	21.6	22.8	23.1	21.2	22.4	21.6	22.7	23.0
12H	21.3	22.5	21.7	22.8	23.1	21.3	22.4	21.6	22.7	23.1
4H 2H	19.2	20.5	19.5	20.8	21.1	19.2	20.5	19.5	20.8	21.1
3H	20.9	22.1	21.3	22.4	22.7	20.9	22.1	21.3	22.4	22.7
4H	21.6	22.7	22.0	23.0	23.4	21.6	22.7	22.0	23.0	23.4
6H	22.2	23.1	22.6	23.5	23.9	22.1	23.1	22.5	23.5	23.8
8H	22.3	23.2	22.8	23.6	24.0	22.3	23.2	22.7	23.6	23.9
12H	22.4	23.3	22.9	23.7	24.1	22.4	23.2	22.8	23.6	24.0
8H 4H	21.9	22.8	22.3	23.2	23.6	21.9	22.8	22.3	23.1	23.5
6H	22.6	23.3	23.0	23.7	24.2	22.5	23.3	23.0	23.7	24.1
8H	22.8	23.5	23.3	23.9	24.3	22.8	23.4	23.2	23.8	24.3
12H	23.0	23.5	23.5	24.0	24.5	22.9	23.5	23.4	24.0	24.4
12H 4H	21.9	22.7	22.3	23.1	23.5	21.9	22.7	22.3	23.1	23.5
6H	22.6	23.3	23.1	23.7	24.2	22.6	23.2	23.0	23.7	24.1
8H	22.9	23.5	23.4	23.9	24.4	22.8	23.4	23.3	23.9	24.3
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	+ 0.2 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117, 4449 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 5.2$ )

C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:King  
Test Date:2023-06-08

$\gamma$  Range: 0 - 120DEG  
 $\gamma$  Interval: 5.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
Humidity:65.0%  
Test Distance:9.950m [K=1.0251]  
Remarks:

## UTILIZATION FACTORS TABLE

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:

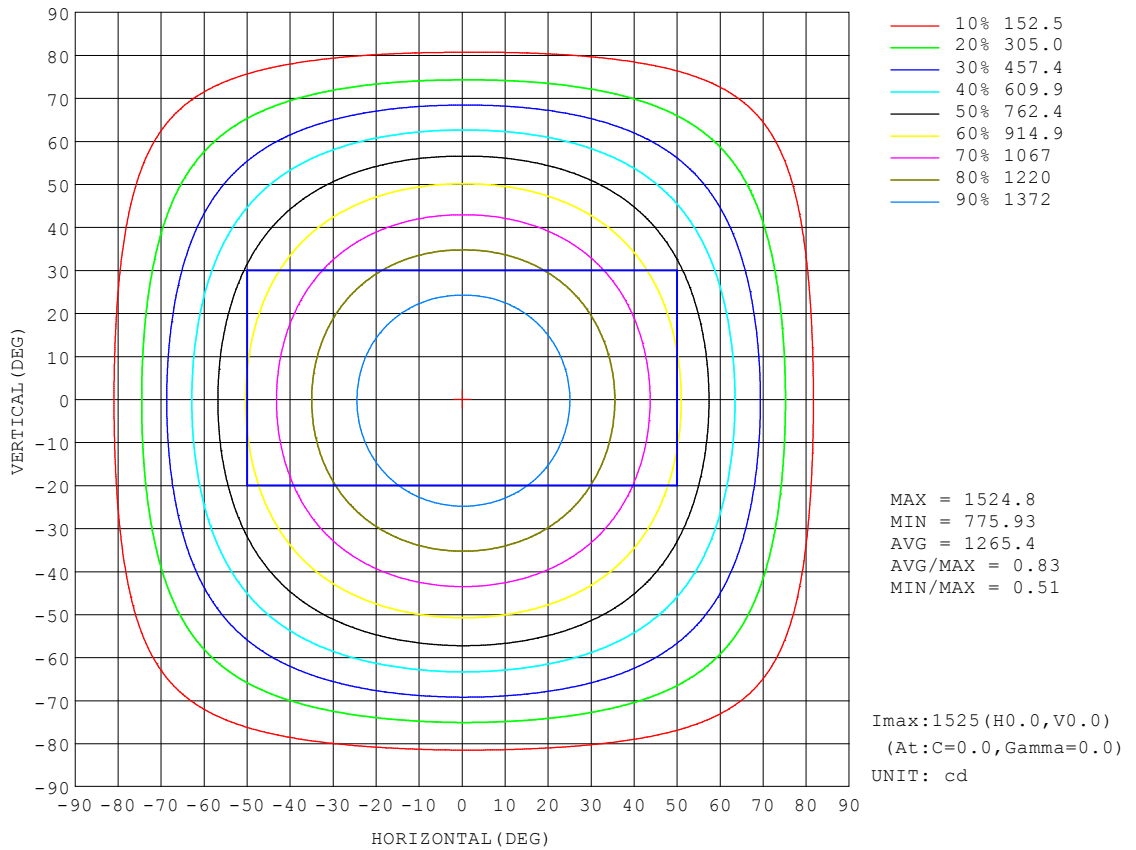
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	57	45	38	56	45	38	55	45	38	32
0.80	67	55	48	66	55	48	64	54	47	40
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	64	78	70	64	56
1.50	88	78	71	86	77	70	83	75	69	61
2.00	95	86	79	93	85	79	89	83	77	69
2.50	99	91	85	97	89	84	93	87	82	73
3.00	102	95	89	100	93	88	96	90	86	78
4.00	106	100	96	104	98	94	99	95	91	82
5.00	108	104	99	106	102	98	101	98	95	86
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:King  
Test Date:2023-06-08

$\gamma$  Range: 0 - 120DEG  
 $\gamma$  Interval: 5.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
Humidity:65.0%  
Test Distance:9.950m [K=1.0251]  
Remarks:

### ISOCANDELA DIAGRAM

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:



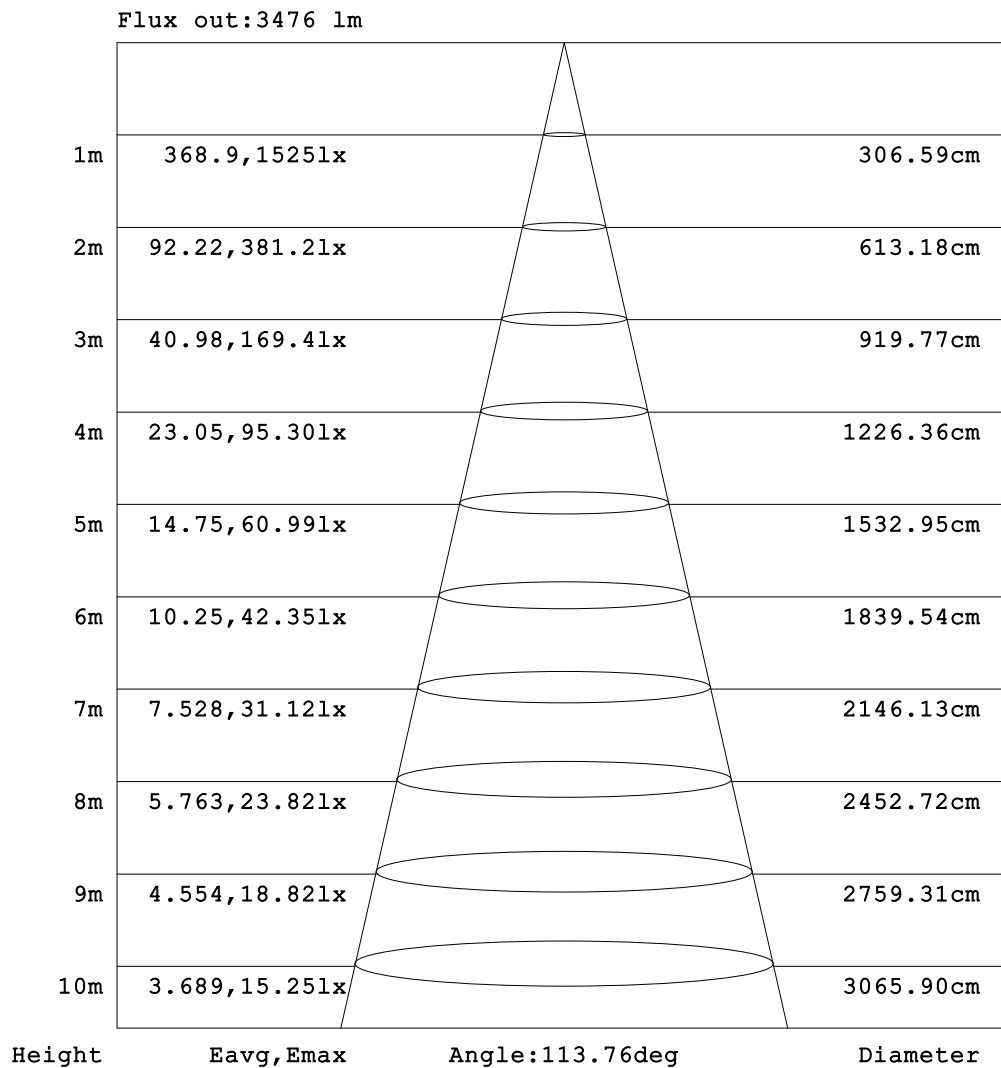
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

γ Range: 0 - 120DEG  
 γ Interval: 5.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks:



**AAI Figure**

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:



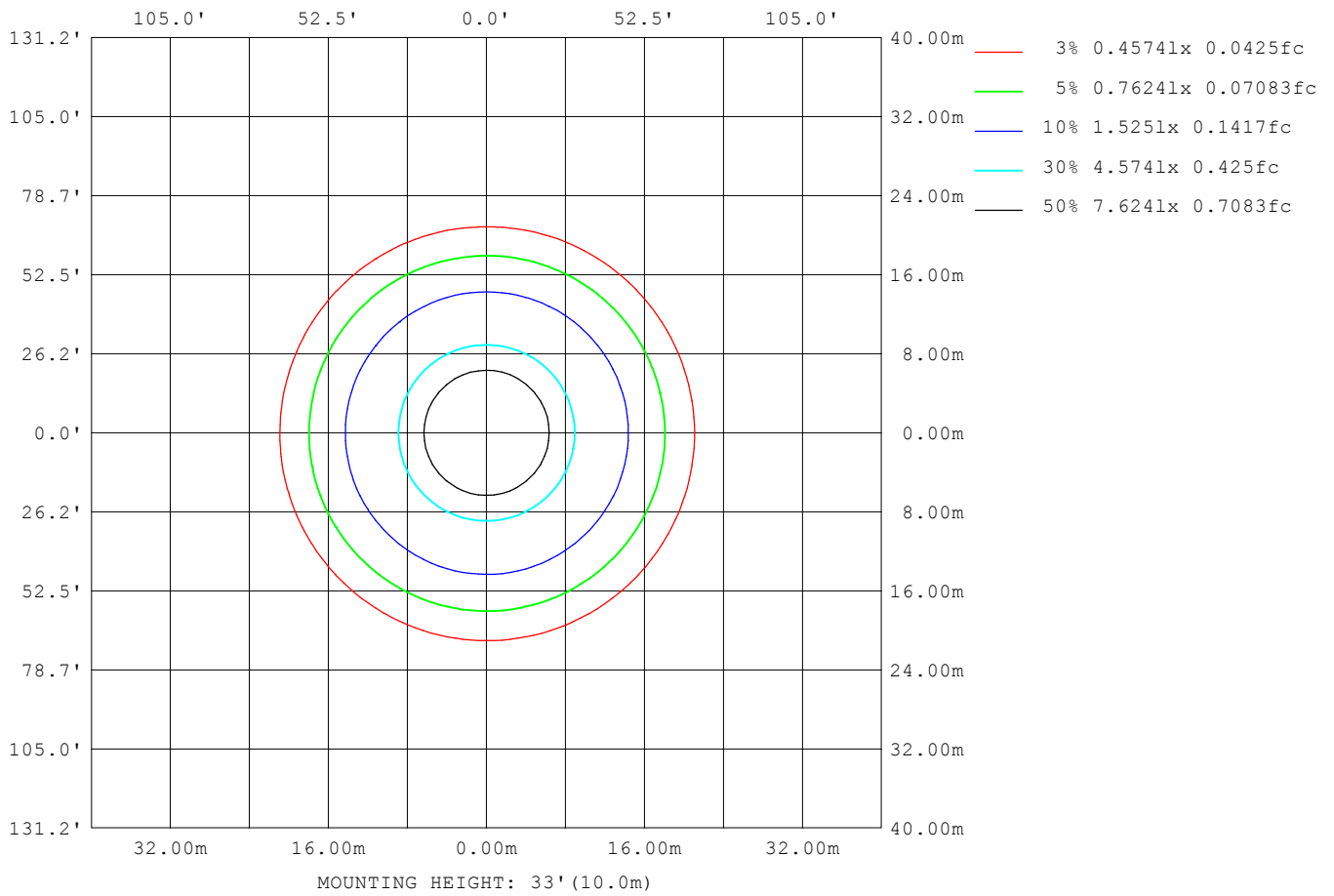
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

γ Range: 0 - 120DEG  
 γ Interval: 5.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks:

ISOLUX DIAGRAM

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

$\gamma$  Range: 0 - 120DEG  
 $\gamma$  Interval: 5.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks:

## LED Avg.L Report

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:

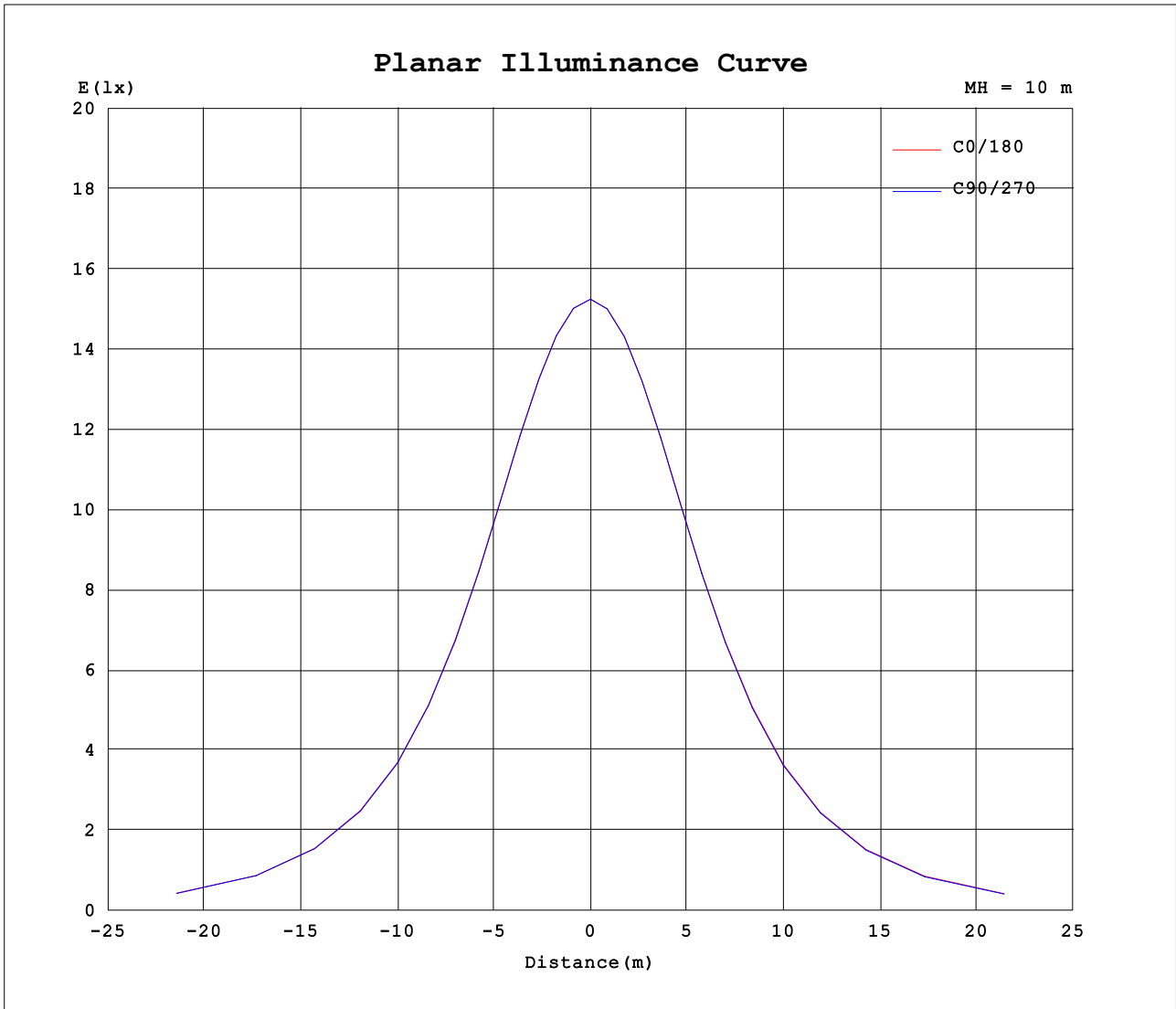
AvgL	cd/m2
L_0~180 (65) av	4722
L_0~180 (75) av	4125
L_0~180 (85) av	3068
L_90~270 (65) av	4678
L_90~270 (75) av	4064
L_90~270 (85) av	2934
L_45 (65) av	4690
L_45 (75) av	4079
L_45 (85) av	2967

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:King  
Test Date:2023-06-08

$\gamma$  Range: 0 - 120DEG  
 $\gamma$  Interval: 5.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
Humidity:65.0%  
Test Distance:9.950m [K=1.0251]  
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: King  
 Test Date: 2023-06-08

γ Range: 0 - 120DEG  
 γ Interval: 5.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity: 65.0%  
 Test Distance: 9.950m [K=1.0251]  
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.28V I:0.2131A P:45.579W PF:0.9708 Freq:49.99Hz Lamp Flux:4449.41x1 lm		
NAME: SUN P.60-182102	TYPE:LED	WEIGHT:
SPEC.:3000K	DIM.:	SERIAL No.:01
MANUFACTURE:BBT LIGHTING	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	90	180	270															
0	1525	1525	1525	1525															
5	1519	1519	1518	1518															
10	1501	1500	1499	1498															
15	1471	1469	1466	1465															
20	1429	1426	1422	1421															
25	1374	1371	1366	1363															
30	1307	1303	1298	1295															
35	1229	1225	1220	1215															
40	1141	1137	1130	1125															
45	1043	1039	1031	1025															
50	938	933	923	916															
55	822	818	807	800															
60	699	696	683	676															
65	571	568	555	547															
70	441	438	423	414															
75	310	308	292	285															
80	189	185	172	165															
85	81.9	80.0	68.9	64.2															
90	4.79	5.43	2.00	1.99															
95	1.89	1.95	2.40	2.35															
100	2.32	2.41	2.97	2.89															
105	2.85	2.98	3.56	3.50															
110	3.40	3.57	4.17	4.09															
115	3.90	4.13	4.73	4.65															
120	4.36	4.67	5.21	5.15															
125	0.00	0.00	0.00	0.00															
130	0.00	0.00	0.00	0.00															
135	0.00	0.00	0.00	0.00															
140	0.00	0.00	0.00	0.00															
145	0.00	0.00	0.00	0.00															
150	0.00	0.00	0.00	0.00															
155	0.00	0.00	0.00	0.00															
160	0.00	0.00	0.00	0.00															
165	0.00	0.00	0.00	0.00															
170	0.00	0.00	0.00	0.00															
175	0.00	0.00	0.00	0.00															
180	0.00	0.00	0.00	0.00															

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:King  
 Test Date:2023-06-08

γ Range: 0 - 120DEG  
 γ Interval: 5.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.404.6  
 Humidity:65.0%  
 Test Distance:9.950m [K=1.0251]  
 Remarks: