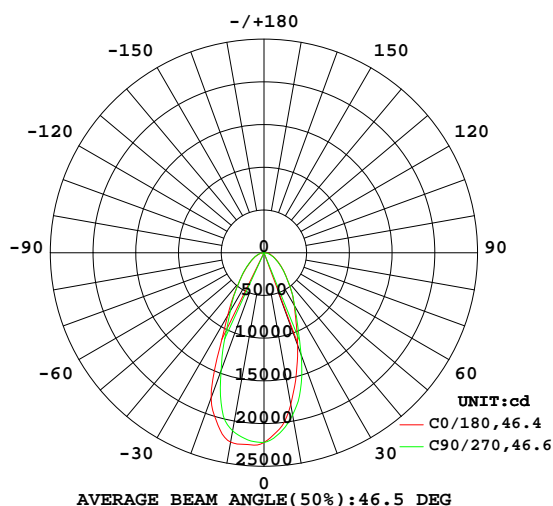


## LUMINAIRE PHOTOMETRIC TEST REPORT

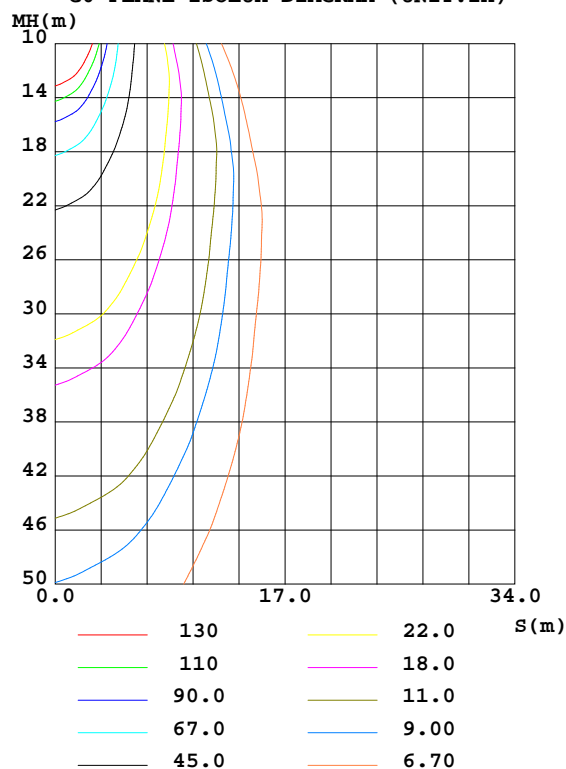
Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A

DATA OF LAMP		PHOTOMETRIC DATA Eff: 148.54 lm/W			
MODEL	HB-150W-60D	I <sub>max</sub> (cd)	22895	S/MH(C0/180)	0.82
NOMINAL POWER(W)	150	LOR(%)	100.0	S/MH(C90/270)	0.78
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	22227	η UP,DN(C0-180)	0.1,48.0
NOMINAL FLUX(lm)	22226.8	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.1,51.7
LAMPS INSIDE	1	η up(%)	0.3	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220	η down(%)	99.7	CIBSE SHR MAX	0.80

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.9DEG  
Operators:Zero huang  
Test Date:2023-09-12

γ Range: 0 - 180DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
Humidity:60%  
Test Distance:26.000m [K=1.4824]  
Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1805	1806	1930	2133	2251	2206	2117	1943	0- 10	2021	2021	9.09,9.09
20	1155	1136	1273	1555	1812	1749	1473	1262	10- 20	4897	6918	31.1,31.1
30	708.2	696.9	717.8	772.6	851.9	856.6	792.2	735.0	20- 30	4792	11710	52.7,52.7
40	439.0	437.9	438.0	446.1	459.1	471.3	459.2	449.7	30- 40	3715	15425	69.4,69.4
50	275.9	275.2	269.1	266.2	265.8	274.1	271.5	278.4	40- 50	2727	18152	81.7,81.7
60	167.4	166.1	159.2	157.2	155.3	160.0	162.2	167.6	50- 60	1900	20052	90.2,90.2
70	99.99	96.61	89.26	87.07	86.27	87.94	89.45	96.90	60- 70	1238	21290	95.8,95.8
80	64.99	60.11	36.59	31.51	28.51	33.38	41.99	58.27	70- 80	713.5	22004	99,99
90	0.2646	0.3520	0.2209	0.1870	0.1732	0.1664	0.1673	0.1849	80- 90	167.1	22171	99.7,99.7
100	0.1649	0.1580	0.1422	0.1429	0.2063	0.1998	0.1758	0.2269	90-100	1.910	22173	99.8,99.8
110	0.1649	0.1580	0.1506	0.1513	0.3300	0.3162	0.2846	0.3196	100-110	2.129	22175	99.8,99.8
120	0.2637	0.2578	0.2760	0.2434	0.4539	0.4244	0.4350	0.4877	110-120	2.794	22178	99.8,99.8
130	0.5596	0.5393	0.5684	0.4530	0.6352	0.5573	0.5521	0.6394	120-130	3.867	22182	99.8,99.8
140	1.251	1.229	1.204	0.9562	0.9906	0.8746	1.031	1.137	130-140	6.041	22188	99.8,99.8
150	2.688	2.598	2.449	2.130	1.842	1.707	1.900	2.248	140-150	9.941	22198	99.9,99.9
160	3.924	3.958	3.618	3.335	3.243	3.130	3.431	3.753	150-160	13.20	22211	99.9,99.9
170	4.900	4.937	4.984	4.585	3.968	4.012	4.377	4.766	160-170	11.31	22222	100,100
180	5.658	5.689	5.629	5.497	5.551	5.458	5.540	5.530	170-180	4.758	22227	100,100
DEG	LUMINOUS INTENSITY:×10cd									UNIT:lm		

Conical surface Flux(90deg): 16897 lm

%lum = 76.0%

%lamp = 76.0%

Conical surface Flux(120deg): 20052 lm

%lum = 90.2%

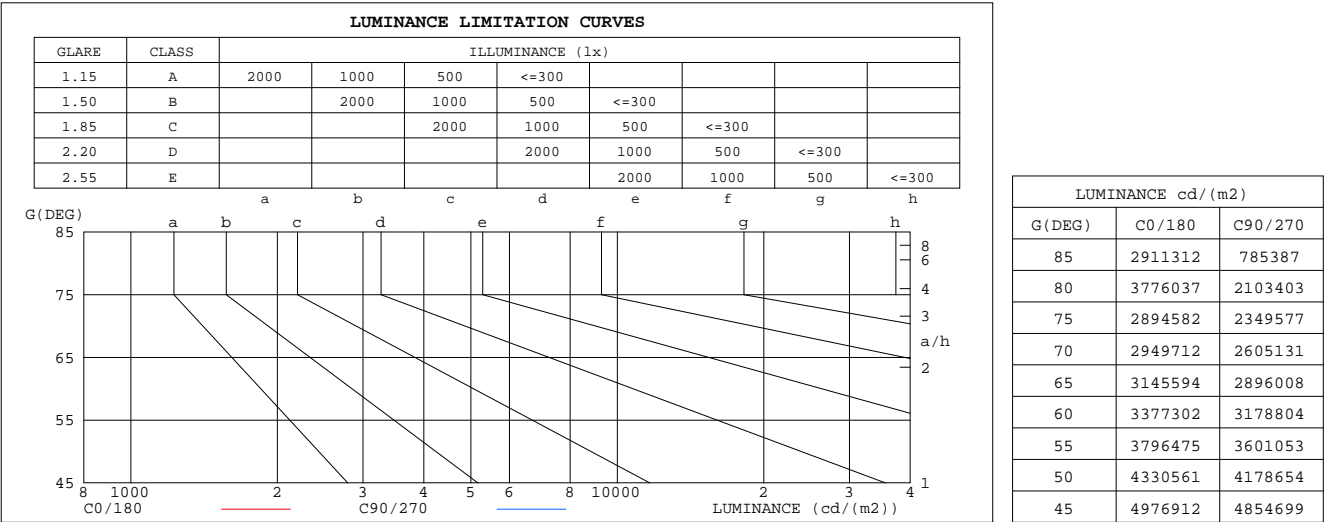
%lamp = 90.2%

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.9DEG  
 Operators:Zero huang  
 Test Date:2023-09-12

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:26.000m [K=1.4824]  
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.9DEG  
Operators:Zero huang  
Test Date:2023-09-12

γ Range: 0 - 180DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
Humidity:60%  
Test Distance:26.000m [K=1.4824]  
Remarks:

## WEC AND CCEC

Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm								
NAME:			TYPE:LED			WEIGHT:N/A		
SPEC.:N/A			DIM.:			SERIAL No.:N/A		
MFR.:			SUR.:			Shielding Angle:N/A		

pcc	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	.234	.133	.042	.227	.129	.041	.214	.123	.039	.202	.116	.037	.191	.111	.036	
2.0	.222	.122	.037	.216	.119	.037	.205	.114	.035	.195	.109	.034	.185	.105	.033	
3.0	.208	.111	.033	.203	.109	.033	.193	.105	.032	.184	.101	.031	.176	.097	.030	
4.0	.195	.101	.030	.190	.100	.029	.182	.096	.029	.174	.093	.028	.167	.090	.028	
5.0	.182	.093	.027	.178	.092	.027	.171	.089	.026	.164	.087	.026	.158	.084	.025	
6.0	.171	.086	.025	.168	.085	.024	.161	.083	.024	.155	.081	.024	.149	.079	.023	
7.0	.161	.080	.023	.158	.079	.022	.152	.077	.022	.147	.075	.022	.142	.074	.022	
8.0	.152	.074	.021	.149	.074	.021	.144	.072	.021	.139	.071	.020	.135	.069	.020	
9.0	.144	.070	.019	.142	.069	.019	.137	.068	.019	.132	.066	.019	.128	.065	.019	
10.0	.137	.066	.018	.134	.065	.018	.130	.064	.018	.126	.063	.018	.122	.062	.018	

pcc	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	.164	.164	.164	.112	.112	.112	.064	.064	.064	.021	.021	.021	
1.0	.177	.159	.142	.151	.136	.122	.104	.094	.085	.060	.054	.049	.019	.017	.016	
2.0	.165	.134	.108	.141	.116	.094	.097	.080	.065	.056	.046	.038	.018	.015	.012	
3.0	.155	.116	.085	.132	.100	.074	.091	.069	.052	.053	.041	.030	.017	.013	.010	
4.0	.145	.102	.068	.125	.088	.059	.086	.061	.042	.050	.036	.025	.016	.012	.008	
5.0	.137	.091	.056	.118	.078	.049	.081	.055	.035	.047	.032	.021	.015	.010	.007	
6.0	.130	.082	.047	.112	.071	.041	.077	.050	.029	.045	.029	.017	.014	.010	.006	
7.0	.123	.074	.040	.106	.065	.035	.073	.045	.025	.043	.027	.015	.014	.009	.005	
8.0	.117	.068	.035	.101	.059	.030	.070	.042	.022	.041	.025	.013	.013	.008	.004	
9.0	.112	.063	.031	.096	.055	.027	.067	.039	.019	.039	.023	.011	.013	.007	.004	
10.0	.106	.059	.027	.092	.051	.024	.064	.036	.017	.037	.021	.010	.012	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.9DEG  
 Operators:Zero huang  
 Test Date:2023-09-12

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:26.000m [K=1.4824]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm											
NAME:					TYPE:LED			WEIGHT:N/A			
SPEC.:N/A					DIM.:			SERIAL No.:N/A			
MFR.:					SUR.:			Shielding Angle:N/A			
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		39.8	41.0	40.1	41.2	41.4	39.6	40.8	39.9	41.0	41.2
	3H	40.9	42.0	41.2	42.2	42.4	40.6	41.7	40.9	41.9	42.1
	4H	41.4	42.5	41.7	42.7	42.9	41.0	42.0	41.3	42.3	42.5
	6H	42.1	43.1	42.5	43.4	43.6	41.3	42.3	41.7	42.6	42.8
	8H	42.4	43.4	42.8	43.7	43.9	41.4	42.4	41.7	42.6	42.9
	12H	42.6	43.5	42.9	43.8	44.1	41.4	42.3	41.7	42.6	42.9
4H	2H	40.2	41.2	40.5	41.5	41.7	40.0	41.1	40.3	41.3	41.6
	3H	41.5	42.4	41.9	42.7	43.0	41.2	42.1	41.6	42.4	42.7
	4H	42.2	43.0	42.6	43.3	43.7	41.8	42.6	42.1	42.9	43.2
	6H	43.1	43.9	43.5	44.2	44.6	42.3	43.0	42.7	43.4	43.7
	8H	43.5	44.2	43.9	44.6	45.0	42.4	43.1	42.8	43.5	43.8
	12H	43.7	44.4	44.2	44.7	45.1	42.4	43.1	42.9	43.4	43.8
8H	4H	42.5	43.2	42.9	43.5	43.9	42.1	42.8	42.5	43.1	43.5
	6H	43.7	44.2	44.1	44.6	45.1	42.8	43.4	43.3	43.8	44.2
	8H	44.1	44.6	44.6	45.1	45.5	43.0	43.5	43.5	43.9	44.4
	12H	44.4	44.8	44.9	45.3	45.8	43.1	43.5	43.5	43.9	44.4
12H	4H	42.5	43.1	42.9	43.5	43.9	42.2	42.8	42.6	43.2	43.6
	6H	43.7	44.2	44.2	44.7	45.1	42.9	43.4	43.4	43.9	44.3
	8H	44.3	44.7	44.7	45.1	45.6	43.2	43.6	43.7	44.1	44.5
Variations with the observer position at spacings:											
S = 1.0H	+ 0.2 / - 0.3					+ 0.3 / - 0.4					
1.5H	+ 0.1 / - 0.1					+ 0.1 / - 0.2					
2.0H	+ 0.4 / - 0.4					+ 0.5 / - 0.5					

CIE Pub.117, 22227 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 10.8$ )

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.9DEG  
 Operators:Zero huang  
 Test Date:2023-09-12

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:26.000m [K=1.4824]  
 Remarks:

## UTILIZATION FACTORS TABLE

Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A

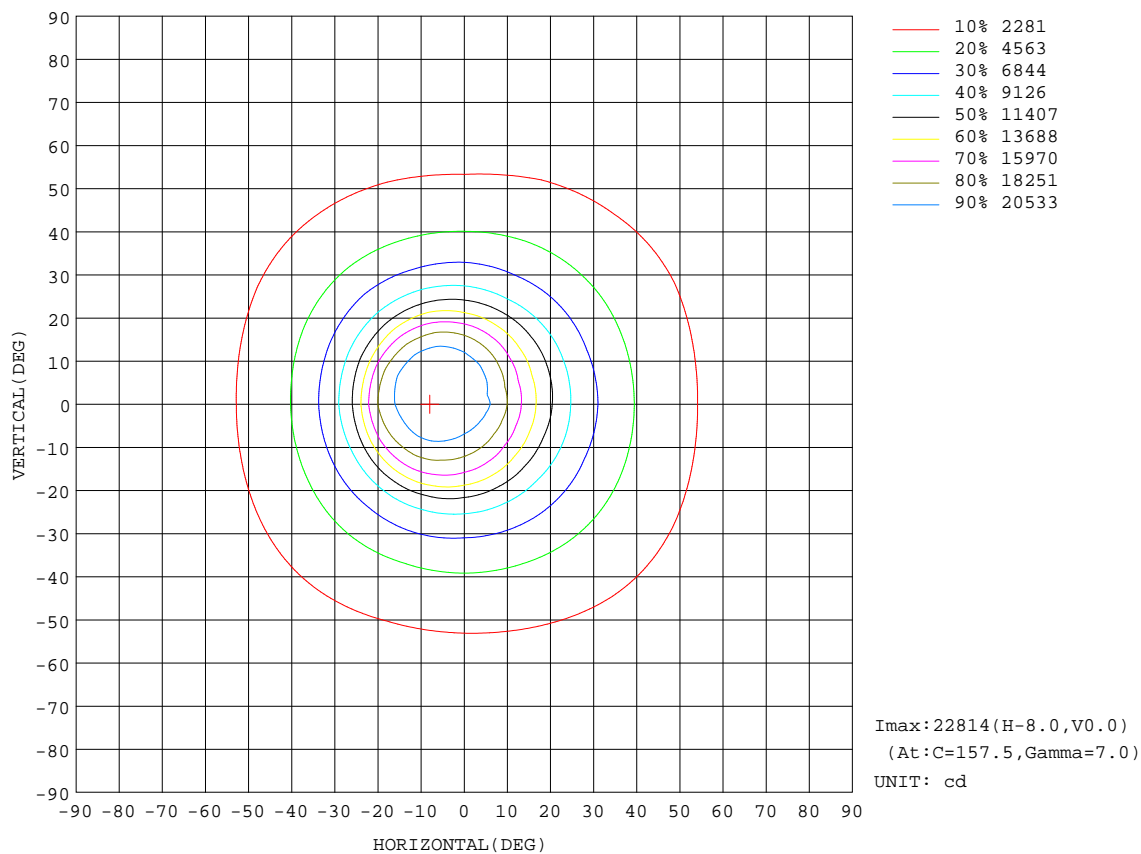
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	73	64	58	72	63	58	71	63	58	53
0.80	81	73	67	81	72	67	79	72	67	61
1.00	88	80	74	87	79	74	85	80	74	68
1.25	94	86	81	92	85	80	90	84	79	74
1.50	97	90	85	96	89	85	93	88	84	78
2.00	102	96	91	101	95	90	97	93	89	82
2.50	105	99	95	103	98	94	100	95	92	85
3.00	107	102	98	105	101	97	102	98	95	87
4.00	110	106	103	108	104	101	104	101	99	91
5.00	112	108	106	110	107	104	105	103	101	92
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.9DEG  
 Operators:Zero huang  
 Test Date:2023-09-12

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:26.000m [K=1.4824]  
 Remarks:

# ISOCANDELA DIAGRAM

Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A

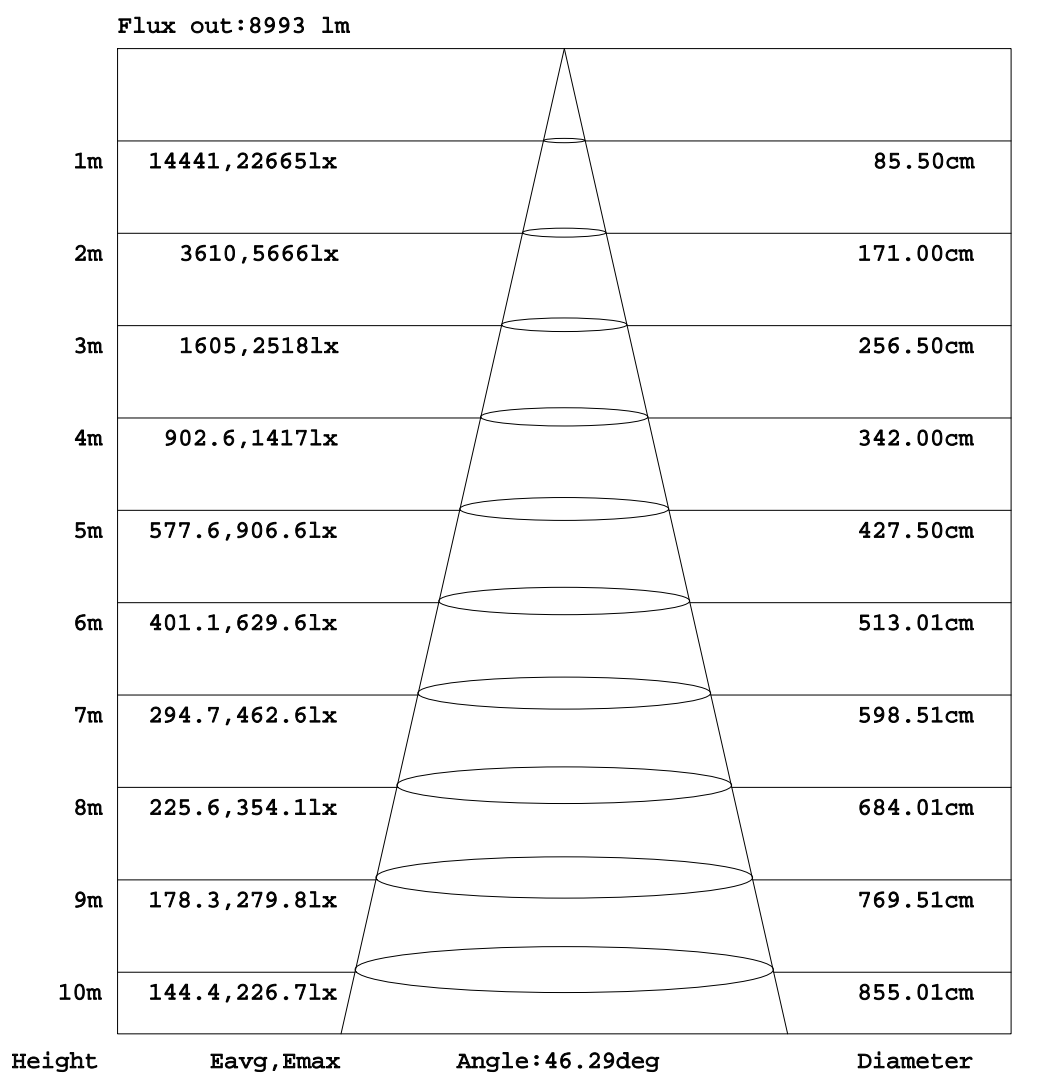


C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 24.9DEG  
Operators: Zero huang  
Test Date: 2023-09-12

γ Range: 0 - 180DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
Humidity: 60%  
Test Distance: 26.000m [K=1.4824]  
Remarks:

### AAI Figure

Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A



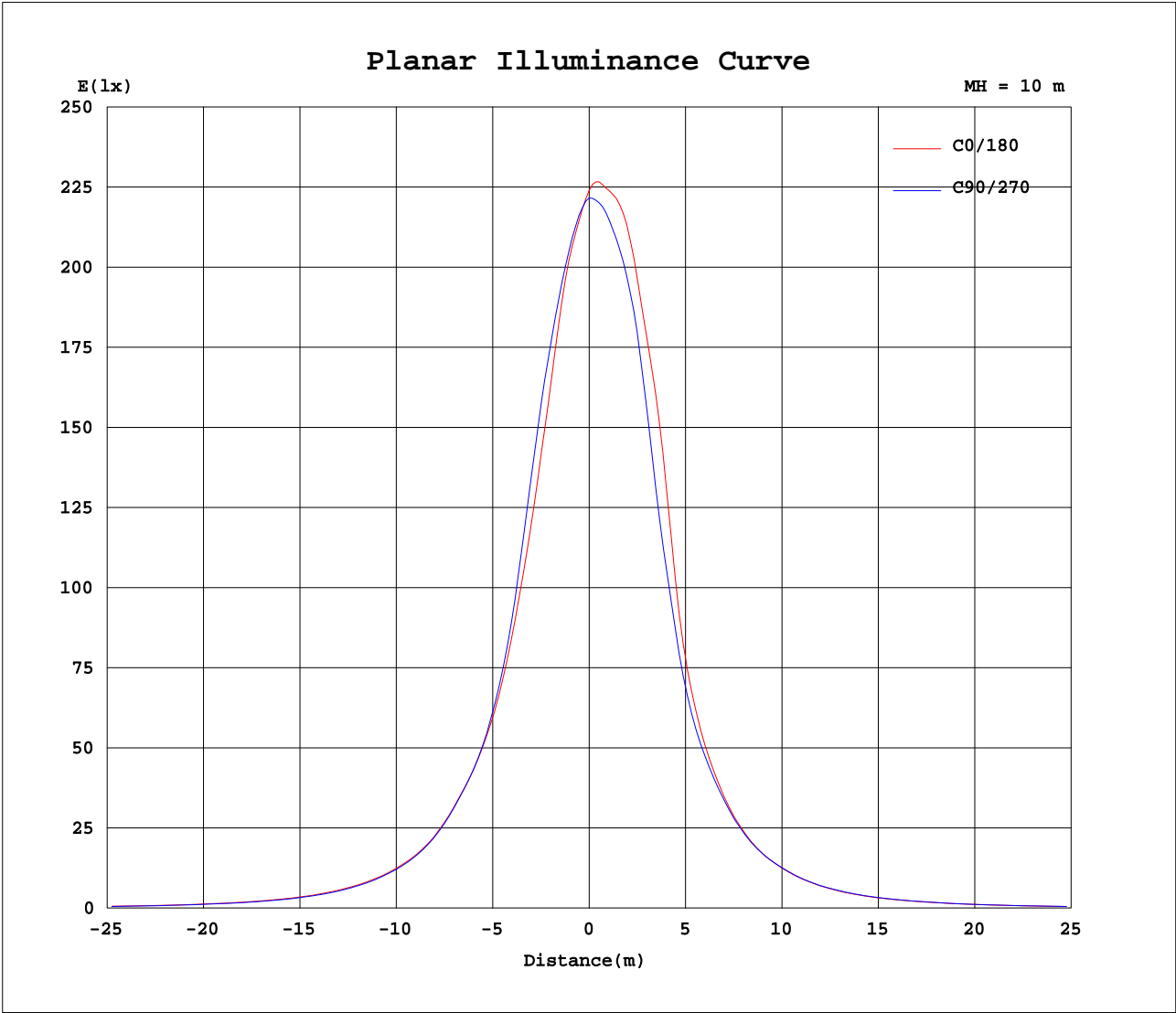
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.9DEG  
 Operators:Zero huang  
 Test Date:2023-09-12

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:26.000m [K=1.4824]  
 Remarks:



Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.9DEG  
Operators:Zero huang  
Test Date:2023-09-12

γ Range: 0 - 180DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
Humidity:60%  
Test Distance:26.000m [K=1.4824]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.16V I:0.6965A P:149.63W PF:0.9757 Freq:50.01Hz Lamp Flux:22226.8x1 lm																		
NAME:									TYPE:LED					WEIGHT:N/A				
SPEC.:N/A									DIM.:					SERIAL No.:N/A				
MFR.:									SUR.:					Shielding Angle:N/A				

Table--1

UNIT: x10cd

C(DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220			
5	2072	2059	2065	2082	2120	2174	2245	2284	2253	2221	2212	2209	2199	2170	2134	2088			
10	1805	1784	1806	1862	1930	2019	2133	2237	2251	2231	2206	2170	2117	2051	1943	1852			
15	1465	1457	1486	1557	1656	1782	1914	2014	2087	2123	2108	2031	1902	1745	1606	1511			
20	1155	1122	1136	1183	1273	1396	1555	1721	1812	1815	1749	1620	1473	1352	1262	1209			
25	889	884	878	899	934	984	1066	1164	1226	1247	1225	1152	1070	995	952	920			
30	708	692	697	704	718	748	773	813	852	859	857	816	792	752	735	715			
35	571	561	564	565	572	584	589	611	627	635	640	618	614	597	582	576			
40	439	440	438	434	438	434	446	452	459	470	471	463	459	458	450	447			
45	349	348	348	342	344	340	347	350	350	361	361	362	358	362	356	358			
50	276	277	275	270	269	262	266	266	266	273	274	277	272	282	278	284			
55	216	218	216	211	207	201	202	203	201	208	208	212	208	219	216	224			
60	167	168	166	162	159	156	157	157	155	159	160	163	162	168	168	172			
65	132	131	128	125	123	117	119	118	118	119	120	122	123	128	130	133			
70	100.0	99.7	96.6	92.1	89.3	86.1	87.1	86.0	86.3	87.3	87.9	89.8	89.4	94.5	96.9	101			
75	74.3	74.4	70.6	65.2	60.9	60.3	60.6	59.1	59.7	61.2	62.8	63.6	64.5	68.3	71.8	74.8			
80	65.0	64.3	60.1	46.1	36.6	31.8	31.5	29.6	28.5	30.0	33.4	38.1	42.0	48.6	58.3	65.2			
85	25.1	23.1	17.8	12.3	6.86	4.64	3.37	3.34	3.66	4.30	5.26	7.33	9.56	14.4	20.2	25.8			
90	0.26	0.28	0.35	0.29	0.22	0.19	0.19	0.19	0.17	0.17	0.17	0.18	0.17	0.18	0.18	0.21			
95	0.17	0.18	0.16	0.17	0.16	0.14	0.16	0.17	0.18	0.19	0.17	0.17	0.16	0.17	0.18	0.18			
100	0.16	0.17	0.16	0.15	0.14	0.14	0.14	0.15	0.21	0.22	0.20	0.19	0.18	0.19	0.23	0.21			
105	0.16	0.17	0.16	0.15	0.15	0.14	0.14	0.15	0.26	0.26	0.24	0.23	0.23	0.23	0.25	0.24			
110	0.16	0.17	0.16	0.15	0.15	0.15	0.15	0.15	0.33	0.32	0.32	0.29	0.28	0.29	0.32	0.32			
115	0.18	0.19	0.20	0.18	0.18	0.16	0.16	0.18	0.40	0.38	0.37	0.36	0.36	0.36	0.39	0.39			
120	0.26	0.26	0.26	0.27	0.28	0.20	0.24	0.25	0.45	0.46	0.42	0.42	0.44	0.42	0.49	0.47			
125	0.39	0.38	0.38	0.38	0.39	0.33	0.33	0.33	0.50	0.51	0.47	0.43	0.49	0.42	0.51	0.54			
130	0.56	0.55	0.54	0.58	0.57	0.49	0.45	0.47	0.64	0.60	0.56	0.56	0.55	0.57	0.64	0.66			
135	0.82	0.79	0.80	0.87	0.81	0.73	0.65	0.68	0.77	0.70	0.67	0.72	0.77	0.77	0.82	0.85			
140	1.25	1.23	1.23	1.32	1.20	1.13	0.96	1.04	0.99	0.94	0.87	1.00	1.03	1.13	1.14	1.21			
145	1.89	1.84	1.78	1.86	1.69	1.69	1.42	1.40	1.35	1.25	1.18	1.44	1.39	1.61	1.57	1.77			
150	2.69	2.62	2.60	2.58	2.45	2.30	2.13	1.91	1.84	1.77	1.71	1.96	1.90	2.21	2.25	2.52			
155	3.45	3.38	3.36	3.21	2.98	2.92	2.80	2.51	2.55	2.50	2.42	2.70	2.70	2.86	2.84	3.31			
160	3.92	3.91	3.96	3.78	3.62	3.48	3.34	3.07	3.24	3.17	3.13	3.40	3.43	3.38	3.75	3.91			
165	4.40	4.34	4.44	4.38	4.26	4.01	3.95	3.77	3.68	3.64	3.59	3.84	3.92	4.01	4.32	4.27			
170	4.90	4.84	4.94	4.96	4.98	4.55	4.58	4.50	3.97	4.03	4.01	4.25	4.38	4.40	4.77	4.61			
175	5.49	5.32	5.59	5.72	5.60	5.38	5.41	5.25	4.74	4.70	4.76	4.98	5.04	5.13	5.35	5.13			
180	5.66	5.41	5.69	5.55	5.63	5.50	5.50	5.46	5.55	5.63	5.46	5.69	5.54	5.61	5.53	5.51			

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.9DEG  
 Operators:Zero huang  
 Test Date:2023-09-12

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:26.000m [K=1.4824]  
 Remarks: