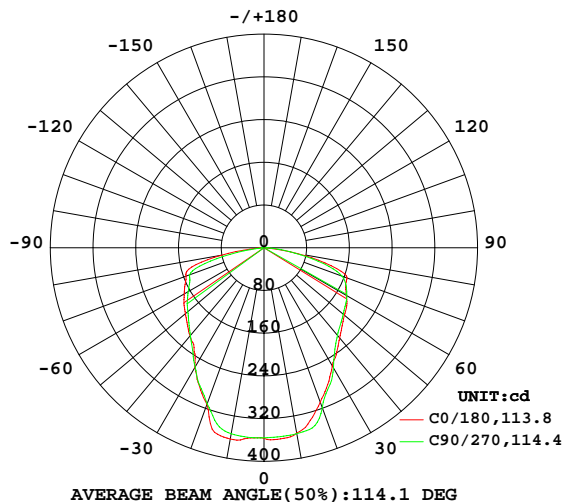


## LUMINAIRE PHOTOMETRIC TEST REPORT

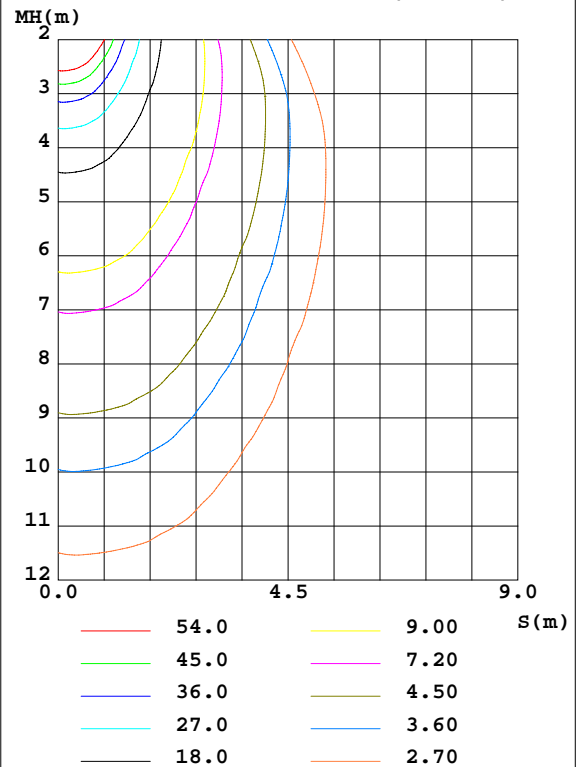
Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 89.91 lm/W			
MODEL		Imax(cd)	363.9	S/MH(C0/180)	1.10
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	1.10
RATED VOLTAGE(V)	230.0	TOTAL FLUX(lm)	1046.2	$\eta$ UP,DN(C0-180)	0.0,51.1
NOMINAL FLUX(lm)	1046.24	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,48.9
LAMPS INSIDE	1	$\eta$ up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230.0	$\eta$ down(%)	100.0	CIBSE SHR MAX	1.30

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:  
Test Date:2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity:65.0%  
Test Distance:11.700m [K=1.0000]  
Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

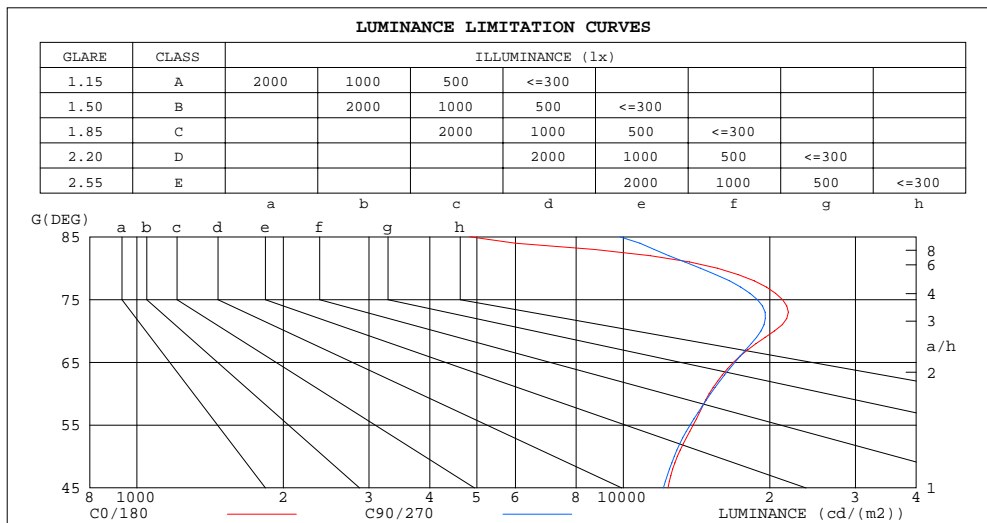
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\%lum, lamp$
10	352.6	355.6	353.6	357.8	363.7	362.4	353.6	358.2	0- 10	34.16	34.16	3.26,3.26
20	308.3	309.4	318.9	327.8	312.2	314.2	311.1	309.8	10- 20	96.50	130.7	12.5,12.5
30	255.7	242.8	260.6	269.4	258.9	259.1	258.2	253.4	20- 30	131.8	262.5	25.1,25.1
40	220.6	209.7	214.3	217.5	215.3	216.6	214.8	211.2	30- 40	146.1	408.5	39,39
50	196.7	195.9	193.8	189.5	192.2	188.1	186.2	190.2	40- 50	156.4	564.9	54,54
60	177.9	188.4	179.1	163.2	172.6	164.3	163.9	170.9	50- 60	163.7	728.6	69.6,69.6
70	165.8	175.7	155.5	162.4	155.6	146.5	148.2	155.6	60- 70	163.3	891.9	85.3,85.3
80	64.23	79.39	59.27	92.41	81.52	62.73	51.16	51.67	70- 80	130.8	1023	97.8,97.8
90	2.698	2.646	2.809	3.050	3.265	3.033	2.620	2.809	80- 90	23.51	1046	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		

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:  
Test Date:2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity:65.0%  
Test Distance:11.700m [K=1.0000]  
Remarks:

## LUMINANCE LIMITATION CURVES

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	4838	9845
80	15607	14402
75	21236	18863
70	20449	19182
65	16845	16954
60	15013	15114
55	13919	13715
50	12911	12723
45	12356	12089

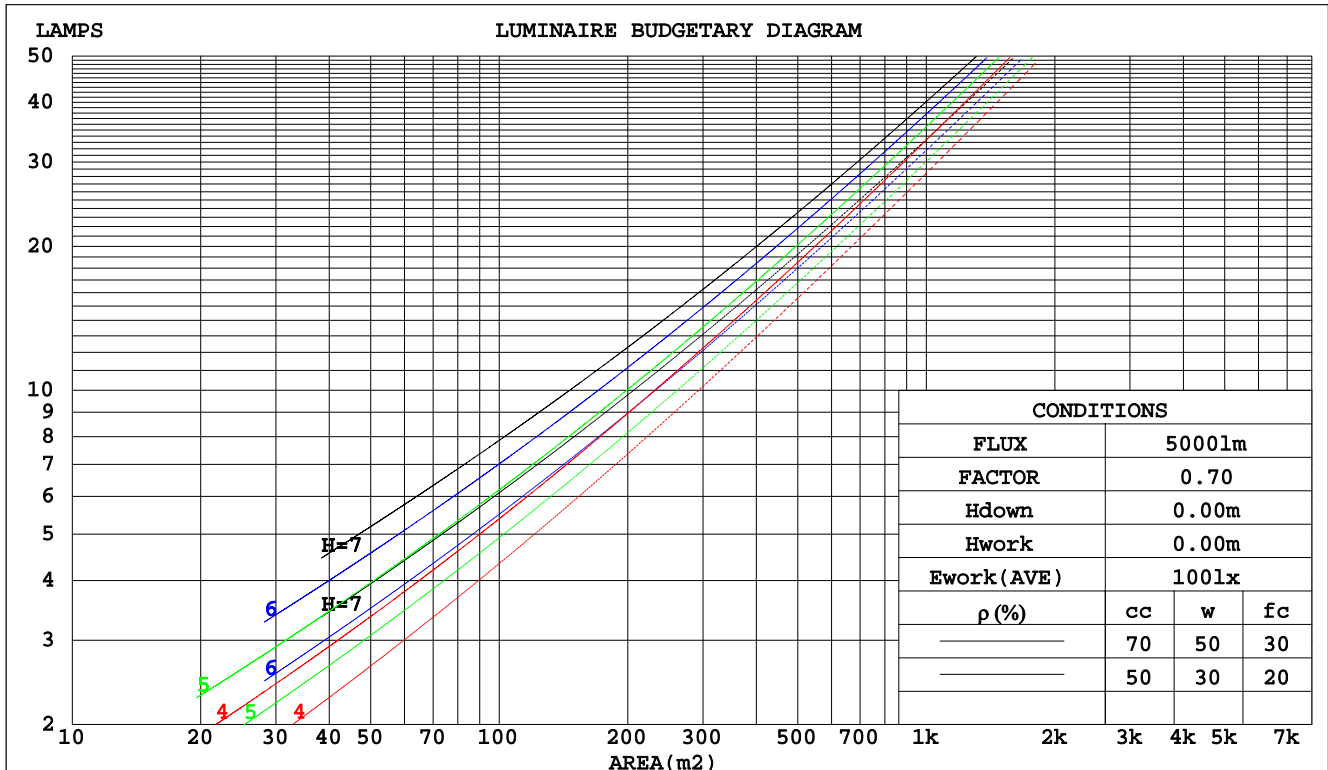
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:  
Test Date:2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity:65.0%  
Test Distance:11.700m [K=1.0000]  
Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	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	1.02	1.02	1.02	1.00
1.0	1.02	.97	.93	.90	.95	.91	.95	.92	.88	.91	.88	.86	.88	.85	.83	.81
2.0	.87	.80	.73	.85	.78	.72	.82	.76	.71	.78	.73	.69	.75	.71	.67	.65
3.0	.76	.67	.60	.74	.66	.59	.71	.64	.58	.68	.62	.57	.65	.60	.56	.54
4.0	.67	.57	.50	.65	.56	.49	.63	.55	.49	.60	.53	.48	.58	.52	.47	.45
5.0	.59	.50	.43	.58	.49	.42	.56	.48	.42	.54	.47	.41	.52	.46	.41	.39
6.0	.53	.44	.37	.52	.43	.37	.50	.42	.37	.49	.42	.36	.47	.41	.36	.34
7.0	.48	.39	.33	.47	.39	.33	.46	.38	.32	.44	.37	.32	.43	.37	.32	.30
8.0	.44	.35	.29	.43	.35	.29	.42	.34	.29	.41	.34	.29	.40	.33	.28	.26
9.0	.41	.32	.26	.40	.32	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.24
10.0	.37	.29	.24	.37	.29	.24	.36	.29	.24	.35	.28	.24	.34	.28	.23	.22



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:  
Test Date:2024-10-16

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity:65.0%  
Test Distance:11.700m [K=1.0000]  
Remarks:

## WEC AND CCEC

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm					
NAME:		TYPE:		WEIGHT:	
SPEC.:		DIM.: 180*180*97		SERIAL No.:	
MFR.: NLD24-0017-01		SUR.:3.14*0.087*0.087		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	.348	.198	.063	.341	.194	.062	.327	.188	.060	.315	.182	.058	.304	.176	.057	
2.0	.323	.177	.054	.316	.174	.054	.304	.169	.053	.293	.164	.051	.283	.160	.050	
3.0	.294	.156	.047	.288	.154	.046	.277	.150	.046	.267	.147	.045	.258	.143	.044	
4.0	.267	.139	.041	.262	.137	.041	.252	.134	.040	.244	.131	.039	.236	.128	.039	
5.0	.244	.124	.036	.239	.123	.036	.231	.120	.035	.223	.118	.035	.216	.115	.035	
6.0	.224	.112	.032	.220	.111	.032	.213	.109	.032	.206	.107	.031	.199	.105	.031	
7.0	.207	.102	.029	.203	.101	.029	.197	.099	.029	.191	.098	.028	.185	.096	.028	
8.0	.192	.094	.026	.189	.093	.026	.183	.091	.026	.177	.090	.026	.172	.088	.026	
9.0	.179	.087	.024	.176	.086	.024	.171	.085	.024	.166	.083	.024	.161	.082	.024	
10.0	.168	.080	.022	.165	.080	.022	.160	.079	.022	.156	.077	.022	.152	.076	.022	

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	.183	.156	.131	.157	.134	.113	.107	.092	.078	.062	.053	.045	.020	.017	.015	
2.0	.176	.132	.094	.151	.113	.082	.104	.078	.057	.060	.046	.033	.019	.015	.011	
3.0	.169	.114	.071	.145	.099	.062	.099	.069	.043	.057	.040	.025	.018	.013	.008	
4.0	.161	.101	.056	.138	.088	.048	.095	.061	.034	.055	.036	.020	.018	.012	.007	
5.0	.153	.091	.045	.132	.079	.039	.091	.055	.028	.053	.032	.016	.017	.011	.005	
6.0	.146	.083	.038	.125	.072	.033	.086	.050	.023	.050	.030	.014	.016	.010	.005	
7.0	.138	.076	.032	.119	.066	.028	.082	.046	.020	.048	.027	.012	.015	.009	.004	
8.0	.132	.070	.028	.113	.061	.024	.078	.043	.017	.046	.025	.010	.015	.008	.003	
9.0	.125	.065	.025	.108	.057	.021	.075	.040	.015	.043	.023	.009	.014	.008	.003	
10.0	.119	.061	.022	.103	.053	.019	.071	.037	.014	.042	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2024-10-16

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
 Humidity:65.0%  
 Test Distance:11.700m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm										
NAME:			TYPE:			WEIGHT:				
SPEC.:			DIM.: 180*180*97			SERIAL No.:				
MFR.: NLD24-0017-01			SUR.:3.14*0.087*0.087			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	22.4	24.0	22.6	24.2	24.4	22.2	23.8	22.5	24.0	24.2
3H	25.2	26.7	25.5	26.9	27.2	25.0	26.5	25.3	26.8	27.0
4H	26.5	28.0	26.8	28.2	28.5	26.2	27.6	26.5	27.9	28.2
6H	27.2	28.6	27.5	28.8	29.1	26.8	28.1	27.1	28.4	28.7
8H	27.3	28.6	27.6	28.9	29.2	26.9	28.2	27.2	28.5	28.8
12H	27.3	28.5	27.6	28.8	29.1	26.9	28.2	27.3	28.5	28.8
4H 2H	23.4	24.8	23.7	25.1	25.4	23.3	24.7	23.6	25.0	25.3
3H	26.5	27.7	26.8	28.0	28.4	26.3	27.6	26.7	27.9	28.2
4H	27.9	29.0	28.3	29.4	29.7	27.6	28.8	28.0	29.1	29.4
6H	28.6	29.7	29.0	30.0	30.4	28.3	29.3	28.7	29.7	30.0
8H	28.8	29.7	29.2	30.1	30.5	28.4	29.4	28.8	29.7	30.1
12H	28.8	29.7	29.2	30.0	30.4	28.4	29.3	28.9	29.7	30.1
8H 4H	28.4	29.4	28.8	29.8	30.2	28.2	29.2	28.6	29.5	29.9
6H	29.3	30.1	29.8	30.5	31.0	28.9	29.8	29.4	30.2	30.6
8H	29.5	30.2	29.9	30.6	31.1	29.1	29.9	29.6	30.3	30.7
12H	29.5	30.1	30.0	30.6	31.0	29.2	29.8	29.7	30.3	30.8
12H 4H	28.4	29.3	28.9	29.7	30.1	28.2	29.1	28.7	29.5	29.9
6H	29.4	30.1	29.8	30.5	31.0	29.0	29.8	29.5	30.2	30.6
8H	29.6	30.2	30.0	30.6	31.1	29.2	29.9	29.7	30.3	30.8
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.1 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				

CIE Pub.117, 1046 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 0.2$ )

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2024-10-16

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
 Humidity:65.0%  
 Test Distance:11.700m [K=1.0000]  
 Remarks:

## UTILIZATION FACTORS TABLE

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	Shielding Angle:

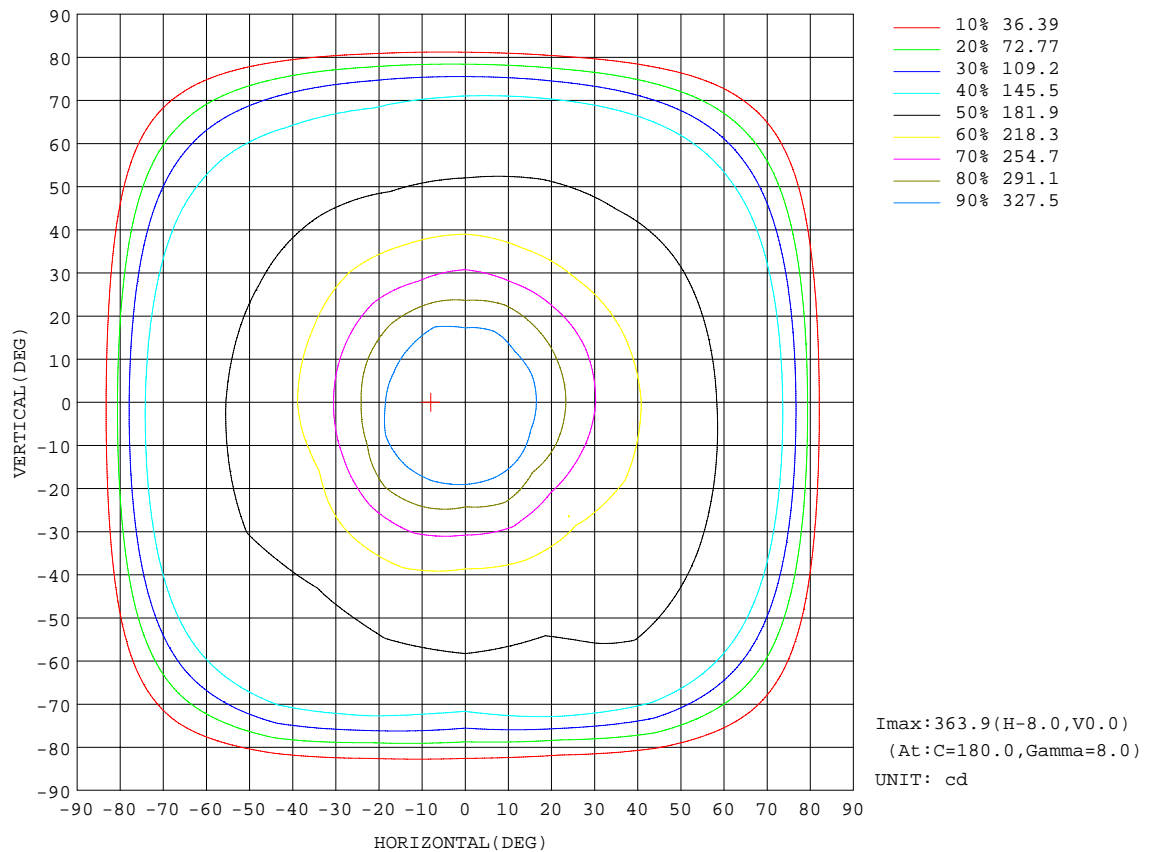
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	55	43	36	54	43	36	53	42	35	29
0.80	64	52	44	63	52	44	61	51	44	36
1.00	72	60	52	71	60	52	69	61	52	44
1.25	79	68	60	78	67	60	75	66	59	51
1.50	84	74	66	83	73	65	80	71	64	56
2.00	92	82	75	90	81	74	86	79	73	64
2.50	96	87	81	94	86	80	90	83	78	69
3.00	100	92	86	98	91	85	93	88	83	74
4.00	104	98	93	102	96	91	98	93	89	80
5.00	107	102	97	105	100	96	100	96	93	83
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:25.3DEG  
 Operators:  
 Test Date:2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
 Humidity:65.0%  
 Test Distance:11.700m [K=1.0000]  
 Remarks:

## ISOCANDELA DIAGRAM

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	Shielding Angle:



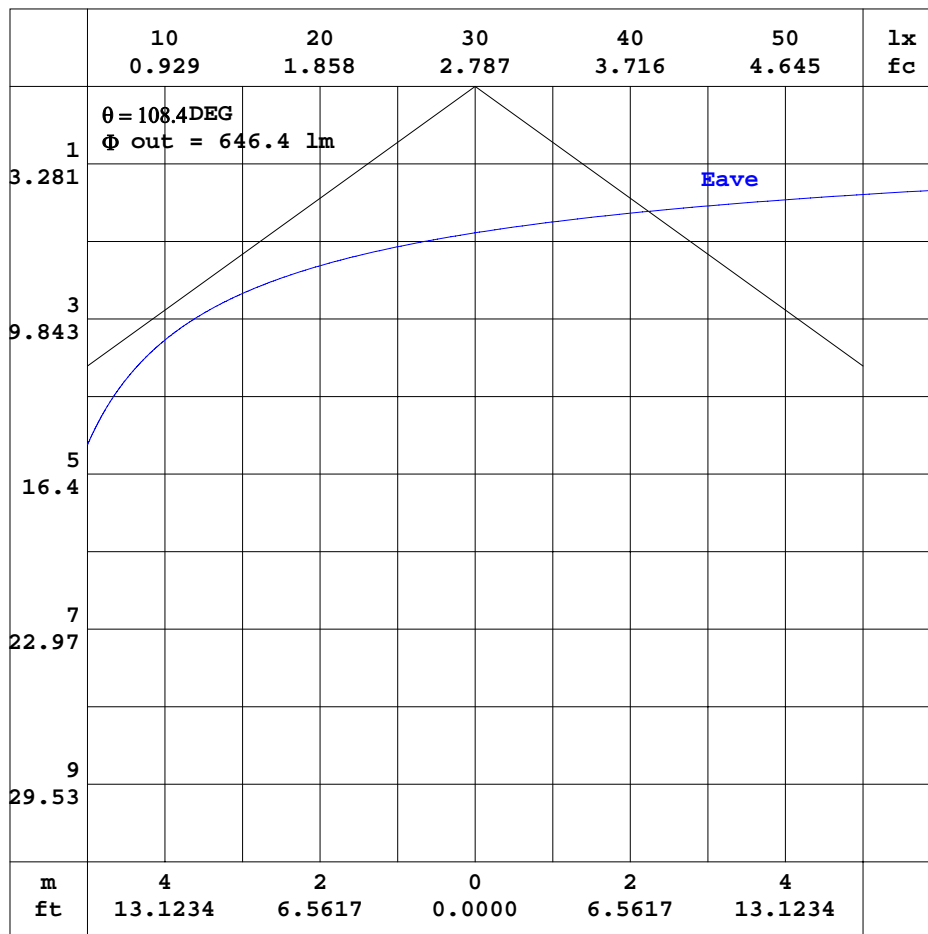
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:  
Test Date:2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity:65.0%  
Test Distance:11.700m [K=1.0000]  
Remarks:



## AAI CURVES

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	Shielding Angle:



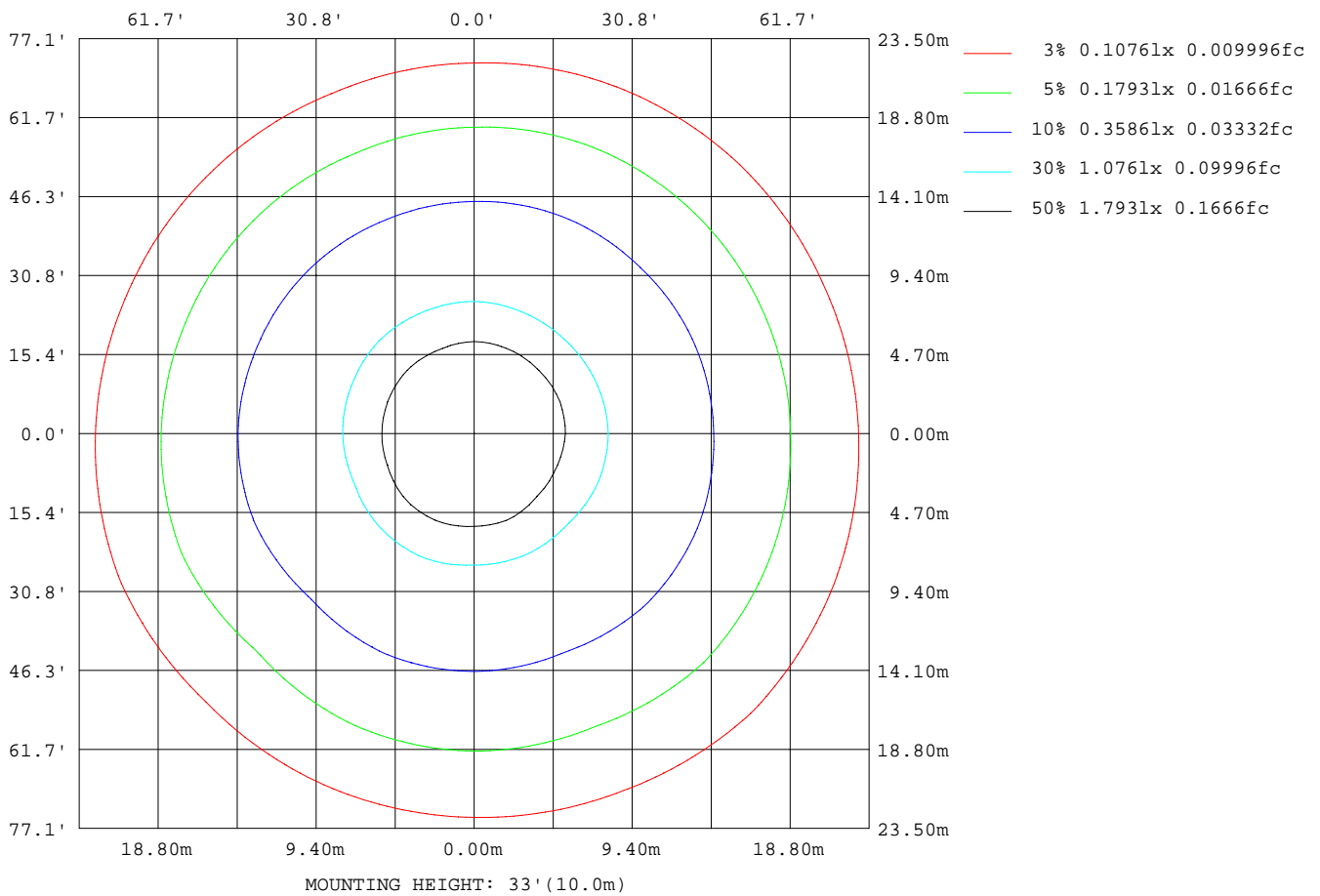
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators:  
Test Date: 2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity: 65.0%  
Test Distance: 11.700m [K=1.0000]  
Remarks:

## ISOLUX DIAGRAM

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:  
Test Date:2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity:65.0%  
Test Distance:11.700m [K=1.0000]  
Remarks:

## LED Avg.L Report

Test:U:229.69V I:0.0539A P:11.636W PF:0.9392 Freq:49.99Hz Lamp Flux:1046.24x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.: 180*180*97	SERIAL No.:
MFR.: NLD24-0017-01	SUR.:3.14*0.087*0.087	Shielding Angle:

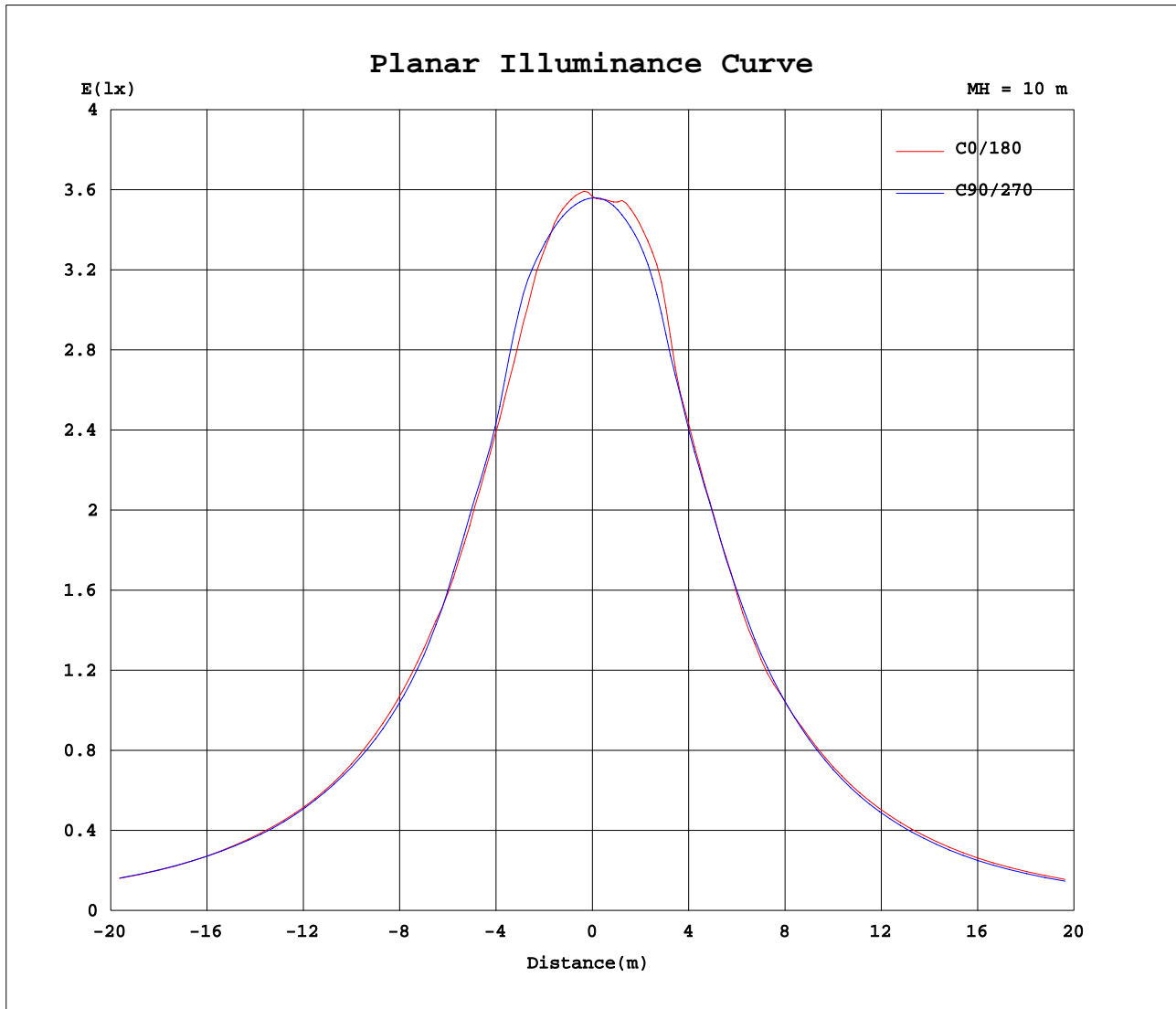
AvgL	cd/m2
L_0~180(65)av	16566
L_0~180(75)av	22031
L_0~180(85)av	6442
L_90~270(65)av	16144
L_90~270(75)av	18805
L_90~270(85)av	6901
L_45(65)av	16417
L_45(75)av	22093
L_45(85)av	6759

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:  
Test Date:2024-10-16

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity:65.0%  
Test Distance:11.700m [K=1.0000]  
Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators:  
Test Date: 2024-10-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.406.10  
Humidity: 65.0%  
Test Distance: 11.700m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.406.10
Humidity:65.0%
Test Distance:11.700m [K=1.0000]
Remarks:

```