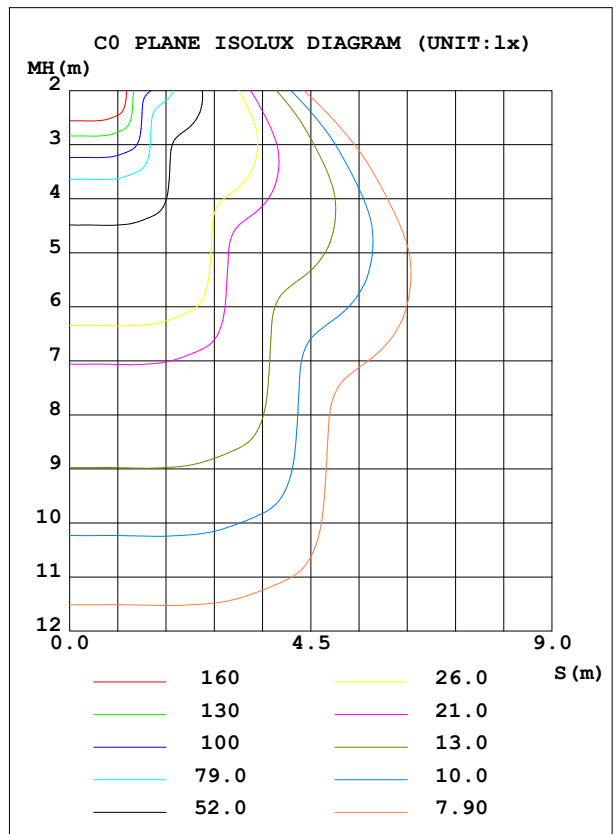
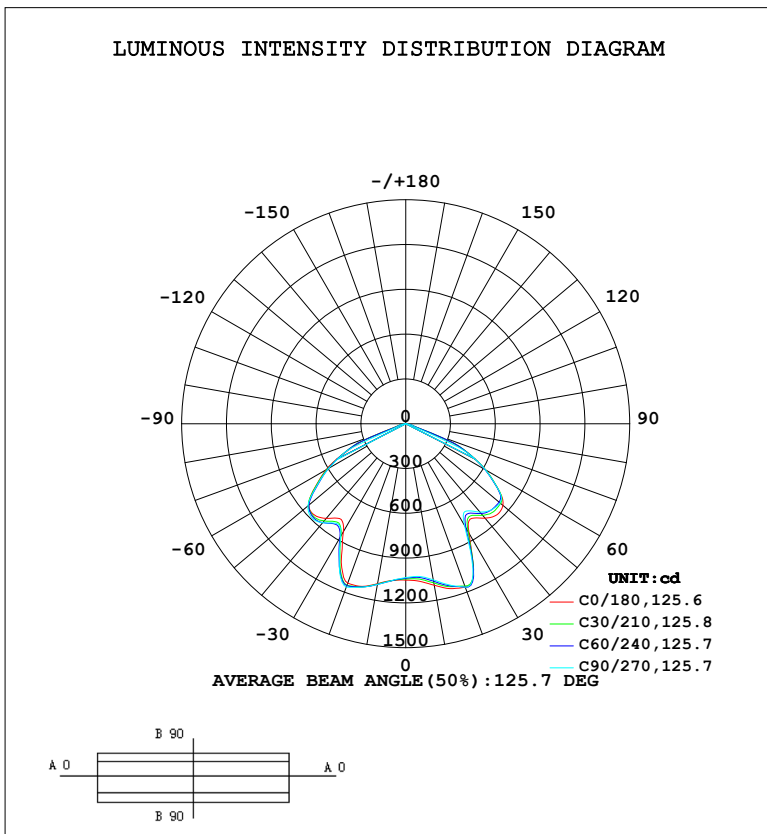


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.12V I:0.1390A P:29.394W PF:0.9607 Freq:50.00Hz Lamp Flux:3175.95x1 lm		
NAME: HYO-240R-30W 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	

DATA OF LAMP		PHOTOMETRIC DATA Eff: 108.05 lm/W			
MODEL		I <sub>max</sub> (cd)	1171	S/MH (C0/180)	1.18
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	1.23
RATED VOLTAGE (V)	--	TOTAL FLUX (lm)	3175.9	η UP, DN (C0-180)	0.0, 49.5
NOMINAL FLUX (lm)	3175.95	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 50.5
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE (V)	--	η down (%)	100.0	CIBSE SHR MAX	1.50



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-15

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity: 65.0%  
 Test Distance: 9.000m [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	1098	1076	1061	1054	1087	1092	1092	1087	0- 10	100.7	100.7	3.17,3.17
20	1165	1160	1164	1136	1136	1154	1163	1160	10- 20	318.9	419.5	13.2,13.2
30	848.6	825.9	789.0	777.4	837.7	876.0	873.0	835.2	20- 30	470.0	889.5	28,28
40	825.6	792.1	772.1	771.9	826.7	858.7	865.4	847.2	30- 40	493.1	1383	43.5,43.5
50	849.3	821.7	824.5	830.1	848.4	846.5	854.8	848.6	40- 50	655.0	2038	64.2,64.2
60	616.3	620.9	614.1	590.8	613.7	598.1	594.0	595.1	50- 60	655.9	2694	84.8,84.8
70	121.3	152.0	73.98	165.8	167.8	173.7	73.49	106.9	60- 70	415.2	3109	97.9,97.9
80	30.63	29.93	14.83	29.84	34.29	32.10	15.47	26.68	70- 80	57.60	3166	99.7,99.7
90	1.331	1.330	1.215	1.329	1.363	1.324	1.156	1.277	80- 90	9.580	3176	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		

Conical surface Flux(90deg): 1694 lm

%lum = 53.3%

%lamp = 53.3%

Conical surface Flux(120deg): 2693.6 lm

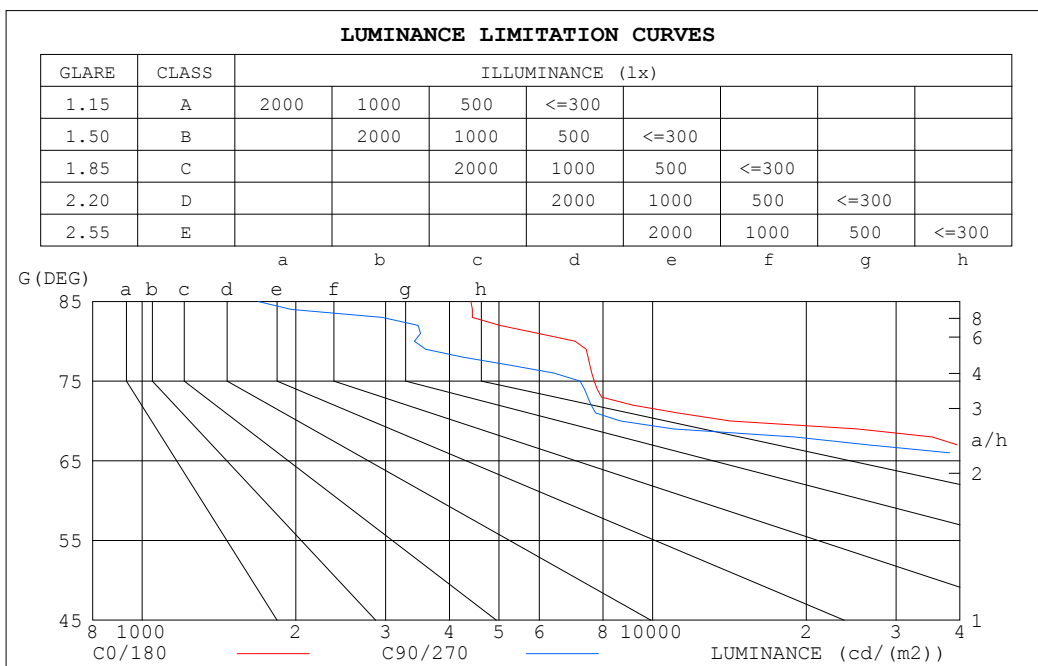
%lum = 84.8%

%lamp = 84.8%

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-15

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity:65.0%  
 Test Distance:9.000m [K=1.0000]  
 Remarks:

LUMINANCE LIMITATION CURVES



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	4407	1690
80	7056	3416
75	7688	7215
70	14185	8652
65	42888	42374
60	49303	49128
55	52354	52225
50	52850	51307
45	48832	46084

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-15

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity: 65.0%  
 Test Distance: 9.000m [K=1.0000]  
 Remarks:



WEC AND CCEC

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	.274	.156	.049	.267	.153	.048	.254	.146	.047	.242	.140	.045	.231	.134	.043	
2.0	.270	.148	.045	.264	.145	.045	.252	.140	.044	.242	.136	.042	.232	.131	.041	
3.0	.256	.136	.041	.251	.134	.040	.241	.131	.040	.231	.127	.039	.223	.123	.038	
4.0	.241	.125	.037	.236	.123	.037	.227	.120	.036	.219	.117	.035	.211	.114	.035	
5.0	.225	.115	.033	.221	.113	.033	.213	.111	.033	.205	.108	.032	.198	.106	.032	
6.0	.210	.105	.030	.207	.104	.030	.199	.102	.030	.193	.100	.029	.186	.098	.029	
7.0	.197	.097	.028	.193	.096	.027	.187	.094	.027	.181	.093	.027	.175	.091	.027	
8.0	.184	.090	.025	.181	.089	.025	.175	.088	.025	.170	.086	.025	.165	.085	.025	
9.0	.173	.084	.023	.170	.083	.023	.165	.082	.023	.160	.080	.023	.156	.079	.023	
10.0	.163	.078	.022	.161	.078	.022	.156	.076	.022	.151	.075	.021	.147	.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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.178	.156	.137	.152	.134	.118	.104	.092	.082	.060	.053	.047	.019	.017	.015	
2.0	.169	.132	.101	.145	.114	.087	.099	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.162	.114	.076	.139	.099	.066	.095	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.155	.101	.060	.133	.087	.052	.091	.061	.036	.053	.036	.022	.017	.012	.007	
5.0	.148	.090	.048	.127	.078	.042	.087	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.141	.082	.040	.121	.071	.034	.084	.050	.024	.049	.029	.015	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.128	.069	.029	.111	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.122	.064	.025	.105	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-15

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity:65.0%  
 Test Distance:9.000m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

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	27.2	28.7	27.4	28.9	29.1	27.1	28.6	27.4	28.8	29.0
3H	27.9	29.3	28.2	29.5	29.8	27.7	29.0	28.0	29.3	29.5
4H	27.9	29.2	28.2	29.4	29.7	27.6	28.9	27.9	29.1	29.4
6H	27.8	29.0	28.1	29.3	29.6	27.5	28.7	27.8	29.0	29.3
8H	27.7	28.9	28.1	29.2	29.5	27.5	28.6	27.8	28.9	29.2
12H	27.7	28.8	28.1	29.1	29.4	27.4	28.5	27.8	28.8	29.1
4H 2H	27.7	29.0	28.0	29.3	29.5	27.7	29.0	28.0	29.2	29.5
3H	28.4	29.6	28.8	29.9	30.2	28.2	29.3	28.6	29.6	29.9
4H	28.4	29.4	28.8	29.7	30.1	28.2	29.2	28.5	29.5	29.8
6H	28.3	29.2	28.7	29.6	30.0	28.1	29.0	28.5	29.3	29.7
8H	28.3	29.1	28.7	29.5	29.9	28.1	28.9	28.5	29.3	29.6
12H	28.3	29.0	28.7	29.4	29.8	28.0	28.8	28.4	29.2	29.6
8H 4H	28.3	29.1	28.7	29.5	29.9	28.1	28.9	28.5	29.3	29.7
6H	28.3	29.0	28.7	29.4	29.8	28.0	28.7	28.5	29.1	29.5
8H	28.3	28.9	28.7	29.3	29.7	28.0	28.6	28.5	29.0	29.5
12H	28.2	28.7	28.7	29.2	29.7	28.0	28.5	28.4	28.9	29.4
12H 4H	28.3	29.0	28.7	29.4	29.8	28.1	28.8	28.5	29.2	29.6
6H	28.2	28.8	28.7	29.3	29.7	28.0	28.6	28.5	29.0	29.5
8H	28.2	28.7	28.7	29.2	29.7	28.0	28.5	28.5	28.9	29.4
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.2 / - 0.2					+ 0.4 / - 0.4				
1.5H	+ 0.8 / - 0.7					+ 0.7 / - 1.3				
2.0H	+ 0.5 / - 1.3					+ 0.6 / - 1.7				

CIE Pub.117, 3176 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 4.0$ )  
Area: 0.025 m<sup>2</sup>

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: 10.0deg/s  
Temperature:25.3°C  
Operators:DAMIN  
Test Date:2023-08-15

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
Humidity:65.0%  
Test Distance:9.000m [K=1.0000]  
Remarks:

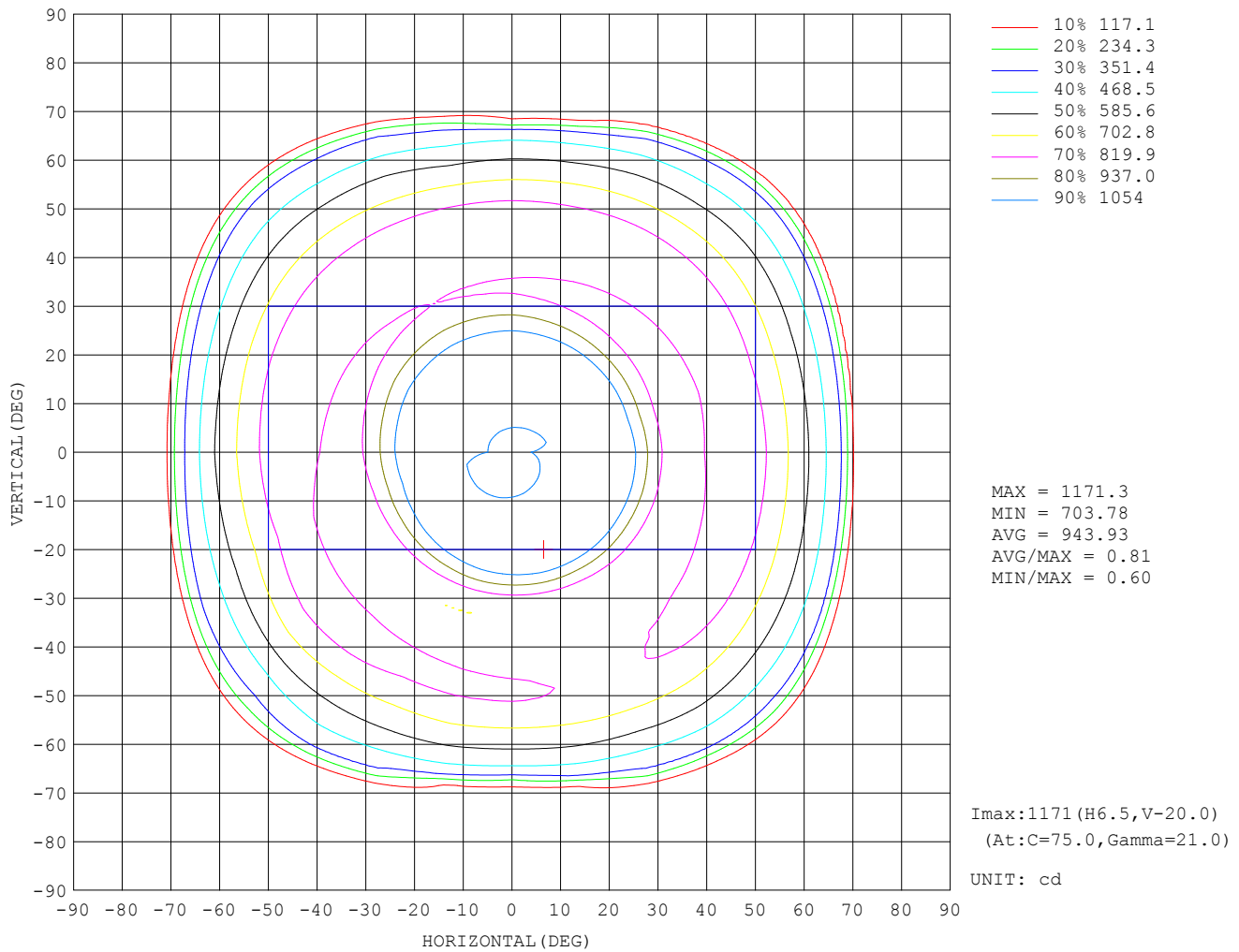
**UTILIZATION FACTORS TABLE**

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	56	44	37	55	44	37	54	43	37	30
0.80	67	55	48	66	55	48	64	54	47	40
1.00	76	65	58	75	65	58	73	66	57	50
1.25	84	74	67	83	73	66	80	72	66	58
1.50	89	80	73	88	79	73	85	77	71	64
2.00	97	88	82	95	87	82	91	85	80	73
2.50	100	93	87	98	92	87	95	89	85	77
3.00	104	97	92	102	96	91	98	93	89	81
4.00	108	102	98	105	101	97	101	97	94	85
5.00	110	105	102	107	103	100	103	100	97	88
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-15

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity: 65.0%  
 Test Distance: 9.000m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

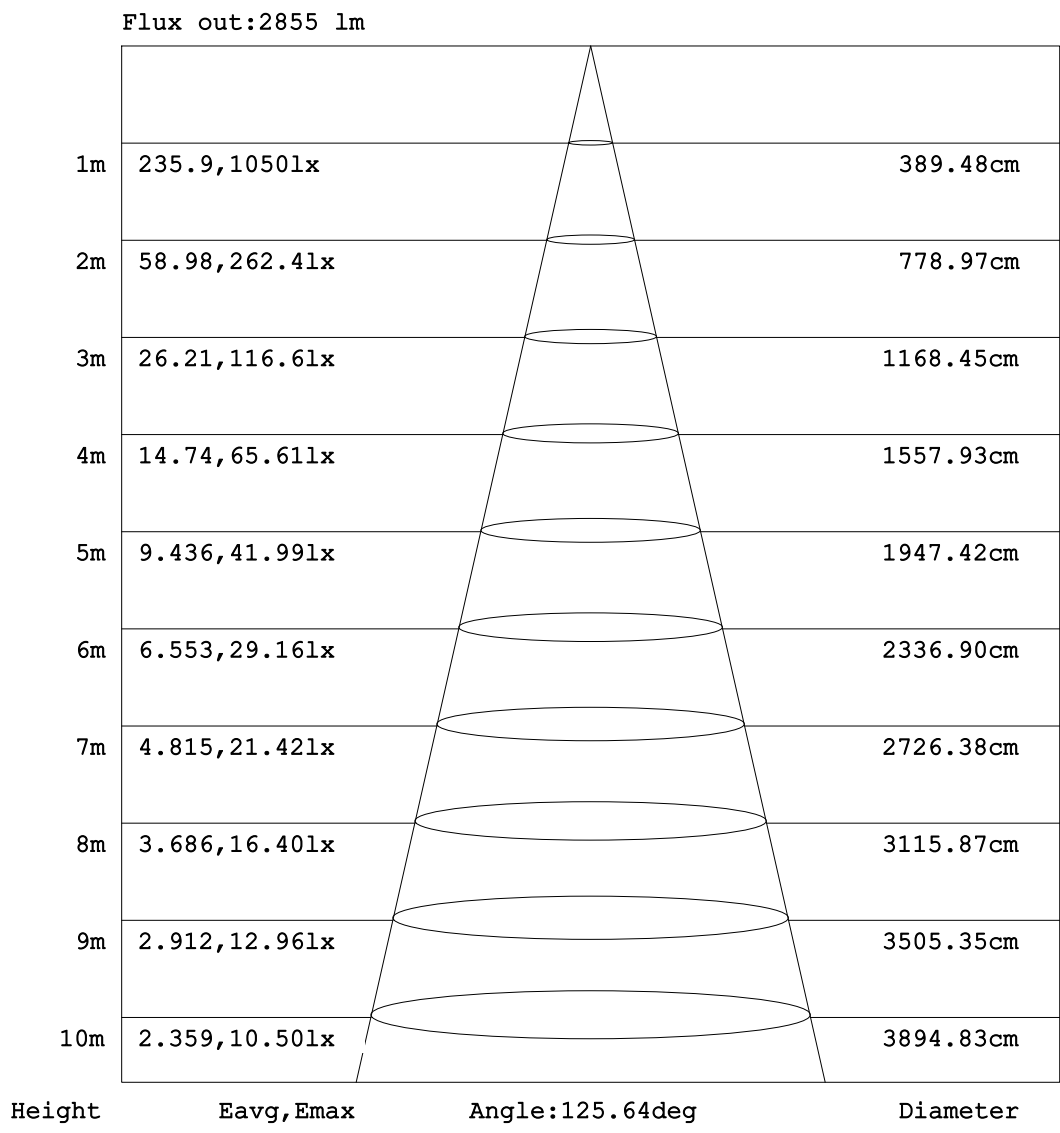


C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-15

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity: 65.0%  
 Test Distance: 9.000m [K=1.0000]  
 Remarks:



**AAI Figure**

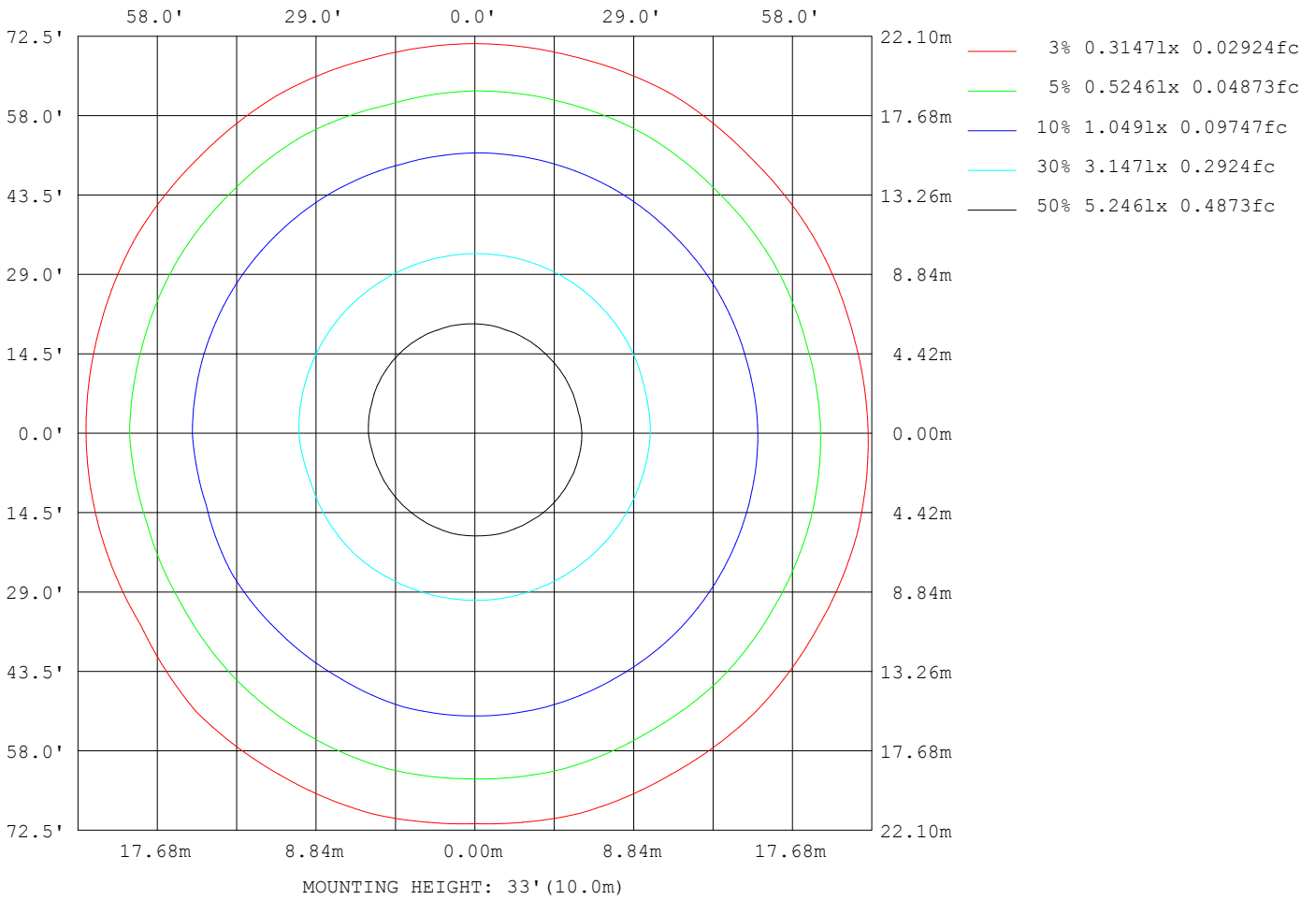


**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-15

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity:65.0%  
 Test Distance:9.000m [K=1.0000]  
 Remarks:

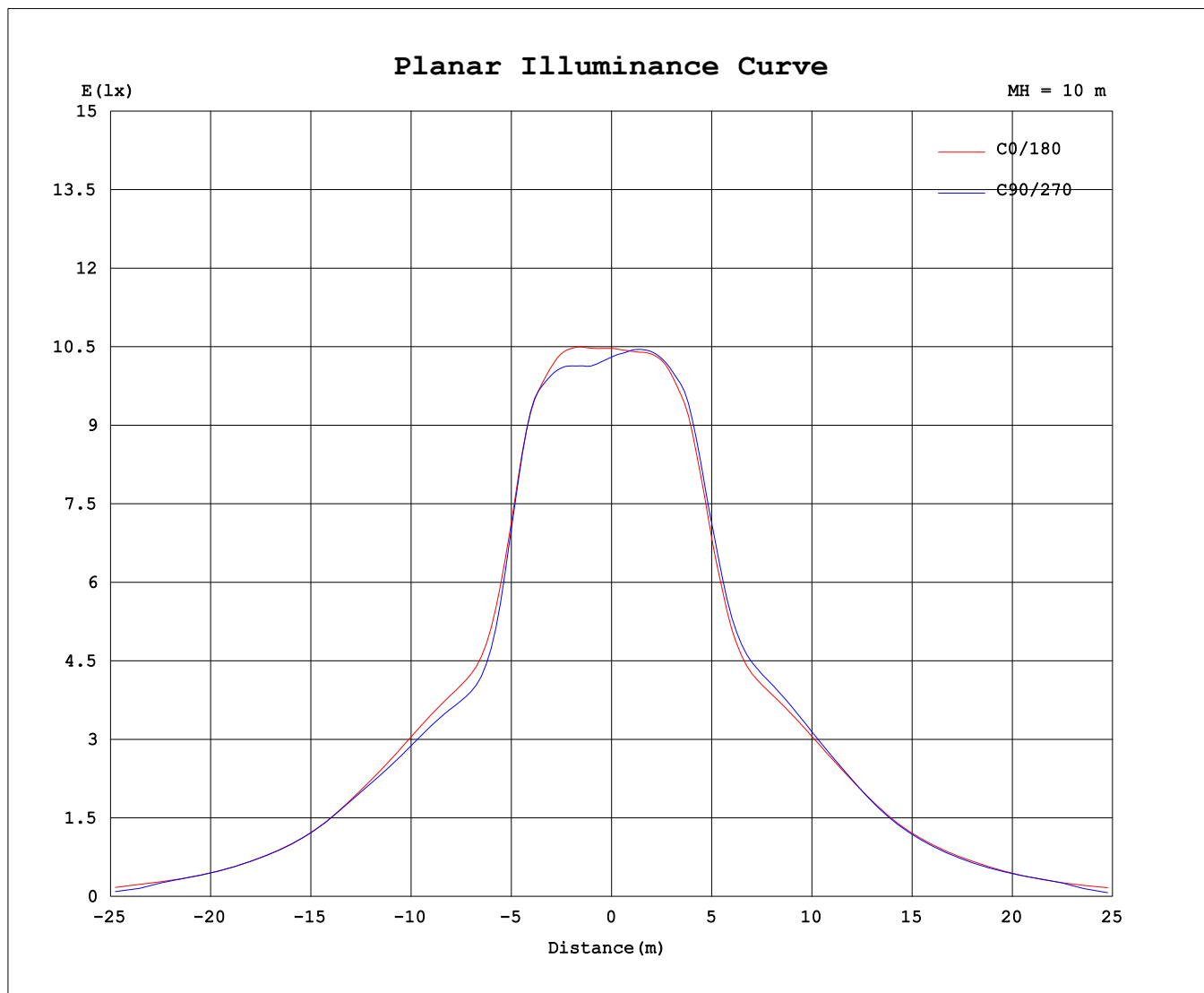
ISOLUX DIAGRAM



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-15

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity: 65.0%  
 Test Distance: 9.000m [K=1.0000]  
 Remarks:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: 10.0deg/s  
Temperature: 25.3°C  
Operators: DAMIN  
Test Date: 2023-08-15

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
Humidity: 65.0%  
Test Distance: 9.000m [K=1.0000]  
Remarks:



