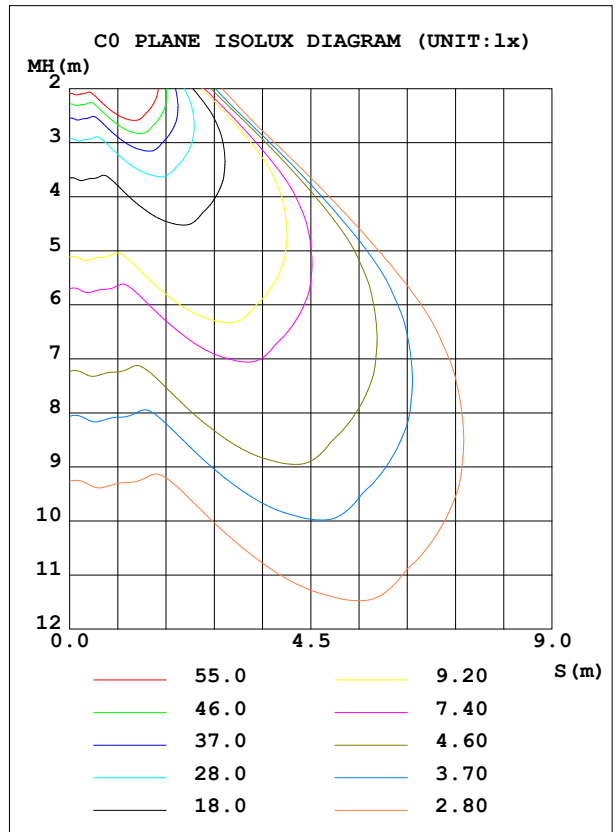
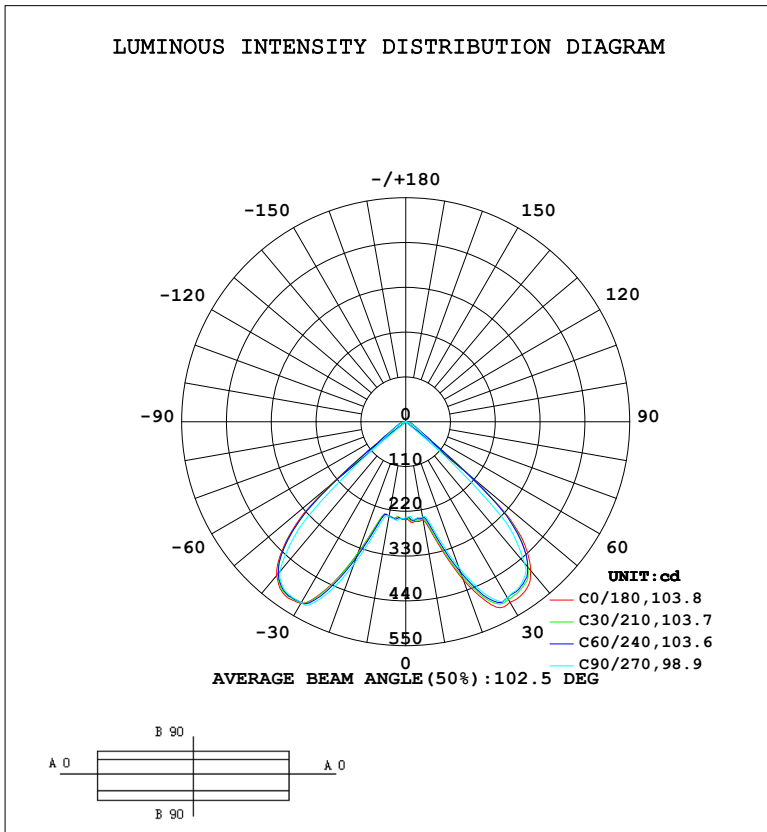


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.09V I:0.0909A P:10.784W PF:0.5388 Freq:50.00Hz Lamp Flux:1019.93x1 lm		
NAME: HYO-240R-10W 6000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL		Imax (cd)	520.4	S/MH (C0/180)	1.70
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	1.59
RATED VOLTAGE (V)	--	TOTAL FLUX (lm)	1019.9	$\eta$ UP, DN (C0-180)	0.0, 49.6
NOMINAL FLUX (lm)	1019.93	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 50.4
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE (V)	--	$\eta$ down (%)	100.0	CIBSE SHR MAX	1.00



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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	244.2	240.6	237.7	233.9	236.1	235.6	236.7	237.2	0- 10	22.76	22.76	2.23,2.23
20	412.2	394.3	379.8	354.5	343.5	351.9	372.0	392.1	10- 20	83.54	106.3	10.4,10.4
30	512.0	501.9	499.1	499.9	514.5	514.7	512.7	507.7	20- 30	214.1	320.4	31.4,31.4
40	477.0	467.2	454.2	474.8	493.6	485.1	481.0	475.1	30- 40	313.2	633.6	62.1,62.1
50	198.3	204.7	91.19	218.5	236.2	219.3	106.6	202.1	40- 50	285.5	919.0	90.1,90.1
60	32.27	32.07	31.61	32.99	35.50	35.34	32.98	33.63	50- 60	64.25	983.3	96.4,96.4
70	17.21	16.84	13.92	16.84	17.77	17.19	14.26	16.98	60- 70	23.13	1006	98.7,98.7
80	9.564	6.078	0.9220	5.902	9.269	5.643	0.9548	5.528	70- 80	11.86	1018	99.8,99.8
90	0.1416	0.1281	0.1108	0.1243	0.1648	0.1407	0.1175	0.1397	80- 90	1.678	1020	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): 795.92 lm

%lum = 78.0%  
 %lamp = 78.0%

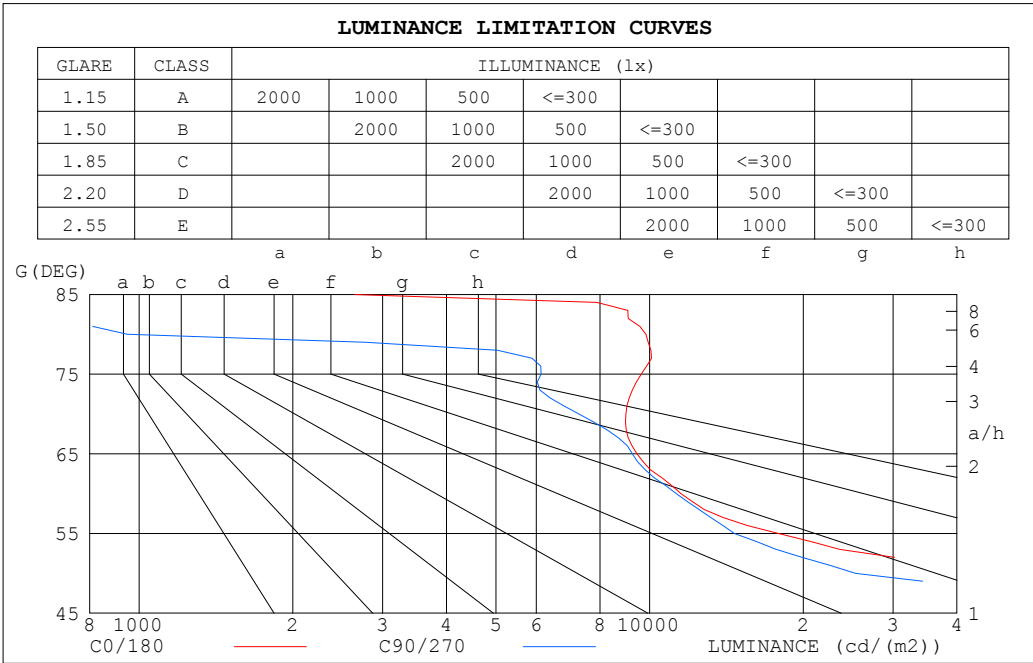
Conical surface Flux(120deg): 983.26 lm

%lum = 96.4%  
 %lamp = 96.4%

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



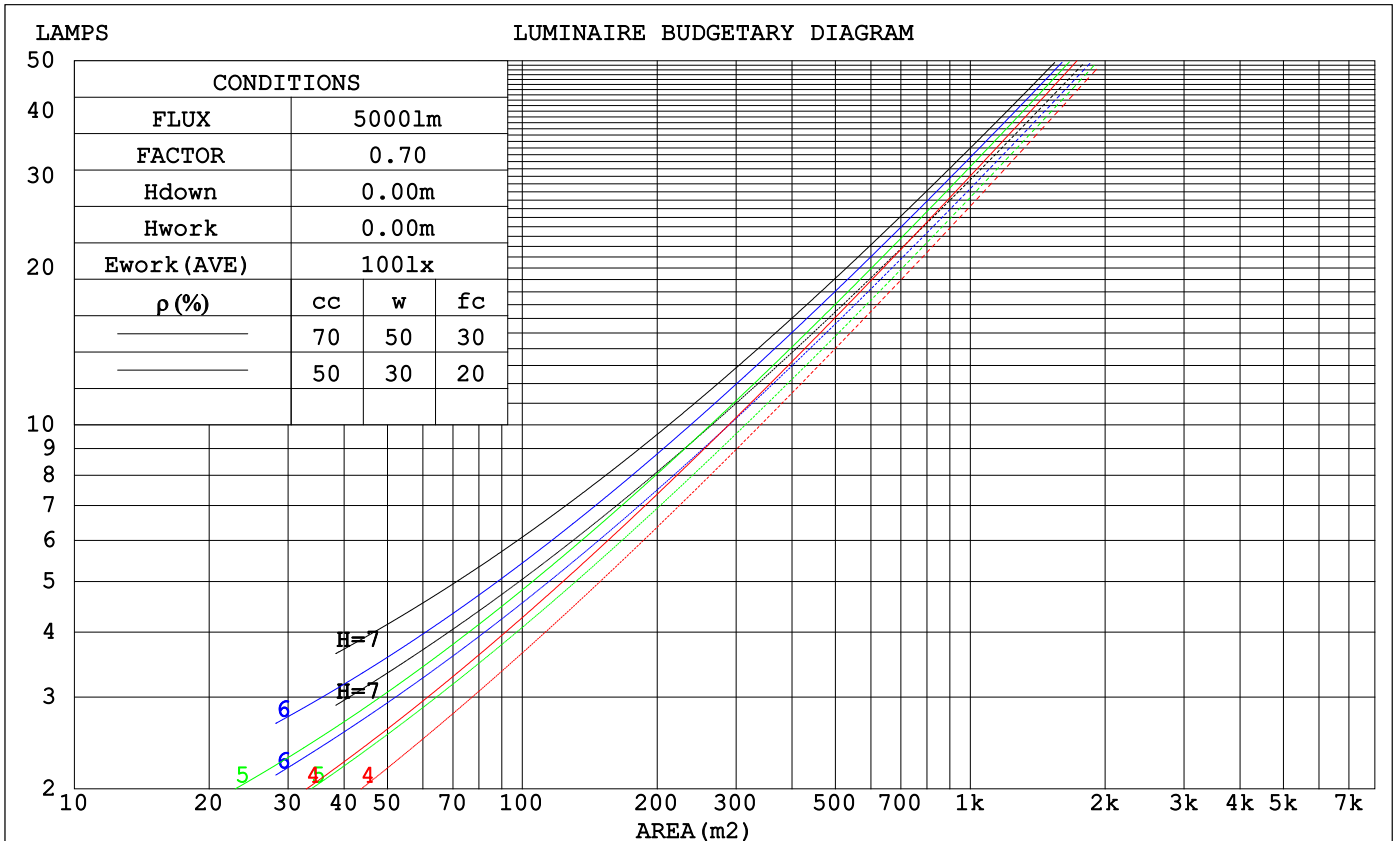
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	2648	484
80	9836	948
75	9637	6133
70	8987	7270
65	9451	9255
60	11524	11288
55	17908	14671
50	55095	25332
45	101802	87638

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

$\rho_{cc}$	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	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	1.08	1.05	1.02	1.06	1.03	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.91	.89
2.0	.97	.92	.87	.95	.90	.86	.92	.88	.84	.89	.85	.82	.86	.83	.81	.79
3.0	.87	.81	.75	.86	.80	.75	.83	.78	.73	.80	.76	.72	.78	.74	.71	.69
4.0	.79	.71	.65	.77	.70	.65	.75	.69	.64	.73	.68	.63	.71	.66	.63	.61
5.0	.71	.63	.57	.70	.62	.57	.68	.61	.56	.66	.60	.56	.64	.59	.55	.53
6.0	.64	.56	.50	.63	.56	.50	.61	.55	.50	.60	.54	.49	.58	.53	.49	.47
7.0	.58	.50	.45	.57	.50	.44	.56	.49	.44	.55	.48	.44	.53	.48	.44	.42
8.0	.53	.45	.40	.52	.45	.40	.51	.44	.39	.50	.44	.39	.49	.43	.39	.37
9.0	.48	.41	.35	.48	.40	.35	.47	.40	.35	.46	.39	.35	.45	.39	.35	.33
10.0	.44	.37	.32	.44	.37	.32	.43	.36	.32	.42	.36	.31	.41	.35	.31	.30



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
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 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:

WEC AND CCEC

$\rho_{cc}$	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	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.233	.133	.042	.226	.129	.041	.213	.122	.039	.201	.116	.037	.191	.110	.036	
2.0	.228	.125	.038	.223	.123	.038	.211	.118	.037	.201	.113	.035	.192	.108	.034	
3.0	.219	.117	.035	.214	.115	.035	.205	.111	.034	.196	.107	.033	.187	.104	.032	
4.0	.209	.109	.032	.205	.107	.032	.196	.104	.031	.188	.101	.030	.181	.098	.030	
5.0	.199	.101	.029	.195	.100	.029	.187	.098	.029	.180	.095	.028	.174	.093	.028	
6.0	.189	.095	.027	.185	.094	.027	.179	.092	.027	.172	.089	.026	.166	.088	.026	
7.0	.180	.089	.025	.176	.088	.025	.170	.086	.025	.164	.084	.025	.159	.083	.024	
8.0	.171	.083	.023	.168	.083	.023	.162	.081	.023	.157	.080	.023	.152	.078	.023	
9.0	.162	.078	.022	.160	.078	.022	.155	.076	.022	.150	.075	.022	.145	.074	.021	
10.0	.154	.074	.021	.152	.073	.020	.147	.072	.020	.143	.071	.020	.139	.070	.020	

$\rho_{cc}$	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	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	.175	.157	.140	.150	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.164	.132	.106	.140	.114	.091	.096	.079	.064	.055	.046	.037	.018	.015	.012	
3.0	.155	.114	.081	.133	.098	.071	.091	.068	.050	.053	.040	.029	.017	.013	.010	
4.0	.147	.100	.064	.126	.086	.056	.087	.060	.039	.050	.035	.023	.016	.011	.008	
5.0	.140	.089	.052	.120	.077	.045	.083	.054	.032	.048	.032	.019	.015	.010	.006	
6.0	.134	.081	.043	.115	.070	.037	.079	.049	.026	.046	.029	.016	.015	.009	.005	
7.0	.128	.074	.036	.110	.064	.031	.076	.045	.022	.044	.026	.013	.014	.009	.004	
8.0	.123	.068	.031	.106	.059	.027	.073	.041	.019	.043	.024	.011	.014	.008	.004	
9.0	.118	.063	.027	.101	.055	.023	.070	.039	.016	.041	.023	.010	.013	.007	.003	
10.0	.113	.059	.023	.097	.051	.020	.067	.036	.015	.039	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG  
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 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:

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	25.6	27.0	25.9	27.2	27.3	25.1	26.4	25.3	26.6	26.8
3H	25.5	26.7	25.8	27.0	27.2	25.0	26.2	25.3	26.4	26.6
4H	25.5	26.6	25.8	26.9	27.1	24.9	26.0	25.2	26.3	26.5
6H	25.5	26.6	25.8	26.8	27.1	24.8	25.9	25.2	26.1	26.4
8H	25.5	26.5	25.8	26.8	27.0	24.8	25.8	25.1	26.1	26.3
12H	25.5	26.4	25.8	26.7	27.0	24.7	25.7	25.1	26.0	26.3
4H 2H	25.4	26.5	25.7	26.8	27.0	24.9	26.0	25.2	26.2	26.5
3H	25.4	26.3	25.7	26.6	26.9	24.8	25.8	25.1	26.0	26.3
4H	25.4	26.3	25.7	26.6	26.9	24.8	25.6	25.1	25.9	26.3
6H	25.4	26.2	25.8	26.5	26.9	24.7	25.5	25.1	25.8	26.2
8H	25.4	26.2	25.8	26.5	26.9	24.7	25.4	25.1	25.7	26.1
12H	25.4	26.1	25.9	26.5	26.9	24.6	25.3	25.0	25.6	26.0
8H 4H	25.3	26.0	25.7	26.4	26.7	24.7	25.4	25.1	25.7	26.1
6H	25.4	26.0	25.8	26.4	26.8	24.6	25.2	25.1	25.6	26.0
8H	25.4	25.9	25.9	26.4	26.8	24.6	25.1	25.1	25.5	26.0
12H	25.4	25.9	25.9	26.3	26.8	24.6	25.0	25.0	25.4	25.9
12H 4H	25.3	25.9	25.7	26.3	26.7	24.6	25.3	25.1	25.7	26.1
6H	25.3	25.8	25.8	26.3	26.7	24.6	25.1	25.1	25.5	26.0
8H	25.4	25.8	25.9	26.3	26.7	24.6	25.0	25.0	25.4	25.9
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 2.4 / - 4.8					+ 2.6 / - 6.2				
1.5H	+ 2.1 / - 5.7					+ 2.0 / - 6.2				
2.0H	+ 5.7 / - 5.1					+ 6.1 / - 5.9				

CIE Pub.117, 1020 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 0.1$ )  
Area: 0.0056 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:

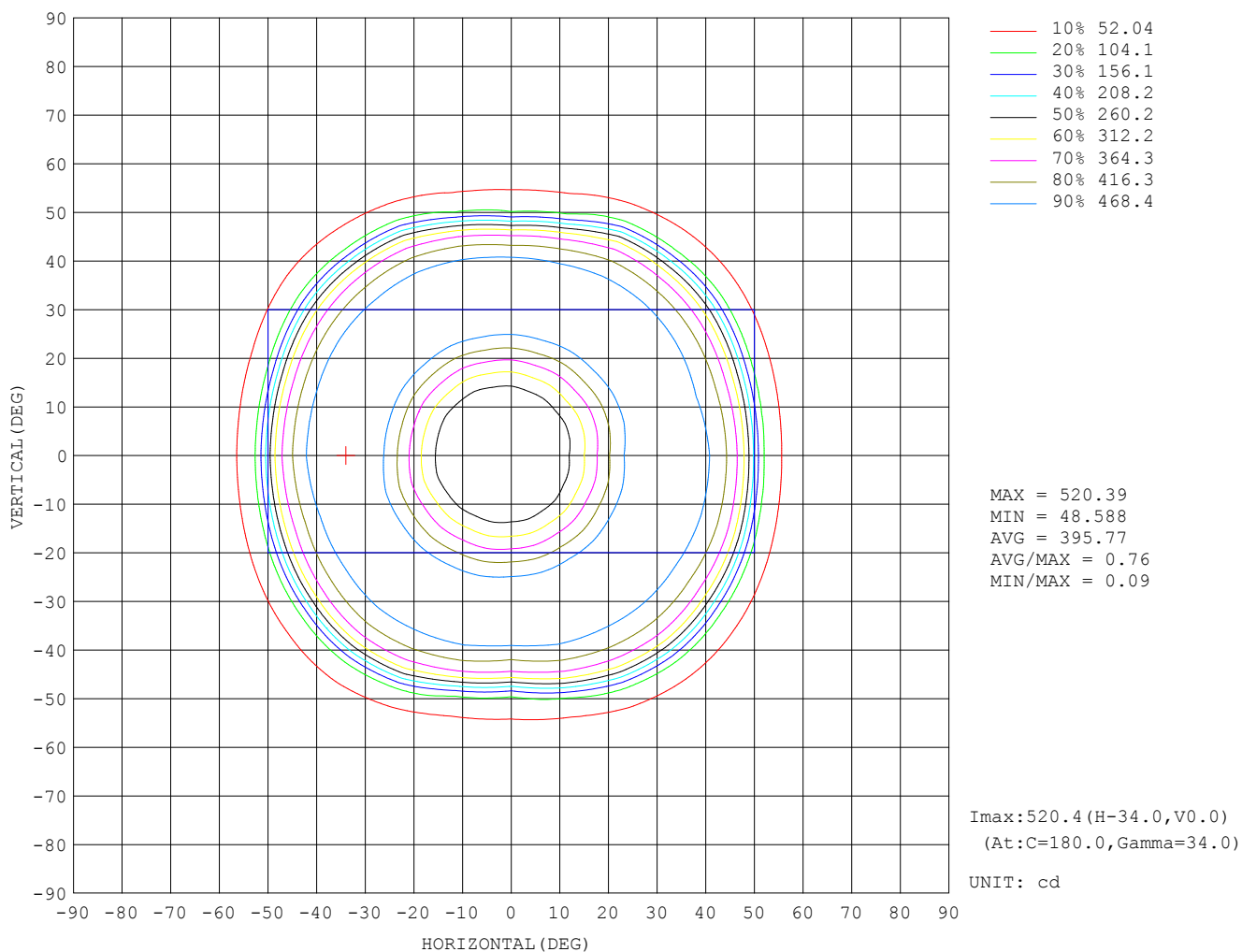
**UTILIZATION FACTORS TABLE**

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	68	58	52	67	57	52	66	57	51	46
0.80	78	69	63	77	68	62	76	67	62	56
1.00	86	78	72	85	77	72	83	78	71	66
1.25	93	85	80	92	84	79	89	83	78	73
1.50	97	90	85	96	89	84	93	87	83	77
2.00	102	96	92	101	95	91	98	93	89	83
2.50	105	99	95	103	98	94	100	96	92	85
3.00	107	103	99	106	101	97	102	98	95	88
4.00	110	106	103	108	104	101	104	101	99	91
5.00	112	108	105	109	106	104	105	103	100	92
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

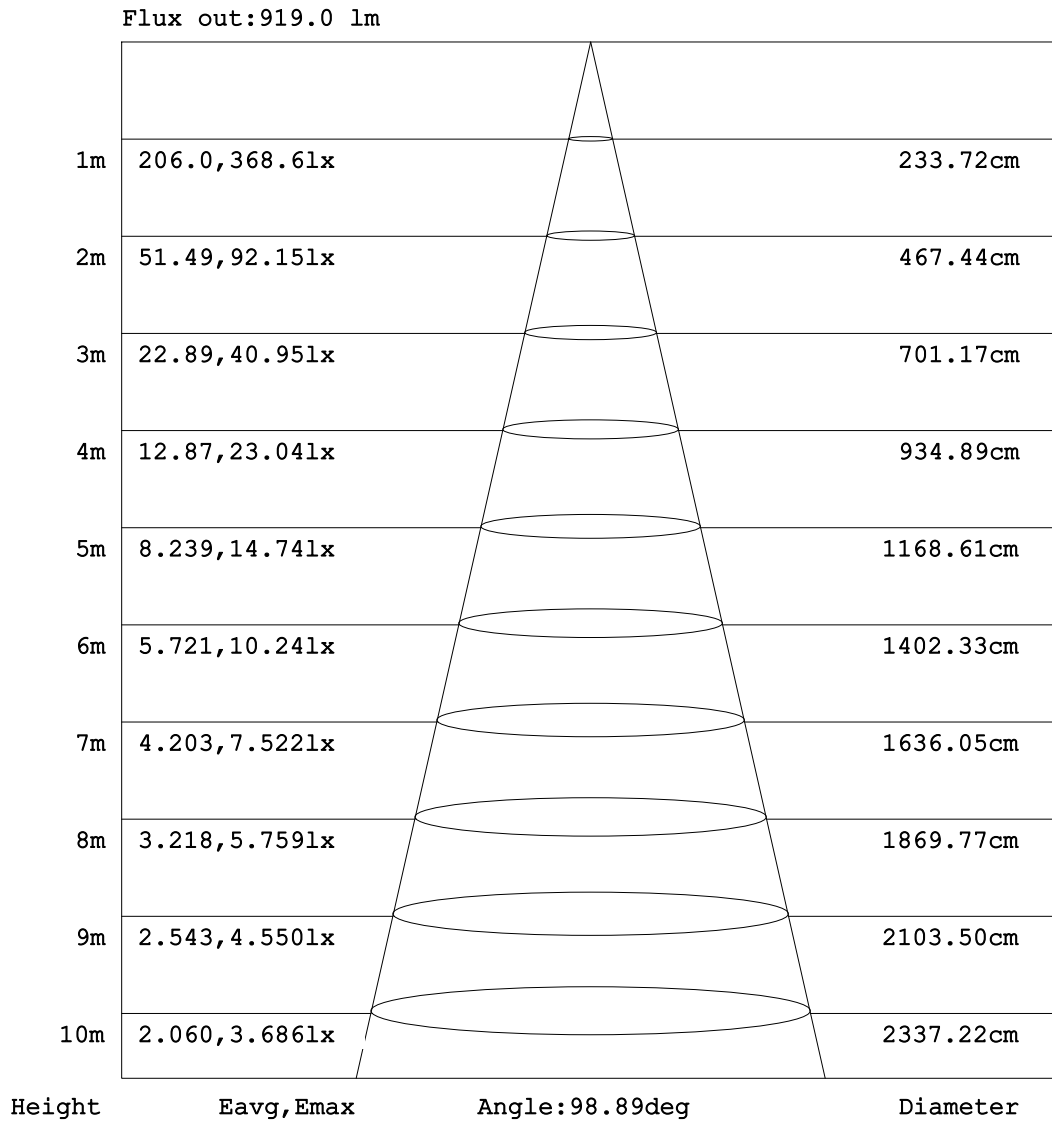


C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-15

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**

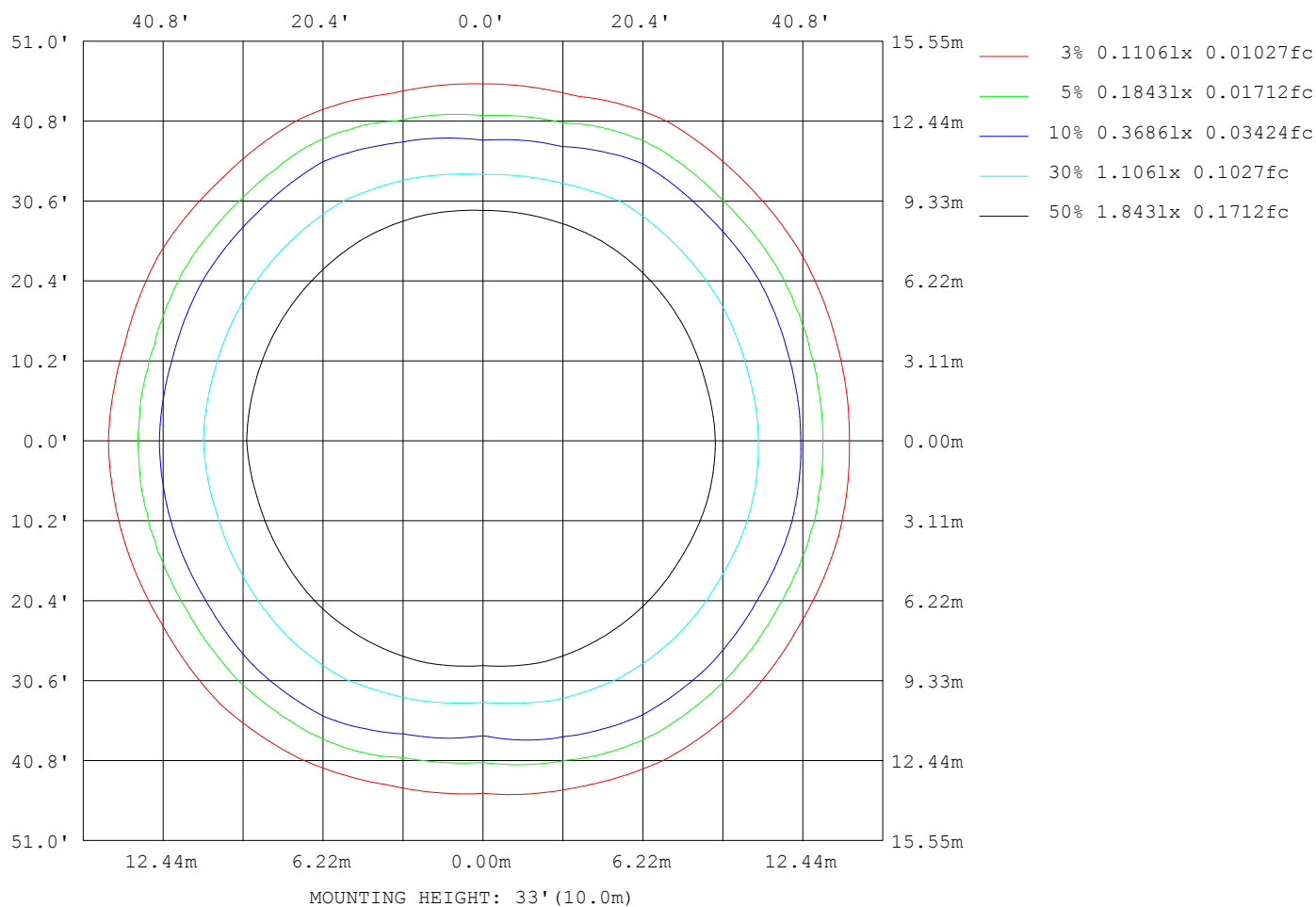


**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:

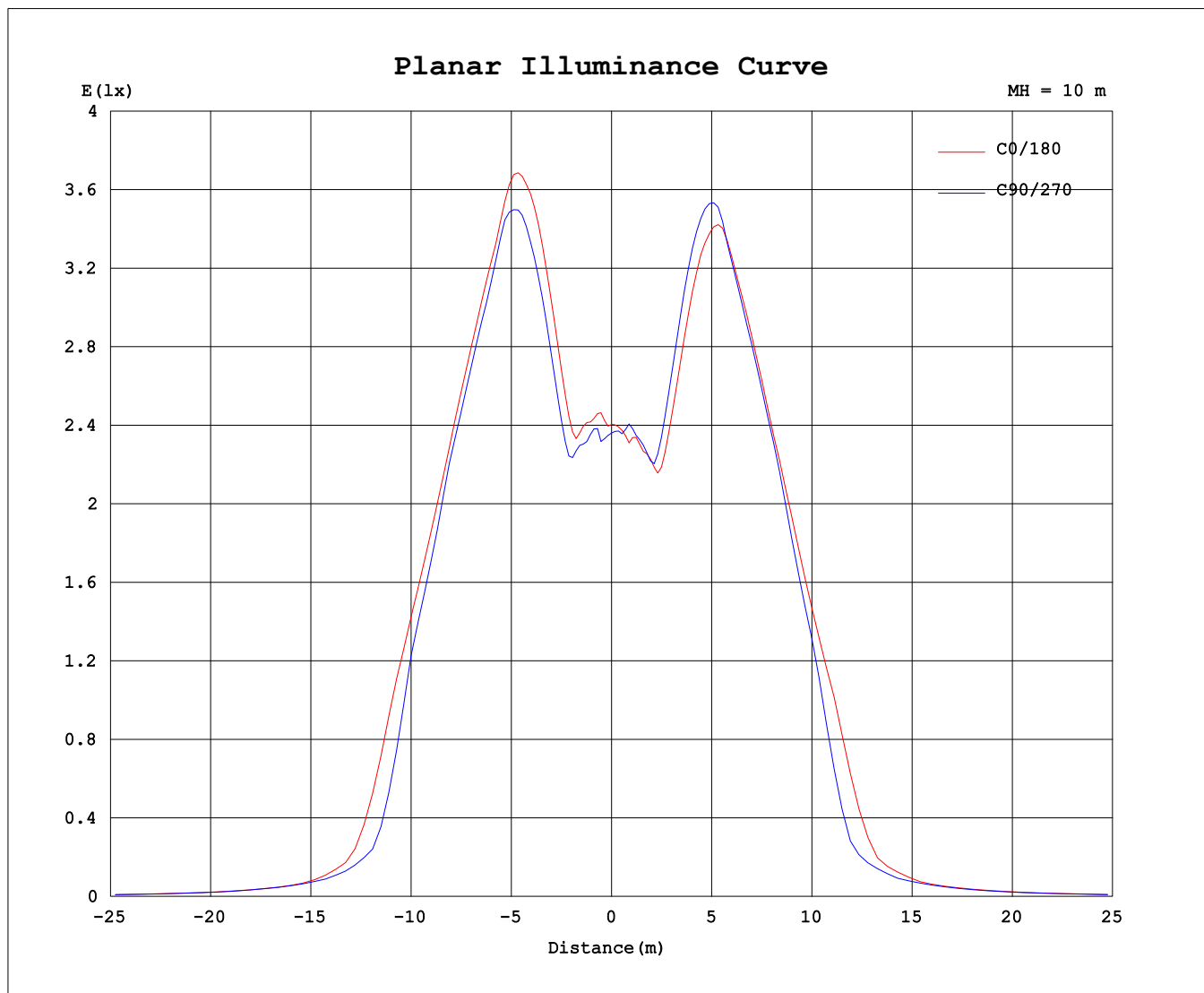
ISOLUX DIAGRAM



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:



