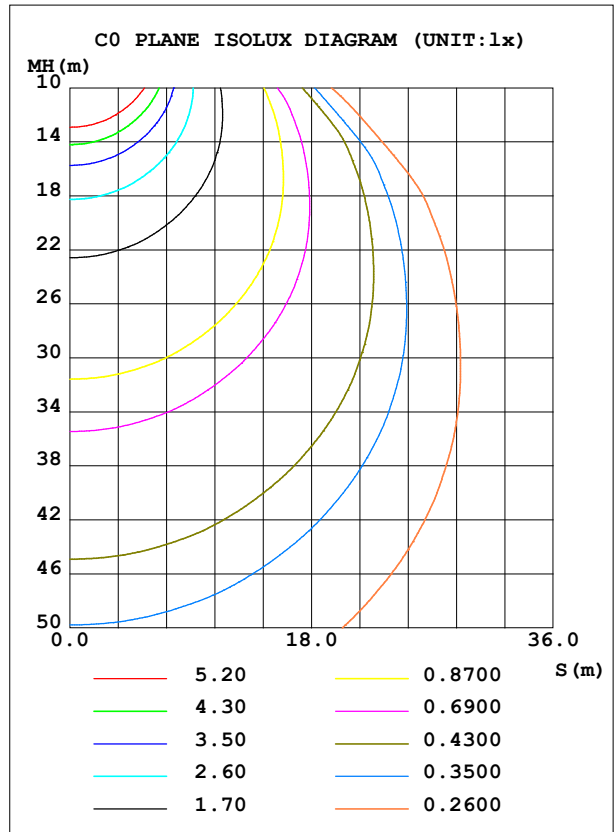
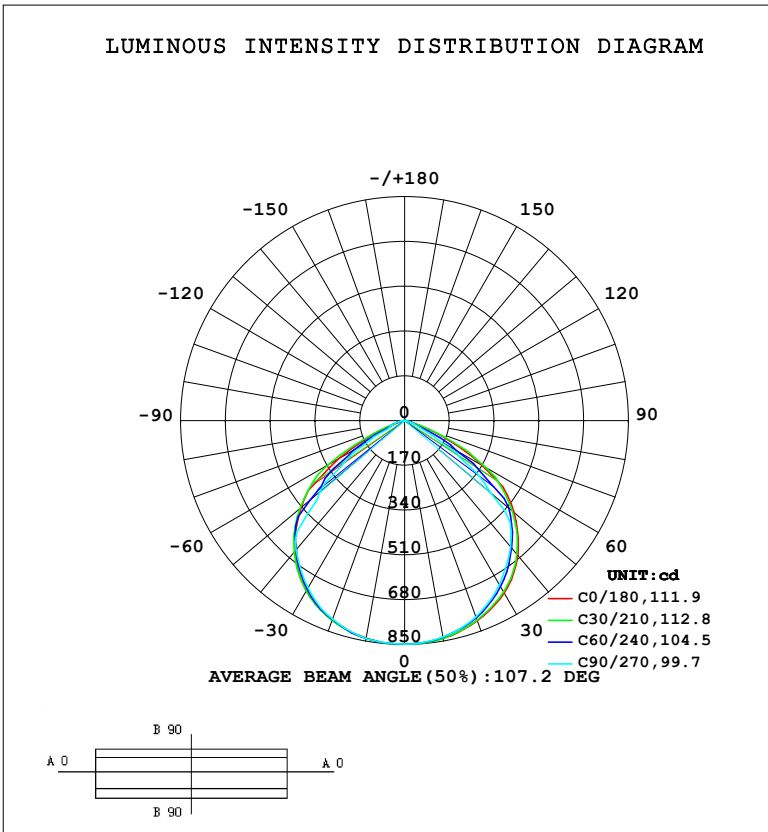


**LUMINAIRE PHOTOMETRIC TEST REPORT**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 109.85 lm/W
MODEL	DFL-20W	I <sub>max</sub> (cd)	849.6	S/MH (C0/180)	1.30	
NOMINAL POWER (W)	20	LOR (%)	100.0	S/MH (C90/270)	1.28	
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	2089.1	η UP, DN (C0-180)	0.0, 49.8	
NOMINAL FLUX (lm)	2089.08	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 50.2	
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25	
TEST VOLTAGE (V)	220	η down (%)	100.0	CIBSE SHR MAX	1.35	



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3 °C  
 Operators:  
 Test Date: 2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity: 65.0%  
 Test Distance: 9.410m [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	839.1	837.9	834.6	836.0	839.0	840.2	840.0	840.4	0- 10	80.55	80.55	3.86,3.86
20	807.8	801.2	792.7	796.1	806.3	804.8	802.1	808.0	10- 20	232.6	313.1	15,15
30	755.8	739.8	720.3	729.4	746.6	742.9	733.3	749.4	20- 30	357.2	670.3	32.1,32.1
40	668.8	647.2	625.8	631.0	647.9	645.4	641.5	660.7	30- 40	435.8	1106	52.9,52.9
50	542.2	524.1	426.0	499.6	513.3	493.8	421.1	517.2	40- 50	448.4	1555	74.4,74.4
60	336.7	291.4	151.0	253.1	288.1	280.1	156.2	313.6	50- 60	346.2	1901	91,91
70	98.44	75.86	41.27	46.77	55.58	58.88	50.73	81.31	60- 70	151.8	2053	98.3,98.3
80	12.43	10.42	3.886	6.307	7.768	13.57	16.72	18.70	70- 80	32.70	2085	99.8,99.8
90	0.4446	0.4271	0.2795	0.5184	0.1914	0.1633	0.0826	0.1184	80- 90	3.813	2089	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): 1379.9 lm

%lum = 66.1%

%lamp = 66.1%

Conical surface Flux(130deg): 2015.3 lm

%lum = 96.5%

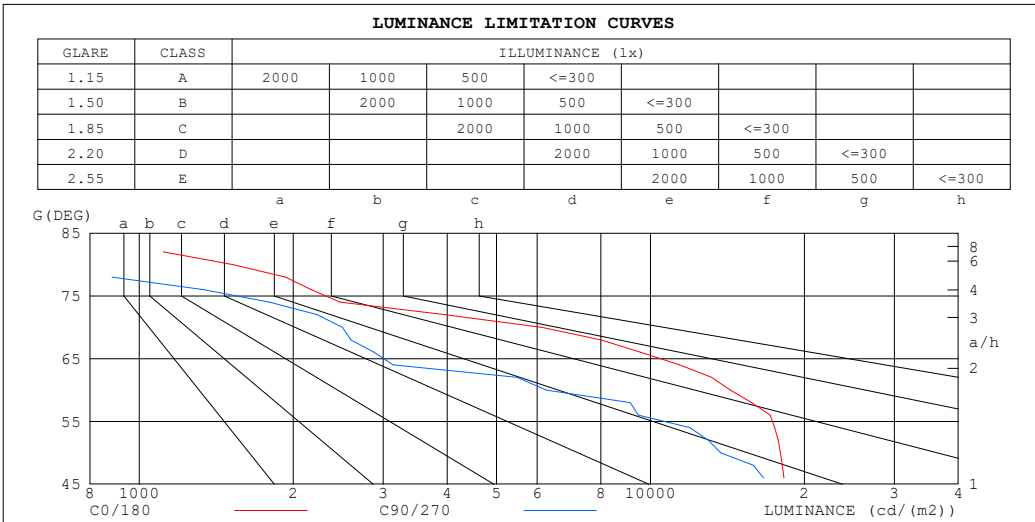
%lamp = 96.5%

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2024-04-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	891	38
80	1524	463
75	2627	1912
70	6130	2499
65	11831	3256
60	14342	6255
55	17923	12229
50	17967	13726
45	18694	17031

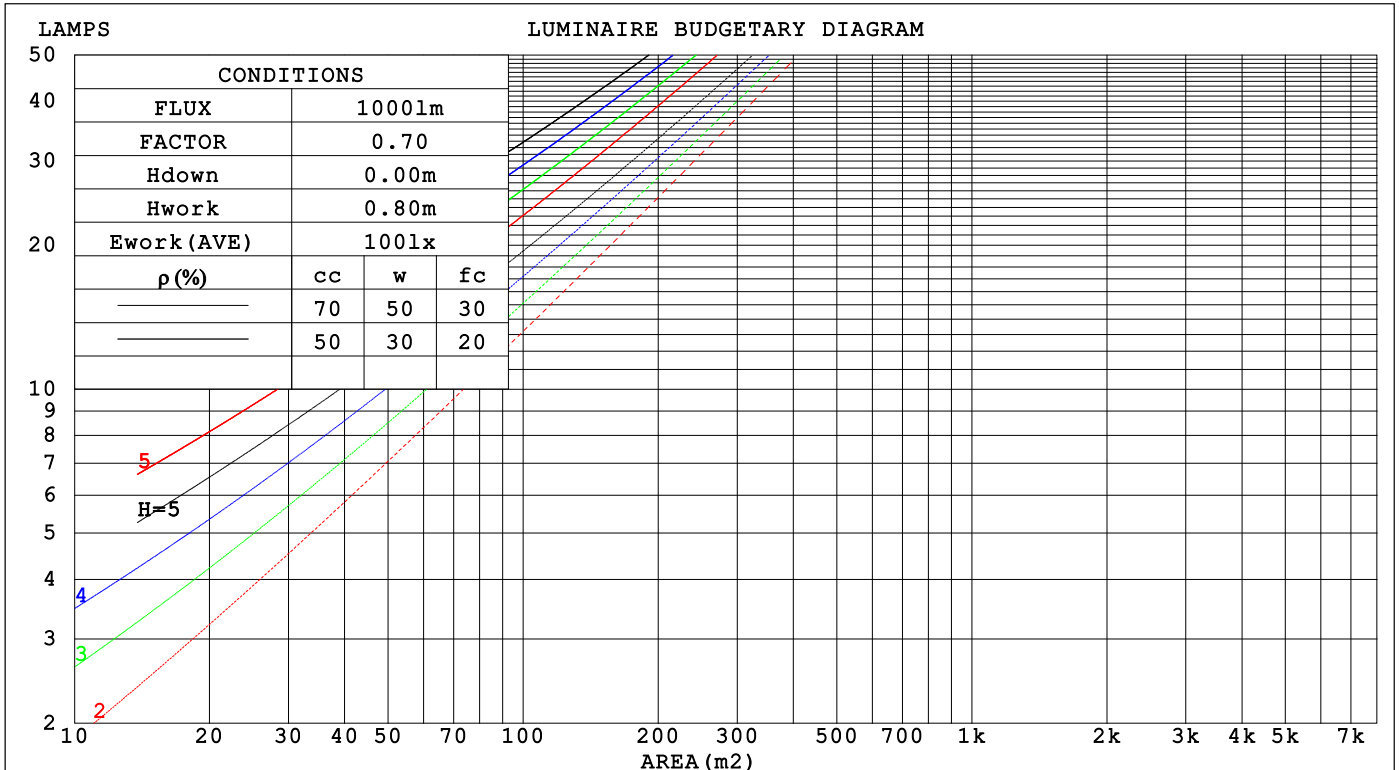
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3 °C  
 Operators:  
 Test Date:2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	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	1.00
1.0	1.07	1.03	1.00	1.05	1.01	.99	1.00	.98	.96	.97	.95	.93	.93	.91	.90	.88
2.0	.95	.89	.84	.93	.88	.83	.90	.85	.81	.87	.83	.80	.84	.81	.78	.76
3.0	.85	.77	.72	.83	.76	.71	.80	.74	.70	.78	.73	.69	.75	.71	.67	.65
4.0	.76	.68	.62	.74	.67	.61	.72	.65	.60	.70	.64	.60	.68	.63	.59	.57
5.0	.68	.60	.54	.67	.59	.53	.65	.58	.53	.63	.57	.52	.61	.56	.52	.50
6.0	.61	.53	.47	.60	.53	.47	.59	.52	.46	.57	.51	.46	.56	.50	.46	.44
7.0	.56	.48	.42	.55	.47	.42	.53	.46	.41	.52	.46	.41	.51	.45	.41	.39
8.0	.51	.43	.37	.50	.43	.37	.49	.42	.37	.48	.41	.37	.47	.41	.37	.35
9.0	.47	.39	.34	.46	.39	.34	.45	.38	.33	.44	.38	.33	.43	.37	.33	.31
10.0	.43	.36	.30	.43	.35	.30	.42	.35	.30	.41	.35	.30	.40	.34	.30	.28



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**WEC AND CCEC**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz								
Lamp Flux:2089.08x1 lm								
NAME:			TYPE:			WEIGHT:		
SPEC.:			DIM.:			SERIAL No.:		
MFR.:			SUR.:			Shielding Angle:		

$\rho_{CC}$	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	.252	.143	.045	.245	.140	.044	.232	.133	.043	.220	.127	.041	.209	.121	.039	
2.0	.248	.136	.042	.242	.133	.041	.230	.128	.040	.220	.123	.039	.210	.119	.038	
3.0	.236	.126	.038	.231	.124	.037	.221	.120	.036	.212	.116	.036	.204	.113	.035	
4.0	.223	.116	.034	.219	.114	.034	.210	.111	.033	.202	.108	.033	.194	.106	.032	
5.0	.210	.107	.031	.206	.106	.031	.198	.103	.030	.191	.101	.030	.184	.098	.030	
6.0	.198	.099	.028	.194	.098	.028	.187	.096	.028	.181	.094	.028	.175	.092	.027	
7.0	.186	.092	.026	.183	.091	.026	.177	.089	.026	.171	.088	.025	.165	.086	.025	
8.0	.175	.086	.024	.172	.085	.024	.167	.083	.024	.162	.082	.024	.157	.080	.023	
9.0	.166	.080	.022	.163	.079	.022	.158	.078	.022	.153	.077	.022	.149	.075	.022	
10.0	.157	.075	.021	.154	.074	.021	.150	.073	.021	.145	.072	.021	.141	.071	.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	.176	.157	.139	.151	.134	.120	.103	.092	.083	.059	.054	.048	.019	.017	.016	
2.0	.166	.132	.103	.142	.114	.089	.098	.079	.062	.056	.046	.037	.018	.015	.012	
3.0	.158	.114	.079	.135	.098	.069	.093	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.151	.100	.062	.129	.087	.054	.089	.060	.038	.051	.035	.022	.017	.012	.007	
5.0	.144	.090	.050	.123	.078	.044	.085	.054	.031	.049	.032	.018	.016	.010	.006	
6.0	.137	.081	.041	.118	.070	.036	.081	.049	.026	.047	.029	.015	.015	.009	.005	
7.0	.131	.074	.035	.112	.064	.030	.078	.045	.022	.045	.027	.013	.015	.009	.004	
8.0	.125	.069	.030	.107	.059	.026	.074	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.119	.064	.026	.103	.055	.023	.071	.039	.016	.041	.023	.010	.013	.008	.003	
10.0	.114	.059	.023	.098	.052	.020	.068	.036	.014	.040	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2024-04-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**UGR(Unified Glare Rating) Table**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz										
Lamp Flux:2089.08x1 lm										
NAME:			TYPE:			WEIGHT:				
SPEC.:			DIM.:			SERIAL No.:				
MFR.:			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	20.5	21.9	20.8	22.1	22.3	18.4	19.8	18.7	20.0	20.2
3H	20.9	22.2	21.2	22.4	22.6	18.4	19.6	18.7	19.9	20.1
4H	20.8	22.1	21.2	22.3	22.5	18.3	19.5	18.6	19.8	20.0
6H	20.8	21.9	21.1	22.2	22.4	18.2	19.4	18.5	19.6	19.9
8H	20.7	21.8	21.1	22.1	22.4	18.2	19.3	18.5	19.5	19.8
12H	20.7	21.7	21.0	22.0	22.3	18.1	19.2	18.5	19.4	19.7
4H 2H	20.7	21.9	21.0	22.1	22.4	18.9	20.1	19.2	20.3	20.6
3H	21.1	22.2	21.5	22.5	22.8	18.9	19.9	19.2	20.2	20.5
4H	21.1	22.0	21.5	22.3	22.7	18.9	19.8	19.2	20.1	20.4
6H	21.0	21.9	21.4	22.2	22.6	18.8	19.6	19.2	19.9	20.3
8H	21.0	21.8	21.4	22.1	22.5	18.7	19.5	19.1	19.9	20.2
12H	20.9	21.6	21.4	22.0	22.4	18.7	19.4	19.1	19.8	20.2
8H 4H	21.0	21.7	21.4	22.1	22.5	18.8	19.6	19.2	19.9	20.3
6H	20.9	21.6	21.4	22.0	22.4	18.7	19.4	19.2	19.8	20.2
8H	20.9	21.4	21.4	21.9	22.3	18.7	19.2	19.1	19.7	20.1
12H	20.9	21.3	21.3	21.8	22.2	18.7	19.1	19.1	19.6	20.0
12H 4H	20.9	21.6	21.4	22.0	22.4	18.8	19.5	19.2	19.8	20.2
6H	20.9	21.4	21.4	21.9	22.3	18.7	19.2	19.2	19.7	20.1
8H	20.9	21.3	21.3	21.8	22.2	18.7	19.1	19.1	19.6	20.0
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.3 / - 0.5					+ 0.7 / - 0.8				
1.5H	+ 0.6 / - 0.9					+ 0.8 / - 1.2				
2.0H	+ 0.8 / - 1.4					+ 1.4 / - 3.0				

CIE Pub.117, 2089 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 2.6)  
 Area: 0.048 m2

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

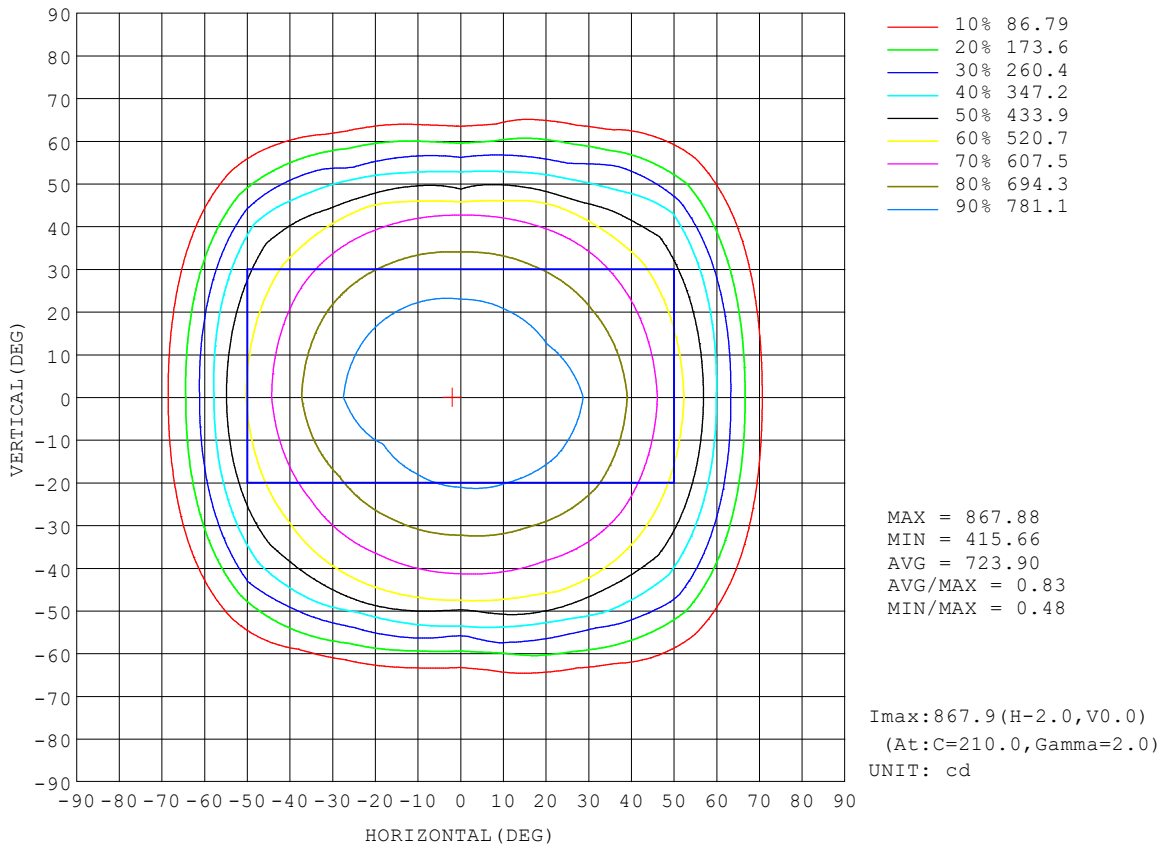
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	61	50	44	61	50	44	60	50	44	38
0.80	72	62	55	71	61	55	70	60	54	48
1.00	81	71	65	80	71	65	78	72	64	58
1.25	88	79	73	87	79	73	85	77	72	66
1.50	93	85	79	92	84	78	89	82	77	71
2.00	99	92	87	98	91	86	95	89	85	78
2.50	103	96	91	101	95	90	97	92	88	81
3.00	106	100	95	104	98	94	100	96	92	84
4.00	109	104	100	107	102	99	103	99	96	88
5.00	111	107	103	108	105	102	104	101	99	90
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2024-04-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**ISOCANDELA DIAGRAM**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

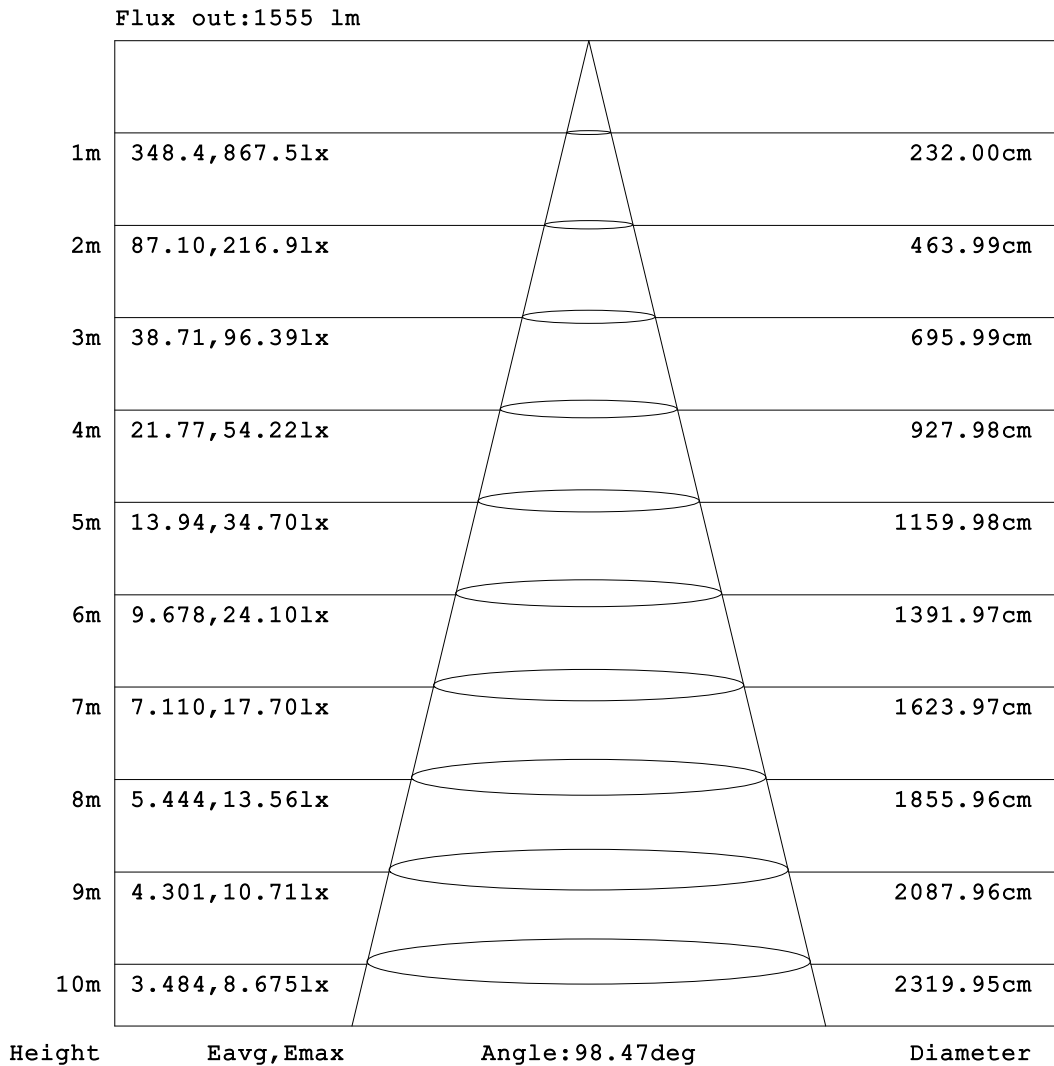


C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**AAI Figure**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



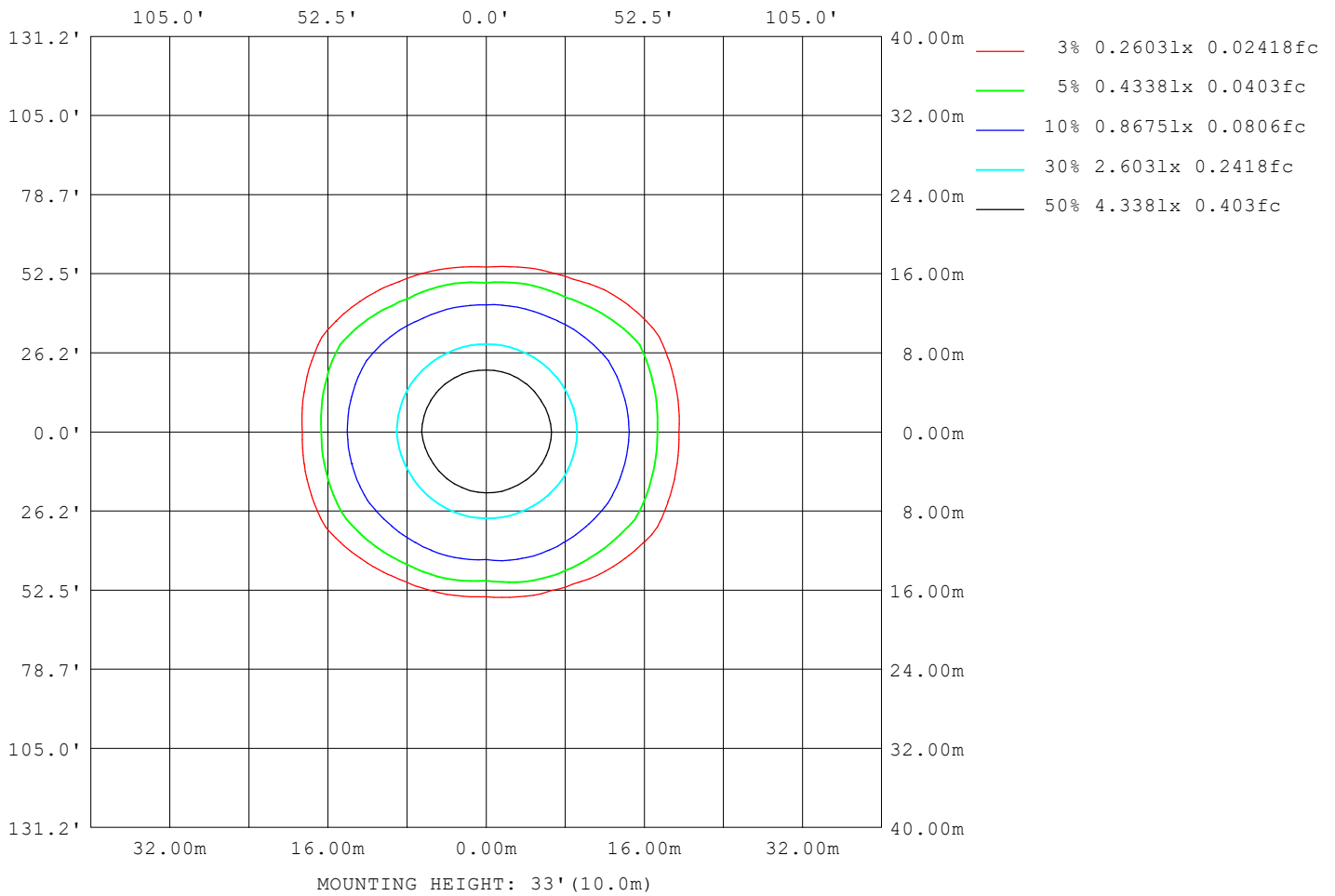
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3 °C  
 Operators:  
 Test Date: 2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity: 65.0%  
 Test Distance: 9.410m [K=1.0000]  
 Remarks:

**ISOLUX DIAGRAM**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**LED Avg.L Report**

Test:U:220.51V I:0.0899A P:19.018W PF:0.9598 Freq:49.99Hz Lamp Flux:2089.08x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

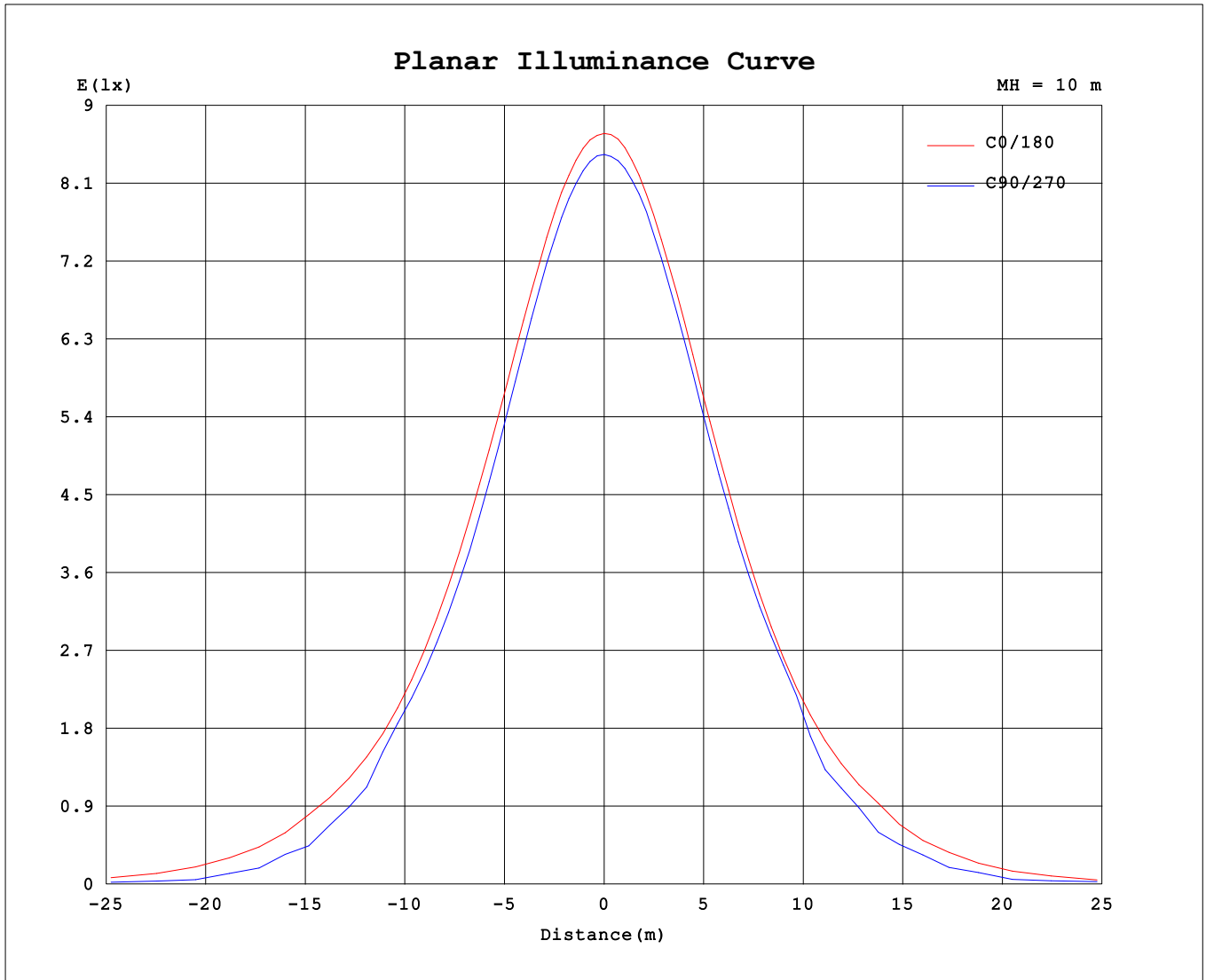
AvgL	cd/m2
L_0~180 (65) av	9040
L_0~180 (75) av	1856
L_0~180 (85) av	407
L_90~270 (65) av	2985
L_90~270 (75) av	2192
L_90~270 (85) av	406
L_45 (65) av	7833
L_45 (75) av	2311
L_45 (85) av	572

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3℃  
 Operators:  
 Test Date:2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity:65.0%  
 Test Distance:9.410m [K=1.0000]  
 Remarks:

**Planar Illuminance Curve**



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3 °C  
 Operators:  
 Test Date: 2024-04-10

γ Range: 0 - 90DEG  
 γ Interval: 2.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.00.458  
 Humidity: 65.0%  
 Test Distance: 9.410m [K=1.0000]  
 Remarks:

