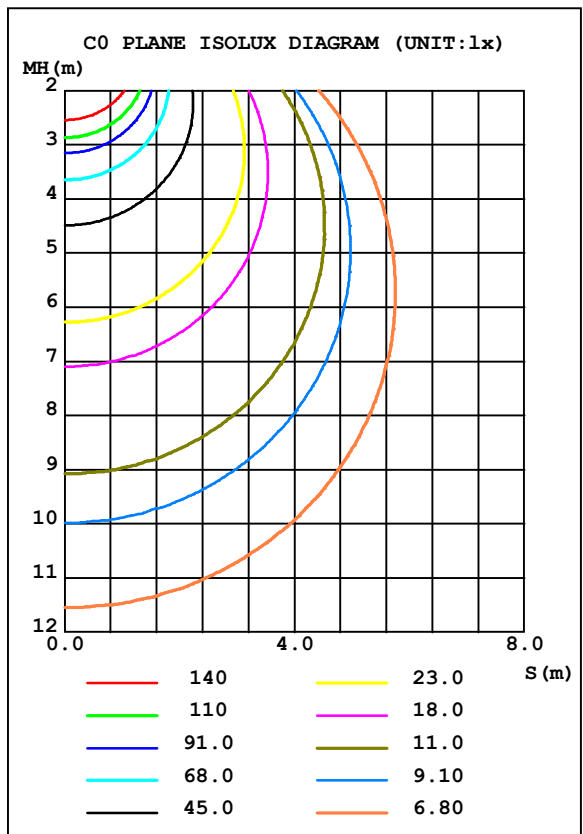
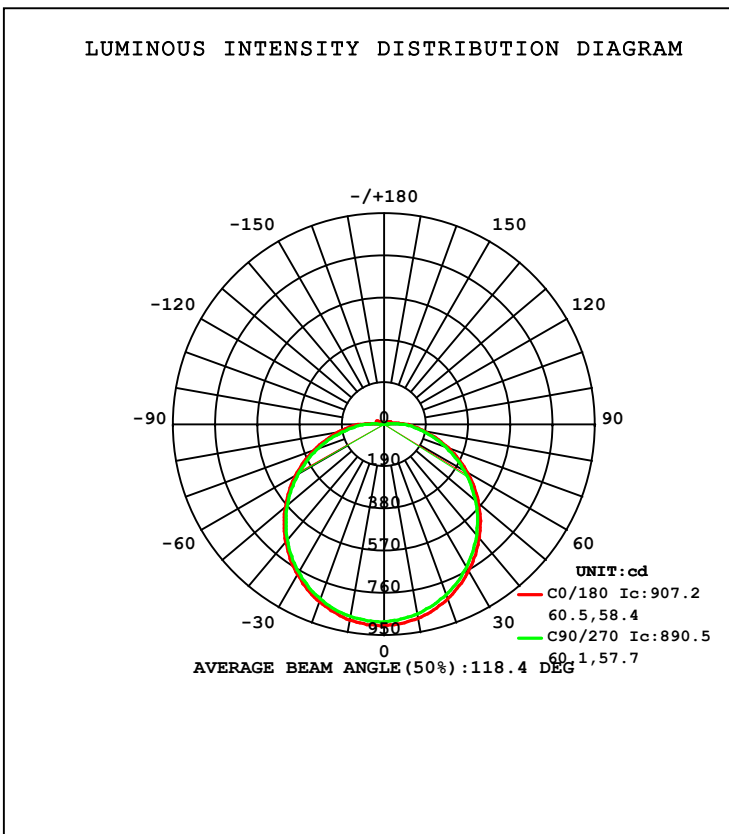


## LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.28V I:0.1353A P:29.983W PF:0.9622 Freq:49.99Hz Lamp Flux:2982.28x1 lm		
NAME: MPL7 30W	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: SEE	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA <span style="float: right;">Eff: 99.47 lm/W</span>			
MODEL	MPL7	I <sub>max</sub> (cd)	907.2	S/MH (C0/180)	1.25
NOMINAL POWER (W)	30	LOR (%)	100.0	S/MH (C90/270)	1.24
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	2982.3	η UP, DN (C0-180)	1.9, 49.1
NOMINAL FLUX (lm)	2982.28	CIE CLASS	DIRECT	η UP, DN (C180-360)	2.1, 46.9
LAMPS INSIDE	1	η up (%)	4.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	96.0	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

### ZONAL FLUX DIAGRAM

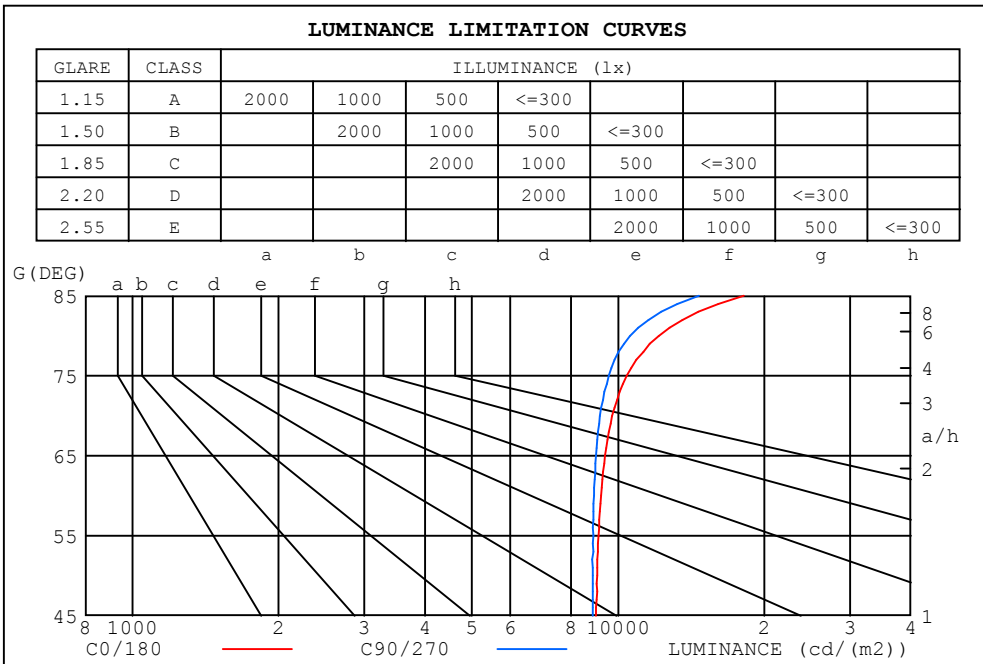
ZONAL FLUX DIAGRAM:

$\gamma$	C0	C90	C180	C270					$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	894.8	878.0	886.0	866.9					0- 10	84.86	84.86	2.85,2.85
20	850.6	836.7	837.5	817.3					10- 20	243.4	328.2	11,11
30	781.2	769.8	762.4	743.6					20- 30	370.2	698.5	23.4,23.4
40	690.7	679.7	667.7	650.1					30- 40	450.8	1149	38.5,38.5
50	581.7	569.0	556.1	539.4					40- 50	477.2	1626	54.5,54.5
60	460.4	446.5	434.6	417.0					50- 60	448.6	2075	69.6,69.6
70	332.5	313.9	306.9	292.1					60- 70	371.9	2447	82,82
80	210.5	183.7	186.7	176.9					70- 80	262.9	2710	90.9,90.9
90	107.9	82.23	103.4	89.28					80- 90	152.9	2863	96,96
100	11.95	5.637	37.02	10.83					90-100	56.36	2919	97.9,97.9
110	36.89	4.451	25.08	4.782					100-110	17.06	2936	98.5,98.5
120	27.99	5.307	23.96	5.922					110-120	18.33	2954	99.1,99.1
130	13.07	6.162	10.60	7.111					120-130	11.08	2965	99.4,99.4
140	7.199	6.916	6.612	5.979					130-140	5.849	2971	99.6,99.6
150	7.850	7.277	7.371	7.365					140-150	4.412	2976	99.8,99.8
160	8.158	7.647	7.846	7.305					150-160	3.500	2979	99.9,99.9
170	8.101	8.009	8.262	7.932					160-170	2.257	2982	100,100
180	8.424	8.355	8.559	8.255					170-180	0.7785	2982	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 17.4 %									UNIT:lm		

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:SEE  
 Test Date:2020-04-13

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:7.630m [K=1.0000]  
 Remarks:

**LUMINANCE LIMITATION CURVES**



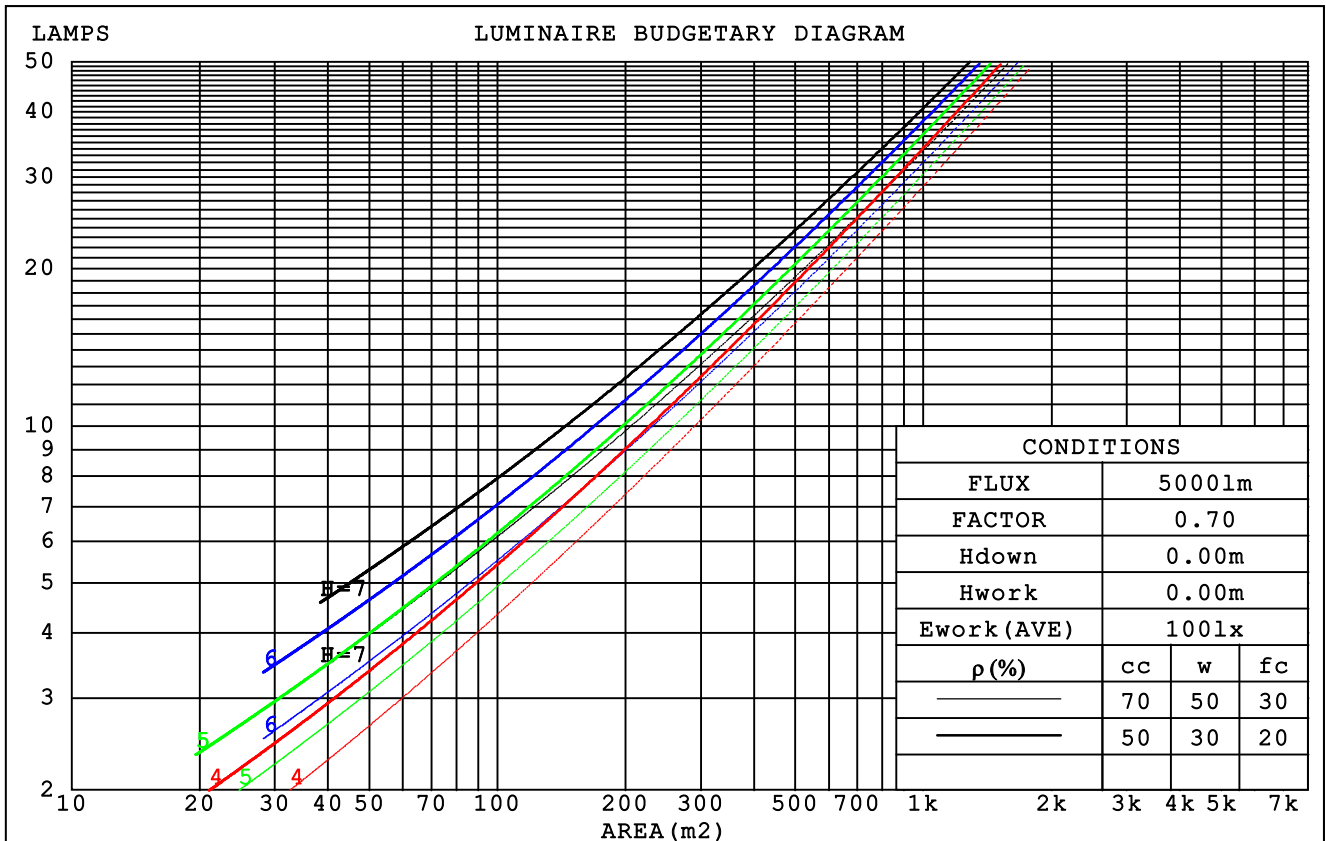
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	18135	14651
80	12124	10576
75	10424	9566
70	9721	9179
65	9395	9013
60	9207	8930
55	9102	8891
50	9050	8853
45	8998	8852

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

### CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

<b>ρcc</b>	80%			70%			50%			30%			10%			0
<b>ρw</b>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
<b>ρfc</b>	20%			20%			20%			20%			20%			0
<b>RCR</b>	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.18	1.18	1.18	1.15	1.15	1.15	1.09	1.09	1.09	1.03	1.03	1.03	.98	.98	.98	.96
1.0	1.01	.96	.91	.98	.93	.89	.93	.89	.86	.88	.85	.82	.84	.81	.79	.77
2.0	.87	.79	.73	.84	.78	.72	.80	.74	.69	.76	.71	.67	.73	.69	.65	.63
3.0	.76	.67	.60	.74	.66	.59	.70	.63	.58	.67	.61	.56	.64	.59	.55	.52
4.0	.67	.57	.50	.65	.56	.50	.62	.55	.49	.59	.53	.48	.57	.51	.46	.44
5.0	.59	.50	.43	.58	.49	.43	.55	.48	.42	.53	.46	.41	.51	.45	.40	.38
6.0	.53	.44	.37	.52	.43	.37	.50	.42	.36	.48	.41	.36	.46	.40	.35	.33
7.0	.48	.39	.33	.47	.39	.33	.45	.38	.32	.44	.37	.32	.42	.36	.31	.29
8.0	.44	.35	.29	.43	.35	.29	.41	.34	.29	.40	.33	.28	.38	.32	.28	.26
9.0	.40	.32	.26	.40	.32	.26	.38	.31	.26	.37	.30	.25	.35	.29	.25	.23
10.0	.37	.29	.24	.36	.29	.24	.35	.28	.23	.34	.28	.23	.33	.27	.23	.21



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [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	.355	.202	.064	.346	.198	.063	.331	.190	.061	.316	.182	.059	.303	.176	.057	
2.0	.318	.174	.053	.311	.171	.053	.297	.165	.051	.284	.159	.050	.272	.154	.048	
3.0	.287	.153	.046	.281	.150	.045	.268	.145	.044	.257	.141	.043	.246	.136	.042	
4.0	.261	.136	.040	.256	.134	.040	.244	.130	.039	.234	.126	.038	.224	.122	.037	
5.0	.239	.122	.035	.234	.120	.035	.224	.117	.034	.215	.113	.034	.206	.110	.033	
6.0	.220	.111	.032	.216	.109	.031	.207	.106	.031	.198	.103	.030	.190	.100	.030	
7.0	.204	.101	.029	.200	.100	.028	.192	.097	.028	.184	.094	.027	.177	.092	.027	
8.0	.190	.093	.026	.186	.092	.026	.179	.089	.025	.172	.087	.025	.165	.085	.025	
9.0	.177	.086	.024	.174	.085	.024	.167	.083	.023	.161	.081	.023	.155	.079	.023	
10.0	.166	.080	.022	.163	.079	.022	.157	.077	.022	.151	.075	.021	.146	.073	.021	

$\rho_{cc}$	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	.221	.221	.221	.189	.189	.189	.129	.129	.129	.074	.074	.074	.024	.024	.024	
1.0	.214	.187	.162	.183	.160	.139	.125	.110	.096	.072	.064	.056	.023	.021	.018	
2.0	.207	.163	.126	.177	.140	.109	.121	.097	.076	.070	.056	.044	.022	.018	.014	
3.0	.199	.146	.103	.171	.126	.089	.117	.087	.063	.068	.051	.037	.022	.017	.012	
4.0	.191	.133	.088	.164	.115	.076	.113	.080	.054	.065	.047	.032	.021	.015	.010	
5.0	.184	.122	.077	.158	.106	.067	.109	.074	.047	.063	.043	.028	.020	.014	.009	
6.0	.176	.114	.070	.151	.099	.061	.104	.069	.043	.061	.041	.026	.020	.013	.008	
7.0	.169	.107	.064	.145	.093	.056	.100	.065	.040	.058	.038	.024	.019	.013	.008	
8.0	.162	.102	.060	.140	.088	.052	.097	.062	.037	.056	.036	.022	.018	.012	.007	
9.0	.156	.097	.057	.134	.084	.049	.093	.059	.035	.054	.035	.021	.018	.011	.007	
10.0	.150	.092	.054	.129	.080	.047	.090	.056	.033	.052	.033	.020	.017	.011	.007	

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [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	20.4	21.9	20.7	22.2	22.5	20.3	21.8	20.6	22.1	22.4
3H	22.3	23.7	22.7	24.0	24.4	22.1	23.5	22.5	23.9	24.2
4H	23.3	24.6	23.6	24.9	25.3	23.0	24.4	23.4	24.7	25.0
6H	24.2	25.5	24.6	25.8	26.2	23.8	25.1	24.2	25.4	25.8
8H	24.7	25.9	25.1	26.2	26.6	24.2	25.4	24.6	25.8	26.2
12H	25.2	26.4	25.6	26.7	27.1	24.6	25.8	25.0	26.2	26.6
4H 2H	21.1	22.4	21.4	22.7	23.1	21.0	22.3	21.4	22.7	23.0
3H	23.2	24.4	23.6	24.8	25.2	23.0	24.2	23.5	24.6	25.0
4H	24.3	25.4	24.7	25.8	26.2	24.1	25.2	24.5	25.6	26.0
6H	25.4	26.4	25.9	26.8	27.3	25.1	26.0	25.5	26.5	26.9
8H	26.0	26.9	26.4	27.3	27.8	25.5	26.5	26.0	26.9	27.4
12H	26.6	27.4	27.1	27.9	28.4	26.0	26.9	26.5	27.3	27.8
8H 4H	24.7	25.6	25.2	26.1	26.5	24.5	25.4	25.0	25.9	26.3
6H	26.0	26.8	26.5	27.3	27.8	25.7	26.5	26.2	27.0	27.5
8H	26.8	27.5	27.3	28.0	28.5	26.4	27.1	26.9	27.6	28.1
12H	27.6	28.2	28.1	28.7	29.3	27.1	27.7	27.6	28.2	28.7
12H 4H	24.8	25.6	25.3	26.1	26.6	24.6	25.4	25.1	25.9	26.4
6H	26.2	26.9	26.7	27.4	27.9	25.9	26.6	26.4	27.1	27.6
8H	27.0	27.6	27.5	28.1	28.7	26.6	27.2	27.2	27.7	28.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117, 2982 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 3.8)

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:SEE  
 Test Date:2020-04-13

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:7.630m [K=1.0000]  
 Remarks:

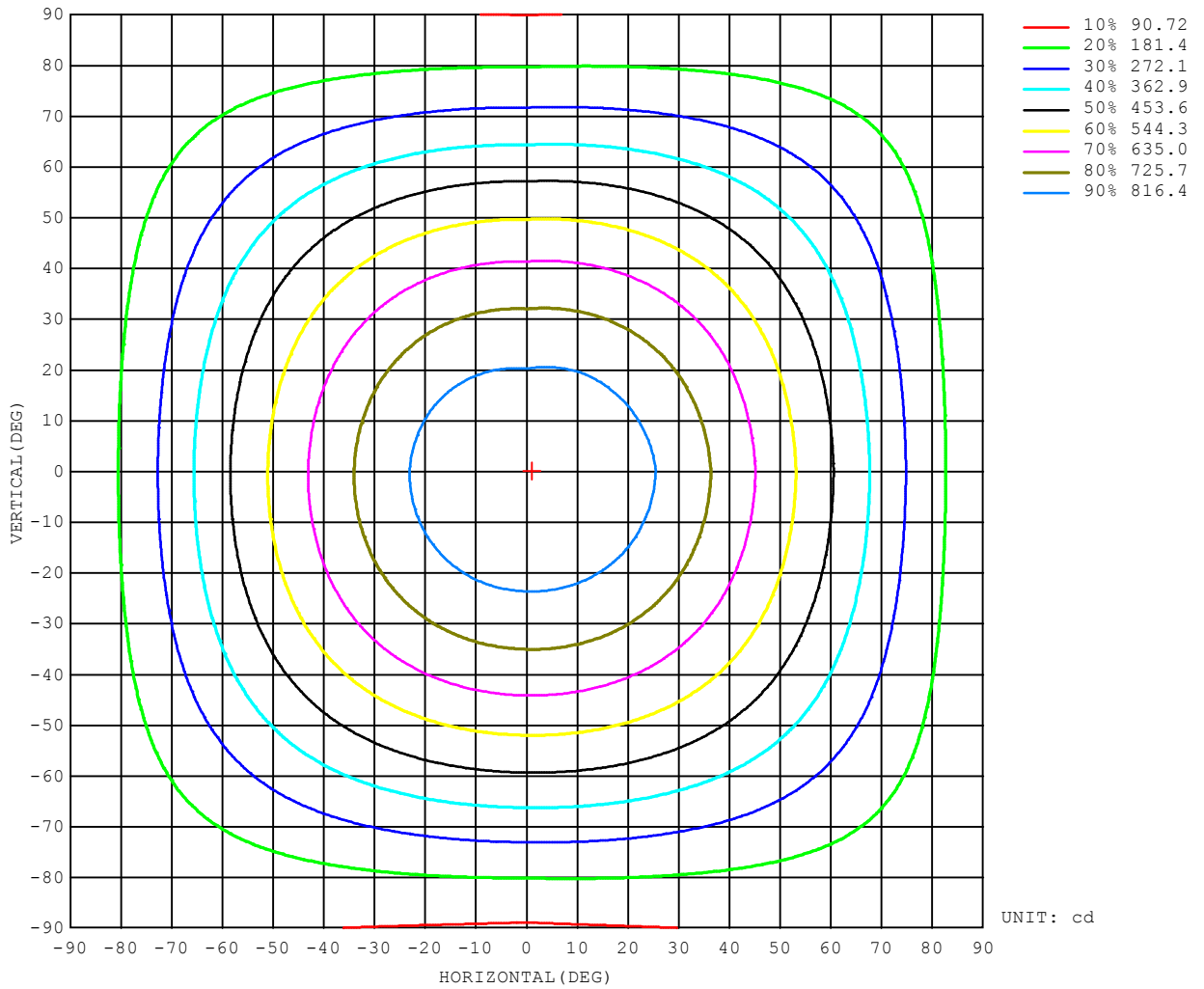
### UTILIZATION FACTORS TABLE

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	54	42	35	53	42	35	52	41	34	28
0.80	64	51	44	62	51	43	60	50	43	36
1.00	72	60	52	70	59	52	68	60	51	43
1.25	79	67	60	77	66	59	74	65	58	50
1.50	84	73	65	82	72	65	78	70	63	55
2.00	91	81	74	89	80	73	85	77	71	62
2.50	95	86	79	93	85	78	88	81	76	66
3.00	99	91	84	96	89	83	91	85	80	71
4.00	103	96	91	100	94	89	95	90	86	76
5.00	106	100	95	103	97	93	97	93	90	79
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

**ISOCANDELA DIAGRAM**

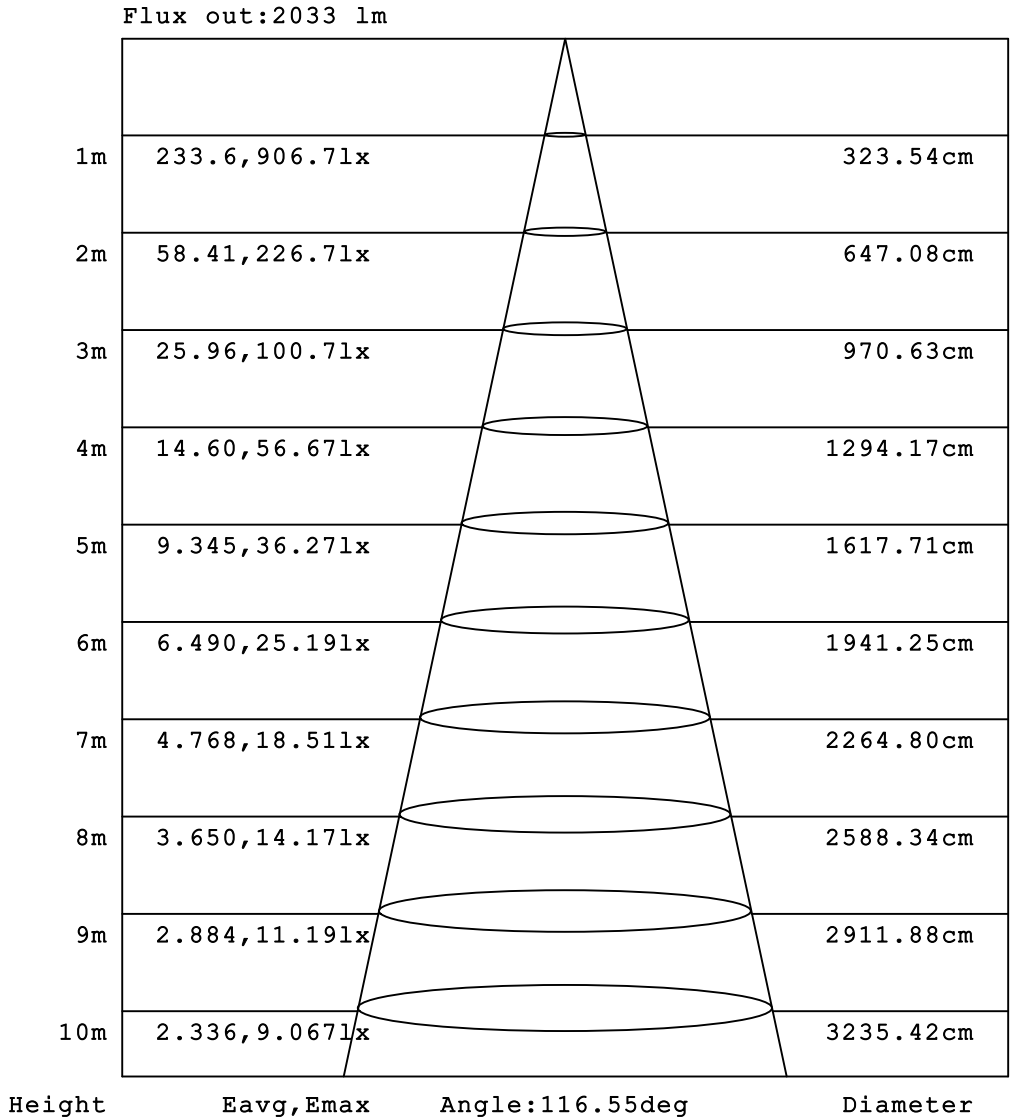


C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:



**AAI Figure**

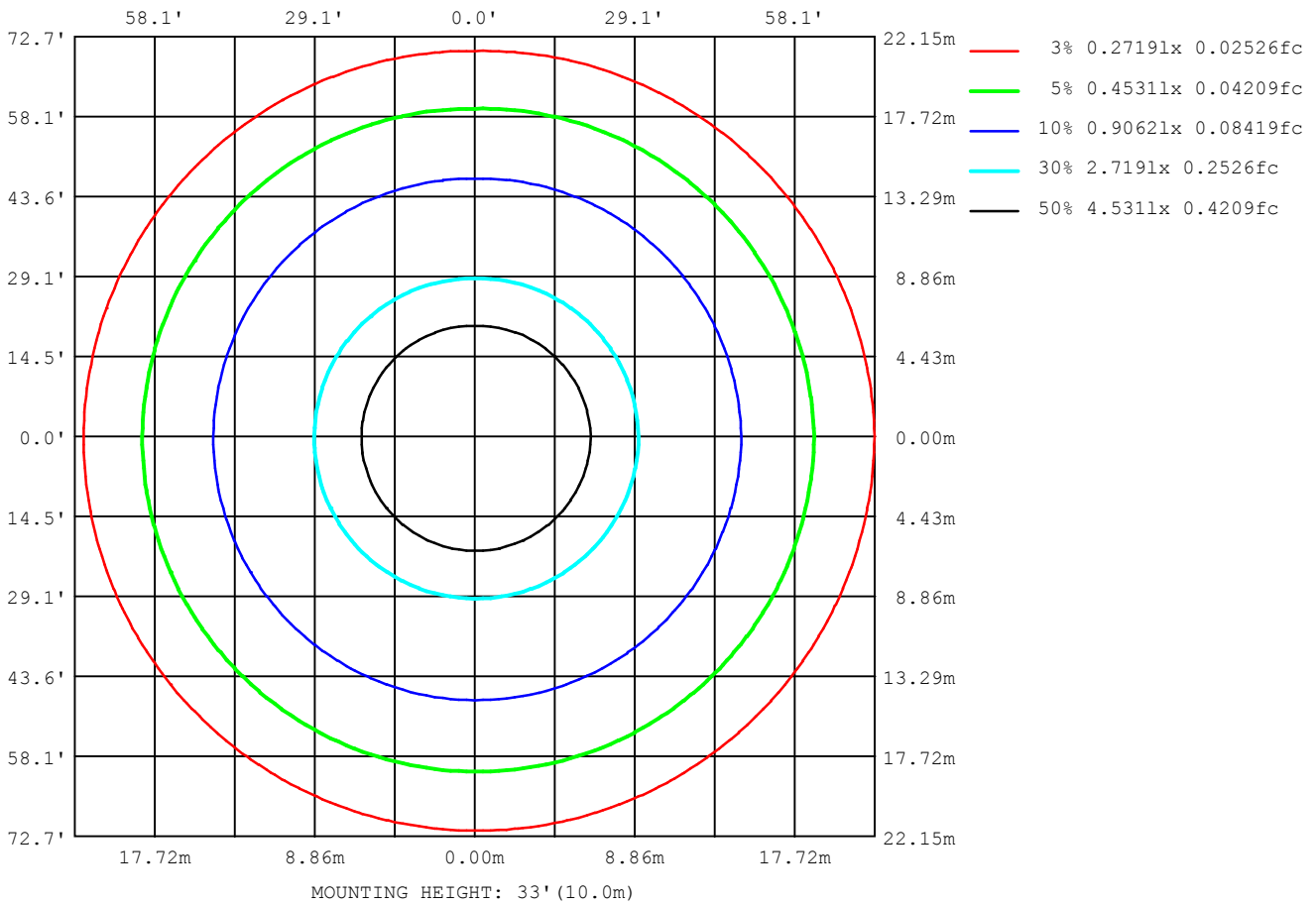


**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:SEE  
 Test Date:2020-04-13

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:7.630m [K=1.0000]  
 Remarks:

**ISOLUX DIAGRAM**



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

### LED Avg.L Report

Test:U:230.28V I:0.1353A P:29.983W PF:0.9622 Freq:49.99Hz Lamp Flux:2982.28x1 lm		
NAME: MPL7 30W	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: SEE	SUR.:	Shielding Angle:

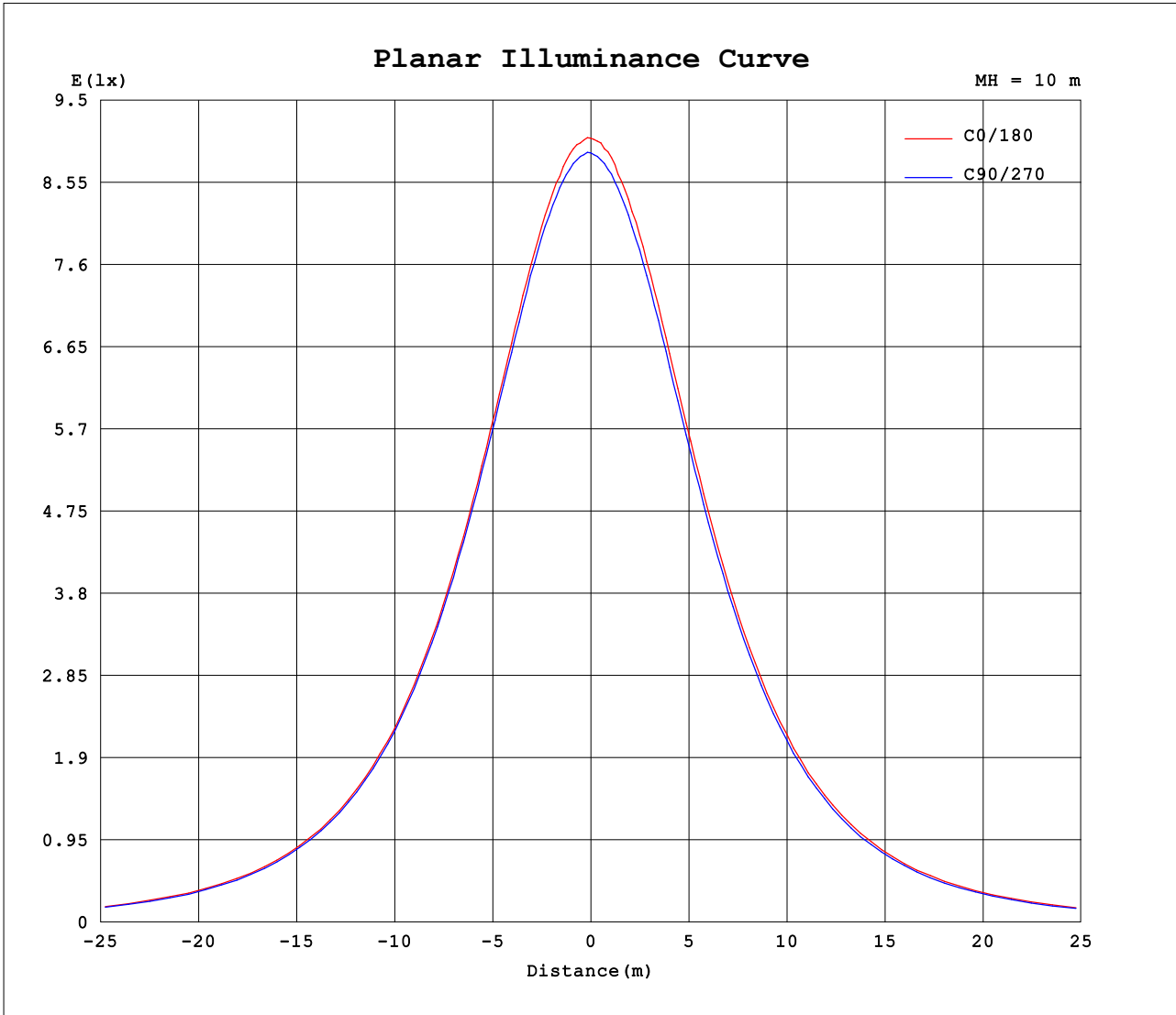
AvgL	cd/m2
L_0~180 (65) av	9082
L_0~180 (75) av	9932
L_0~180 (85) av	17123
L_90~270 (65) av	8698
L_90~270 (75) av	9259
L_90~270 (85) av	14715
L_45 (65) av	8822
L_45 (75) av	9481
L_45 (85) av	15555

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:SEE  
 Test Date:2020-04-13

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:7.630m [K=1.0000]  
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE  
 Test Date: 2020-04-13

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks: