

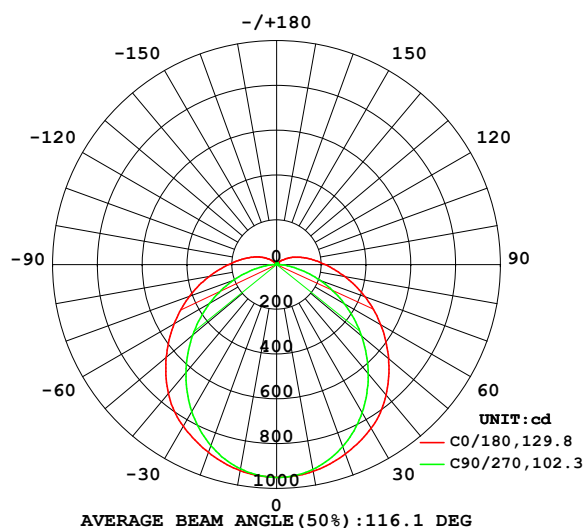


LUMINAIRE PHOTOMETRIC TEST REPORT

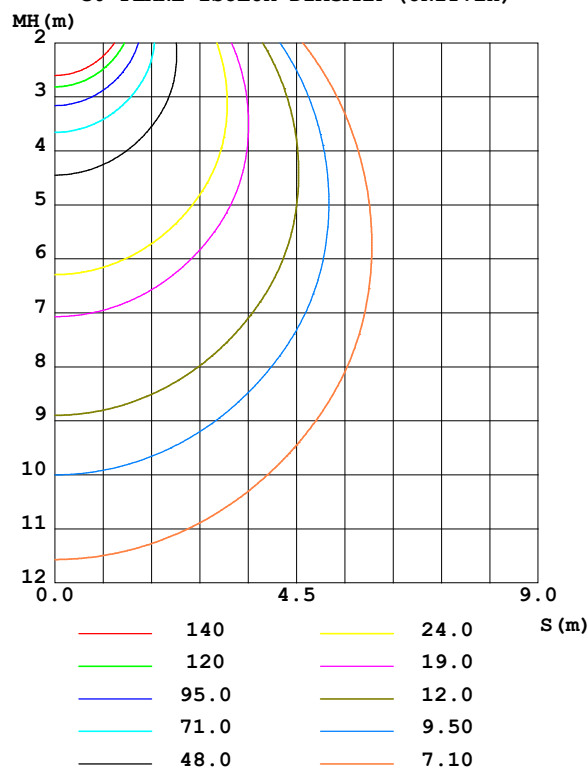
Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 4000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 160.00 lm/W			
MODEL		Imax (cd)	950.3	S/MH(C0/180)	1.33
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.20
RATED VOLTAGE(V)		TOTAL FLUX(lm)	3200.0	η UP,DN(C0-180)	4.0,45.7
NOMINAL FLUX(lm)	3200	CIE CLASS	DIRECT	η UP,DN(C180-360)	4.0,46.3
LAMPS INSIDE	1	η up (%)	8.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down (%)	92.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3℃
Operators:Testing Room
Test Date:2025-11-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity:65.0%
Test Distance:11.050m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	934.3	926.7	937.6	928.8					0- 10	89.83	89.83	2.81,2.81
20	892.2	860.5	899.7	864.6					10- 20	256.6	346.5	10.8,10.8
30	833.9	758.3	844.5	763.7					20- 30	388.3	734.8	23,23
40	752.5	630.8	761.1	636.6					30- 40	469.9	1205	37.6,37.6
50	643.4	489.3	653.0	495.4					40- 50	489.4	1694	52.9,52.9
60	528.1	344.8	537.5	349.6					50- 60	452.0	2146	67.1,67.1
70	413.5	204.5	420.4	206.9					60- 70	371.6	2518	78.7,78.7
80	305.5	79.50	309.2	80.12					70- 80	265.1	2783	87,87
90	214.4	8.807	217.3	9.368					80- 90	161.0	2944	92,92
100	150.7	5.374	150.7	5.390					90-100	103.4	3047	95.2,95.2
110	101.3	3.850	99.15	3.664					100-110	67.99	3115	97.3,97.3
120	61.74	4.737	58.74	4.242					110-120	41.61	3157	98.6,98.6
130	30.28	5.712	26.96	5.135					120-130	22.02	3179	99.3,99.3
140	10.16	6.610	9.786	6.051					130-140	9.071	3188	99.6,99.6
150	9.421	7.438	9.182	6.978					140-150	5.144	3193	99.8,99.8
160	9.035	8.092	8.918	7.871					150-160	3.870	3197	99.9,99.9
170	8.796	8.641	8.503	8.493					160-170	2.420	3199	100,100
180	8.781	8.944	8.781	8.944					170-180	0.8286	3200	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 1450.7 lm

%lum = 45.3%

%lamp = 45.3%

Conical surface Flux(120deg): 2146 lm

%lum = 67.1%

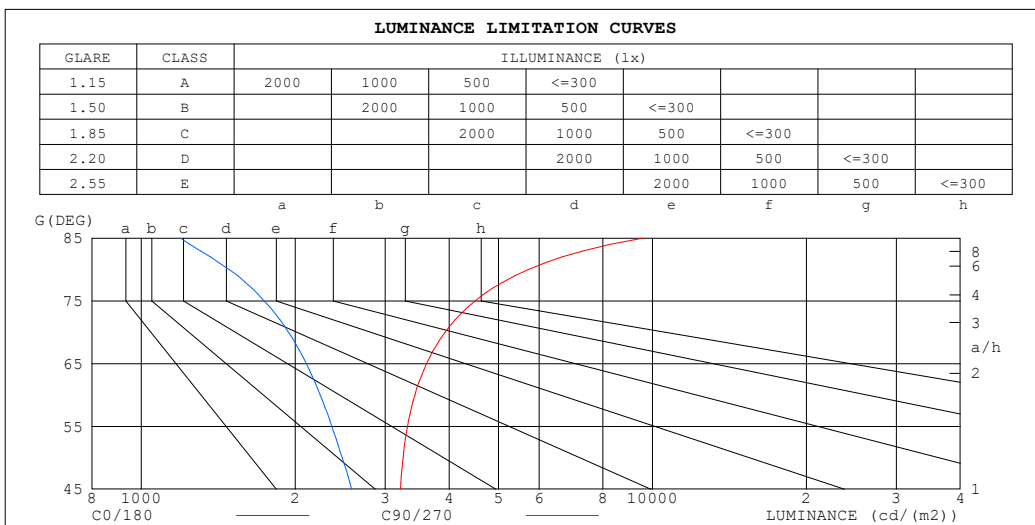
%lamp = 67.1%

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3℃
 Operators:Testing Room
 Test Date:2025-11-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
 Humidity:65.0%
 Test Distance:11.050m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	9548	1194
80	5712	1486
75	4496	1740
70	3926	1941
65	3612	2103
60	3429	2239
55	3317	2359
50	3250	2472
45	3212	2577

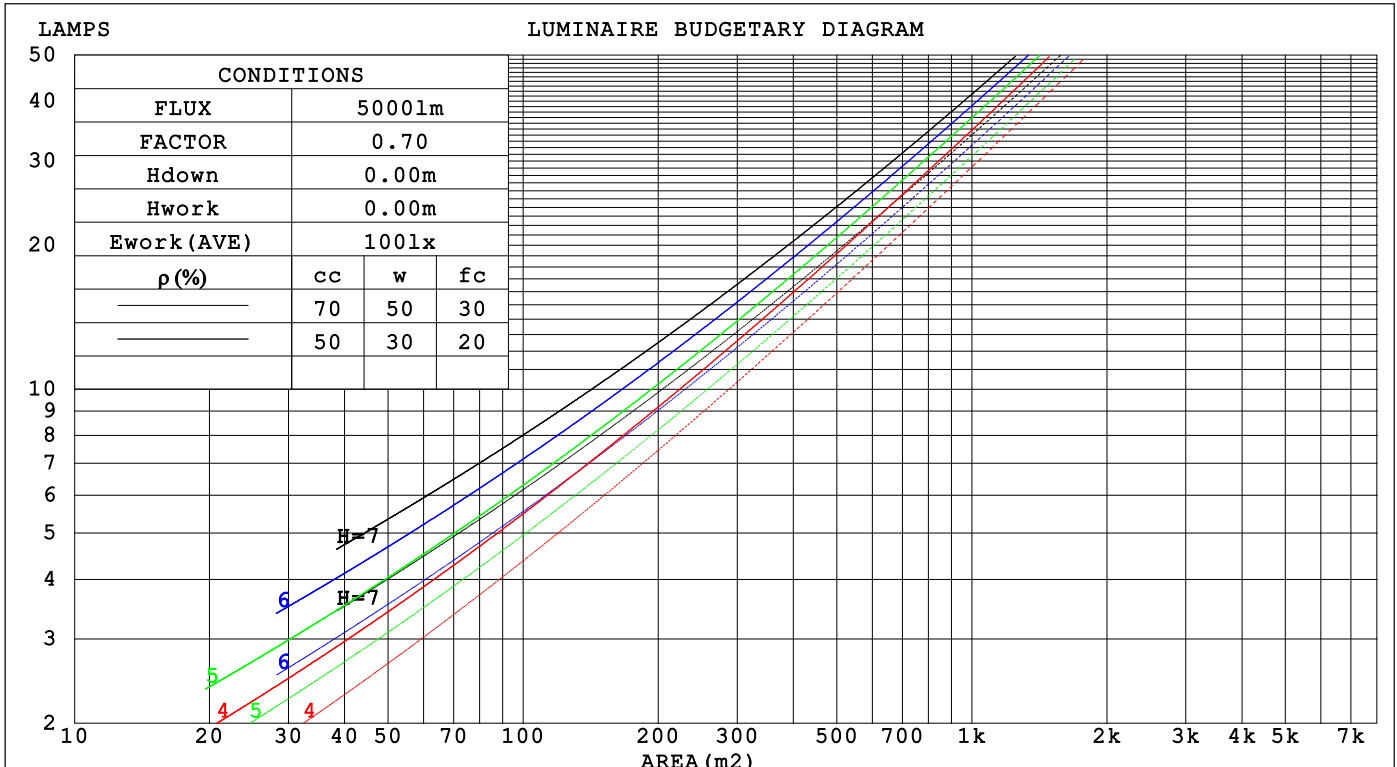
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3℃
Operators:Testing Room
Test Date:2025-11-20

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity:65.0%
Test Distance:11.050m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:

pcc	80%			70%			50%			30%			10%			0
p _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
p _{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Coefficients of Utilization(CU)												
0.0	1.17	1.17	1.17	1.13	1.13	1.13	1.07	1.07	1.07	1.00	1.00	1.00	.95	.95	.95	.92
1.0	.00	.95	.91	.97	.92	.88	.91	.87	.84	.86	.83	.80	.81	.78	.76	.74
2.0	.86	.79	.73	.84	.77	.71	.79	.73	.68	.74	.70	.66	.70	.66	.63	.60
3.0	.75	.67	.60	.73	.65	.59	.69	.62	.57	.65	.59	.55	.62	.57	.53	.50
4.0	.67	.57	.50	.65	.56	.50	.61	.54	.48	.58	.52	.47	.55	.49	.45	.43
5.0	.59	.50	.43	.58	.49	.43	.55	.47	.41	.52	.45	.40	.49	.44	.39	.37
6.0	.53	.44	.38	.52	.43	.37	.49	.42	.36	.47	.40	.35	.44	.39	.34	.32
7.0	.48	.39	.33	.47	.39	.33	.45	.37	.32	.43	.36	.31	.41	.35	.30	.28
8.0	.44	.35	.29	.43	.35	.29	.41	.34	.28	.39	.33	.28	.37	.31	.27	.25
9.0	.40	.32	.26	.39	.31	.26	.38	.31	.26	.36	.30	.25	.34	.29	.24	.23
10.0	.37	.29	.24	.36	.29	.24	.35	.28	.23	.33	.27	.23	.32	.26	.22	.20



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3℃
Operators:Testing Room
Test Date:2025-11-20

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity:65.0%
Test Distance:11.050m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	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	.350	.199	.063	.340	.194	.062	.322	.185	.059	.306	.176	.057	.290	.168	.054		
2.0	.313	.172	.053	.305	.168	.052	.288	.160	.050	.274	.153	.048	.260	.147	.046		
3.0	.283	.151	.045	.275	.147	.044	.261	.141	.043	.248	.136	.042	.235	.130	.040		
4.0	.258	.134	.039	.251	.131	.039	.238	.126	.038	.226	.121	.037	.215	.117	.036		
5.0	.236	.120	.035	.230	.118	.034	.218	.114	.033	.207	.109	.033	.197	.105	.032		
6.0	.218	.109	.031	.212	.107	.031	.201	.103	.030	.192	.100	.029	.182	.096	.029		
7.0	.201	.100	.028	.196	.098	.028	.187	.095	.027	.178	.091	.027	.170	.088	.026		
8.0	.188	.092	.026	.183	.090	.025	.174	.087	.025	.166	.084	.024	.158	.081	.024		
9.0	.175	.085	.024	.171	.083	.023	.163	.081	.023	.156	.078	.022	.149	.076	.022		
10.0	.164	.079	.022	.161	.078	.022	.153	.075	.021	.147	.073	.021	.140	.070	.020		

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	.252	.252	.252	.215	.215	.215	.147	.147	.147	.084	.084	.084	.027	.027	.027	
1.0	.245	.217	.193	.209	.187	.166	.143	.128	.115	.082	.074	.067	.026	.024	.022	
2.0	.237	.194	.157	.203	.167	.136	.139	.115	.095	.080	.067	.056	.026	.022	.018	
3.0	.229	.177	.135	.197	.152	.117	.135	.106	.082	.078	.062	.048	.025	.020	.016	
4.0	.222	.164	.120	.190	.141	.104	.131	.099	.073	.076	.058	.043	.024	.019	.014	
5.0	.214	.154	.109	.184	.133	.095	.127	.093	.067	.073	.055	.040	.024	.018	.013	
6.0	.207	.145	.102	.178	.126	.088	.122	.088	.063	.071	.052	.037	.023	.017	.012	
7.0	.200	.139	.096	.172	.120	.084	.119	.084	.059	.069	.050	.035	.022	.016	.012	
8.0	.193	.133	.092	.166	.115	.080	.115	.081	.057	.067	.048	.034	.022	.016	.011	
9.0	.187	.128	.088	.161	.111	.077	.111	.078	.055	.065	.046	.033	.021	.015	.011	
10.0	.181	.124	.086	.156	.108	.075	.108	.076	.053	.063	.045	.032	.020	.015	.011	

C Range: 0 - 360DEG

C Interval: 90.0DEG

Test Speed: HIGH

Temperature:25.3℃

Operators:Testing Room

Test Date:2025-11-20

γ Range: 0 - 180DEG

γ Interval: 1.0DEG

Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471

Humidity:65.0%

Test Distance:11.050m [K=1.0000]

Remarks:

UGR(Unified Glare Rating) Table

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm										
NAME: 0028920277 3000K 20W 3200lm					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: TOSPO					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	16.6	18.1	17.0	18.4	18.8	15.2	16.6	15.5	16.9	17.3
3H	18.8	20.2	19.2	20.5	20.9	16.5	17.9	16.9	18.2	18.7
4H	20.0	21.3	20.4	21.7	22.1	17.1	18.3	17.5	18.7	19.2
6H	21.2	22.5	21.7	22.9	23.3	17.4	18.6	17.9	19.0	19.5
8H	21.9	23.1	22.4	23.5	24.0	17.5	18.7	18.0	19.1	19.6
12H	22.7	23.9	23.2	24.3	24.8	17.6	18.7	18.0	19.1	19.6
4H 2H	17.1	18.4	17.6	18.8	19.2	16.0	17.3	16.4	17.7	18.1
3H	19.5	20.6	20.0	21.1	21.6	17.6	18.8	18.1	19.2	19.7
4H	20.9	21.9	21.3	22.3	22.9	18.3	19.4	18.8	19.8	20.3
6H	22.3	23.2	22.8	23.7	24.3	18.9	19.8	19.4	20.3	20.8
8H	23.1	24.0	23.6	24.5	25.0	19.0	19.9	19.6	20.4	21.0
12H	24.0	24.8	24.6	25.4	25.9	19.1	19.9	19.7	20.5	21.0
8H 4H	21.1	22.0	21.6	22.5	23.0	19.0	19.8	19.5	20.3	20.9
6H	22.8	23.5	23.4	24.1	24.7	19.8	20.5	20.3	21.0	21.6
8H	23.8	24.4	24.4	25.0	25.6	20.1	20.8	20.7	21.3	21.9
12H	24.9	25.5	25.5	26.1	26.7	20.4	20.9	21.0	21.5	22.2
12H 4H	21.1	21.9	21.7	22.4	23.0	19.1	19.9	19.7	20.5	21.0
6H	22.9	23.5	23.4	24.1	24.7	20.1	20.7	20.7	21.3	21.9
8H	23.9	24.5	24.5	25.1	25.7	20.5	21.1	21.1	21.7	22.3
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				

CIE Pub.117, 3200 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 4.0$)
Area: 0.308 m²

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3℃
Operators:Testing Room
Test Date:2025-11-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity:65.0%
Test Distance:11.050m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:

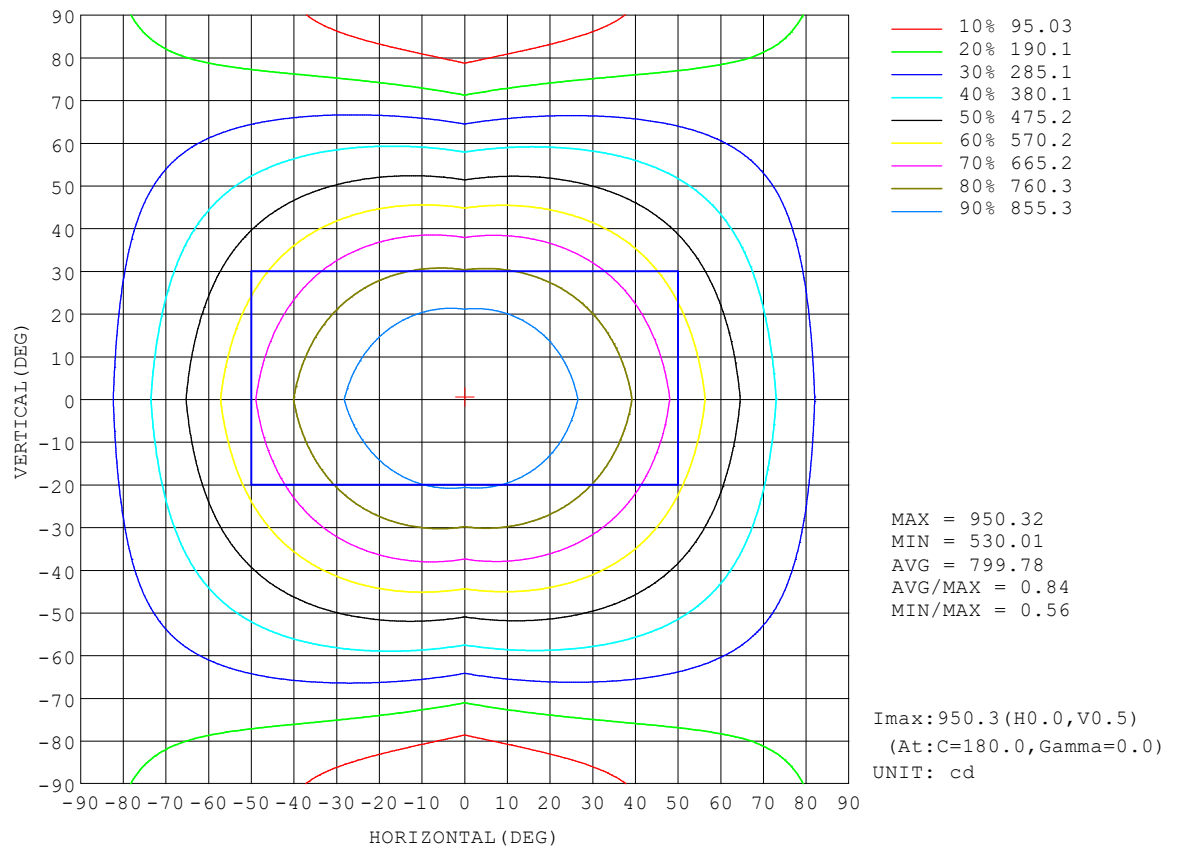
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	58	45	37	57	44	36	53	42	35	27
0.80	68	55	46	66	54	46	61	51	44	35
1.00	76	64	55	73	62	54	68	59	52	42
1.25	82	71	63	80	69	61	74	66	59	48
1.50	87	76	68	84	74	67	78	71	64	53
2.00	93	84	77	90	82	75	84	78	72	60
2.50	97	89	82	94	86	80	88	82	76	64
3.00	100	93	87	97	90	85	90	85	81	68
4.00	104	98	93	100	95	90	94	90	86	73
5.00	106	101	97	103	98	94	96	93	89	76
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Ceiling Mounted					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3°C
 Operators: Testing Room
 Test Date: 2025-11-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000H_V1 SYSTEM V2.00.471
 Humidity: 65.0%
 Test Distance: 11.050m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:

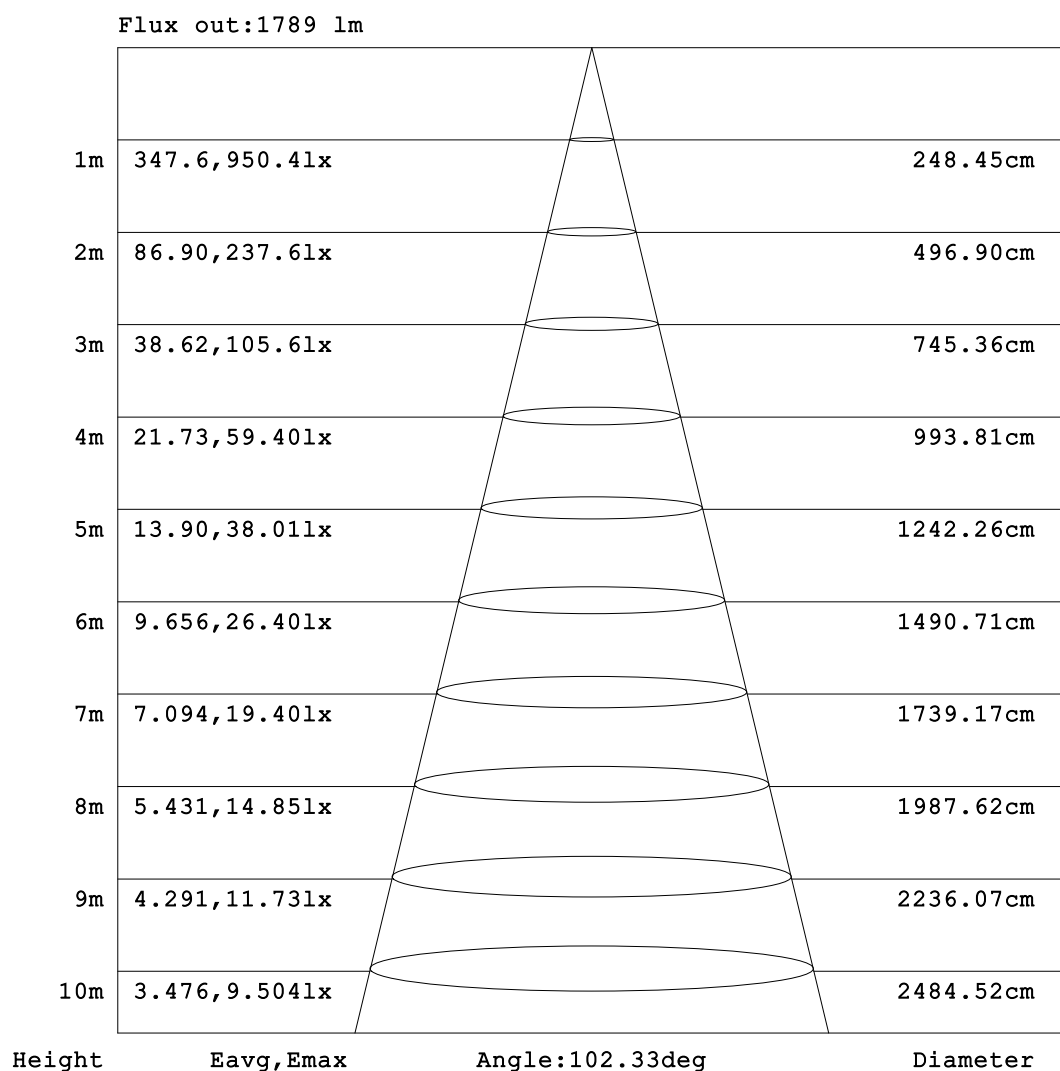


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3℃
Operators:Testing Room
Test Date:2025-11-20

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity:65.0%
Test Distance:11.050m [K=1.0000]
Remarks:

AAI Figure

Test: U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux: 3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:



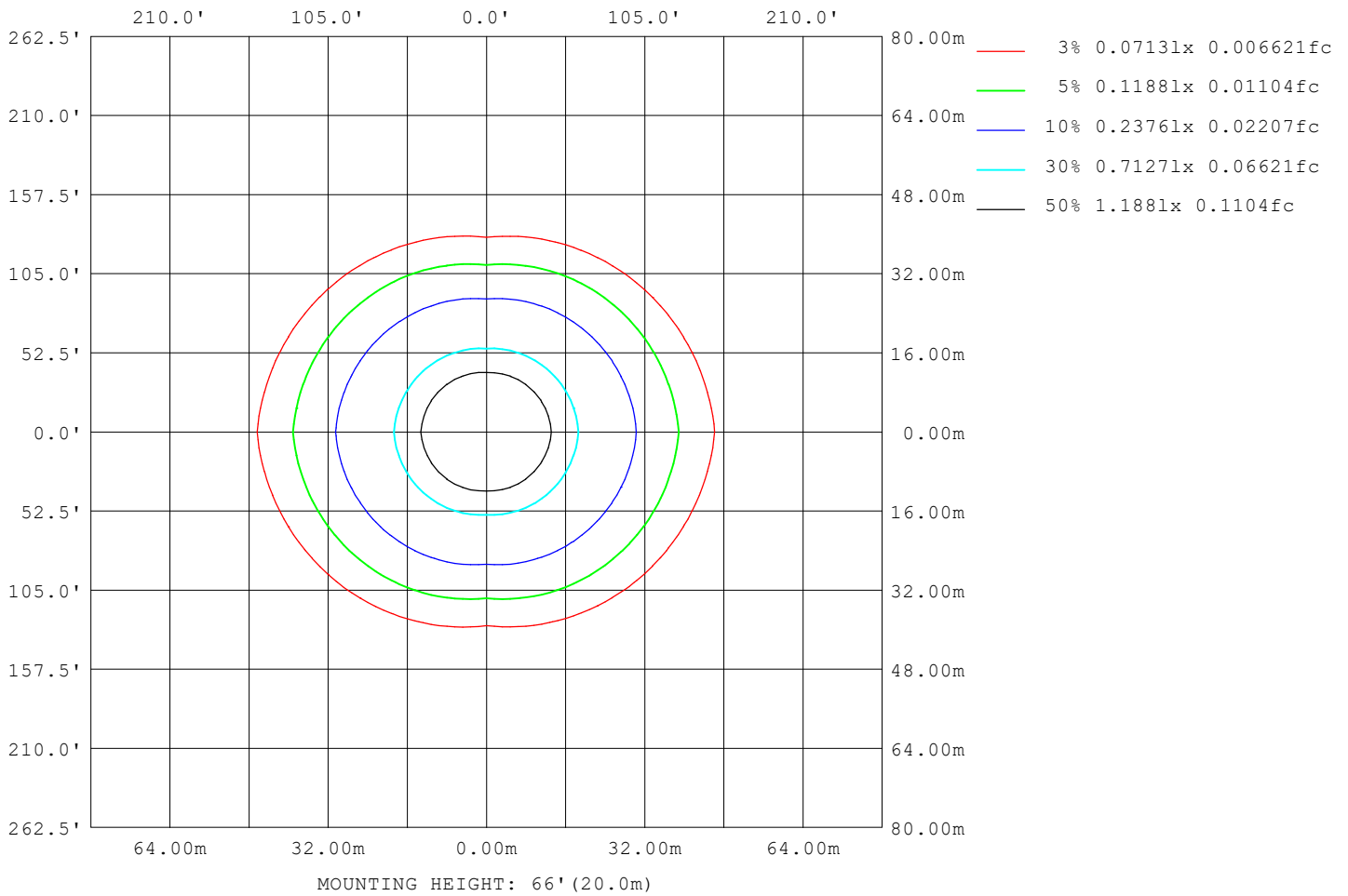
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3℃
 Operators:Testing Room
 Test Date:2025-11-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
 Humidity:65.0%
 Test Distance:11.050m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3℃
Operators:Testing Room
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γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity:65.0%
Test Distance:11.050m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:

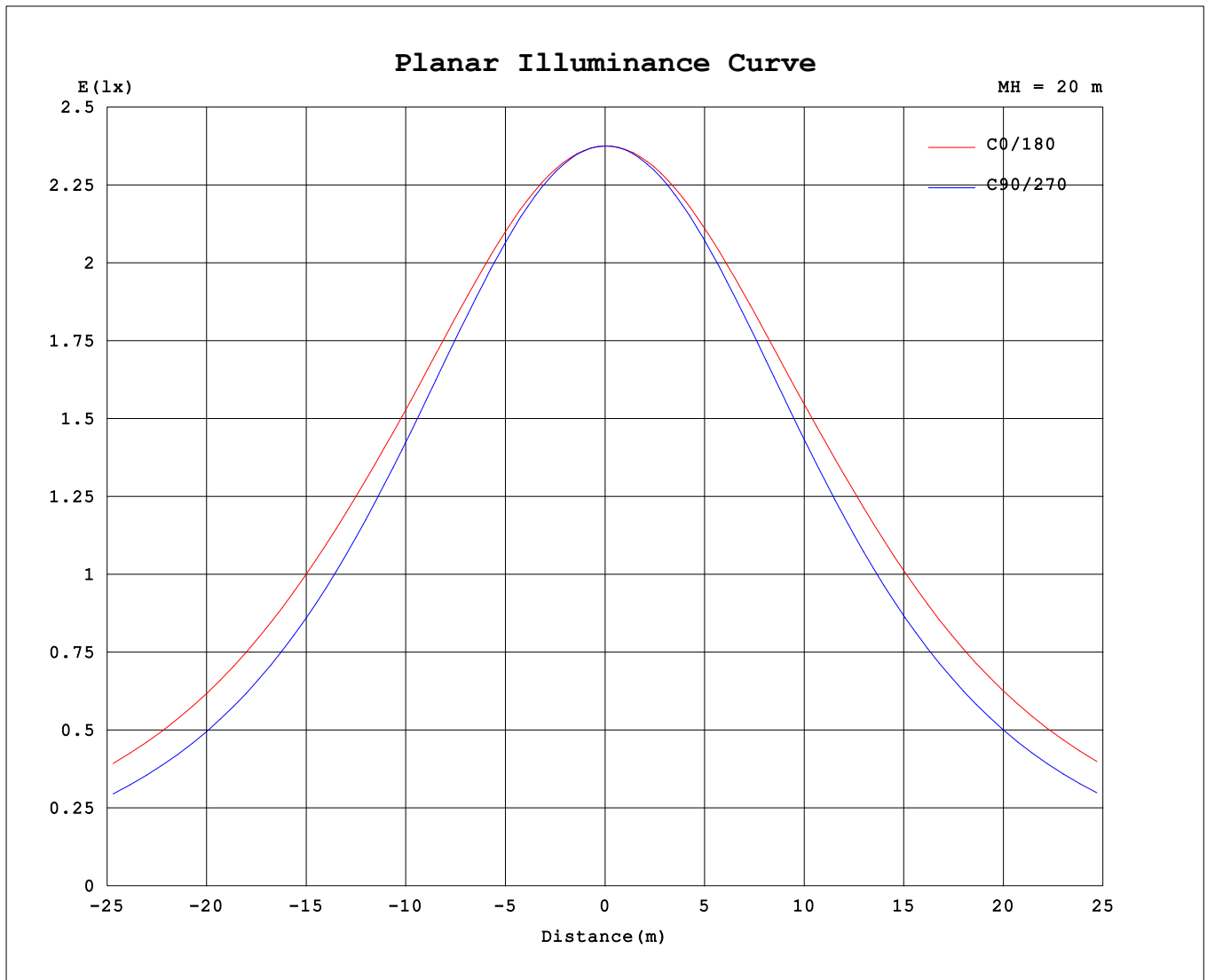
AvgL	cd/m2
L_0~180 (65) av	3644
L_0~180 (75) av	4528
L_0~180 (85) av	9598
L_90~270 (65) av	2117
L_90~270 (75) av	1750
L_90~270 (85) av	1200
L_45 (65) av	2691
L_45 (75) av	2793
L_45 (85) av	4352

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3℃
Operators:Testing Room
Test Date:2025-11-20

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity:65.0%
Test Distance:11.050m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature: 25.3°C
Operators: Testing Room
Test Date: 2025-11-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000H_V1 SYSTEM V2.00.471
Humidity: 65.0%
Test Distance: 11.050m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.13V I:0.0913A P:20.000W PF:0.9520 Freq:49.99Hz Lamp Flux:3200x1 lm		
NAME: 0028920277 3000K 20W 3200lm	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: TOSPO	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	90	180	270														
0	950	950	950	950														
5	946	944	948	945														
10	934	927	938	929														
15	916	899	921	902														
20	892	860	900	865														
25	864	813	874	818														
30	834	758	844	764														
35	798	697	808	703														
40	752	631	761	637														
45	700	561	709	567														
50	643	489	653	495														
55	586	417	596	422														
60	528	345	538	350														
65	470	274	478	277														
70	414	205	420	207														
75	358	139	364	140														
80	306	79.5	309	80.1														
85	256	32.1	259	32.3														
90	214	8.81	217	9.37														
95	181	6.93	182	7.47														
100	151	5.37	151	5.39														
105	125	3.51	124	3.61														
110	101	3.85	99.2	3.66														
115	80.6	4.27	78.0	3.85														
120	61.7	4.74	58.7	4.24														
125	45.0	5.24	41.9	4.72														
130	30.3	5.71	27.0	5.14														
135	17.9	6.17	15.0	5.61														
140	10.2	6.61	9.79	6.05														
145	9.69	7.04	9.50	6.51														
150	9.42	7.44	9.18	6.98														
155	9.21	7.79	9.03	7.45														
160	9.03	8.09	8.92	7.87														
165	8.94	8.35	8.71	8.23														
170	8.80	8.64	8.50	8.49														
175	8.76	8.83	8.45	8.72														
180	8.78	8.94	8.78	8.94														

C Range: 0 - 360DEG

C Interval: 90.0DEG

Test Speed: HIGH

Temperature:25.3℃

Operators:Testing Room

Test Date:2025-11-20

γ Range: 0 - 180DEG

γ Interval: 1.0DEG

Test System:EVERFINE GO-2000H_V1 SYSTEM V2.00.471

Humidity:65.0%

Test Distance:11.050m [K=1.0000]

Remarks: