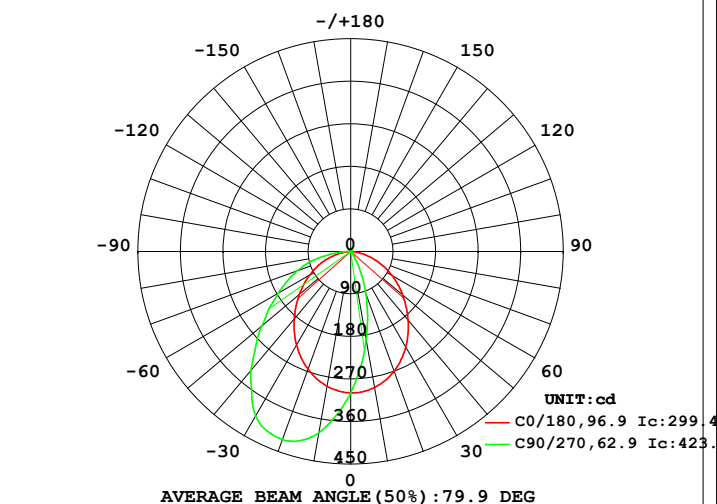


LUMINAIRE PHOTOMETRIC TEST REPORT

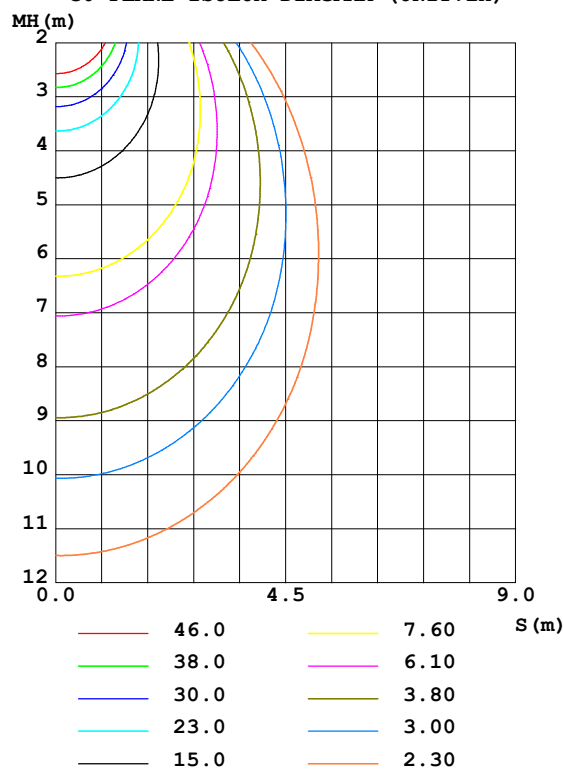
Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm					
NAME: M20-T41103-18G30			TYPE:		WEIGHT:
SPEC.:			DIM.:		SERIAL No.:
MFR.:			SUR.:328*21.6		Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 48.47 lm/W
MODEL	3000K CRI90	I _{max} (cd)	423.4	S/MH(C0/180)	1.15	
NOMINAL POWER(W)	18	LOR(%)	100.0	S/MH(C90/270)	1.60	
RATED VOLTAGE(V)	226	TOTAL FLUX(lm)	682.11	η UP,DN(C0-180)	0.0,18.3	
NOMINAL FLUX(lm)	682.11	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,81.7	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00	
TEST VOLTAGE(V)	225.1	η down(%)	100.0	CIBSE SHR MAX	1.10	

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:ZR
 Test Date:2021-08-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
 Humidity:65.0%
 Test Distance:8.402m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	292.4	221.2	190.1	217.9	289.5	358.3	389.4	362.5	0- 10	28.13	28.13	4.12,4.12
20	269.5	141.6	94.79	136.9	264.8	384.6	423.4	391.9	10- 20	78.54	106.7	15.6,15.6
30	233.9	74.66	27.10	70.35	229.3	366.7	402.4	375.4	20- 30	112.5	219.2	32.1,32.1
40	189.1	24.33	1.359	21.45	185.9	319.7	329.1	326.1	30- 40	124.1	343.3	50.3,50.3
50	143.8	3.070	0.4922	1.069	142.3	242.7	246.2	245.6	40- 50	116.0	459.3	67.3,67.3
60	100.7	1.779	0.5609	0.4733	100.7	169.1	177.6	169.1	50- 60	96.47	555.8	81.5,81.5
70	58.37	1.475	0.8726	0.7287	60.01	107.6	120.4	106.7	60- 70	70.43	626.2	91.8,91.8
80	18.36	1.490	1.348	1.138	21.07	56.20	56.29	54.05	70- 80	42.92	669.1	98.1,98.1
90	1.365	1.794	1.836	1.692	2.366	2.845	2.948	2.709	80- 90	12.99	682.1	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): 403.18 lm

%lum = 59.1%

%lamp = 59.1%

Conical surface Flux(120deg): 555.78 lm

%lum = 81.5%

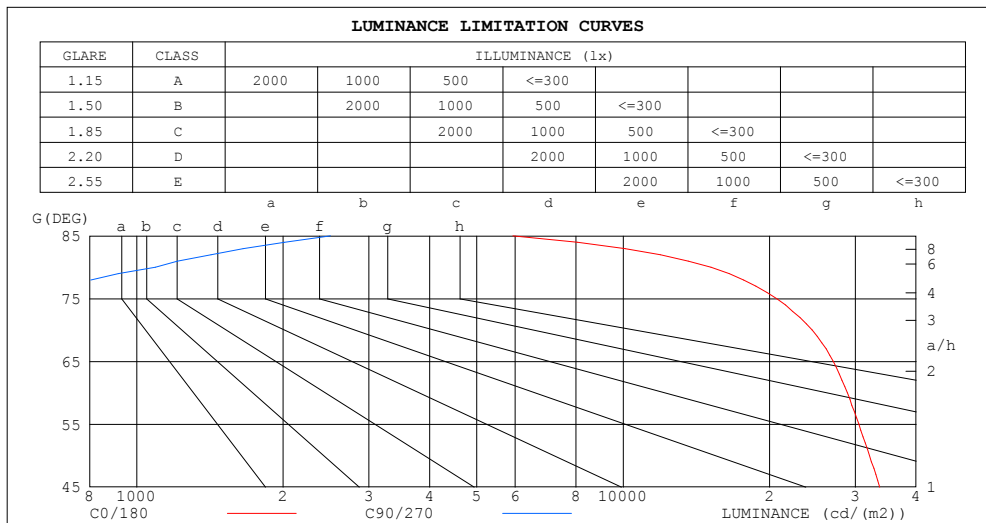
%lamp = 81.5%

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:ZR
 Test Date:2021-08-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
 Humidity:65.0%
 Test Distance:8.402m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm		
NAME: M20-T41103-18G30	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:328*21.6	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	5935	2500
80	15155	1092
75	20682	580
70	24467	359
65	27037	230
60	28886	158
55	30522	123
50	32077	108
45	33693	105

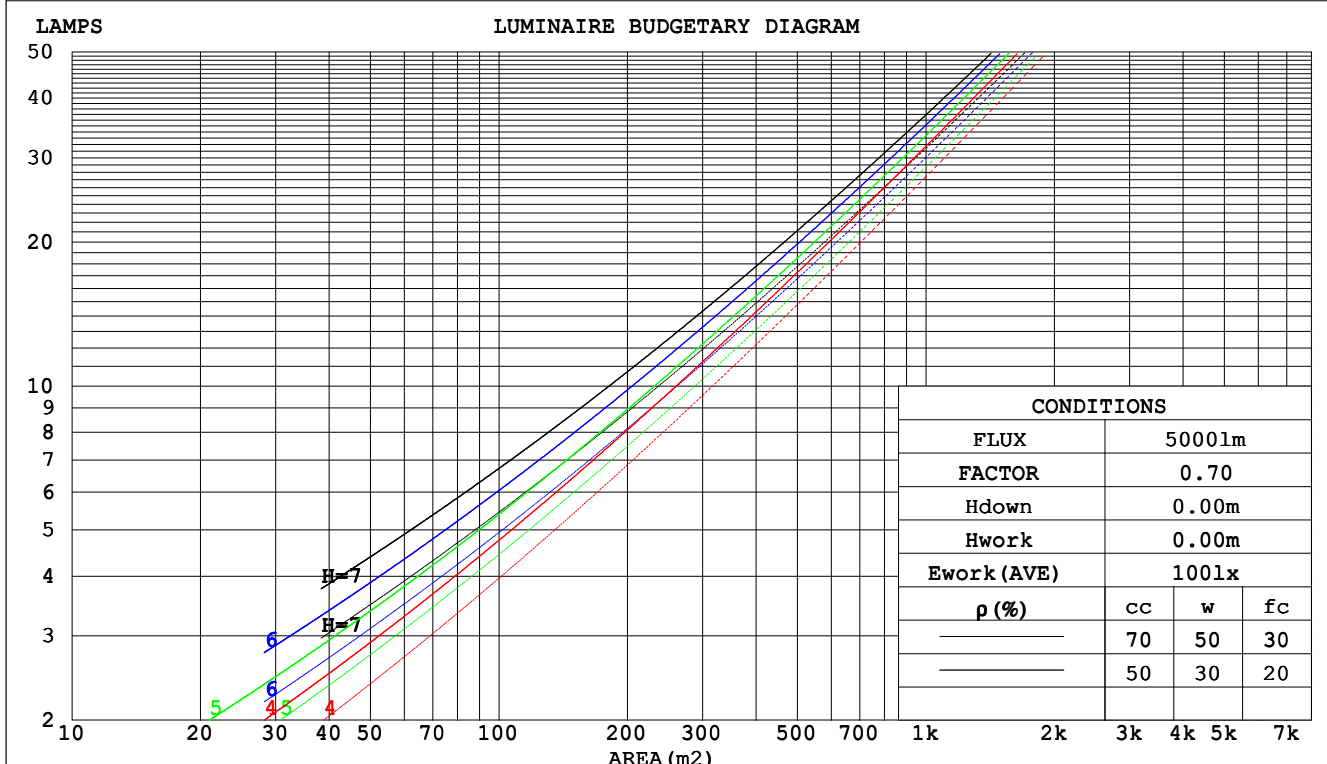
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:8.402m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm		
NAME: M20-T41103-18G30	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:328*21.6	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						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	.00
1.0	1.05	1.00	.97	1.02	.99	.95	.98	.95	.92	.94	.92	.89	.91	.89	.87	.85
2.0	.92	.85	.80	.90	.84	.79	.86	.81	.77	.83	.79	.75	.80	.77	.74	.72
3.0	.81	.73	.67	.80	.72	.67	.77	.71	.65	.74	.69	.64	.72	.67	.63	.61
4.0	.73	.64	.58	.71	.63	.57	.69	.62	.56	.66	.61	.56	.64	.59	.55	.53
5.0	.65	.57	.50	.64	.56	.50	.62	.55	.49	.60	.54	.49	.58	.53	.48	.46
6.0	.59	.50	.44	.58	.50	.44	.56	.49	.44	.55	.48	.43	.53	.47	.43	.41
7.0	.54	.45	.39	.53	.45	.39	.52	.44	.39	.50	.44	.39	.49	.43	.38	.37
8.0	.49	.41	.35	.49	.41	.35	.47	.40	.35	.46	.40	.35	.45	.39	.35	.33
9.0	.46	.38	.32	.45	.37	.32	.44	.37	.32	.43	.36	.32	.42	.36	.32	.30
10.0	.42	.34	.29	.42	.34	.29	.41	.34	.29	.40	.33	.29	.39	.33	.29	.27



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:ZR
 Test Date:2021-08-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
 Humidity:65.0%
 Test Distance:8.402m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm					
NAME: M20-T41103-18G30			TYPE:		WEIGHT:
SPEC.:			DIM.:		SERIAL No.:
MFR.:			SUR.:328*21.6		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 Coeffcients(WEC)										
0.0																	
1.0	.296	.168	.053	.289	.165	.052	.276	.158	.051	.264	.152	.049	.252	.146	.047		
2.0	.278	.152	.047	.272	.150	.046	.260	.145	.045	.249	.140	.044	.240	.136	.043		
3.0	.257	.137	.041	.252	.135	.041	.242	.131	.040	.232	.127	.039	.224	.124	.038		
4.0	.238	.124	.036	.233	.122	.036	.224	.119	.036	.216	.116	.035	.208	.113	.034		
5.0	.221	.112	.033	.216	.111	.032	.208	.109	.032	.201	.106	.032	.194	.104	.031		
6.0	.205	.103	.029	.201	.102	.029	.194	.100	.029	.188	.097	.029	.181	.096	.028		
7.0	.191	.095	.027	.188	.094	.027	.182	.092	.026	.176	.090	.026	.170	.088	.026		
8.0	.179	.088	.025	.176	.087	.025	.170	.085	.024	.165	.084	.024	.160	.082	.024		
9.0	.168	.081	.023	.166	.081	.023	.160	.079	.022	.156	.078	.022	.151	.077	.022		
10.0	.159	.076	.021	.156	.075	.021	.152	.074	.021	.147	.073	.021	.143	.072	.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	.179	.156	.135	.153	.134	.117	.105	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.170	.132	.100	.146	.114	.086	.100	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.162	.114	.076	.139	.099	.066	.095	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.154	.101	.060	.132	.087	.052	.091	.061	.037	.053	.036	.022	.017	.012	.007	
5.0	.147	.090	.049	.126	.078	.042	.087	.055	.030	.050	.032	.018	.016	.010	.006	
6.0	.139	.082	.040	.120	.071	.035	.083	.050	.025	.048	.029	.015	.015	.010	.005	
7.0	.133	.075	.034	.114	.065	.030	.079	.045	.021	.046	.027	.013	.015	.009	.004	
8.0	.126	.069	.030	.109	.060	.026	.075	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.120	.064	.026	.104	.055	.023	.072	.039	.016	.042	.023	.010	.014	.008	.003	
10.0	.115	.060	.023	.099	.052	.020	.069	.036	.014	.040	.022	.009	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:8.402m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm											
NAME: M20-T41103-18G30						TYPE:		WEIGHT:			
SPEC.:						DIM.:		SERIAL No.:			
MFR.:						SUR.:328*21.6		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		21.6	23.0	21.8	23.2	23.4	2.3	3.7	2.5	3.9	4.1
	3H	23.2	24.6	23.5	24.8	25.0	2.4	3.7	2.7	4.0	4.2
	4H	24.0	25.2	24.3	25.5	25.7	2.8	4.1	3.1	4.3	4.6
	6H	24.4	25.6	24.8	25.9	26.2	3.8	5.0	4.1	5.3	5.5
	8H	24.5	25.7	24.9	26.0	26.3	4.7	5.8	5.0	6.1	6.4
	12H	24.5	25.7	24.9	26.0	26.3	5.9	7.0	6.2	7.3	7.6
4H	2H	21.2	22.5	21.5	22.8	23.0	4.1	5.4	4.4	5.6	5.9
	3H	22.9	24.0	23.3	24.3	24.6	4.3	5.4	4.6	5.7	6.0
	4H	23.7	24.7	24.0	25.0	25.3	4.7	5.7	5.1	6.1	6.4
	6H	24.2	25.1	24.6	25.5	25.9	5.8	6.7	6.2	7.0	7.4
	8H	24.4	25.2	24.8	25.6	26.0	6.6	7.5	7.1	7.9	8.2
	12H	24.4	25.2	24.8	25.6	26.0	7.9	8.7	8.3	9.1	9.5
8H	4H	23.5	24.4	23.9	24.7	25.1	5.4	6.2	5.8	6.6	6.9
	6H	24.1	24.8	24.5	25.2	25.6	6.7	7.4	7.1	7.8	8.2
	8H	24.3	24.9	24.7	25.3	25.8	7.8	8.5	8.3	8.9	9.3
	12H	24.3	24.9	24.8	25.3	25.8	9.4	9.9	9.9	10.4	10.9
12H	4H	23.5	24.3	23.9	24.6	25.0	5.6	6.4	6.0	6.8	7.2
	6H	24.1	24.7	24.5	25.1	25.6	7.1	7.7	7.5	8.1	8.6
	8H	24.2	24.8	24.7	25.2	25.7	8.3	8.9	8.8	9.3	9.8
Variations with the observer position at spacings:											
S = 1.0H	+ 1.5 / - 1.4					+ 1.0 / - 0.7					
1.5H	+ 2.6 / - 3.6					+ 1.3 / - 0.7					
2.0H	+ 3.8 / - 5.2					+ 0.8 / - 0.6					

CIE Pub.117, 682.1 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -1.3)

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:8.402m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm		
NAME: M20-T41103-18G30	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:328*21.6	Shielding Angle:

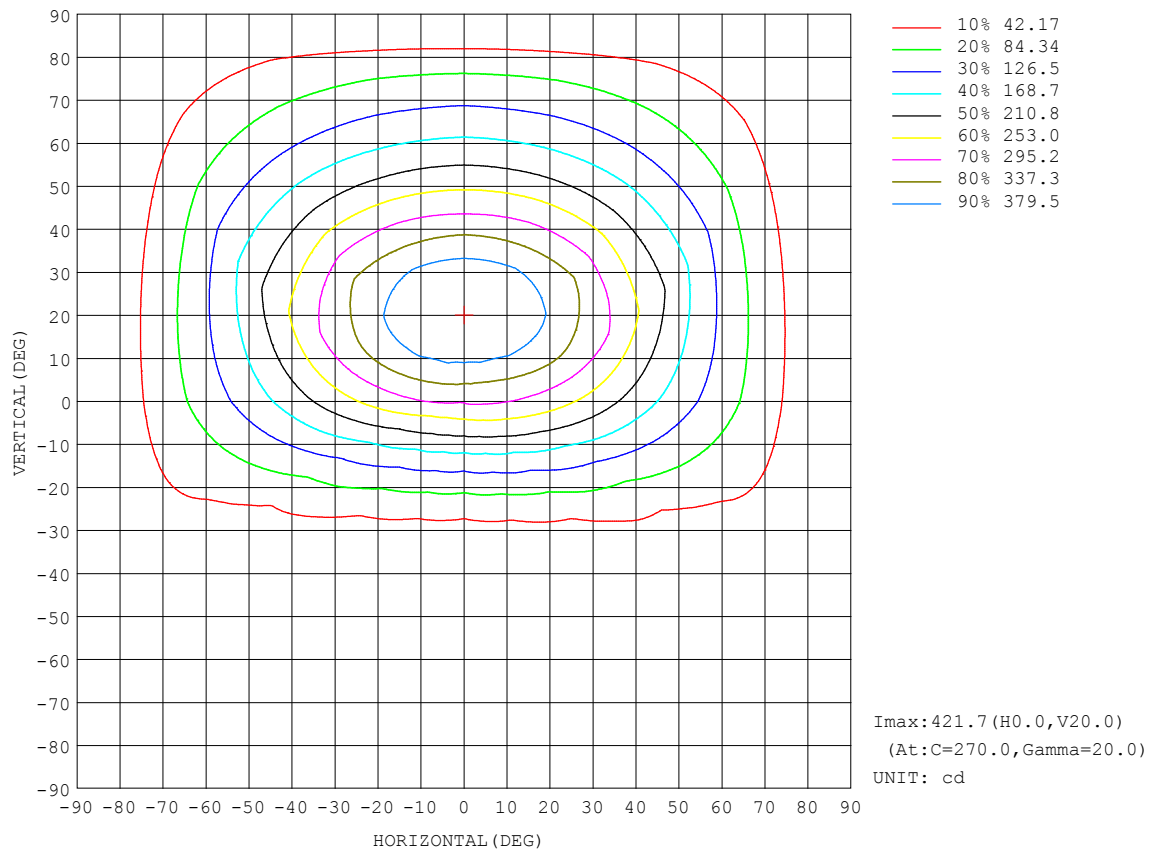
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	61	50	43	60	50	43	59	49	43	37
0.80	71	60	53	70	59	53	68	59	52	46
1.00	79	68	61	78	68	61	75	69	61	54
1.25	86	76	69	84	75	69	81	74	68	61
1.50	90	81	74	89	80	74	86	78	73	66
2.00	97	89	82	95	87	82	91	85	80	73
2.50	100	93	87	98	91	86	94	89	84	76
3.00	103	97	92	101	95	91	97	92	88	80
4.00	107	102	97	105	100	96	101	97	93	85
5.00	109	105	101	107	103	99	102	99	96	87
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:8.402m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm		
NAME: M20-T41103-18G30	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:328*21.6	Shielding Angle:

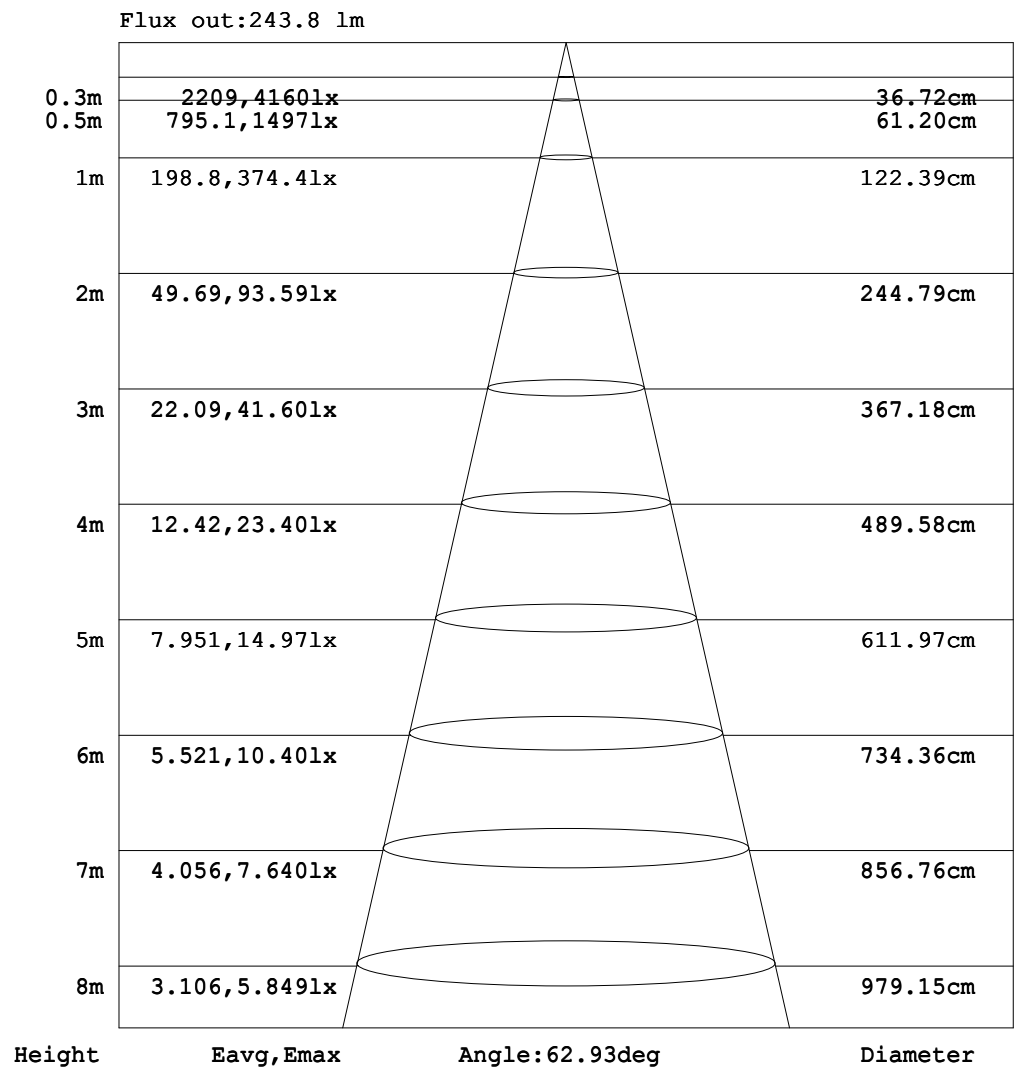


C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:ZR
 Test Date:2021-08-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
 Humidity:65.0%
 Test Distance:8.402m [K=1.0000]
 Remarks:

AAI Figure

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm		
NAME: M20-T41103-18G30	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:328*21.6	Shielding Angle:



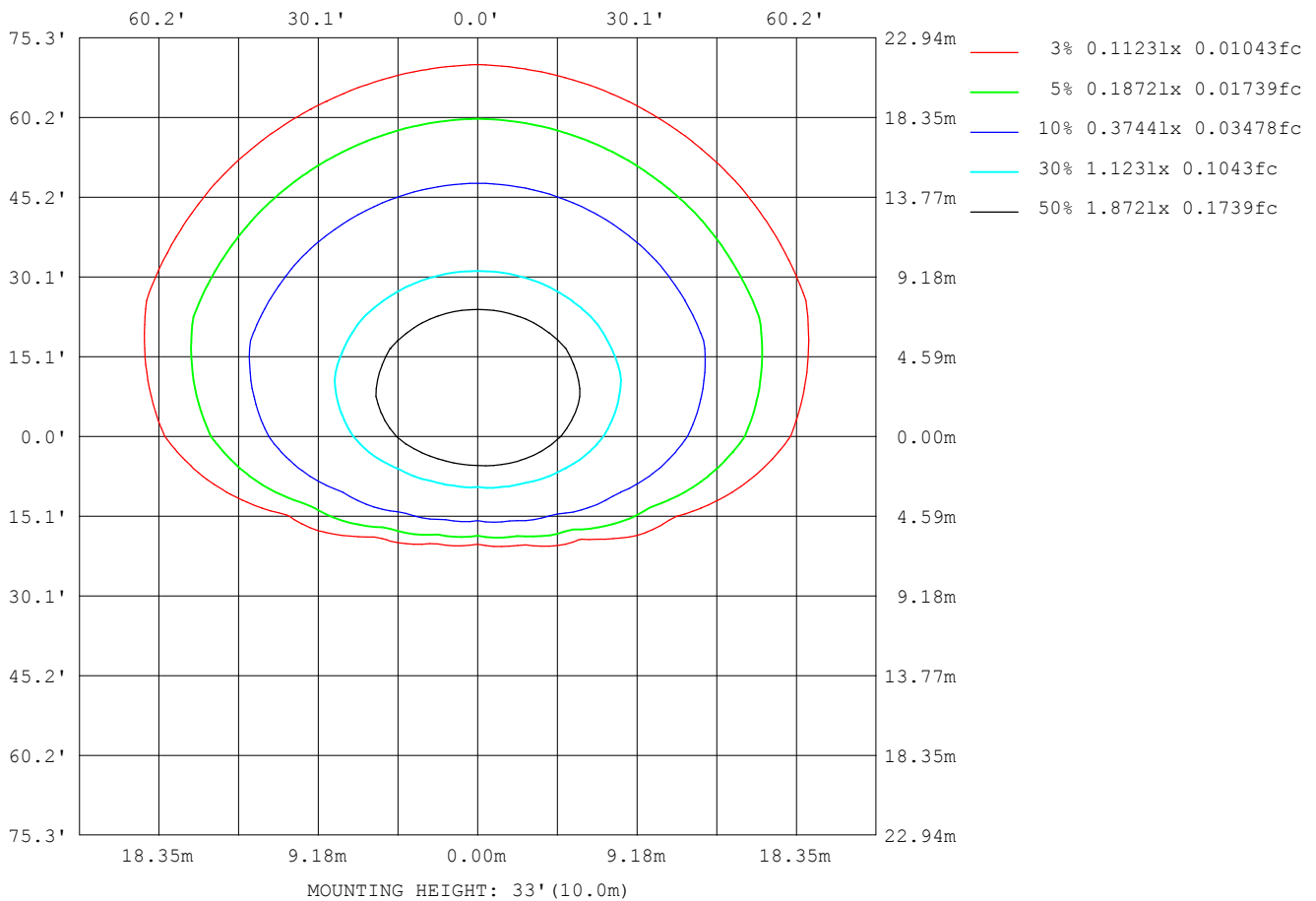
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:8.402m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm		
NAME: M20-T41103-18G30	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:328*21.6	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:8.402m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:48.00V I:0.2932A P:14.07W PF:1.000 Freq:50.00Hz Lamp Flux:682.11x1 lm		
NAME: M20-T41103-18G30	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:328*21.6	Shielding Angle:

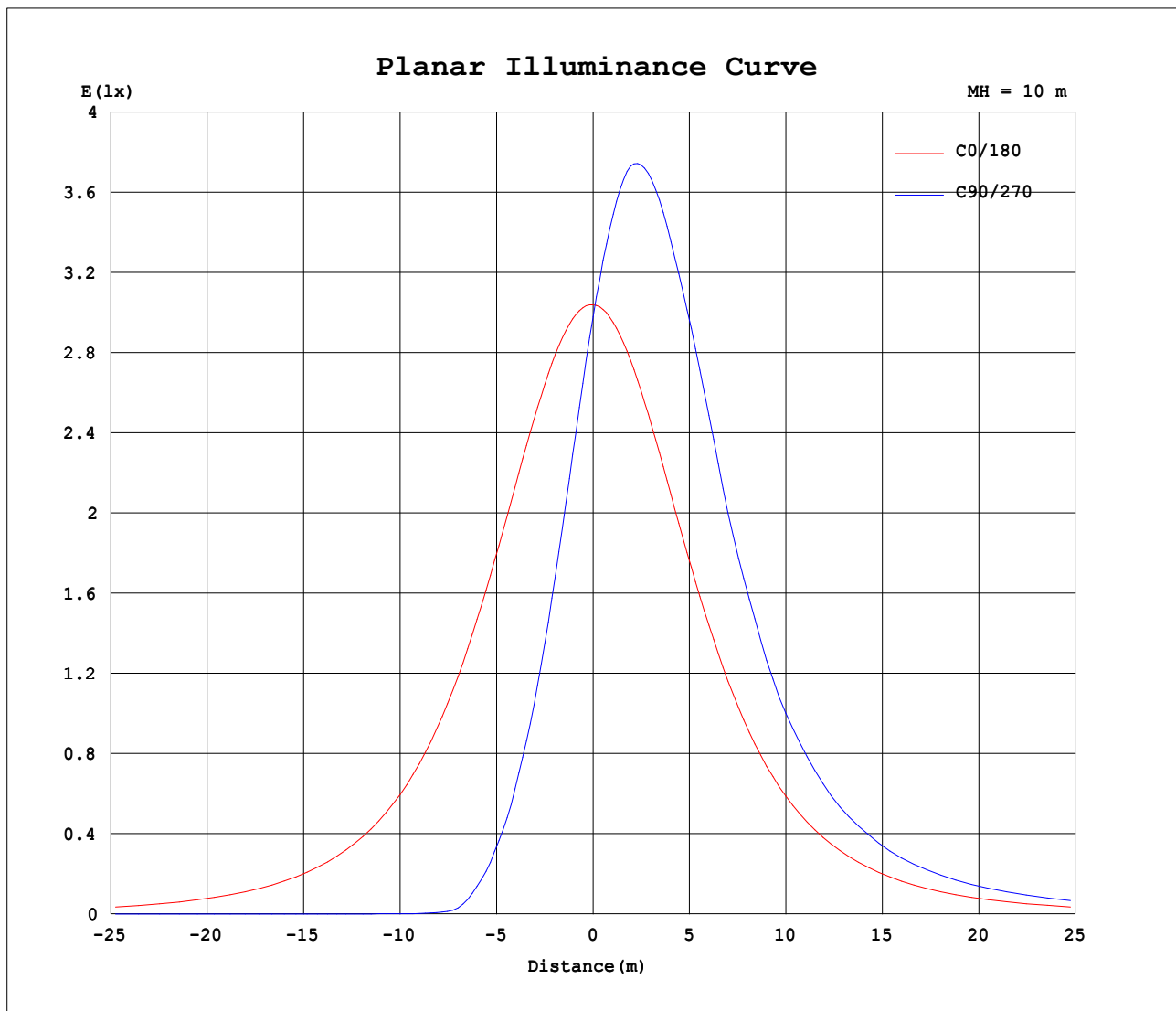
AvgL	cd/m2
L_0~180 (65) av	26751
L_0~180 (75) av	20969
L_0~180 (85) av	7802
L_90~270 (65) av	24855
L_90~270 (75) av	25555
L_90~270 (85) av	18843
L_45 (65) av	23029
L_45 (75) av	22314
L_45 (85) av	21164

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:ZR
 Test Date:2021-08-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
 Humidity:65.0%
 Test Distance:8.402m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: ZR
Test Date: 2021-08-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity: 65.0%
Test Distance: 8.402m [K=1.0000]
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:8.402m [K=1.0000]
Remarks:

```