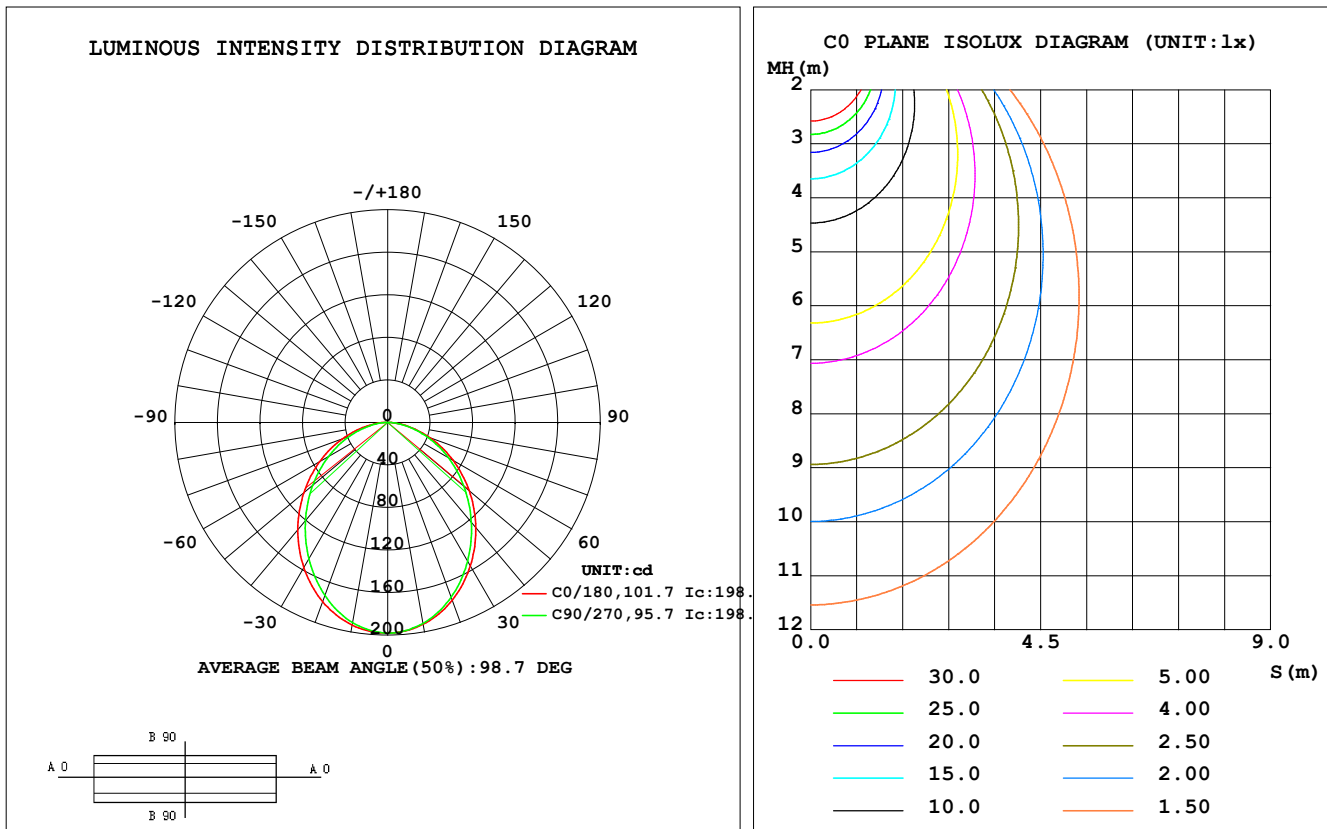


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:48.00V I:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm					
NAME: M20-T42102-9G30-120D		TYPE:		WEIGHT:	
SPEC.:		DIM.:		SERIAL No.:	
MFR.:		SUR.:219*22		Shielding Angle:	

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 40.78 lm/W
MODEL	3000K CRI90	I <sub>max</sub> (cd)	198.2	S/MH(C0/180)	1.19	
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	1.13	
RATED VOLTAGE(V)	226	TOTAL FLUX(lm)	487.45	η UP,DN(C0-180)	0.0,50.1	
NOMINAL FLUX(lm)	487.453	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.9	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25	
TEST VOLTAGE(V)	225.1	η down(%)	100.0	CIBSE SHR MAX	1.30	



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:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	192.6	191.4	191.9	193.2	193.4	192.9	191.1	191.1	0- 10	18.62	18.62	3.82,3.82
20	177.8	175.1	174.9	178.2	179.3	177.4	173.0	174.0	10- 20	52.18	70.80	14.5,14.5
30	155.6	151.5	150.4	155.5	157.7	154.3	148.3	150.2	20- 30	76.06	146.9	30.1,30.1
40	129.0	124.1	122.5	128.5	131.6	127.4	120.5	122.9	30- 40	87.35	234.2	48,48
50	100.1	95.26	93.70	99.68	103.0	98.97	92.10	94.42	40- 50	86.06	320.3	65.7,65.7
60	70.88	66.64	65.64	71.01	73.99	70.65	64.48	66.18	50- 60	74.11	394.4	80.9,80.9
70	42.42	39.27	39.15	43.37	45.43	43.18	38.21	38.99	60- 70	54.27	448.7	92,92
80	17.25	15.30	15.96	18.83	19.78	18.66	15.32	15.19	70- 80	30.34	479.0	98.3,98.3
90	0.6585	0.6570	0.6436	1.033	1.495	1.503	1.377	1.399	80- 90	8.461	487.5	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): 278.13 lm

%lum = 57.1%

%lamp = 57.1%

Conical surface Flux(120deg): 394.39 lm

%lum = 80.9%

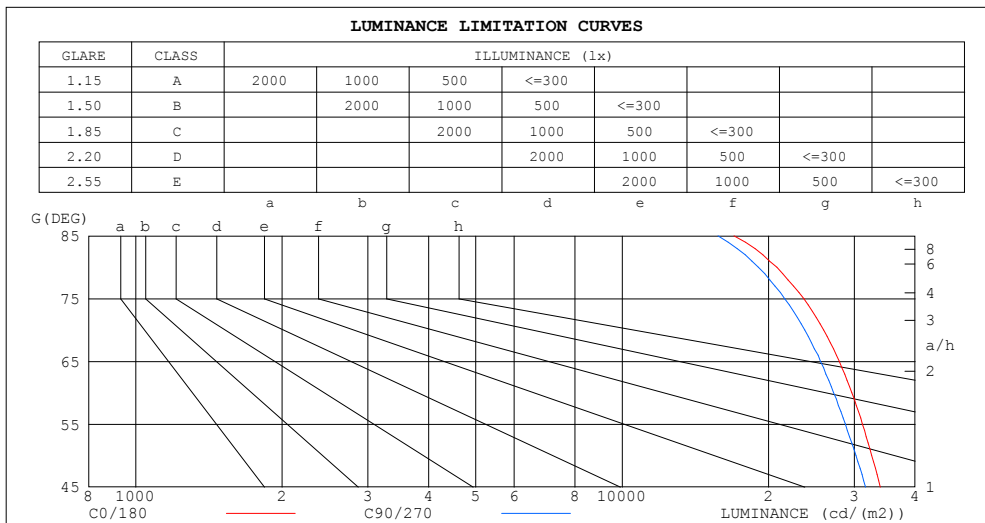
%lamp = 80.9%

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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm		
NAME: M20-T42102-9G30-120D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	16973	15738
80	20791	19063
75	23632	21585
70	25955	23737
65	27974	25574
60	29666	27222
55	31198	28777
50	32600	30225
45	33932	31666

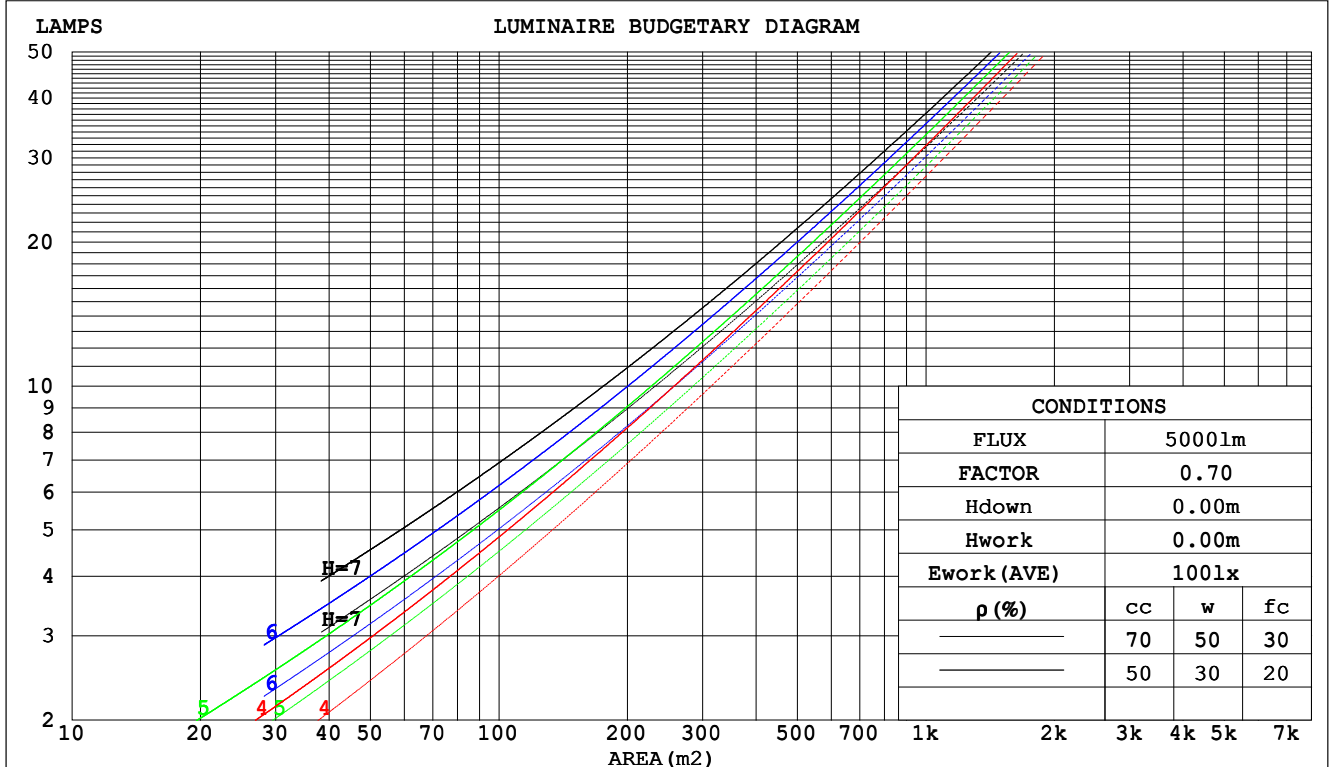
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:ZR  
Test Date:2021-08-18

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm		
NAME: M20-T42102-9G30-120D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	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	1.00
1.0	1.04	1.00	.97	1.02	.98	.95	.98	.95	.92	.94	.92	.89	.90	.88	.87	.84
2.0	.92	.85	.79	.90	.84	.78	.86	.81	.77	.83	.79	.75	.80	.76	.73	.71
3.0	.81	.73	.66	.79	.72	.66	.76	.70	.65	.73	.68	.64	.71	.66	.62	.60
4.0	.72	.63	.57	.70	.62	.56	.68	.61	.55	.66	.60	.55	.64	.58	.54	.52
5.0	.64	.56	.49	.63	.55	.49	.61	.54	.48	.59	.53	.48	.57	.52	.47	.45
6.0	.58	.49	.43	.57	.49	.43	.55	.48	.43	.54	.47	.42	.52	.46	.42	.40
7.0	.53	.44	.38	.52	.44	.38	.51	.43	.38	.49	.42	.38	.48	.42	.37	.35
8.0	.48	.40	.34	.48	.40	.34	.46	.39	.34	.45	.39	.34	.44	.38	.34	.32
9.0	.44	.36	.31	.44	.36	.31	.43	.36	.31	.42	.35	.31	.41	.35	.30	.29
10.0	.41	.33	.28	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.28	.26



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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm					
NAME: M20-T42102-9G30-120D			TYPE:		WEIGHT:
SPEC.:			DIM.:		SERIAL No.:
MFR.:			SUR.:219*22		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	.298	.170	.054	.291	.166	.053	.278	.160	.051	.266	.153	.049	.255	.148	.048		
2.0	.282	.154	.047	.275	.152	.047	.264	.147	.046	.253	.142	.044	.243	.138	.043		
3.0	.261	.139	.042	.256	.137	.041	.246	.133	.040	.236	.129	.040	.227	.126	.039		
4.0	.242	.126	.037	.237	.124	.037	.228	.121	.036	.219	.118	.036	.212	.115	.035		
5.0	.224	.114	.033	.220	.113	.033	.212	.110	.032	.204	.108	.032	.197	.105	.032		
6.0	.208	.104	.030	.204	.103	.030	.197	.101	.029	.191	.099	.029	.184	.097	.029		
7.0	.194	.096	.027	.191	.095	.027	.184	.093	.027	.178	.091	.027	.173	.090	.026		
8.0	.182	.089	.025	.179	.088	.025	.173	.086	.025	.168	.085	.024	.162	.083	.024		
9.0	.170	.082	.023	.168	.082	.023	.163	.080	.023	.158	.079	.023	.153	.078	.022		
10.0	.160	.077	.021	.158	.076	.021	.153	.075	.021	.149	.074	.021	.145	.073	.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	.180	.156	.135	.154	.134	.116	.105	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.171	.132	.099	.146	.114	.086	.100	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.163	.114	.076	.140	.099	.065	.096	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.155	.101	.059	.133	.087	.052	.091	.061	.036	.053	.036	.022	.017	.012	.007	
5.0	.148	.090	.048	.127	.078	.042	.087	.055	.030	.051	.032	.018	.016	.010	.006	
6.0	.140	.082	.040	.121	.071	.035	.083	.050	.025	.048	.029	.015	.016	.010	.005	
7.0	.134	.075	.034	.115	.065	.029	.079	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.127	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.121	.064	.026	.104	.056	.022	.072	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.040	.022	.008	.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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm											
NAME: M20-T42102-9G30-120D						TYPE:		WEIGHT:			
SPEC.:						DIM.:		SERIAL No.:			
MFR.:						SUR.:219*22		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		27.1	28.6	27.4	28.8	29.0	26.7	28.2	27.0	28.4	28.6
	3H	28.5	29.9	28.8	30.1	30.4	28.1	29.4	28.4	29.7	29.9
	4H	29.1	30.4	29.4	30.6	30.9	28.6	29.9	28.9	30.1	30.4
	6H	29.5	30.7	29.8	30.9	31.2	28.9	30.2	29.3	30.4	30.7
	8H	29.6	30.7	29.9	31.0	31.3	29.1	30.2	29.4	30.5	30.8
	12H	29.6	30.8	30.0	31.1	31.4	29.1	30.3	29.5	30.5	30.8
4H	2H	27.6	28.9	27.9	29.2	29.4	27.3	28.6	27.6	28.9	29.1
	3H	29.2	30.3	29.6	30.6	30.9	28.8	30.0	29.2	30.2	30.5
	4H	29.9	30.9	30.2	31.2	31.6	29.4	30.5	29.8	30.8	31.1
	6H	30.4	31.3	30.8	31.6	32.0	29.9	30.8	30.3	31.2	31.6
	8H	30.5	31.4	31.0	31.8	32.1	30.1	30.9	30.5	31.3	31.7
	12H	30.6	31.4	31.1	31.8	32.2	30.2	31.0	30.6	31.3	31.8
8H	4H	30.1	30.9	30.5	31.3	31.7	29.7	30.5	30.1	30.9	31.3
	6H	30.7	31.4	31.1	31.8	32.2	30.3	31.0	30.7	31.4	31.8
	8H	30.9	31.6	31.4	32.0	32.4	30.5	31.1	31.0	31.6	32.0
	12H	31.1	31.6	31.6	32.1	32.6	30.7	31.2	31.1	31.7	32.1
12H	4H	30.1	30.9	30.5	31.2	31.6	29.7	30.5	30.1	30.9	31.3
	6H	30.7	31.4	31.2	31.8	32.2	30.3	31.0	30.8	31.4	31.8
	8H	31.0	31.5	31.5	32.0	32.5	30.6	31.1	31.1	31.6	32.1
Variations with the observer position at spacings:											
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2					
1.5H	+ 0.2 / - 0.3					+ 0.1 / - 0.3					
2.0H	+ 0.3 / - 0.3					+ 0.3 / - 0.3					

CIE Pub.117, 487.5 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -2.5)

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:

### UTILIZATION FACTORS TABLE

Test:U:48.00V I:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm		
NAME: M20-T42102-9G30-120D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:

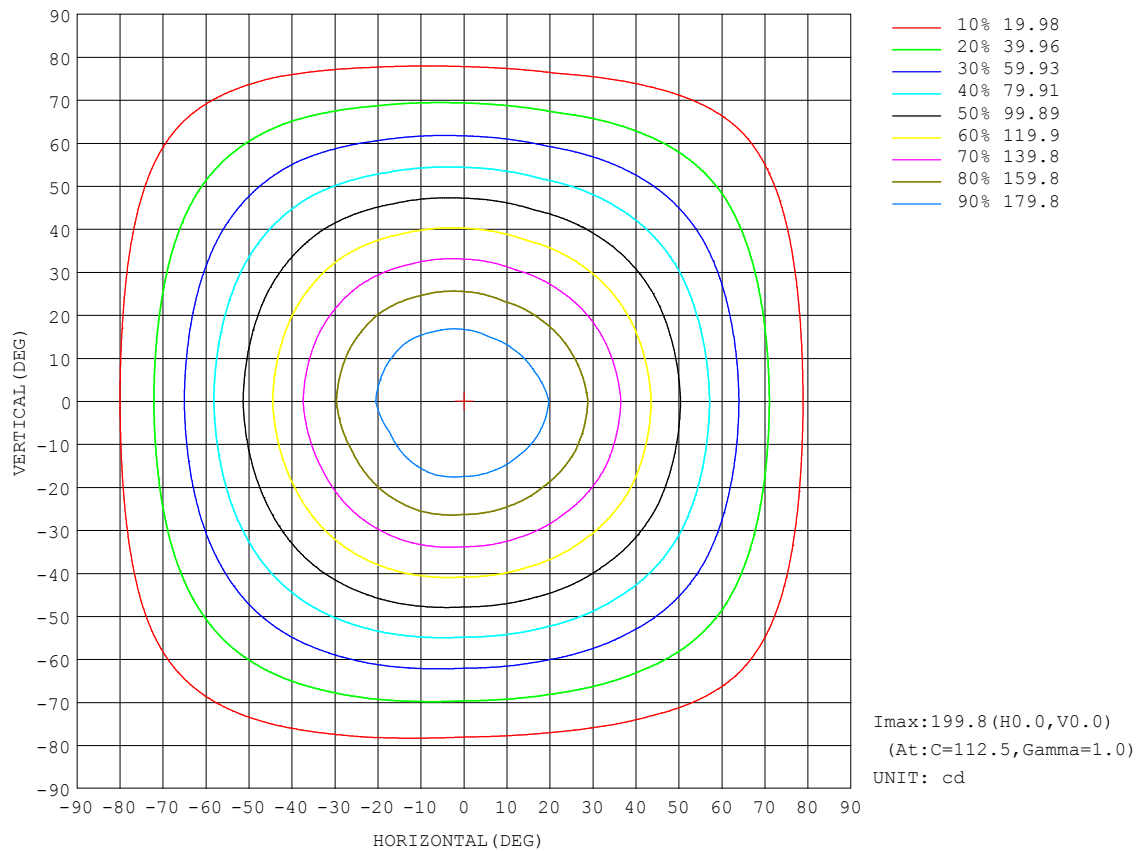
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	60	48	41	59	48	41	58	48	41	35
0.80	69	58	51	68	58	51	67	57	51	44
1.00	78	67	60	77	66	60	74	68	59	52
1.25	85	75	68	83	74	67	81	72	66	59
1.50	89	80	73	88	79	73	85	77	72	64
2.00	96	88	82	94	87	81	91	84	79	72
2.50	100	92	87	98	91	86	94	88	84	76
3.00	103	96	91	101	95	90	97	92	88	80
4.00	107	101	97	104	100	96	100	96	93	84
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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm		
NAME: M20-T42102-9G30-120D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



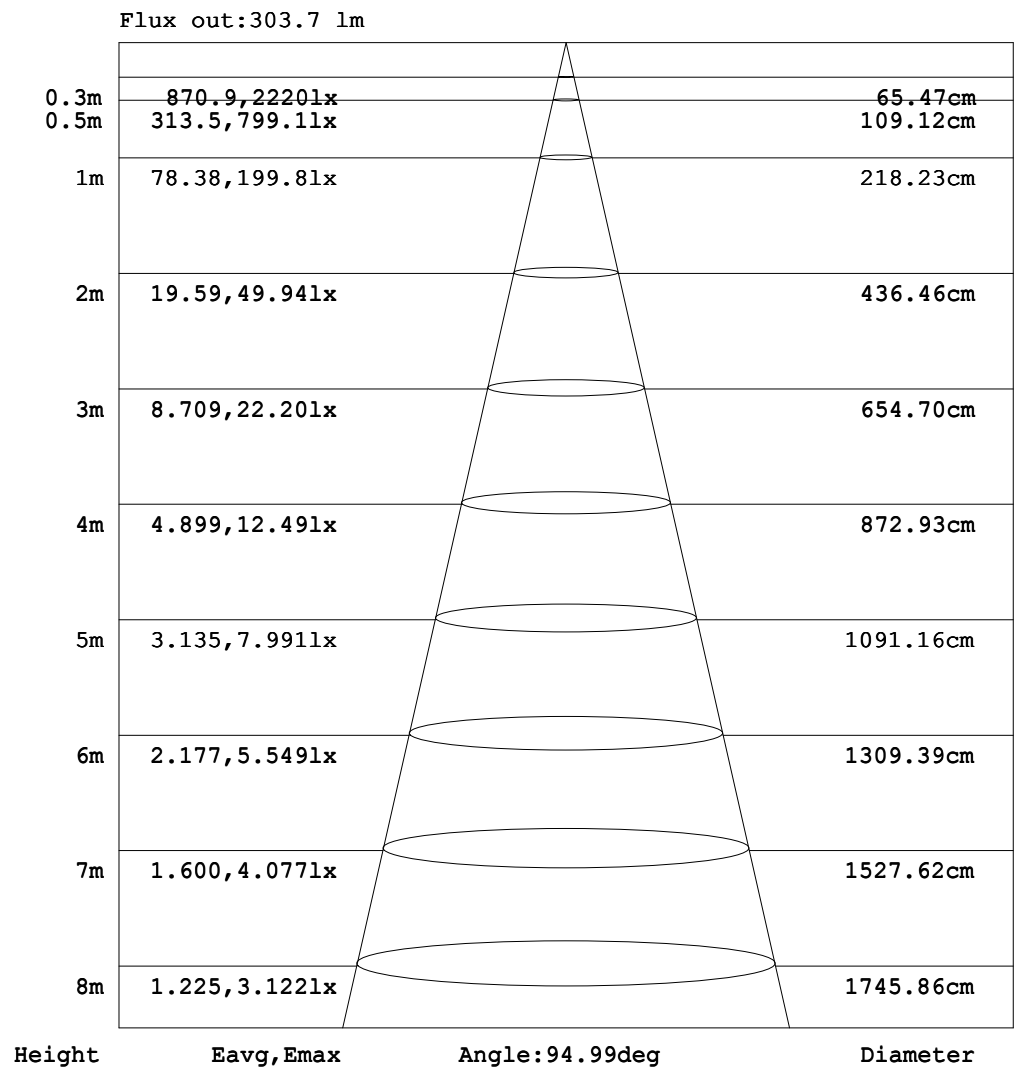
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:ZR  
Test Date:2021-08-18

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm		
NAME: M20-T42102-9G30-120D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



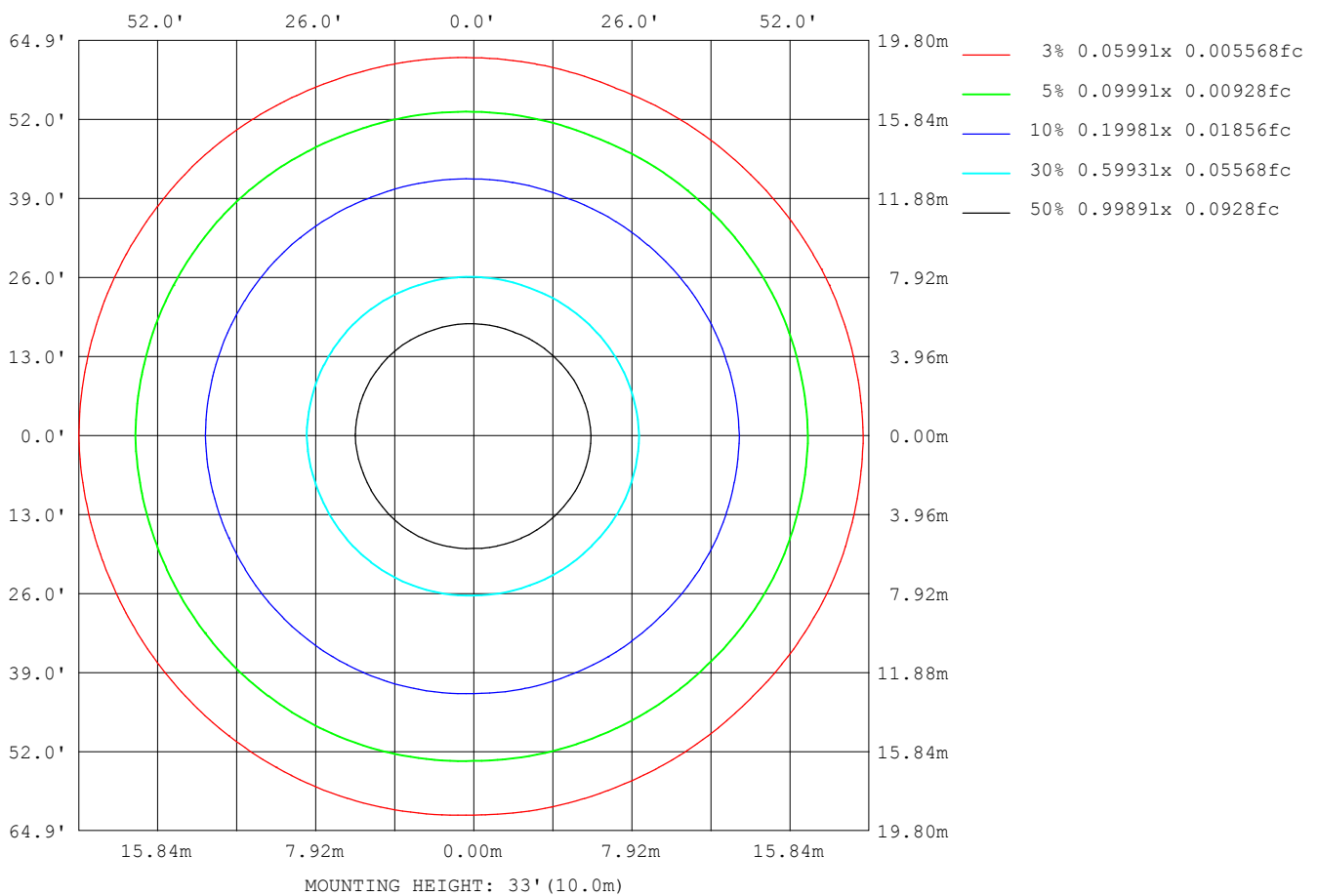
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm		
NAME: M20-T42102-9G30-120D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	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:0.2490A P:11.95W PF:1.000 Freq:50.00Hz Lamp Flux:487.453x1 lm		
NAME: M20-T42102-9G30-120D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:

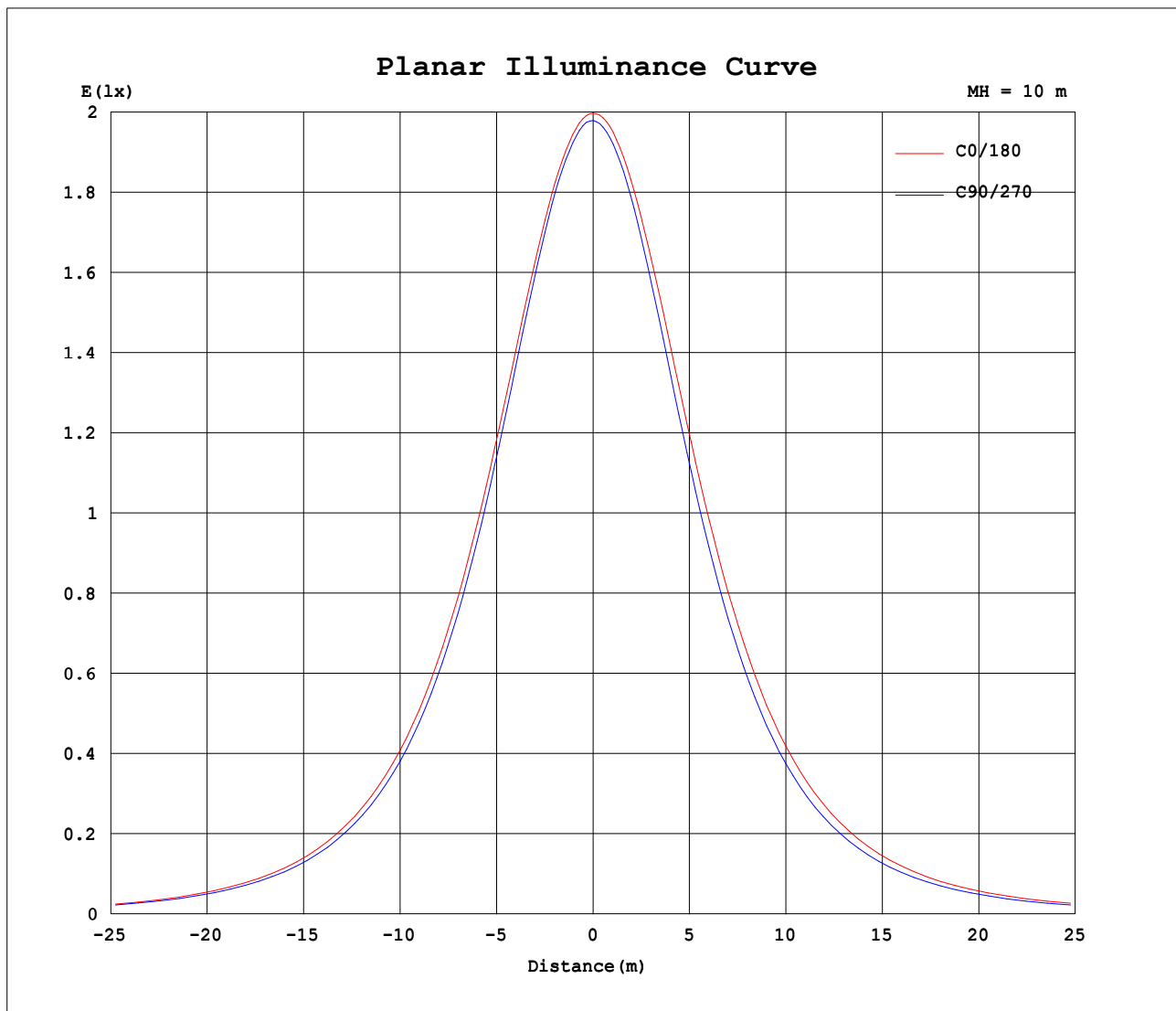
AvgL	cd/m2
L_0~180 (65) av	28495
L_0~180 (75) av	24555
L_0~180 (85) av	19442
L_90~270 (65) av	25358
L_90~270 (75) av	21316
L_90~270 (85) av	15328
L_45 (65) av	26870
L_45 (75) av	22903
L_45 (85) av	17117

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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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:

```