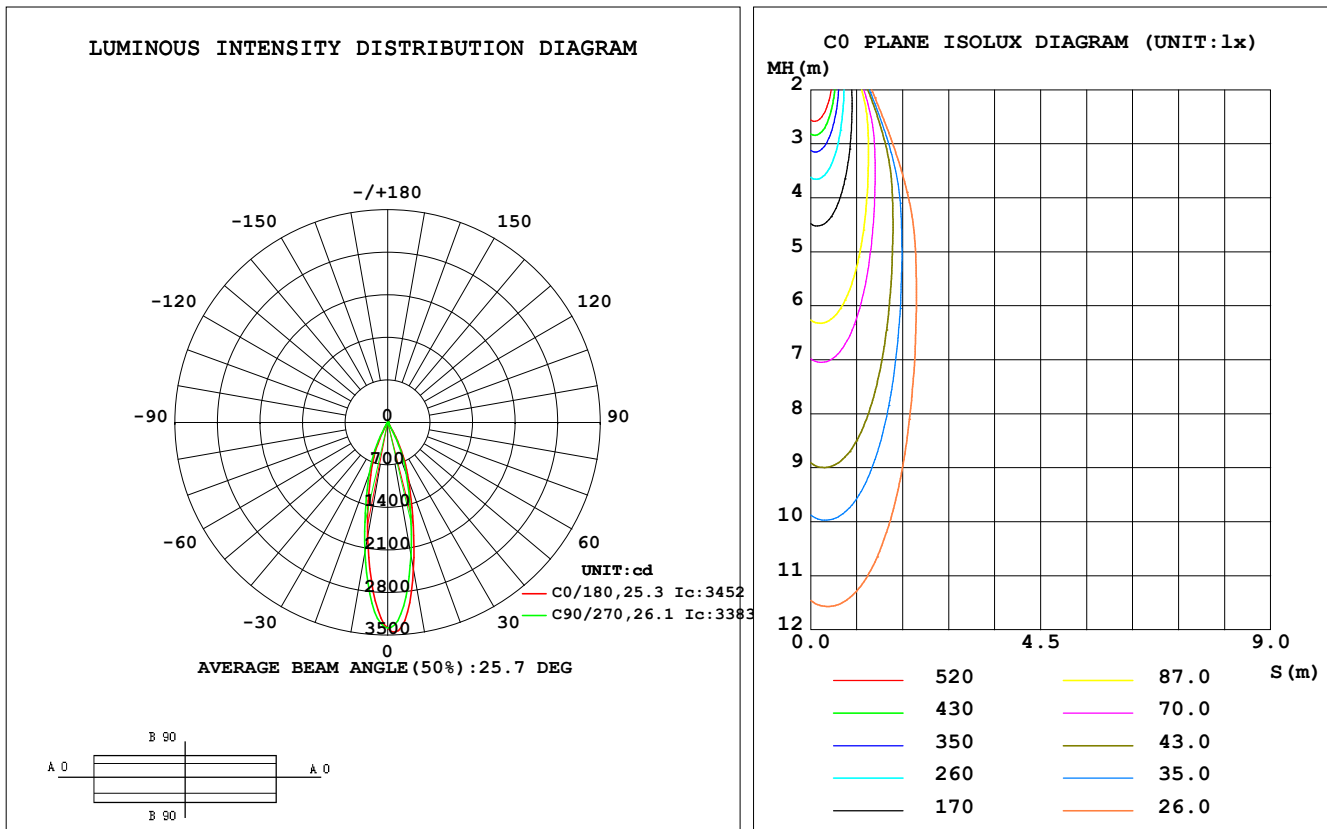


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:48.00V I:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm					
NAME: M20-T42002A-9G40-R24			TYPE:		WEIGHT:
SPEC.:			DIM.:		SERIAL No.:
MFR.:			SUR.:219*22		Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 79.49 lm/W
MODEL	4000K CRI90	I <sub>max</sub> (cd)	3452	S/MH(C0/180)	0.38	
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	0.43	
RATED VOLTAGE(V)	226	TOTAL FLUX(lm)	947.01	η UP,DN(C0-180)	0.0,50.8	
NOMINAL FLUX(lm)	947.01	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.2	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00	
TEST VOLTAGE(V)	225.1	η down(%)	100.0	CIBSE SHR MAX	1.00	



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	2450	2372	2217	1995	1911	1950	2162	2327	0- 10	259.5	259.5	27.4, 27.4
20	1005	969.7	896.1	790.0	755.4	781.3	886.9	967.6	10- 20	389.1	648.6	68.5, 68.5
30	204.3	308.4	153.2	208.8	103.2	204.4	152.5	308.0	20- 30	232.4	880.9	93, 93
40	13.74	27.13	11.58	19.10	20.25	28.28	22.93	39.42	30- 40	46.22	927.2	97.9, 97.9
50	2.089	3.288	1.947	3.062	9.494	10.85	10.18	12.12	40- 50	8.919	936.1	98.8, 98.8
60	0.4527	0.7714	0.4539	0.7771	5.497	5.917	5.777	6.507	50- 60	4.108	940.2	99.3, 99.3
70	0.6526	0.6600	0.7277	0.7491	3.894	3.918	4.068	4.224	60- 70	2.711	942.9	99.6, 99.6
80	0.8981	0.9065	0.9158	0.9142	2.731	2.755	2.854	2.975	70- 80	2.250	945.1	99.8, 99.8
90	1.008	1.079	1.077	1.095	1.974	1.981	2.022	2.126	80- 90	1.864	947.0	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): 932.69 lm

%lum = 98.5%

%lamp = 98.5%

Conical surface Flux(120deg): 940.19 lm

%lum = 99.3%

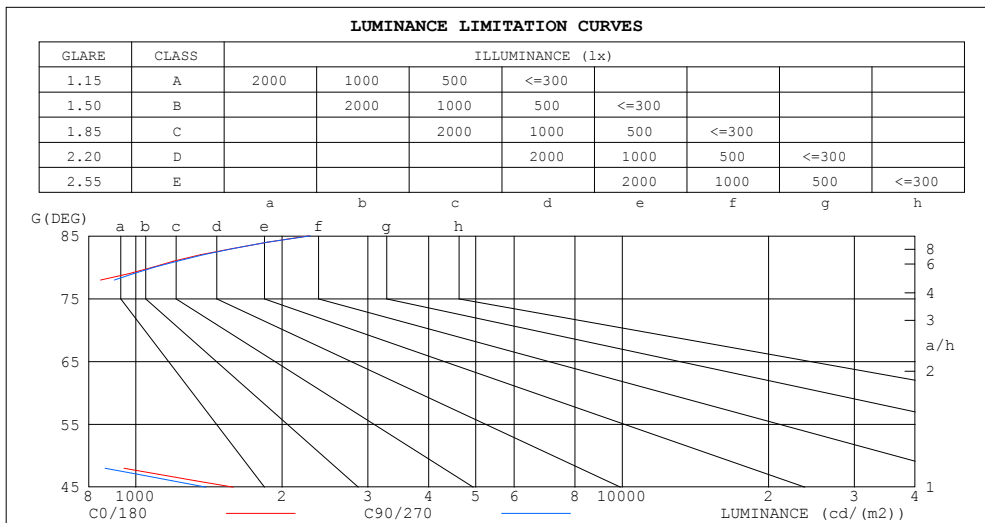
%lamp = 99.3%

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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm		
NAME: M20-T42002A-9G40-R24	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	2271	2284
80	1083	1093
75	638	642
70	400	441
65	259	274
60	190	188
55	310	292
50	681	628
45	1586	1394

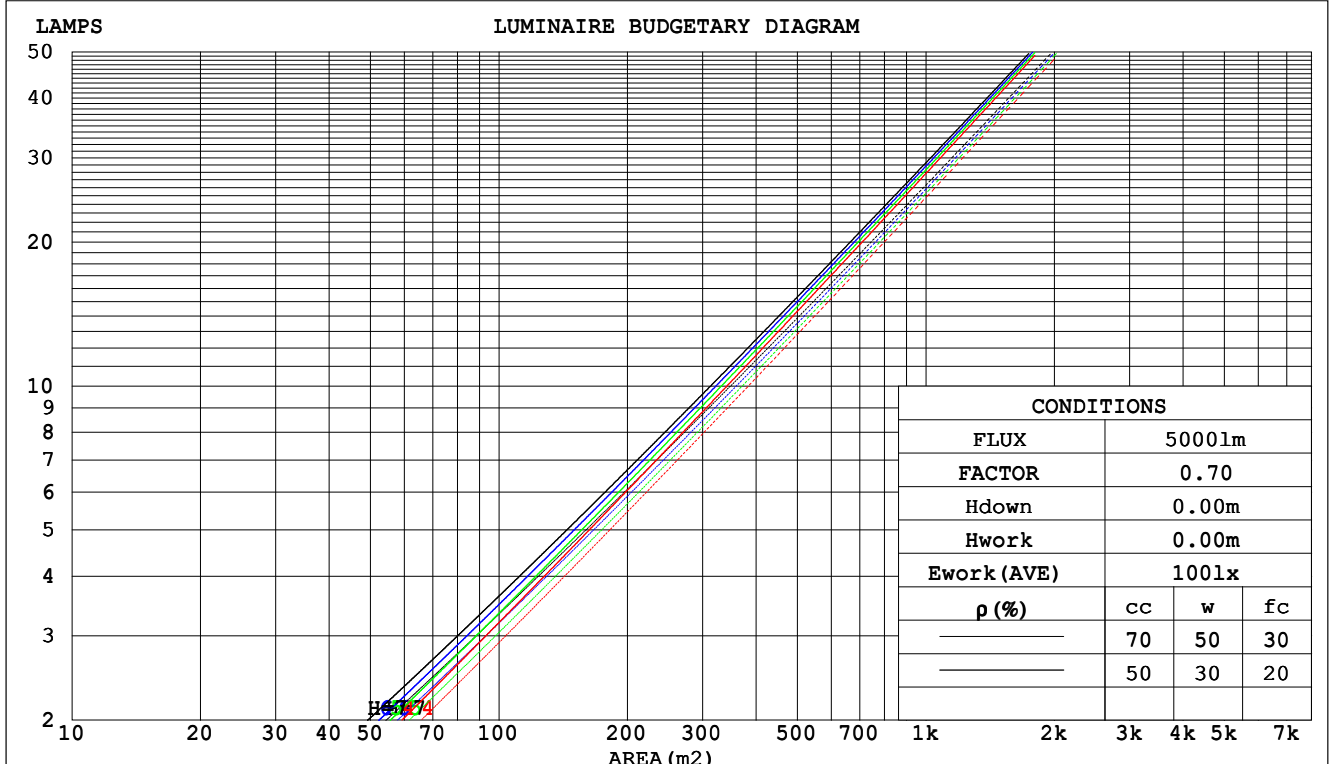
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:ZR  
Test Date:2021-08-18

$\gamma$  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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm		
NAME: M20-T42002A-9G40-R24	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	1.12	1.10	1.08	1.10	1.08	1.07	1.06	1.05	1.03	1.02	1.01	1.00	.99	.98	.97	.96
2.0	1.06	1.03	1.00	1.05	1.02	.99	1.02	.99	.97	.99	.97	.95	.96	.94	.93	.92
3.0	1.01	.97	.94	.90	.96	.93	.97	.94	.92	.95	.93	.91	.93	.91	.89	.88
4.0	.97	.92	.89	.96	.92	.89	.94	.90	.88	.92	.89	.87	.90	.88	.86	.84
5.0	.93	.88	.85	.92	.88	.84	.90	.86	.84	.89	.85	.83	.87	.84	.82	.81
6.0	.89	.84	.81	.88	.84	.81	.87	.83	.80	.86	.82	.80	.84	.81	.79	.78
7.0	.85	.81	.78	.85	.81	.77	.84	.80	.77	.83	.79	.77	.82	.79	.76	.75
8.0	.82	.78	.75	.82	.78	.74	.81	.77	.74	.80	.76	.74	.79	.76	.74	.73
9.0	.79	.75	.72	.79	.75	.72	.78	.74	.72	.77	.74	.71	.77	.73	.71	.70
10.0	.77	.72	.69	.76	.72	.69	.76	.72	.69	.75	.71	.69	.74	.71	.69	.68



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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm					
NAME: M20-T42002A-9G40-R24			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	.149	.085	.027	.143	.081	.026	.130	.075	.024	.119	.069	.022	.108	.063	.020	
2.0	.139	.076	.023	.133	.073	.023	.123	.068	.021	.113	.064	.020	.105	.059	.019	
3.0	.130	.069	.021	.125	.067	.020	.116	.063	.019	.108	.059	.018	.101	.056	.017	
4.0	.122	.063	.019	.118	.062	.018	.111	.059	.018	.104	.056	.017	.098	.053	.016	
5.0	.115	.059	.017	.112	.057	.017	.106	.055	.016	.100	.053	.016	.094	.050	.015	
6.0	.109	.055	.016	.106	.054	.015	.101	.052	.015	.096	.050	.015	.091	.048	.014	
7.0	.104	.051	.015	.102	.051	.014	.097	.049	.014	.092	.047	.014	.088	.046	.013	
8.0	.099	.049	.014	.097	.048	.014	.093	.046	.013	.089	.045	.013	.085	.044	.013	
9.0	.095	.046	.013	.093	.045	.013	.089	.044	.013	.086	.043	.012	.083	.042	.012	
10.0	.091	.044	.012	.090	.043	.012	.086	.042	.012	.083	.041	.012	.080	.040	.012	

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	.169	.158	.147	.145	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.016	
2.0	.152	.133	.117	.130	.114	.101	.089	.079	.070	.051	.046	.041	.016	.015	.013	
3.0	.137	.113	.094	.118	.098	.082	.081	.068	.057	.047	.040	.034	.015	.013	.011	
4.0	.125	.098	.077	.108	.085	.067	.074	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.115	.086	.064	.099	.074	.056	.068	.052	.039	.040	.031	.023	.013	.010	.008	
6.0	.107	.076	.054	.092	.066	.047	.063	.046	.033	.037	.027	.020	.012	.009	.007	
7.0	.100	.068	.046	.086	.059	.040	.059	.041	.028	.034	.024	.017	.011	.008	.006	
8.0	.093	.062	.040	.080	.053	.035	.056	.037	.025	.032	.022	.015	.010	.007	.005	
9.0	.088	.056	.035	.076	.049	.030	.052	.034	.021	.031	.020	.013	.010	.007	.004	
10.0	.083	.051	.030	.072	.045	.026	.050	.031	.019	.029	.019	.011	.009	.006	.004	

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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm										
NAME: M20-T42002A-9G40-R24					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	8.7	9.4	8.9	9.6	9.7	7.2	7.9	7.4	8.1	8.2
3H	8.6	9.2	8.8	9.4	9.6	7.1	7.7	7.3	7.9	8.1
4H	8.5	9.2	8.8	9.4	9.6	7.1	7.7	7.3	7.9	8.1
6H	8.5	9.1	8.8	9.4	9.6	7.1	7.7	7.4	8.0	8.2
8H	8.6	9.2	8.9	9.4	9.7	7.2	7.8	7.5	8.0	8.3
12H	8.7	9.2	9.0	9.5	9.8	7.4	8.0	7.7	8.2	8.5
4H 2H	8.5	9.1	8.7	9.3	9.5	7.0	7.6	7.2	7.8	8.0
3H	8.3	8.9	8.6	9.1	9.4	6.9	7.4	7.2	7.7	7.9
4H	8.3	8.8	8.6	9.1	9.4	6.9	7.4	7.2	7.7	8.0
6H	8.4	8.8	8.7	9.2	9.5	7.0	7.5	7.4	7.8	8.2
8H	8.5	8.9	8.9	9.3	9.6	7.2	7.7	7.6	8.0	8.4
12H	8.7	9.1	9.1	9.5	9.9	7.6	8.0	8.0	8.4	8.7
8H 4H	8.2	8.6	8.6	9.0	9.3	6.8	7.2	7.2	7.6	7.9
6H	8.4	8.7	8.8	9.1	9.5	7.1	7.4	7.5	7.8	8.2
8H	8.6	8.9	9.0	9.3	9.7	7.4	7.7	7.9	8.2	8.6
12H	9.0	9.3	9.5	9.7	10.2	8.0	8.3	8.5	8.7	9.2
12H 4H	8.2	8.6	8.6	8.9	9.3	6.8	7.2	7.2	7.5	7.9
6H	8.4	8.7	8.8	9.1	9.5	7.1	7.4	7.6	7.9	8.3
8H	8.6	8.9	9.1	9.4	9.8	7.5	7.8	8.0	8.3	8.7
Variations with the observer position at spacings:										
S = 1.0H	+ 1.6 / - 2.0					+ 1.3 / - 1.7				
1.5H	+ 3.3 / - 2.0					+ 2.8 / - 1.6				
2.0H	+ 1.2 / - 0.4					+ 1.0 / - 0.3				

CIE Pub.117, 947.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.2)

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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm		
NAME: M20-T42002A-9G40-R24	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:

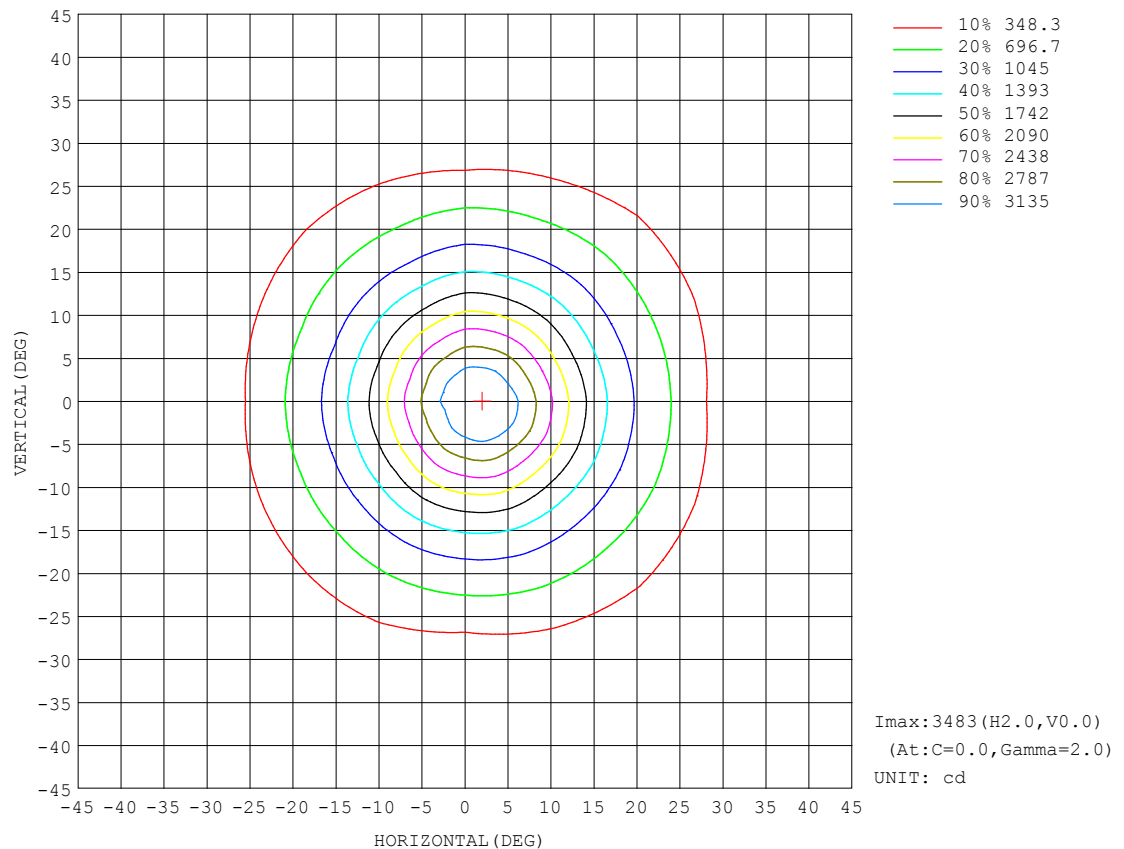
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	90	84	81	90	84	81	89	84	81	78
0.80	97	92	89	97	92	88	96	91	88	85
1.00	101	96	93	100	96	92	99	95	92	88
1.25	105	100	97	104	99	96	102	98	96	92
1.50	107	103	100	106	102	99	104	101	98	94
2.00	109	106	103	108	105	102	105	103	100	95
2.50	111	107	105	109	106	104	106	104	102	96
3.00	112	109	107	111	108	106	107	105	103	97
4.00	114	112	110	112	110	108	109	107	106	99
5.00	115	113	112	113	112	110	109	108	107	100
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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm		
NAME: M20-T42002A-9G40-R24	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



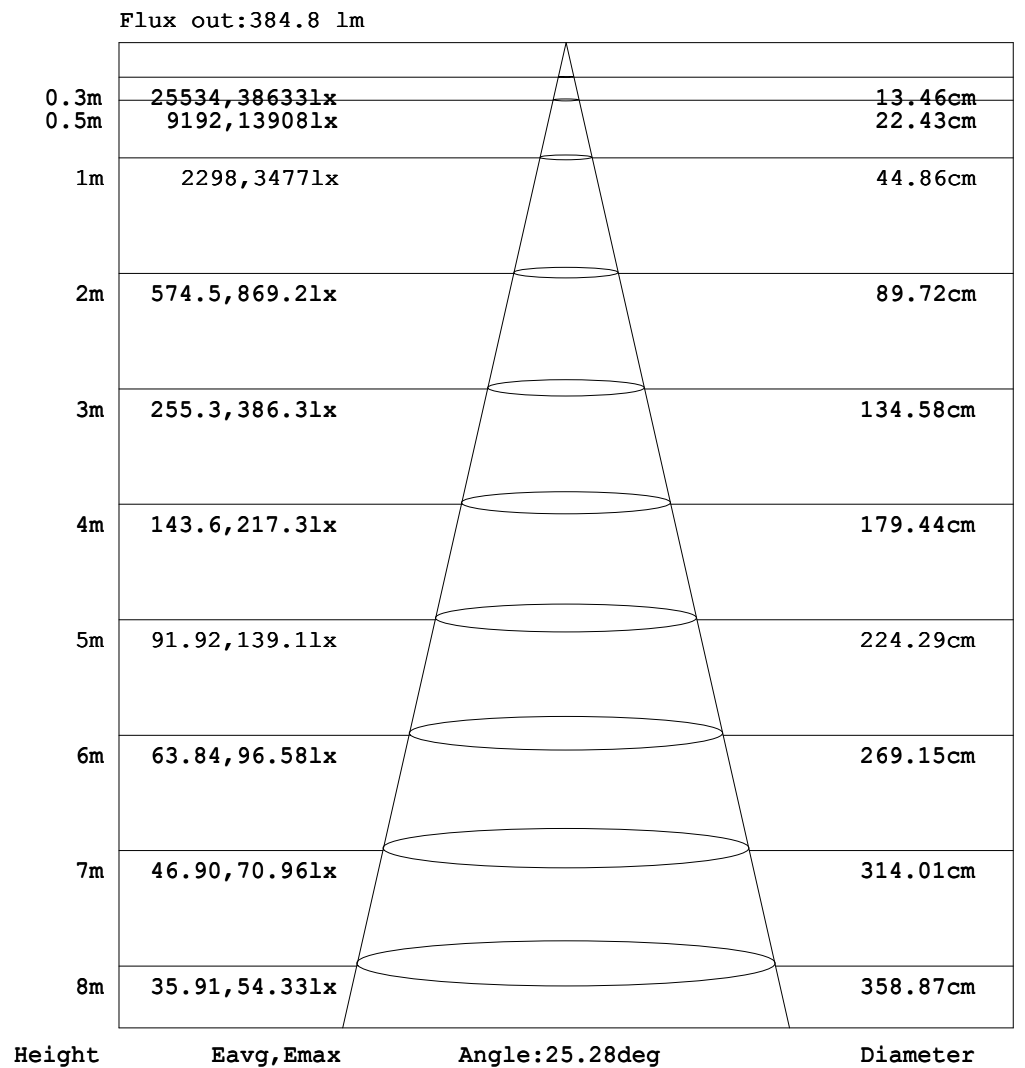
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:ZR  
Test Date:2021-08-18

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:



### AAI Figure

Test:U:48.00V I:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm		
NAME: M20-T42002A-9G40-R24	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



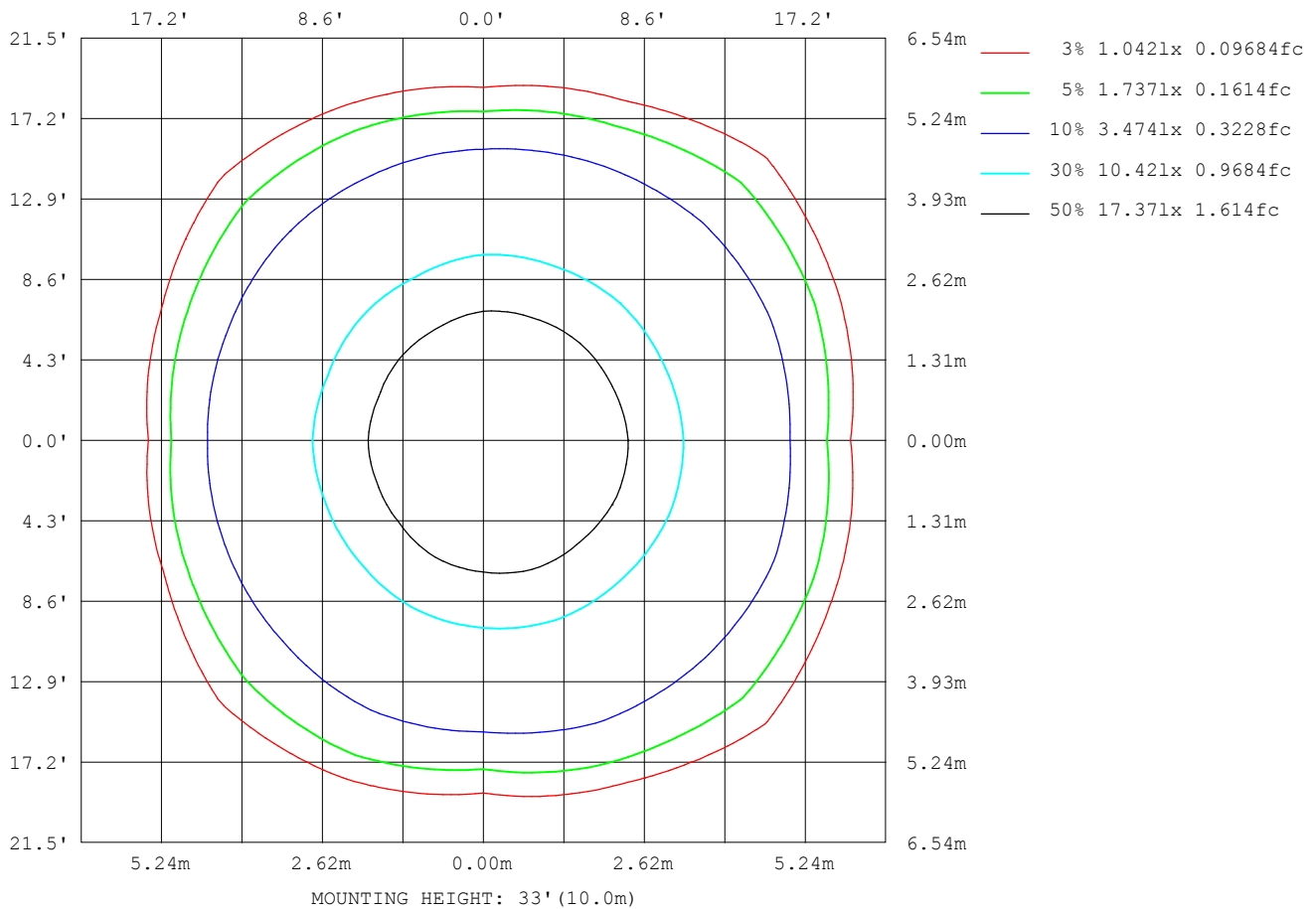
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm		
NAME: M20-T42002A-9G40-R24	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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:947.01x1 lm		
NAME: M20-T42002A-9G40-R24	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:

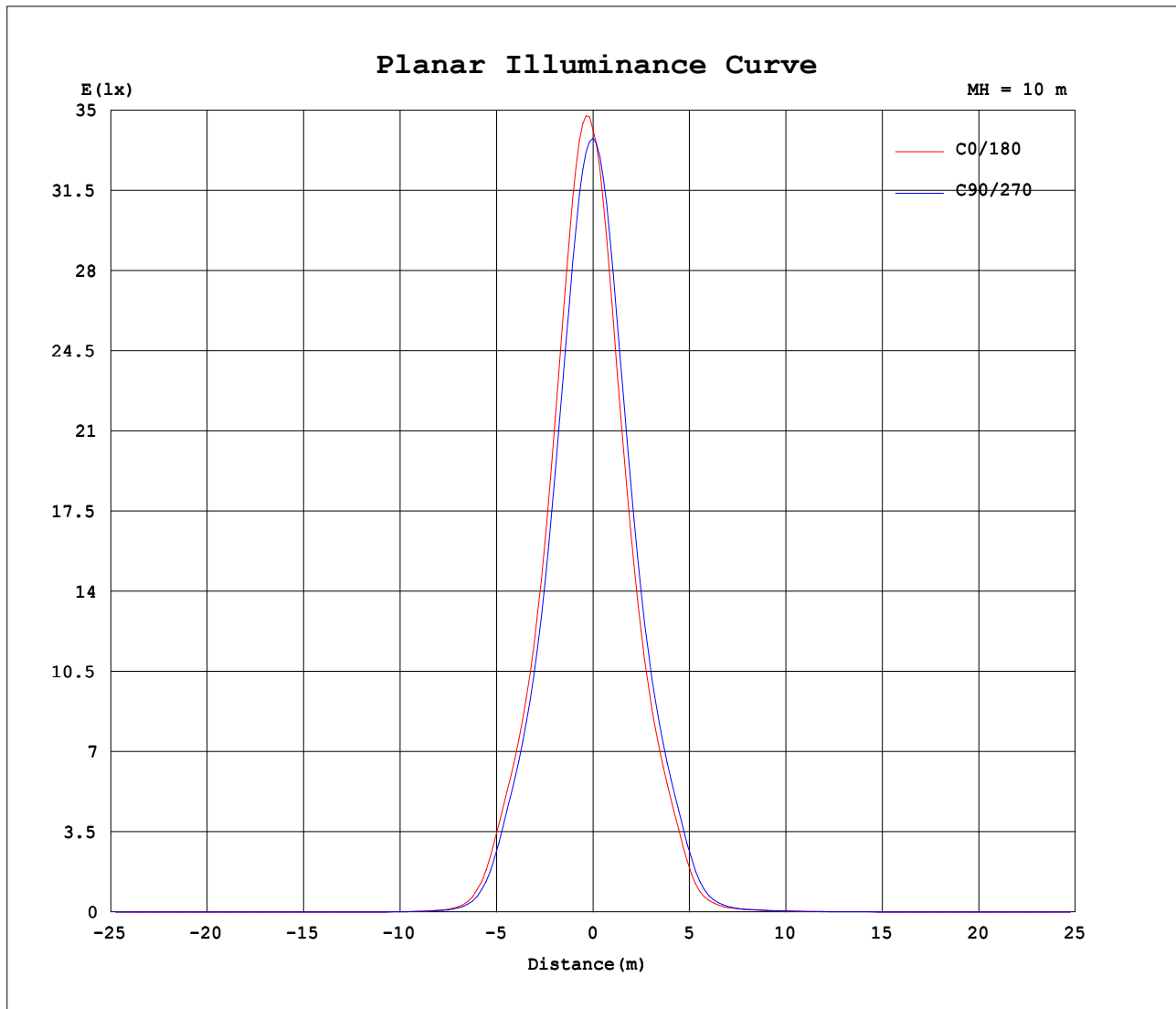
AvgL	cd/m2
L_0~180 (65) av	1258
L_0~180 (75) av	1629
L_0~180 (85) av	3885
L_90~270 (65) av	1318
L_90~270 (75) av	1695
L_90~270 (85) av	4039
L_45 (65) av	1344
L_45 (75) av	1696
L_45 (85) av	4046

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:

```