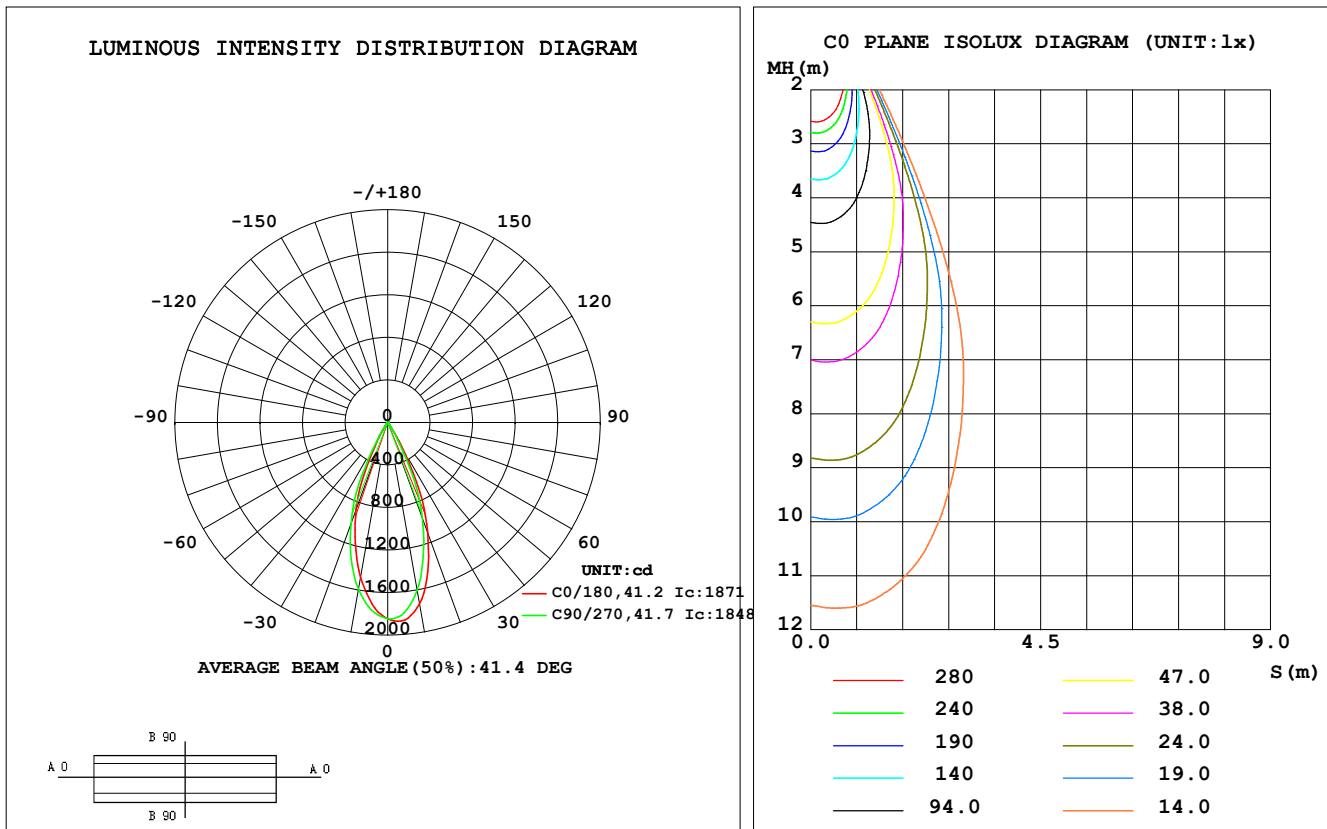


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:48.00V I:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:884.115x1 lm					
NAME: M20-T42002A-9G40-R36			TYPE:		WEIGHT:
SPEC.:			DIM.:		SERIAL No.:
MFR.:			SUR.:219*22		Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 74.21 lm/W
MODEL	4000K CRI90	Imax(cd)	1875	S/MH(C0/180)	0.61	
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	0.67	
RATED VOLTAGE(V)	226	TOTAL FLUX(lm)	884.11	η UP,DN(C0-180)	0.0,49.4	
NOMINAL FLUX(lm)	884.115	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.6	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50	
TEST VOLTAGE(V)	225.1	η down(%)	100.0	CIBSE SHR MAX	0.70	



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	1732	1675	1603	1496	1477	1492	1593	1679	0- 10	164.2	164.2	18.6,18.6
20	1100	1029	953.3	869.4	870.7	912.0	1011	1085	10- 20	358.8	523.0	59.2,59.2
30	273.4	350.1	191.9	253.8	169.7	284.8	237.5	393.2	20- 30	278.5	801.5	90.7,90.7
40	17.55	33.26	13.53	23.26	21.38	35.30	24.41	47.65	30- 40	63.13	864.6	97.8,97.8
50	2.290	3.635	2.027	3.080	8.899	10.45	9.591	11.74	40- 50	9.410	874.0	98.9,98.9
60	0.2920	0.6048	0.3220	0.5583	5.123	5.554	5.441	6.084	50- 60	3.884	877.9	99.3,99.3
70	0.4797	0.4828	0.5119	0.5306	3.643	3.725	3.847	3.995	60- 70	2.490	880.4	99.6,99.6
80	0.6879	0.7134	0.7124	0.7320	2.543	2.597	2.686	2.780	70- 80	2.047	882.4	99.8,99.8
90	0.8968	0.9184	0.9134	0.9872	1.830	1.837	1.922	1.996	80- 90	1.684	884.1	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): 870.65 lm

%lum = 98.5%

%lamp = 98.5%

Conical surface Flux(120deg): 877.89 lm

%lum = 99.3%

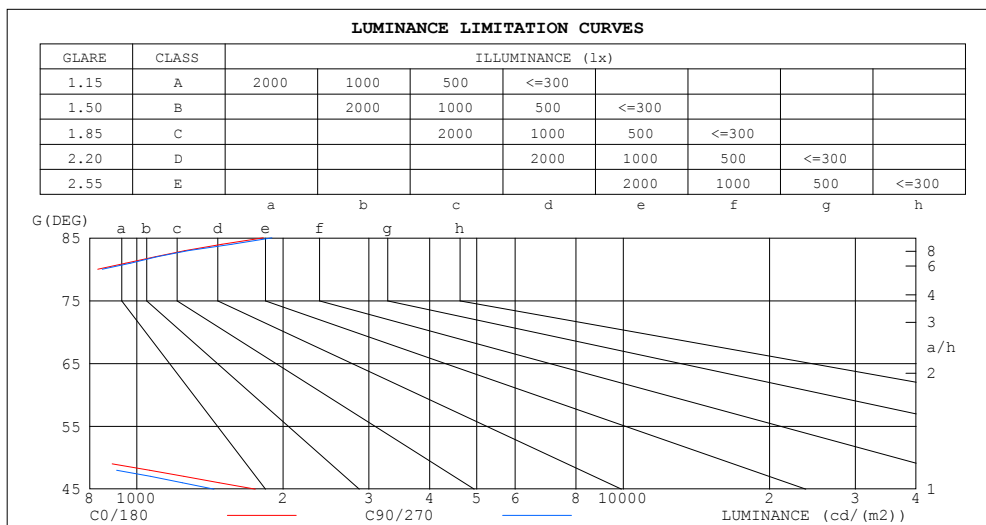
%lamp = 99.3%

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

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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:884.115x1 lm		
NAME: M20-T42002A-9G40-R36	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	1819	1895
80	831	850
75	498	511
70	294	310
65	181	194
60	123	133
55	277	251
50	747	653
45	1752	1442

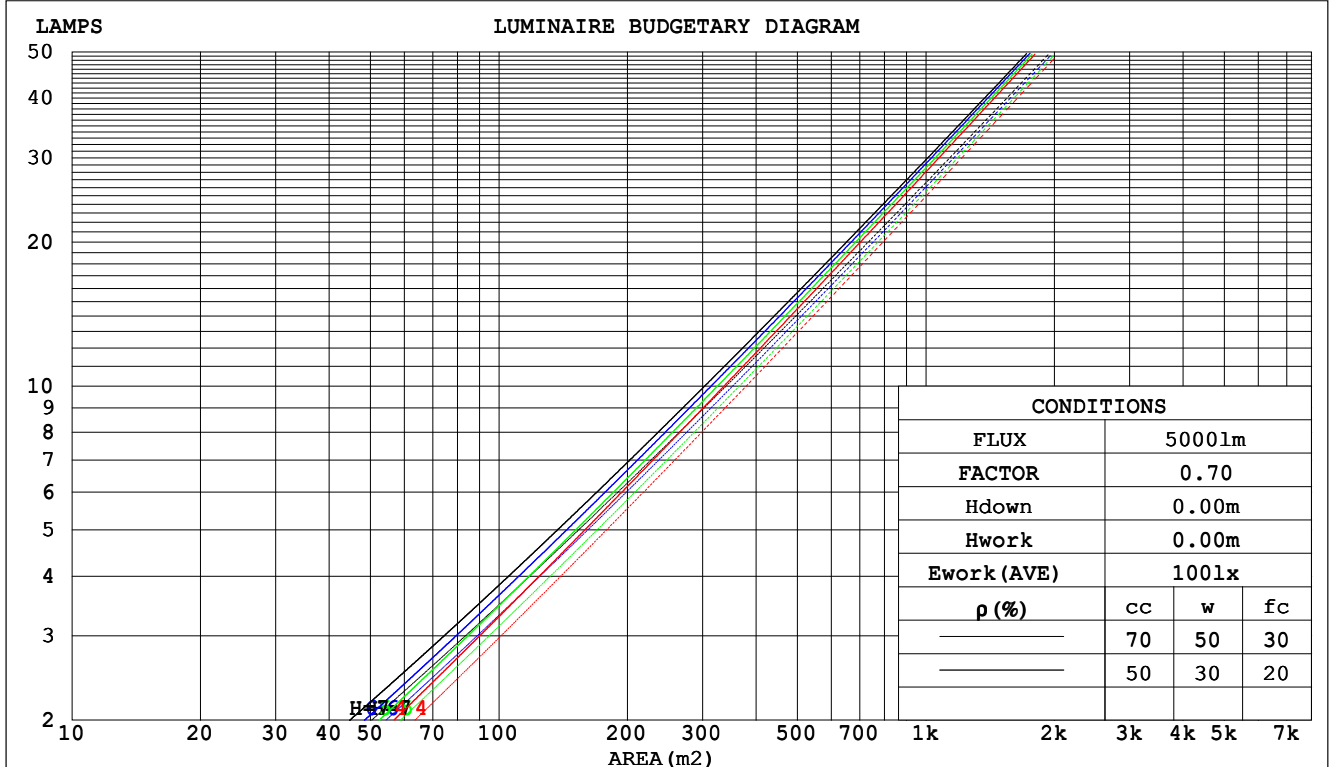
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:884.115x1 lm		
NAME: M20-T42002A-9G40-R36	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	1.06	1.06	1.04	1.03	1.02	1.01	.00	.99	.98	.97	.95
2.0	1.05	1.02	.99	1.04	1.01	.98	1.01	.98	.96	.98	.96	.94	.95	.93	.92	.90
3.0	.00	.96	.92	.98	.95	.91	.96	.93	.90	.94	.91	.89	.91	.89	.87	.86
4.0	.95	.90	.86	.94	.89	.86	.92	.88	.85	.90	.87	.84	.88	.85	.83	.82
5.0	.90	.85	.82	.89	.85	.81	.88	.84	.81	.86	.83	.80	.84	.82	.79	.78
6.0	.86	.81	.77	.85	.80	.77	.84	.80	.77	.82	.79	.76	.81	.78	.76	.74
7.0	.82	.77	.73	.81	.77	.73	.80	.76	.73	.79	.75	.73	.78	.75	.72	.71
8.0	.79	.74	.70	.78	.73	.70	.77	.73	.70	.76	.72	.69	.75	.72	.69	.68
9.0	.75	.70	.67	.75	.70	.67	.74	.70	.67	.73	.69	.66	.72	.69	.66	.65
10.0	.72	.67	.64	.72	.67	.64	.71	.67	.64	.70	.66	.64	.70	.66	.64	.62



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:884.115x1 lm					
NAME: M20-T42002A-9G40-R36			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	.158	.090	.029	.152	.086	.027	.139	.080	.025	.128	.074	.024	.117	.068	.022	
2.0	.148	.081	.025	.143	.079	.024	.132	.074	.023	.123	.069	.022	.114	.064	.020	
3.0	.139	.074	.022	.135	.072	.022	.126	.068	.021	.118	.065	.020	.110	.061	.019	
4.0	.132	.068	.020	.128	.067	.020	.120	.064	.019	.113	.061	.018	.107	.058	.018	
5.0	.125	.064	.018	.121	.062	.018	.115	.060	.018	.109	.058	.017	.103	.055	.017	
6.0	.119	.060	.017	.116	.059	.017	.110	.057	.016	.105	.055	.016	.100	.053	.016	
7.0	.113	.056	.016	.111	.055	.016	.106	.054	.015	.101	.052	.015	.097	.050	.015	
8.0	.109	.053	.015	.106	.052	.015	.102	.051	.015	.098	.050	.014	.094	.048	.014	
9.0	.104	.050	.014	.102	.050	.014	.098	.049	.014	.095	.047	.014	.091	.046	.013	
10.0	.100	.048	.013	.098	.047	.013	.095	.046	.013	.092	.045	.013	.088	.044	.013	

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	.170	.157	.146	.145	.135	.126	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.153	.133	.115	.131	.114	.100	.090	.079	.070	.052	.046	.041	.017	.015	.013	
3.0	.139	.113	.093	.119	.098	.080	.082	.068	.056	.047	.040	.033	.015	.013	.011	
4.0	.128	.098	.076	.110	.085	.066	.075	.059	.046	.044	.035	.027	.014	.011	.009	
5.0	.118	.086	.063	.102	.075	.055	.070	.052	.039	.041	.031	.023	.013	.010	.008	
6.0	.110	.077	.053	.095	.066	.046	.065	.047	.033	.038	.027	.019	.012	.009	.006	
7.0	.103	.069	.045	.089	.060	.039	.061	.042	.028	.036	.025	.016	.012	.008	.005	
8.0	.097	.062	.039	.084	.054	.034	.058	.038	.024	.034	.022	.014	.011	.007	.005	
9.0	.092	.057	.033	.079	.049	.029	.055	.035	.021	.032	.021	.012	.010	.007	.004	
10.0	.087	.052	.029	.075	.046	.026	.052	.032	.018	.030	.019	.011	.010	.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:884.115x1 lm											
NAME: M20-T42002A-9G40-R36						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		11.4	12.2	11.7	12.4	12.5	9.7	10.5	9.9	10.6	10.8
	3H	11.3	12.0	11.5	12.2	12.4	9.5	10.3	9.8	10.4	10.6
	4H	11.2	11.9	11.5	12.1	12.3	9.5	10.2	9.7	10.4	10.6
	6H	11.2	11.8	11.4	12.0	12.3	9.4	10.1	9.7	10.3	10.6
	8H	11.1	11.8	11.4	12.0	12.3	9.4	10.1	9.7	10.3	10.6
	12H	11.2	11.8	11.5	12.0	12.3	9.5	10.1	9.8	10.4	10.6
4H	2H	11.2	11.9	11.5	12.1	12.3	9.4	10.1	9.7	10.3	10.6
	3H	11.0	11.6	11.3	11.9	12.2	9.3	9.9	9.6	10.1	10.4
	4H	11.0	11.5	11.3	11.8	12.1	9.2	9.8	9.6	10.1	10.4
	6H	10.9	11.4	11.3	11.7	12.1	9.2	9.7	9.6	10.0	10.4
	8H	10.9	11.4	11.3	11.7	12.1	9.3	9.7	9.7	10.1	10.4
	12H	11.0	11.4	11.4	11.8	12.2	9.4	9.8	9.8	10.2	10.6
8H	4H	10.8	11.3	11.2	11.6	12.0	9.1	9.5	9.5	9.9	10.3
	6H	10.8	11.2	11.2	11.6	12.0	9.1	9.5	9.6	9.9	10.3
	8H	10.9	11.2	11.3	11.6	12.0	9.2	9.6	9.7	10.0	10.4
	12H	11.0	11.3	11.5	11.7	12.2	9.5	9.8	10.0	10.2	10.7
12H	4H	10.8	11.2	11.2	11.6	11.9	9.1	9.5	9.5	9.8	10.2
	6H	10.8	11.1	11.2	11.5	12.0	9.1	9.4	9.6	9.9	10.3
	8H	10.8	11.1	11.3	11.6	12.0	9.3	9.5	9.7	10.0	10.5
Variations with the observer position at spacings:											
S = 1.0H	+ 3.0 / - 4.6					+ 2.1 / - 3.6					
1.5H	+ 5.3 / - 4.4					+ 4.3 / - 3.5					
2.0H	+ 2.1 / - 0.7					+ 1.7 / - 0.6					

CIE Pub.117, 884.1 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.4)

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:884.115x1 lm		
NAME: M20-T42002A-9G40-R36	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:

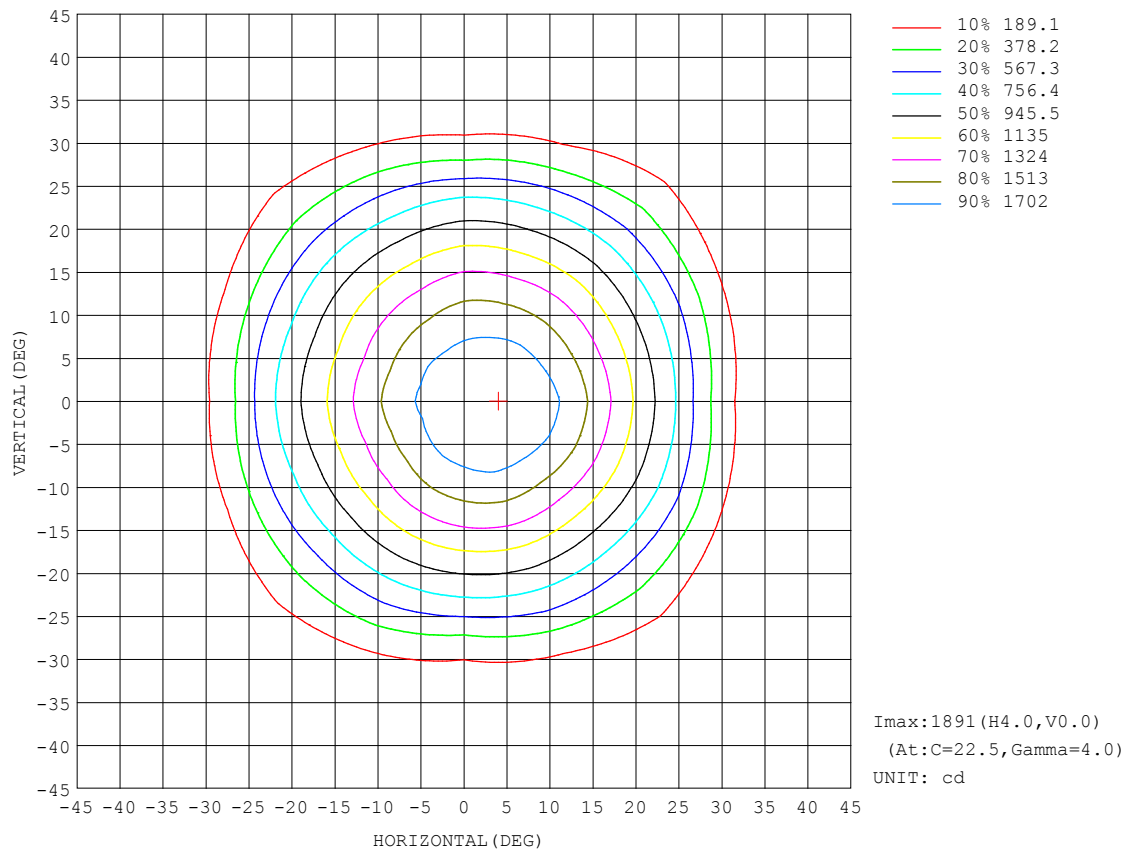
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	90	84	81	90	84	81	89	84	81	77
0.80	97	92	88	97	92	88	95	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

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:0.2482A P:11.91W PF:1.000 Freq:50.00Hz Lamp Flux:884.115x1 lm		
NAME: M20-T42002A-9G40-R36	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:

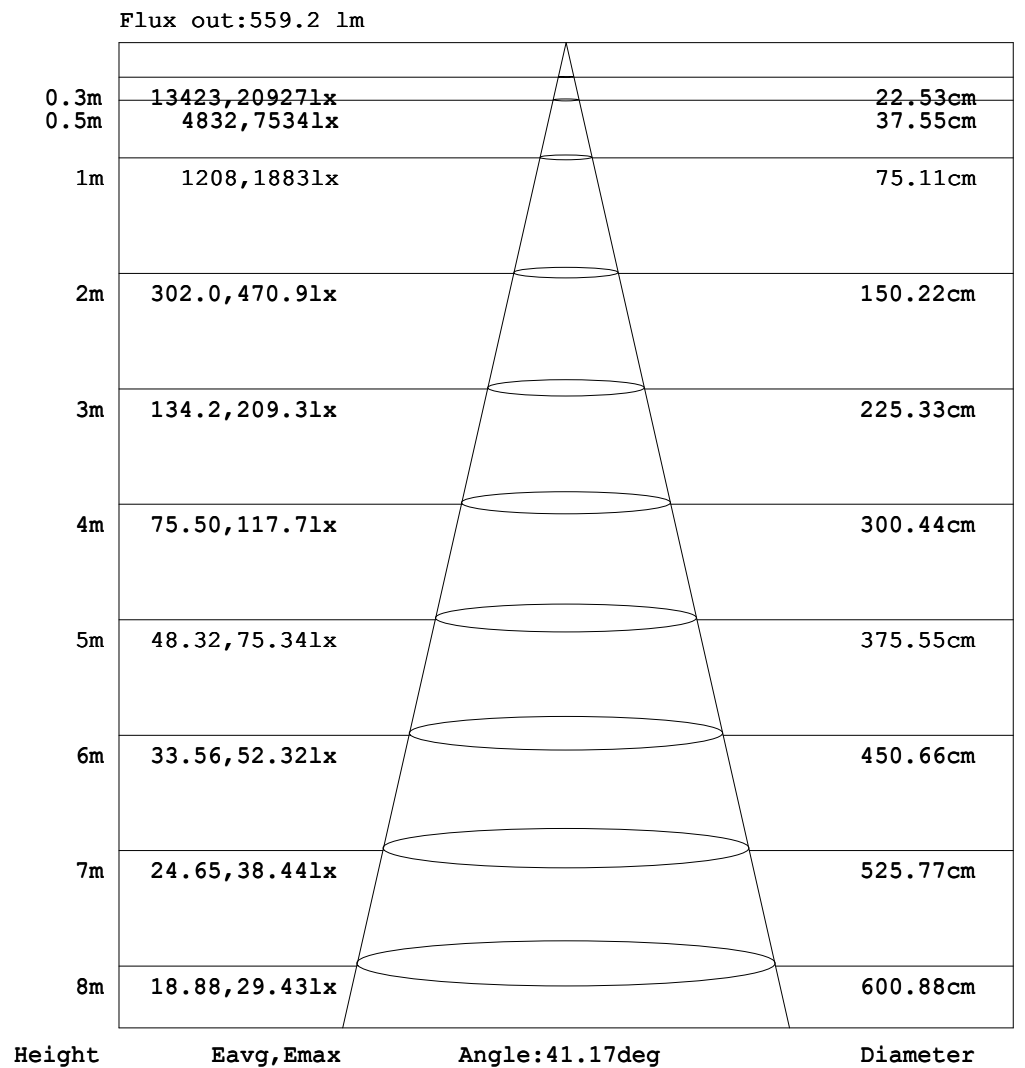


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:ZR
Test Date:2021-08-18

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:884.115x1 lm		
NAME: M20-T42002A-9G40-R36	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:



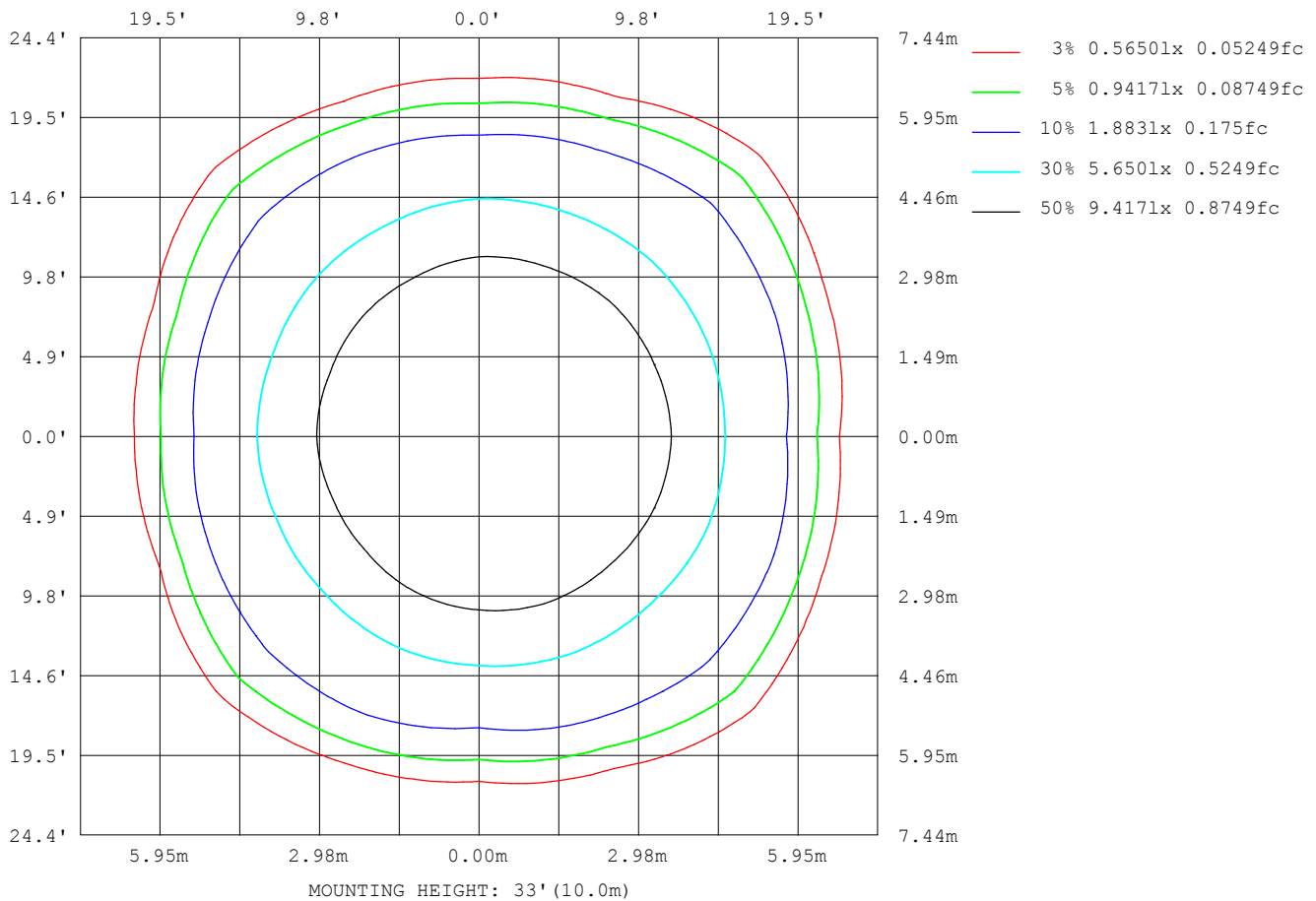
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:884.115x1 lm		
NAME: M20-T42002A-9G40-R36	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:884.115x1 lm		
NAME: M20-T42002A-9G40-R36	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:219*22	Shielding Angle:

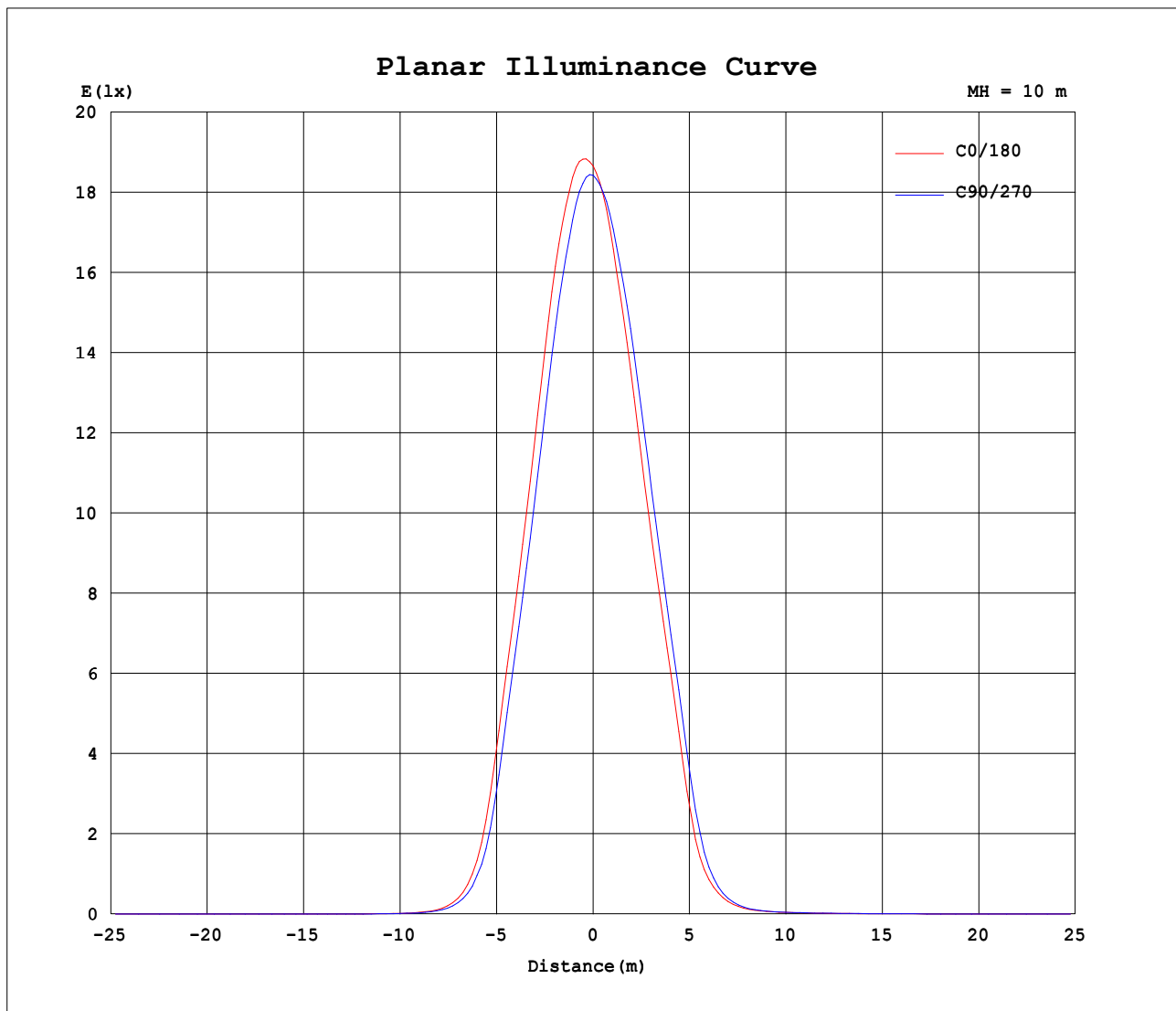
AvgL	cd/m2
L_0~180 (65) av	1145
L_0~180 (75) av	1465
L_0~180 (85) av	3438
L_90~270 (65) av	1211
L_90~270 (75) av	1551
L_90~270 (85) av	3632
L_45 (65) av	1238
L_45 (75) av	1560
L_45 (85) av	3635

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:

```