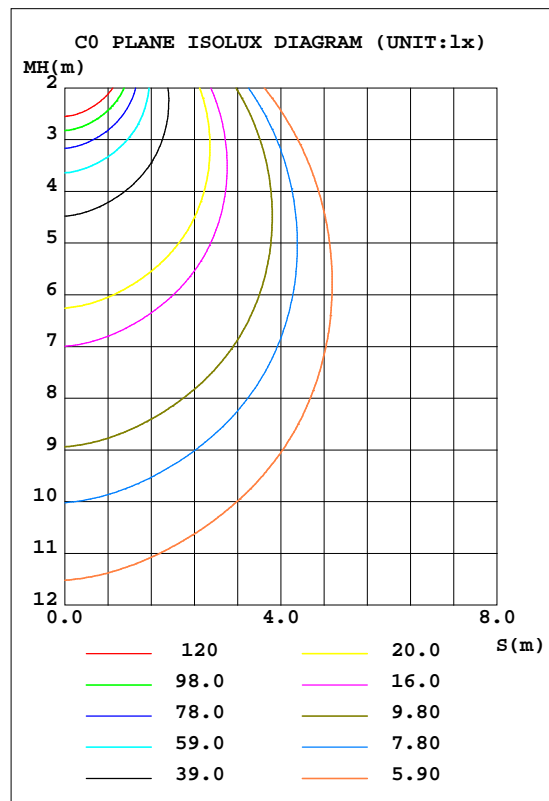
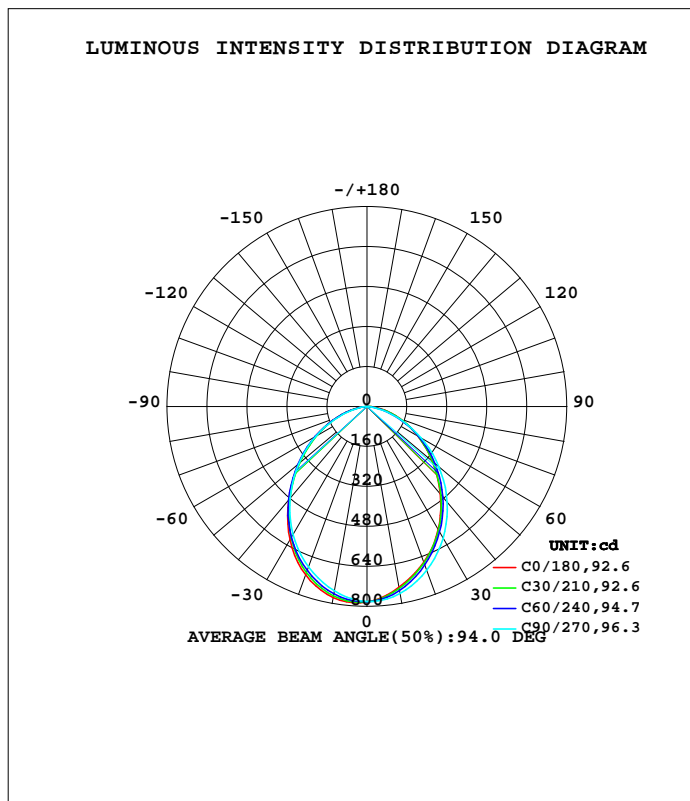


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 78.38 lm/W
MODEL	1952A-UR	I _{max} (cd)	786.8	S/MH(C0/180)	1.18	
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.15	
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1772.1	h UP, DN(C0-180)	0.0, 50.6	
NOMINAL FLUX(lm)	1772.15	CIE CLASS	DIRECT	h UP, DN(C180-360)	0.0, 49.4	
LAMPS INSIDE	1	h up(%)	0.0	CIBSE SHR NOM	1.25	
TEST VOLTAGE(V)	230	h down(%)	100.0	CIBSE SHR MAX	1.30	



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

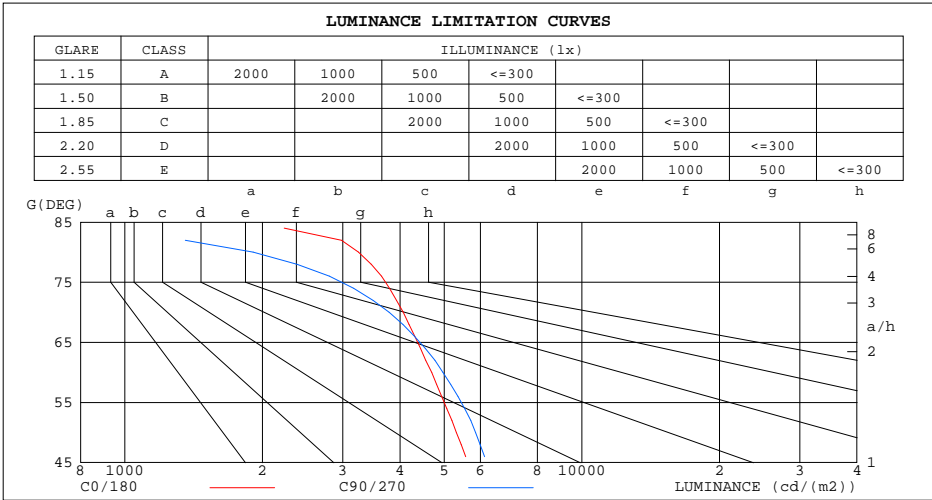
g	C0	C45	C90	C135	C180	C225	C270	C315	g	F zone	F total	%lum,lamp
10	735.3	743.4	760.3	770.6	776.1	766.0	749.9	735.0	0- 10	73.22	73.22	4.13,4.13
20	664.1	668.8	698.0	712.2	717.6	703.1	683.9	656.9	10- 20	204.1	277.3	15.6,15.6
30	570.0	575.4	609.4	617.1	616.5	606.0	592.3	561.8	20- 30	296.0	573.3	32.3,32.3
40	456.3	465.4	498.7	497.2	487.5	484.9	478.5	451.8	30- 40	335.2	908.5	51.3,51.3
50	341.8	348.0	376.7	367.5	356.8	356.0	357.2	335.4	40- 50	320.3	1229	69.3,69.3
60	234.7	236.8	248.5	243.4	235.5	234.5	234.1	223.4	50- 60	263.2	1492	84.2,84.2
70	139.1	132.1	129.6	128.1	128.0	126.1	119.8	121.7	60- 70	178.6	1671	94.3,94.3
80	56.39	44.78	33.18	35.09	40.53	36.76	28.65	41.77	70- 80	85.83	1756	99.1,99.1
90	2.537	2.644	1.365	2.471	1.542	3.271	1.851	2.512	80- 90	15.75	1772	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		

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

g Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

LUMINANCE LIMITATION CURVES

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2677	906
80	3248	1911
75	4043	3372
70	4067	3789
65	4601	4717
60	4694	4970
55	5193	5683
50	5317	5861
45	5796	6386

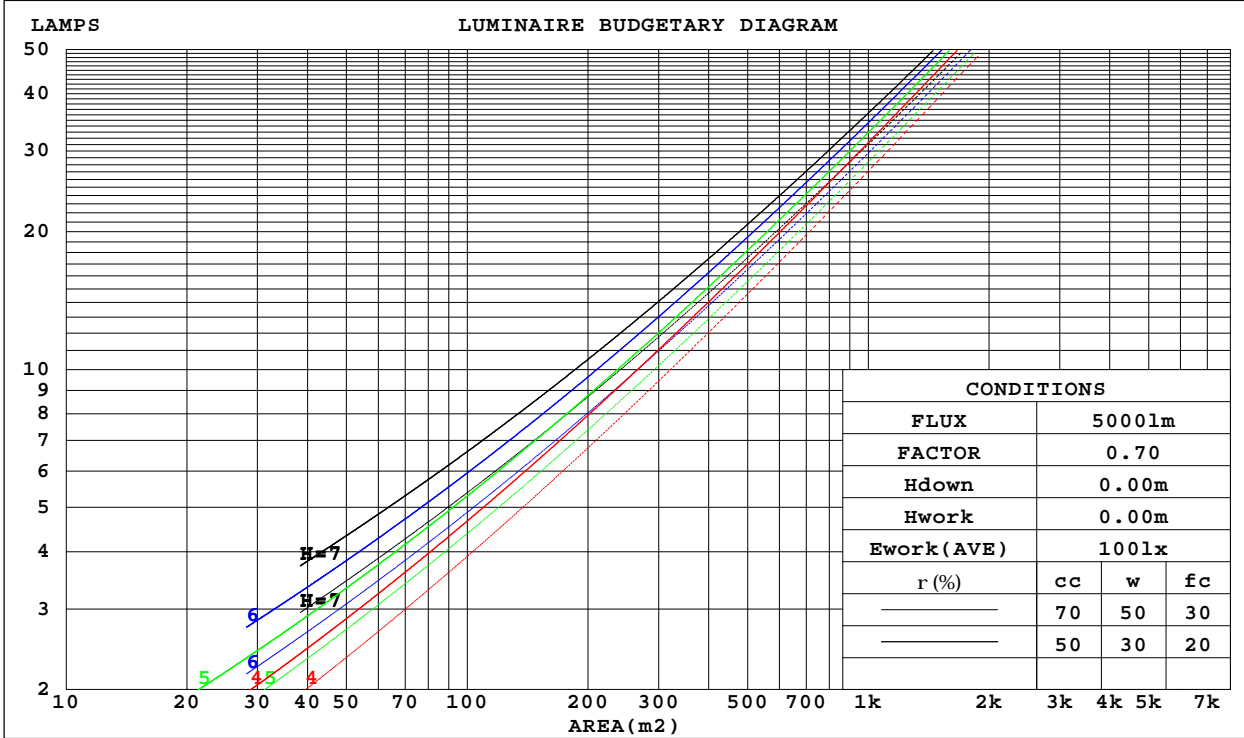
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

G Range: 0 - 90DEG
 G Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:

r _{cc}	80%			70%			50%			30%			10%			0
r _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r _{fc}	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	1.05	1.02	.98	1.03	.90	.97	.99	.96	.94	.95	.93	.91	.92	.90	.88	.86
2.0	.93	.87	.81	.91	.85	.80	.88	.83	.79	.84	.80	.77	.81	.78	.75	.73
3.0	.82	.75	.69	.81	.74	.68	.78	.72	.67	.75	.70	.66	.73	.68	.65	.63
4.0	.74	.65	.59	.72	.65	.59	.70	.63	.58	.68	.62	.57	.65	.60	.56	.54
5.0	.66	.58	.51	.65	.57	.51	.63	.56	.50	.61	.55	.50	.59	.54	.49	.47
6.0	.60	.51	.45	.59	.51	.45	.57	.50	.45	.56	.49	.44	.54	.48	.44	.42
7.0	.55	.46	.40	.54	.46	.40	.52	.45	.40	.51	.44	.40	.49	.44	.39	.37
8.0	.50	.42	.36	.49	.41	.36	.48	.41	.36	.47	.40	.36	.46	.40	.35	.34
9.0	.46	.38	.33	.45	.38	.33	.44	.37	.32	.43	.37	.32	.42	.36	.32	.30
10.0	.43	.35	.30	.42	.35	.30	.41	.34	.30	.40	.34	.29	.39	.34	.29	.28



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

WEC AND CCEC

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.279	.158	.050	.272	.155	.049	.259	.148	.047	.247	.142	.046	.235	.136	.044	
2.0	.267	.146	.045	.261	.144	.044	.250	.139	.043	.239	.134	.042	.229	.130	.041	
3.0	.250	.133	.040	.245	.131	.039	.235	.127	.039	.226	.124	.038	.217	.120	.037	
4.0	.233	.121	.036	.228	.120	.035	.220	.116	.035	.211	.113	.034	.204	.111	.034	
5.0	.217	.111	.032	.213	.109	.032	.205	.107	.031	.198	.104	.031	.191	.102	.031	
6.0	.203	.102	.029	.199	.100	.029	.192	.098	.029	.185	.096	.028	.179	.094	.028	
7.0	.190	.094	.027	.186	.093	.026	.180	.091	.026	.174	.089	.026	.168	.088	.026	
8.0	.178	.087	.024	.175	.086	.024	.169	.085	.024	.164	.083	.024	.159	.082	.024	
9.0	.167	.081	.023	.165	.080	.023	.160	.079	.022	.155	.078	.022	.150	.076	.022	
10.0	.158	.076	.021	.155	.075	.021	.151	.074	.021	.146	.073	.021	.142	.072	.021	

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	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	.178	.156	.137	.152	.134	.118	.104	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.169	.132	.101	.145	.114	.087	.099	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.161	.114	.077	.138	.098	.067	.095	.068	.047	.055	.040	.028	.018	.013	.009	
4.0	.153	.101	.061	.131	.087	.053	.090	.061	.037	.052	.035	.022	.017	.012	.007	
5.0	.146	.090	.049	.125	.078	.043	.086	.054	.030	.050	.032	.018	.016	.010	.006	
6.0	.139	.082	.041	.119	.071	.035	.082	.049	.025	.048	.029	.015	.015	.010	.005	
7.0	.132	.075	.034	.113	.065	.030	.078	.045	.021	.046	.027	.013	.015	.009	.004	
8.0	.126	.069	.030	.108	.060	.026	.075	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.120	.064	.026	.103	.055	.023	.072	.039	.016	.042	.023	.010	.013	.008	.003	
10.0	.114	.060	.023	.099	.052	.020	.068	.036	.014	.040	.022	.009	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

g Range: 0 - 90DEG
 g Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

UGR(Unified Glare Rating) Table

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm										
NAME: Michigan 22W AC LED display					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: CG LIGHTING					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	16.2	17.6	16.4	17.8	18.0	16.4	17.9	16.7	18.1	18.3
3H	17.5	18.8	17.8	19.0	19.3	17.5	18.8	17.8	19.1	19.3
4H	18.0	19.2	18.3	19.5	19.7	17.8	19.1	18.2	19.3	19.6
6H	18.4	19.5	18.7	19.8	20.1	18.0	19.1	18.3	19.4	19.7
8H	18.5	19.6	18.8	19.9	20.2	17.9	19.1	18.3	19.4	19.6
12H	18.5	19.6	18.8	19.9	20.2	17.9	19.0	18.2	19.3	19.6
4H 2H	16.7	18.0	17.0	18.2	18.4	16.9	18.1	17.2	18.4	18.6
3H	18.2	19.3	18.5	19.6	19.9	18.1	19.2	18.5	19.5	19.8
4H	18.8	19.8	19.2	20.1	20.4	18.6	19.6	18.9	19.9	20.2
6H	19.3	20.2	19.7	20.5	20.9	18.8	19.7	19.2	20.0	20.4
8H	19.4	20.3	19.8	20.6	21.0	18.8	19.6	19.2	20.0	20.3
12H	19.5	20.3	19.9	20.6	21.0	18.7	19.5	19.2	19.9	20.3
8H 4H	19.0	19.8	19.4	20.1	20.5	18.8	19.6	19.2	19.9	20.3
6H	19.6	20.2	20.0	20.6	21.1	19.0	19.7	19.5	20.1	20.5
8H	19.8	20.4	20.2	20.8	21.3	19.1	19.7	19.5	20.1	20.5
12H	19.9	20.4	20.4	20.9	21.4	19.0	19.5	19.5	20.0	20.5
12H 4H	18.9	19.7	19.4	20.1	20.5	18.7	19.5	19.2	19.9	20.3
6H	19.6	20.2	20.0	20.6	21.0	19.1	19.6	19.5	20.1	20.5
8H	19.8	20.3	20.3	20.8	21.2	19.1	19.6	19.6	20.1	20.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
1.5H	+ 0.1 / - 0.3					+ 0.2 / - 0.2				
2.0H	+ 0.3 / - 0.4					+ 0.5 / - 0.5				

CIE Pub.117, 1772 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 2.0)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

g Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

UTILIZATION FACTORS TABLE

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:

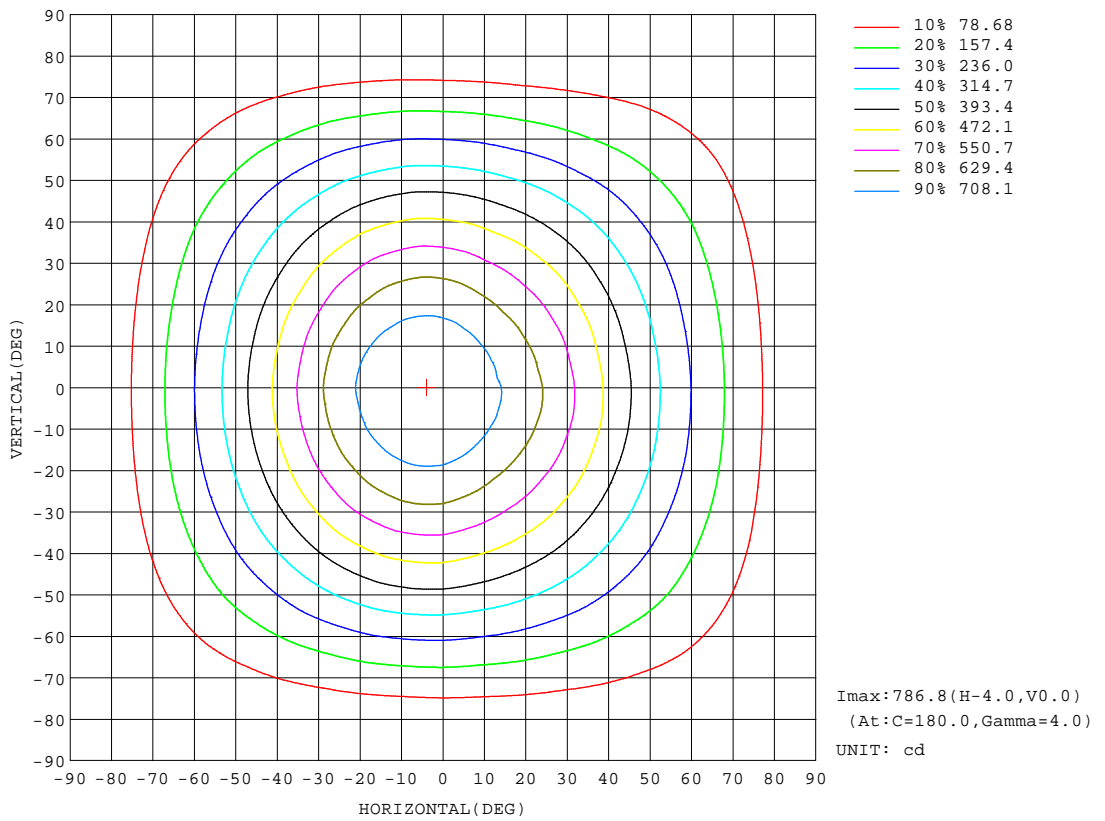
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	61	50	44	61	50	44	59	50	43	37
0.80	71	60	54	70	60	53	69	59	53	47
1.00	80	69	63	78	69	62	76	70	62	55
1.25	86	77	70	85	76	70	82	75	69	62
1.50	91	82	76	90	81	75	87	80	74	67
2.00	98	90	84	96	89	83	92	86	82	74
2.50	101	94	89	99	93	88	95	90	86	78
3.00	104	98	93	102	96	92	98	94	90	82
4.00	108	103	99	105	101	97	101	98	94	86
5.00	110	106	102	108	104	100	103	100	97	89
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

g Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

ISOCANDELA DIAGRAM

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:

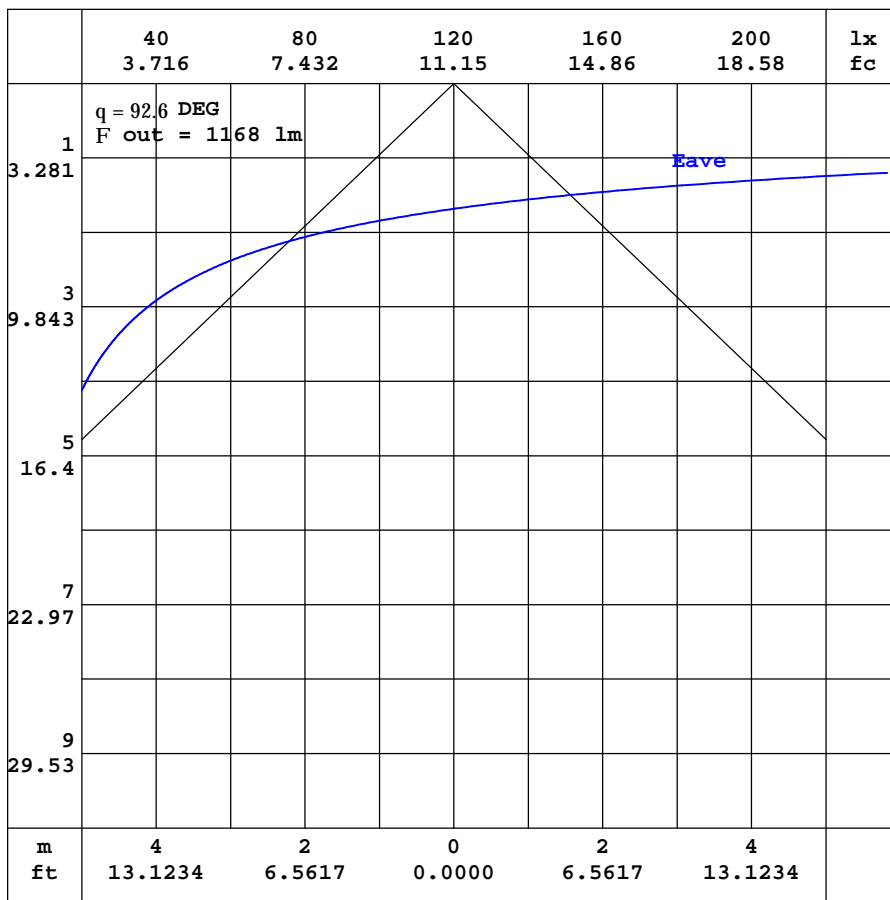


C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

AAI CURVES

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:



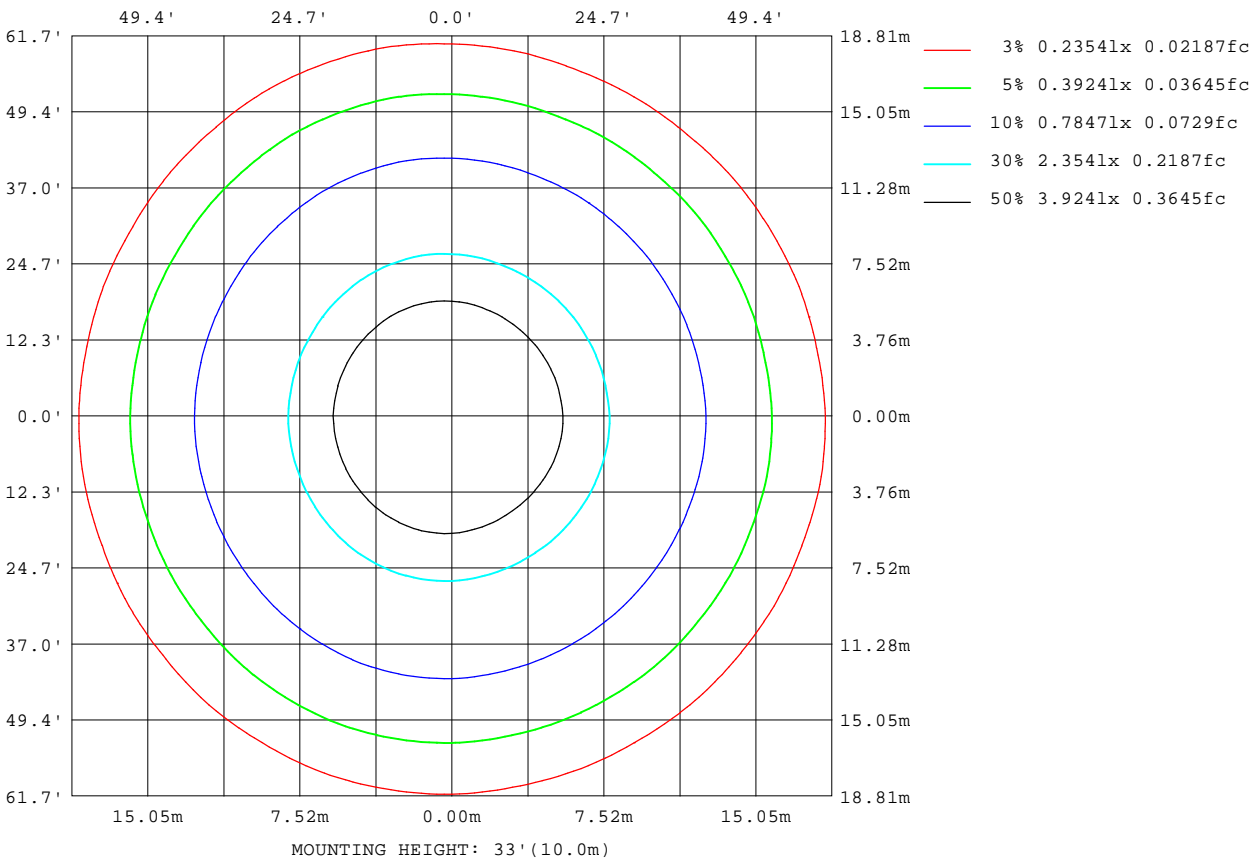
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

ISOLUX DIAGRAM

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LQL
 Test Date: 24 April 2023

Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity: 65.0%
 Test Distance: 10.365m [K=1.0000]
 Remarks: SMD 2835 22W

LED Avg.L Report

Test:U:230.55V I:0.1039A P:22.609W PF:0.9432 Freq:49.99Hz Lamp Flux:1772.15x1 lm		
NAME: Michigan 22W AC LED display	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: CG LIGHTING	SUR.:	Shielding Angle:

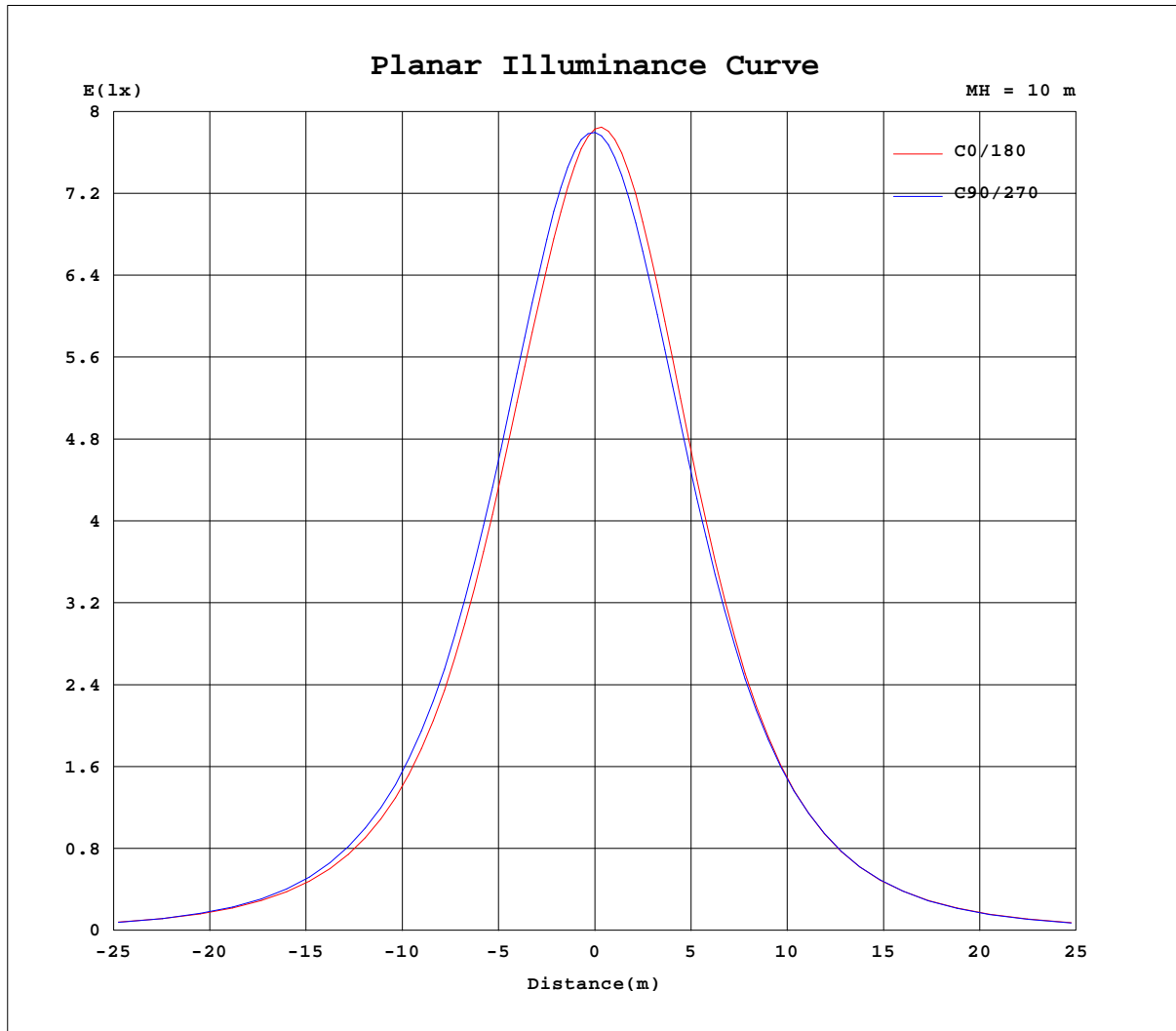
AvgL	cd/m2
L_0~180(65)av	4312
L_0~180(75)av	3414
L_0~180(85)av	1529
L_90~270(65)av	4287
L_90~270(75)av	2849
L_90~270(85)av	592
L_45(65)av	4232
L_45(75)av	3082
L_45(85)av	1425

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LQL
 Test Date:24 April 2023

g Range: 0 - 90DEG
 g Interval: 2.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity:65.0%
 Test Distance:10.365m [K=1.0000]
 Remarks: SMD 2835 22W

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LQL
 Test Date: 24 April 2023

Page Range: 0 - 90DEG
 Interval: 2.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.403
 Humidity: 65.0%
 Test Distance: 10.365m [K=1.0000]
 Remarks: SMD 2835 22W

