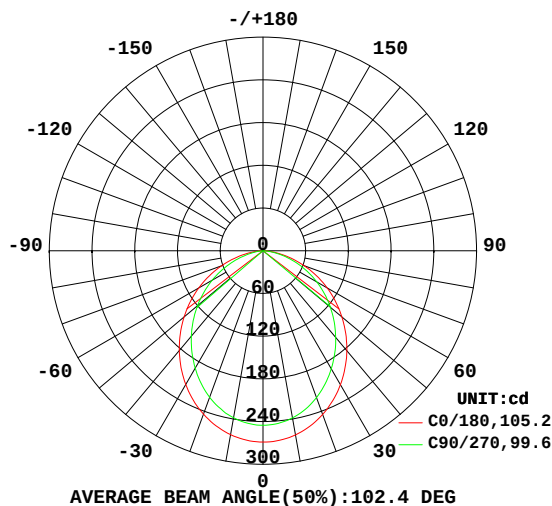


LUMINAIRE PHOTOMETRIC TEST REPORT

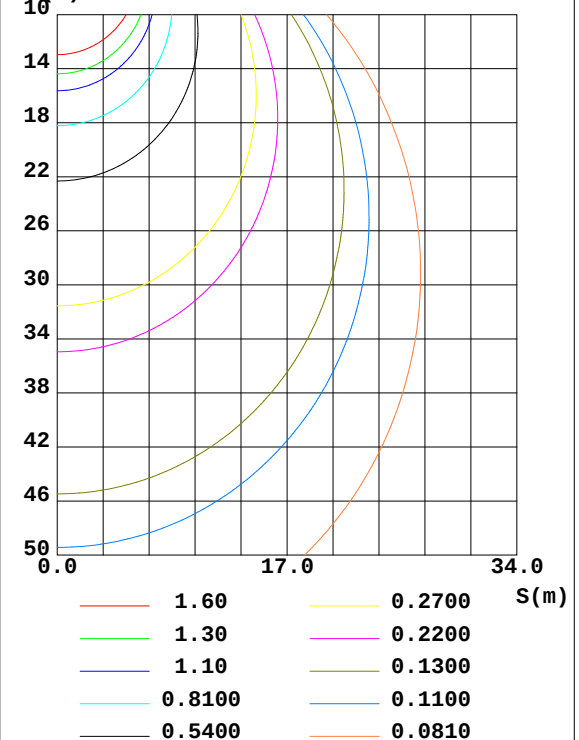
Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 50.13 lm/W			
MODEL	4000K	I _{max} (cd)	269.9	S/MH(C0/180)	1.21
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	1.17
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	638.17	η UP, DN(C0-180)	0.0, 50.5
NOMINAL FLUX(lm)	638.169	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 49.5
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	1.30

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT: lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-11-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

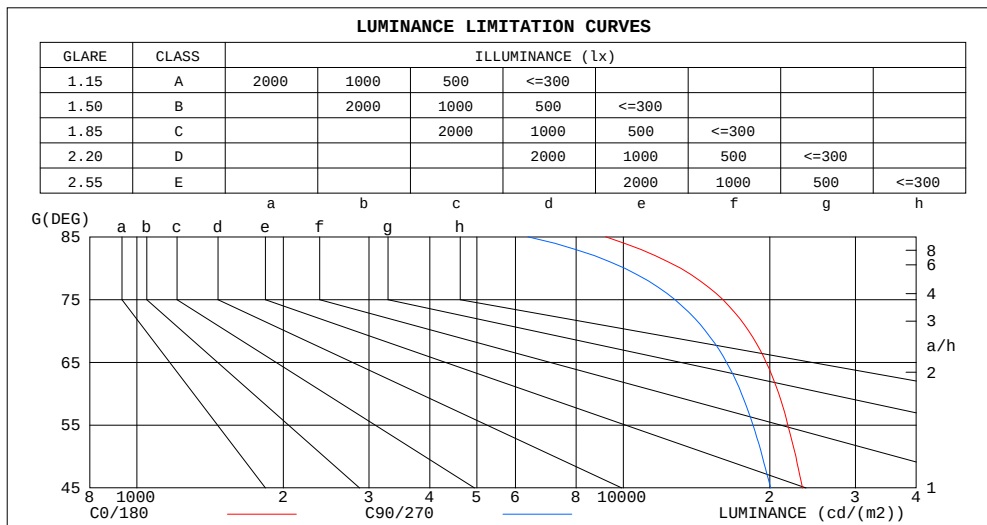
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	262.6	262.2	238.4	236.8	262.3	262.5	238.2	237.4	0- 10	23.92	23.92	3.75,3.75
20	244.8	242.4	219.6	219.3	244.2	241.9	219.1	220.3	10- 20	67.44	91.36	14.3,14.3
30	217.5	213.0	191.6	193.0	217.0	212.2	190.5	194.0	20- 30	99.43	190.8	29.9,29.9
40	183.3	177.0	158.9	161.4	183.0	175.3	156.7	161.7	30- 40	115.7	306.5	48,48
50	144.9	137.7	123.6	126.3	144.7	136.0	120.0	125.8	40- 50	115.3	421.8	66.1,66.1
60	103.9	93.27	87.11	89.97	104.0	94.82	82.08	88.22	50- 60	99.88	521.7	81.7,81.7
70	61.68	51.44	50.24	52.78	62.06	53.59	44.37	50.12	60- 70	71.93	593.6	93,93
80	22.69	18.68	17.41	18.89	22.99	16.69	12.07	16.10	70- 80	37.02	630.6	98.8,98.8
90	0.4864	0.7682	0.4864	0.5984	0.3590	0.3011	0.1699	0.3050	80- 90	7.526	638.2	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: 22.5DEG
 Test Speed: HIGH
 Temperature:25DEG
 Operators:
 Test Date:2024-11-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
 Humidity:65.0%
 Test Distance:7.450m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:



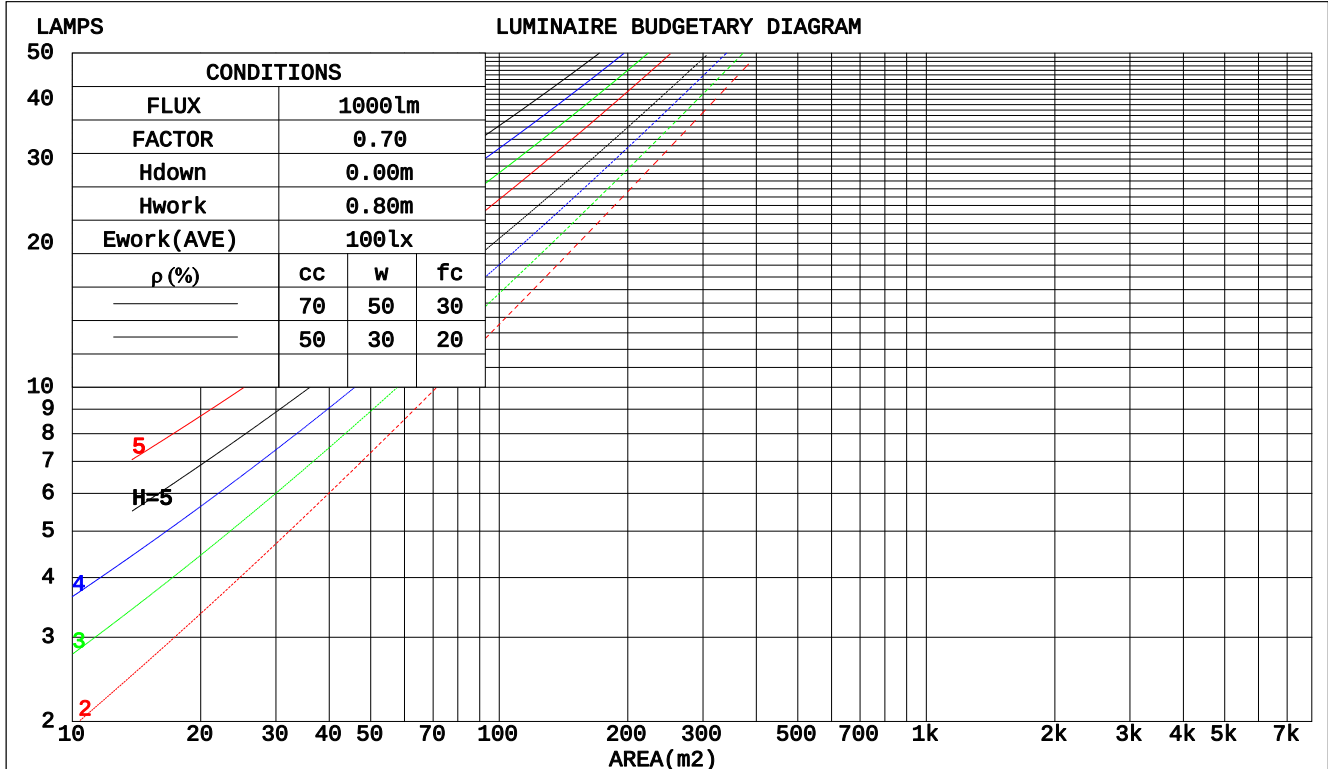
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-11-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{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	.00
1.0	1.05	1.01	.97	1.03	.99	.96	.98	.95	.93	.94	.92	.90	.91	.89	.87	.85
2.0	.92	.85	.80	.90	.84	.79	.86	.81	.77	.83	.79	.75	.80	.77	.74	.71
3.0	.81	.73	.67	.79	.72	.66	.76	.70	.65	.74	.68	.64	.71	.67	.63	.61
4.0	.72	.63	.57	.71	.63	.57	.68	.61	.56	.66	.60	.55	.64	.59	.54	.52
5.0	.65	.56	.49	.63	.55	.49	.61	.54	.48	.59	.53	.48	.58	.52	.47	.45
6.0	.58	.49	.43	.57	.49	.43	.56	.48	.43	.54	.47	.42	.52	.46	.42	.40
7.0	.53	.44	.38	.52	.44	.38	.51	.43	.38	.49	.43	.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:25DEG
Operators:
Test Date:2024-11-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm					
NAME: MTHS601211-BK4K12S			TYPE:		WEIGHT:
SPEC.: black RA90			DIM.:		SERIAL No.:
MFR.:			SUR.: 332*30mm		Shielding Angle:

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.292	.166	.053	.285	.162	.052	.271	.156	.050	.259	.150	.048	.248	.144	.046	
2.0	.278	.152	.047	.272	.150	.046	.260	.145	.045	.250	.140	.044	.240	.136	.043	
3.0	.259	.138	.041	.254	.136	.041	.244	.132	.040	.234	.128	.039	.225	.125	.039	
4.0	.241	.125	.037	.236	.123	.036	.227	.120	.036	.218	.117	.035	.211	.114	.035	
5.0	.223	.114	.033	.219	.113	.033	.211	.110	.032	.204	.107	.032	.197	.105	.032	
6.0	.208	.104	.030	.204	.103	.030	.197	.101	.029	.190	.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	.167	.085	.024	.162	.083	.024	
9.0	.171	.082	.023	.168	.082	.023	.163	.080	.023	.158	.079	.023	.153	.078	.022	
10.0	.161	.077	.021	.158	.076	.021	.154	.075	.021	.149	.074	.021	.145	.073	.021	

ρ _{cc}	80%			70%			50%			30%			10%			0
ρ _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ _{fc}	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	.136	.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	.096	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.155	.101	.060	.133	.087	.052	.091	.061	.036	.053	.036	.022	.017	.012	.007	
5.0	.147	.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	.030	.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	.105	.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:25DEG
Operators:
Test Date:2024-11-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm											
NAME: MTHS601211-BK4K12S					TYPE:			WEIGHT:			
SPEC.: black RA90					DIM.:			SERIAL No.:			
MFR.:					SUR.: 332*30mm			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	25.3	26.8	25.6	27.0	27.2	24.4	25.9	24.7	26.1	26.3	
	3H	26.8	28.1	27.0	28.3	28.6	25.7	27.1	26.0	27.3	
	4H	27.3	28.6	27.6	28.8	29.1	26.2	27.5	26.5	27.7	
	6H	27.6	28.8	27.9	29.1	29.4	26.5	27.7	26.8	27.9	
	8H	27.7	28.8	28.0	29.1	29.4	26.5	27.7	26.8	28.0	
	12H	27.7	28.8	28.0	29.1	29.4	26.5	27.6	26.9	27.9	
4H	2H	25.8	27.1	26.1	27.3	27.6	25.1	26.4	25.4	26.6	
	3H	27.4	28.5	27.7	28.8	29.1	26.5	27.6	26.9	27.9	
	4H	28.0	29.1	28.4	29.4	29.7	27.1	28.1	27.5	28.5	
	6H	28.5	29.4	28.9	29.7	30.1	27.5	28.4	27.9	28.8	
	8H	28.6	29.4	29.0	29.8	30.2	27.6	28.4	28.0	28.8	
	12H	28.7	29.4	29.1	29.8	30.2	27.6	28.4	28.0	28.8	
8H	4H	28.2	29.0	28.6	29.4	29.8	27.3	28.2	27.7	28.6	
	6H	28.7	29.4	29.2	29.8	30.3	27.9	28.6	28.3	29.0	
	8H	28.9	29.6	29.4	30.0	30.4	28.0	28.6	28.5	29.1	
	12H	29.0	29.6	29.5	30.0	30.5	28.1	28.6	28.6	29.1	
12H	4H	28.2	28.9	28.6	29.3	29.7	27.3	28.1	27.8	28.5	
	6H	28.8	29.4	29.2	29.8	30.3	27.9	28.5	28.3	28.9	
	8H	29.0	29.5	29.4	30.0	30.4	28.1	28.6	28.6	29.1	
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2					
1.5H	+ 0.2 / - 0.4					+ 0.2 / - 0.4					
2.0H	+ 0.3 / - 0.3					+ 0.3 / - 0.5					

CIE Pub.117, 638.2 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -1.6)
Area: 0.00996 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-11-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:

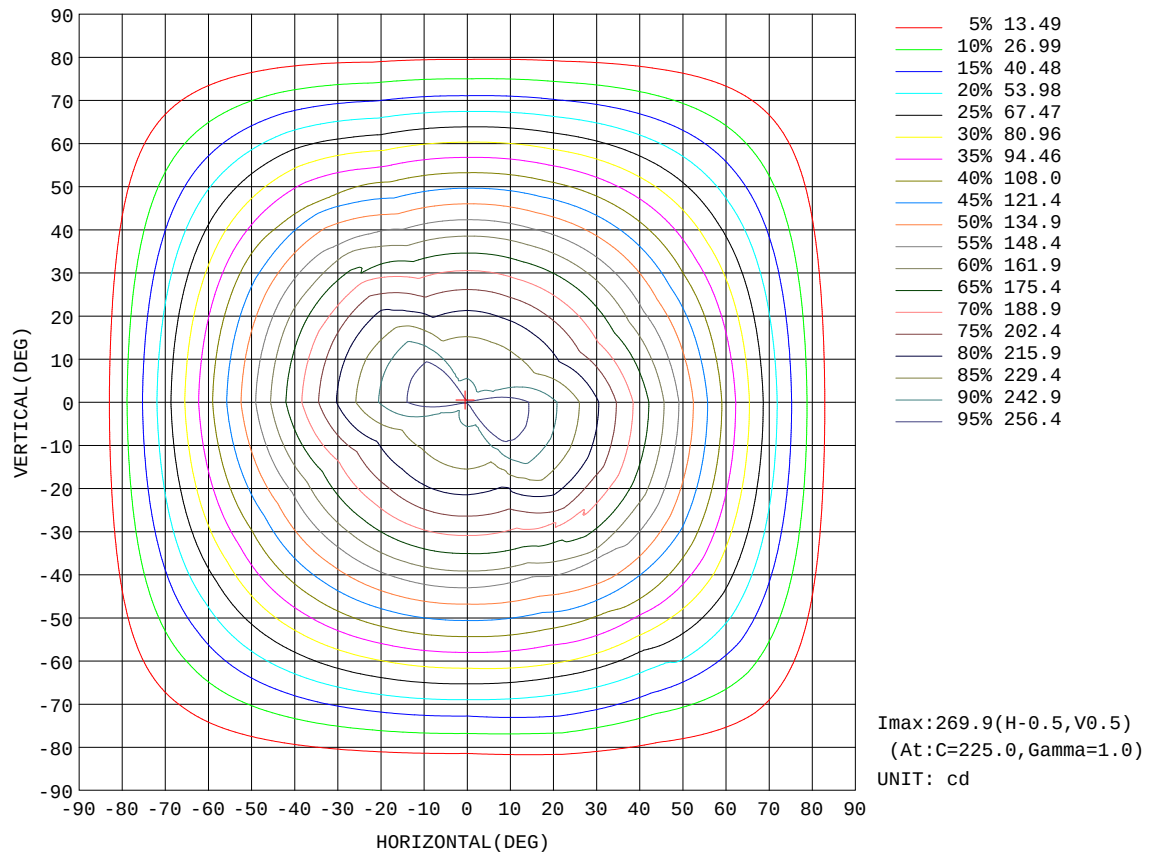
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	59	48	41	59	48	41	58	47	41	35
0.80	69	58	51	68	58	51	67	57	51	44
1.00	78	67	60	77	67	60	74	68	59	52
1.25	85	75	68	83	74	68	81	73	67	60
1.50	90	80	74	88	79	73	85	78	72	65
2.00	96	88	82	95	87	81	91	85	80	72
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	103	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:25DEG
Operators:
Test Date:2024-11-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:



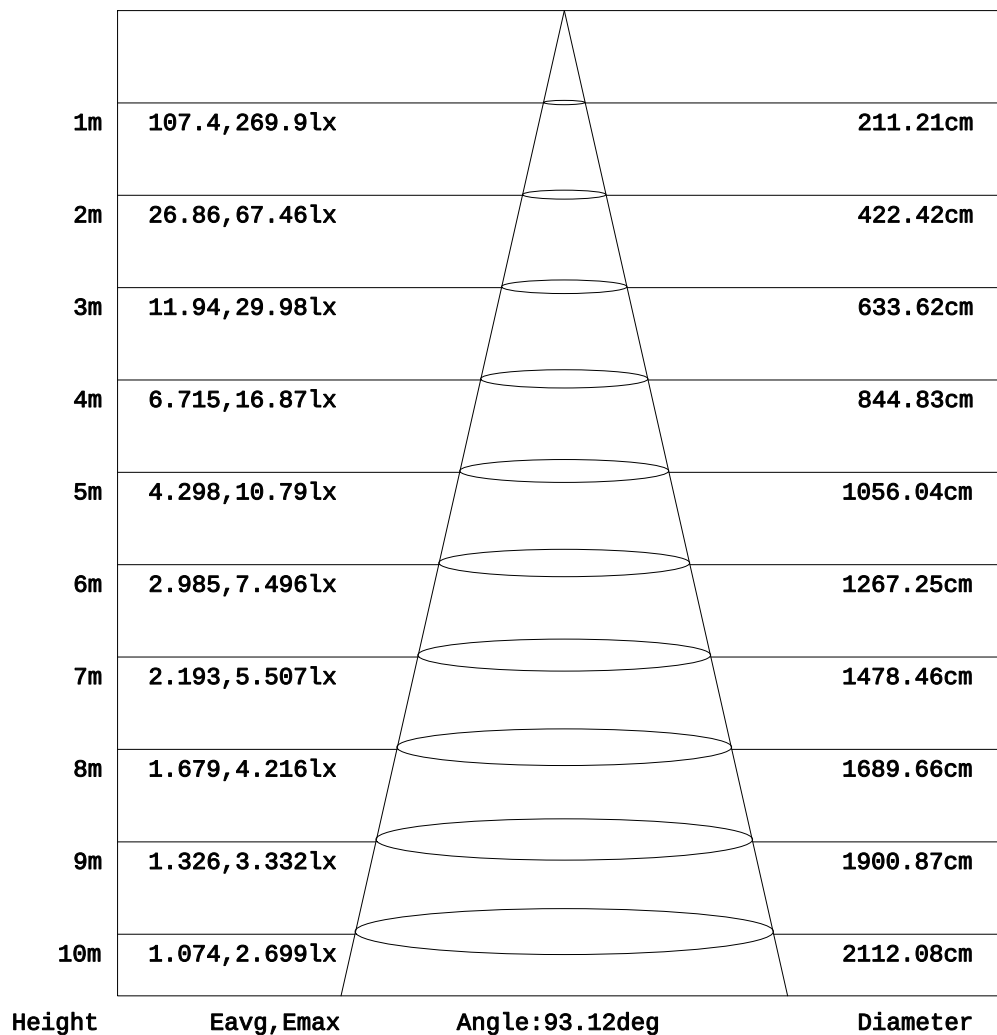
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-11-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

AAI Figure

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:

Flux out:388.2 lm



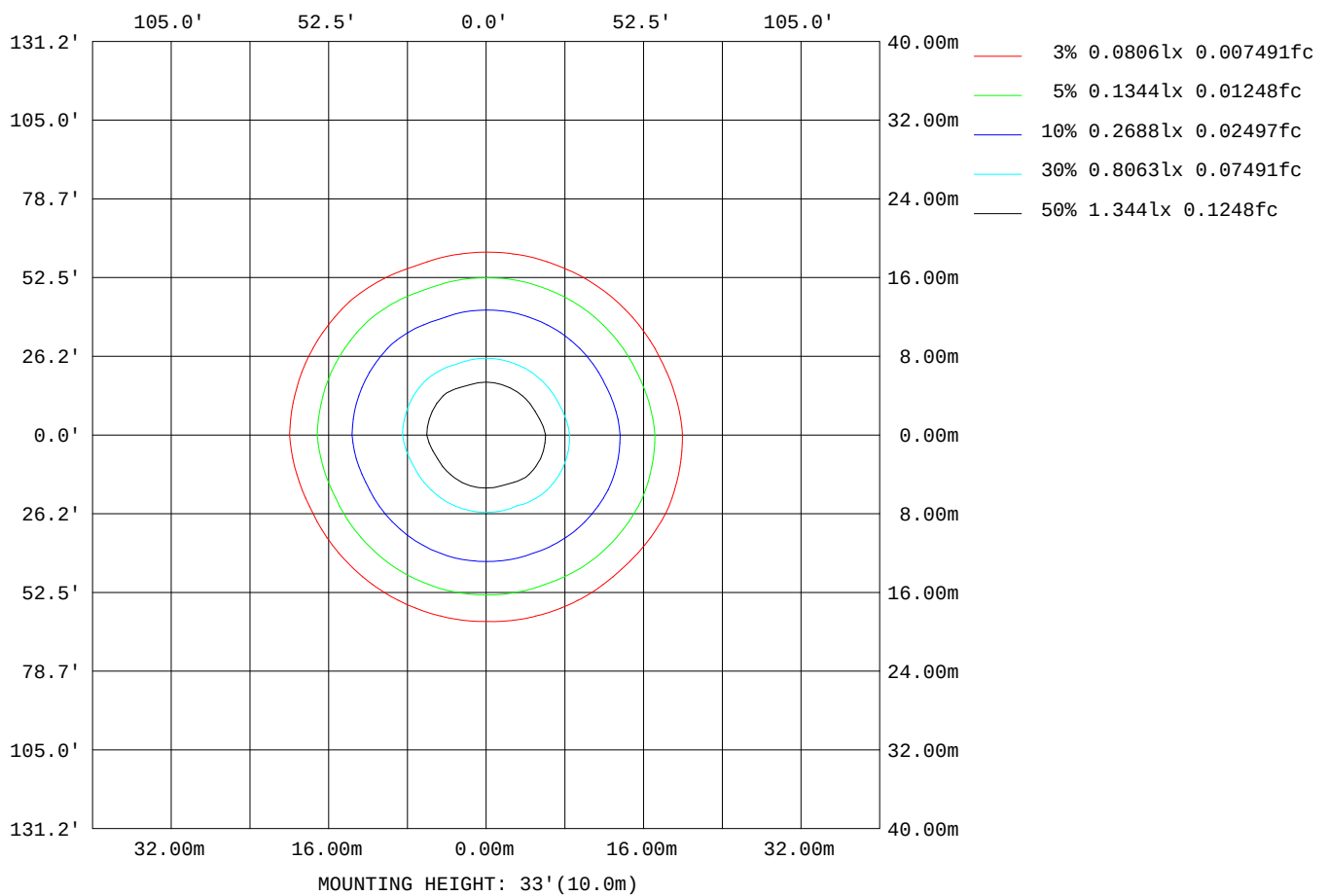
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2024-11-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.450m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2024-11-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.450m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:230.65V I:0.1345A P:12.731W PF:0.4105 Freq:49.99Hz Lamp Flux:638.169x1 lm		
NAME: MTHS601211-BK4K12S	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 332*30mm	Shielding Angle:

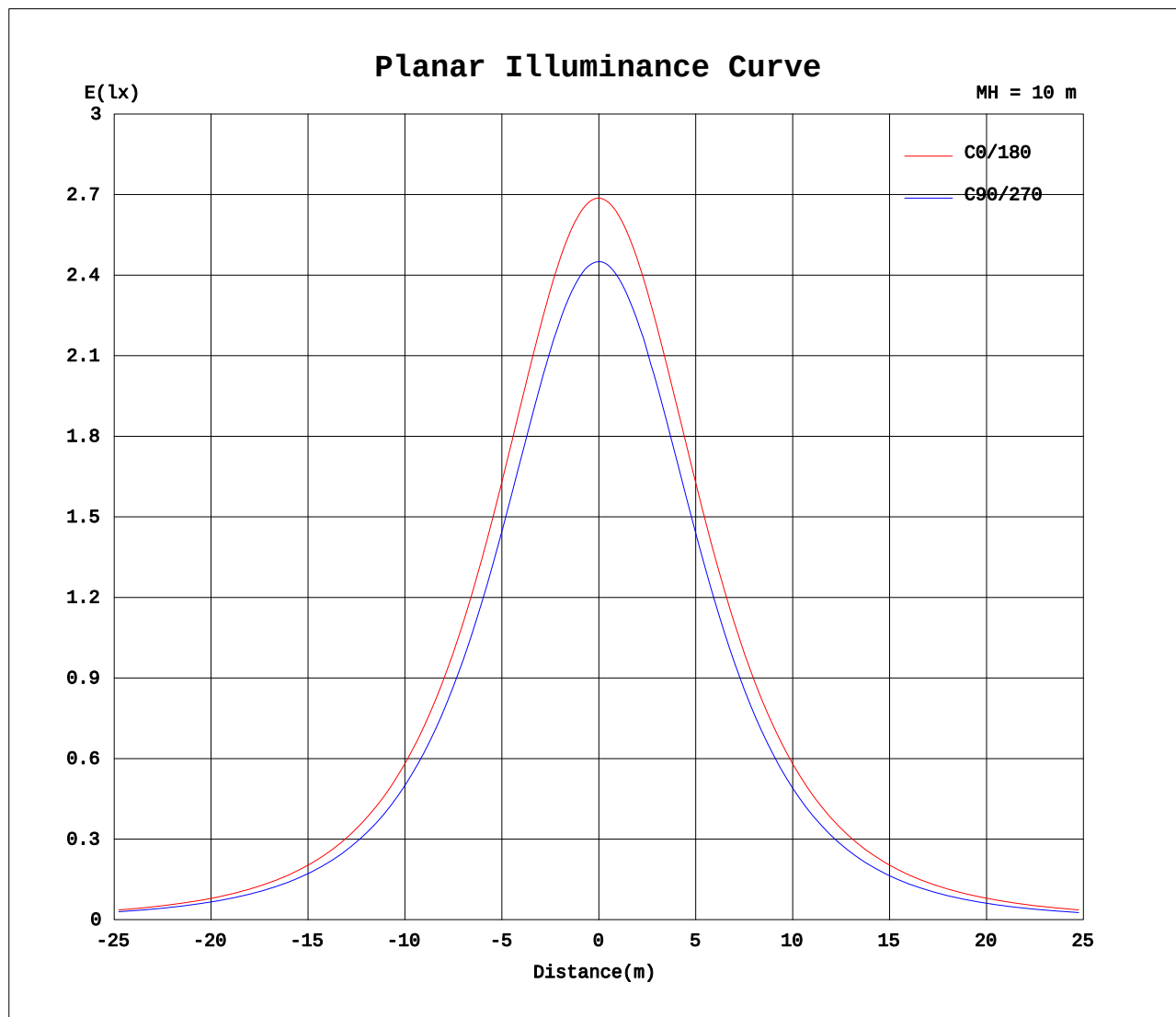
AvgL	cd/m2
L_0~180(65)av	19692
L_0~180(75)av	16094
L_0~180(85)av	9271
L_90~270(65)av	15636
L_90~270(75)av	11601
L_90~270(85)av	4398
L_45(65)av	17129
L_45(75)av	13093
L_45(85)av	6335

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-11-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2024-11-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.450m [K=1.0000]
 Remarks:

```

Range: 0 - 90DEG
Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

```