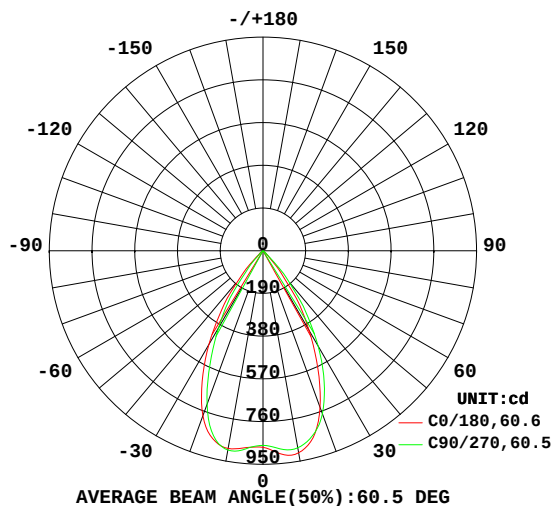


LUMINAIRE PHOTOMETRIC TEST REPORT

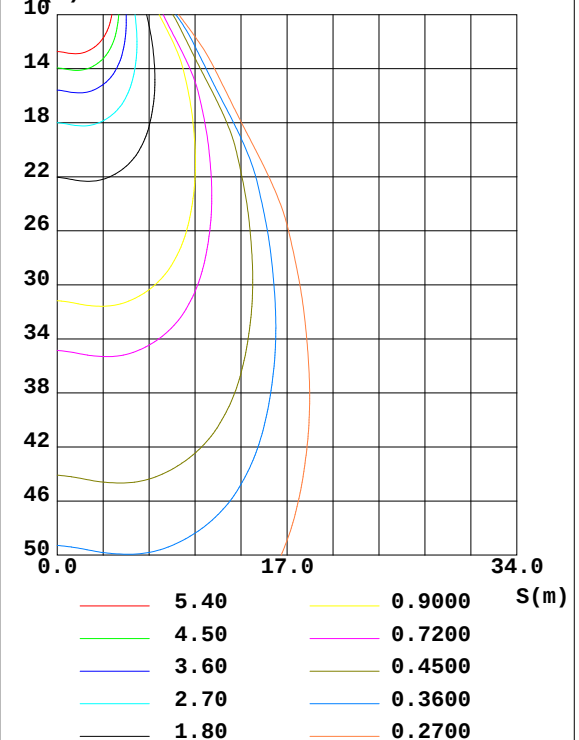
Test:U:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 79.11 lm/W			
MODEL	ML12111202 4000K	I _{max} (cd)	918.0	S/MH(C0/180)	0.93
NOMINAL POWER(W)	10	LOR(%)	100.0	S/MH(C90/270)	0.87
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	824.41	η UP, DN(C0-180)	0.0, 51.8
NOMINAL FLUX(lm)	824.408	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 48.2
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	0.95

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: 2024-11-07

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:

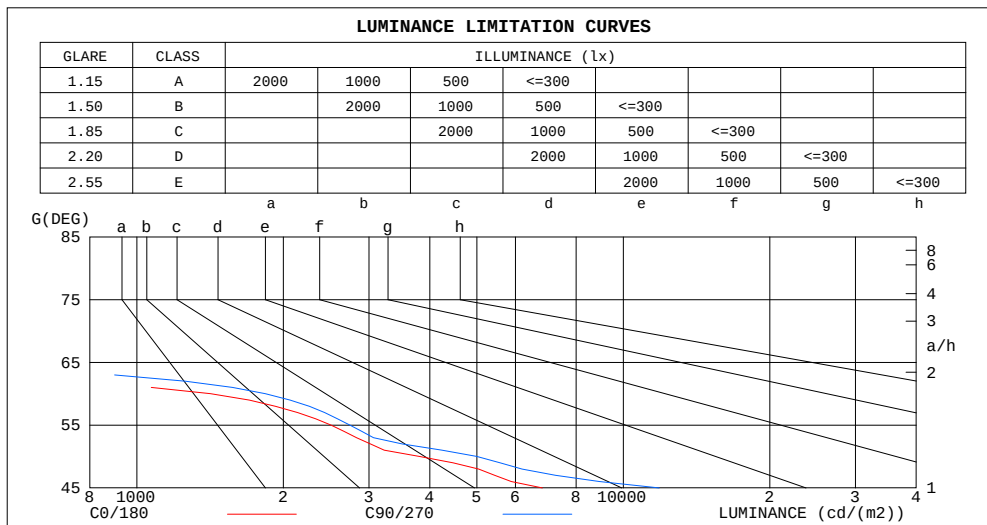
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	912.6	897.3	890.1	876.2	893.0	895.4	899.8	898.5	0- 10	84.91	84.91	10.3,10.3
20	742.5	751.1	771.9	764.9	781.5	756.5	727.1	719.0	10- 20	236.7	321.6	39,39
30	412.4	452.8	491.3	494.3	481.9	432.4	394.9	387.1	20- 30	273.5	595.1	72.2,72.2
40	112.3	140.8	176.2	180.8	166.8	128.0	105.3	101.1	30- 40	176.6	771.7	93.6,93.6
50	13.87	15.20	18.21	19.89	19.59	17.92	15.86	14.19	40- 50	42.84	814.6	98.8,98.8
60	4.017	4.715	5.204	5.667	6.206	5.522	4.591	3.953	50- 60	8.384	822.9	99.8,99.8
70	0.1275	0.1160	0.1275	0.1429	0.1234	0.1273	0.1195	0.1079	60- 70	1.389	824.3	100,100
80	0.0348	0.0309	0.0425	0.0425	0.0038	0	0	0	70- 80	0.0701	824.4	100,100
90	0.0154	0.0077	0.0116	0.0116	0	0	0	0	80- 90	0.0098	824.4	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:2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	31	31
80	35	43
75	50	53
70	66	66
65	78	235
60	1417	1836
55	2505	2740
50	3807	4998
45	6817	11849

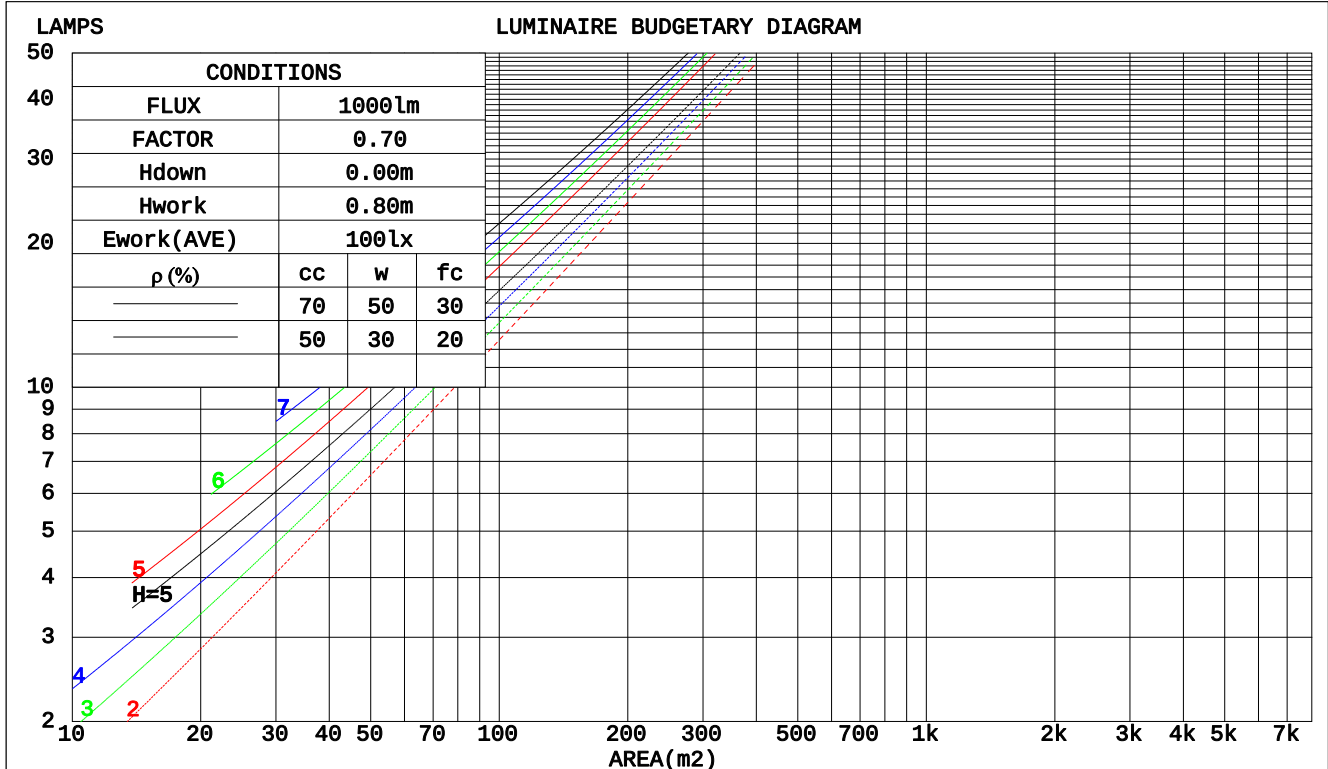
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	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	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	1.11	1.08	1.06	1.09	1.07	1.05	1.05	1.03	1.01	1.01	.99	.98	.98	.96	.95	.94
2.0	1.03	.99	.96	1.02	.98	.95	.98	.95	.93	.95	.93	.91	.93	.91	.89	.87
3.0	.96	.91	.88	.95	.90	.87	.92	.89	.85	.90	.87	.84	.88	.85	.83	.81
4.0	.90	.85	.80	.89	.84	.80	.87	.82	.79	.85	.81	.78	.83	.80	.77	.76
5.0	.84	.79	.74	.83	.78	.74	.82	.77	.73	.80	.76	.73	.78	.75	.72	.71
6.0	.79	.73	.69	.78	.73	.69	.77	.72	.68	.76	.71	.68	.74	.70	.67	.66
7.0	.75	.69	.64	.74	.68	.64	.73	.68	.64	.71	.67	.64	.70	.66	.63	.62
8.0	.70	.64	.60	.70	.64	.60	.69	.63	.60	.68	.63	.60	.67	.62	.59	.58
9.0	.66	.60	.56	.66	.60	.56	.65	.60	.56	.64	.59	.56	.63	.59	.56	.54
10.0	.63	.57	.53	.62	.57	.53	.61	.56	.53	.61	.56	.53	.60	.56	.53	.51



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm									
NAME: DL9453-BK4K10C03					TYPE:			WEIGHT:	
SPEC.: black RA90					DIM.:			SERIAL No.:	
MFR.:					SUR.: 85mm			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	.176	.100	.032	.169	.096	.031	.157	.090	.029	.145	.084	.027	.134	.078	.025		
2.0	.169	.092	.028	.163	.090	.028	.152	.085	.026	.143	.080	.025	.134	.076	.024		
3.0	.161	.086	.026	.156	.084	.025	.147	.080	.024	.139	.076	.023	.131	.073	.022		
4.0	.154	.080	.023	.150	.078	.023	.142	.075	.022	.135	.072	.022	.128	.069	.021		
5.0	.147	.075	.022	.143	.074	.021	.136	.071	.021	.130	.069	.020	.124	.066	.020		
6.0	.140	.070	.020	.137	.069	.020	.131	.067	.020	.126	.065	.019	.120	.063	.019		
7.0	.134	.066	.019	.132	.066	.019	.126	.064	.018	.121	.062	.018	.117	.061	.018		
8.0	.129	.063	.018	.126	.062	.018	.121	.061	.017	.117	.059	.017	.113	.058	.017		
9.0	.123	.060	.017	.121	.059	.017	.117	.058	.016	.113	.057	.016	.109	.055	.016		
10.0	.119	.057	.016	.117	.056	.016	.113	.055	.016	.109	.054	.015	.106	.053	.015		

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	.171	.157	.145	.146	.135	.125	.100	.093	.086	.058	.054	.050	.018	.017	.016	
2.0	.156	.133	.113	.133	.114	.098	.091	.079	.068	.053	.046	.040	.017	.015	.013	
3.0	.143	.114	.090	.123	.098	.078	.084	.068	.055	.049	.040	.032	.016	.013	.011	
4.0	.133	.099	.073	.114	.085	.063	.079	.060	.044	.046	.035	.026	.015	.011	.009	
5.0	.125	.087	.060	.107	.076	.052	.074	.053	.037	.043	.031	.022	.014	.010	.007	
6.0	.117	.078	.050	.101	.068	.043	.070	.047	.031	.040	.028	.018	.013	.009	.006	
7.0	.111	.070	.042	.096	.061	.037	.066	.043	.026	.038	.025	.015	.012	.008	.005	
8.0	.105	.064	.036	.091	.056	.031	.063	.039	.022	.037	.023	.013	.012	.008	.004	
9.0	.100	.059	.031	.087	.051	.027	.060	.036	.019	.035	.021	.012	.011	.007	.004	
10.0	.096	.055	.027	.083	.048	.024	.057	.033	.017	.033	.020	.010	.011	.006	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm										
NAME: DL9453-BK4K10C03					TYPE:			WEIGHT:		
SPEC.: black RA90					DIM.:			SERIAL No.:		
MFR.:					SUR.: 85mm			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	18.0	18.9	18.2	19.1	19.3	19.4	20.3	19.6	20.5	20.6
3H	17.8	18.7	18.1	18.9	19.1	19.2	20.1	19.5	20.3	20.5
4H	17.7	18.5	18.0	18.8	19.0	19.1	19.9	19.4	20.1	20.4
6H	17.6	18.4	17.9	18.6	18.9	19.0	19.8	19.3	20.0	20.3
8H	17.6	18.3	17.9	18.6	18.8	19.0	19.7	19.3	20.0	20.2
12H	17.5	18.3	17.9	18.5	18.8	18.9	19.6	19.2	19.9	20.2
4H 2H	17.7	18.6	18.0	18.8	19.0	19.1	19.9	19.4	20.2	20.4
3H	17.6	18.3	17.9	18.5	18.8	18.9	19.6	19.3	19.9	20.2
4H	17.5	18.1	17.8	18.4	18.7	18.8	19.5	19.2	19.8	20.1
6H	17.4	17.9	17.7	18.3	18.6	18.7	19.3	19.1	19.6	20.0
8H	17.3	17.8	17.7	18.2	18.6	18.7	19.2	19.1	19.6	19.9
12H	17.3	17.7	17.7	18.1	18.5	18.6	19.1	19.0	19.5	19.9
8H 4H	17.3	17.8	17.7	18.2	18.6	18.7	19.2	19.1	19.6	19.9
6H	17.2	17.6	17.6	18.0	18.4	18.6	19.0	19.0	19.4	19.8
8H	17.2	17.5	17.6	18.0	18.4	18.5	18.9	19.0	19.3	19.8
12H	17.1	17.4	17.6	17.9	18.3	18.5	18.8	18.9	19.2	19.7
12H 4H	17.3	17.7	17.7	18.1	18.5	18.6	19.1	19.0	19.5	19.9
6H	17.2	17.5	17.6	18.0	18.4	18.5	18.9	19.0	19.3	19.8
8H	17.1	17.4	17.6	17.9	18.3	18.5	18.8	18.9	19.2	19.7
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 3.1 / -12.4					+ 3.9 / -13.9				
1.5H	+ 5.7 / - 9.1					+ 6.4 / -11.1				
2.0H	+ 4.8 / -15.9					+ 7.1 / -14.1				

CIE Pub.117, 824.4 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.7)
Area: 0.00567 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	Shielding Angle:

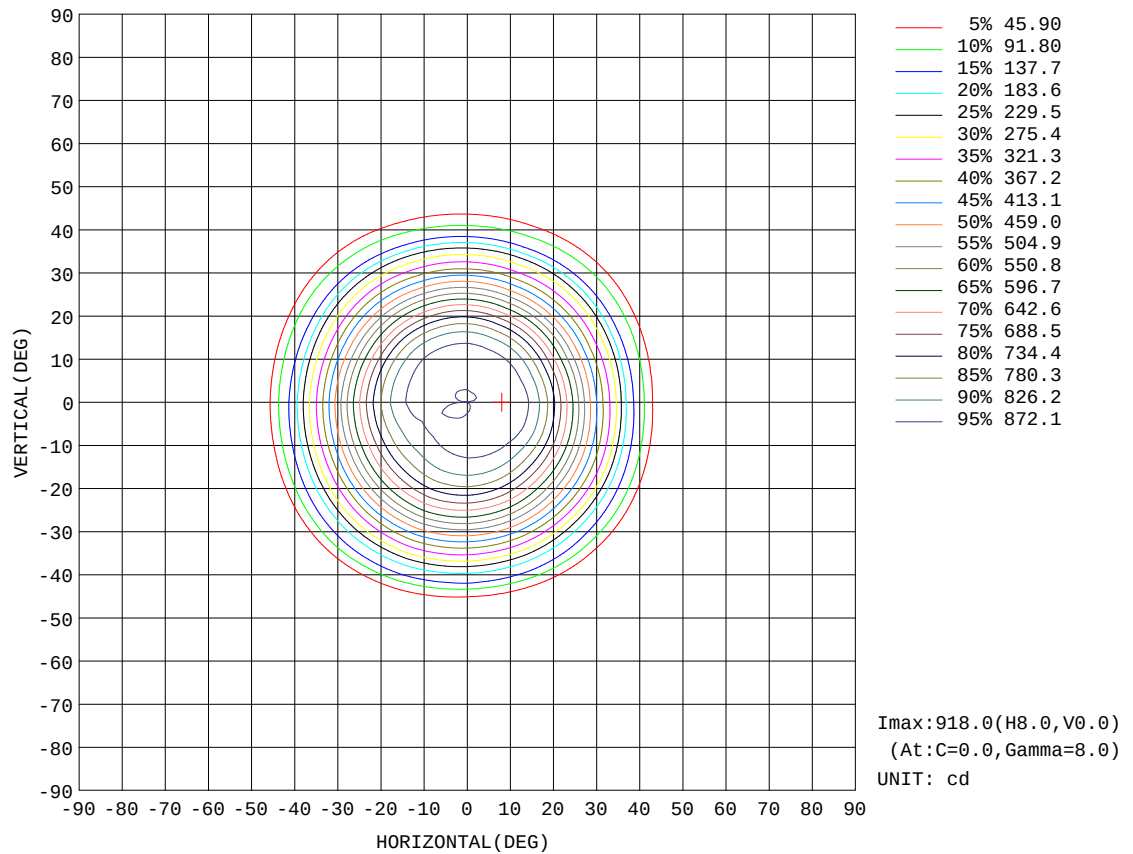
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	81	77	87	81	77	86	81	77	74
0.80	95	89	86	94	89	85	93	88	85	81
1.00	100	94	90	99	94	90	97	93	90	86
1.25	104	98	95	102	98	95	101	97	94	90
1.50	106	102	98	105	101	98	103	99	97	92
2.00	109	105	102	107	104	101	105	102	99	94
2.50	110	107	104	109	106	103	106	103	101	95
3.00	112	109	106	110	107	105	107	105	103	96
4.00	114	111	109	112	110	108	108	106	105	98
5.00	115	113	111	113	111	110	109	108	106	99
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:2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	Shielding Angle:

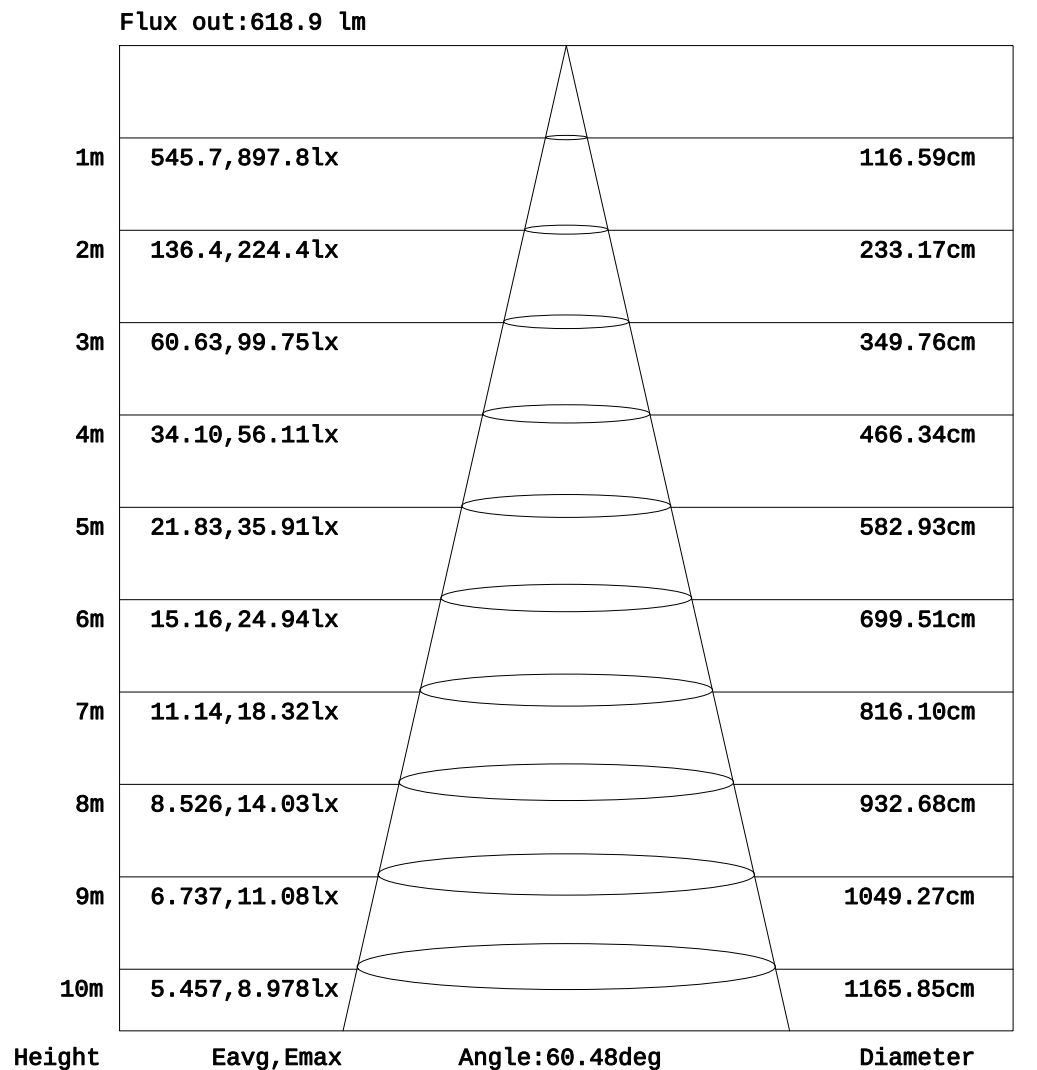


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	Shielding Angle:



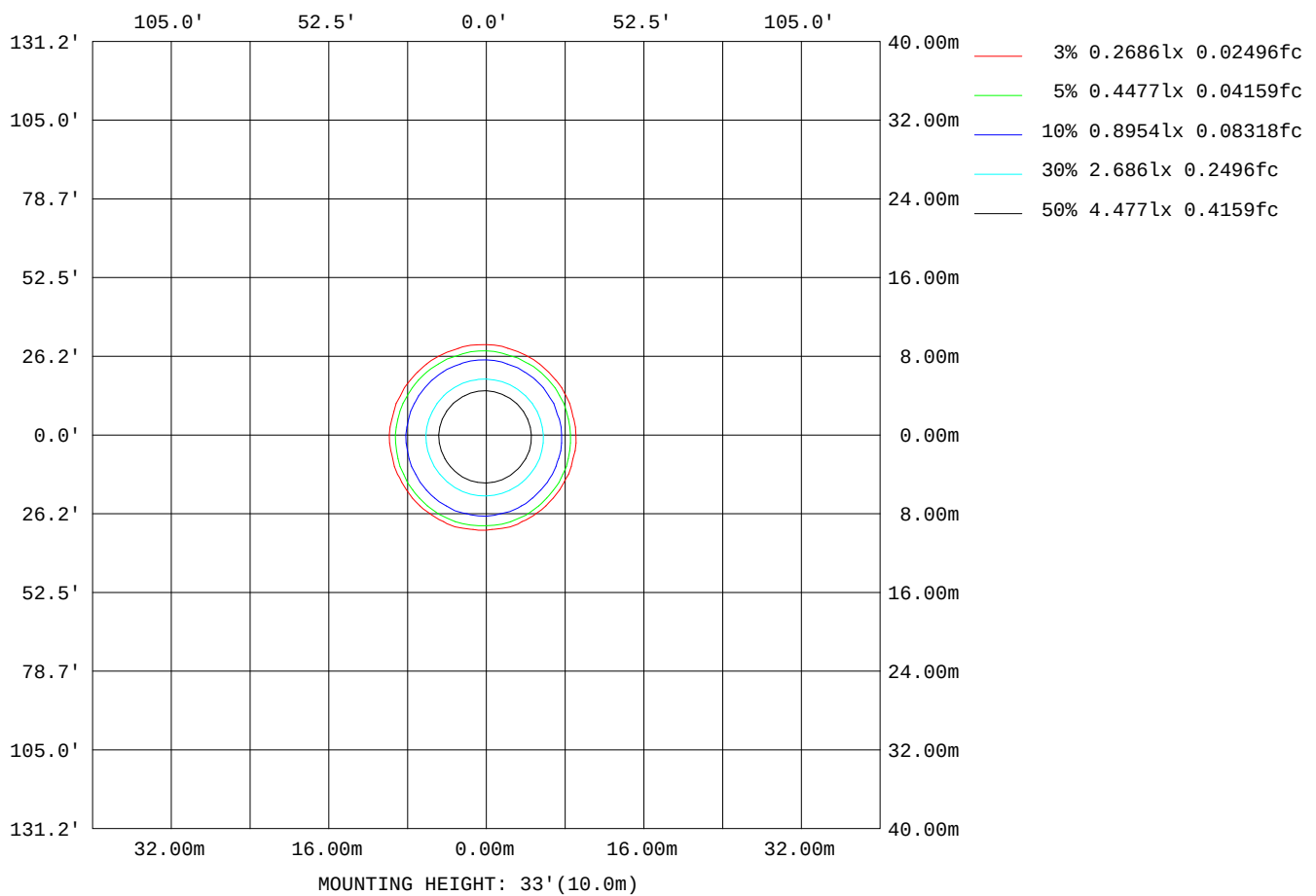
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-11-07

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:230.87V I:0.0465A P:10.421W PF:0.9713 Freq:49.99Hz Lamp Flux:824.408x1 lm		
NAME: DL9453-BK4K10C03	TYPE:	WEIGHT:
SPEC.: black RA90	DIM.:	SERIAL No.:
MFR.:	SUR.: 85mm	Shielding Angle:

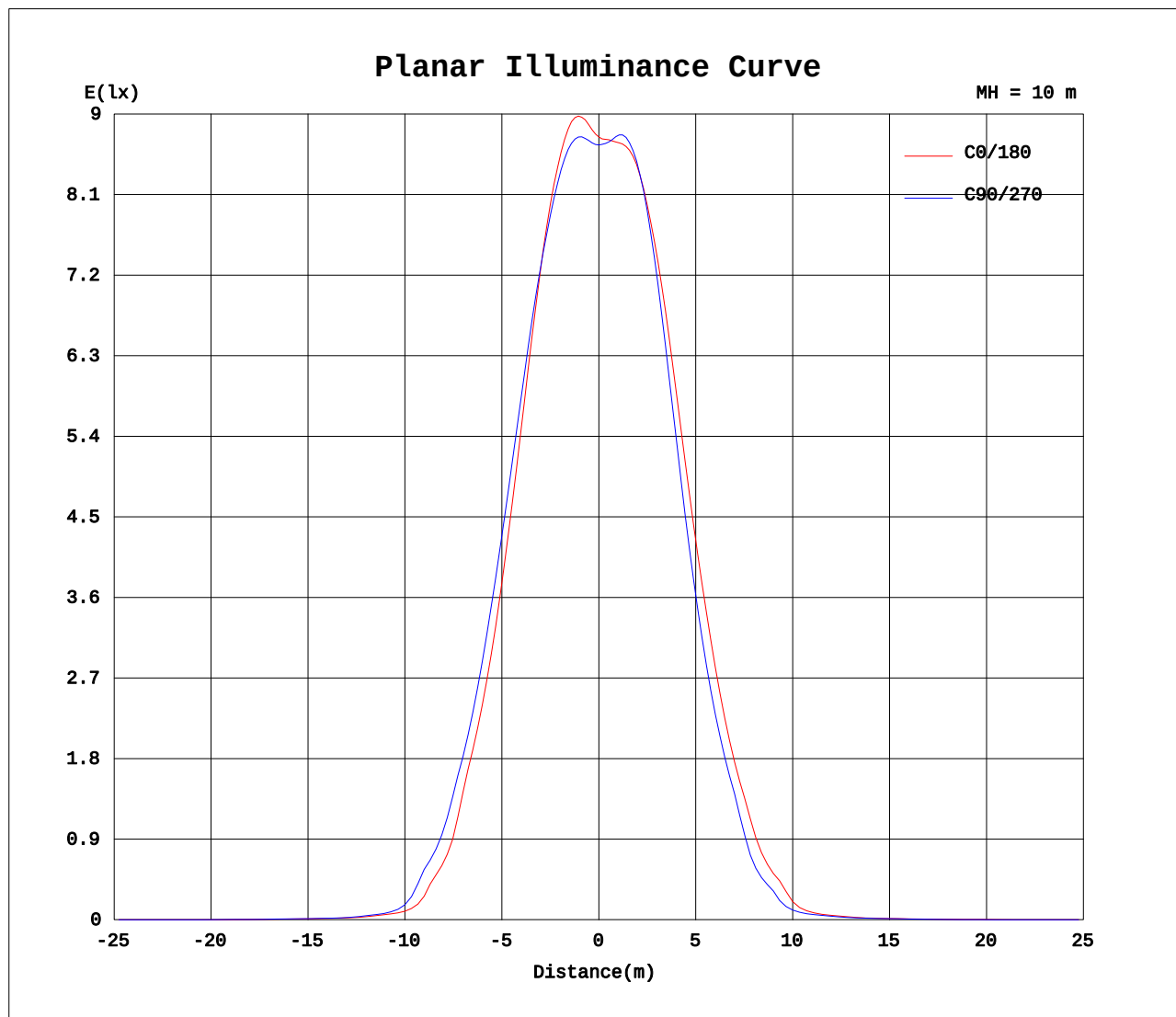
AvgL	cd/m2
L_0~180(65)av	346
L_0~180(75)av	43
L_0~180(85)av	16
L_90~270(65)av	180
L_90~270(75)av	43
L_90~270(85)av	16
L_45(65)av	229
L_45(75)av	42
L_45(85)av	14

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-11-07

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: 2024-11-07

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%
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Remarks:

```