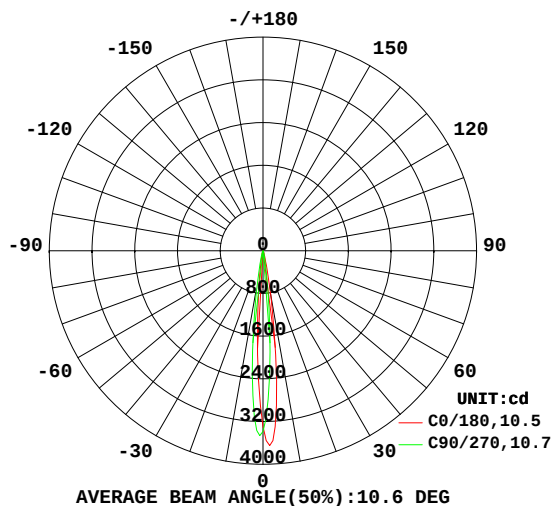


LUMINAIRE PHOTOMETRIC TEST REPORT

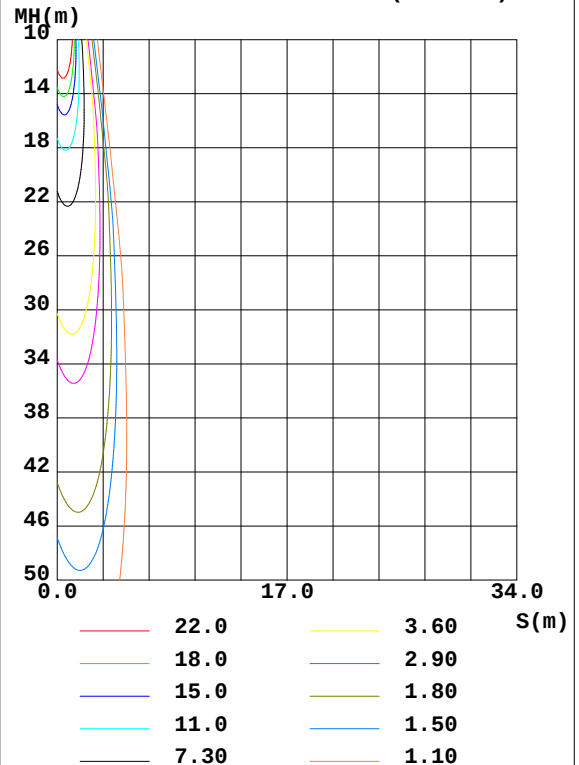
Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 59.25 lm/W			
MODEL	4000K	I _{max} (cd)	3696	S/MH(C0/180)	0.13
NOMINAL POWER(W)	3	LOR(%)	100.0	S/MH(C90/270)	0.22
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	190.43	η UP, DN(C0-180)	0.0, 47.5
NOMINAL FLUX(lm)	190.431	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 52.5
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	1.00

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:2024-04-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

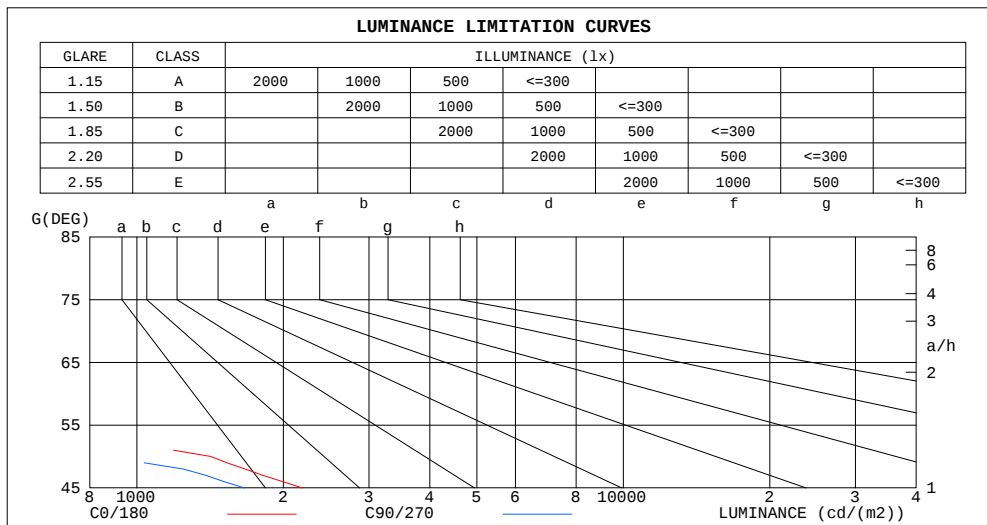
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	849.6	494.0	305.8	266.4	257.7	335.0	601.4	747.5	0- 10	133.7	133.7	70.2, 70.2
20	69.09	59.27	48.70	50.03	48.14	55.29	68.90	69.21	10- 20	42.58	176.3	92.6, 92.6
30	7.618	6.104	4.860	4.732	4.216	5.056	6.543	6.832	20- 30	11.87	188.2	98.8, 98.8
40	1.385	1.222	1.056	1.148	1.018	1.106	1.264	1.230	30- 40	1.670	189.9	99.7, 99.7
50	0.4097	0.3482	0.1639	0.1646	0.1078	0.2530	0.4074	0.3736	40- 50	0.5137	190.4	100, 100
60	0.0116	0.0040	0.0001	0.0001	0	0	0	0	50- 60	0.0582	190.4	100, 100
70	0	0	0	0	0	0	0	0	60- 70	0.0001	190.4	100, 100
80	0	0	0	0	0	0	0	0	70- 80	0	190.4	100, 100
90	0	0	0	0	0	0	0	0	80- 90	0	190.4	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: 2024-04-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.450m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	0	0
80	0	0
75	0	0
70	0	0
65	0	0
60	52	0
55	315	210
50	1417	567
45	2187	1664

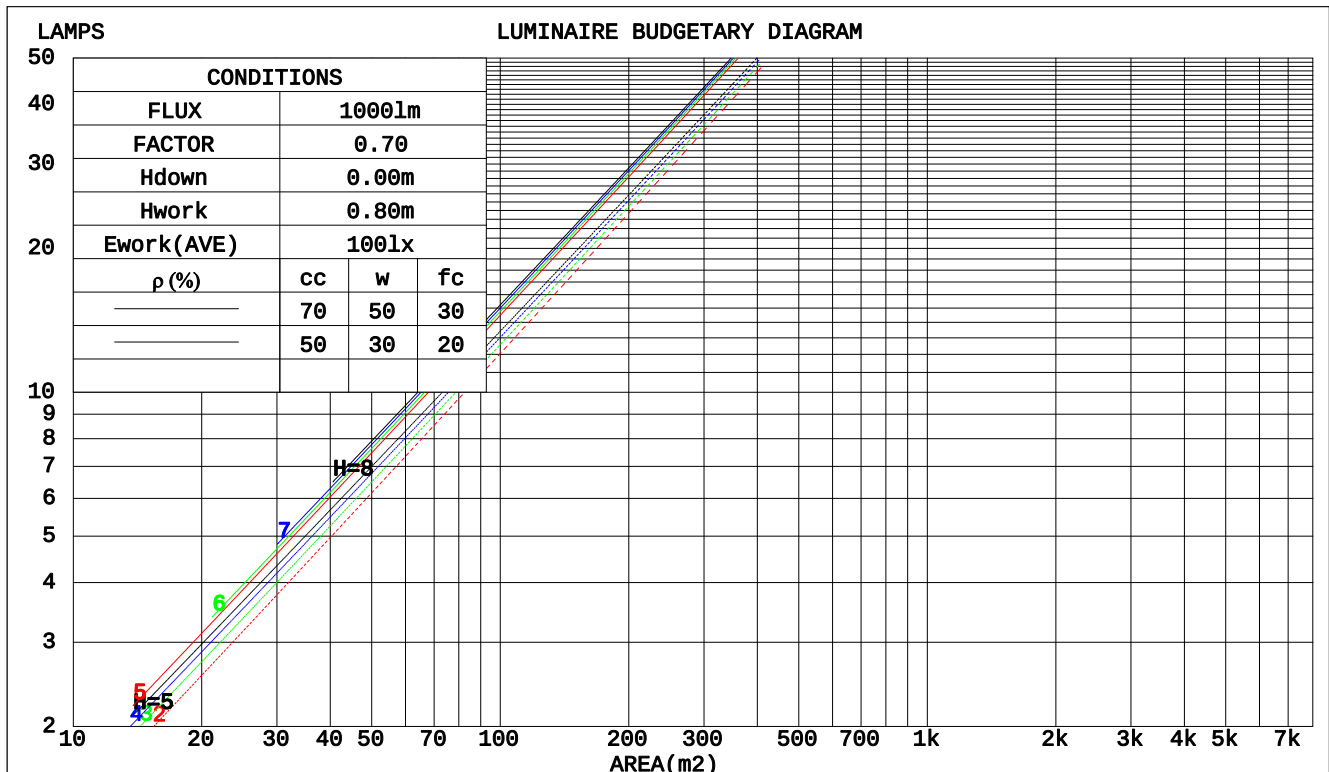
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-04-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	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	1.00
1.0	1.14	1.13	1.11	1.12	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.01	1.01	1.00	.99
2.0	1.10	1.08	1.06	1.09	1.07	1.05	1.06	1.04	1.03	1.03	1.02	1.01	1.00	.99	.99	.97
3.0	1.07	1.04	1.02	1.06	1.03	1.01	1.04	1.02	.99	1.01	.99	.98	.99	.98	.97	.96
4.0	1.05	1.02	.99	1.04	1.01	.99	1.02	.99	.98	.99	.98	.97	.98	.97	.96	.95
5.0	1.02	.99	.97	1.02	.99	.97	1.00	.98	.96	.99	.97	.95	.97	.96	.94	.93
6.0	1.00	.97	.95	.99	.97	.95	.98	.96	.94	.97	.95	.94	.96	.95	.93	.92
7.0	.99	.96	.93	.98	.95	.93	.97	.95	.93	.96	.94	.92	.95	.93	.92	.91
8.0	.97	.94	.92	.97	.94	.92	.96	.93	.92	.95	.93	.91	.94	.92	.91	.90
9.0	.96	.93	.91	.95	.93	.91	.95	.92	.90	.94	.92	.90	.93	.91	.90	.89
10.0	.94	.92	.90	.94	.91	.90	.93	.91	.89	.93	.91	.89	.92	.91	.89	.88



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-04-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm					
NAME: DL13-BK4K3S03			TYPE:		WEIGHT:
SPEC.: Black RA80			DIM.:		SERIAL No.:
MFR.:			SUR.: 24mm		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	.111	.063	.020	.104	.060	.019	.092	.053	.017	.081	.047	.015	.070	.041	.013	
2.0	.100	.055	.017	.095	.052	.016	.085	.047	.015	.076	.042	.013	.067	.038	.012	
3.0	.091	.049	.015	.087	.047	.014	.079	.043	.013	.071	.039	.012	.064	.036	.011	
4.0	.084	.044	.013	.080	.042	.012	.074	.039	.012	.067	.036	.011	.061	.033	.010	
5.0	.078	.040	.011	.075	.038	.011	.069	.036	.011	.064	.034	.010	.059	.031	.009	
6.0	.072	.036	.010	.070	.035	.010	.065	.033	.010	.061	.031	.009	.056	.030	.009	
7.0	.068	.034	.009	.066	.033	.009	.061	.031	.009	.058	.030	.009	.054	.028	.008	
8.0	.064	.031	.009	.062	.030	.009	.058	.029	.008	.055	.028	.008	.052	.027	.008	
9.0	.060	.029	.008	.059	.029	.008	.056	.027	.008	.053	.026	.008	.050	.025	.007	
10.0	.057	.027	.008	.056	.027	.008	.053	.026	.007	.050	.025	.007	.048	.024	.007	

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	.167	.158	.150	.143	.136	.129	.097	.093	.089	.056	.054	.052	.018	.017	.017	
2.0	.147	.133	.121	.126	.114	.105	.086	.079	.073	.050	.046	.043	.016	.015	.014	
3.0	.130	.113	.100	.112	.098	.086	.077	.068	.061	.044	.040	.036	.014	.013	.012	
4.0	.116	.097	.083	.100	.084	.072	.069	.059	.051	.040	.034	.030	.013	.011	.010	
5.0	.104	.085	.070	.090	.073	.061	.062	.051	.043	.036	.030	.025	.012	.010	.008	
6.0	.094	.074	.059	.081	.064	.052	.056	.045	.037	.032	.026	.022	.010	.009	.007	
7.0	.086	.065	.051	.074	.057	.045	.051	.040	.032	.030	.023	.019	.010	.008	.006	
8.0	.079	.058	.044	.068	.051	.039	.047	.035	.027	.027	.021	.016	.009	.007	.005	
9.0	.072	.052	.039	.062	.045	.034	.043	.032	.024	.025	.019	.014	.008	.006	.005	
10.0	.067	.047	.034	.058	.041	.030	.040	.029	.021	.023	.017	.013	.008	.006	.004	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm											
NAME: DL13-BK4K3S03					TYPE:			WEIGHT:			
SPEC.: Black RA80					DIM.:			SERIAL No.:			
MFR.:					SUR.: 24mm			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		6.6	7.1	6.8	7.2	7.3	5.0	5.5	5.2	5.6	5.8
3H		6.5	6.9	6.7	7.1	7.3	4.9	5.3	5.1	5.5	5.7
4H		6.4	6.8	6.6	7.0	7.2	4.8	5.2	5.0	5.4	5.6
6H		6.3	6.7	6.6	6.9	7.2	4.7	5.1	5.0	5.4	5.6
8H		6.3	6.7	6.6	6.9	7.1	4.7	5.1	5.0	5.3	5.6
12H		6.2	6.6	6.5	6.9	7.1	4.6	5.0	4.9	5.3	5.5
4H	2H	6.4	6.8	6.6	7.0	7.2	4.8	5.2	5.1	5.4	5.6
	3H	6.2	6.6	6.5	6.9	7.1	4.6	5.0	4.9	5.3	5.5
	4H	6.1	6.5	6.5	6.8	7.1	4.5	4.9	4.9	5.2	5.5
	6H	6.0	6.3	6.4	6.7	7.0	4.4	4.8	4.8	5.1	5.4
	8H	6.0	6.3	6.3	6.6	7.0	4.4	4.7	4.8	5.0	5.4
	12H	5.9	6.2	6.3	6.5	6.9	4.3	4.6	4.7	5.0	5.3
8H	4H	6.0	6.3	6.3	6.6	7.0	4.4	4.7	4.8	5.0	5.4
	6H	5.8	6.1	6.3	6.5	6.9	4.3	4.5	4.7	4.9	5.3
	8H	5.8	6.0	6.2	6.4	6.9	4.2	4.4	4.6	4.8	5.3
	12H	5.7	5.9	6.2	6.3	6.8	4.1	4.3	4.6	4.8	5.2
12H	4H	5.9	6.2	6.3	6.5	6.9	4.3	4.6	4.7	5.0	5.3
	6H	5.8	6.0	6.2	6.4	6.9	4.2	4.4	4.6	4.8	5.3
	8H	5.7	5.9	6.2	6.3	6.8	4.1	4.3	4.6	4.8	5.2
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 3.5 / -28.5					+ 2.8 / -30.3				
1.5H		+ 5.3 / -16.2					+ 4.5 / -19.4				
2.0H		+ 6.8 / - 1.\$					+ 6.5 / - 1.\$				

CIE Pub.117, 190.4 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -5.8)
Area: 0.00045 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	Shielding Angle:

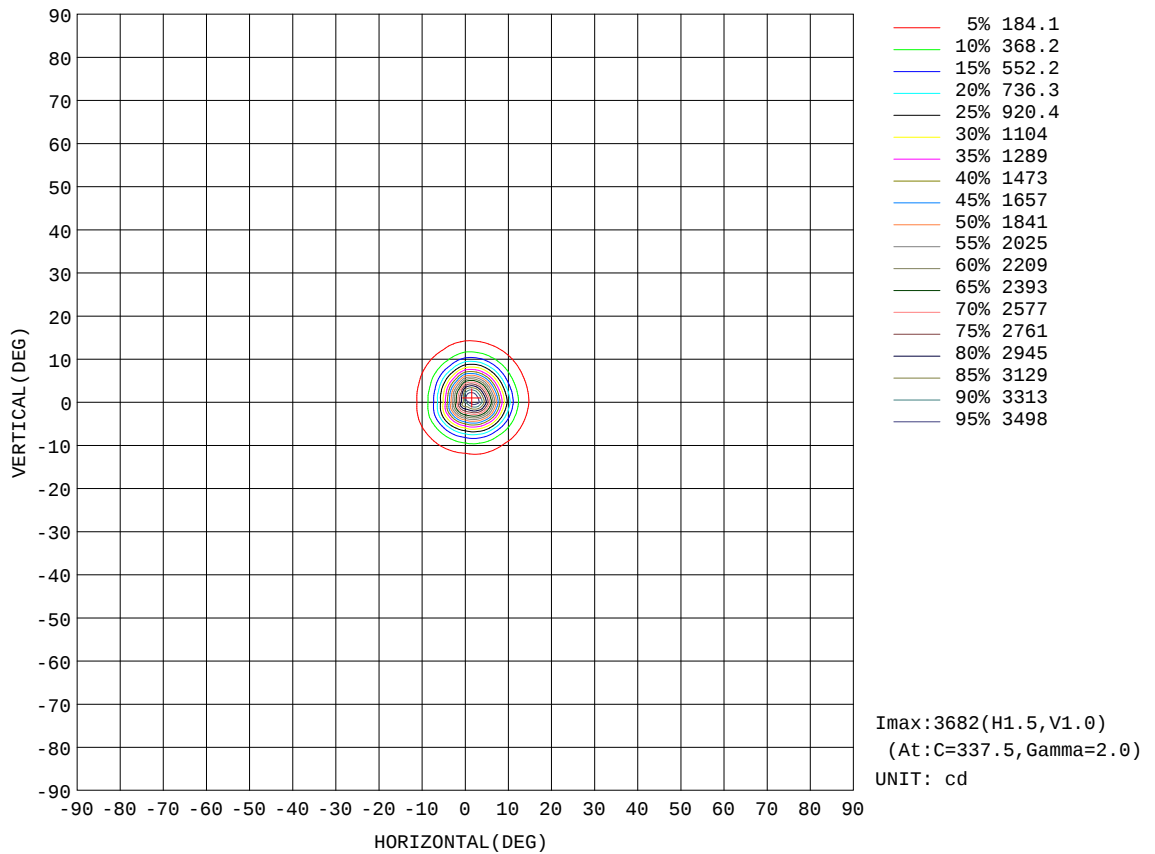
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	86	82	91	86	82	90	85	82	79
0.80	98	93	90	98	93	90	97	92	89	86
1.00	102	97	94	101	97	94	100	96	93	90
1.25	105	101	98	104	100	97	103	99	97	93
1.50	108	104	101	107	103	100	105	102	99	95
2.00	110	106	103	109	105	103	106	103	101	96
2.50	111	108	105	110	107	104	107	104	103	97
3.00	113	110	107	111	108	106	108	106	104	98
4.00	115	112	110	113	111	109	109	107	106	99
5.00	116	114	112	114	112	111	110	109	108	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:25DEG
Operators:
Test Date:2024-04-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	Shielding Angle:

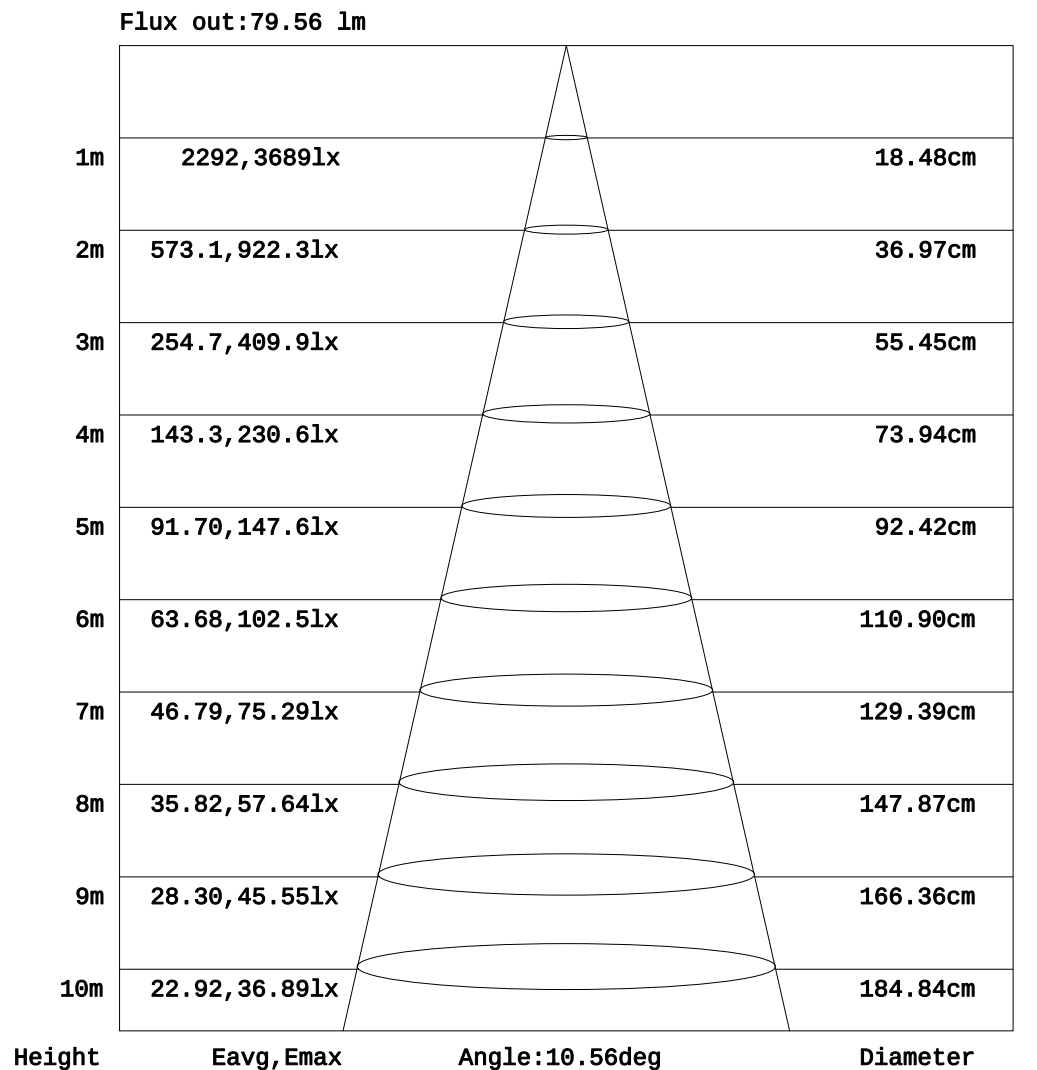


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

AAI Figure

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	Shielding Angle:



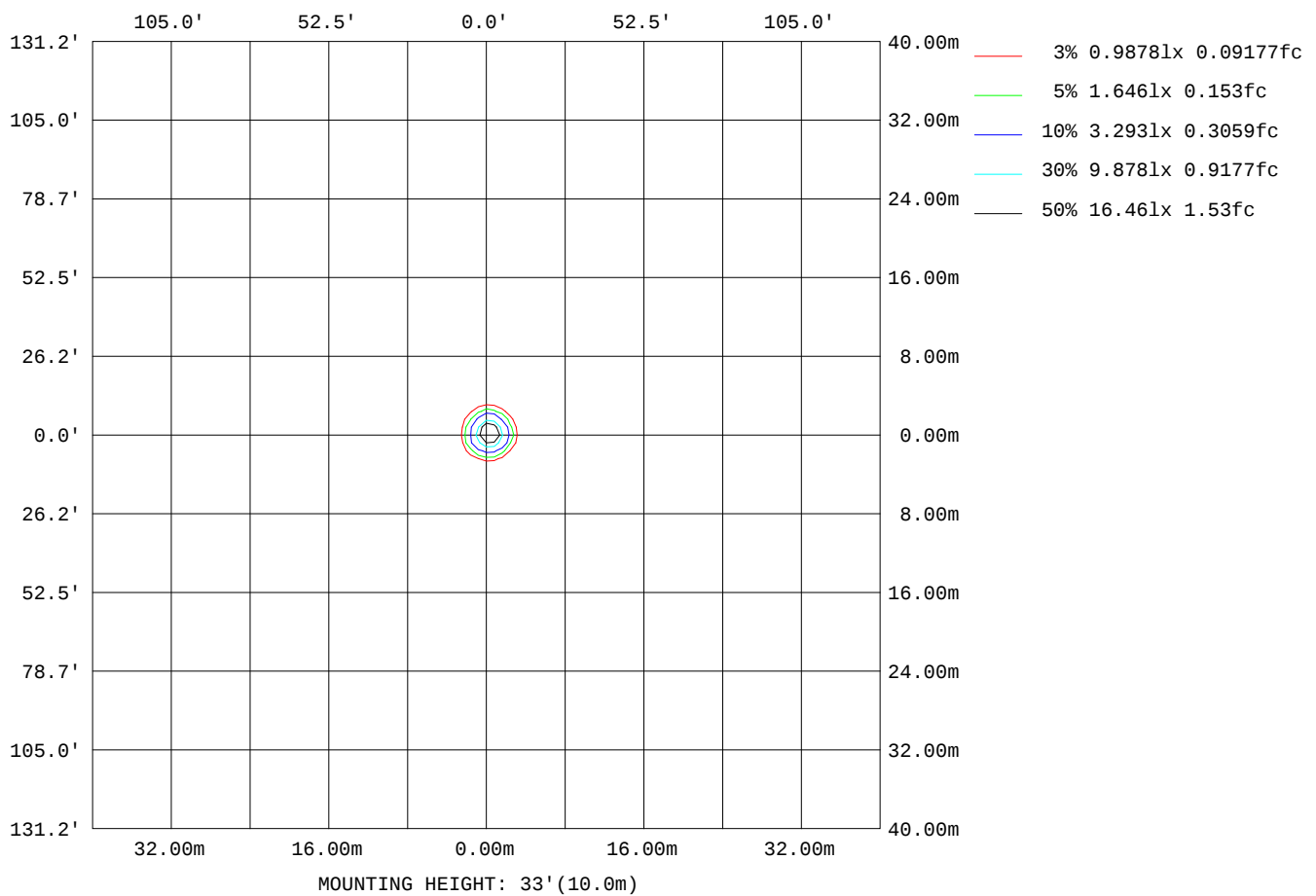
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-05

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:230.48V I:0.0325A P:3.2141W PF:0.4293 Freq:49.99Hz Lamp Flux:190.431x1 lm		
NAME: DL13-BK4K3S03	TYPE:	WEIGHT:
SPEC.: Black RA80	DIM.:	SERIAL No.:
MFR.:	SUR.: 24mm	Shielding Angle:

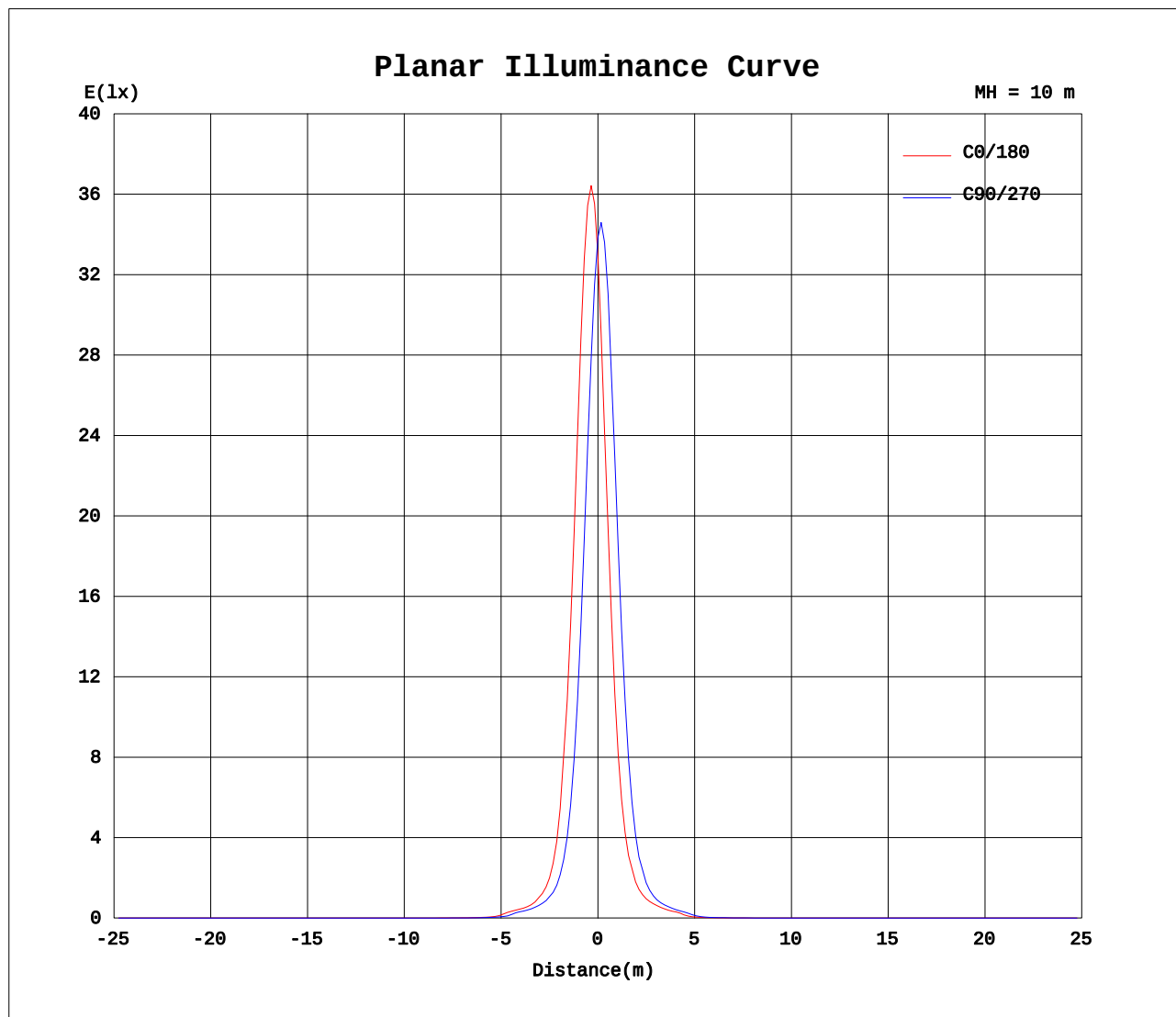
AvgL	cd/m2
L_0~180(65)av	0
L_0~180(75)av	0
L_0~180(85)av	0
L_90~270(65)av	0
L_90~270(75)av	0
L_90~270(85)av	0
L_45(65)av	0
L_45(75)av	0
L_45(85)av	0

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25DEG
 Operators:
 Test Date:2024-04-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000B_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: 2024-04-05

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000B_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-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

```