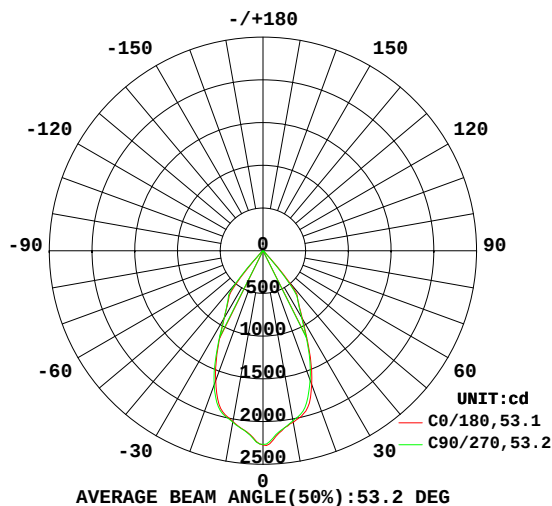


LUMINAIRE PHOTOMETRIC TEST REPORT

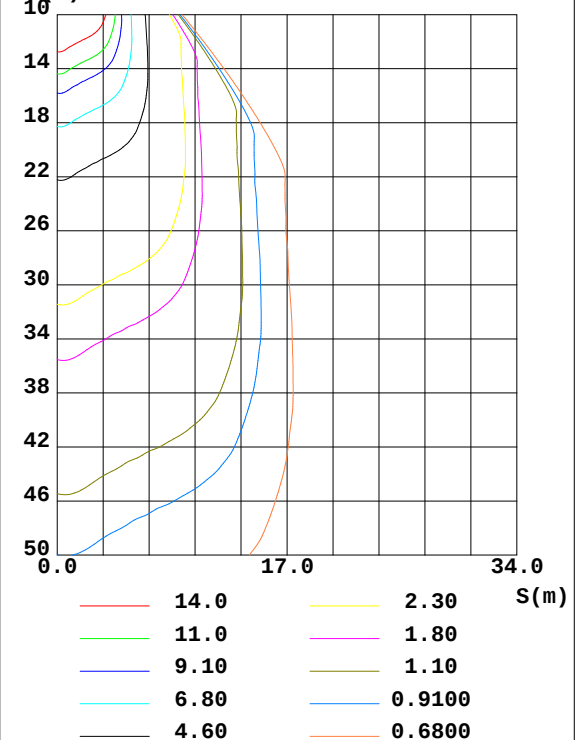
Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 90.39 lm/W			
MODEL	TBG-1510E 4000K	I _{max} (cd)	2280	S/MH(C0/180)	0.83
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	0.84
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	1868.6	η UP, DN(C0-180)	0.0, 49.5
NOMINAL FLUX(lm)	1868.57	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 50.5
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: 2025-07-27

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.880m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

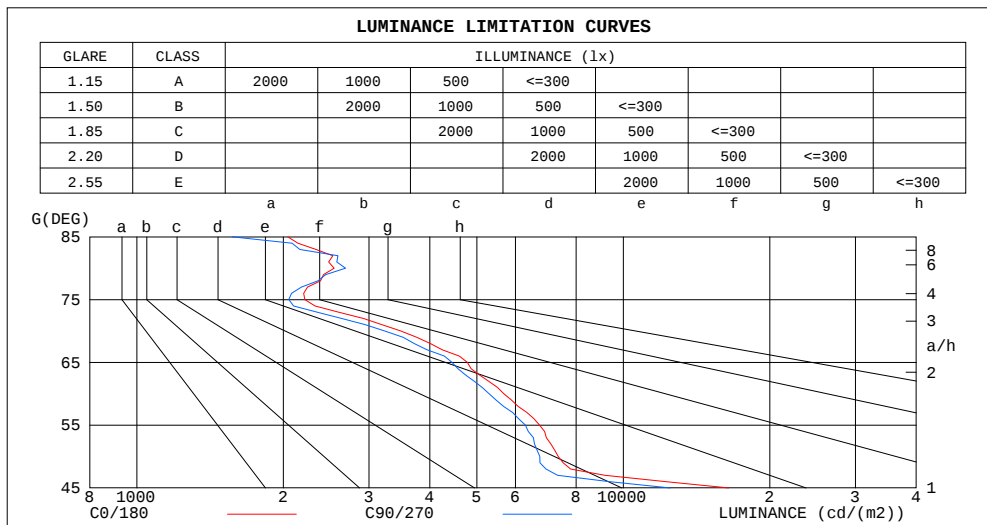
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	2038	2028	2021	2016	2030	2037	2037	2040	0- 10	200.9	200.9	10.8,10.8
20	1667	1634	1615	1605	1620	1645	1671	1691	10- 20	529.7	730.7	39.1,39.1
30	924.8	930.9	909.3	899.9	909.8	902.6	913.5	935.2	20- 30	575.9	1307	69.9,69.9
40	468.0	429.7	377.0	362.3	405.2	450.1	492.8	509.1	30- 40	443.1	1750	93.6,93.6
50	25.55	23.64	23.42	23.15	24.53	24.35	24.59	24.38	40- 50	86.23	1836	98.2,98.2
60	15.36	14.55	14.33	14.08	14.94	14.77	15.31	14.99	50- 60	17.69	1854	99.2,99.2
70	6.449	6.094	5.976	5.810	6.233	6.229	6.419	6.437	60- 70	10.26	1864	99.7,99.7
80	2.390	2.367	2.522	2.348	2.277	2.332	2.333	2.420	70- 80	3.677	1867	99.9,99.9
90	0.0092	0.0092	0.0092	0.0092	0.0322	0.0230	0.0276	0.0230	80- 90	1.117	1869	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:2025-07-27

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
 Humidity:65.0%
 Test Distance:7.880m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2043	1570
80	2544	2685
75	2214	2053
70	3485	3230
65	4777	4444
60	5679	5297
55	6723	6291
50	7346	6736
45	16462	12481

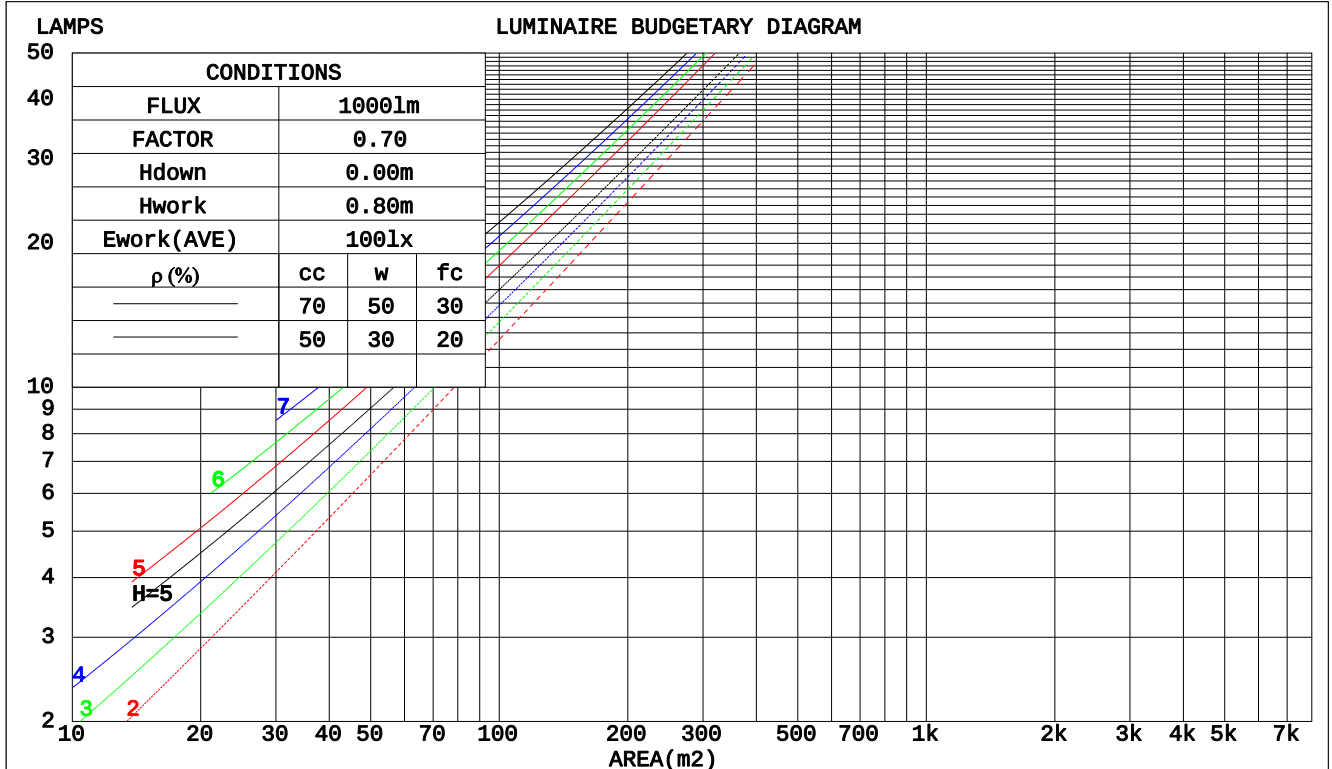
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-27

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.880m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	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	1.06	1.04	1.05	1.03	1.01	1.01	.99	.98	.97	.96	.95	.93
2.0	1.03	.99	.96	1.01	.98	.95	.98	.95	.92	.95	.93	.90	.92	.90	.89	.87
3.0	.96	.91	.87	.95	.90	.86	.92	.88	.85	.90	.86	.84	.87	.85	.82	.81
4.0	.90	.84	.80	.89	.84	.80	.86	.82	.79	.84	.81	.78	.83	.79	.77	.75
5.0	.84	.78	.74	.83	.78	.74	.81	.77	.73	.80	.76	.72	.78	.75	.72	.70
6.0	.79	.73	.69	.78	.72	.68	.77	.72	.68	.75	.71	.67	.74	.70	.67	.66
7.0	.74	.68	.64	.74	.68	.64	.72	.67	.63	.71	.67	.63	.70	.66	.63	.61
8.0	.70	.64	.60	.69	.64	.60	.68	.63	.59	.67	.63	.59	.66	.62	.59	.58
9.0	.66	.60	.56	.66	.60	.56	.65	.59	.56	.64	.59	.56	.63	.59	.55	.54
10.0	.62	.57	.53	.62	.56	.53	.61	.56	.53	.60	.56	.52	.60	.55	.52	.51



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-27

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.880m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm					
NAME: DL2092-BKTC20C01P			TYPE:		WEIGHT:
SPEC.: black RA90 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 83mm		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	.178	.102	.032	.172	.098	.031	.159	.091	.029	.148	.085	.027	.137	.079	.026		
2.0	.171	.094	.029	.165	.091	.028	.155	.086	.027	.145	.081	.025	.136	.077	.024		
3.0	.163	.087	.026	.158	.085	.025	.149	.081	.025	.141	.077	.024	.133	.074	.023		
4.0	.155	.081	.024	.151	.079	.023	.143	.076	.023	.136	.073	.022	.129	.070	.021		
5.0	.148	.075	.022	.144	.074	.022	.138	.072	.021	.131	.069	.021	.125	.067	.020		
6.0	.141	.071	.020	.138	.070	.020	.132	.068	.020	.127	.066	.019	.121	.064	.019		
7.0	.135	.067	.019	.132	.066	.019	.127	.064	.019	.122	.063	.018	.117	.061	.018		
8.0	.129	.063	.018	.127	.063	.018	.122	.061	.017	.118	.060	.017	.114	.058	.017		
9.0	.124	.060	.017	.122	.059	.017	.118	.058	.016	.114	.057	.016	.110	.056	.016		
10.0	.119	.057	.016	.117	.057	.016	.113	.055	.016	.110	.054	.015	.106	.053	.015		

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	.171	.157	.145	.147	.135	.125	.100	.093	.086	.058	.054	.050	.018	.017	.016	
2.0	.156	.132	.113	.134	.114	.097	.092	.079	.068	.053	.046	.040	.017	.015	.013	
3.0	.144	.114	.089	.123	.098	.078	.085	.068	.054	.049	.040	.032	.016	.013	.011	
4.0	.134	.099	.072	.115	.085	.063	.079	.060	.044	.046	.035	.026	.015	.011	.009	
5.0	.125	.087	.059	.107	.076	.052	.074	.053	.036	.043	.031	.022	.014	.010	.007	
6.0	.118	.078	.050	.101	.068	.043	.070	.047	.031	.041	.028	.018	.013	.009	.006	
7.0	.111	.071	.042	.096	.061	.036	.066	.043	.026	.038	.025	.015	.012	.008	.005	
8.0	.106	.064	.036	.091	.056	.031	.063	.039	.022	.037	.023	.013	.012	.008	.004	
9.0	.101	.059	.031	.087	.051	.027	.060	.036	.019	.035	.021	.011	.011	.007	.004	
10.0	.096	.055	.027	.083	.048	.024	.058	.033	.017	.034	.020	.010	.011	.007	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-27

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.880m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm											
NAME: DL2092-BKTC20C01P					TYPE:			WEIGHT:			
SPEC.: black RA90 3000K+5700K					DIM.:			SERIAL No.:			
MFR.:					SUR.: 83mm			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		19.2	20.1	19.4	20.3	20.5	18.9	19.9	19.1	20.0	20.2
	3H	19.0	19.9	19.3	20.1	20.3	18.8	19.6	19.0	19.8	20.0
	4H	19.0	19.8	19.2	20.0	20.2	18.7	19.5	19.0	19.7	20.0
	6H	18.9	19.7	19.2	19.9	20.2	18.6	19.4	18.9	19.6	19.9
	8H	18.8	19.6	19.2	19.8	20.1	18.6	19.3	18.9	19.6	19.8
	12H	18.8	19.5	19.1	19.8	20.1	18.5	19.2	18.8	19.5	19.8
4H	2H	18.9	19.8	19.2	20.0	20.2	18.7	19.5	18.9	19.7	19.9
	3H	18.8	19.5	19.1	19.8	20.1	18.5	19.2	18.9	19.5	19.8
	4H	18.7	19.4	19.1	19.7	20.0	18.4	19.1	18.8	19.4	19.7
	6H	18.6	19.2	19.0	19.5	19.9	18.4	18.9	18.7	19.3	19.6
	8H	18.6	19.1	19.0	19.5	19.9	18.3	18.9	18.7	19.2	19.6
	12H	18.6	19.0	19.0	19.4	19.8	18.3	18.8	18.7	19.1	19.5
8H	4H	18.6	19.1	19.0	19.5	19.8	18.3	18.8	18.7	19.2	19.6
	6H	18.5	18.9	18.9	19.3	19.8	18.2	18.7	18.7	19.1	19.5
	8H	18.5	18.9	18.9	19.3	19.7	18.2	18.6	18.6	19.0	19.4
	12H	18.4	18.8	18.9	19.2	19.7	18.2	18.5	18.6	18.9	19.4
12H	4H	18.5	19.0	19.0	19.4	19.8	18.3	18.7	18.7	19.1	19.5
	6H	18.5	18.8	18.9	19.3	19.7	18.2	18.6	18.6	19.0	19.4
	8H	18.4	18.7	18.9	19.2	19.7	18.1	18.5	18.6	18.9	19.4
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 3.2 / -11.3					+ 3.4 / -11.1					
1.5H	+ 5.9 / -10.5					+ 6.1 / -10.4					
2.0H	+ 3.9 / - 1.2					+ 2.7 / - 0.9					

CIE Pub.117, 1869 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 2.2$)
Area: 0.00541 m²

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-27

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.880m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

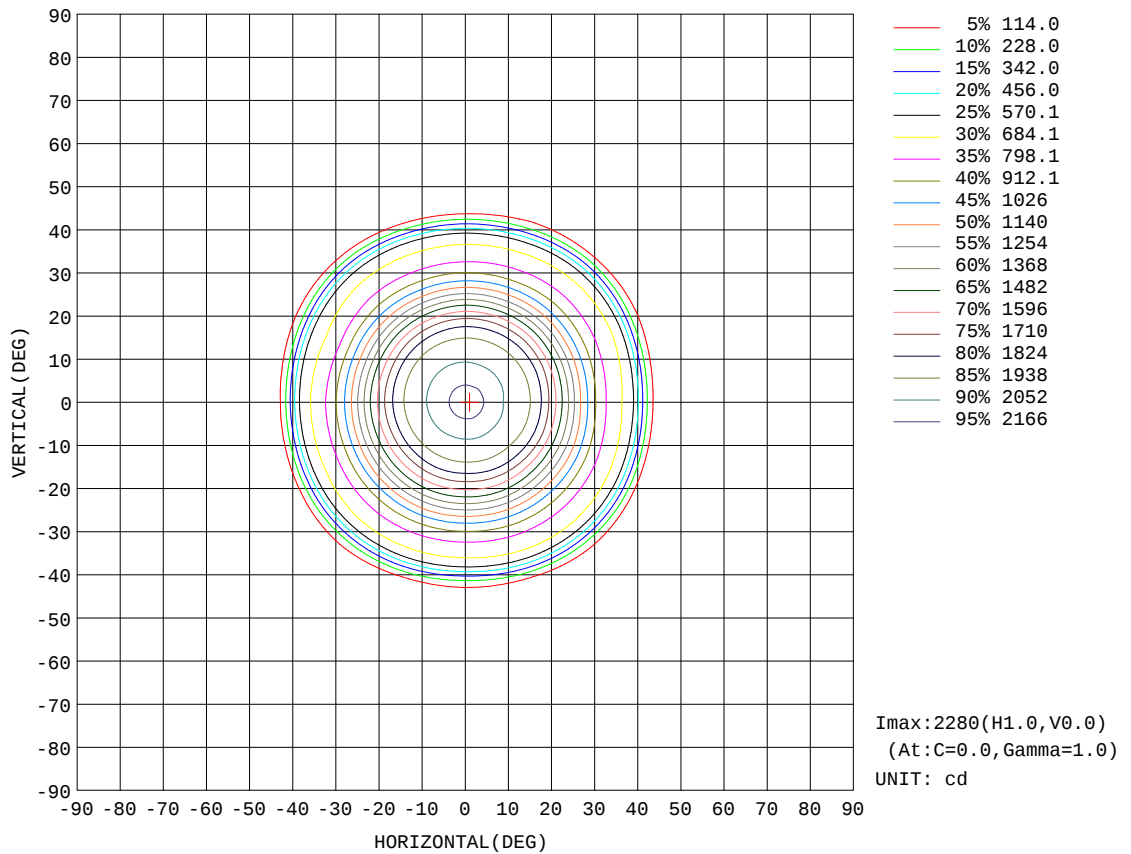
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	81	78	87	81	77	86	81	77	74
0.80	95	89	86	94	89	85	93	88	85	81
1.00	99	94	90	99	93	90	97	93	90	86
1.25	103	98	95	102	98	94	100	97	94	90
1.50	106	101	98	105	101	98	103	99	97	92
2.00	109	105	101	107	104	101	105	102	99	94
2.50	110	107	104	109	105	103	106	103	101	95
3.00	112	109	106	110	107	105	107	104	103	96
4.00	114	111	109	112	110	108	108	106	105	98
5.00	115	113	111	113	111	109	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:2025-07-27

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.880m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

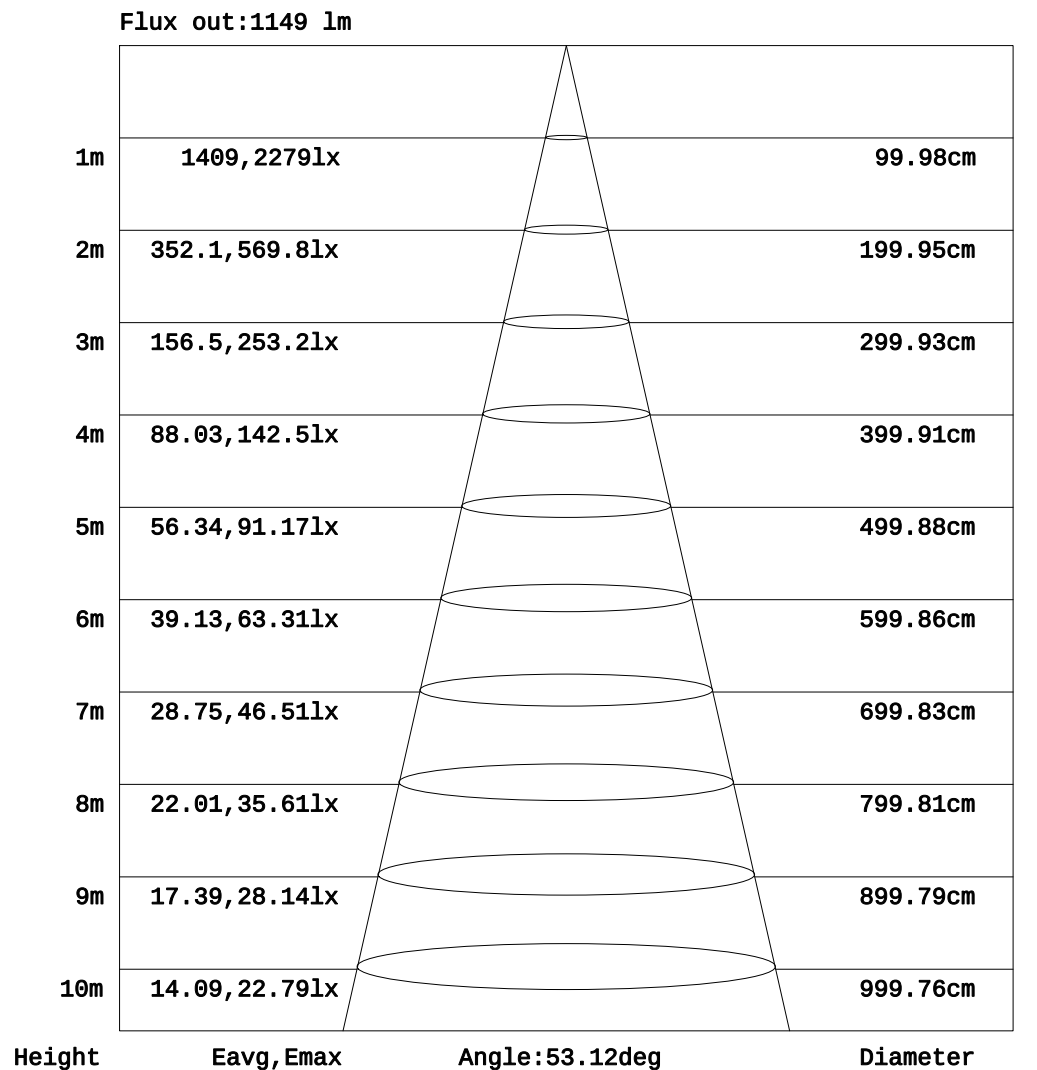


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-27

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.880m [K=1.0000]
Remarks:

AAI Figure

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:



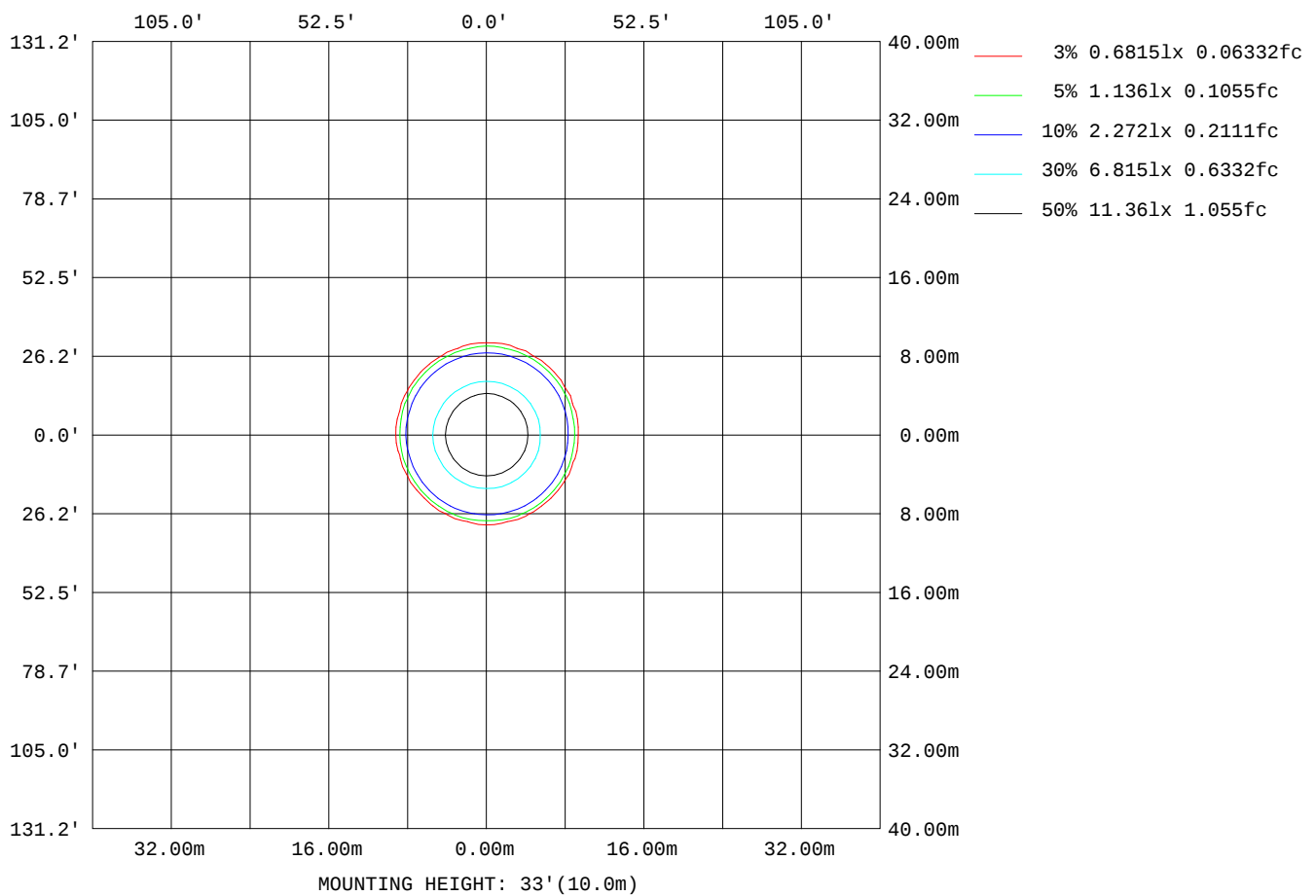
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-27

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.880m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-27

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.880m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:232.07V I:0.0916A P:20.671W PF:0.9729 Freq:49.99Hz Lamp Flux:1868.57x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

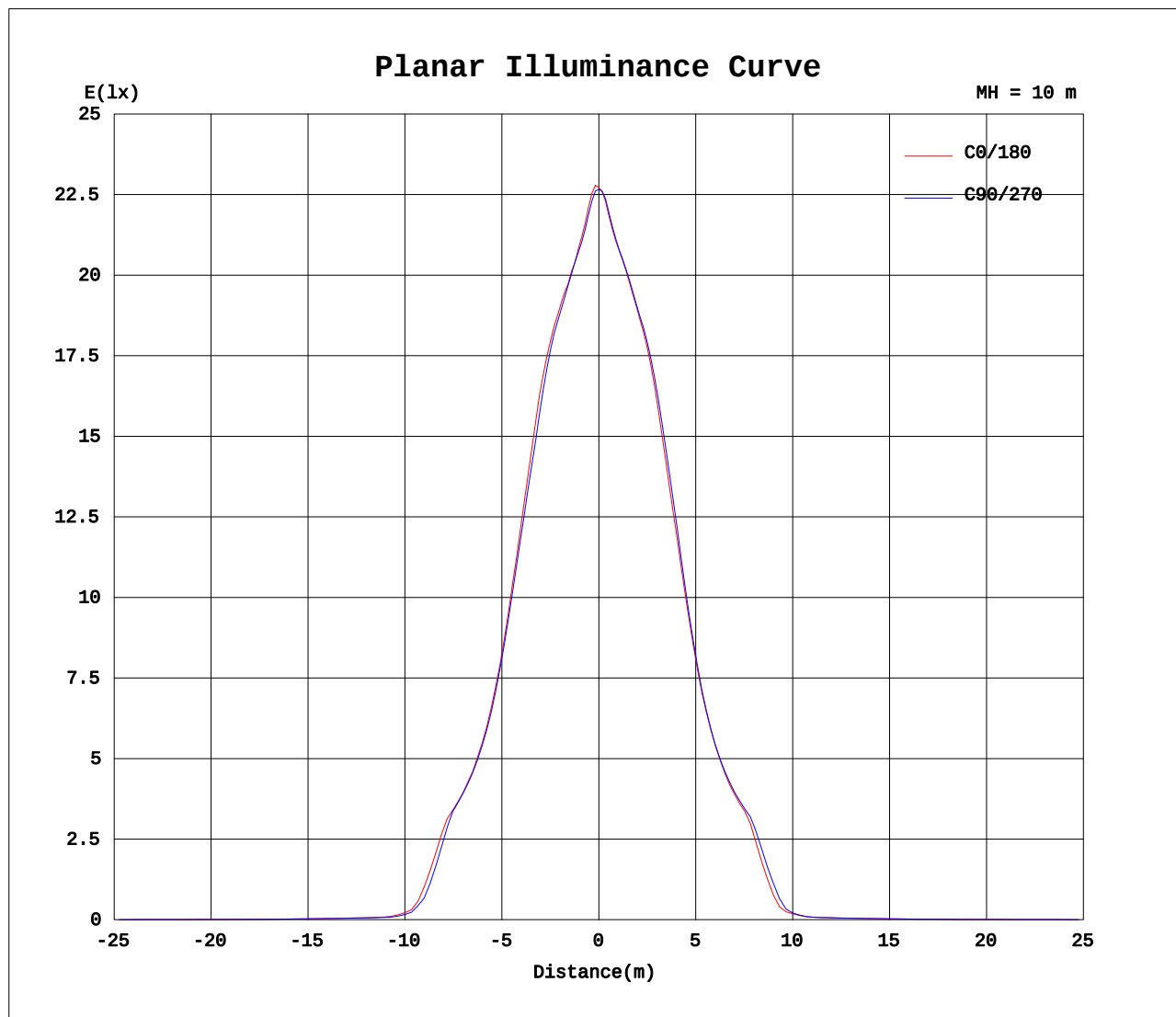
AvgL	cd/m2
L_0~180(65)av	4692
L_0~180(75)av	2128
L_0~180(85)av	1894
L_90~270(65)av	4588
L_90~270(75)av	2088
L_90~270(85)av	1847
L_45(65)av	4486
L_45(75)av	2099
L_45(85)av	1827

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-27

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.880m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2025-07-27

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.880m [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:7.880m [K=1.0000]
Remarks:

```