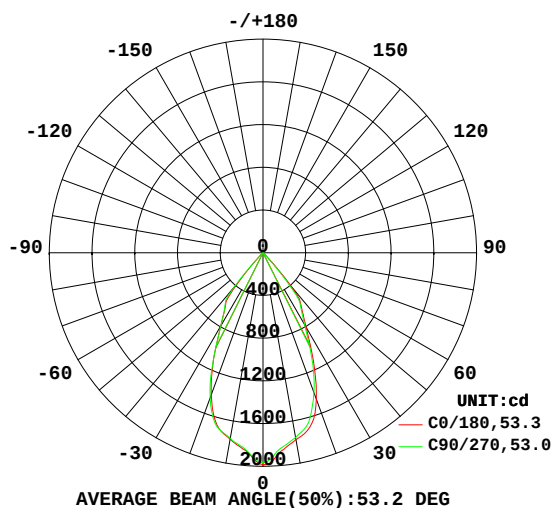


LUMINAIRE PHOTOMETRIC TEST REPORT

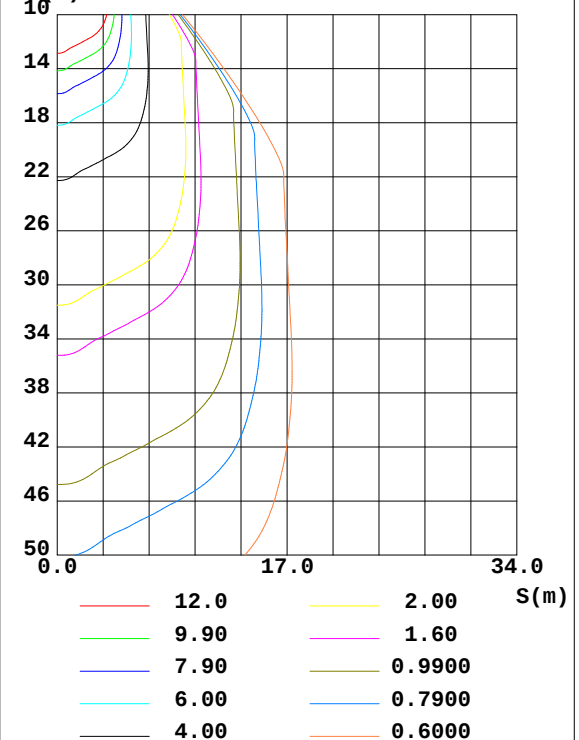
Test:U:232.07V I:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 71.57 lm/W			
MODEL	TBG-1510E 3000K	I _{max} (cd)	1984	S/MH(C0/180)	0.83
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	0.83
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	1619.9	η UP, DN(C0-180)	0.0, 49.5
NOMINAL FLUX(lm)	1619.85	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:

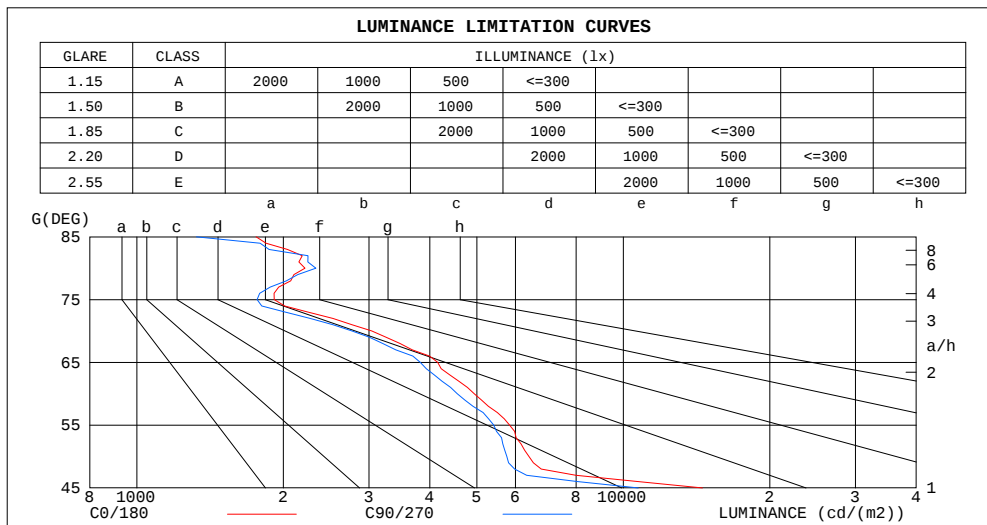
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1778	1762	1757	1742	1773	1769	1764	1764	0- 10	174.3	174.3	10.8,10.8
20	1460	1420	1396	1387	1416	1431	1448	1464	10- 20	459.6	634.0	39.1,39.1
30	809.8	808.8	782.4	773.5	794.0	785.0	788.8	808.1	20- 30	499.0	1133	69.9,69.9
40	408.6	371.6	322.2	310.8	356.5	388.2	433.3	448.0	30- 40	384.1	1517	93.7,93.7
50	22.24	20.45	20.03	19.92	21.30	21.07	21.20	20.98	40- 50	74.49	1592	98.3,98.3
60	13.35	12.55	12.32	12.10	13.00	12.78	13.20	12.89	50- 60	15.28	1607	99.2,99.2
70	5.625	5.257	5.120	5.009	5.435	5.399	5.529	5.560	60- 70	8.857	1616	99.7,99.7
80	2.082	2.073	2.191	2.026	1.992	2.056	2.048	2.090	70- 80	3.175	1619	99.9,99.9
90	0	0	0	0	0.0184	0.0092	0.0092	0.0092	80- 90	0.9573	1620	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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 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	1759	1325
80	2216	2333
75	1915	1767
70	3040	2767
65	4152	3822
60	4935	4554
55	5835	5415
50	6396	5759
45	14542	10729

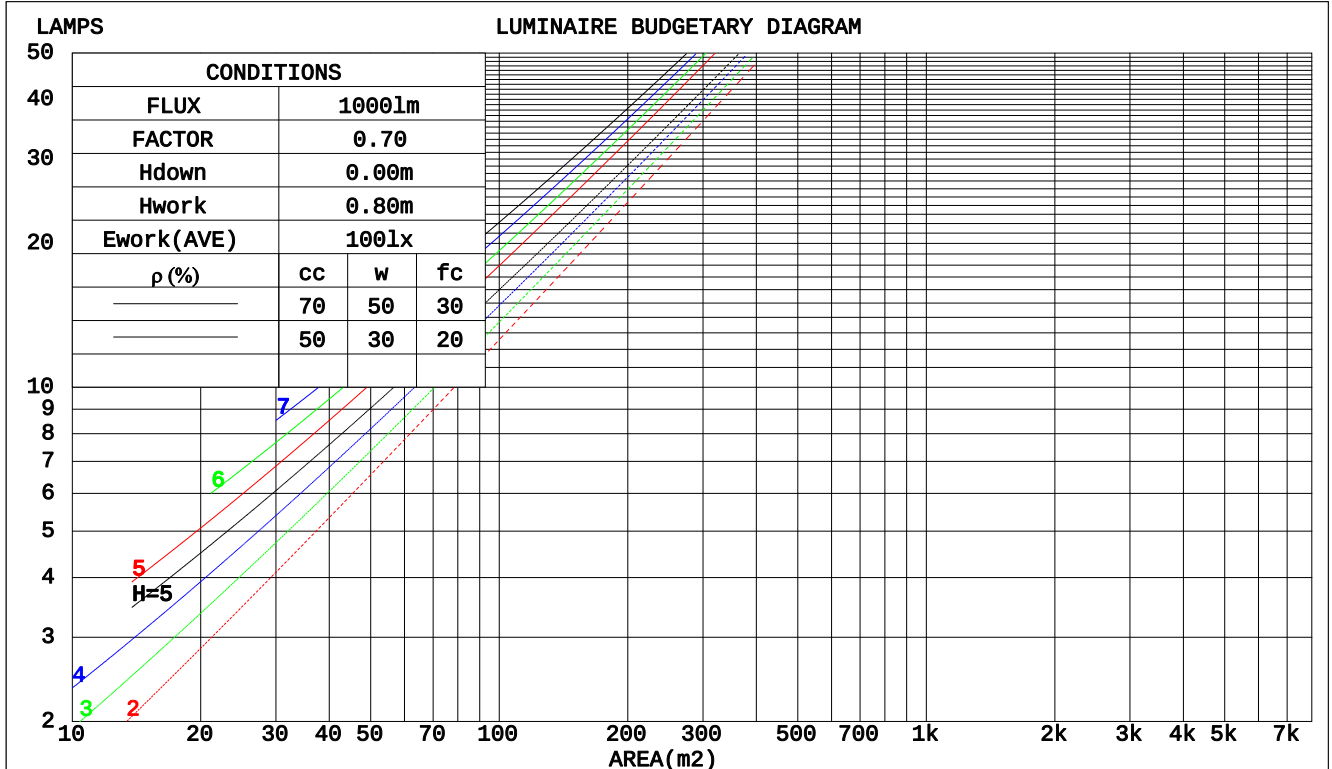
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-27

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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 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	1.00
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	.73	.68	.77	.72	.68	.75	.71	.68	.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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 lm					
NAME: DL2092-BKTC20C01P			TYPE:		WEIGHT:
SPEC.: black RA90 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 83mm		Shielding Angle:

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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.178	.101	.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	.062	.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	.037	.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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 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	2H	19.3	20.2	19.5	20.4	20.6	18.9	19.9	19.2	20.1	20.2
	3H	19.1	20.0	19.4	20.2	20.4	18.8	19.7	19.1	19.9	20.1
	4H	19.1	19.9	19.3	20.1	20.3	18.7	19.6	19.0	19.8	20.0
	6H	19.0	19.8	19.3	20.0	20.2	18.6	19.4	18.9	19.7	19.9
	8H	18.9	19.7	19.3	19.9	20.2	18.6	19.4	18.9	19.6	19.9
	12H	18.9	19.6	19.2	19.9	20.2	18.6	19.3	18.9	19.5	19.8
4H	2H	19.0	19.9	19.3	20.1	20.3	18.7	19.5	19.0	19.8	20.0
	3H	18.9	19.6	19.2	19.9	20.2	18.6	19.3	18.9	19.6	19.8
	4H	18.8	19.5	19.2	19.8	20.1	18.5	19.1	18.8	19.4	19.7
	6H	18.7	19.3	19.1	19.6	20.0	18.4	19.0	18.8	19.3	19.7
	8H	18.7	19.2	19.1	19.6	19.9	18.4	18.9	18.8	19.3	19.6
	12H	18.7	19.1	19.1	19.5	19.9	18.3	18.8	18.7	19.2	19.6
8H	4H	18.7	19.2	19.1	19.6	19.9	18.4	18.9	18.8	19.2	19.6
	6H	18.6	19.0	19.0	19.4	19.8	18.3	18.7	18.7	19.1	19.5
	8H	18.6	18.9	19.0	19.4	19.8	18.2	18.6	18.7	19.0	19.5
	12H	18.5	18.8	19.0	19.3	19.8	18.2	18.5	18.7	19.0	19.4
12H	4H	18.6	19.1	19.0	19.5	19.9	18.3	18.8	18.7	19.2	19.6
	6H	18.6	18.9	19.0	19.4	19.8	18.2	18.6	18.7	19.0	19.5
	8H	18.5	18.8	19.0	19.3	19.8	18.2	18.5	18.7	19.0	19.4
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 3.1 / -11.3					+ 3.3 / -11.1					
1.5H	+ 5.8 / -10.5					+ 6.1 / -10.5					
2.0H	+ 4.0 / - 1.3					+ 2.6 / - 0.9					

CIE Pub.117, 1620 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 1.7$)
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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

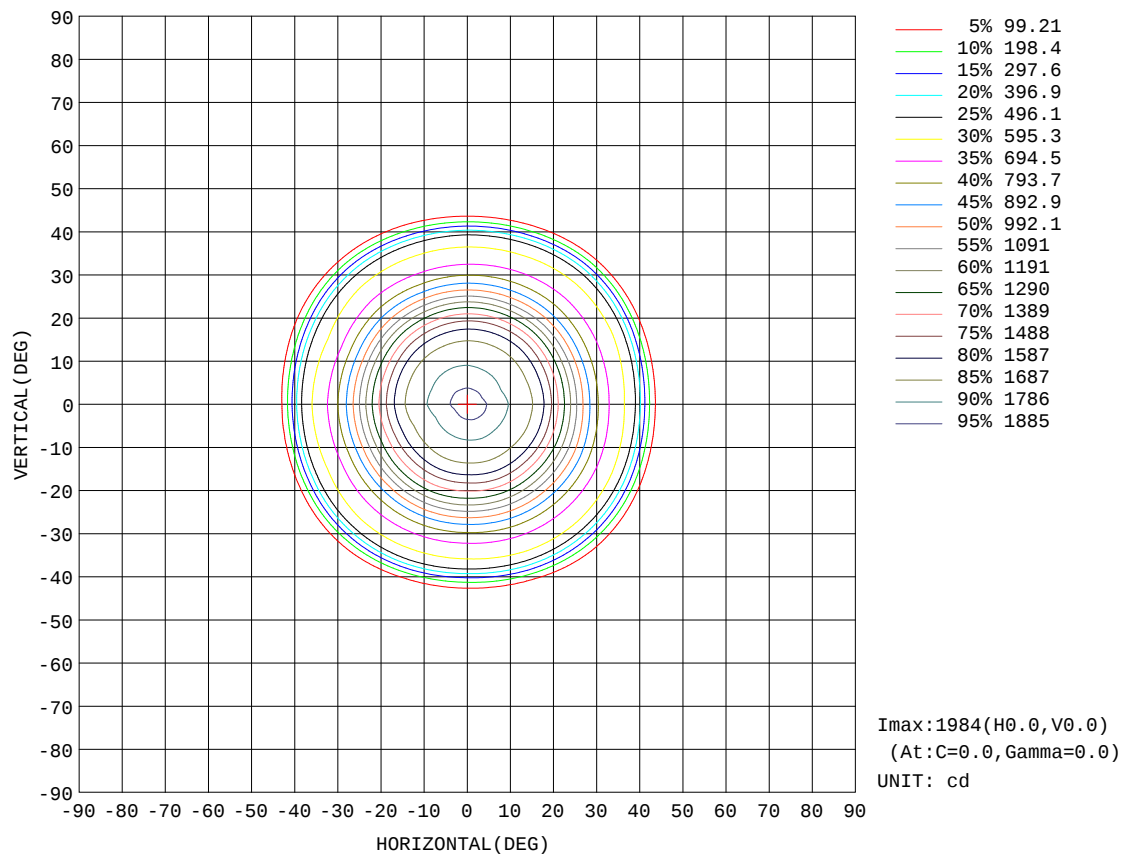
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	81	78	87	81	77	86	81	77	74
0.80	95	89	86	94	89	85	93	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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

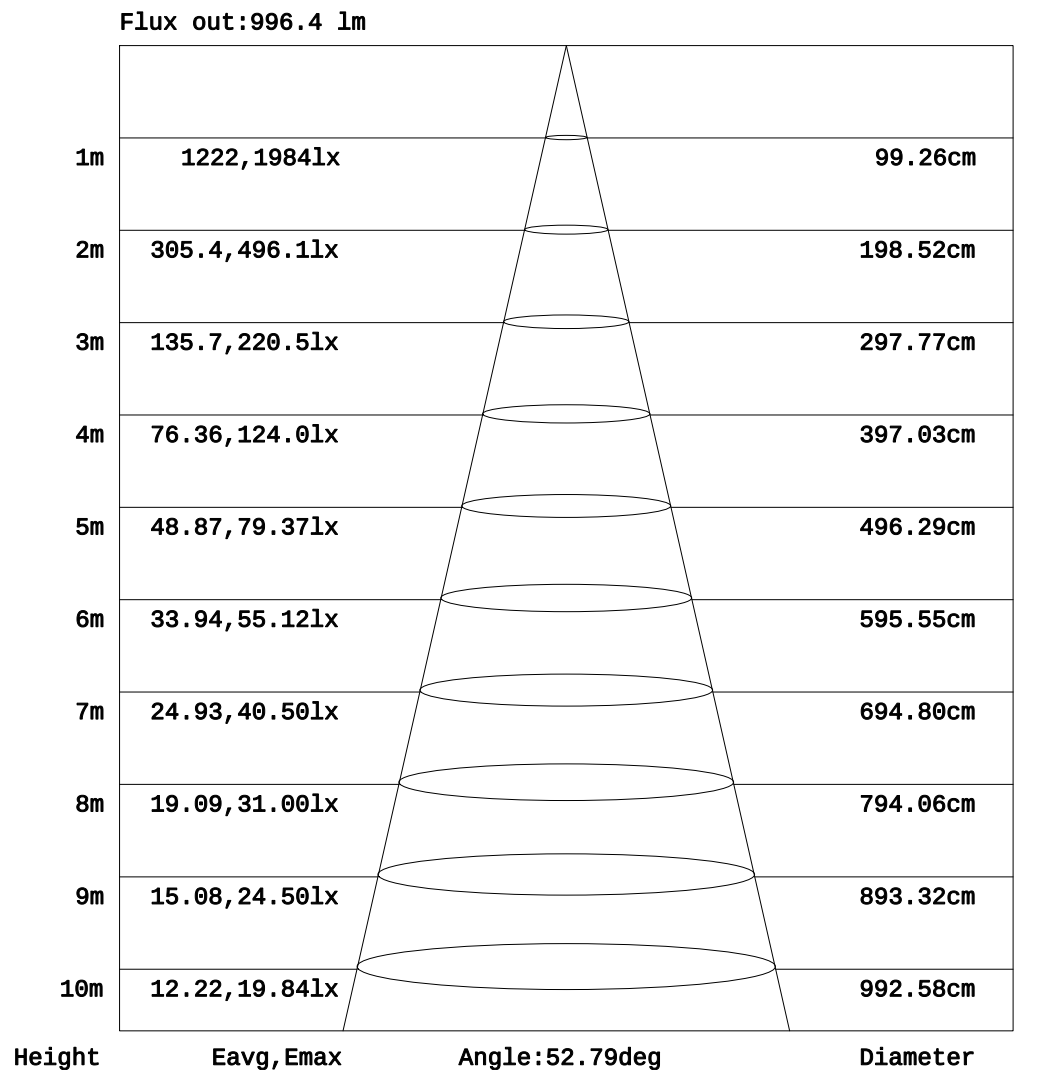


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-27

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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:



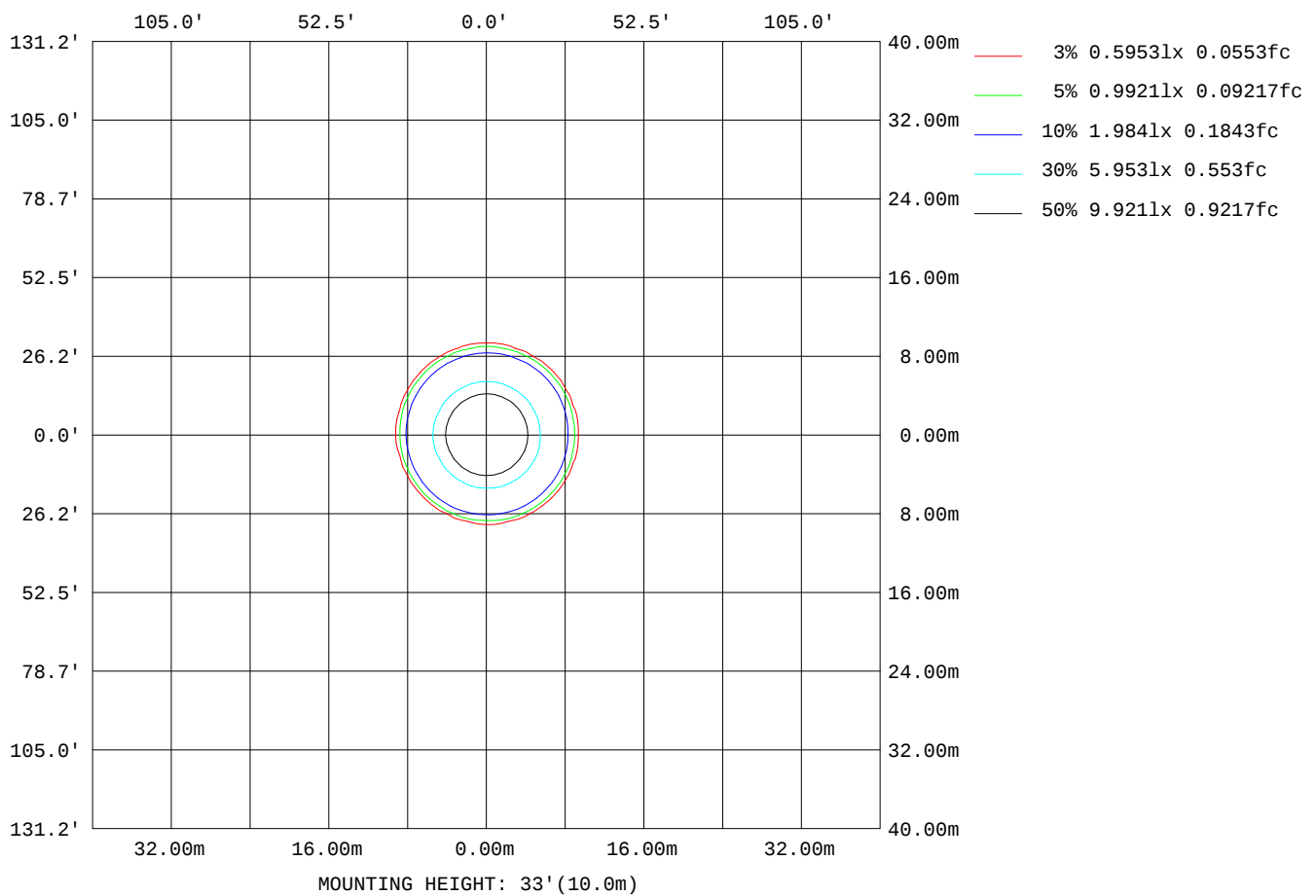
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 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:0.0997A P:22.633W PF:0.9784 Freq:49.99Hz Lamp Flux:1619.85x1 lm		
NAME: DL2092-BKTC20C01P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 83mm	Shielding Angle:

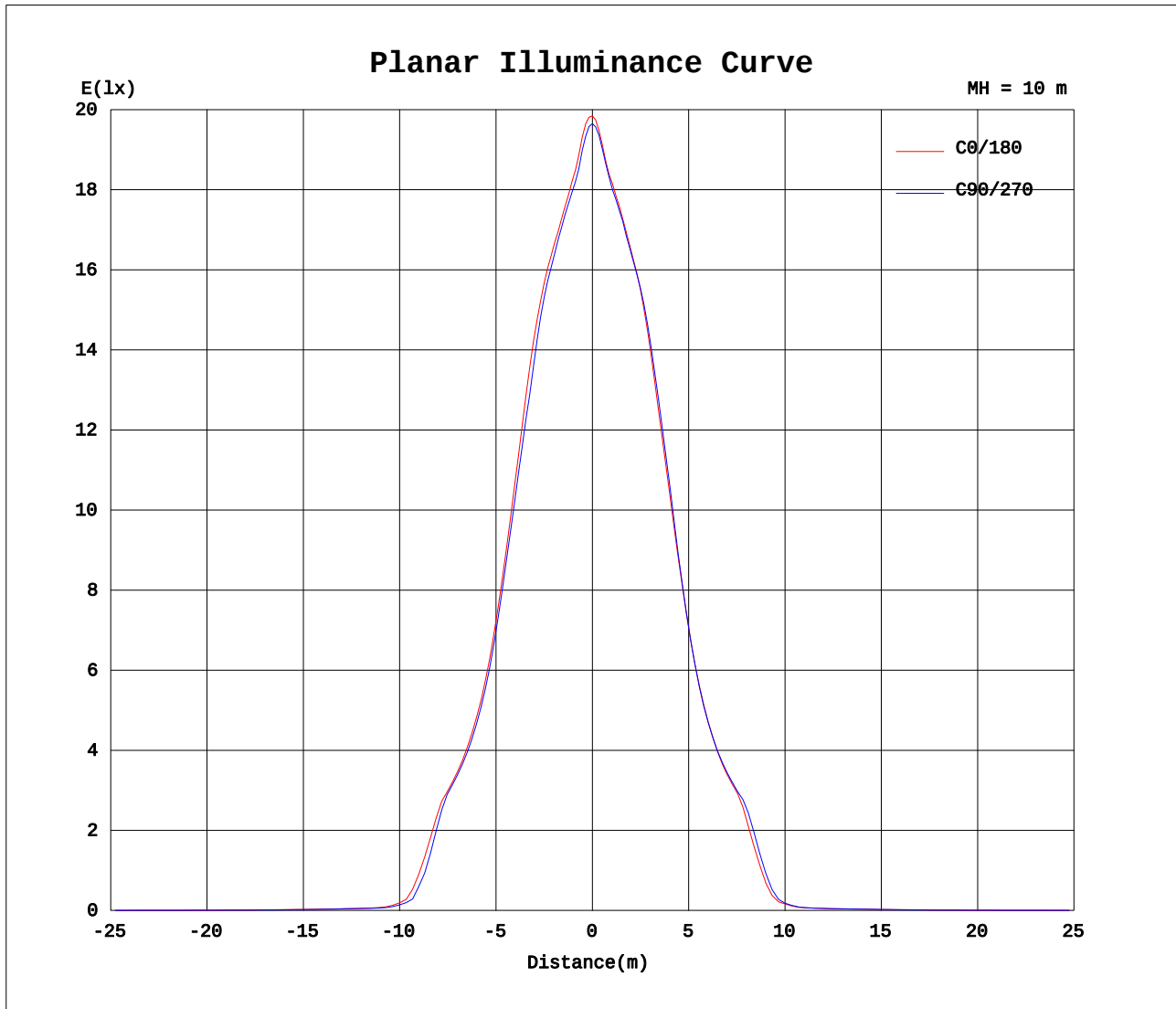
AvgL	cd/m2
L_0~180(65)av	4079
L_0~180(75)av	1841
L_0~180(85)av	1612
L_90~270(65)av	3945
L_90~270(75)av	1795
L_90~270(85)av	1569
L_45(65)av	3869
L_45(75)av	1811
L_45(85)av	1554

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:

```