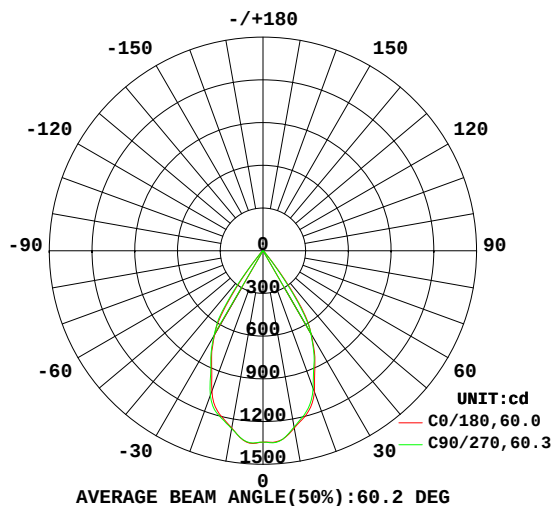


LUMINAIRE PHOTOMETRIC TEST REPORT

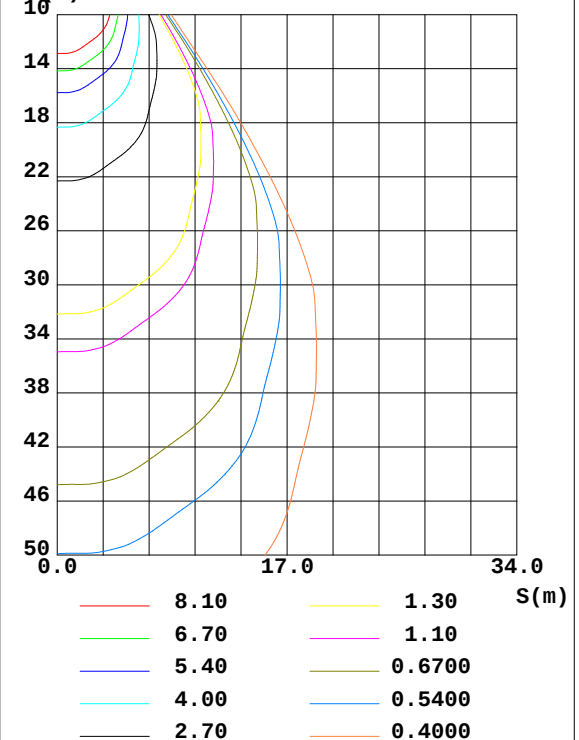
Test:U:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 91.07 lm/W			
MODEL	TB15111204 4000K	I _{max} (cd)	1356	S/MH(C0/180)	0.90
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	0.91
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	1127.4	η UP, DN(C0-180)	0.0, 49.2
NOMINAL FLUX(lm)	1127.4	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 50.8
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: 2023-10-20

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:

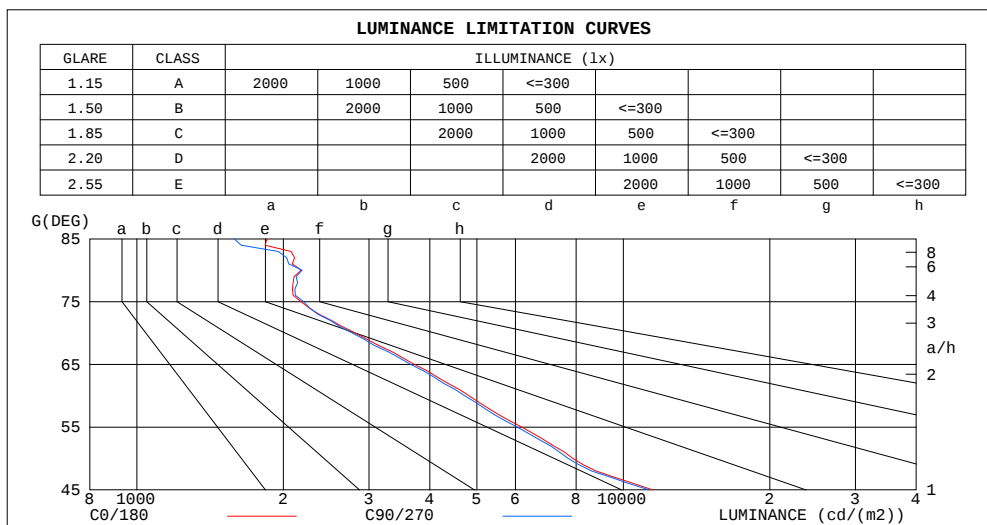
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1264	1258	1257	1256	1265	1267	1269	1268	0- 10	125.4	125.4	11.1, 11.1
20	1055	1030	1029	1027	1051	1071	1081	1076	10- 20	330.4	455.9	40.4, 40.4
30	676.9	678.4	674.4	671.8	680.2	682.7	688.0	689.5	20- 30	393.7	849.6	75.4, 75.4
40	92.10	69.34	66.57	64.28	76.17	86.75	95.69	96.65	30- 40	238.5	1088	96.5, 96.5
50	14.32	14.15	14.01	14.02	14.33	14.54	14.67	14.53	40- 50	23.21	1111	98.6, 98.6
60	6.811	6.730	6.672	6.753	6.966	7.077	7.077	7.016	50- 60	9.153	1120	99.4, 99.4
70	2.717	2.682	2.682	2.756	2.869	2.903	2.900	2.853	60- 70	4.575	1125	99.8, 99.8
80	1.070	1.066	1.074	1.132	1.141	1.122	1.157	1.122	70- 80	1.863	1127	100, 100
90	0.0116	0.0116	0.0077	0.0077	0	0	0	0	80- 90	0.5028	1127	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:2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	Shielding Angle:



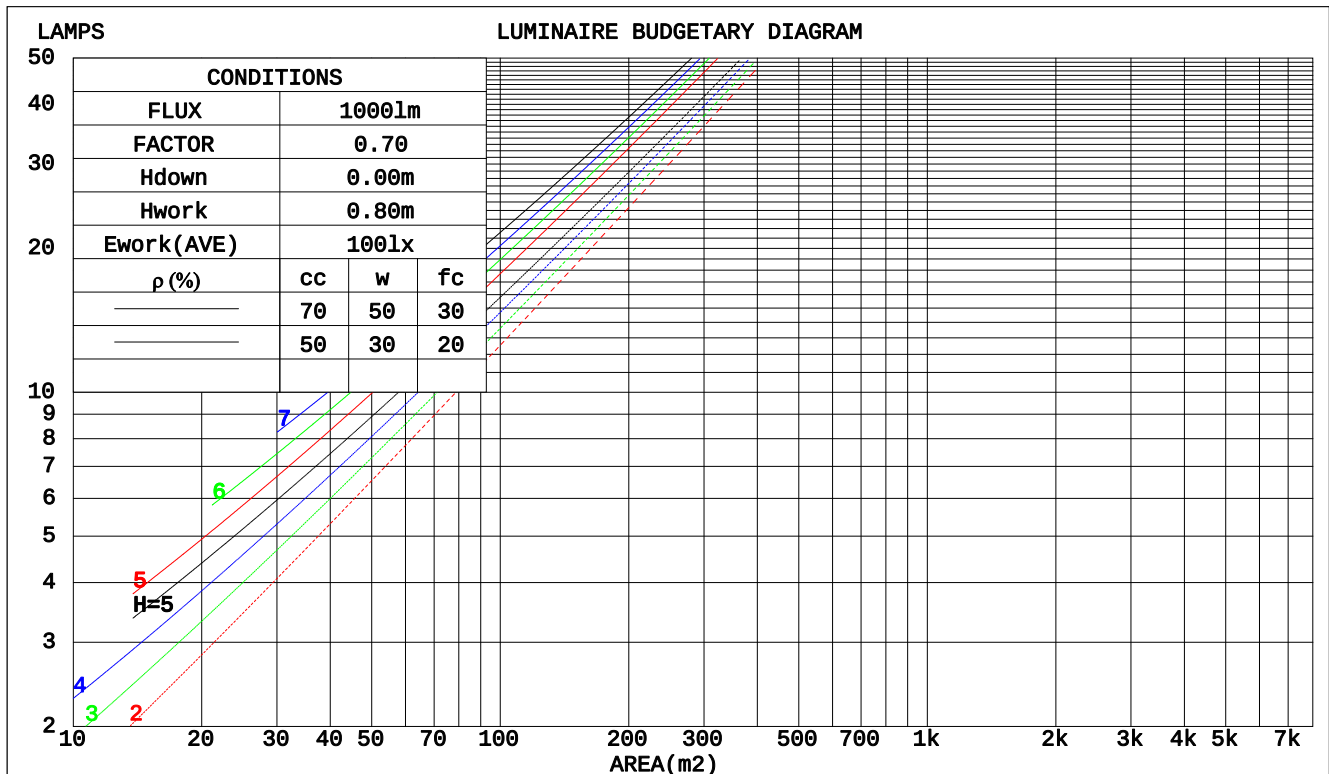
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	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	1.11	1.09	1.06	1.09	1.07	1.05	1.05	1.03	1.01	1.01	.99	.98	.98	.97	.96	.94
2.0	1.04	.99	.96	1.02	.98	.95	.99	.96	.93	.96	.93	.91	.93	.91	.89	.88
3.0	.97	.92	.88	.95	.91	.87	.93	.89	.86	.90	.87	.85	.88	.86	.83	.82
4.0	.91	.85	.81	.90	.85	.81	.87	.83	.80	.86	.82	.79	.84	.81	.78	.77
5.0	.85	.80	.75	.84	.79	.75	.83	.78	.74	.81	.77	.74	.79	.76	.73	.72
6.0	.80	.74	.70	.79	.74	.70	.78	.73	.70	.77	.72	.69	.75	.72	.69	.67
7.0	.76	.70	.66	.75	.69	.66	.74	.69	.65	.72	.68	.65	.71	.67	.64	.63
8.0	.71	.66	.62	.71	.65	.61	.70	.65	.61	.69	.64	.61	.68	.64	.61	.59
9.0	.68	.62	.58	.67	.62	.58	.66	.61	.58	.65	.61	.57	.64	.60	.57	.56
10.0	.64	.58	.55	.64	.58	.55	.63	.58	.54	.62	.57	.54	.61	.57	.54	.53



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm					
NAME: DL2082-BKTC15C01P			TYPE:		WEIGHT:
SPEC.: black R80 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 60mm		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	.174	.099	.031	.167	.095	.030	.155	.089	.028	.143	.083	.026	.132	.077	.025	
2.0	.166	.091	.028	.160	.088	.027	.150	.083	.026	.140	.079	.025	.131	.074	.023	
3.0	.158	.084	.025	.153	.082	.025	.144	.078	.024	.136	.075	.023	.128	.071	.022	
4.0	.151	.078	.023	.146	.077	.023	.139	.074	.022	.132	.071	.021	.125	.068	.021	
5.0	.144	.073	.021	.140	.072	.021	.133	.069	.020	.127	.067	.020	.121	.065	.019	
6.0	.137	.069	.020	.134	.068	.019	.128	.066	.019	.123	.064	.019	.117	.062	.018	
7.0	.131	.065	.018	.129	.064	.018	.123	.062	.018	.118	.061	.018	.114	.059	.017	
8.0	.126	.062	.017	.123	.061	.017	.119	.059	.017	.114	.058	.017	.110	.057	.016	
9.0	.121	.058	.016	.119	.058	.016	.114	.057	.016	.110	.055	.016	.107	.054	.016	
10.0	.116	.056	.015	.114	.055	.015	.110	.054	.015	.107	.053	.015	.103	.052	.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	.155	.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	.078	.059	.045	.045	.035	.026	.015	.011	.009	
5.0	.124	.087	.060	.106	.075	.052	.073	.053	.037	.042	.031	.022	.014	.010	.007	
6.0	.116	.078	.050	.100	.067	.044	.069	.047	.031	.040	.028	.018	.013	.009	.006	
7.0	.110	.070	.042	.095	.061	.037	.065	.043	.026	.038	.025	.016	.012	.008	.005	
8.0	.104	.064	.036	.090	.056	.032	.062	.039	.022	.036	.023	.013	.012	.008	.004	
9.0	.099	.059	.031	.086	.051	.027	.059	.036	.019	.035	.021	.012	.011	.007	.004	
10.0	.095	.054	.028	.082	.047	.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:2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm											
NAME: DL2082-BKTC15C01P						TYPE:			WEIGHT:		
SPEC.: black R80 3000K+5700K						DIM.:			SERIAL No.:		
MFR.:						SUR.: 60mm			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	20.7	21.7	21.0	21.8	22.0	20.6	21.5	20.8	21.7	21.8	
	3H	20.6	21.4	20.8	21.6	21.8	20.4	21.3	20.7	21.5	21.7
	4H	20.5	21.3	20.8	21.5	21.7	20.3	21.2	20.6	21.4	21.6
	6H	20.4	21.2	20.7	21.4	21.7	20.3	21.0	20.6	21.3	21.5
	8H	20.4	21.1	20.7	21.4	21.6	20.2	20.9	20.5	21.2	21.5
	12H	20.3	21.0	20.7	21.3	21.6	20.2	20.9	20.5	21.1	21.4
4H	2H	20.5	21.3	20.8	21.5	21.7	20.3	21.1	20.6	21.4	21.6
	3H	20.3	21.0	20.7	21.3	21.6	20.2	20.9	20.5	21.1	21.4
	4H	20.3	20.9	20.6	21.2	21.5	20.1	20.7	20.4	21.0	21.3
	6H	20.2	20.7	20.5	21.1	21.4	20.0	20.6	20.4	20.9	21.2
	8H	20.1	20.6	20.5	21.0	21.4	20.0	20.5	20.4	20.8	21.2
	12H	20.1	20.5	20.5	20.9	21.3	19.9	20.4	20.3	20.8	21.2
8H	4H	20.1	20.6	20.5	21.0	21.3	20.0	20.5	20.4	20.8	21.2
	6H	20.0	20.4	20.5	20.8	21.3	19.9	20.3	20.3	20.7	21.1
	8H	20.0	20.4	20.4	20.8	21.2	19.8	20.2	20.3	20.6	21.1
	12H	19.9	20.2	20.4	20.7	21.2	19.8	20.1	20.2	20.5	21.0
12H	4H	20.1	20.5	20.5	20.9	21.3	19.9	20.4	20.3	20.7	21.1
	6H	20.0	20.3	20.4	20.8	21.2	19.8	20.2	20.3	20.6	21.1
	8H	19.9	20.2	20.4	20.7	21.2	19.8	20.1	20.2	20.5	21.0
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 4.9 / - 8.5					+ 4.7 / - 7.6					
1.5H	+ 7.5 / - 7.3					+ 7.3 / - 6.4					
2.0H	+ 2.4 / - 1.6					+ 2.3 / - 1.6					

CIE Pub.117, 1127 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.4)
Area: 0.00283 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	Shielding Angle:

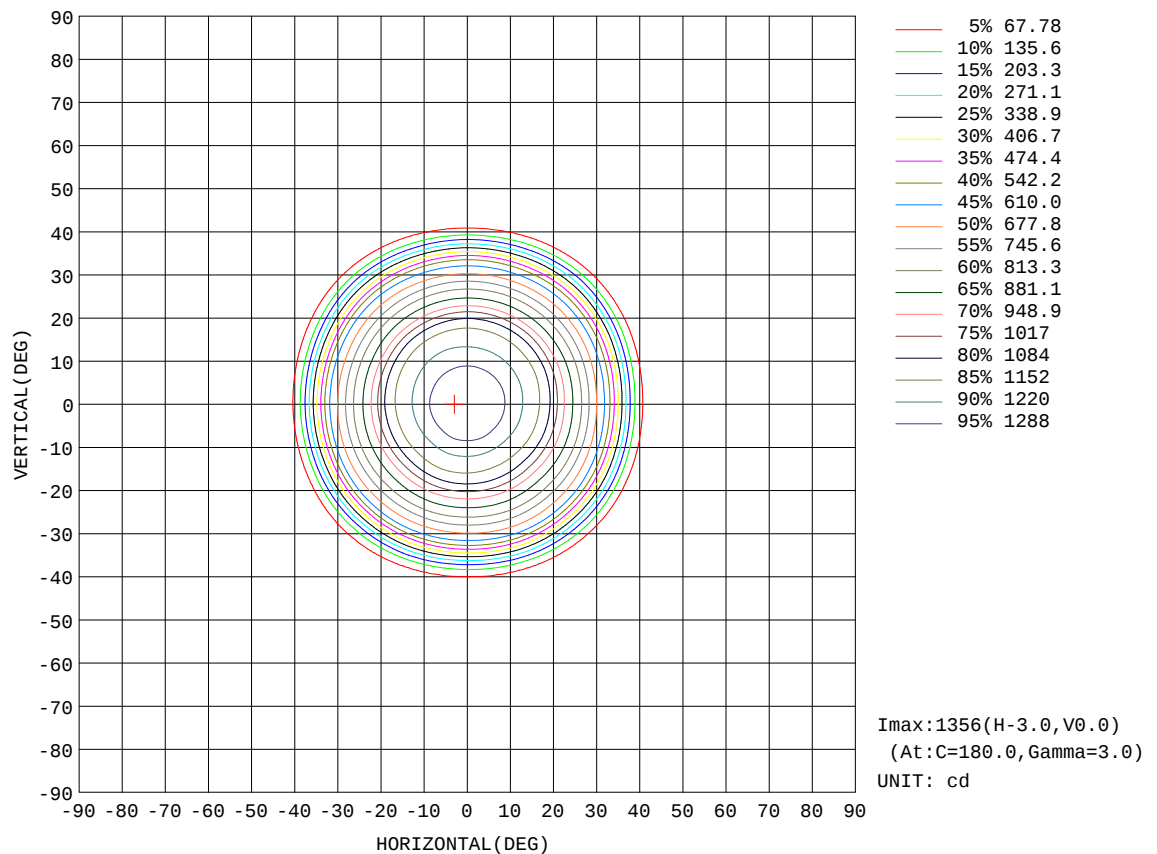
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	89	83	80	89	83	80	88	83	80	76
0.80	97	91	88	96	91	87	95	90	87	84
1.00	101	95	92	100	95	92	98	95	91	87
1.25	104	99	96	103	99	96	101	98	95	91
1.50	107	102	99	106	102	99	103	100	98	93
2.00	109	105	102	108	104	102	105	102	100	95
2.50	111	107	104	109	106	103	106	104	102	96
3.00	112	109	106	110	108	105	107	105	103	97
4.00	114	112	110	112	110	108	109	107	105	98
5.00	115	113	112	113	111	110	109	108	107	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:2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	Shielding Angle:



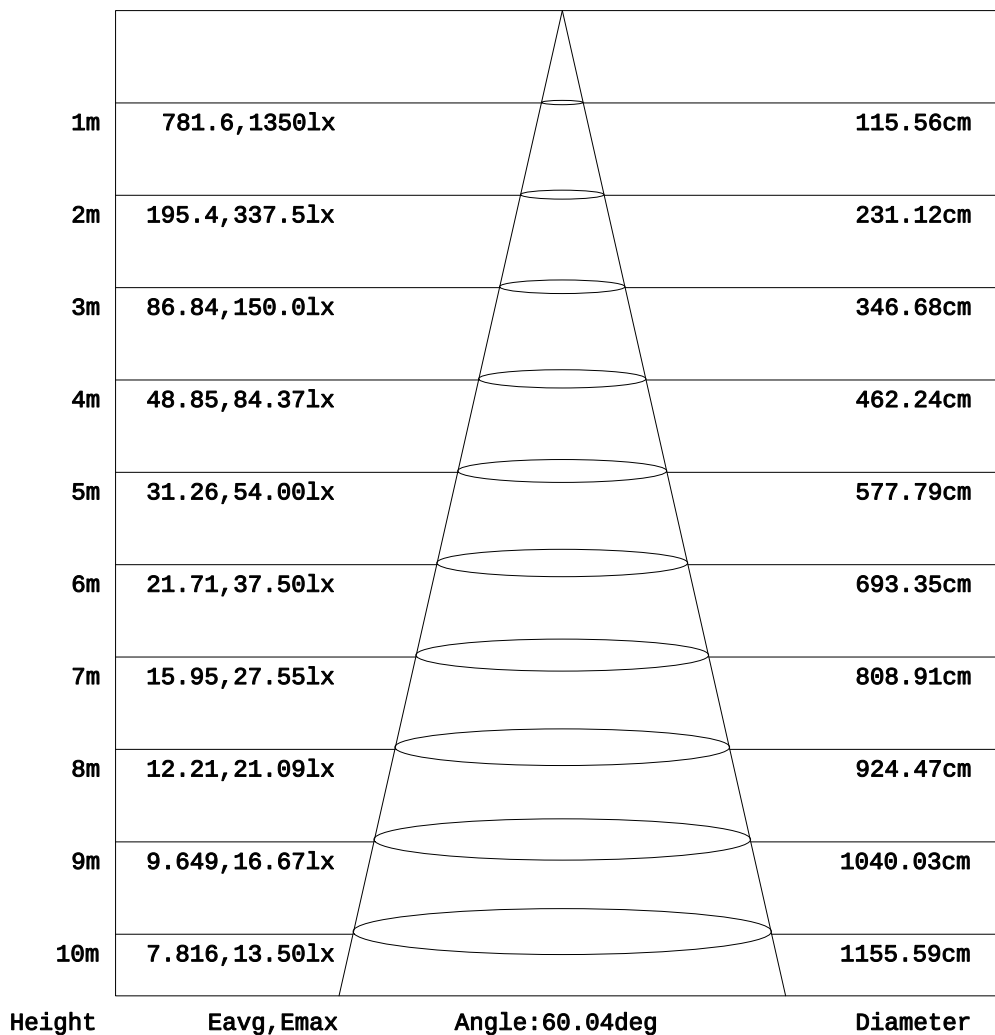
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	Shielding Angle:

Flux out:886.5 lm



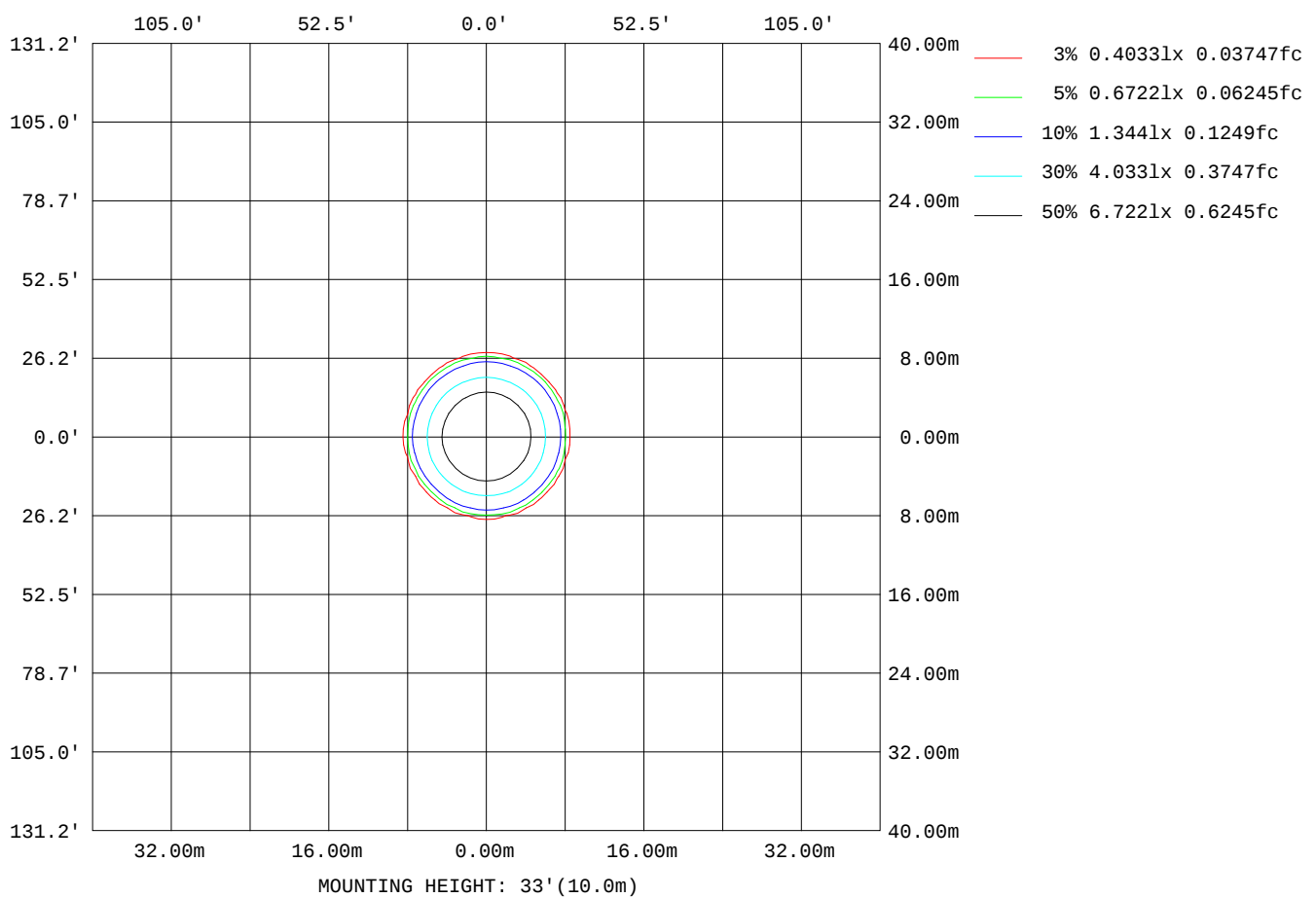
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-10-20

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:220.59V I:0.0578A P:12.379W PF:0.9709 Freq:50.01Hz Lamp Flux:1127.4x1 lm		
NAME: DL2082-BKTC15C01P	TYPE:	WEIGHT:
SPEC.: black R80 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 60mm	Shielding Angle:

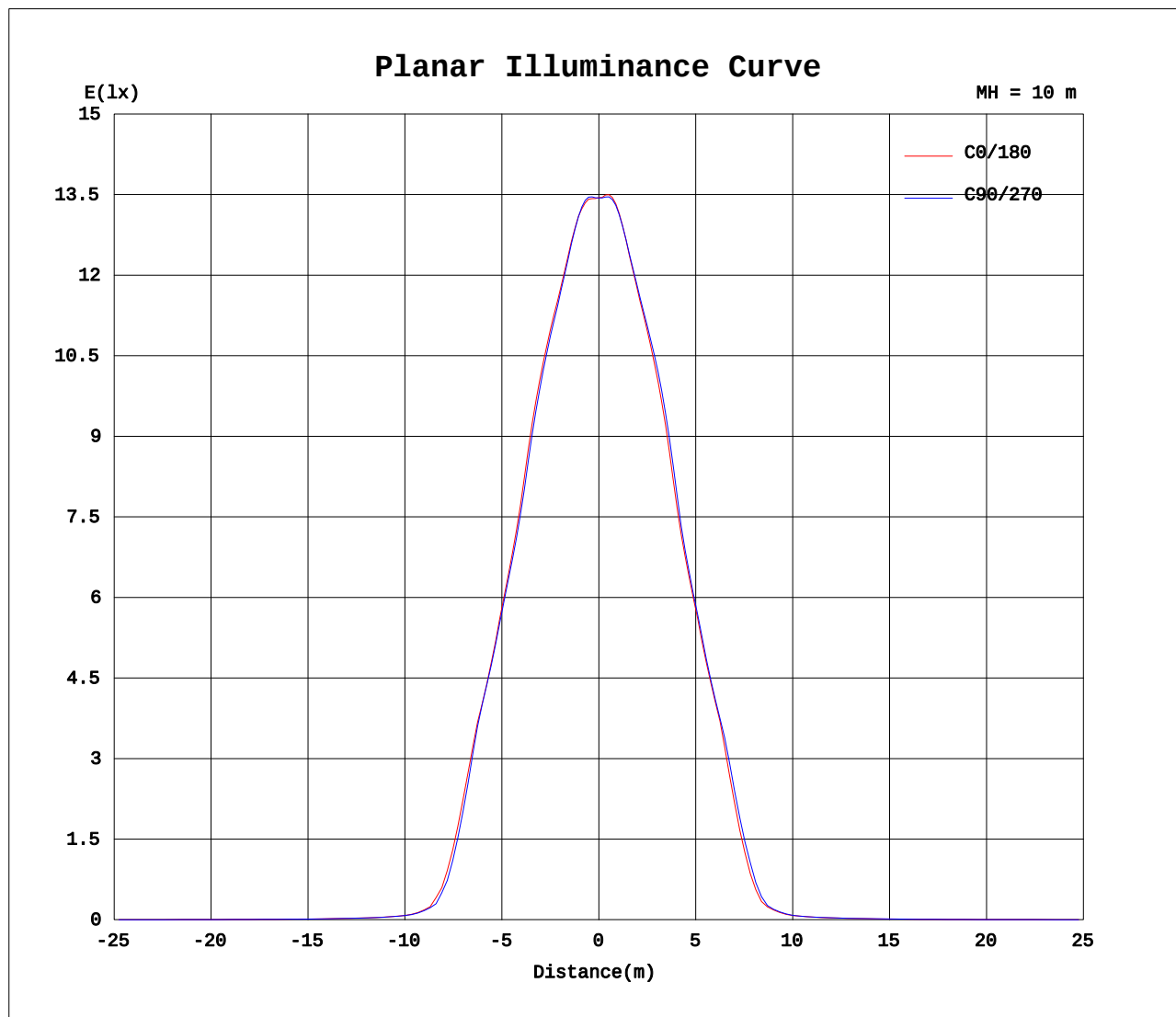
AvgL	cd/m2
L_0~180(65)av	3785
L_0~180(75)av	2256
L_0~180(85)av	1761
L_90~270(65)av	3790
L_90~270(75)av	2293
L_90~270(85)av	1730
L_45(65)av	3787
L_45(75)av	2289
L_45(85)av	1745

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25DEG
 Operators:
 Test Date:2023-10-20

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: 2023-10-20

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:

```