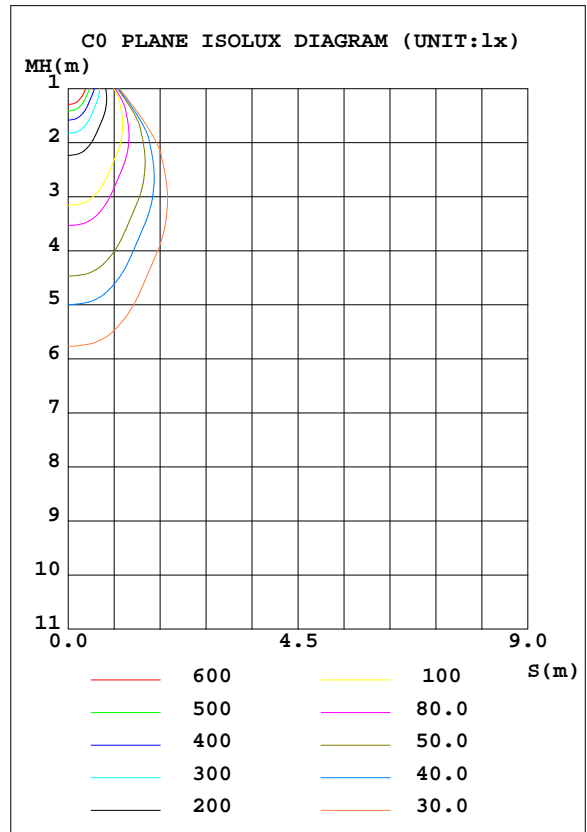
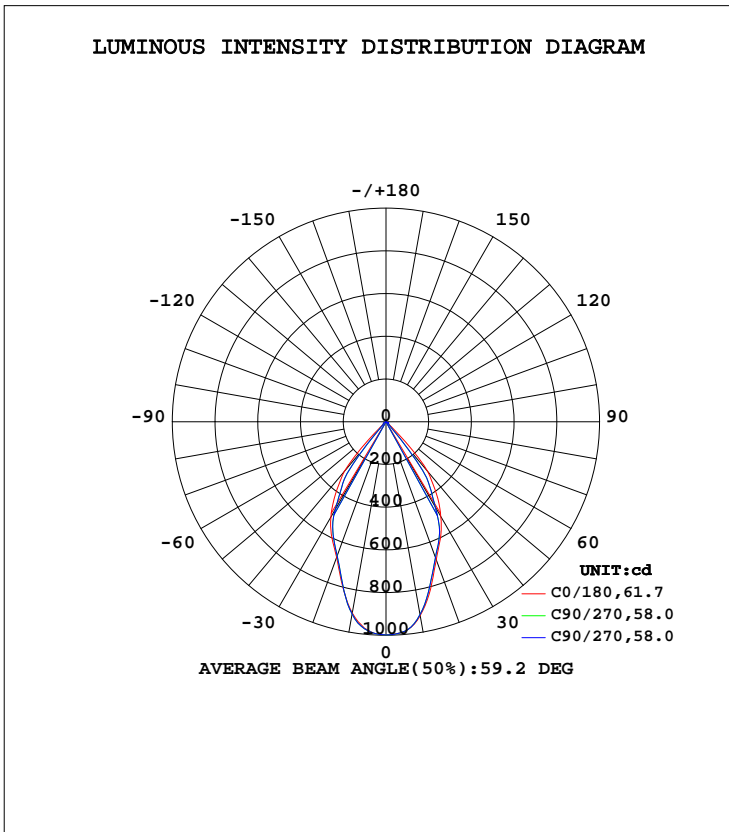


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 70.33 lm/W			
MODEL: LED-DL13WCOB-CC-W 5000K		I _{max} (cd)	998.1	S/MH(C0/180)	0.83
NOMINAL POWER(W)	13	LOR(%)	100.0	S/MH(C90/270)	0.82
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	903.82	η UP, DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	903.819	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	0.95



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity:65.0%
 Test Distance:8.690m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270				γ	Φ zone	Φ total	%lum,lamp
10	921.9	917.3	910.1	914.3				0- 10	91.78	91.78	10.2,10.2
20	688.1	677.5	676.7	668.4				10- 20	221.9	313.6	34.7,34.7
30	513.6	462.5	516.7	477.0				20- 30	271.1	584.8	64.7,64.7
40	306.2	105.1	304.3	135.3				30- 40	229.7	814.4	90.1,90.1
50	18.88	16.96	18.83	17.45				40- 50	56.44	870.9	96.4,96.4
60	13.65	12.15	13.97	12.70				50- 60	13.46	884.3	97.8,97.8
70	10.60	8.199	10.81	8.671				60- 70	11.85	896.2	99.2,99.2
80	3.985	1.652	4.207	1.792				70- 80	6.559	902.7	99.9,99.9
90	0.0670	0.0671	0.0548	0.0918				80- 90	1.079	903.8	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		

Conical surface Flux(90deg): 859.56 lm

%lum = 95.1%
 %lamp = 95.1%

Conical surface Flux(120deg): 884.33 lm

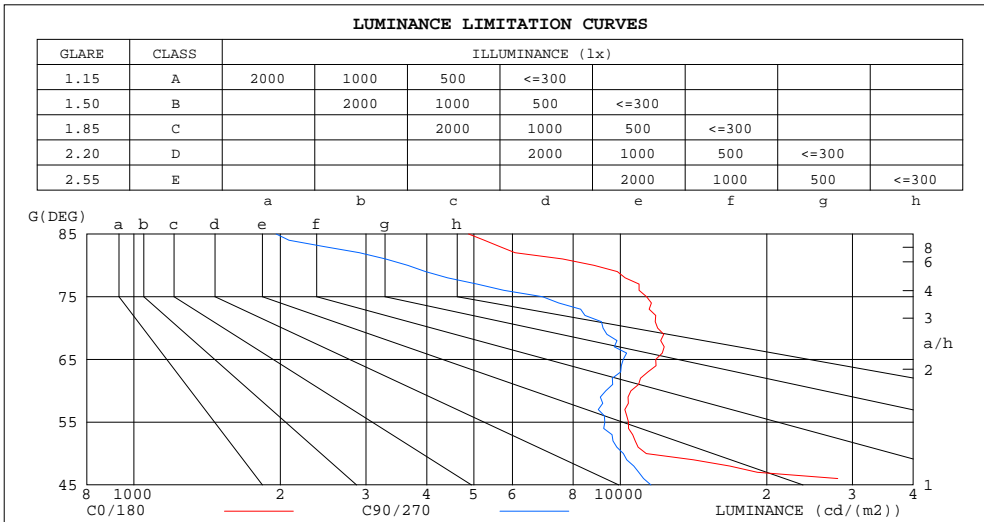
%lum = 97.8%
 %lamp = 97.8%

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity:65.0%
 Test Distance:8.690m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	4876	1962
80	8834	3657
75	11320	6921
70	11929	9214
65	11823	10138
60	10510	9336
55	10394	9291
50	11308	10143
45	46738	11556

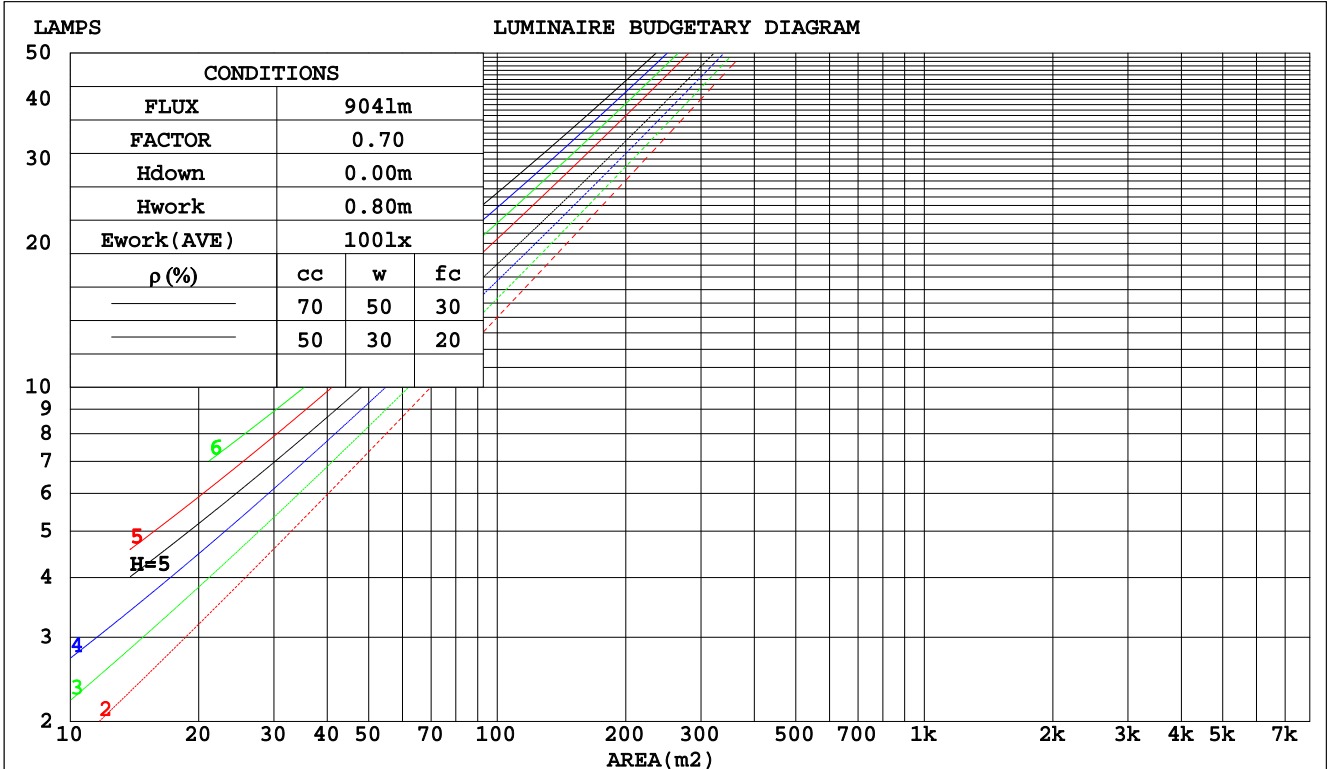
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity:65.0%
 Test Distance:8.690m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																
pfc																
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	1.10	1.08	1.05	1.08	1.06	1.04	1.04	1.02	1.00	1.00	.99	.97	.97	.96	.95	.93
2.0	1.02	.98	.94	1.00	.96	.93	.97	.94	.91	.94	.91	.89	.91	.89	.87	.86
3.0	.95	.89	.85	.93	.88	.85	.91	.87	.83	.88	.85	.82	.86	.83	.81	.79
4.0	.88	.82	.78	.87	.82	.77	.85	.80	.76	.83	.79	.76	.81	.77	.75	.73
5.0	.82	.76	.72	.81	.75	.71	.79	.74	.71	.78	.73	.70	.76	.72	.69	.68
6.0	.77	.71	.66	.76	.70	.66	.74	.69	.65	.73	.68	.65	.72	.68	.64	.63
7.0	.72	.66	.61	.71	.65	.61	.70	.65	.61	.69	.64	.60	.68	.63	.60	.59
8.0	.68	.61	.57	.67	.61	.57	.66	.61	.57	.65	.60	.56	.64	.59	.56	.55
9.0	.64	.57	.53	.63	.57	.53	.62	.57	.53	.61	.56	.53	.60	.56	.53	.51
10.0	.60	.54	.50	.60	.54	.50	.59	.53	.50	.58	.53	.50	.57	.53	.49	.48



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity: 65.0%
 Test Distance: 8.690m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	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	.189	.107	.034	.182	.104	.033	.169	.097	.031	.158	.091	.029	.147	.085	.027	
2.0	.181	.099	.030	.175	.096	.030	.164	.091	.028	.155	.087	.027	.145	.082	.026	
3.0	.172	.092	.027	.167	.090	.027	.158	.086	.026	.150	.082	.025	.142	.078	.024	
4.0	.164	.085	.025	.159	.083	.025	.151	.080	.024	.144	.077	.023	.137	.075	.023	
5.0	.156	.079	.023	.152	.078	.023	.145	.075	.022	.138	.073	.022	.132	.071	.021	
6.0	.148	.074	.021	.145	.073	.021	.139	.071	.021	.133	.069	.020	.128	.067	.020	
7.0	.141	.070	.020	.139	.069	.020	.133	.067	.019	.128	.066	.019	.123	.064	.019	
8.0	.135	.066	.019	.133	.065	.018	.128	.064	.018	.123	.062	.018	.119	.061	.018	
9.0	.129	.063	.017	.127	.062	.017	.123	.061	.017	.118	.059	.017	.115	.058	.017	
10.0	.124	.059	.016	.122	.059	.016	.118	.058	.016	.114	.057	.016	.111	.056	.016	

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	.172	.157	.144	.147	.135	.124	.101	.093	.086	.058	.054	.050	.019	.017	.016	
2.0	.157	.132	.111	.135	.114	.096	.092	.079	.067	.053	.046	.039	.017	.015	.013	
3.0	.146	.114	.088	.125	.098	.076	.086	.068	.054	.049	.040	.032	.016	.013	.010	
4.0	.136	.099	.071	.116	.086	.062	.080	.060	.043	.046	.035	.026	.015	.011	.008	
5.0	.127	.088	.058	.109	.076	.051	.075	.053	.036	.044	.031	.021	.014	.010	.007	
6.0	.120	.078	.049	.103	.068	.042	.071	.048	.030	.041	.028	.018	.013	.009	.006	
7.0	.114	.071	.041	.098	.062	.036	.068	.043	.025	.039	.025	.015	.013	.008	.005	
8.0	.108	.065	.035	.093	.056	.031	.064	.039	.022	.037	.023	.013	.012	.008	.004	
9.0	.103	.060	.030	.089	.052	.027	.061	.036	.019	.036	.022	.011	.012	.007	.004	
10.0	.098	.055	.027	.085	.048	.023	.059	.034	.017	.034	.020	.010	.011	.007	.003	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity:65.0%
 Test Distance:8.690m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	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	23.4	24.4	23.7	24.6	24.8	21.8	22.8	22.0	23.0	23.2
3H	23.4	24.4	23.7	24.6	24.8	21.8	22.8	22.1	23.0	23.2
4H	23.4	24.3	23.7	24.5	24.8	21.8	22.7	22.1	22.9	23.2
6H	23.4	24.3	23.7	24.5	24.8	21.8	22.6	22.1	22.8	23.1
8H	23.4	24.2	23.7	24.5	24.7	21.7	22.5	22.0	22.8	23.0
12H	23.4	24.1	23.7	24.4	24.7	21.7	22.4	22.0	22.7	23.0
4H 2H	23.2	24.1	23.5	24.3	24.5	21.6	22.5	21.9	22.7	23.0
3H	23.3	24.0	23.6	24.3	24.6	21.8	22.5	22.1	22.8	23.1
4H	23.4	24.0	23.7	24.3	24.7	21.8	22.5	22.2	22.8	23.1
6H	23.4	24.0	23.8	24.3	24.7	21.8	22.4	22.1	22.7	23.0
8H	23.4	23.9	23.8	24.3	24.6	21.7	22.3	22.1	22.6	23.0
12H	23.3	23.8	23.7	24.2	24.6	21.7	22.2	22.1	22.6	23.0
8H 4H	23.3	23.8	23.7	24.2	24.6	21.8	22.3	22.2	22.7	23.0
6H	23.3	23.8	23.8	24.2	24.6	21.7	22.2	22.2	22.6	23.0
8H	23.3	23.7	23.8	24.1	24.6	21.7	22.1	22.2	22.5	23.0
12H	23.3	23.6	23.8	24.1	24.5	21.7	22.0	22.1	22.5	22.9
12H 4H	23.2	23.7	23.6	24.1	24.5	21.7	22.2	22.1	22.6	23.0
6H	23.3	23.7	23.7	24.1	24.6	21.7	22.1	22.2	22.5	23.0
8H	23.3	23.6	23.7	24.1	24.5	21.7	22.0	22.1	22.5	22.9
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 2.9 / - 5.6					+ 3.1 / - 5.2				
1.5H	+ 5.3 / - 5.7					+ 5.6 / - 5.0				
2.0H	+ 5.0 / - 0.9					+ 0.8 / - 0.5				

CIE Pub.117, 903.8 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.4)
Area: 0.0026 m2

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2022-02-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
Humidity:65.0%
Test Distance:8.690m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:

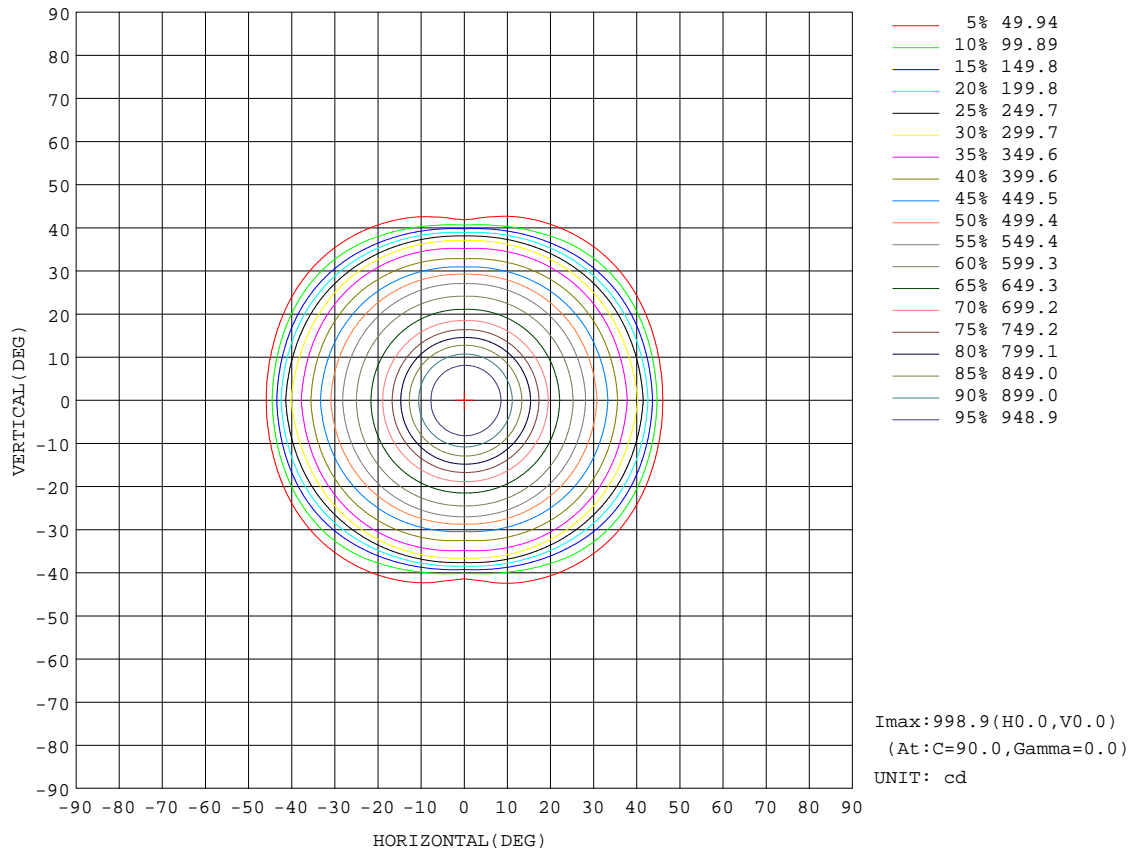
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	85	79	75	85	79	75	84	78	75	71
0.80	93	87	83	92	87	83	91	86	82	79
1.00	98	92	88	97	91	88	95	91	87	83
1.25	102	96	93	101	96	92	99	95	92	87
1.50	105	100	96	104	99	96	101	98	95	90
2.00	108	103	100	106	102	99	104	100	98	92
2.50	110	106	102	108	104	101	105	102	100	94
3.00	111	108	105	109	106	104	106	104	101	95
4.00	113	110	108	111	109	107	108	106	104	97
5.00	115	112	110	113	110	109	109	107	106	98
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity:65.0%
 Test Distance:8.690m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:



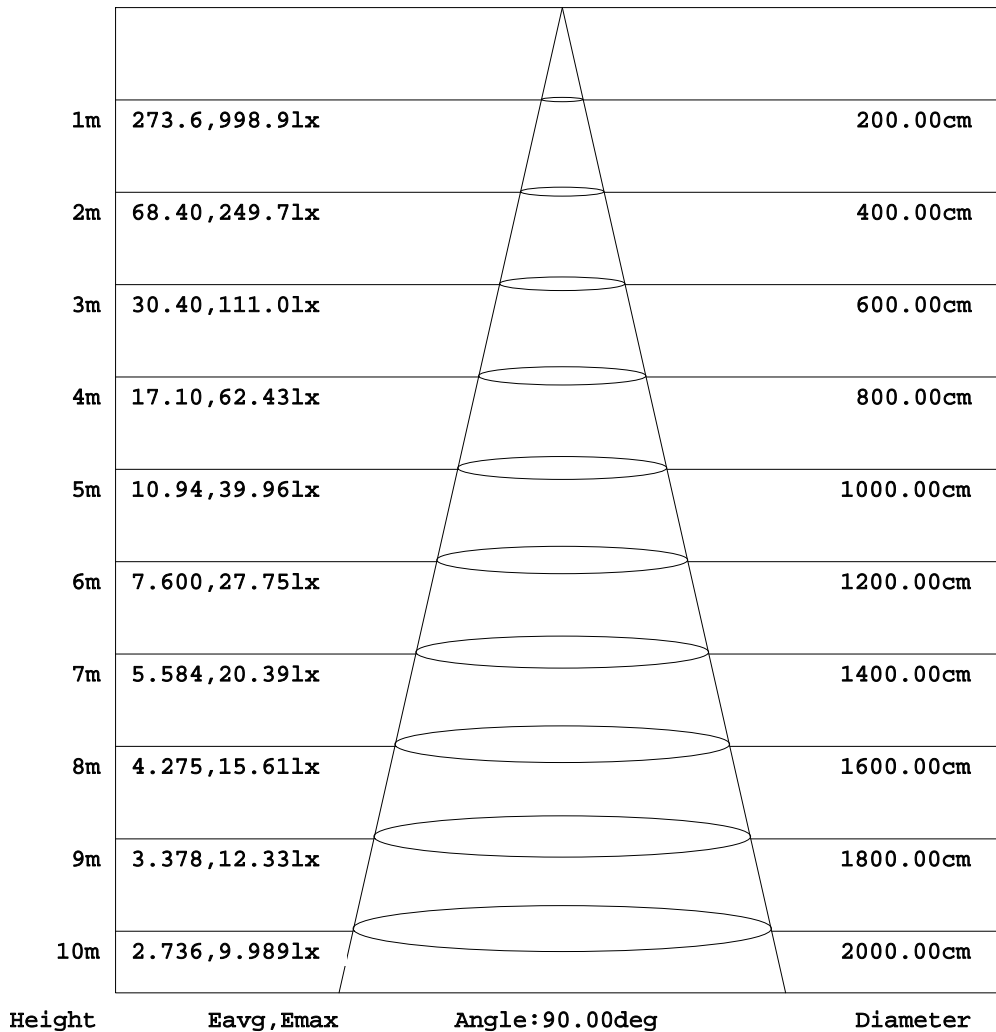
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
Humidity:65.0%
Test Distance:8.690m [K=1.0000]
Remarks:

AAI Figure

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:

Flux out:859.6 lm



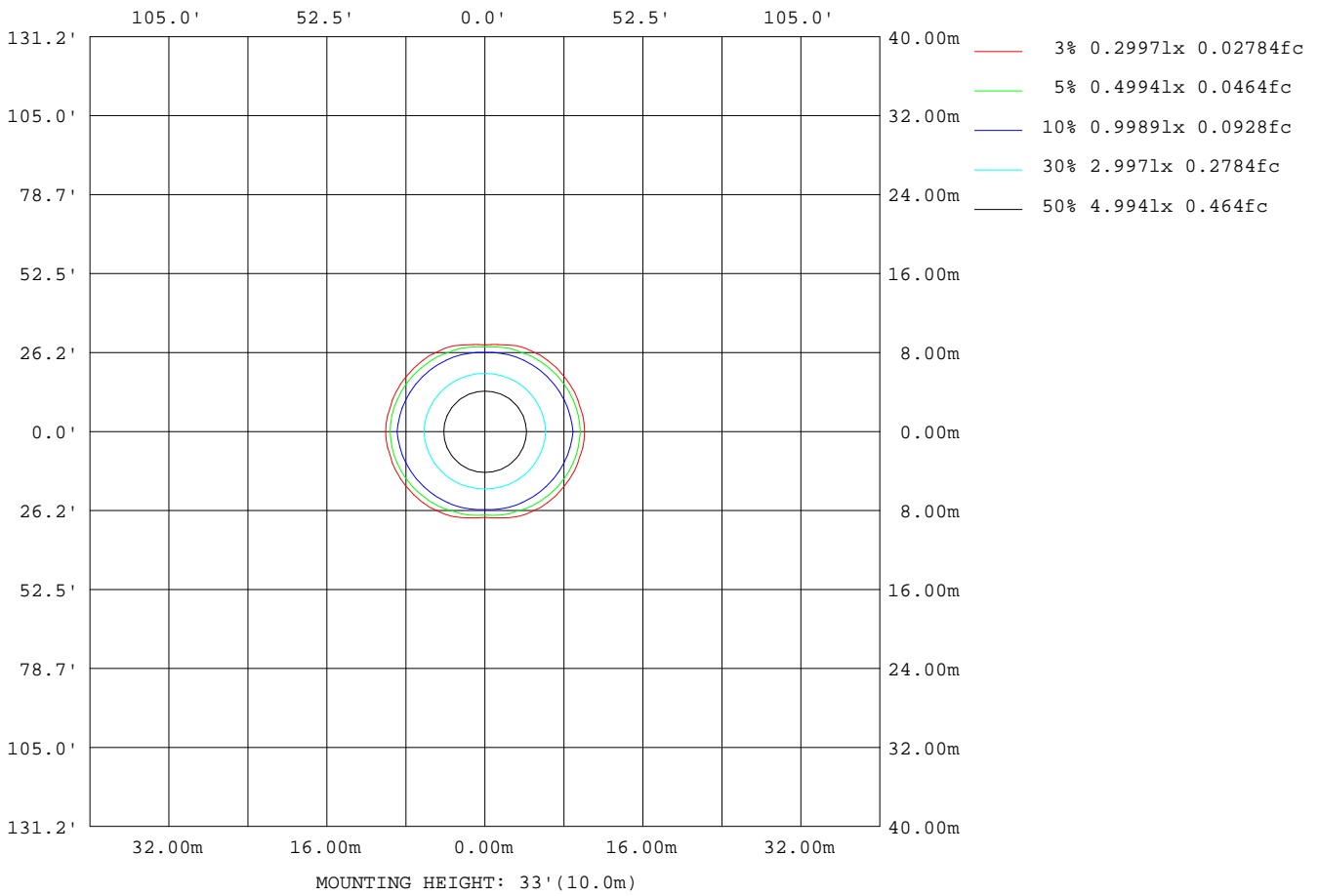
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2022-02-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
Humidity:65.0%
Test Distance:8.690m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity:65.0%
 Test Distance:8.690m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:230.28V I:0.0583A P:12.851W PF:0.9578 Freq:49.99Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:903.819x1 lm		
NAME: LED-DL13WCOB-CC-W 5000K	TYPE: 13W	WEIGHT:
SPEC.: 3000K	DIM.:	SERIAL No.: #1
MFR.:	SUR.: 0.0026	Shielding Angle:

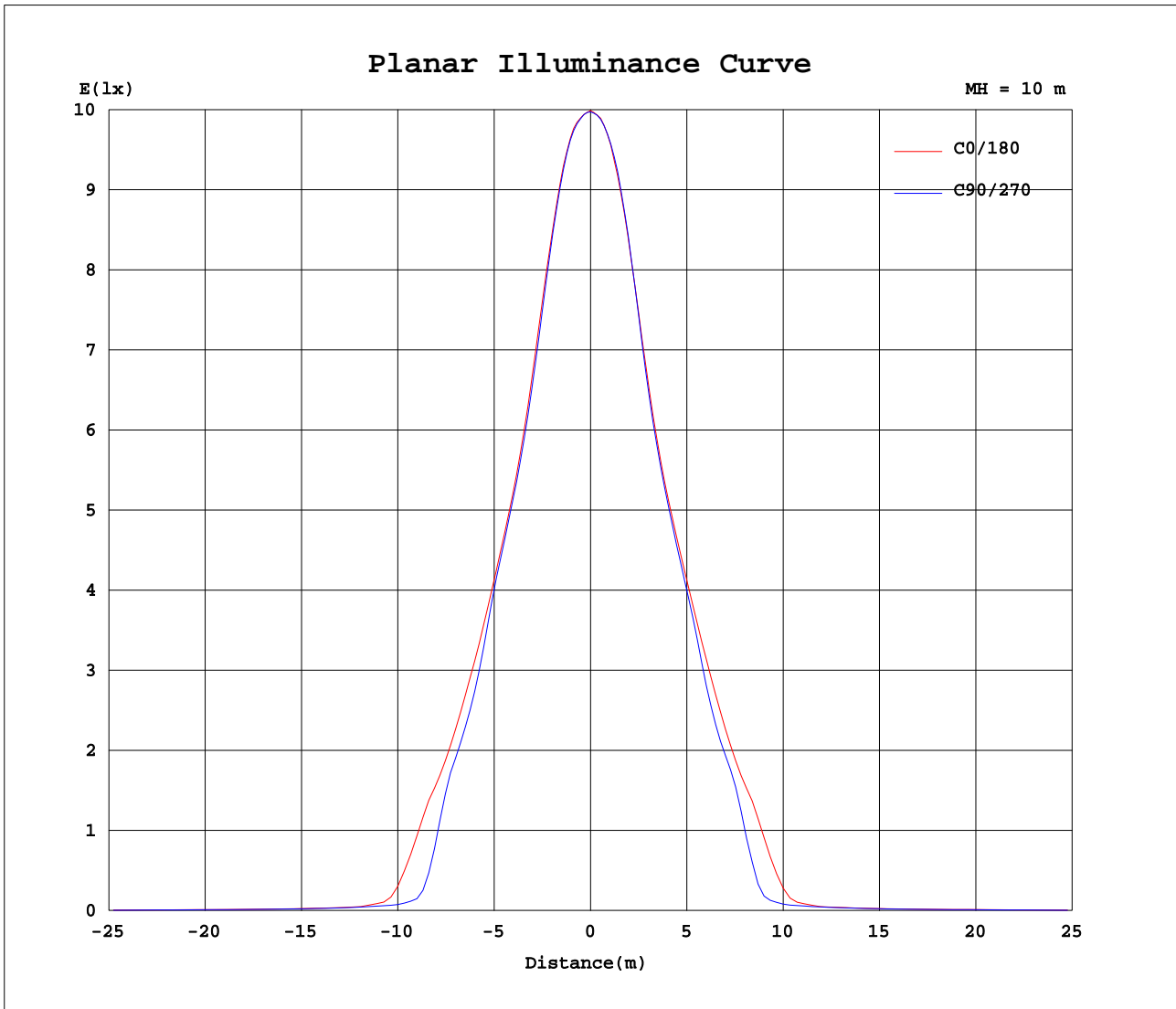
AvgL	cd/m2
L_0~180(65)av	11904
L_0~180(75)av	11578
L_0~180(85)av	4554
L_90~270(65)av	10407
L_90~270(75)av	7210
L_90~270(85)av	2489
L_45(65)av	10975
L_45(75)av	8866
L_45(85)av	3245

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity:65.0%
 Test Distance:8.690m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2022-02-28

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.446
 Humidity: 65.0%
 Test Distance: 8.690m [K=1.0000]
 Remarks:

