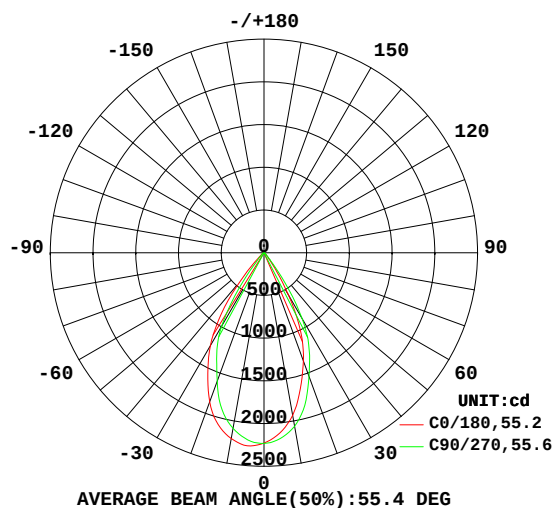


LUMINAIRE PHOTOMETRIC TEST REPORT

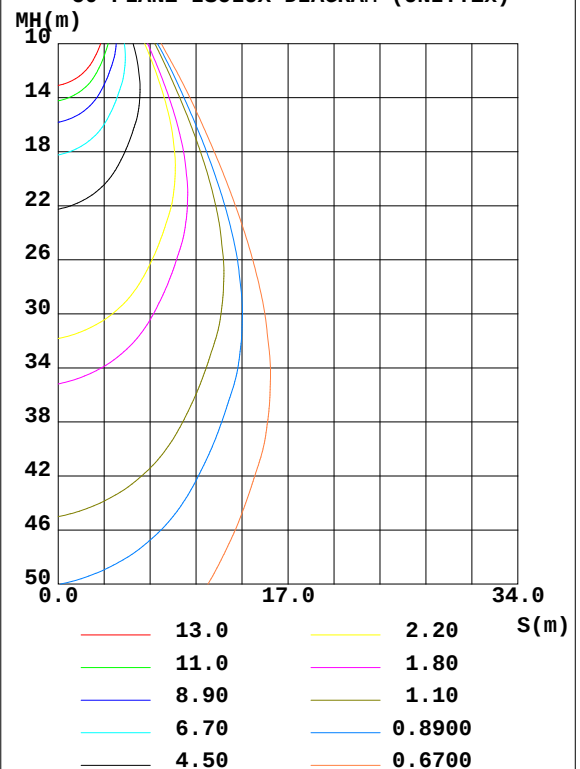
Test:U:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 96.10 lm/W			
MODEL	TB15111204 4000K	I _{max} (cd)	2268	S/MH(C0/180)	0.95
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	0.84
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	1748.8	η UP, DN(C0-180)	0.0, 47.5
NOMINAL FLUX(lm)	1748.76	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 52.5
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	0.90

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: 2023-12-25

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:

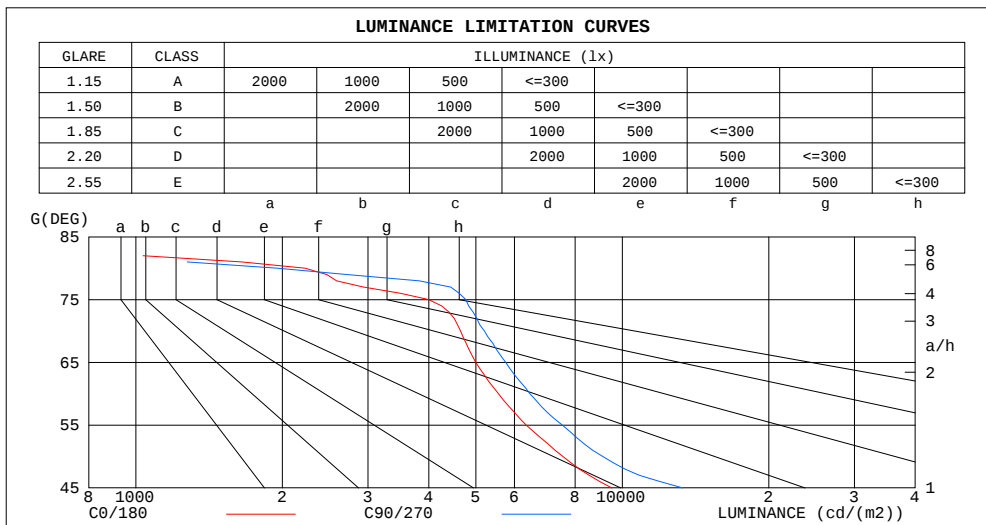
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1933	1967	2062	2155	2209	2177	2088	1994	0- 10	205.5	205.5	11.7, 11.7
20	1352	1399	1541	1738	1858	1787	1602	1425	10- 20	518.4	723.9	41.4, 41.4
30	582.0	671.1	901.1	1140	1258	1188	994.7	723.0	20- 30	581.9	1306	74.7, 74.7
40	76.35	87.36	128.1	266.5	430.3	349.6	154.0	91.30	30- 40	323.2	1629	93.1, 93.1
50	29.49	30.84	35.59	43.84	58.04	52.77	38.65	32.32	40- 50	68.00	1697	97, 97
60	16.91	17.48	19.63	22.90	25.84	24.79	21.45	18.41	50- 60	25.64	1723	98.5, 98.5
70	9.665	9.877	10.82	12.69	14.33	14.12	12.39	10.71	60- 70	15.80	1738	99.4, 99.4
80	2.353	2.480	2.062	6.461	7.575	7.616	3.330	2.793	70- 80	8.780	1747	99.9, 99.9
90	0.1660	0.1776	0.1235	0.1313	0.1583	0.0849	0.0540	0.0386	80- 90	1.575	1749	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:2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	409	402
80	2228	1953
75	3998	4766
70	4648	5205
65	4996	5757
60	5564	6456
55	6344	7525
50	7545	9108
45	9512	13309

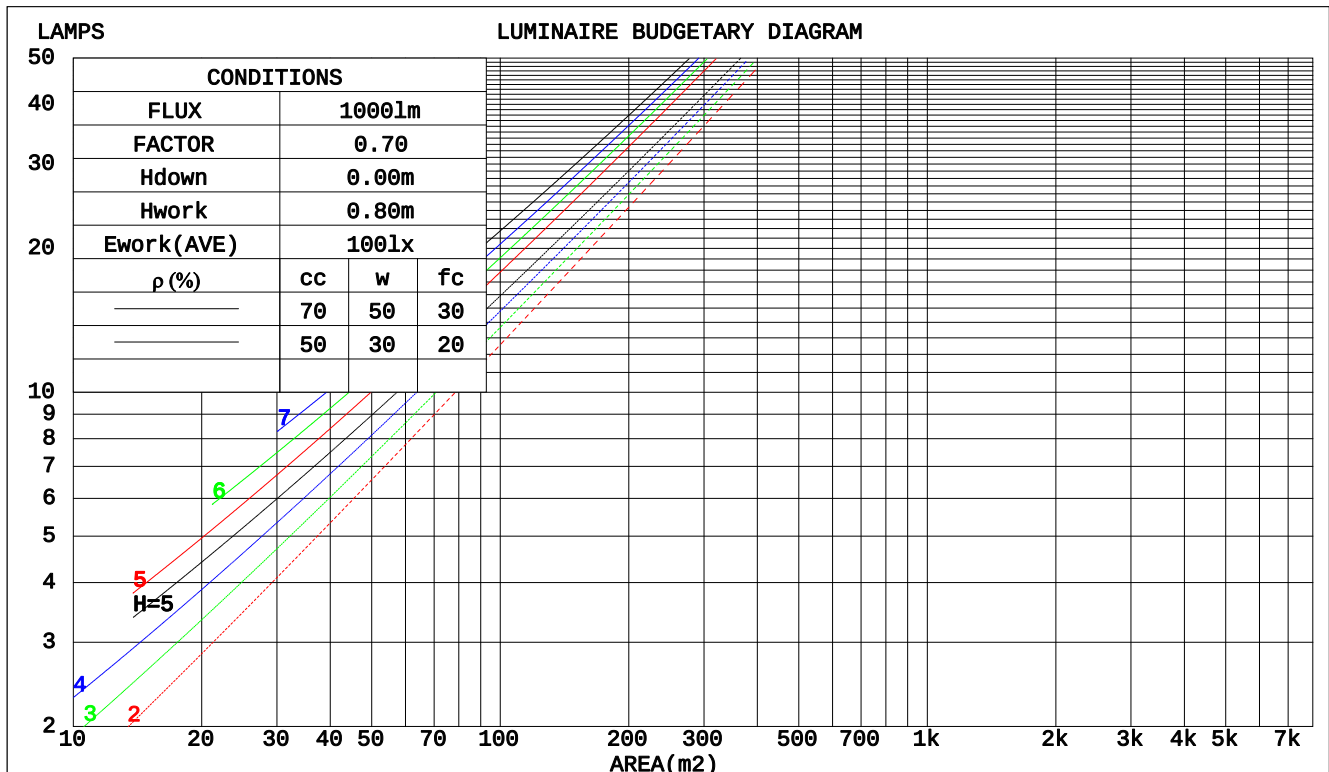
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	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	.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	.93	.95	.93	.91	.92	.90	.89	.87
3.0	.96	.91	.87	.95	.90	.87	.92	.89	.85	.90	.87	.84	.88	.85	.83	.81
4.0	.90	.85	.81	.89	.84	.80	.87	.83	.79	.85	.81	.78	.83	.80	.77	.76
5.0	.85	.79	.75	.84	.78	.74	.82	.77	.74	.80	.76	.73	.79	.75	.72	.71
6.0	.80	.74	.70	.79	.73	.69	.77	.73	.69	.76	.72	.68	.75	.71	.68	.67
7.0	.75	.69	.65	.74	.69	.65	.73	.68	.65	.72	.68	.64	.71	.67	.64	.63
8.0	.71	.65	.61	.70	.65	.61	.69	.64	.61	.68	.64	.60	.67	.63	.60	.59
9.0	.67	.61	.58	.67	.61	.57	.66	.61	.57	.65	.60	.57	.64	.60	.57	.56
10.0	.64	.58	.54	.63	.58	.54	.62	.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: 2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm					
NAME: DD1810M-WHTC2010C02			TYPE:		WEIGHT:
SPEC.: white RA90 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 88mm		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	.101	.032	.172	.098	.031	.159	.091	.029	.147	.085	.027	.137	.079	.026		
2.0	.170	.093	.029	.164	.091	.028	.154	.086	.027	.144	.081	.025	.135	.076	.024		
3.0	.161	.086	.026	.157	.084	.025	.148	.080	.024	.139	.076	.023	.131	.073	.023		
4.0	.153	.080	.023	.149	.078	.023	.141	.075	.022	.134	.072	.022	.127	.069	.021		
5.0	.146	.074	.022	.142	.073	.021	.135	.071	.021	.129	.068	.020	.123	.066	.020		
6.0	.139	.070	.020	.136	.069	.020	.130	.067	.019	.124	.065	.019	.119	.063	.019		
7.0	.133	.066	.019	.130	.065	.018	.125	.063	.018	.120	.061	.018	.115	.060	.018		
8.0	.127	.062	.017	.124	.061	.017	.120	.060	.017	.115	.058	.017	.111	.057	.017		
9.0	.122	.059	.016	.119	.058	.016	.115	.057	.016	.111	.056	.016	.107	.055	.016		
10.0	.117	.056	.016	.115	.055	.015	.111	.054	.015	.107	.053	.015	.104	.052	.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	.146	.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	.090	.123	.098	.078	.084	.068	.055	.049	.040	.032	.016	.013	.011	
4.0	.133	.099	.073	.114	.085	.063	.079	.060	.044	.045	.035	.026	.015	.011	.009	
5.0	.124	.087	.060	.107	.075	.052	.074	.053	.037	.043	.031	.022	.014	.010	.007	
6.0	.117	.078	.050	.101	.067	.043	.069	.047	.031	.040	.028	.018	.013	.009	.006	
7.0	.110	.070	.042	.095	.061	.037	.066	.043	.026	.038	.025	.016	.012	.008	.005	
8.0	.105	.064	.036	.090	.056	.032	.062	.039	.022	.036	.023	.013	.012	.008	.004	
9.0	.100	.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:2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm										
NAME: DD1810M-WHTC2010C02					TYPE:			WEIGHT:		
SPEC.: white RA90 3000K+5700K					DIM.:			SERIAL No.:		
MFR.:					SUR.: 88mm			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	13.2	14.1	13.4	14.3	14.5	15.5	16.5	15.8	16.6	16.8
3H	13.4	14.2	13.6	14.4	14.6	15.6	16.5	15.9	16.7	16.9
4H	13.5	14.3	13.7	14.5	14.7	15.6	16.4	15.9	16.7	16.9
6H	13.4	14.2	13.7	14.4	14.7	15.6	16.4	15.9	16.6	16.9
8H	13.4	14.1	13.7	14.4	14.7	15.6	16.3	15.9	16.5	16.8
12H	13.4	14.1	13.7	14.3	14.6	15.5	16.2	15.8	16.5	16.8
4H 2H	13.1	14.0	13.4	14.2	14.4	15.4	16.2	15.7	16.4	16.6
3H	13.4	14.1	13.8	14.4	14.7	15.5	16.2	15.8	16.5	16.8
4H	13.6	14.2	13.9	14.5	14.8	15.6	16.2	15.9	16.5	16.8
6H	13.6	14.2	14.0	14.5	14.8	15.6	16.2	16.0	16.5	16.8
8H	13.6	14.1	14.0	14.4	14.8	15.5	16.1	15.9	16.4	16.8
12H	13.5	14.0	13.9	14.4	14.8	15.5	16.0	15.9	16.3	16.7
8H 4H	13.6	14.1	14.0	14.4	14.8	15.5	16.0	15.9	16.4	16.8
6H	13.6	14.0	14.0	14.4	14.9	15.5	16.0	16.0	16.4	16.8
8H	13.6	14.0	14.0	14.4	14.8	15.5	15.9	15.9	16.3	16.7
12H	13.5	13.8	14.0	14.3	14.8	15.4	15.8	15.9	16.2	16.7
12H 4H	13.5	14.0	13.9	14.4	14.8	15.5	15.9	15.9	16.3	16.7
6H	13.6	13.9	14.0	14.4	14.8	15.5	15.9	15.9	16.3	16.7
8H	13.5	13.9	14.0	14.3	14.8	15.4	15.8	15.9	16.2	16.7
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 1.9 / - 1.6					+ 3.6 / - 2.8				
1.5H	+ 3.4 / - 1.3					+ 5.7 / - 2.5				
2.0H	+ 1.1 / - 0.8					+ 2.0 / - 1.0				

CIE Pub.117, 1749 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.9)
Area: 0.00608 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

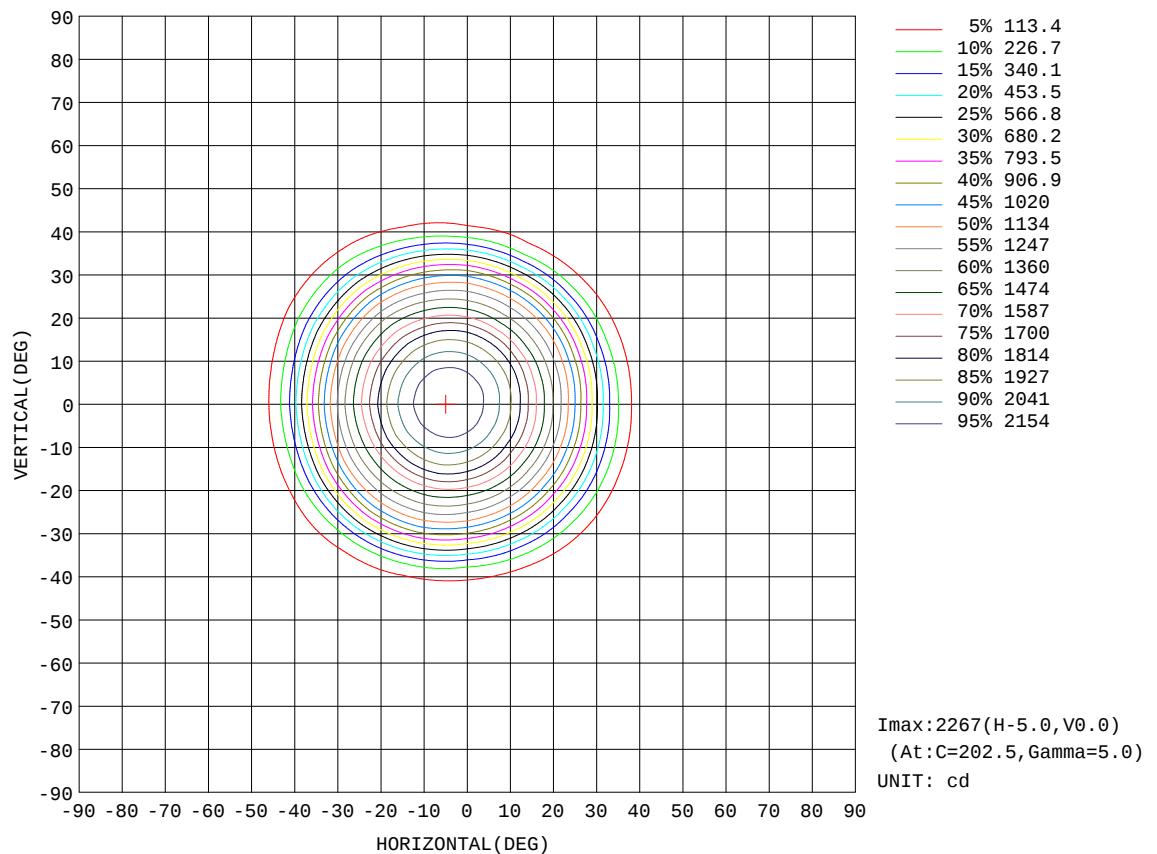
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	87	81	77	87	81	77	86	80	77	73
0.80	95	89	85	94	88	85	93	88	85	81
1.00	99	93	90	98	93	90	97	93	89	85
1.25	103	98	94	102	97	94	100	96	93	89
1.50	106	101	98	105	100	97	102	99	96	92
2.00	108	104	101	107	103	100	104	101	99	94
2.50	110	106	103	109	105	102	105	103	101	95
3.00	112	108	106	110	107	104	107	104	102	96
4.00	114	111	109	112	109	107	108	106	105	98
5.00	115	113	111	113	111	109	109	107	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:2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

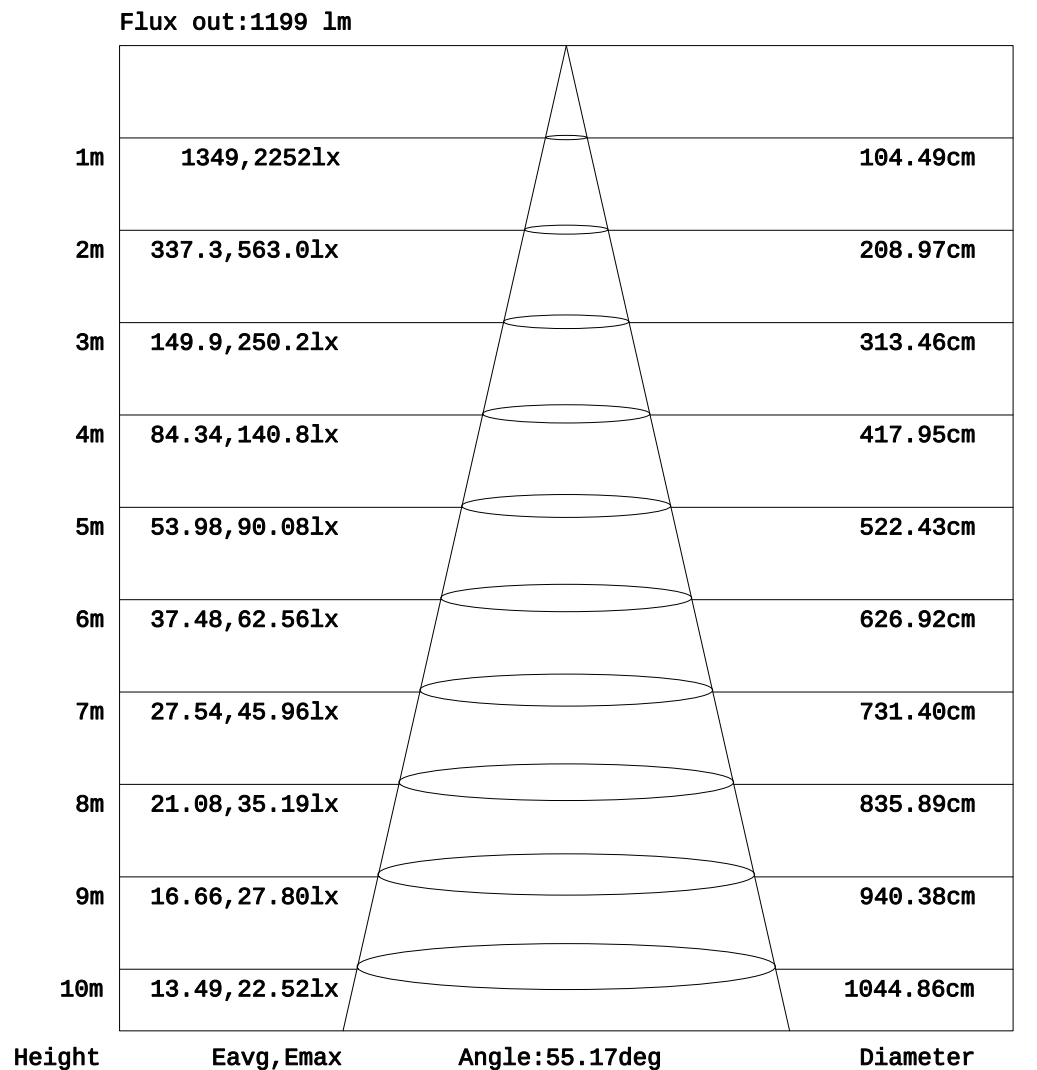


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:



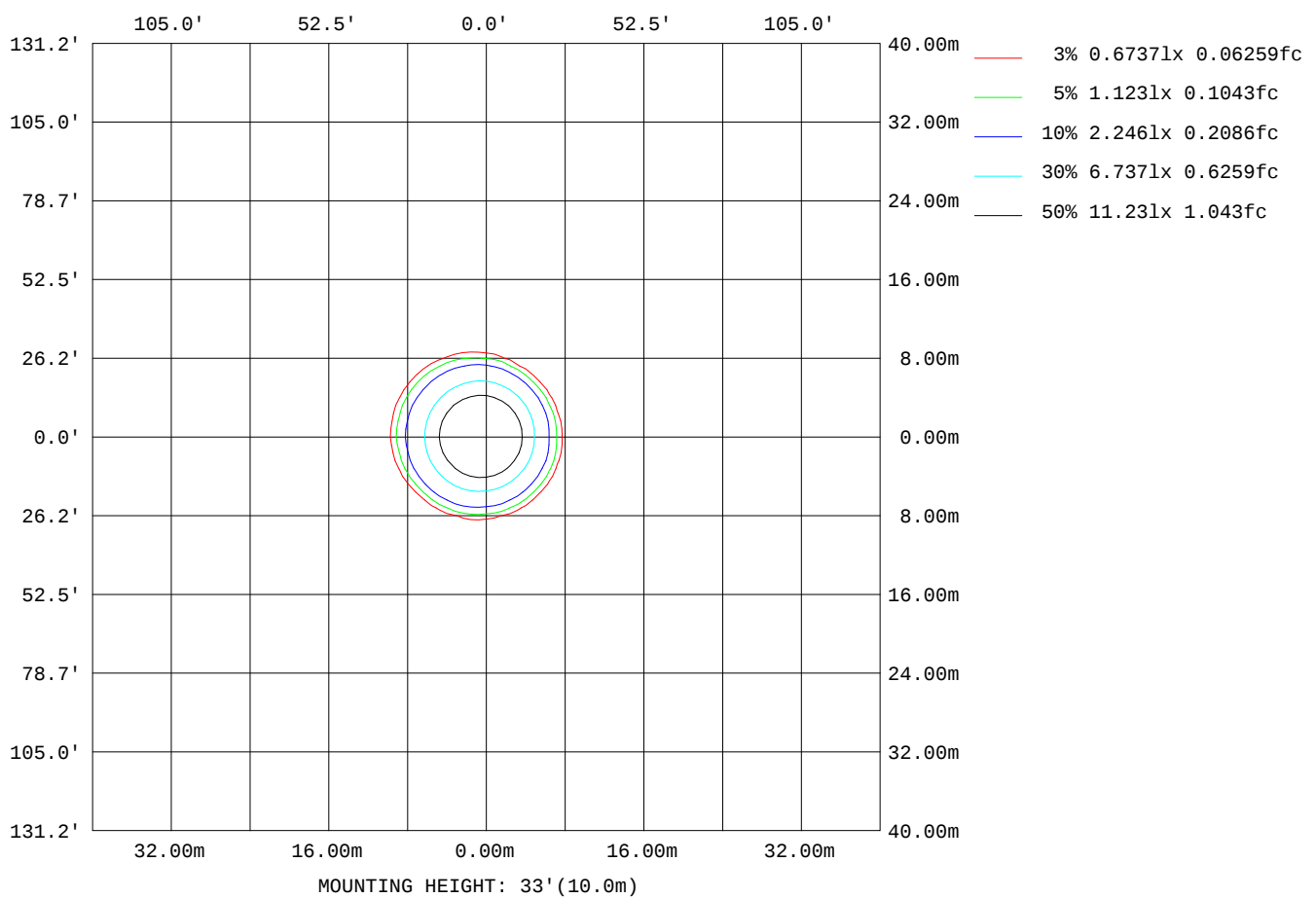
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-12-25

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:220.64V I:0.0914A P:18.196W PF:0.9024 Freq:50.01Hz Lamp Flux:1748.76x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

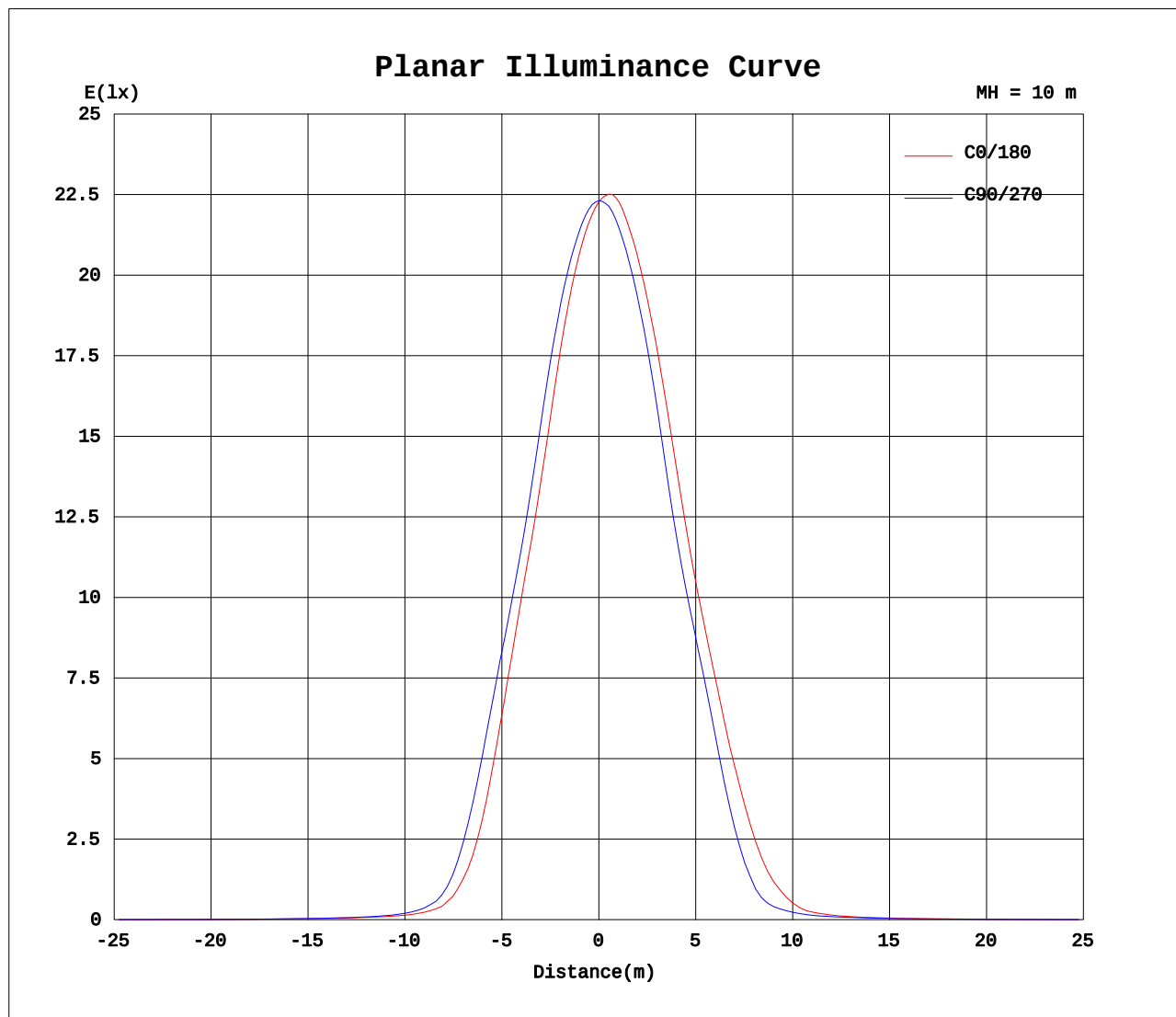
AvgL	cd/m2
L_0~180(65)av	6232
L_0~180(75)av	5378
L_0~180(85)av	3161
L_90~270(65)av	6059
L_90~270(75)av	5206
L_90~270(85)av	364
L_45(65)av	6128
L_45(75)av	5508
L_45(85)av	1564

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25DEG
 Operators:
 Test Date:2023-12-25

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: 2023-12-25

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:

```