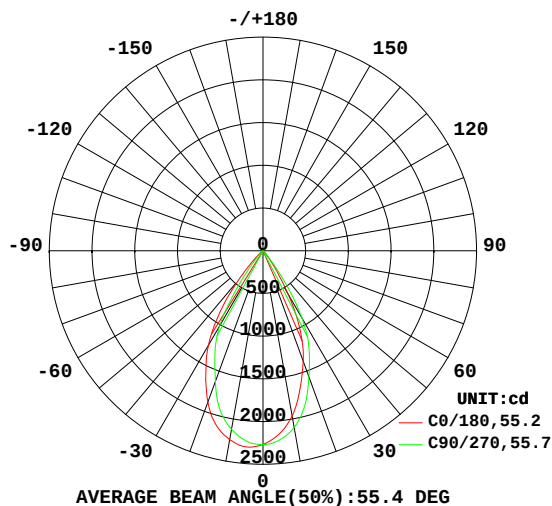


LUMINAIRE PHOTOMETRIC TEST REPORT

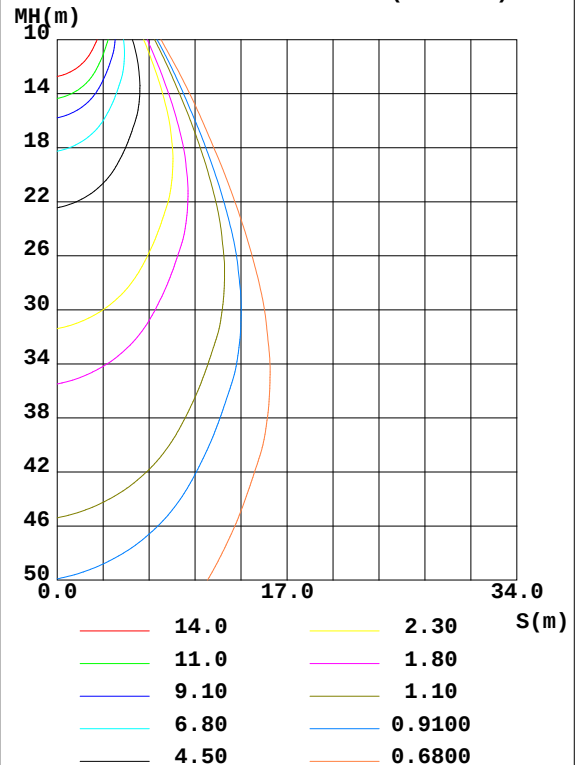
Test:U:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 93.67 lm/W			
MODEL	TB15111204 5700K	I _{max} (cd)	2305	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)	1781.4	η UP, DN(C0-180)	0.0, 47.5
NOMINAL FLUX(lm)	1781.36	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:

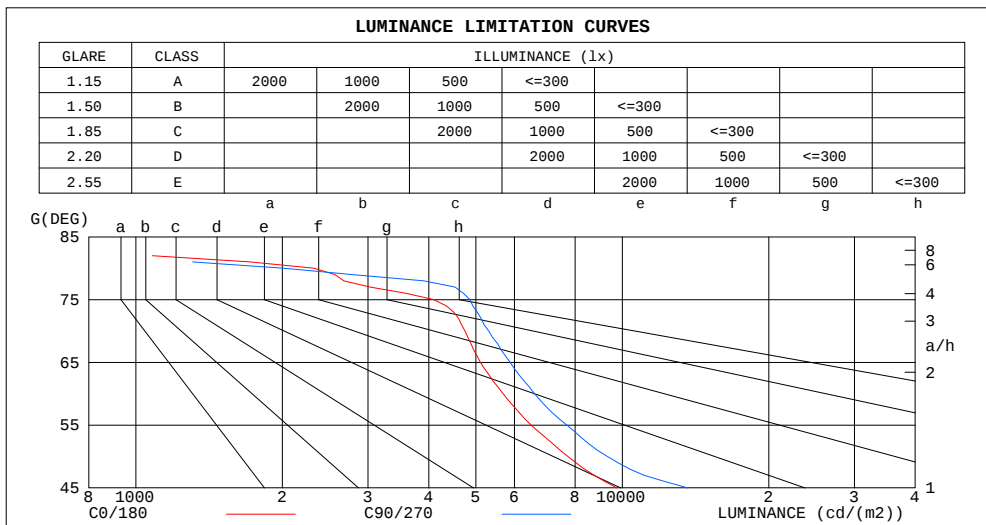
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1965	2003	2101	2193	2244	2215	2123	2028	0- 10	209.0	209.0	11.7, 11.7
20	1378	1429	1573	1769	1888	1817	1630	1450	10- 20	527.7	736.7	41.4, 41.4
30	597.2	692.4	921.7	1161	1281	1209	1017	738.8	20- 30	592.9	1330	74.6, 74.6
40	78.47	89.73	127.6	266.5	442.2	357.1	153.0	93.17	30- 40	329.5	1659	93.1, 93.1
50	30.20	31.56	36.40	44.72	58.93	53.71	39.40	33.01	40- 50	69.44	1729	97, 97
60	17.29	17.88	20.05	23.35	26.29	25.23	21.86	18.78	50- 60	26.16	1755	98.5, 98.5
70	9.874	10.09	11.05	12.96	14.59	14.35	12.60	10.92	60- 70	16.11	1771	99.4, 99.4
80	2.449	2.573	2.123	6.585	7.694	7.728	3.372	2.878	70- 80	8.951	1780	99.9, 99.9
90	0.1853	0.1776	0.1235	0.1313	0.1544	0.0849	0.0540	0.0425	80- 90	1.599	1781	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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 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	416	409
80	2320	2011
75	4093	4862
70	4748	5313
65	5106	5881
60	5688	6597
55	6492	7690
50	7726	9315
45	9749	13631

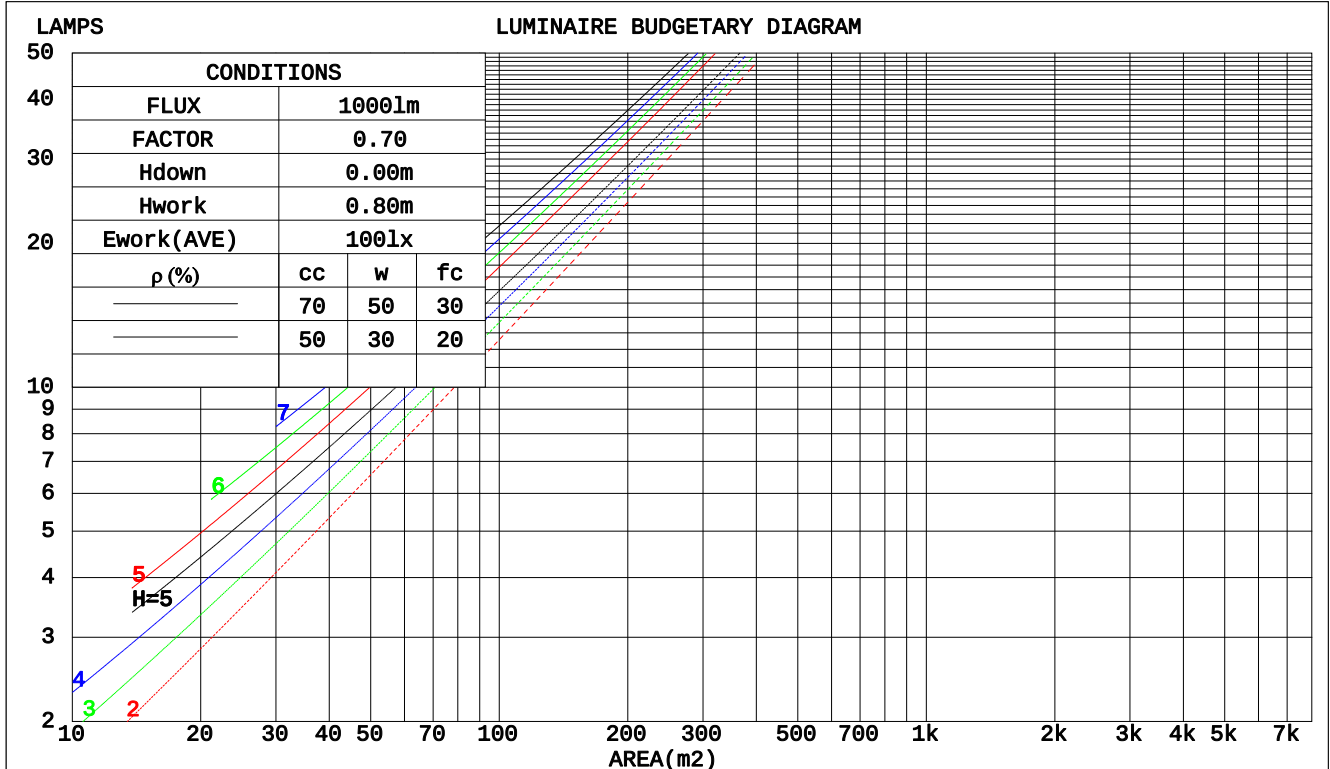
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2023-12-25

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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 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	Coefficients of Utilization(CU)															
RCR:Room Cavity Ratio																
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	.93	.95	.93	.91	.92	.90	.89	.87
3.0	.96	.91	.87	.95	.90	.87	.92	.88	.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	.72	.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	.57	.54	.62	.57	.54	.61	.57	.54	.52



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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 lm					
NAME: DD1810M-WHTC2010C02			TYPE:		WEIGHT:
SPEC.: white RA90 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 88mm		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	.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	.085	.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	.055	.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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 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	13.3	14.2	13.5	14.4	14.6	15.6	16.6	15.8	16.7	16.9
3H	13.5	14.3	13.7	14.5	14.7	15.7	16.5	15.9	16.7	16.9
4H	13.5	14.4	13.8	14.6	14.8	15.7	16.5	16.0	16.7	16.9
6H	13.5	14.3	13.8	14.5	14.8	15.7	16.4	16.0	16.7	16.9
8H	13.5	14.2	13.8	14.5	14.7	15.6	16.4	15.9	16.6	16.9
12H	13.4	14.1	13.8	14.4	14.7	15.6	16.3	15.9	16.5	16.8
4H 2H	13.2	14.0	13.5	14.3	14.5	15.5	16.3	15.7	16.5	16.7
3H	13.5	14.2	13.8	14.5	14.8	15.6	16.3	15.9	16.6	16.8
4H	13.7	14.3	14.0	14.6	14.9	15.7	16.3	16.0	16.6	16.9
6H	13.7	14.2	14.1	14.6	14.9	15.7	16.2	16.0	16.5	16.9
8H	13.6	14.2	14.0	14.5	14.9	15.6	16.1	16.0	16.5	16.8
12H	13.6	14.1	14.0	14.4	14.8	15.6	16.0	16.0	16.4	16.8
8H 4H	13.7	14.2	14.0	14.5	14.9	15.6	16.1	16.0	16.5	16.8
6H	13.7	14.1	14.1	14.5	14.9	15.6	16.0	16.0	16.4	16.8
8H	13.7	14.0	14.1	14.4	14.9	15.5	15.9	16.0	16.3	16.8
12H	13.6	13.9	14.1	14.4	14.8	15.5	15.8	16.0	16.3	16.7
12H 4H	13.6	14.1	14.0	14.5	14.8	15.5	16.0	15.9	16.4	16.8
6H	13.6	14.0	14.1	14.4	14.9	15.5	15.9	16.0	16.3	16.8
8H	13.6	13.9	14.1	14.4	14.8	15.5	15.8	16.0	16.3	16.7
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 2.0 / - 1.7					+ 3.6 / - 2.8				
1.5H	+ 3.6 / - 1.4					+ 5.7 / - 2.4				
2.0H	+ 1.1 / - 0.8					+ 2.1 / - 1.0				

CIE Pub.117, 1781 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 2.0)
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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

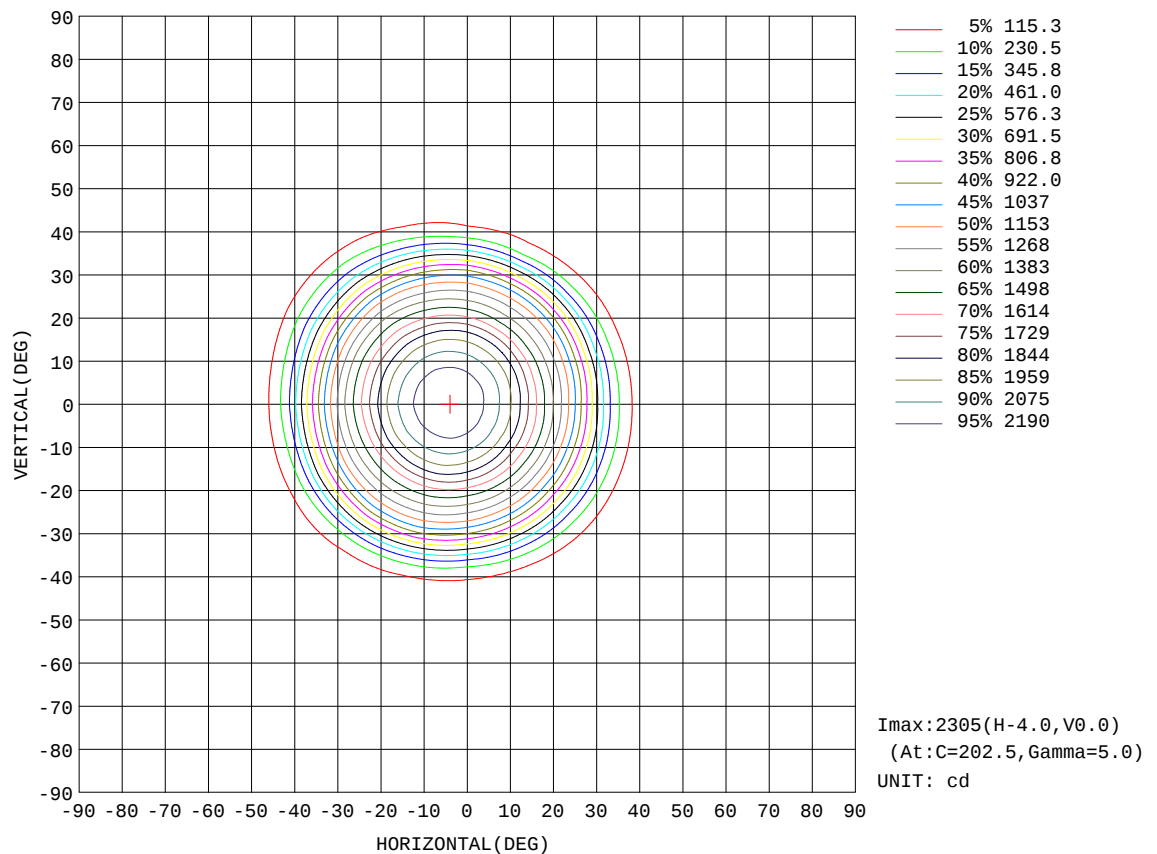
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	87	81	77	87	81	77	86	80	77	73
0.80	95	89	85	94	88	85	93	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	100	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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

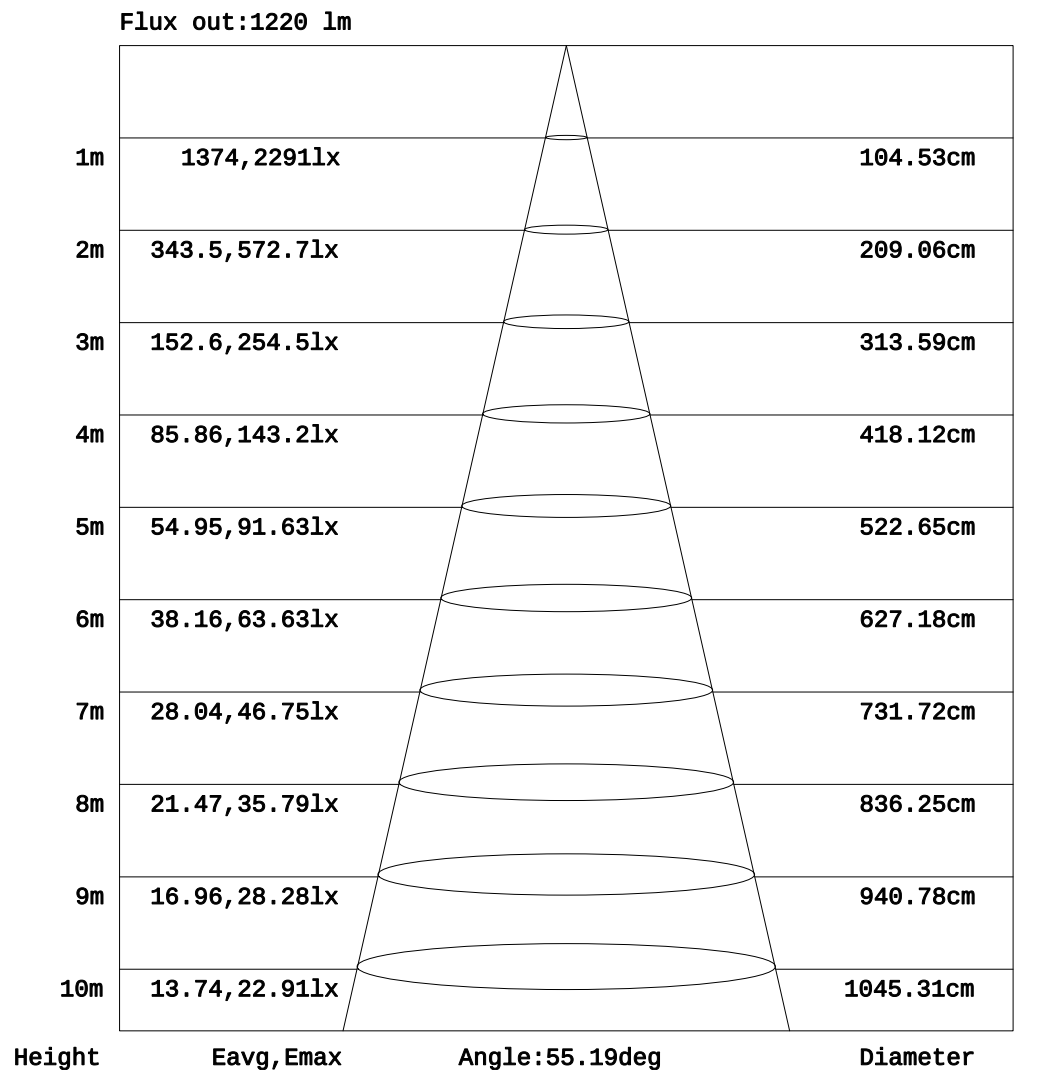


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-12-25

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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:



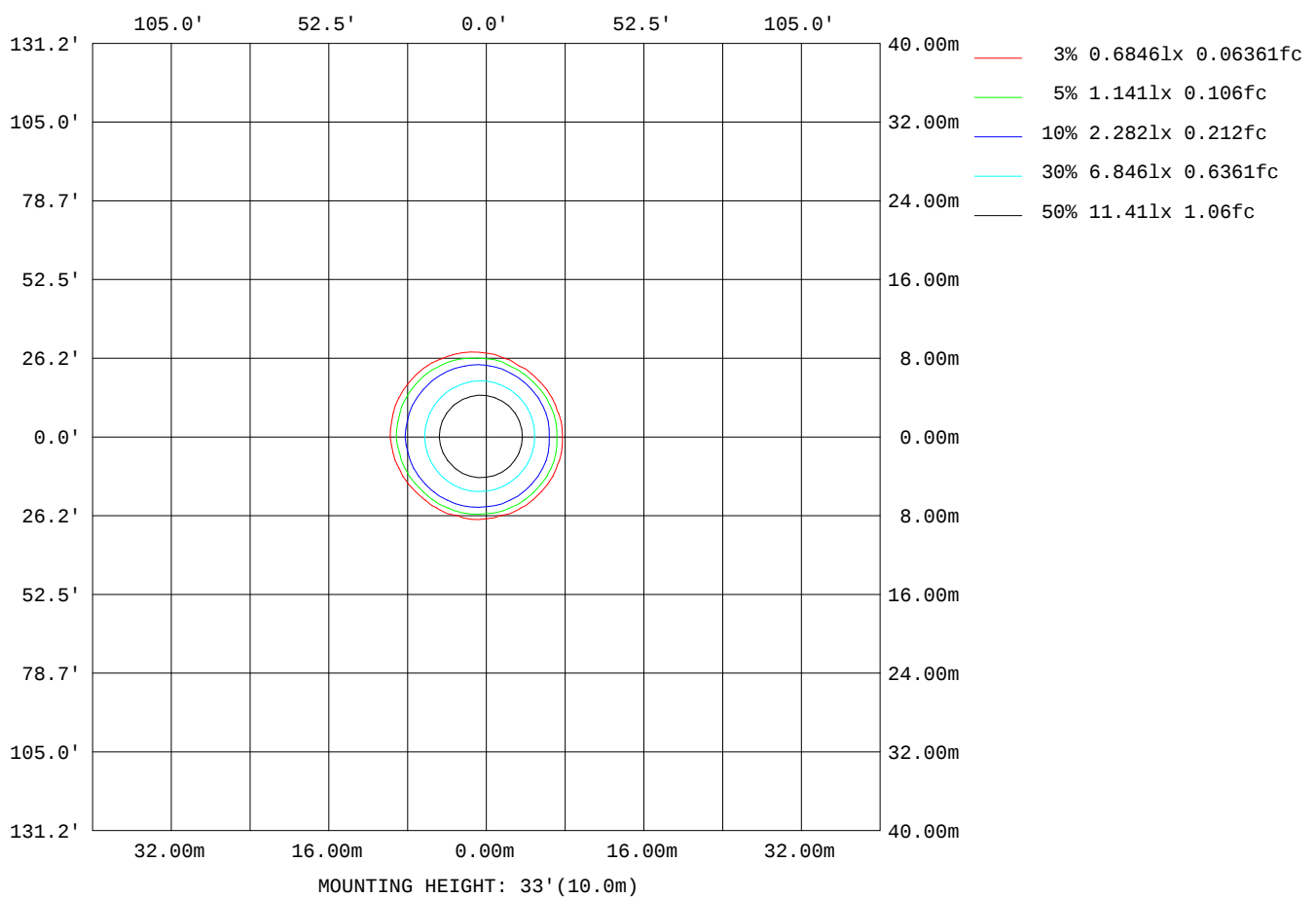
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 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:220.61V I:0.0947A P:19.018W PF:0.9106 Freq:50.01Hz Lamp Flux:1781.36x1 lm		
NAME: DD1810M-WHTC2010C02	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 88mm	Shielding Angle:

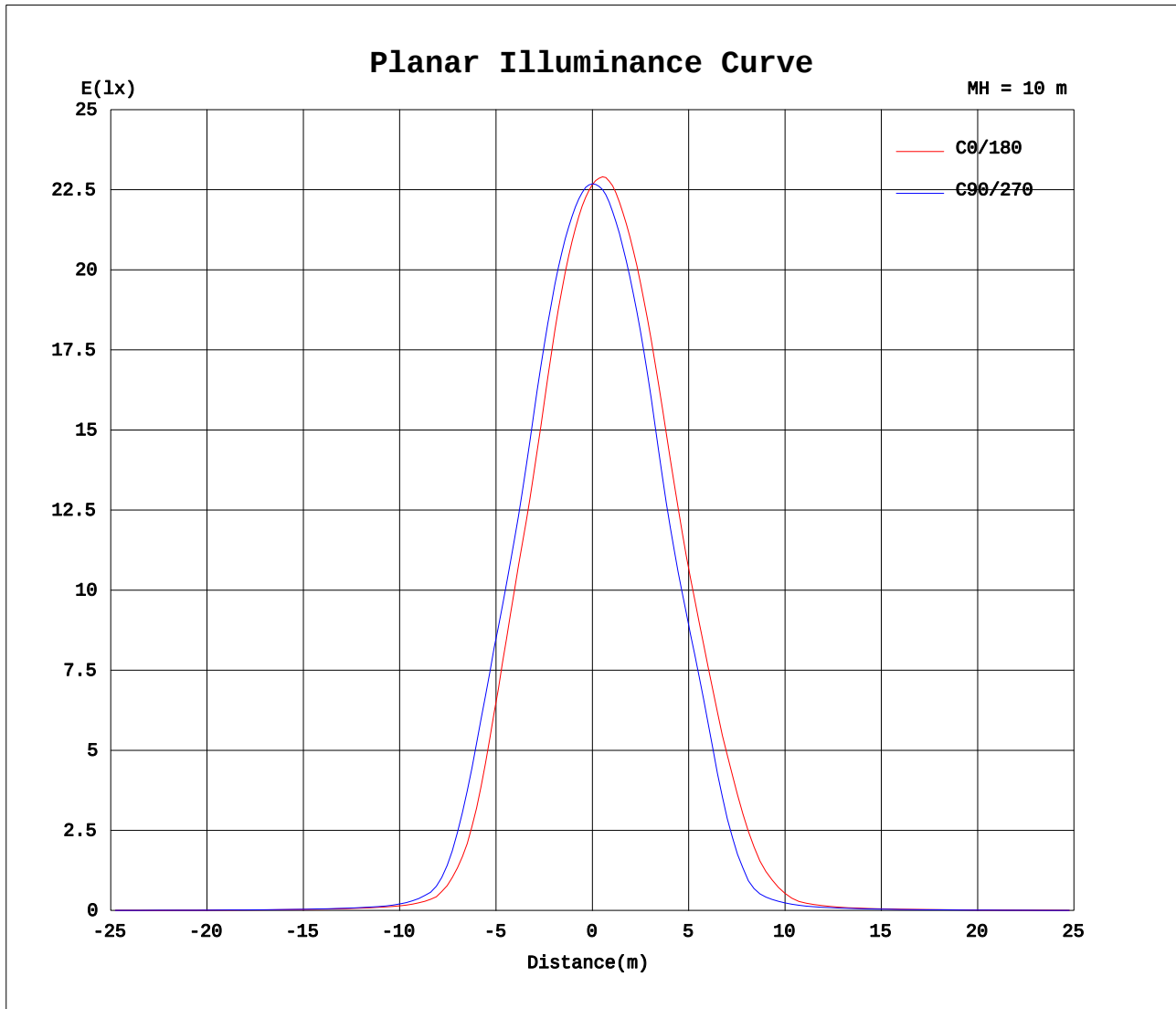
AvgL	cd/m2
L_0~180(65)av	6356
L_0~180(75)av	5485
L_0~180(85)av	3168
L_90~270(65)av	6180
L_90~270(75)av	5304
L_90~270(85)av	371
L_45(65)av	6248
L_45(75)av	5612
L_45(85)av	1570

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:

```