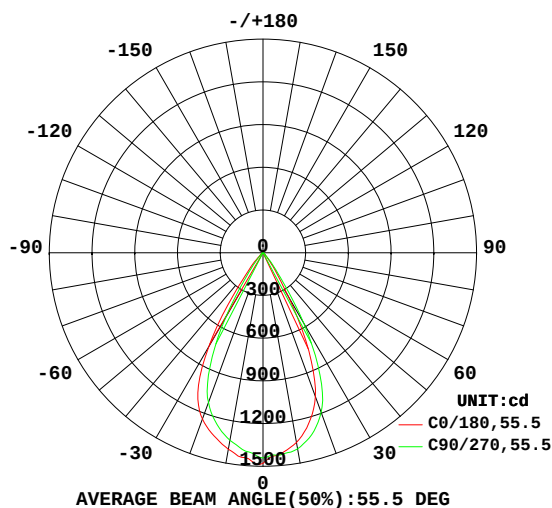


LUMINAIRE PHOTOMETRIC TEST REPORT

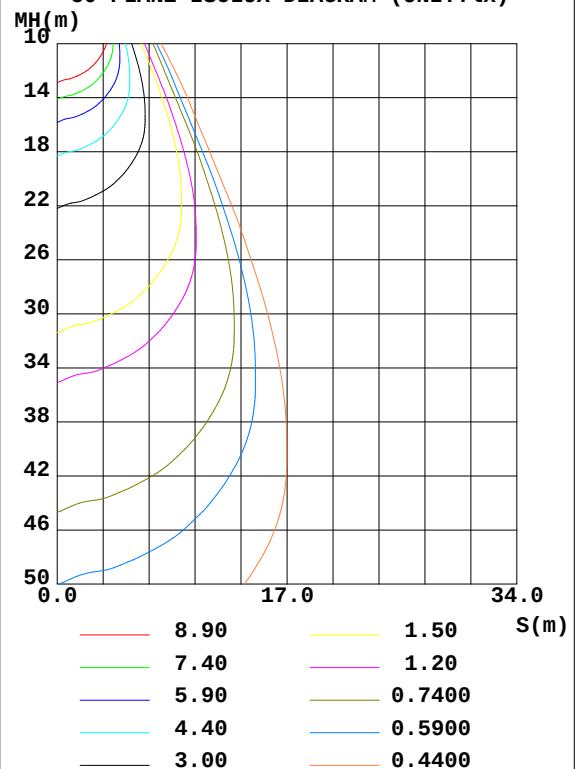
Test:U:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 69.89 lm/W			
MODEL	TBG-1510E 3000K	I _{max} (cd)	1489	S/MH(C0/180)	0.89
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	0.81
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	1118.1	η UP, DN(C0-180)	0.0, 50.2
NOMINAL FLUX(lm)	1118.14	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 49.8
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	0.85

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:2025-07-16

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:

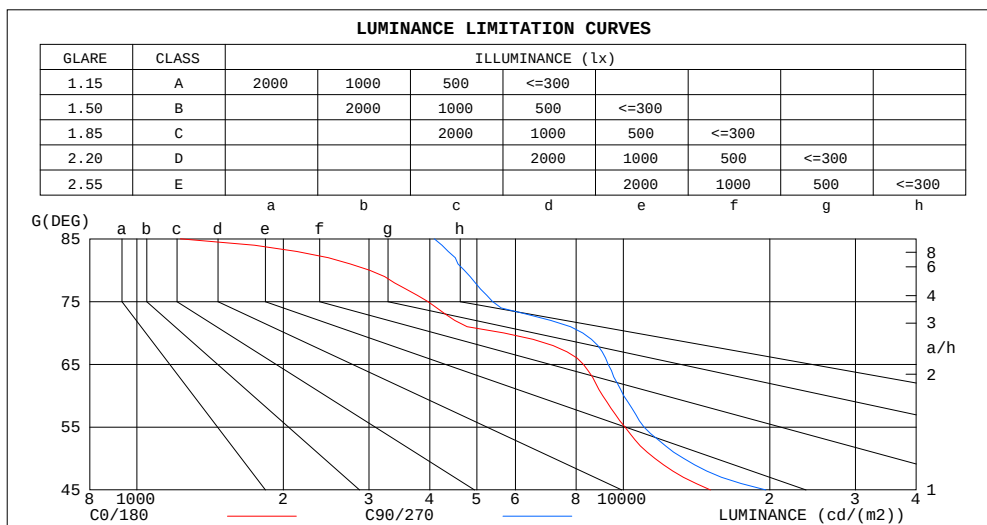
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1353	1369	1398	1405	1401	1359	1338	1319	0- 10	133.5	133.5	11.9,11.9
20	1077	1110	1194	1250	1243	1179	1120	1064	10- 20	357.5	491.0	43.9,43.9
30	362.9	412.6	576.0	731.0	763.8	696.7	524.5	380.7	20- 30	404.1	895.1	80.1,80.1
40	53.06	60.23	87.49	129.9	143.8	122.4	83.73	57.00	30- 40	161.5	1057	94.5,94.5
50	17.77	18.26	20.36	23.86	25.56	24.08	20.48	17.84	40- 50	33.32	1090	97.5,97.5
60	10.80	11.09	11.92	13.06	13.71	13.35	12.07	10.88	50- 60	14.10	1104	98.7,98.7
70	4.622	5.195	6.713	7.874	8.382	8.083	6.761	4.794	60- 70	9.317	1113	99.6,99.6
80	1.243	1.449	1.946	2.488	2.551	2.262	1.711	1.238	70- 80	3.921	1117	99.9,99.9
90	0	0	0	0.3170	0.3767	0.2159	0	0	80- 90	0.0201	1118	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:2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	1229	4087
80	3007	4708
75	3965	5384
70	5678	8247
65	8277	9309
60	9072	10019
55	10077	11028
50	11615	13312
45	15100	19628

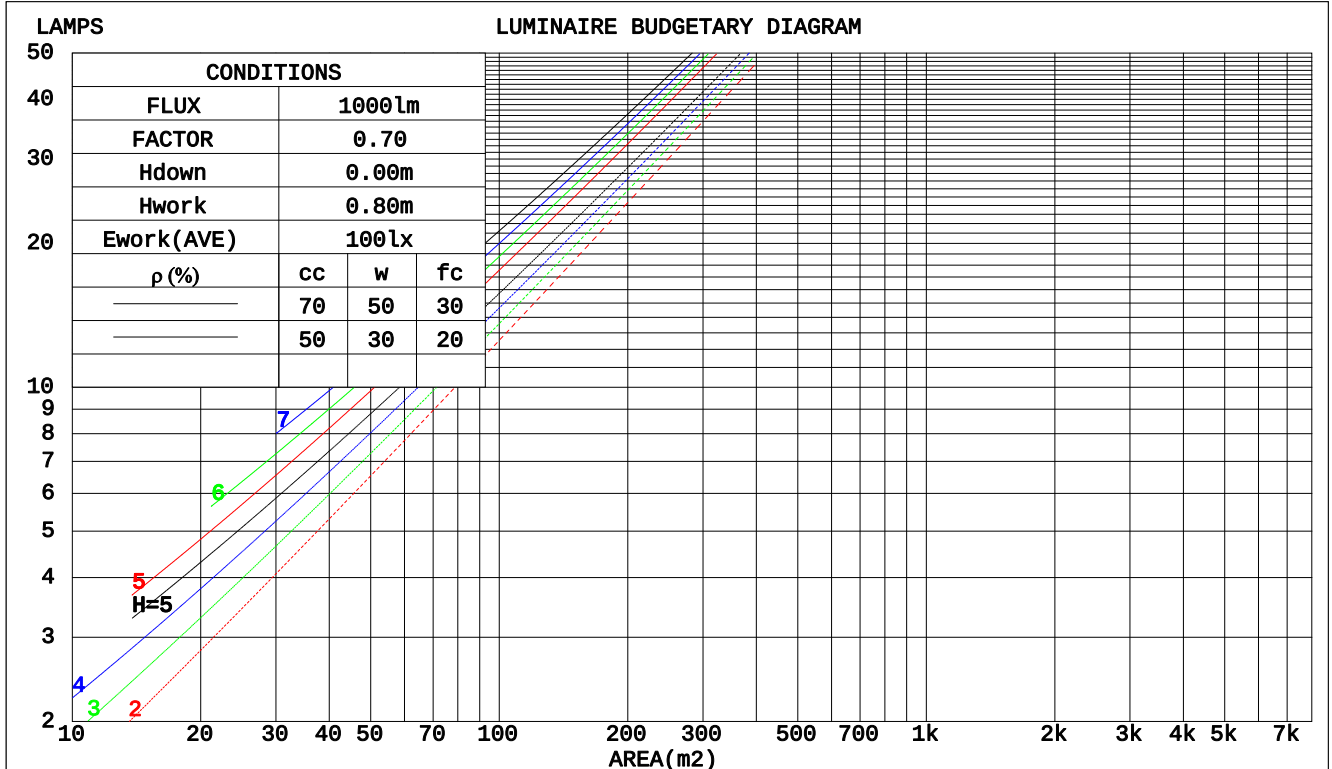
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	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	1.09	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	.96	.91	.88	.93	.89	.86	.91	.88	.85	.88	.86	.84	.82
4.0	.91	.86	.82	.90	.85	.81	.88	.84	.80	.86	.82	.79	.84	.81	.79	.77
5.0	.86	.80	.76	.85	.80	.76	.83	.79	.75	.81	.78	.74	.80	.77	.74	.72
6.0	.81	.75	.71	.80	.75	.71	.79	.74	.70	.77	.73	.70	.76	.72	.69	.68
7.0	.76	.71	.67	.76	.70	.67	.75	.70	.66	.73	.69	.66	.72	.68	.66	.64
8.0	.72	.67	.63	.72	.66	.63	.71	.66	.62	.70	.65	.62	.69	.65	.62	.61
9.0	.69	.63	.59	.68	.63	.59	.67	.62	.59	.66	.62	.59	.66	.62	.59	.57
10.0	.65	.60	.56	.65	.60	.56	.64	.59	.56	.63	.59	.56	.63	.59	.56	.54



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm					
NAME: TH19-WHTC15C021P			TYPE:		WEIGHT:
SPEC.: white RA90 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 55mm		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	.154	.089	.028	.143	.082	.026	.132	.077	.025	
2.0	.165	.091	.028	.160	.088	.027	.149	.083	.026	.139	.078	.024	.130	.074	.023	
3.0	.157	.083	.025	.152	.081	.024	.143	.077	.024	.135	.074	.023	.127	.070	.022	
4.0	.149	.077	.023	.145	.076	.022	.137	.073	.022	.130	.070	.021	.123	.067	.020	
5.0	.142	.072	.021	.138	.071	.021	.131	.068	.020	.125	.066	.020	.119	.064	.019	
6.0	.135	.068	.019	.132	.067	.019	.126	.065	.019	.120	.063	.018	.115	.061	.018	
7.0	.129	.064	.018	.126	.063	.018	.121	.061	.018	.116	.059	.017	.111	.058	.017	
8.0	.123	.060	.017	.121	.060	.017	.116	.058	.017	.112	.057	.016	.108	.055	.016	
9.0	.118	.057	.016	.116	.057	.016	.112	.055	.016	.108	.054	.015	.104	.053	.015	
10.0	.114	.054	.015	.112	.054	.015	.108	.053	.015	.104	.052	.015	.101	.051	.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	.155	.133	.113	.133	.114	.098	.091	.079	.068	.053	.046	.040	.017	.015	.013	
3.0	.143	.114	.090	.122	.098	.078	.084	.068	.055	.048	.040	.032	.016	.013	.011	
4.0	.132	.099	.073	.113	.085	.064	.078	.059	.045	.045	.035	.027	.015	.011	.009	
5.0	.123	.087	.060	.106	.075	.053	.073	.053	.037	.042	.031	.022	.014	.010	.007	
6.0	.116	.078	.050	.099	.067	.044	.069	.047	.031	.040	.028	.018	.013	.009	.006	
7.0	.109	.070	.043	.094	.061	.037	.065	.043	.026	.038	.025	.016	.012	.008	.005	
8.0	.103	.064	.037	.089	.055	.032	.061	.039	.023	.036	.023	.014	.012	.008	.004	
9.0	.098	.059	.032	.085	.051	.028	.059	.036	.020	.034	.021	.012	.011	.007	.004	
10.0	.094	.054	.028	.081	.047	.024	.056	.033	.017	.033	.020	.010	.011	.006	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm										
NAME: TH19-WHTC15C021P					TYPE:			WEIGHT:		
SPEC.: white RA90 3000K+5700K					DIM.:			SERIAL No.:		
MFR.:					SUR.: 55mm			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	15.8	16.7	16.1	16.9	17.1	18.1	19.0	18.3	19.1	19.3
3H	16.0	16.8	16.3	17.0	17.2	18.2	19.0	18.4	19.2	19.4
4H	16.0	16.8	16.3	17.0	17.2	18.1	18.9	18.4	19.2	19.4
6H	16.0	16.7	16.2	16.9	17.2	18.1	18.9	18.4	19.1	19.3
8H	15.9	16.6	16.2	16.9	17.1	18.1	18.8	18.4	19.1	19.3
12H	15.9	16.6	16.2	16.8	17.1	18.1	18.7	18.4	19.0	19.3
4H 2H	15.8	16.6	16.1	16.8	17.0	17.9	18.7	18.2	19.0	19.2
3H	16.1	16.7	16.4	17.0	17.3	18.1	18.8	18.4	19.0	19.3
4H	16.1	16.7	16.4	17.0	17.3	18.1	18.7	18.4	19.0	19.3
6H	16.1	16.6	16.4	16.9	17.3	18.1	18.6	18.5	19.0	19.3
8H	16.0	16.5	16.4	16.9	17.3	18.1	18.6	18.5	18.9	19.3
12H	16.0	16.5	16.4	16.8	17.2	18.0	18.5	18.5	18.9	19.3
8H 4H	16.0	16.5	16.4	16.9	17.2	18.0	18.5	18.4	18.9	19.2
6H	16.0	16.4	16.4	16.8	17.2	18.0	18.4	18.4	18.8	19.2
8H	16.0	16.4	16.4	16.8	17.2	18.0	18.4	18.4	18.8	19.2
12H	16.0	16.3	16.4	16.7	17.2	18.0	18.3	18.4	18.7	19.2
12H 4H	16.0	16.4	16.4	16.8	17.2	17.9	18.4	18.4	18.8	19.2
6H	16.0	16.3	16.4	16.8	17.2	18.0	18.3	18.4	18.7	19.2
8H	16.0	16.3	16.4	16.7	17.2	18.0	18.3	18.4	18.7	19.2
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 2.2 / - 2.2					+ 3.1 / - 2.9				
1.5H	+ 4.1 / - 2.1					+ 5.2 / - 2.5				
2.0H	+ 1.1 / - 0.8					+ 2.0 / - 1.0				

CIE Pub.117, 1118 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.4)
Area: 0.00238 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

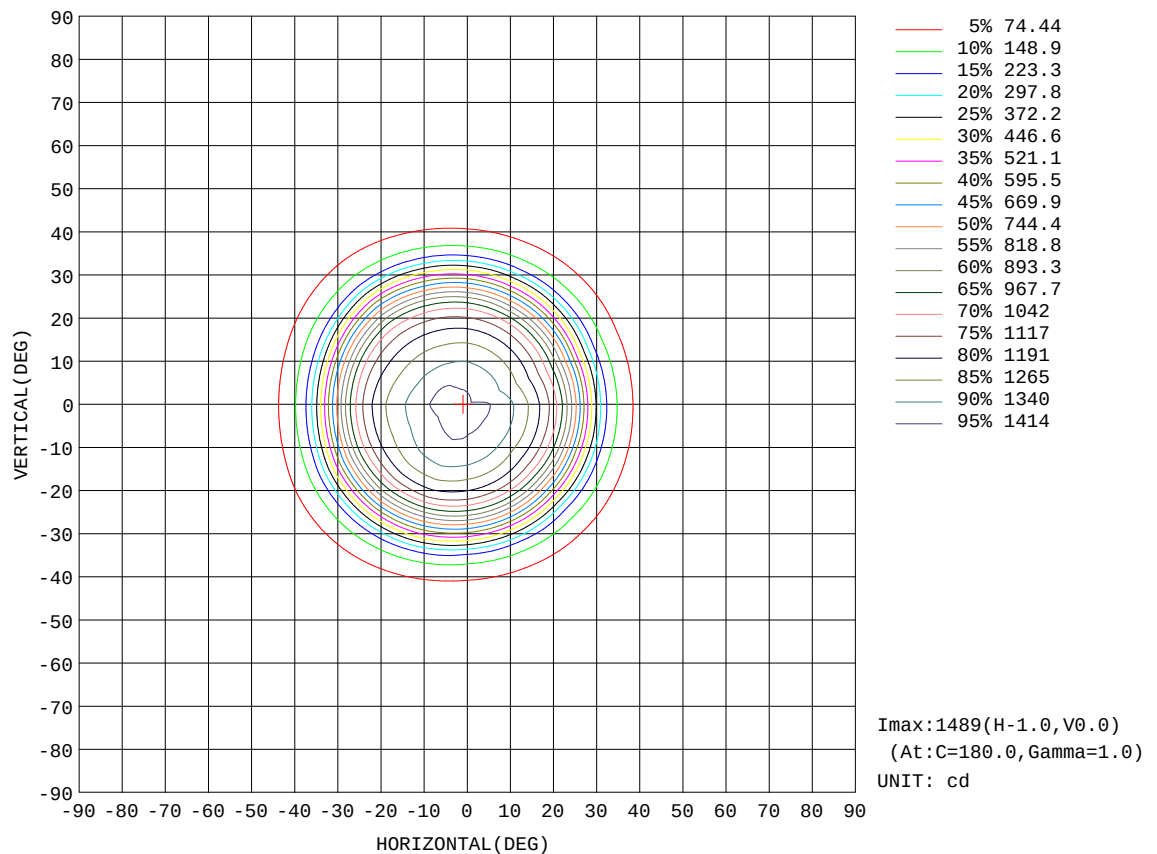
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	82	78	88	82	78	87	81	78	75
0.80	95	90	86	95	89	86	94	89	86	82
1.00	100	94	91	99	94	90	97	94	90	86
1.25	104	98	95	102	98	95	101	97	94	90
1.50	106	102	98	105	101	98	103	99	97	92
2.00	109	105	102	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	110	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:2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

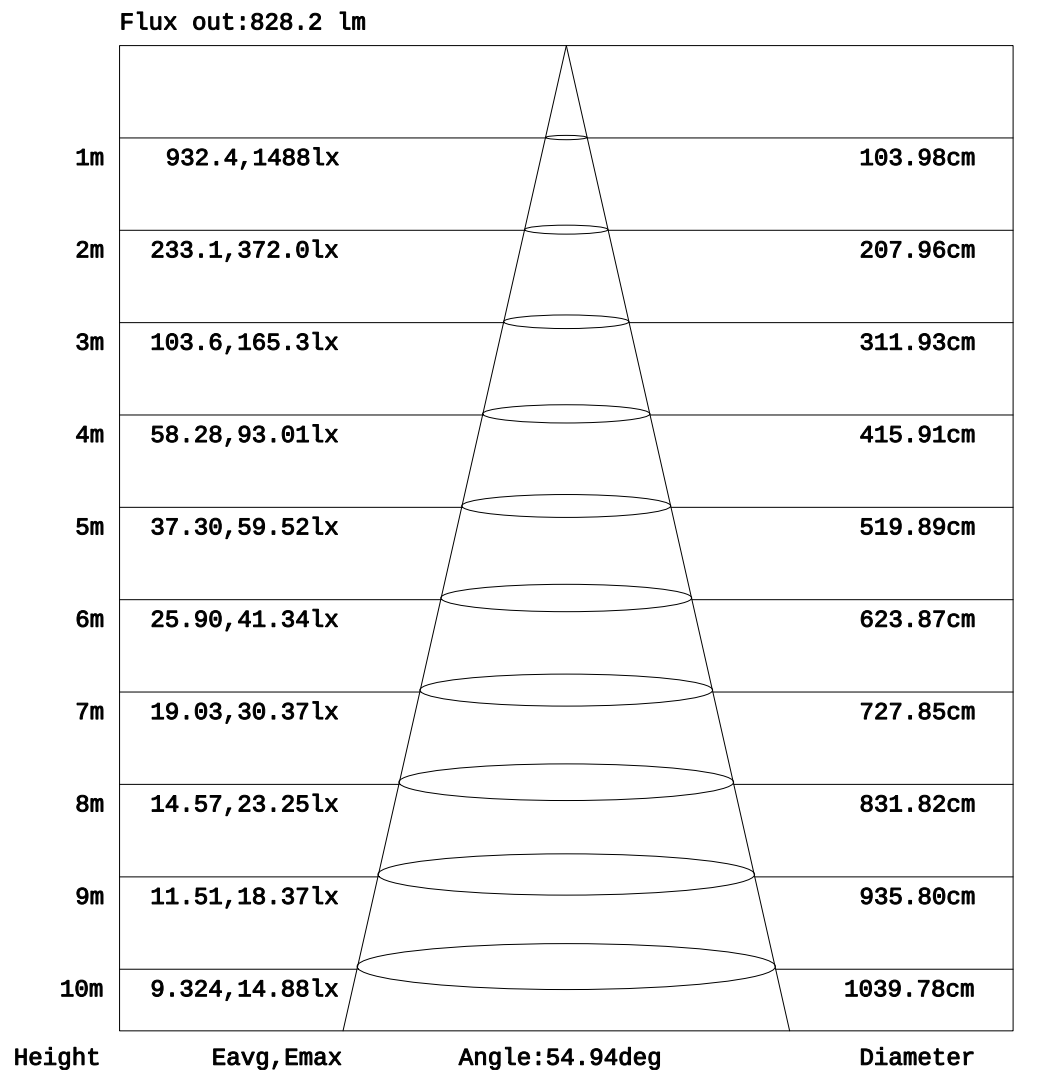


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:



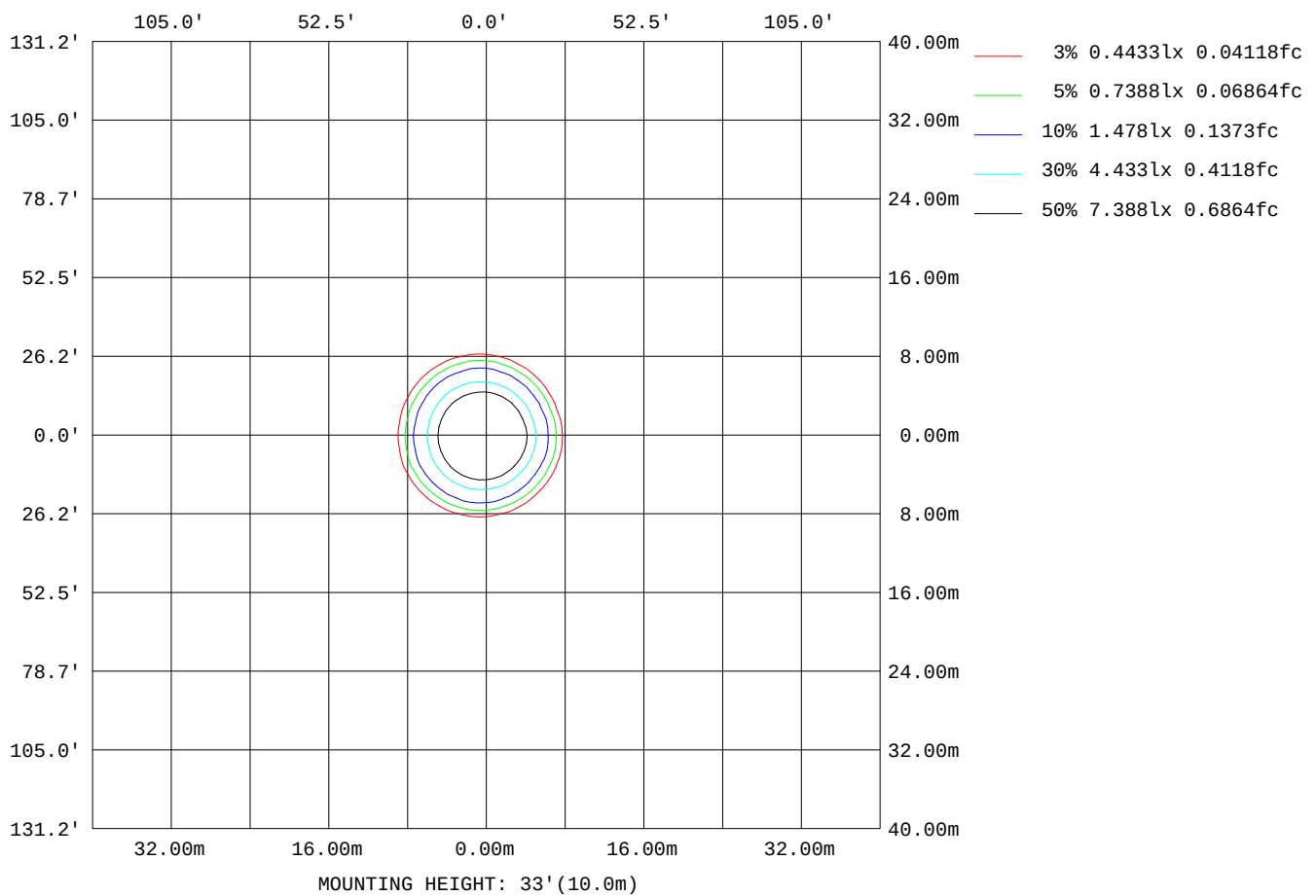
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-16

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:231.95V I:0.0709A P:15.998W PF:0.9722 Freq:49.99Hz Lamp Flux:1118.14x1 lm		
NAME: TH19-WHTC15C021P	TYPE:	WEIGHT:
SPEC.: white RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

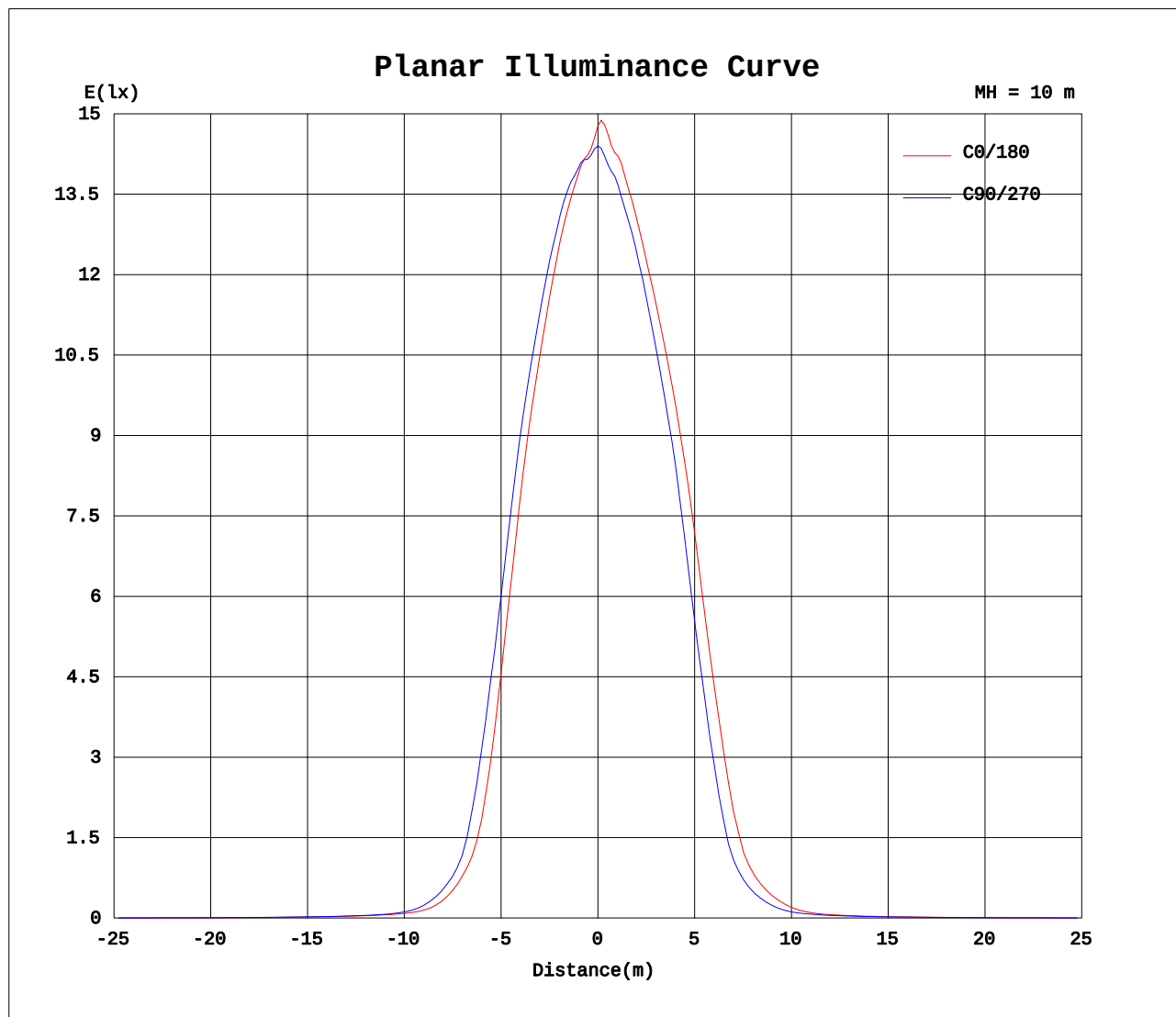
AvgL	cd/m2
L_0~180(65)av	9525
L_0~180(75)av	6095
L_0~180(85)av	3852
L_90~270(65)av	9400
L_90~270(75)av	5143
L_90~270(85)av	3710
L_45(65)av	9373
L_45(75)av	5628
L_45(85)av	3738

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2025-07-16

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: 2025-07-16

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:

```