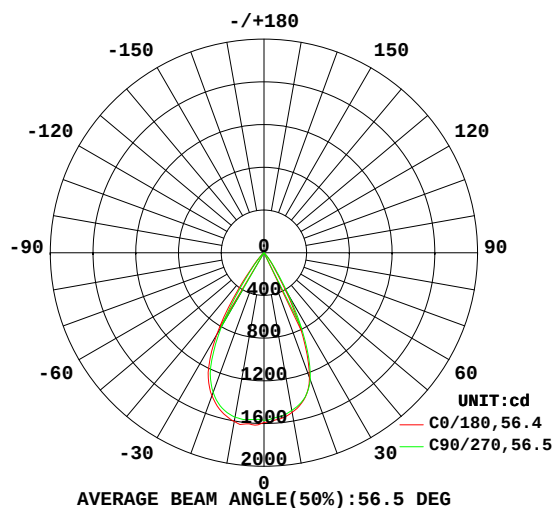


LUMINAIRE PHOTOMETRIC TEST REPORT

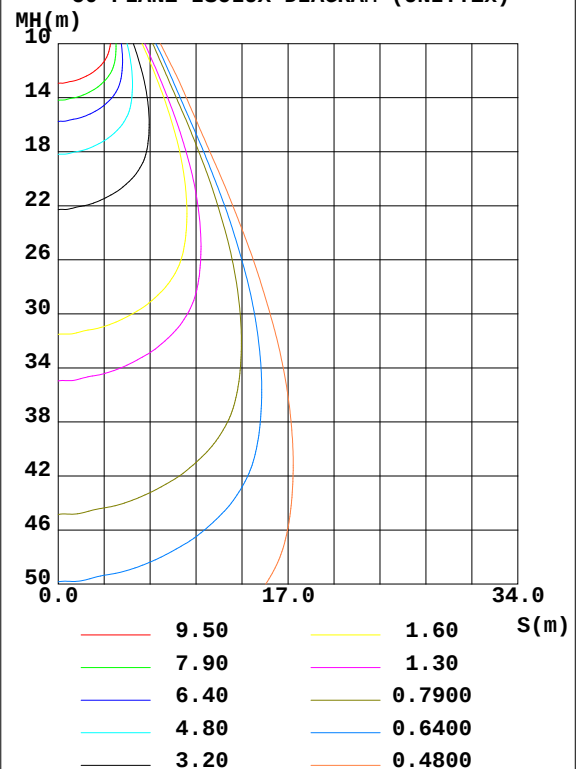
Test:U:231.95V I:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 81.06 lm/W			
MODEL	TBG-1510E 4000K	I _{max} (cd)	1636	S/MH(C0/180)	0.90
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	0.87
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	1240.1	η UP, DN(C0-180)	0.0, 45.9
NOMINAL FLUX(lm)	1240.08	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 54.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	0.80

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: 2025-07-15

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:

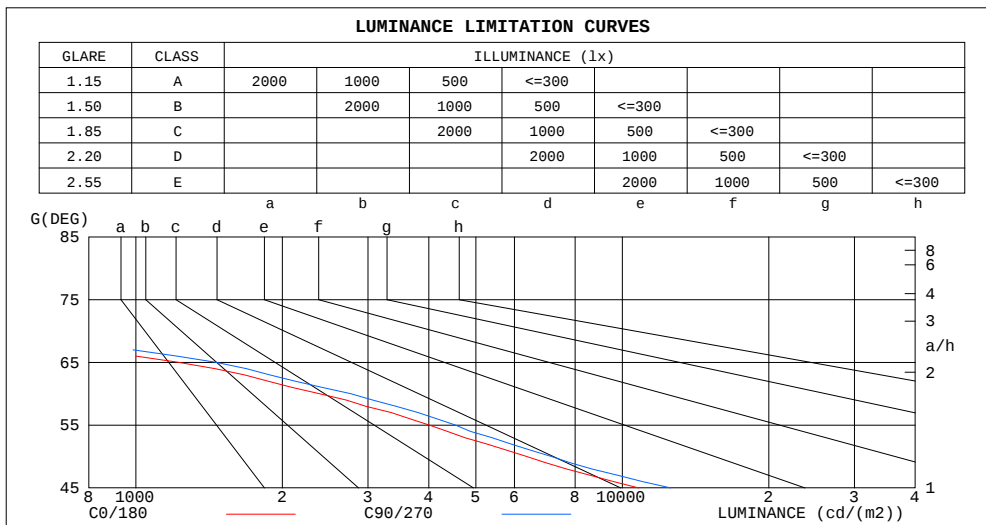
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1518	1493	1499	1532	1604	1602	1564	1520	0- 10	148.7	148.7	12,12
20	1244	1205	1266	1345	1425	1432	1393	1302	10- 20	409.5	558.2	45,45
30	396.3	366.8	476.6	701.0	884.1	908.3	791.4	538.8	20- 30	461.7	1020	82.2,82.2
40	49.40	46.53	63.56	105.9	145.7	155.3	114.2	67.89	30- 40	181.1	1201	96.8,96.8
50	9.716	9.371	10.92	14.87	19.30	20.74	16.59	11.56	40- 50	29.40	1230	99.2,99.2
60	2.835	2.697	3.289	4.591	5.997	6.437	5.175	3.500	50- 60	7.324	1238	99.8,99.8
70	0.0705	0.0424	0.2137	0.8112	1.407	1.527	1.062	0.3599	60- 70	2.200	1240	100,100
80	0	0	0	0	0	0	0	0	70- 80	0.1584	1240	100,100
90	0	0	0	0	0	0	0	0	80- 90	0	1240	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:2025-07-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 γ 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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	0	0
80	0	0
75	0	0
70	87	263
65	1223	1460
60	2382	2764
55	4006	4538
50	6351	7136
45	10808	12576

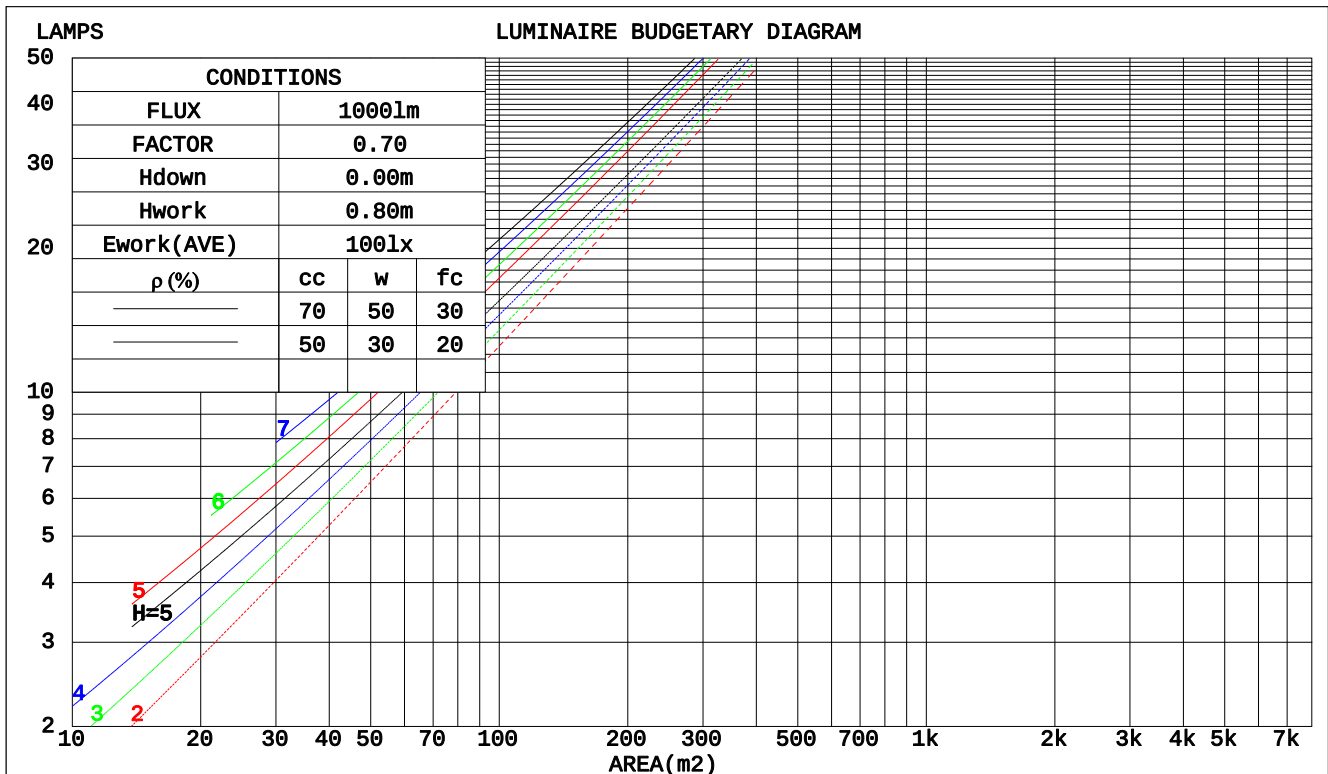
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black 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						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	1.09	1.07	1.09	1.07	1.05	1.05	1.03	1.02	1.01	1.00	.99	.98	.97	.96	.94
2.0	1.04	1.00	.97	1.03	.99	.96	.99	.97	.94	.96	.94	.92	.94	.92	.90	.89
3.0	.98	.93	.90	.96	.92	.89	.94	.90	.87	.92	.89	.86	.89	.87	.85	.83
4.0	.92	.87	.83	.91	.86	.83	.89	.85	.82	.87	.83	.81	.85	.82	.80	.78
5.0	.87	.81	.77	.86	.81	.77	.84	.80	.76	.82	.79	.76	.81	.78	.75	.74
6.0	.82	.76	.72	.81	.76	.72	.80	.75	.72	.78	.74	.71	.77	.74	.71	.69
7.0	.78	.72	.68	.77	.72	.68	.76	.71	.68	.74	.70	.67	.73	.70	.67	.65
8.0	.73	.68	.64	.73	.68	.64	.72	.67	.64	.71	.67	.63	.70	.66	.63	.62
9.0	.70	.64	.61	.69	.64	.60	.68	.64	.60	.68	.63	.60	.67	.63	.60	.59
10.0	.66	.61	.57	.66	.61	.57	.65	.60	.57	.64	.60	.57	.64	.60	.57	.56



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm					
NAME: TH19-BKTC15C021P			TYPE:		WEIGHT:
SPEC.: black 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	.167	.095	.030	.161	.092	.029	.148	.085	.027	.137	.079	.025	.126	.073	.024	
2.0	.159	.087	.027	.154	.085	.026	.143	.080	.025	.134	.075	.023	.125	.071	.022	
3.0	.152	.081	.024	.147	.079	.024	.138	.075	.023	.130	.071	.022	.122	.068	.021	
4.0	.144	.075	.022	.140	.073	.022	.133	.070	.021	.125	.067	.020	.119	.065	.020	
5.0	.138	.070	.020	.134	.069	.020	.127	.066	.020	.121	.064	.019	.115	.062	.019	
6.0	.132	.066	.019	.128	.065	.019	.123	.063	.018	.117	.061	.018	.112	.059	.018	
7.0	.126	.062	.018	.123	.061	.018	.118	.060	.017	.113	.058	.017	.109	.056	.017	
8.0	.121	.059	.017	.118	.058	.016	.114	.057	.016	.109	.055	.016	.105	.054	.016	
9.0	.116	.056	.016	.114	.055	.016	.110	.054	.015	.106	.053	.015	.102	.052	.015	
10.0	.112	.053	.015	.110	.053	.015	.106	.052	.015	.102	.051	.014	.099	.050	.014	

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	.170	.157	.146	.146	.135	.125	.100	.093	.087	.057	.054	.050	.018	.017	.016	
2.0	.155	.133	.114	.132	.114	.099	.091	.079	.069	.052	.046	.040	.017	.015	.013	
3.0	.142	.113	.091	.121	.098	.079	.083	.068	.055	.048	.040	.033	.015	.013	.011	
4.0	.131	.099	.074	.112	.085	.064	.077	.059	.045	.045	.035	.027	.014	.011	.009	
5.0	.122	.087	.061	.105	.075	.053	.072	.053	.037	.042	.031	.022	.013	.010	.007	
6.0	.114	.077	.051	.098	.067	.044	.068	.047	.031	.039	.028	.019	.013	.009	.006	
7.0	.108	.070	.043	.093	.061	.038	.064	.042	.027	.037	.025	.016	.012	.008	.005	
8.0	.102	.064	.037	.088	.055	.032	.061	.039	.023	.035	.023	.014	.011	.007	.005	
9.0	.097	.058	.032	.084	.051	.028	.058	.036	.020	.034	.021	.012	.011	.007	.004	
10.0	.093	.054	.028	.080	.047	.024	.055	.033	.017	.032	.019	.010	.010	.006	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm										
NAME: TH19-BKTC15C021P					TYPE:			WEIGHT:		
SPEC.: black 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	14.0	14.9	14.3	15.1	15.2	15.1	16.0	15.3	16.1	16.3
3H	13.9	14.7	14.1	14.9	15.1	14.9	15.7	15.2	15.9	16.1
4H	13.8	14.6	14.1	14.8	15.0	14.8	15.6	15.1	15.8	16.0
6H	13.7	14.4	14.0	14.7	14.9	14.7	15.4	15.0	15.7	15.9
8H	13.7	14.3	14.0	14.6	14.9	14.7	15.4	15.0	15.6	15.9
12H	13.6	14.3	13.9	14.5	14.8	14.6	15.3	15.0	15.6	15.8
4H 2H	13.8	14.6	14.1	14.8	15.0	14.8	15.6	15.1	15.8	16.0
3H	13.6	14.3	13.9	14.5	14.8	14.7	15.3	15.0	15.6	15.9
4H	13.5	14.1	13.9	14.4	14.7	14.6	15.2	14.9	15.5	15.8
6H	13.4	14.0	13.8	14.3	14.6	14.5	15.0	14.8	15.3	15.7
8H	13.4	13.9	13.8	14.2	14.6	14.4	14.9	14.8	15.2	15.6
12H	13.3	13.8	13.7	14.1	14.5	14.4	14.8	14.8	15.2	15.6
8H 4H	13.4	13.9	13.8	14.2	14.6	14.4	14.9	14.8	15.2	15.6
6H	13.3	13.7	13.7	14.1	14.5	14.3	14.7	14.7	15.1	15.5
8H	13.2	13.6	13.7	14.0	14.4	14.2	14.6	14.7	15.0	15.5
12H	13.2	13.5	13.6	13.9	14.4	14.2	14.5	14.7	14.9	15.4
12H 4H	13.3	13.8	13.7	14.1	14.5	14.4	14.8	14.8	15.2	15.6
6H	13.2	13.6	13.7	14.0	14.4	14.2	14.6	14.7	15.0	15.5
8H	13.2	13.5	13.6	13.9	14.4	14.2	14.5	14.7	14.9	15.4
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 4.1 / -10.1					+ 4.6 / -10.6				
1.5H	+ 6.4 / - 7.5					+ 7.0 / - 8.3				
2.0H	+ 5.0 / - 6.2					+ 5.4 / - 6.5				

CIE Pub.117, 1240 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.7)
Area: 0.00238 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

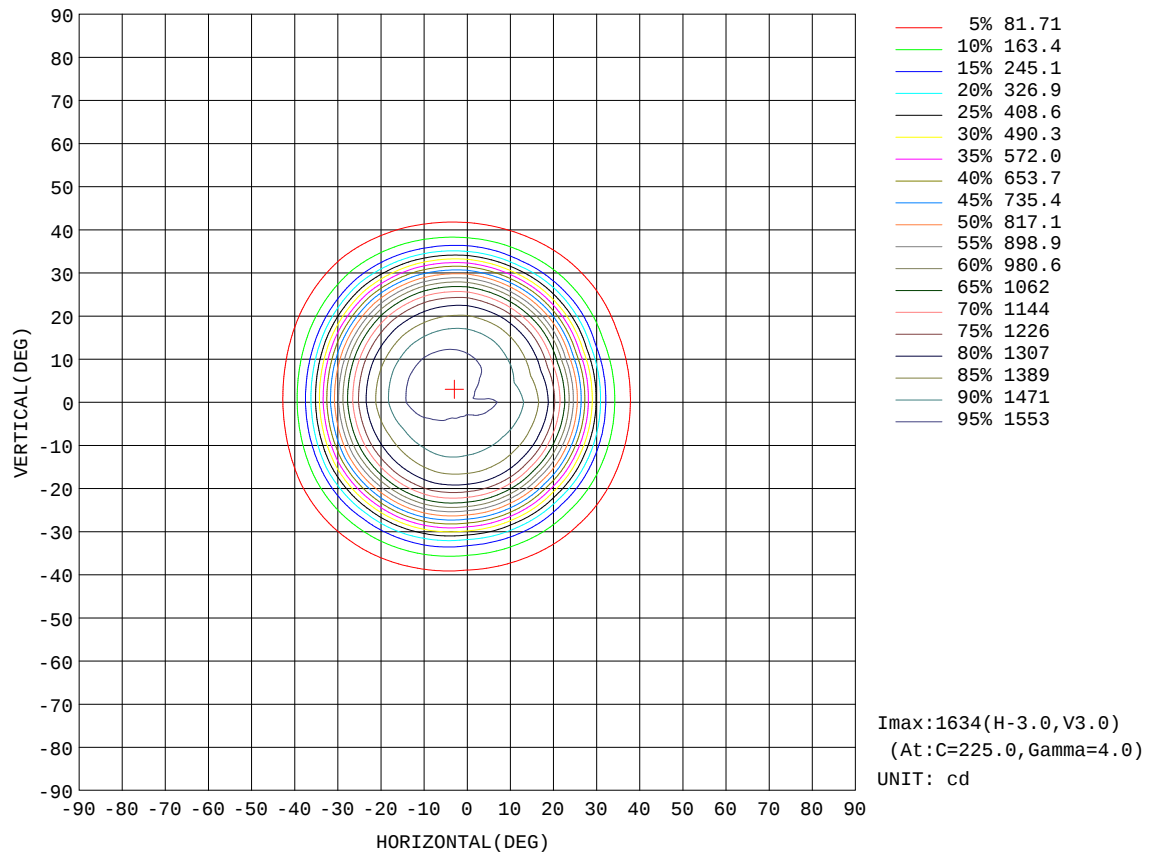
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	90	84	80	89	83	80	88	83	80	77
0.80	97	91	88	96	91	88	95	90	87	84
1.00	101	96	92	100	95	92	98	95	91	88
1.25	105	100	96	104	99	96	102	98	95	91
1.50	107	103	100	106	102	99	104	100	98	94
2.00	109	106	103	108	104	102	105	103	100	95
2.50	111	107	105	109	106	104	106	104	102	96
3.00	112	109	107	111	108	106	107	105	103	97
4.00	114	112	110	112	110	108	109	107	106	99
5.00	115	113	112	113	112	110	109	108	107	100
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:2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

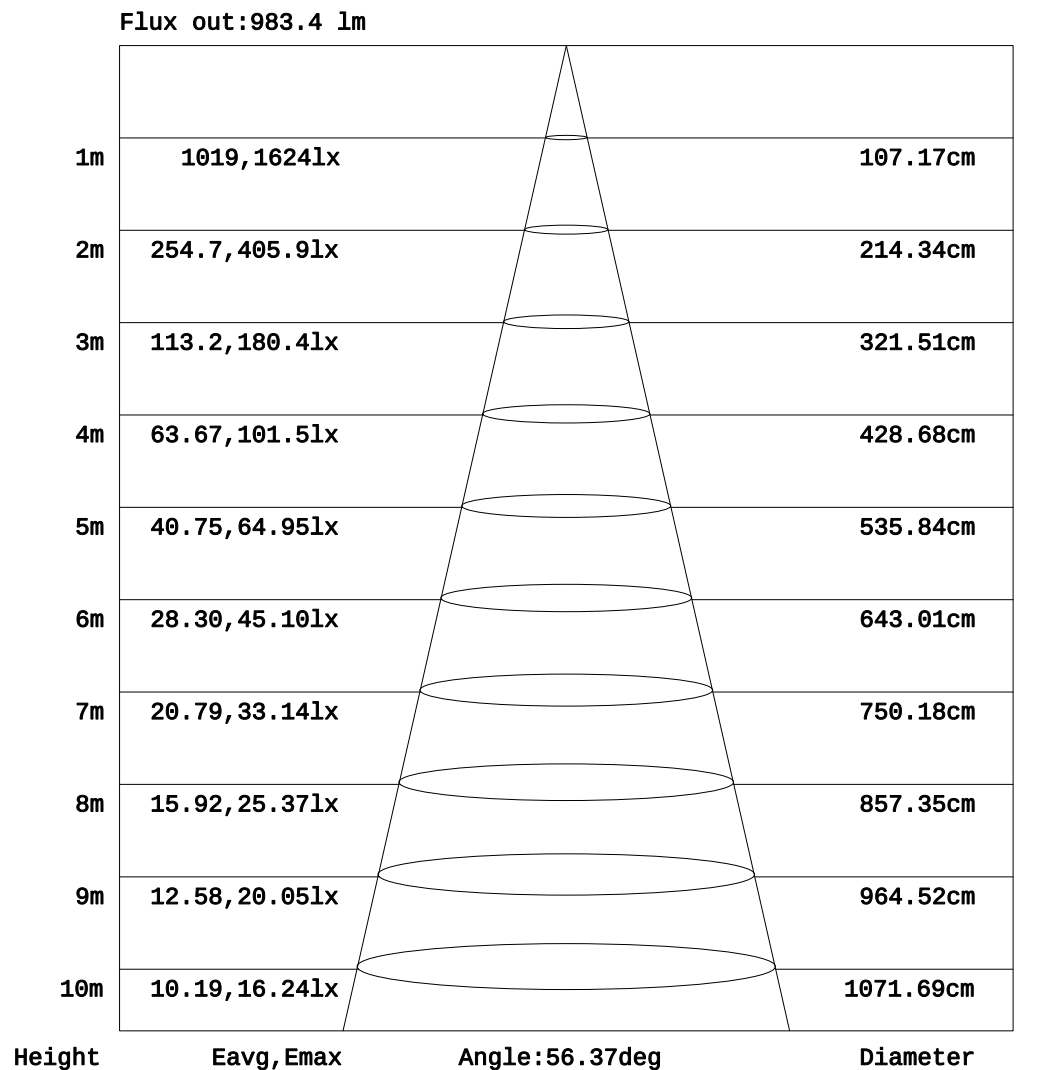


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:



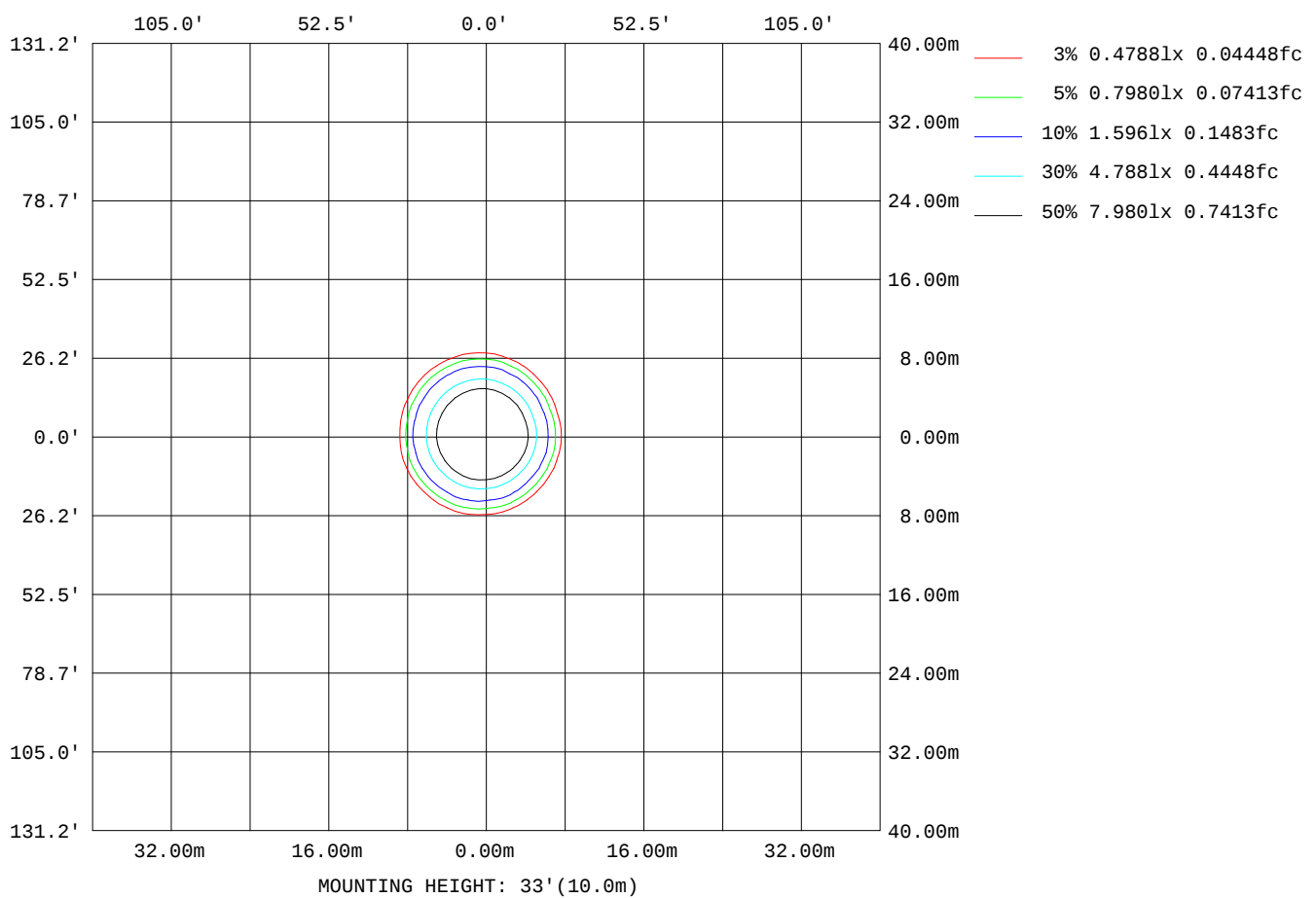
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25DEG
 Operators:
 Test Date:2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black 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:2025-07-15

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:0.0682A P:15.298W PF:0.9673 Freq:49.99Hz Lamp Flux:1240.08x1 lm		
NAME: TH19-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 55mm	Shielding Angle:

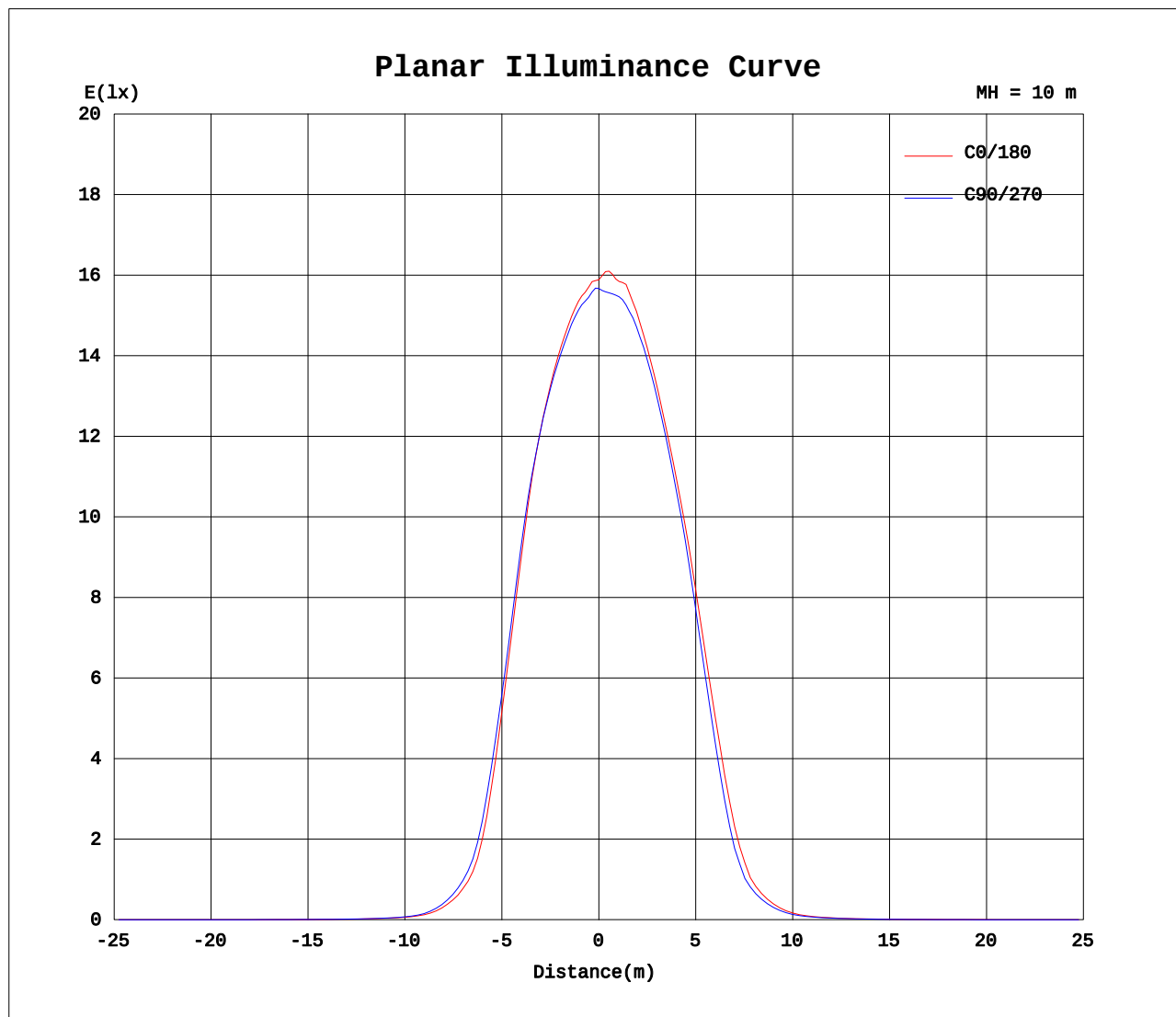
AvgL	cd/m2
L_0~180(65)av	2164
L_0~180(75)av	37
L_0~180(85)av	0
L_90~270(65)av	2005
L_90~270(75)av	0
L_90~270(85)av	0
L_45(65)av	2079
L_45(75)av	43
L_45(85)av	0

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25DEG
 Operators:
 Test Date:2025-07-15

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: 2025-07-15

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:

```

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γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.428
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Remarks:

```