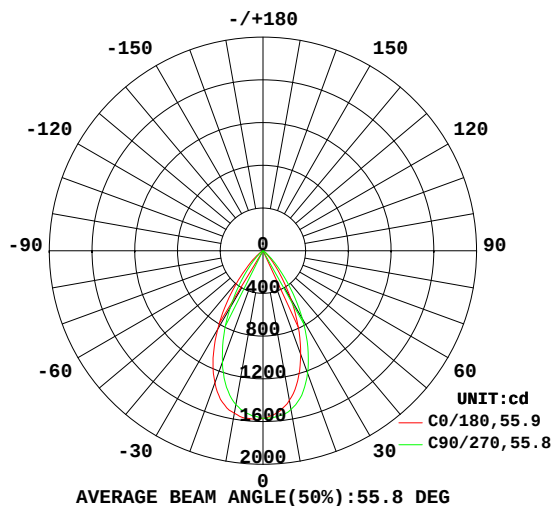


LUMINAIRE PHOTOMETRIC TEST REPORT

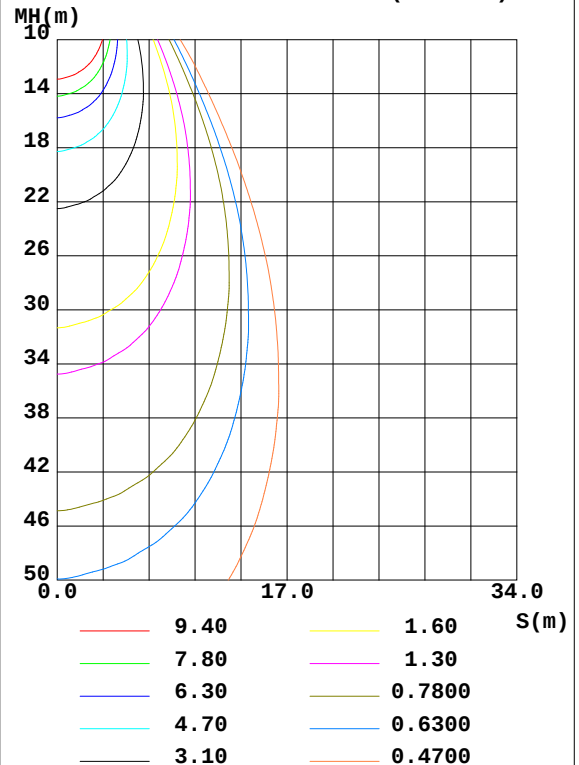
Test:U:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 98.77 lm/W			
MODEL	TB26141207 4000K	I _{max} (cd)	1581	S/MH(C0/180)	0.93
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	0.82
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	1356.3	η UP, DN(C0-180)	0.0, 51.4
NOMINAL FLUX(lm)	1356.29	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 48.6
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: 2024-04-13

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:

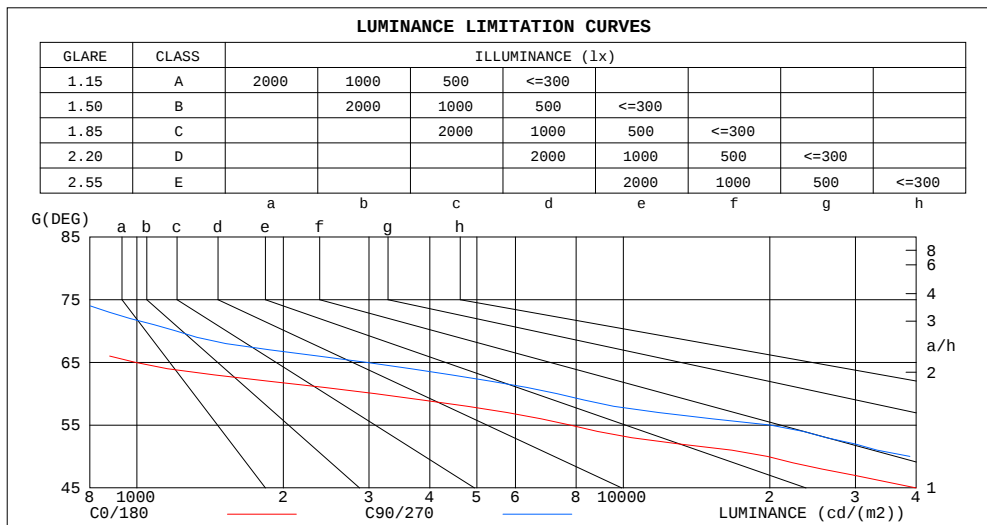
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1423	1458	1509	1548	1545	1514	1465	1422	0- 10	145.8	145.8	10.8,10.8
20	1032	1095	1219	1325	1315	1236	1112	1023	10- 20	377.8	523.7	38.6,38.6
30	529.5	591.6	740.9	860.3	849.5	746.9	615.9	519.8	20- 30	424.2	947.8	69.9,69.9
40	162.4	189.2	278.3	365.6	359.0	282.2	203.8	154.7	30- 40	276.9	1225	90.3,90.3
50	33.57	44.08	65.87	94.57	93.70	68.21	41.24	32.32	40- 50	103.1	1328	97.9,97.9
60	4.081	5.758	9.648	15.40	14.30	10.35	5.946	3.754	50- 60	24.52	1352	99.7,99.7
70	0.4951	0.6497	1.087	1.530	1.313	0.9479	0.5857	0.3619	60- 70	3.486	1356	100,100
80	0.0851	0.0926	0.1004	0.1404	0.0501	0.0346	0.0076	0	70- 80	0.3834	1356	100,100
90	0.1313	0.1081	0.0811	0.0695	0	0	0	0	80- 90	0.0514	1356	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:2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	336	369
80	186	219
75	159	725
70	548	1203
65	992	2958
60	3091	7309
55	7770	20027
50	19781	38819
45	39976	76695

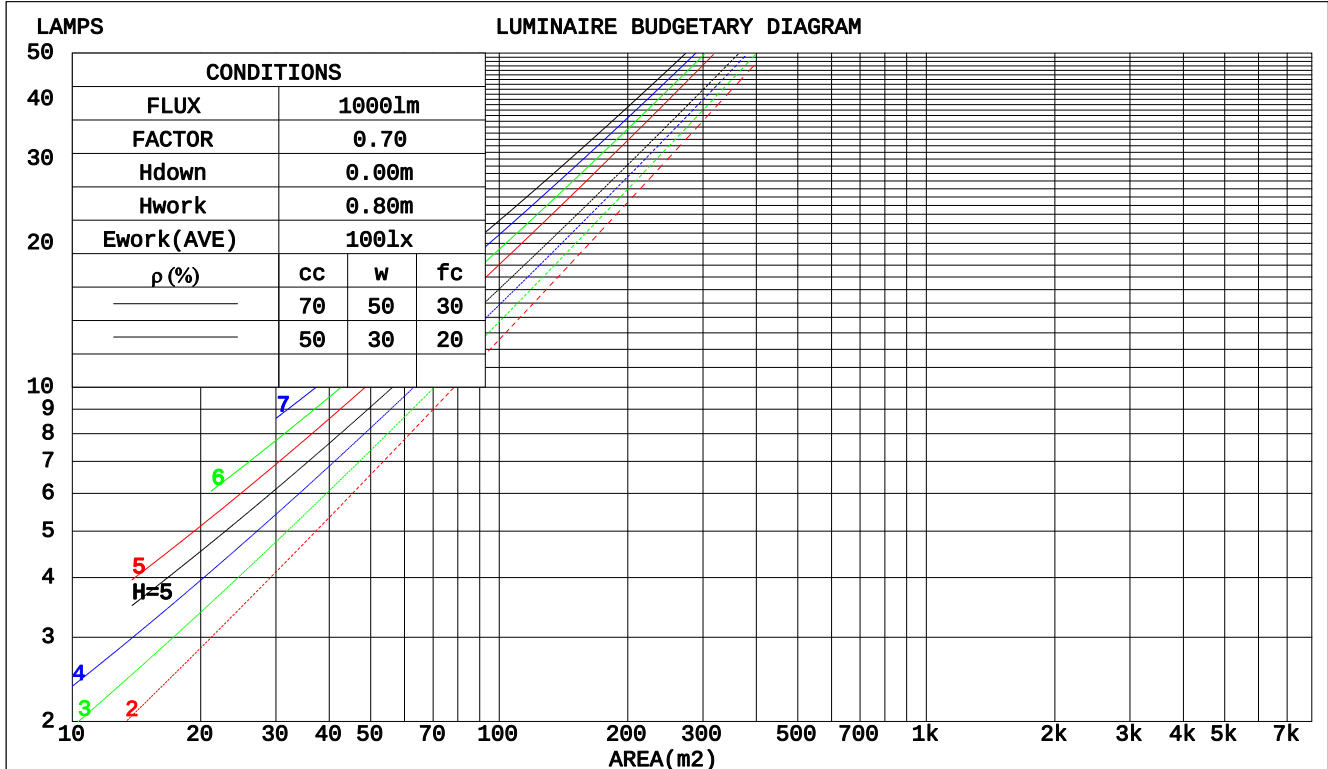
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	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	.95	1.01	.98	.94	.98	.95	.92	.95	.93	.90	.92	.90	.88	.87
3.0	.96	.91	.87	.94	.90	.86	.92	.88	.85	.89	.86	.83	.87	.84	.82	.81
4.0	.89	.84	.80	.88	.83	.79	.86	.82	.78	.84	.80	.77	.82	.79	.76	.75
5.0	.84	.78	.73	.83	.77	.73	.81	.76	.73	.79	.75	.72	.78	.74	.71	.70
6.0	.78	.72	.68	.78	.72	.68	.76	.71	.67	.75	.70	.67	.73	.70	.67	.65
7.0	.74	.68	.63	.73	.67	.63	.72	.67	.63	.71	.66	.63	.69	.65	.62	.61
8.0	.69	.63	.59	.69	.63	.59	.68	.63	.59	.67	.62	.59	.66	.62	.58	.57
9.0	.66	.60	.56	.65	.59	.55	.64	.59	.55	.63	.58	.55	.62	.58	.55	.54
10.0	.62	.56	.52	.62	.56	.52	.61	.56	.52	.60	.55	.52	.59	.55	.52	.50



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-04-13

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 γ Test System: EVERFINE G0-2000B_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm					
NAME: TH13-BKTC15C021P			TYPE:		WEIGHT:
SPEC.: black RA90 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 58mm		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	.179	.102	.032	.172	.098	.031	.159	.091	.029	.148	.085	.027	.137	.079	.026	
2.0	.172	.094	.029	.166	.092	.028	.156	.087	.027	.146	.082	.026	.137	.077	.024	
3.0	.164	.087	.026	.159	.085	.026	.150	.081	.025	.142	.078	.024	.134	.074	.023	
4.0	.157	.081	.024	.153	.080	.024	.145	.077	.023	.137	.074	.022	.131	.071	.022	
5.0	.150	.076	.022	.146	.075	.022	.139	.072	.021	.133	.070	.021	.127	.068	.020	
6.0	.143	.072	.020	.140	.071	.020	.134	.068	.020	.128	.066	.020	.123	.065	.019	
7.0	.136	.067	.019	.134	.067	.019	.128	.065	.019	.123	.063	.018	.119	.062	.018	
8.0	.131	.064	.018	.128	.063	.018	.123	.062	.018	.119	.060	.017	.115	.059	.017	
9.0	.125	.061	.017	.123	.060	.017	.119	.059	.017	.115	.057	.016	.111	.056	.016	
10.0	.120	.058	.016	.118	.057	.016	.114	.056	.016	.110	.055	.016	.107	.054	.015	

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	.171	.157	.145	.147	.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	.089	.124	.098	.077	.085	.068	.054	.049	.040	.032	.016	.013	.010	
4.0	.134	.099	.072	.115	.085	.063	.079	.060	.044	.046	.035	.026	.015	.011	.009	
5.0	.126	.087	.059	.108	.076	.051	.074	.053	.036	.043	.031	.022	.014	.010	.007	
6.0	.118	.078	.049	.102	.068	.043	.070	.047	.030	.041	.028	.018	.013	.009	.006	
7.0	.112	.071	.042	.096	.061	.036	.066	.043	.026	.039	.025	.015	.012	.008	.005	
8.0	.106	.064	.036	.091	.056	.031	.063	.039	.022	.037	.023	.013	.012	.008	.004	
9.0	.101	.059	.031	.087	.051	.027	.060	.036	.019	.035	.021	.011	.011	.007	.004	
10.0	.097	.055	.027	.083	.048	.024	.058	.034	.017	.034	.020	.010	.011	.007	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm											
NAME: TH13-BKTC15C021P					TYPE:			WEIGHT:			
SPEC.: black RA90 3000K+5700K					DIM.:			SERIAL No.:			
MFR.:					SUR.: 58mm			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		19.3	20.3	19.5	20.4	20.6	21.4	22.4	21.6	22.5	22.7
	3H	19.1	20.0	19.4	20.2	20.4	21.2	22.1	21.5	22.3	22.5
	4H	19.0	19.9	19.3	20.1	20.3	21.1	22.0	21.4	22.2	22.4
	6H	19.0	19.7	19.3	20.0	20.2	21.0	21.8	21.3	22.1	22.3
	8H	18.9	19.7	19.2	19.9	20.2	21.0	21.8	21.3	22.0	22.3
	12H	18.9	19.6	19.2	19.9	20.1	21.0	21.7	21.3	21.9	22.2
4H	2H	19.1	19.9	19.3	20.1	20.4	21.1	22.0	21.4	22.2	22.4
	3H	18.9	19.6	19.2	19.9	20.2	21.0	21.7	21.3	22.0	22.2
	4H	18.8	19.4	19.1	19.7	20.1	20.9	21.5	21.2	21.8	22.1
	6H	18.7	19.3	19.1	19.6	19.9	20.8	21.3	21.2	21.7	22.0
	8H	18.6	19.2	19.0	19.5	19.9	20.7	21.3	21.1	21.6	22.0
	12H	18.6	19.1	19.0	19.5	19.8	20.7	21.2	21.1	21.5	21.9
8H	4H	18.6	19.2	19.0	19.5	19.9	20.7	21.3	21.1	21.6	22.0
	6H	18.5	19.0	19.0	19.4	19.8	20.6	21.1	21.1	21.5	21.9
	8H	18.5	18.9	18.9	19.3	19.7	20.6	21.0	21.0	21.4	21.8
	12H	18.4	18.8	18.9	19.2	19.7	20.5	20.8	21.0	21.3	21.8
12H	4H	18.6	19.1	19.0	19.5	19.8	20.7	21.2	21.1	21.5	21.9
	6H	18.5	18.9	18.9	19.3	19.7	20.6	21.0	21.0	21.4	21.8
	8H	18.4	18.8	18.9	19.2	19.7	20.5	20.8	21.0	21.3	21.8
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 2.8 / -13.1					+ 3.8 / -12.3					
1.5H	+ 4.7 / - 9.4					+ 5.5 / -10.5					
2.0H	+ 6.0 / -13.5					+ 7.1 / -14.0					

CIE Pub.117, 1356 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.1)
Area: 0.00264 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	Shielding Angle:

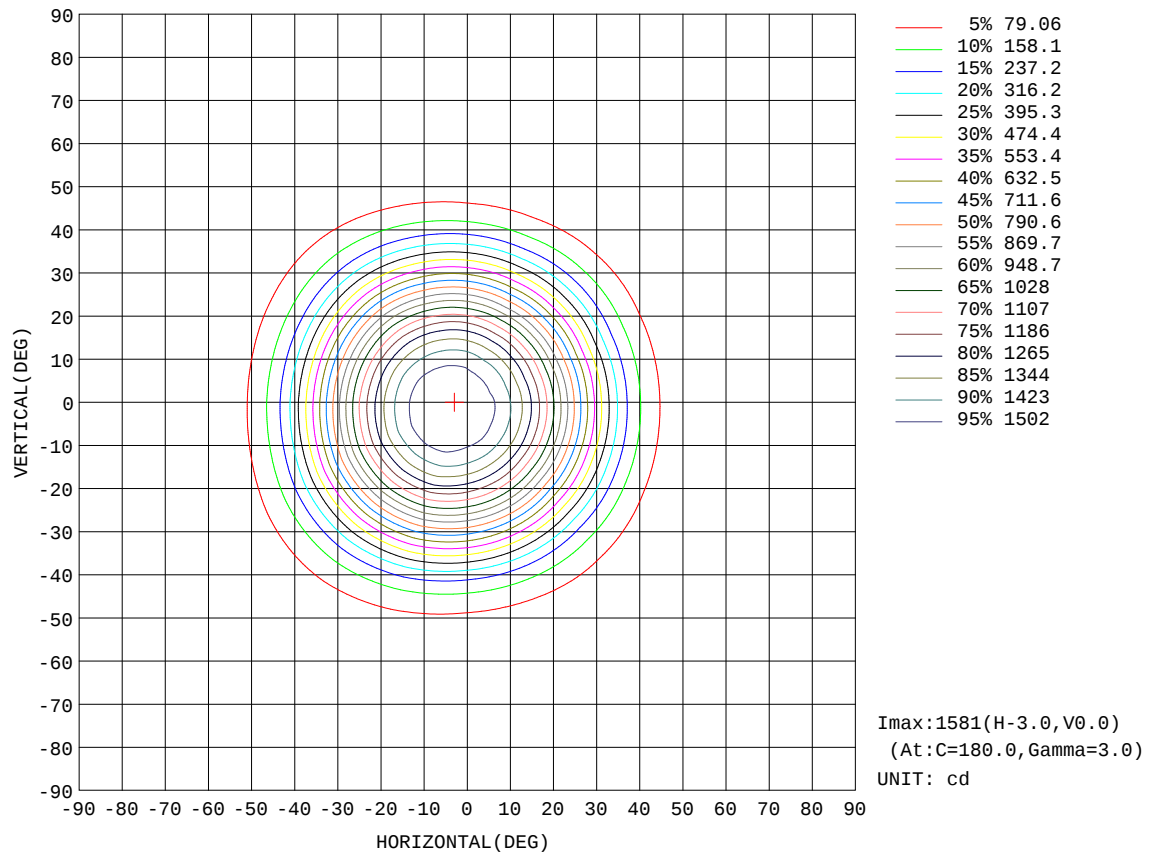
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	85	79	75	85	78	75	84	78	74	71
0.80	93	87	83	93	87	83	91	86	83	79
1.00	98	92	89	97	92	88	96	92	88	84
1.25	102	97	93	101	97	93	99	95	92	88
1.50	105	100	97	104	100	96	102	98	95	91
2.00	108	104	101	107	103	100	104	101	98	93
2.50	110	106	103	108	105	102	105	102	100	94
3.00	112	108	105	110	107	104	106	104	102	96
4.00	114	111	108	111	109	107	108	106	104	97
5.00	115	112	111	113	111	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: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	Shielding Angle:

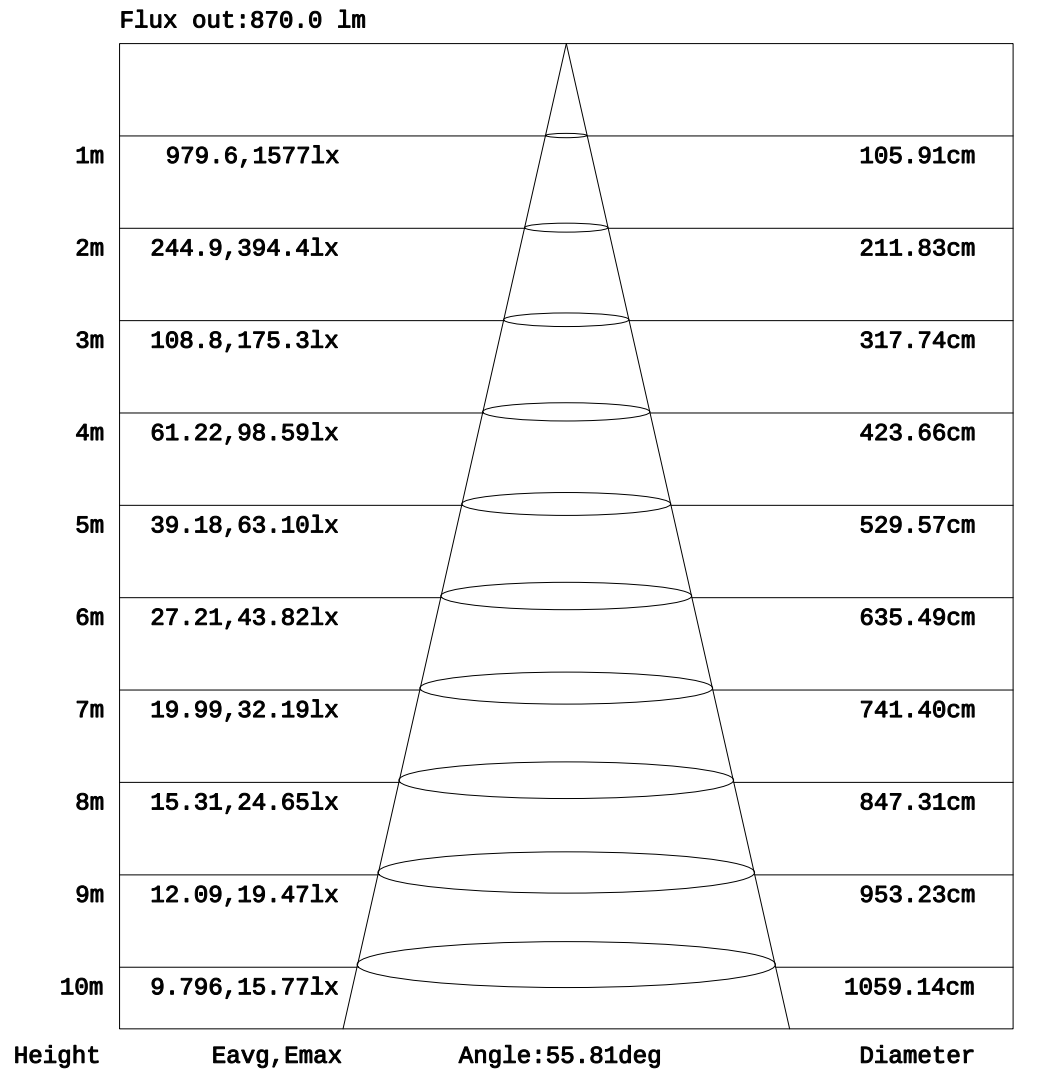


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	Shielding Angle:



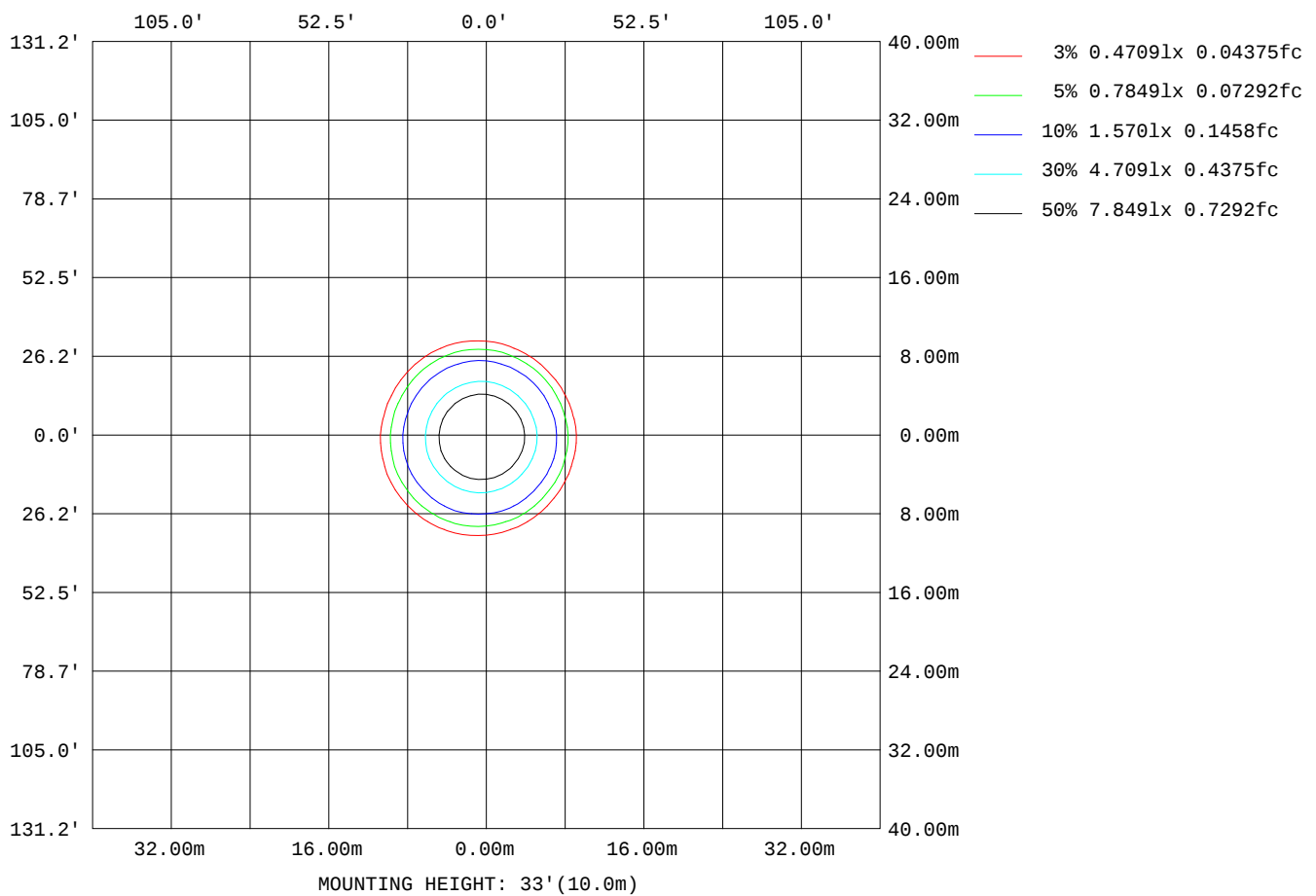
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-04-13

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:230.54V I:0.0661A P:13.731W PF:0.9013 Freq:49.99Hz Lamp Flux:1356.29x1 lm		
NAME: TH13-BKTC15C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 58mm	Shielding Angle:

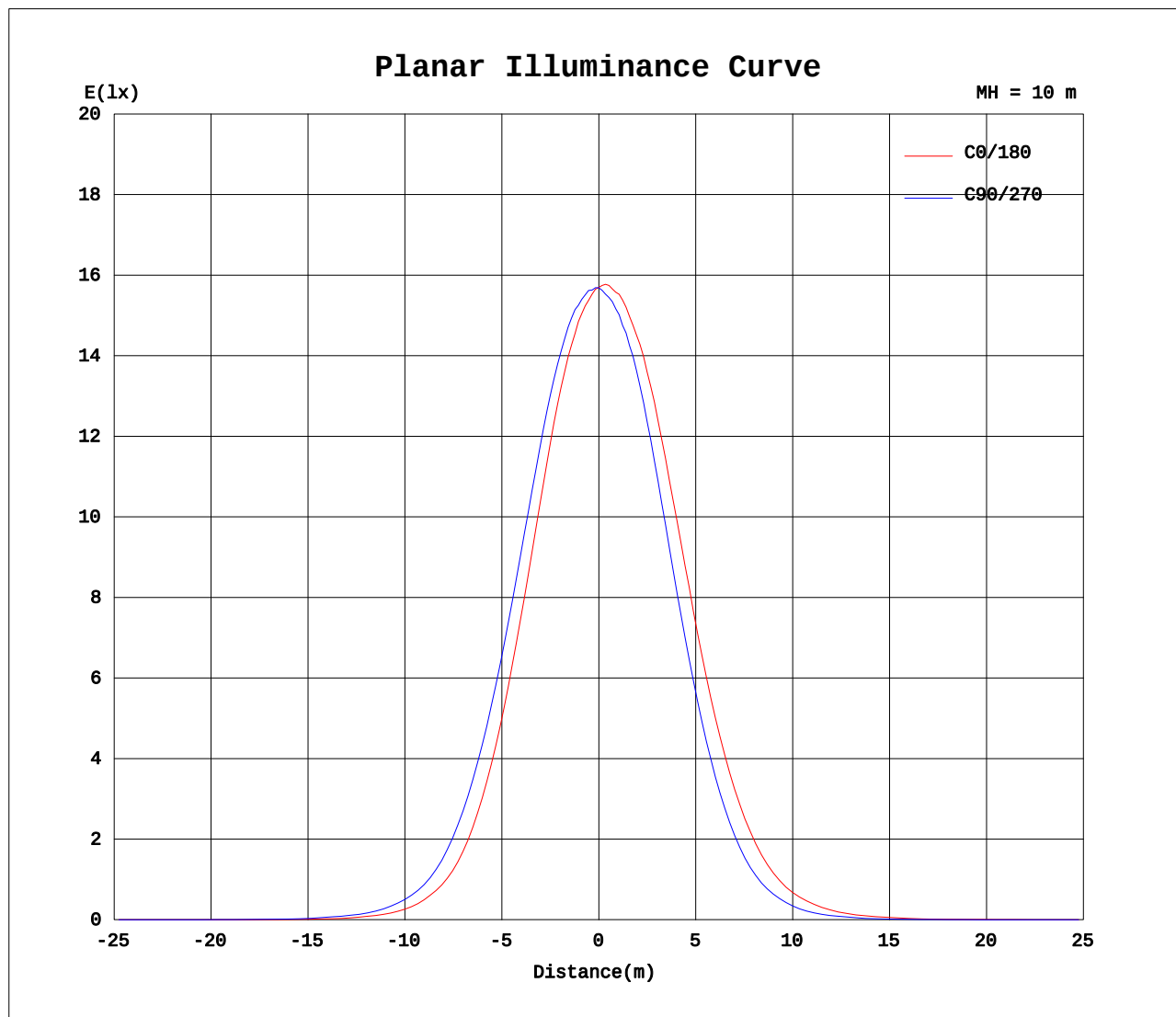
AvgL	cd/m2
L_0~180(65)av	2938
L_0~180(75)av	446
L_0~180(85)av	184
L_90~270(65)av	2188
L_90~270(75)av	463
L_90~270(85)av	185
L_45(65)av	2637
L_45(75)av	441
L_45(85)av	176

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-04-13

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: 2024-04-13

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:

```