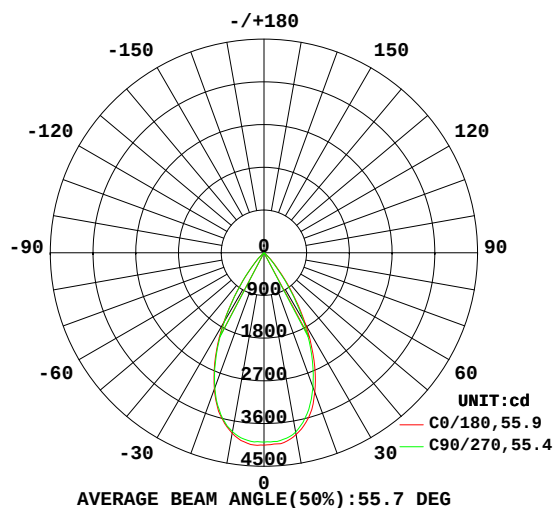


LUMINAIRE PHOTOMETRIC TEST REPORT

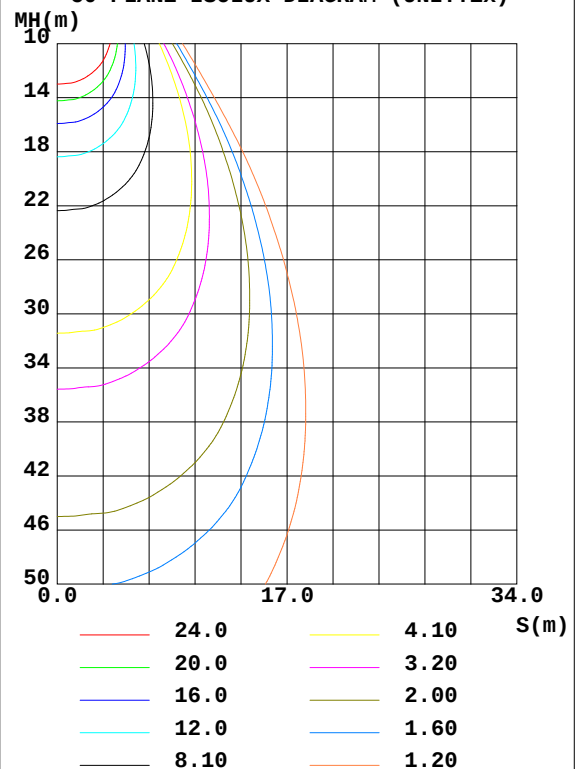
Test:U:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 83.58 lm/W			
MODEL	TB32141211 3000K	I _{max} (cd)	4059	S/MH(C0/180)	0.84
NOMINAL POWER(W)	40	LOR(%)	100.0	S/MH(C90/270)	0.84
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	3248.8	η UP, DN(C0-180)	0.0, 50.1
NOMINAL FLUX(lm)	3248.82	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 49.9
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: 2023-12-21

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:

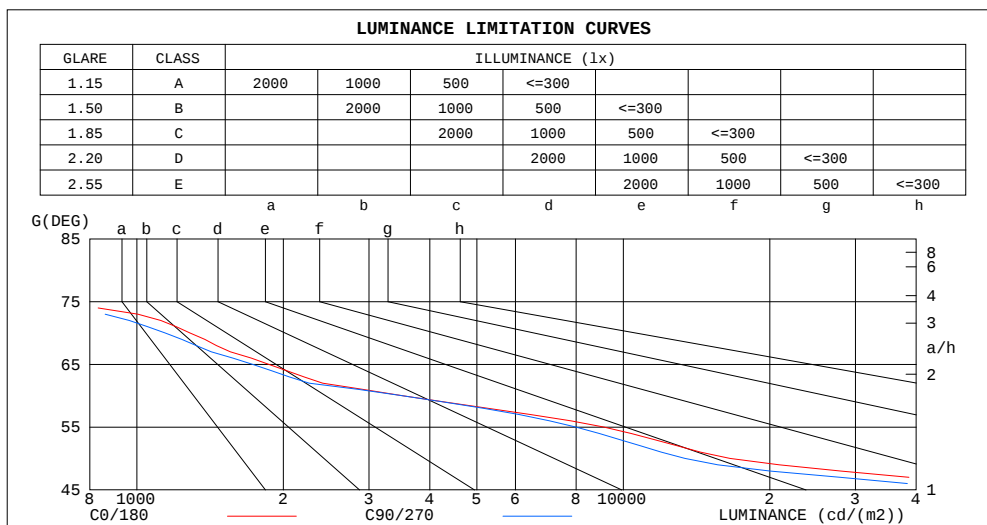
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	3889	3872	3839	3776	3861	3845	3830	3805	0- 10	375.1	375.1	11.5, 11.5
20	3131	3095	3019	2982	3055	3056	3031	3064	10- 20	980.6	1356	41.7, 41.7
30	1768	1749	1678	1646	1702	1684	1670	1722	20- 30	1091	2446	75.3, 75.3
40	490.1	478.2	429.0	409.2	425.3	438.0	440.0	475.9	30- 40	628.8	3075	94.7, 94.7
50	49.63	46.47	40.10	38.74	43.49	45.30	44.42	46.55	40- 50	147.7	3223	99.2, 99.2
60	8.183	8.419	8.170	7.861	8.421	9.023	7.801	7.987	50- 60	20.95	3244	99.8, 99.8
70	2.049	1.948	1.821	1.666	1.838	2.876	1.869	1.943	60- 70	3.858	3248	100, 100
80	0.5101	0.5177	0.3941	0.3092	0.2506	0.3777	0.4048	0.3507	70- 80	0.9664	3249	100, 100
90	0.1853	0.1853	0.1892	0.1853	0.0309	0.0270	0.0232	0.0193	80- 90	0.2292	3249	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:2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	676	524
80	630	487
75	656	521
70	1285	1142
65	1865	1728
60	3512	3507
55	9118	7988
50	16567	13389
45	66325	53392

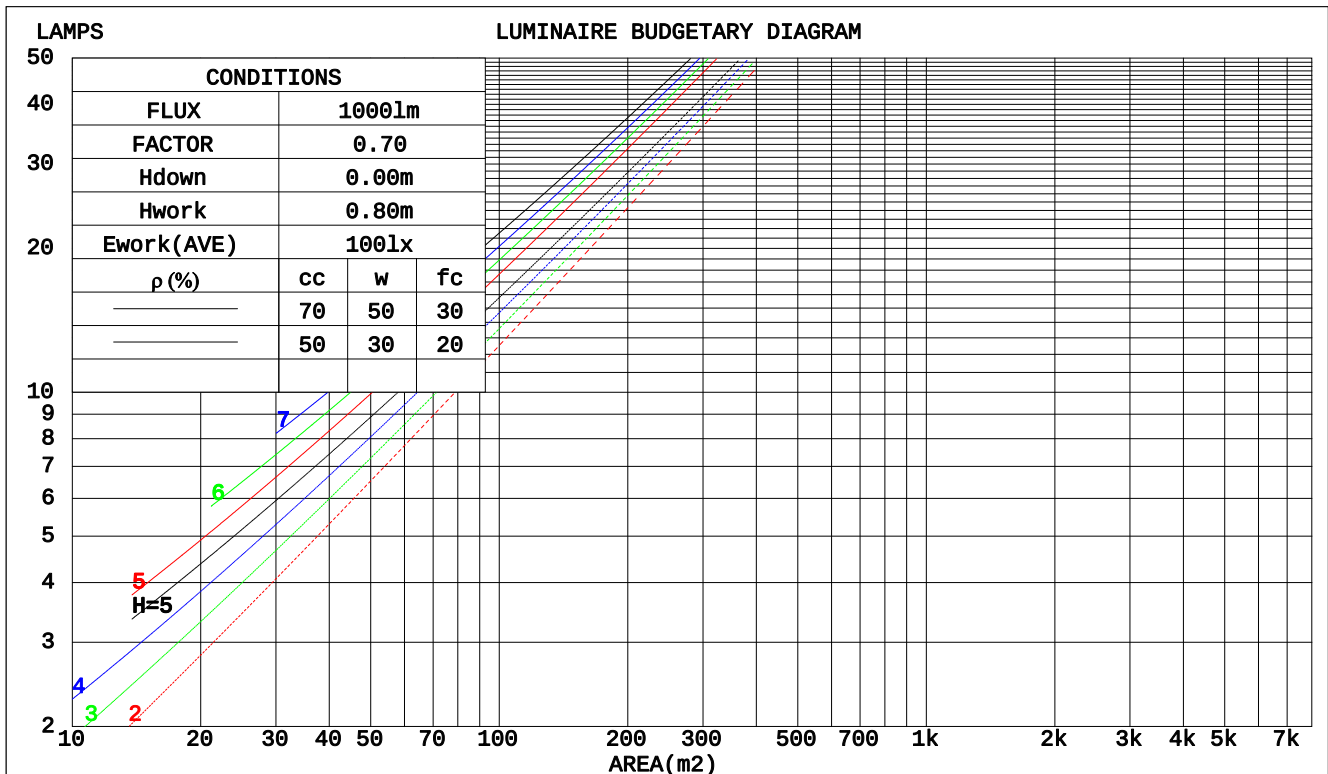
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	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	1.00
1.0	1.11	1.09	1.06	1.09	1.07	1.05	1.05	1.03	1.02	1.01	.99	.99	.98	.97	.96	.94
2.0	1.04	.99	.97	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	.87	.85	.88	.86	.84	.82
4.0	.91	.86	.82	.90	.85	.81	.88	.83	.80	.86	.82	.79	.84	.81	.78	.77
5.0	.85	.80	.76	.84	.79	.75	.83	.78	.75	.81	.77	.74	.79	.76	.73	.72
6.0	.80	.75	.70	.80	.74	.70	.78	.73	.70	.77	.72	.69	.75	.72	.69	.67
7.0	.76	.70	.66	.75	.70	.66	.74	.69	.65	.73	.68	.65	.72	.68	.65	.63
8.0	.72	.66	.62	.71	.66	.62	.70	.65	.61	.69	.64	.61	.68	.64	.61	.60
9.0	.68	.62	.58	.67	.62	.58	.66	.61	.58	.65	.61	.58	.65	.61	.57	.56
10.0	.64	.59	.55	.64	.58	.55	.63	.58	.55	.62	.58	.54	.62	.57	.54	.53



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm					
NAME: TH40-BKTC40C021P			TYPE:		WEIGHT:
SPEC.: black RA90 3000K+5700K			DIM.:		SERIAL No.:
MFR.:			SUR.: 77mm		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	.172	.098	.031	.166	.095	.030	.153	.088	.028	.142	.082	.026	.131	.076	.024		
2.0	.165	.090	.028	.159	.088	.027	.149	.083	.026	.139	.078	.024	.130	.074	.023		
3.0	.157	.084	.025	.152	.082	.025	.143	.078	.024	.135	.074	.023	.127	.071	.022		
4.0	.150	.078	.023	.146	.076	.023	.138	.073	.022	.131	.070	.021	.124	.067	.021		
5.0	.143	.073	.021	.139	.072	.021	.133	.069	.020	.126	.067	.020	.121	.064	.019		
6.0	.137	.069	.020	.134	.067	.019	.128	.065	.019	.122	.063	.019	.117	.062	.018		
7.0	.131	.065	.018	.128	.064	.018	.123	.062	.018	.118	.060	.018	.113	.059	.017		
8.0	.125	.061	.017	.123	.061	.017	.118	.059	.017	.114	.058	.017	.110	.056	.016		
9.0	.120	.058	.016	.118	.058	.016	.114	.056	.016	.110	.055	.016	.106	.054	.016		
10.0	.116	.055	.015	.114	.055	.015	.110	.054	.015	.106	.053	.015	.103	.052	.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	.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	.049	.040	.032	.016	.013	.011	
4.0	.132	.099	.073	.114	.085	.064	.078	.059	.045	.045	.035	.026	.015	.011	.009	
5.0	.124	.087	.060	.106	.075	.052	.073	.053	.037	.042	.031	.022	.014	.010	.007	
6.0	.116	.078	.050	.100	.067	.044	.069	.047	.031	.040	.028	.018	.013	.009	.006	
7.0	.110	.070	.042	.094	.061	.037	.065	.043	.026	.038	.025	.016	.012	.008	.005	
8.0	.104	.064	.036	.090	.055	.032	.062	.039	.023	.036	.023	.013	.012	.008	.004	
9.0	.099	.059	.032	.085	.051	.028	.059	.036	.020	.034	.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:2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm											
NAME: TH40-BKTC40C021P					TYPE:			WEIGHT:			
SPEC.: black RA90 3000K+5700K					DIM.:			SERIAL No.:			
MFR.:					SUR.: 77mm			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		18.9	19.8	19.1	20.0	20.2	18.5	19.4	18.7	19.6	19.7
	3H	18.8	19.6	19.0	19.8	20.0	18.3	19.2	18.6	19.4	19.6
	4H	18.7	19.5	18.9	19.7	19.9	18.2	19.0	18.5	19.3	19.5
	6H	18.6	19.3	18.9	19.6	19.8	18.2	18.9	18.4	19.1	19.4
	8H	18.5	19.2	18.8	19.5	19.8	18.1	18.8	18.4	19.1	19.3
	12H	18.5	19.2	18.8	19.4	19.7	18.1	18.7	18.4	19.0	19.3
4H	2H	18.7	19.5	18.9	19.7	19.9	18.2	19.0	18.5	19.3	19.5
	3H	18.5	19.2	18.8	19.4	19.7	18.1	18.8	18.4	19.0	19.3
	4H	18.4	19.0	18.7	19.3	19.6	18.0	18.6	18.3	18.9	19.2
	6H	18.3	18.8	18.7	19.2	19.5	17.9	18.4	18.3	18.8	19.1
	8H	18.2	18.8	18.6	19.1	19.5	17.8	18.3	18.2	18.7	19.0
	12H	18.2	18.7	18.6	19.0	19.4	17.8	18.2	18.2	18.6	19.0
8H	4H	18.2	18.8	18.6	19.1	19.5	17.8	18.3	18.2	18.7	19.0
	6H	18.1	18.6	18.6	19.0	19.4	17.7	18.1	18.1	18.5	18.9
	8H	18.1	18.5	18.5	18.9	19.3	17.7	18.0	18.1	18.4	18.9
	12H	18.0	18.3	18.5	18.8	19.3	17.6	17.9	18.1	18.4	18.8
12H	4H	18.2	18.7	18.6	19.0	19.4	17.8	18.2	18.2	18.6	19.0
	6H	18.1	18.5	18.5	18.9	19.3	17.7	18.0	18.1	18.4	18.9
	8H	18.0	18.3	18.5	18.8	19.3	17.6	17.9	18.1	18.4	18.8
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 3.6 / -16.0					+ 3.5 / -15.9					
1.5H	+ 5.9 / -12.3					+ 5.9 / -12.0					
2.0H	+ 7.9 / -13.0					+ 7.8 / -12.0					

CIE Pub.117, 3249 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 4.1)
Area: 0.00466 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	Shielding Angle:

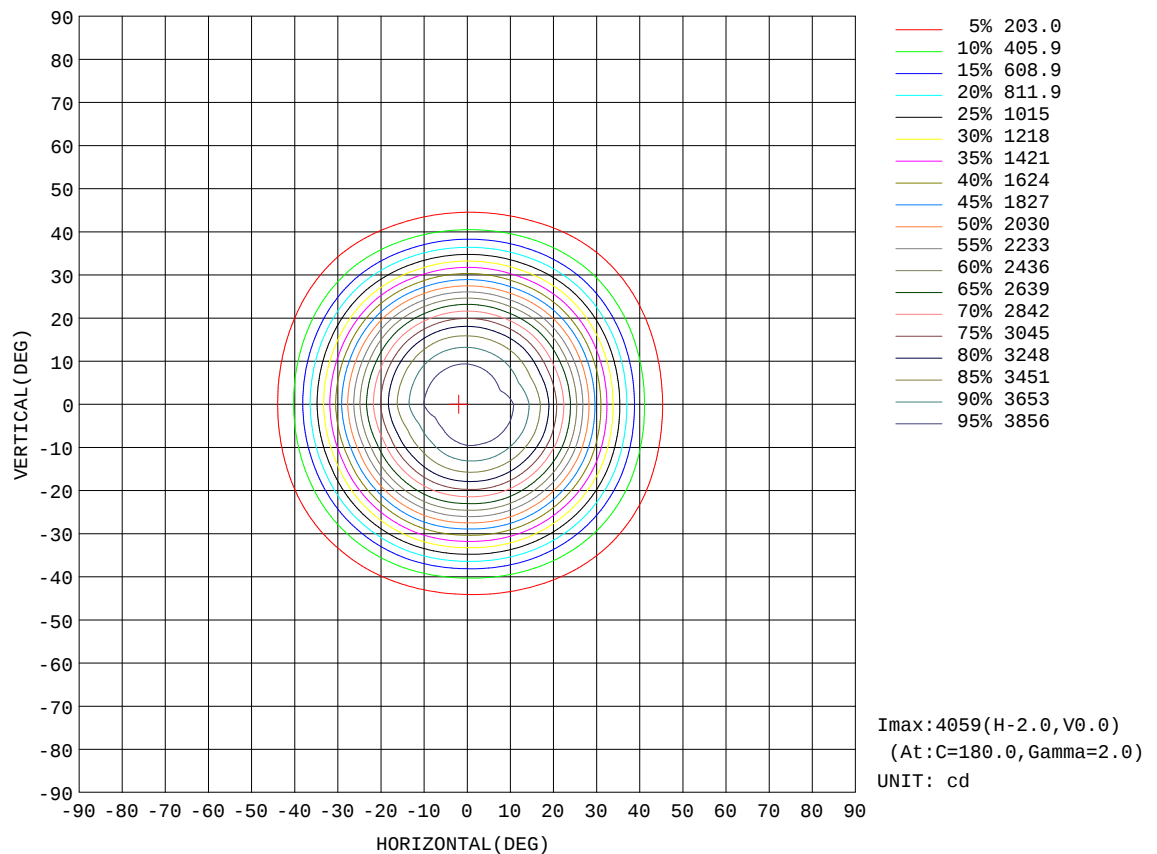
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	82	78	88	82	78	87	81	78	75
0.80	96	90	86	95	90	86	94	89	86	82
1.00	100	95	91	99	94	91	98	94	90	86
1.25	104	99	96	103	98	95	101	97	94	90
1.50	106	102	99	105	101	98	103	100	97	93
2.00	109	105	102	108	104	101	105	102	100	95
2.50	111	107	104	109	106	103	106	103	101	95
3.00	112	109	106	110	107	105	107	105	103	97
4.00	114	111	109	112	110	108	108	107	105	98
5.00	115	113	111	113	111	110	109	108	107	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:2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	Shielding Angle:

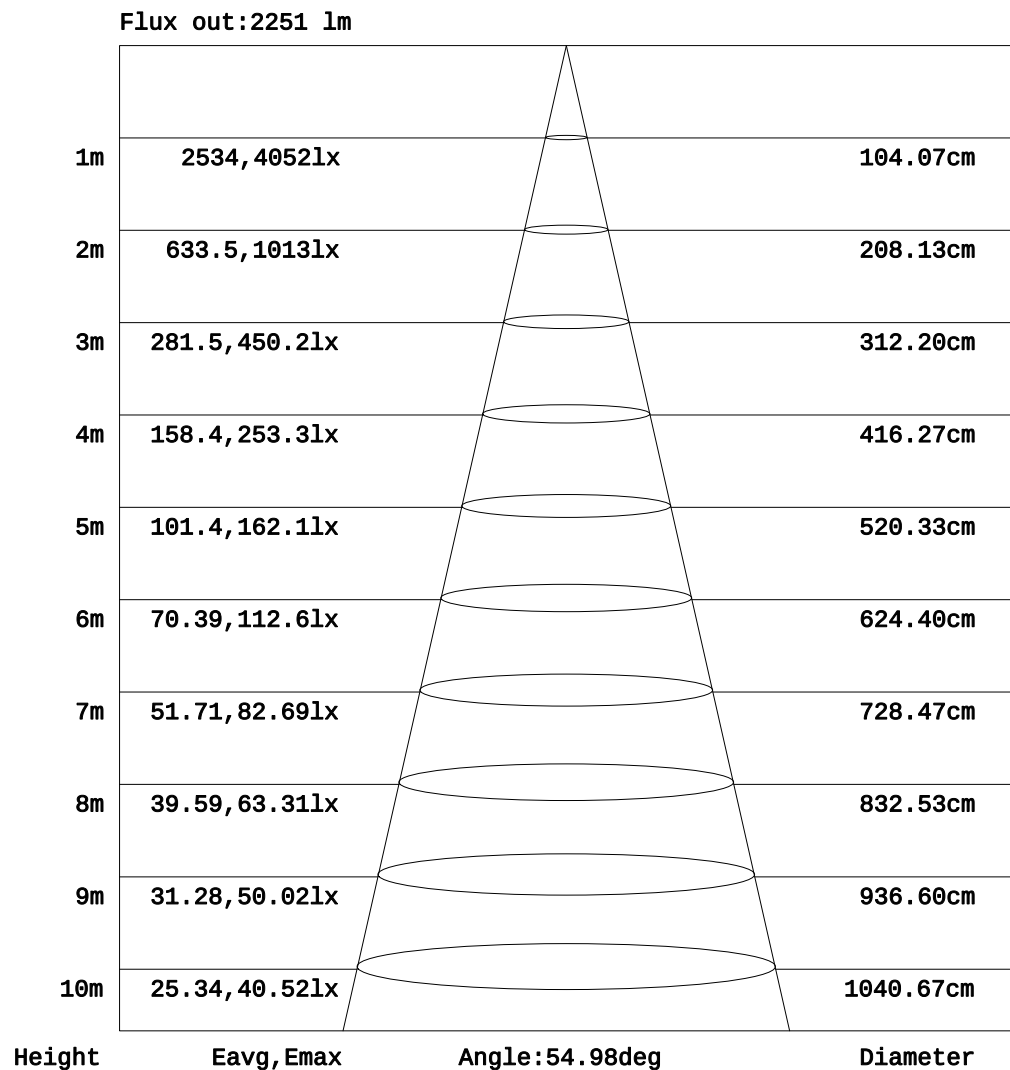


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	Shielding Angle:



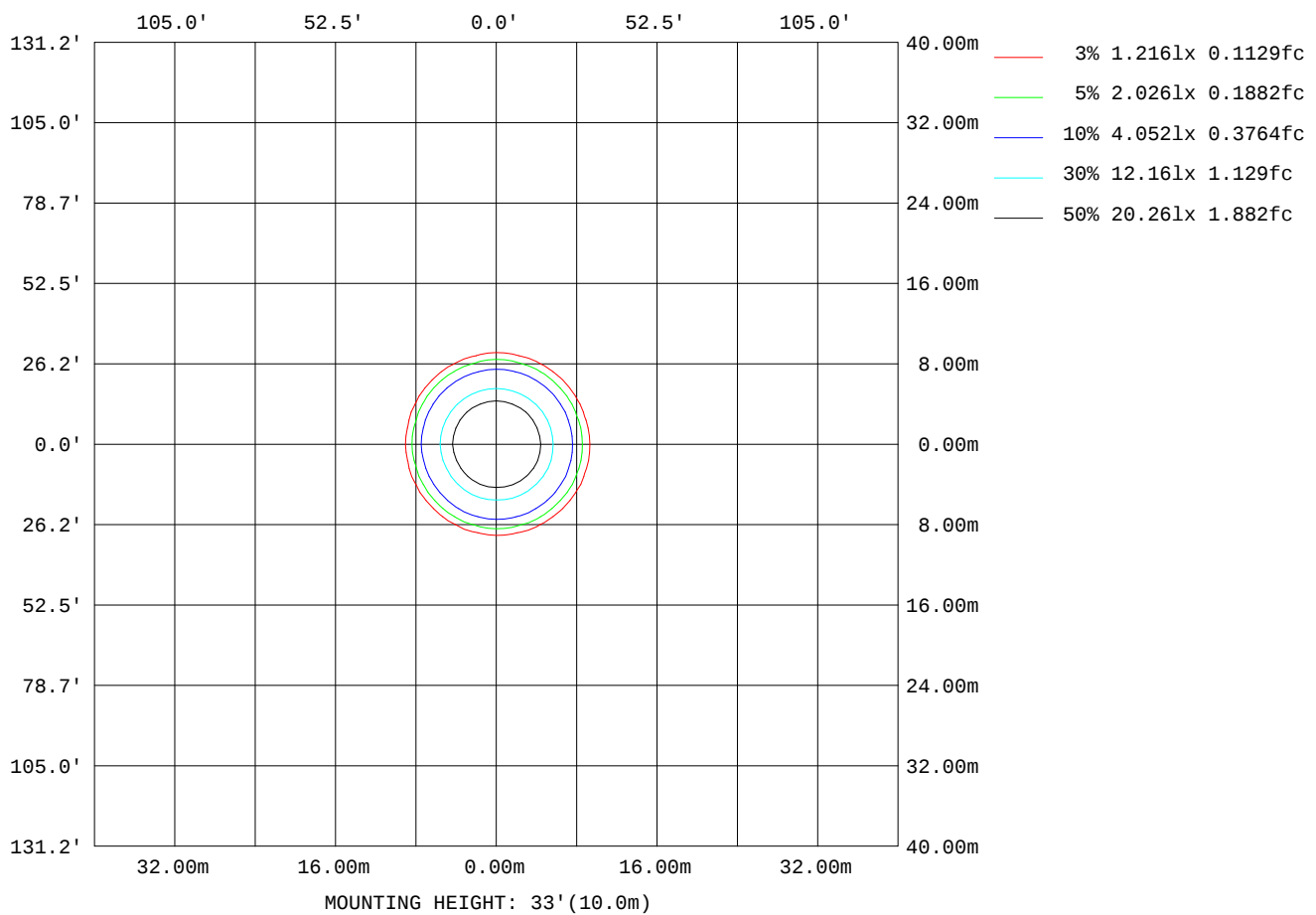
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2023-12-21

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:220.55V I:0.1827A P:38.871W PF:0.9649 Freq:50.01Hz Lamp Flux:3248.82x1 lm		
NAME: TH40-BKTC40C021P	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+5700K	DIM.:	SERIAL No.:
MFR.:	SUR.: 77mm	Shielding Angle:

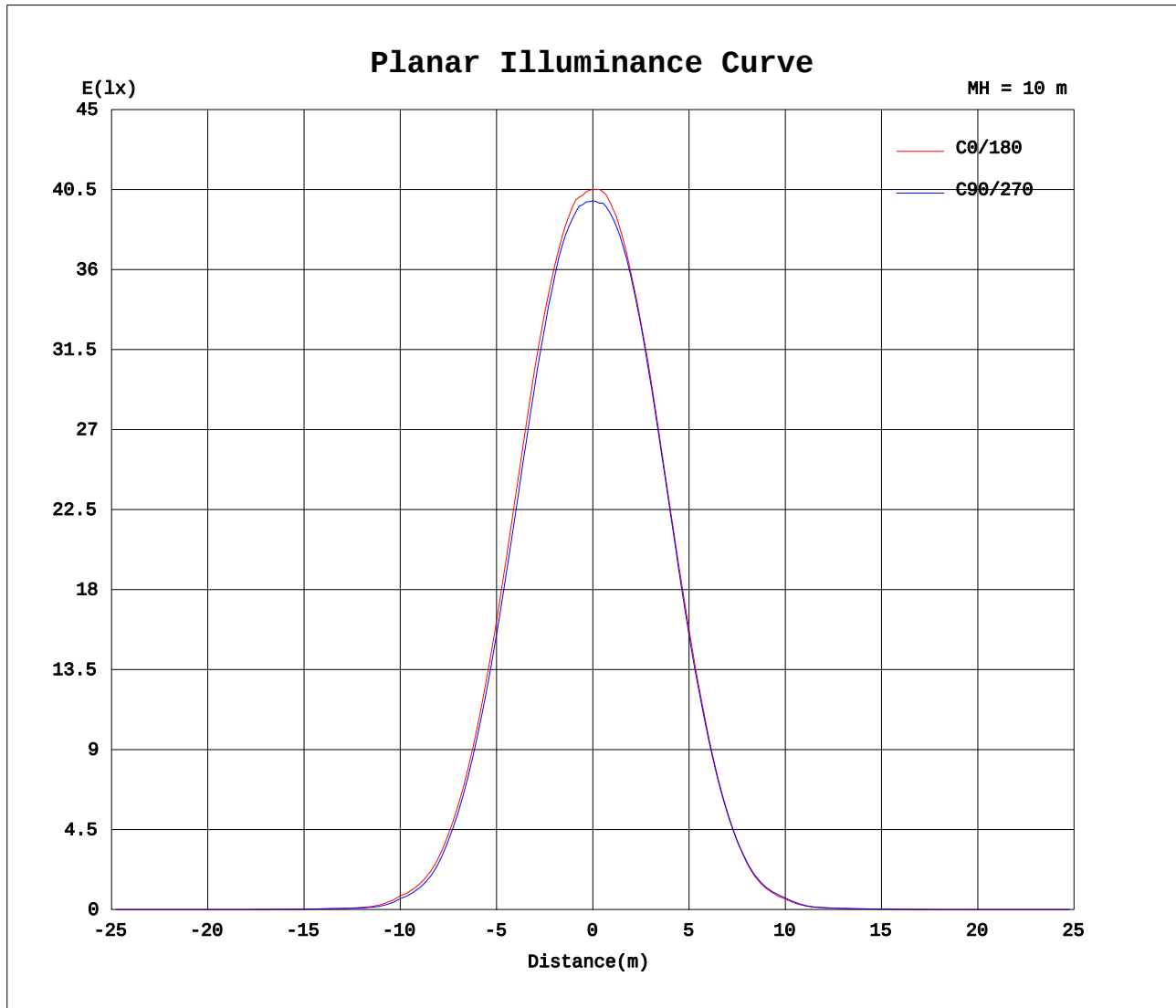
AvgL	cd/m2
L_0~180(65)av	1825
L_0~180(75)av	531
L_0~180(85)av	475
L_90~270(65)av	1738
L_90~270(75)av	537
L_90~270(85)av	475
L_45(65)av	1880
L_45(75)av	543
L_45(85)av	456

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25DEG
 Operators:
 Test Date:2023-12-21

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: 2023-12-21

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:

```