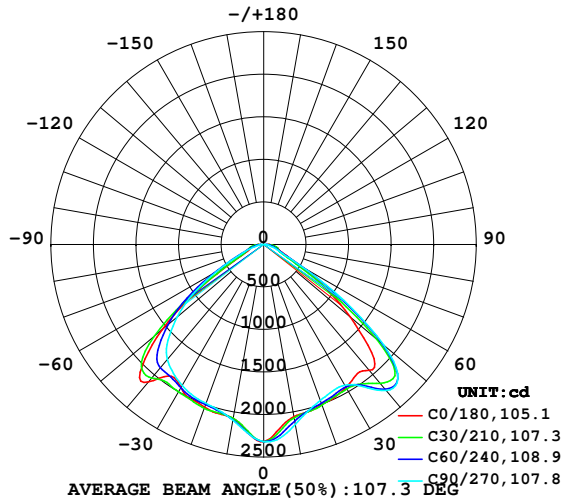


## LUMINAIRE PHOTOMETRIC TEST REPORT

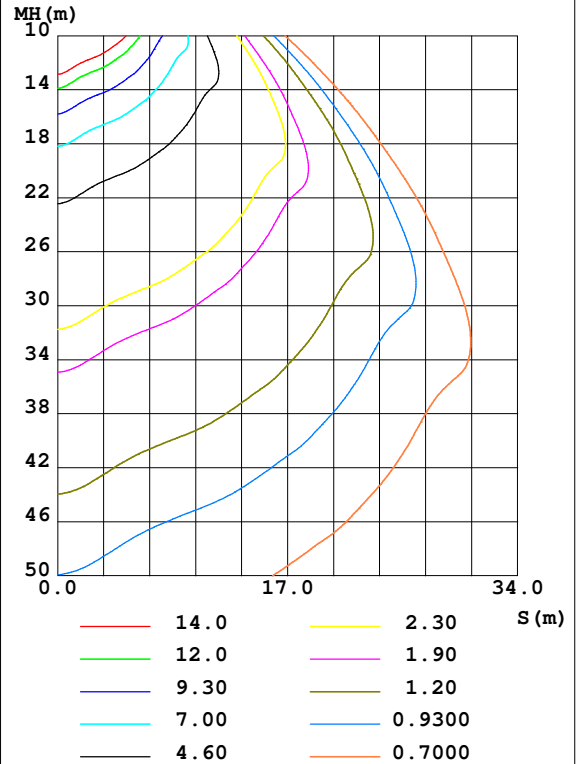
Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 133.76 lm/W			
MODEL	TCE	Imax(cd)	2415	S/MH(C0/180)	1.26
NOMINAL POWER(W)	45W	LOR(%)	100.0	S/MH(C90/270)	1.25
RATED VOLTAGE(V)	220.0	TOTAL FLUX(lm)	5885.8	$\eta$ UP,DN(C0-180)	0.0,51.0
NOMINAL FLUX(lm)	5885.81	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,49.0
LAMPS INSIDE	1	$\eta$ up(%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	220	$\eta$ down(%)	100.0	CIBSE SHR MAX	1.55

## LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



## C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:20DEG  
 Operators:LITPA  
 Test Date:18 April 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
 Humidity:65.0%  
 Test Distance:5.680m [K=1.0000]  
 Remarks: TCE-45W-VS  
 OT-60

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	2057	2085	2148	2095	2076	2084	2097	2075	0- 10	207.3	207.3	3.52,3.52
20	2003	2009	1951	2022	2034	2034	1987	2037	10- 20	576.8	784.1	13.3,13.3
30	1940	1949	1911	1957	1945	1975	1915	1958	20- 30	914.1	1698	28.9,28.9
40	1931	2194	2242	2325	2110	1993	1763	1818	30- 40	1238	2937	49.9,49.9
50	1333	1815	1841	1955	1560	1582	1328	1472	40- 50	1493	4429	75.3,75.3
60	470.1	487.4	504.5	430.5	466.3	642.8	650.2	695.4	50- 60	922.7	5352	90.9,90.9
70	194.8	190.1	158.9	183.5	185.7	228.5	223.5	251.2	60- 70	297.0	5649	96,96
80	130.4	119.8	54.17	113.0	133.2	132.8	65.70	141.1	70- 80	158.6	5807	98.7,98.7
90	53.33	46.60	6.240	46.86	59.83	49.88	7.451	49.91	80- 90	78.38	5886	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		

Conical surface Flux(90deg): 3694.4 lm

%lum = 62.8%

%lamp = 62.8%

Conical surface Flux(120deg): 5351.9 lm

%lum = 90.9%

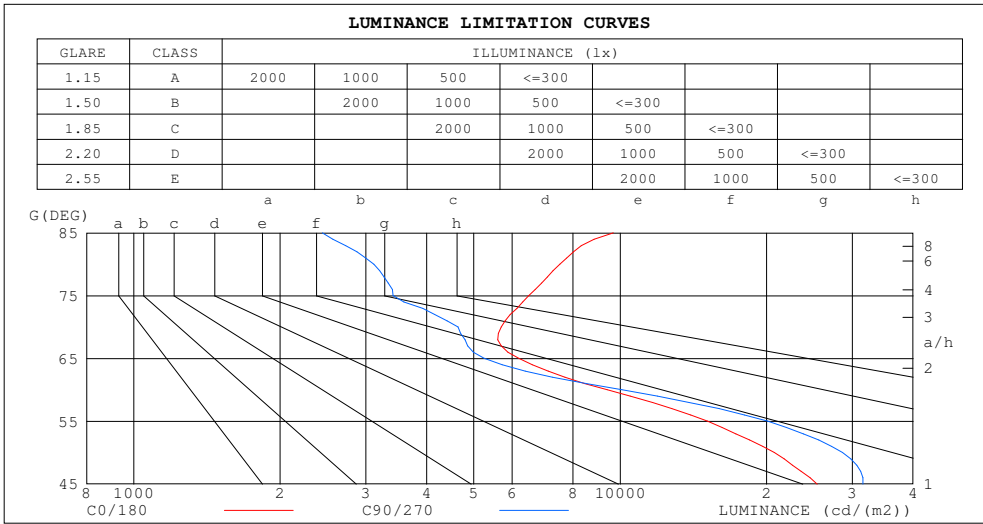
%lamp = 90.9%

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:20DEG  
 Operators:LITPA  
 Test Date:18 April 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
 Humidity:65.0%  
 Test Distance:5.680m [K=1.0000]  
 Remarks: TCE-45W-VS  
 OT-60

## LUMINANCE LIMITATION CURVES

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	9673	2442
80	7514	3118
75	6488	3415
70	5697	4644
65	6189	5253
60	9407	10086
55	15115	20096
50	20744	28629
45	25407	31556

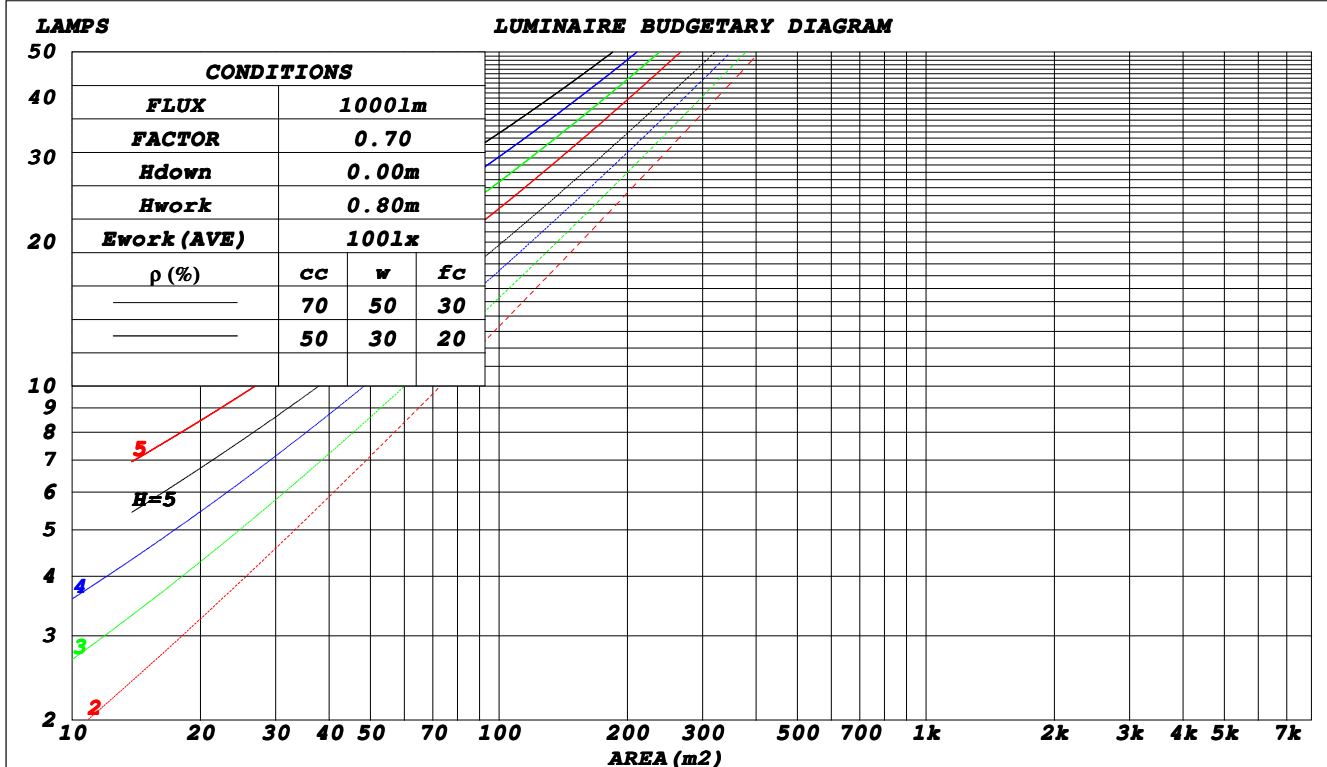
**C Range: 0 - 360DEG**  
**C Interval: 10.0DEG**  
**Test Speed: HIGH**  
**Temperature: 20DEG**  
**Operators: LITPA**  
**Test Date: 18 April 2019**

**γ Range: 0 - 90DEG**  
**γ Interval: 1.0DEG**  
**Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.400**  
**Humidity: 65.0%**  
**Test Distance: 5.680m [K=1.0000]**  
**Remarks: TCE-45W-VS**  
**OT-60**

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	1.06	1.02	.99	1.04	1.00	.97	.00	.97	.94	.96	.94	.92	.92	.90	.89	.87
2.0	.94	.88	.83	.92	.87	.82	.89	.84	.80	.86	.82	.78	.83	.79	.77	.75
3.0	.84	.76	.70	.82	.75	.70	.79	.73	.69	.77	.72	.67	.74	.70	.66	.64
4.0	.75	.67	.60	.73	.66	.60	.71	.64	.59	.69	.63	.58	.67	.62	.58	.56
5.0	.67	.59	.52	.66	.58	.52	.64	.57	.52	.62	.56	.51	.60	.55	.50	.48
6.0	.60	.52	.46	.59	.51	.46	.58	.51	.45	.56	.50	.45	.55	.49	.44	.43
7.0	.55	.46	.40	.54	.46	.40	.52	.45	.40	.51	.45	.40	.50	.44	.39	.38
8.0	.50	.42	.36	.49	.41	.36	.48	.41	.36	.47	.40	.35	.45	.40	.35	.33
9.0	.46	.38	.32	.45	.37	.32	.44	.37	.32	.43	.36	.32	.42	.36	.32	.30
10.0	.42	.34	.29	.41	.34	.29	.40	.34	.29	.40	.33	.29	.39	.33	.29	.27



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature: 20DEG  
Operators: LITPA  
Test Date: 18 April 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
Humidity: 65.0%  
Test Distance: 5.680m [K=1.0000]  
Remarks: TCE-45W-VS  
OT-60

## WEC AND CCEC

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

$\rho_{cc}$	80%			70%			50%			30%			10%			0	
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
$\rho_{fc}$	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.267	.152	.048	.260	.148	.047	.247	.142	.045	.235	.136	.044	.224	.130	.042		
2.0	.256	.140	.043	.250	.138	.042	.239	.133	.041	.228	.128	.040	.219	.124	.039		
3.0	.242	.129	.039	.237	.127	.038	.227	.123	.037	.218	.119	.037	.209	.116	.036		
4.0	.228	.118	.035	.223	.117	.035	.214	.114	.034	.206	.111	.033	.198	.108	.033		
5.0	.214	.109	.032	.210	.108	.031	.202	.105	.031	.195	.103	.031	.188	.100	.030		
6.0	.201	.101	.029	.197	.100	.029	.190	.098	.028	.184	.095	.028	.178	.093	.028		
7.0	.189	.093	.026	.186	.093	.026	.179	.091	.026	.174	.089	.026	.168	.087	.026		
8.0	.178	.087	.024	.175	.086	.024	.169	.085	.024	.164	.083	.024	.159	.082	.024		
9.0	.168	.081	.023	.165	.081	.023	.160	.079	.022	.155	.078	.022	.151	.077	.022		
10.0	.159	.076	.021	.156	.076	.021	.152	.074	.021	.148	.073	.021	.143	.072	.021		

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	.177	.157	.138	.152	.134	.119	.104	.092	.082	.060	.053	.048	.019	.017	.015	
2.0	.168	.132	.102	.143	.114	.088	.098	.079	.062	.057	.046	.036	.018	.015	.012	
3.0	.159	.114	.078	.136	.098	.068	.094	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.152	.101	.061	.130	.087	.053	.089	.061	.038	.052	.035	.022	.017	.012	.007	
5.0	.145	.090	.050	.124	.078	.043	.086	.054	.030	.050	.032	.018	.016	.010	.006	
6.0	.138	.081	.041	.119	.071	.036	.082	.049	.025	.047	.029	.015	.015	.009	.005	
7.0	.132	.075	.035	.113	.065	.030	.078	.045	.021	.045	.027	.013	.015	.009	.004	
8.0	.126	.069	.030	.108	.060	.026	.075	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.120	.064	.026	.104	.055	.023	.072	.039	.016	.042	.023	.010	.014	.008	.003	
10.0	.115	.060	.023	.099	.052	.020	.069	.036	.014	.040	.022	.008	.013	.007	.003	

**C Range: 0 - 360DEG**  
**C Interval: 10.0DEG**  
**Test Speed: HIGH**  
**Temperature: 20DEG**  
**Operators: LITPA**  
**Test Date: 18 April 2019**

**$\gamma$  Range: 0 - 90DEG**  
 **$\gamma$  Interval: 1.0DEG**  
**Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.400**  
**Humidity: 65.0%**  
**Test Distance: 5.680m [K=1.0000]**  
**Remarks: TCE-45W-VS**  
**OT-60**

UGR(Unified Glare Rating) Table

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm										
NAME: TCE					TYPE:LED			WEIGHT:3.2kg		
SPEC.:45W					DIM.: 68mmX1430mmX78mm			SERIAL No.:		
MFR.: LITPA AYDINLATMA					SUR.:			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				
x = 2H y = 2H						Viewed endwise				
3H						23.3 24.7 23.6 24.9 25.1				
4H						23.3 24.6 23.6 24.8 25.0				
6H						23.2 24.5 23.5 24.7 25.0				
8H						23.2 24.3 23.5 24.6 24.9				
12H						23.2 24.3 23.5 24.5 24.8				
4H 2H						23.1 24.2 23.5 24.5 24.8				
3H						23.3 24.6 23.6 24.8 25.0				
4H						23.2 24.5 23.5 24.7 25.0				
6H						23.3 24.3 23.6 24.6 24.9				
8H						23.3 24.2 23.7 24.6 24.9				
12H						23.3 24.2 23.7 24.5 24.9				
8H 4H						23.3 24.1 23.7 24.4 24.8				
6H						23.4 24.1 23.8 24.5 24.9				
8H						23.5 24.0 23.9 24.4 24.9				
12H						23.5 24.0 24.0 24.4 24.9				
12H 4H						23.3 24.0 23.7 24.4 24.8				
6H						23.5 24.0 23.9 24.4 24.9				
8H						23.5 24.0 24.0 24.5 24.9				
Variations with the observer position at spacings:										
S = 1.0H		+ 1.0 / - 1.0				+ 1.0 / - 0.9				
1.5H		+ 1.0 / - 1.3				+ 0.7 / - 1.8				
2.0H		+ 2.2 / - 2.7				+ 2.5 / - 4.3				

CIE Pub.117, 5886 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 6.2$ )

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:20DEG  
 Operators:LITPA  
 Test Date:18 April 2019

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
 Humidity:65.0%  
 Test Distance:5.680m [K=1.0000]  
 Remarks: TCE-45W-VS  
 OT-60

## UTILIZATION FACTORS TABLE

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

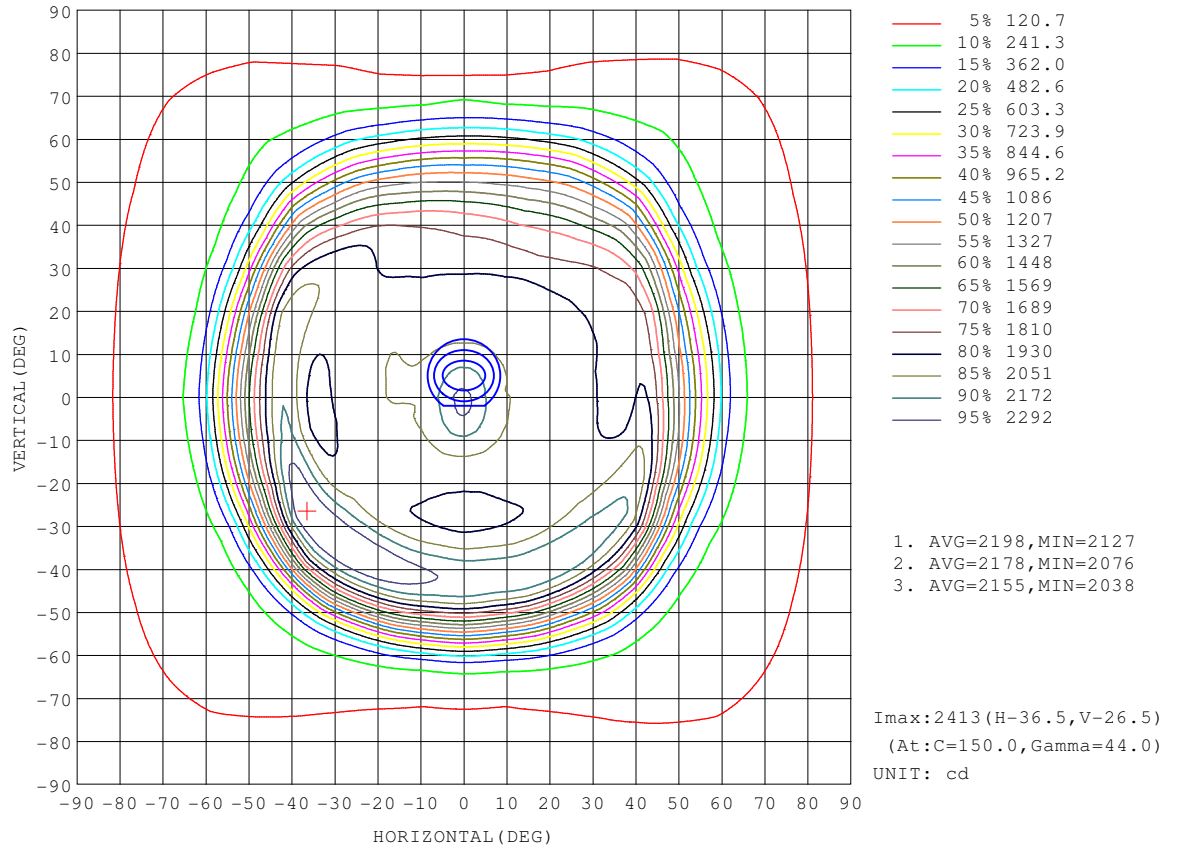
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	59	48	41	59	48	41	58	47	41	35
0.80	71	60	53	70	59	53	68	58	52	46
1.00	80	70	63	79	69	63	77	71	63	56
1.25	87	78	72	86	77	71	84	76	71	64
1.50	92	84	77	91	83	77	88	81	76	69
2.00	99	91	86	97	90	85	94	88	83	76
2.50	102	95	90	100	94	89	96	91	87	79
3.00	105	99	94	103	97	93	99	94	91	83
4.00	108	103	99	106	101	97	102	98	95	86
5.00	110	105	102	107	103	100	103	100	97	88
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

**C Range: 0 - 360DEG**  
**C Interval: 10.0DEG**  
**Test Speed: HIGH**  
**Temperature: 20DEG**  
**Operators: LITPA**  
**Test Date: 18 April 2019**

**$\gamma$  Range: 0 - 90DEG**  
 **$\gamma$  Interval: 1.0DEG**  
**Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.400**  
**Humidity: 65.0%**  
**Test Distance: 5.680m [K=1.0000]**  
**Remarks: TCE-45W-VS**  
**OT-60**

## ISOCANDELA DIAGRAM

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



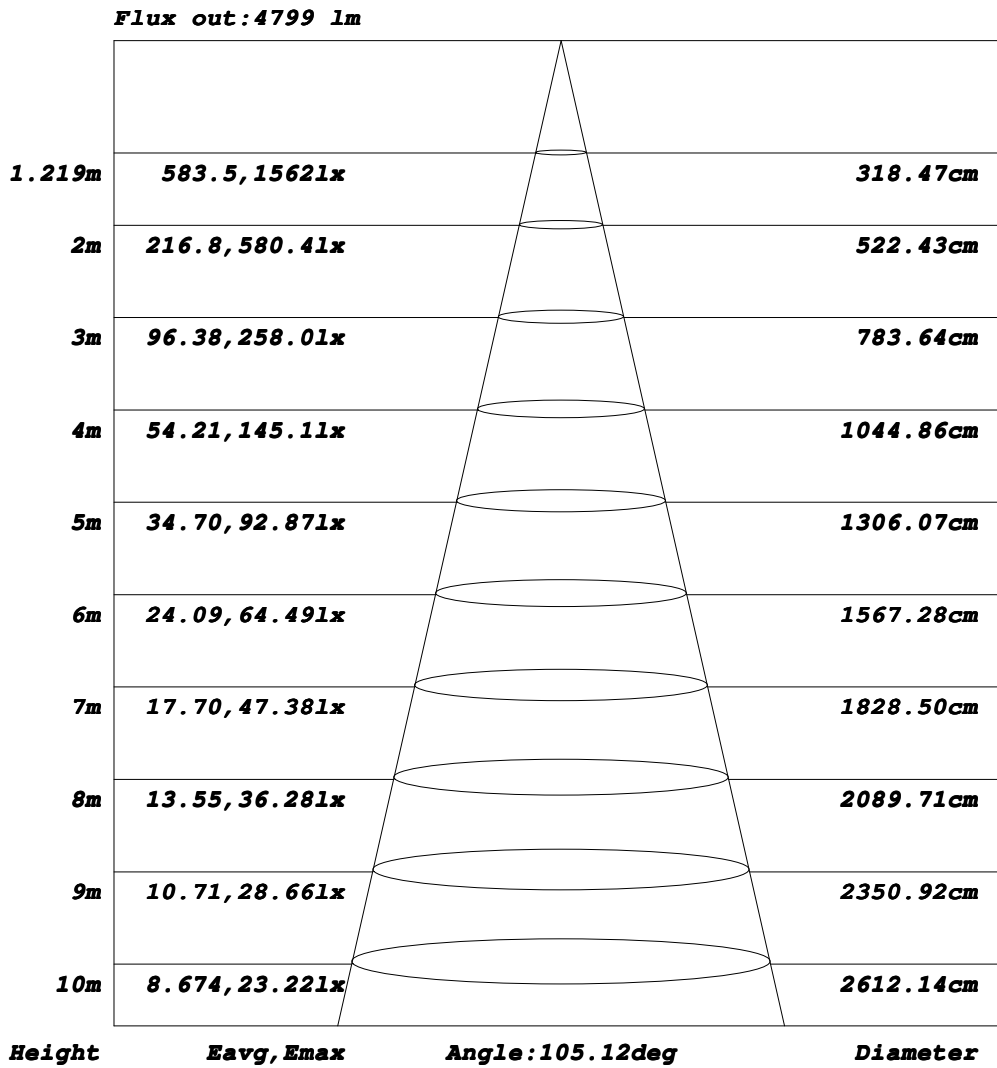
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:20DEG  
Operators:LITPA  
Test Date:18 April 2019

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
Humidity:65.0%  
Test Distance:5.680m [K=1.0000]  
Remarks: TCE-45W-VS  
OT-60



## AAI Figure

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



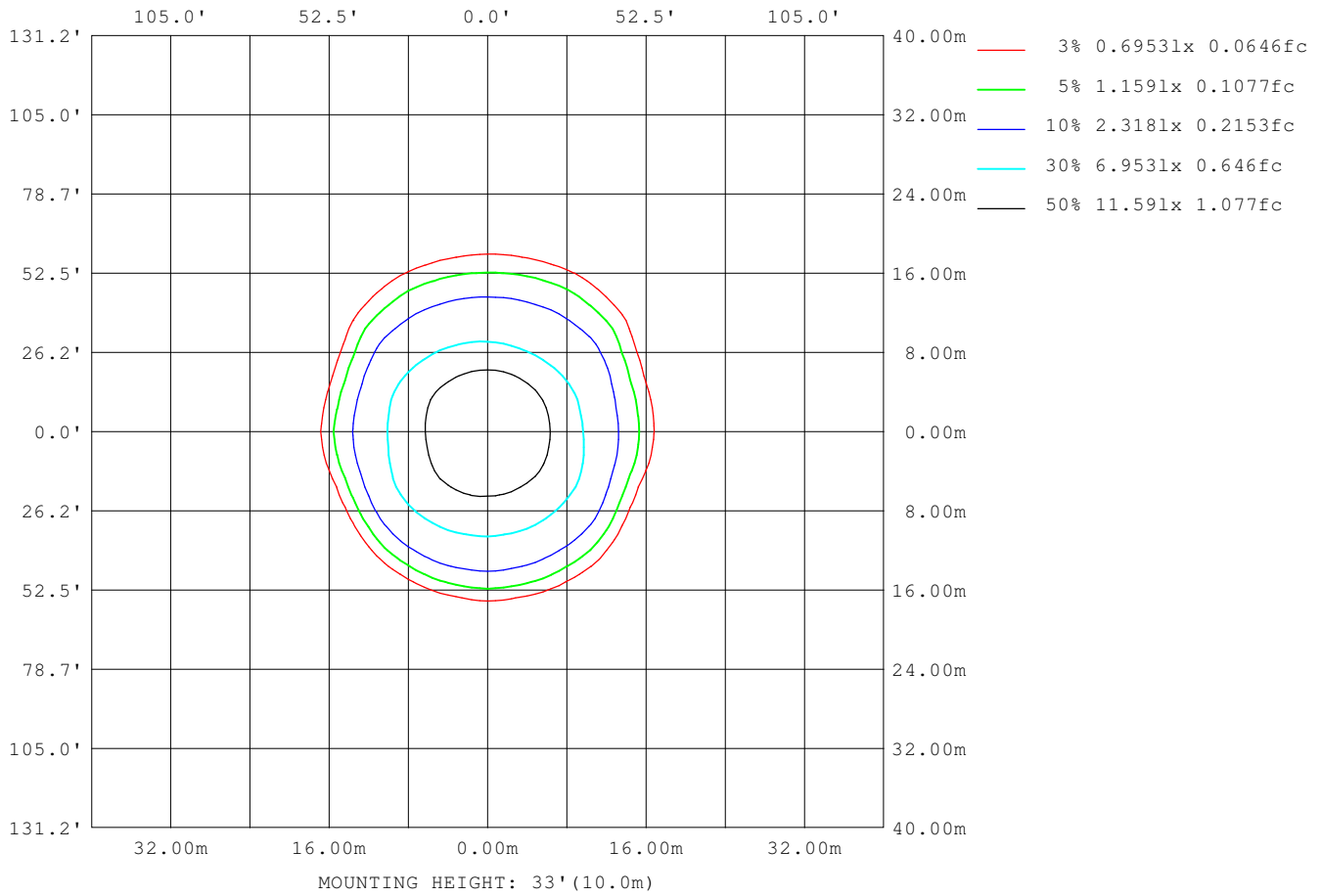
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:20DEG  
Operators:LITPA  
Test Date:18 April 2019

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
Humidity:65.0%  
Test Distance:5.680m [K=1.0000]  
Remarks: TCE-45W-VS  
OT-60

## ISOLUX DIAGRAM

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:20DEG  
Operators:LITPA  
Test Date:18 April 2019

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
Humidity:65.0%  
Test Distance:5.680m [K=1.0000]  
Remarks: TCE-45W-VS  
OT-60

## LED Avg.L Report

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

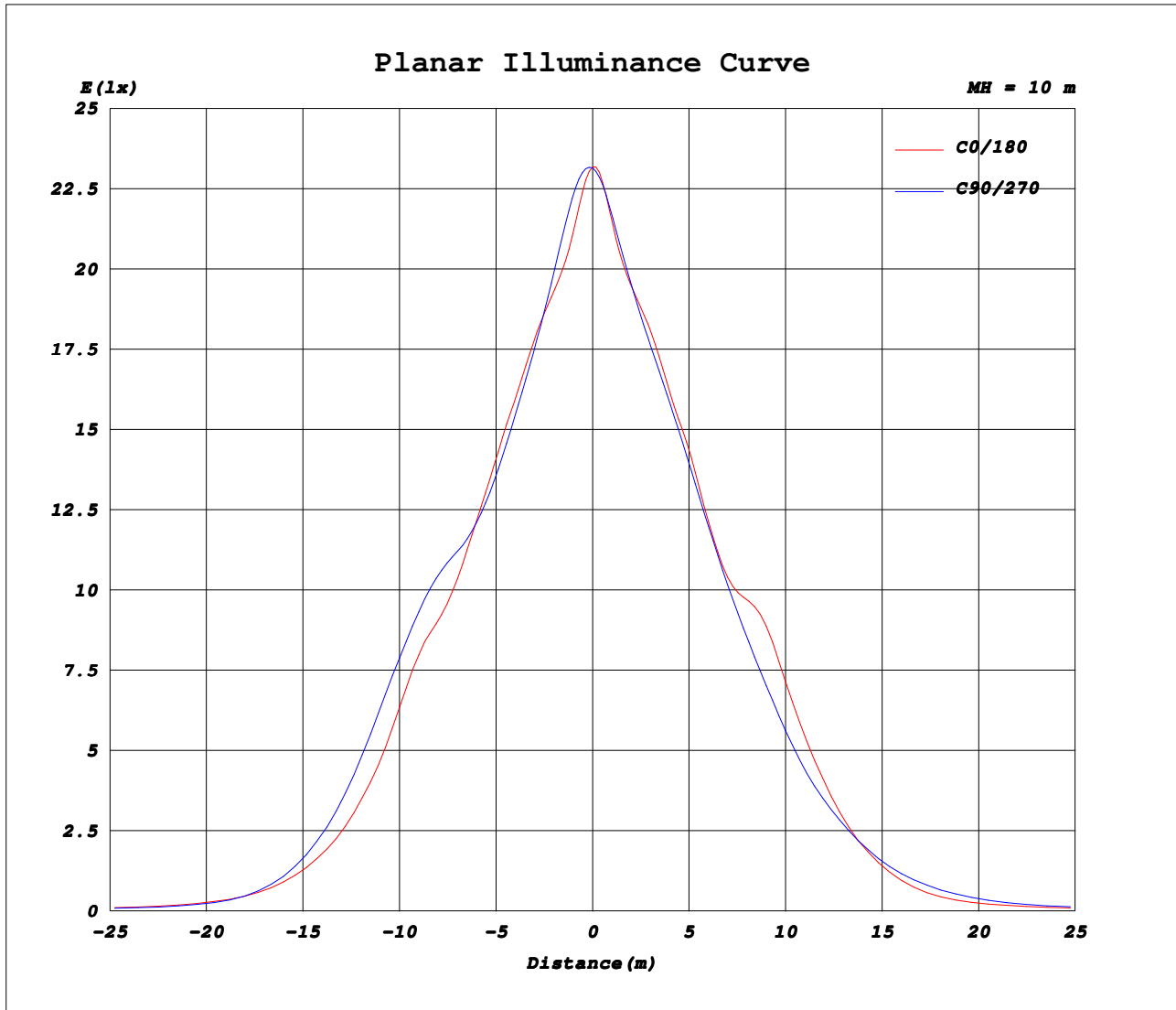
AvgL	cd/m2
L_0~180 (65) av	6021
L_0~180 (75) av	6357
L_0~180 (85) av	10102
L_90~270 (65) av	6895
L_90~270 (75) av	3962
L_90~270 (85) av	2749
L_45 (65) av	7095
L_45 (75) av	6489
L_45 (85) av	9254

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:20DEG  
Operators:LITPA  
Test Date:18 April 2019

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
Humidity:65.0%  
Test Distance:5.680m [K=1.0000]  
Remarks: TCE-45W-VS  
OT-60

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature: 20DEG  
Operators: LITPA  
Test Date: 18 April 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.400  
Humidity: 65.0%  
Test Distance: 5.680m [K=1.0000]  
Remarks: TCE-45W-VS  
OT-60

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

Table--1

UNIT: cd

[illegible]

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature: 20DEG  
Operators: LITPA  
Test Date: 18 April 2019

**γ Range: 0 - 90DEG**  
**γ Interval: 1.0DEG**  
**Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400**  
**Humidity:65.0%**  
**Test Distance:5.680m [K=1.0000]**  
**Remarks: TCE-45W-VS**  
**OT-60**

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.35V I:0.1985A P:44.004W PF:0.9626 Freq:50.00Hz Lamp Flux:5885.81x1 lm		
NAME: TCE	TYPE:LED	WEIGHT:3.2kg
SPEC.:45W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

Table--2

UNIT: cd

[illegible]

**C Range: 0 - 360DEG**  
**C Interval: 10.0DEG**  
**Test Speed: HIGH**  
**Temperature: 20DEG**  
**Operators: LITPA**  
**Test Date: 18 April 2019**

**γ Range: 0 - 90DEG**  
**γ Interval: 1.0DEG**  
**Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.400**  
**Humidity:65.0%**  
**Test Distance:5.680m [K=1.0000]**  
**Remarks: TCE-45W-VS**  
**OT-60**