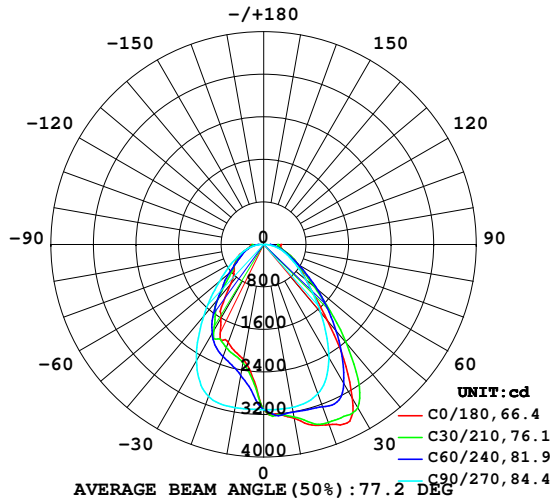


LUMINAIRE PHOTOMETRIC TEST REPORT

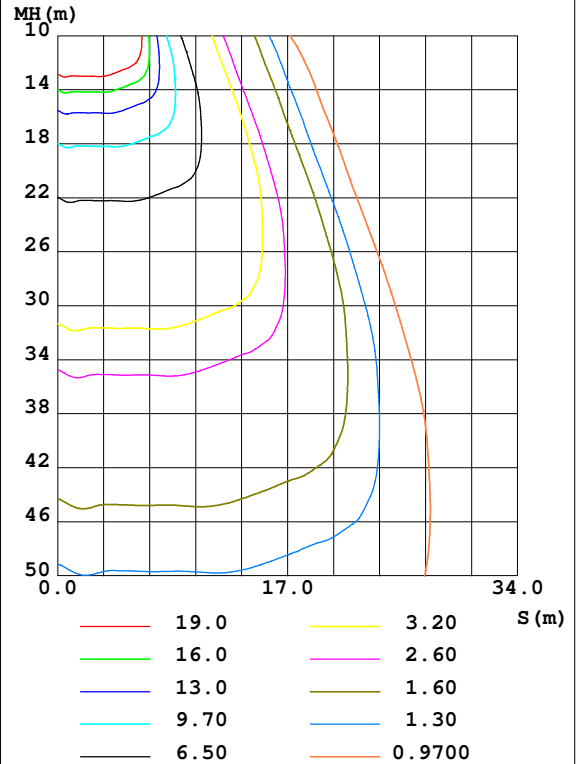
Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 101.29 lm/W			
MODEL	TCA	I _{max} (cd)	3709	S/MH (C0/180)	0.80
NOMINAL POWER (W)	65W	LOR (%)	100.0	S/MH (C90/270)	1.20
RATED VOLTAGE (V)	220.0	TOTAL FLUX (lm)	6538.7	η UP, DN (C0-180)	0.0, 50.1
NOMINAL FLUX (lm)	6538.67	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 49.9
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE (V)	220	η down (%)	100.0	CIBSE SHR MAX	1.15

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: 17 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: TCA-65W-VS
 HELVAR LL1X70

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	3321	3249	3112	2339	2202	2349	3117	3240	0- 10	278.3	278.3	4.26,4.26
20	3607	3480	2985	2144	1964	2156	3041	3480	10- 20	800.9	1079	16.5,16.5
30	3341	3263	2454	1916	1615	1929	2530	3314	20- 30	1250	2329	35.6,35.6
40	1871	2520	1664	1403	970.2	1428	1753	2615	30- 40	1344	3673	56.2,56.2
50	1048	1409	1043	848.0	725.8	873.7	1091	1485	40- 50	1039	4712	72.1,72.1
60	745.3	736.9	650.6	529.3	598.5	548.8	682.5	773.2	50- 60	734.1	5446	83.3,83.3
70	452.6	437.7	401.8	357.4	412.6	369.0	417.3	454.4	60- 70	524.2	5970	91.3,91.3
80	323.0	263.0	191.2	226.6	265.5	234.3	206.9	272.5	70- 80	348.4	6319	96.6,96.6
90	327.1	196.5	12.18	159.1	241.1	160.8	13.90	195.9	80- 90	220.0	6539	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): 4238 lm

%lum = 64.8%

%lamp = 64.8%

Conical surface Flux(120deg): 5446.1 lm

%lum = 83.3%

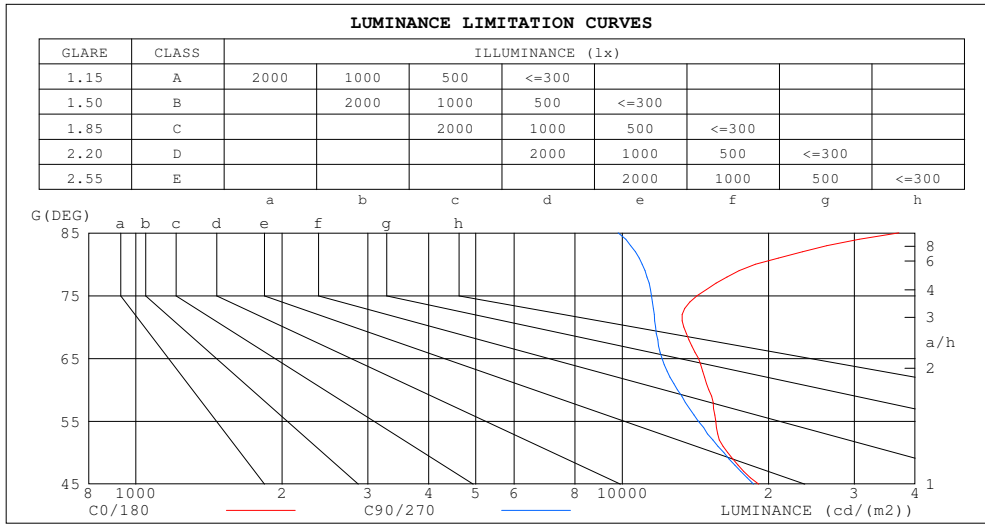
%lamp = 83.3%

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:20DEG
 Operators:LITPA
 Test Date:17 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: TCA-65W-VS
 HELVAR LL1X70

LUMINANCE LIMITATION CURVES

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	37058	9817
80	18803	10986
75	14272	11490
70	13379	11717
65	14360	12079
60	15071	12979
55	15569	14330
50	16479	16189
45	19089	18625

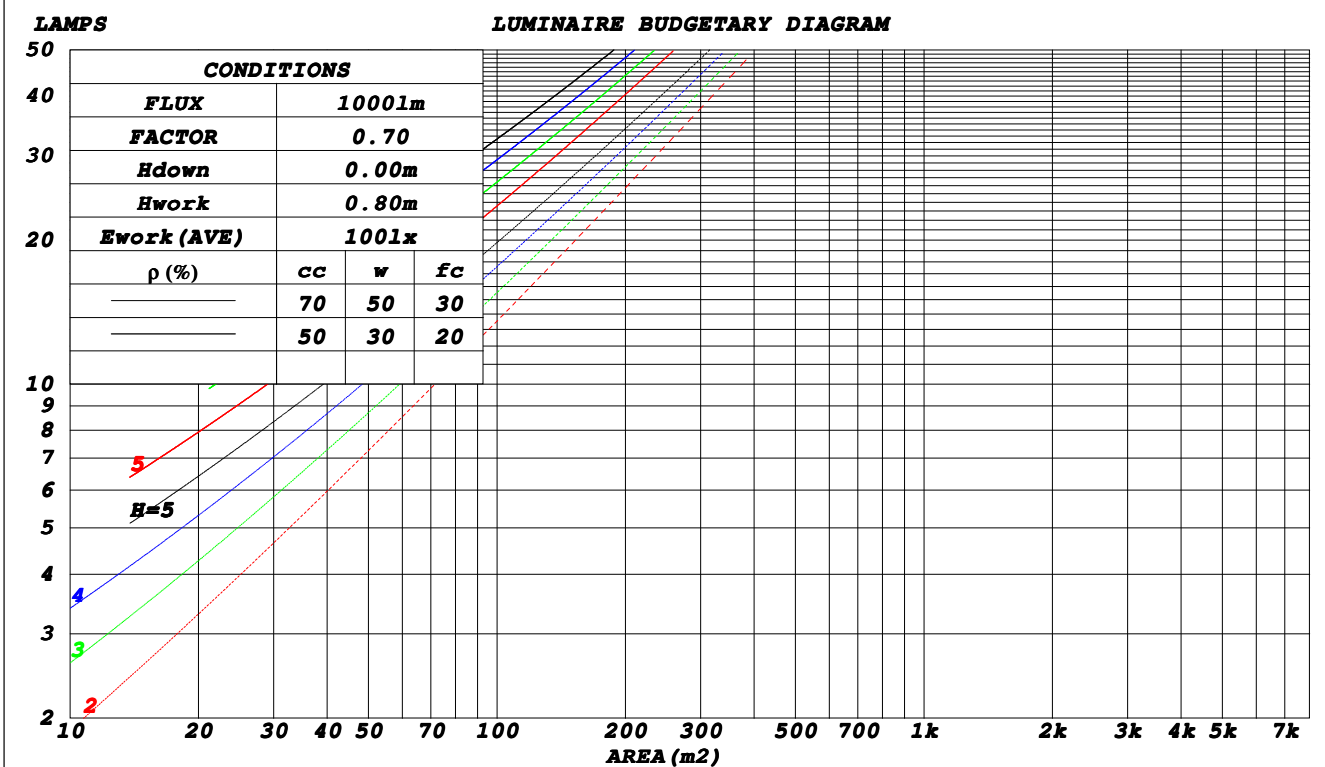
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 17 April 2019

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: TCA-65W-VS
HELVAR LL1X70

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	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	1.05	1.00	.97	1.02	.99	.95	.98	.95	.92	.94	.92	.89	.91	.89	.87	.85
2.0	.93	.86	.81	.91	.85	.80	.87	.82	.78	.84	.80	.76	.81	.78	.75	.73
3.0	.83	.75	.69	.81	.74	.68	.78	.72	.67	.75	.70	.66	.73	.69	.65	.63
4.0	.74	.66	.60	.73	.65	.59	.71	.64	.59	.68	.63	.58	.66	.61	.57	.55
5.0	.67	.59	.53	.66	.58	.52	.64	.57	.52	.62	.56	.51	.60	.55	.51	.49
6.0	.61	.53	.47	.60	.52	.47	.58	.51	.46	.57	.51	.46	.55	.50	.45	.43
7.0	.56	.48	.42	.55	.47	.42	.54	.47	.41	.52	.46	.41	.51	.45	.41	.39
8.0	.51	.43	.38	.51	.43	.38	.49	.42	.38	.48	.42	.37	.47	.41	.37	.35
9.0	.47	.40	.34	.47	.39	.34	.46	.39	.34	.45	.38	.34	.44	.38	.34	.32
10.0	.44	.37	.32	.44	.36	.31	.43	.36	.31	.42	.36	.31	.41	.35	.31	.29



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 17 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: TCA-65W-VS
HELVAR LL1X70

WEC AND CCEC

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	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	.296	.168	.053	.289	.165	.052	.276	.158	.050	.263	.152	.049	.252	.146	.047		
2.0	.271	.148	.046	.265	.146	.045	.253	.141	.044	.243	.136	.043	.233	.132	.041		
3.0	.249	.133	.040	.244	.130	.039	.234	.127	.038	.224	.123	.038	.216	.119	.037		
4.0	.230	.120	.035	.225	.118	.035	.216	.115	.034	.208	.112	.034	.200	.109	.033		
5.0	.213	.109	.031	.209	.107	.031	.201	.105	.031	.194	.102	.030	.187	.100	.030		
6.0	.199	.100	.029	.195	.098	.028	.188	.096	.028	.181	.094	.028	.175	.092	.027		
7.0	.186	.092	.026	.182	.091	.026	.176	.089	.026	.170	.087	.025	.165	.086	.025		
8.0	.174	.085	.024	.171	.084	.024	.166	.083	.024	.161	.081	.023	.156	.080	.023		
9.0	.164	.079	.022	.161	.079	.022	.156	.077	.022	.152	.076	.022	.147	.075	.022		
10.0	.155	.074	.021	.153	.074	.021	.148	.072	.020	.144	.071	.020	.140	.070	.020		

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	.179	.156	.135	.153	.134	.117	.105	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.169	.132	.101	.145	.114	.087	.099	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.160	.114	.077	.138	.098	.067	.094	.068	.047	.055	.040	.028	.018	.013	.009	
4.0	.152	.101	.061	.131	.087	.053	.090	.061	.037	.052	.035	.022	.017	.012	.007	
5.0	.144	.090	.050	.124	.078	.043	.085	.054	.031	.049	.032	.018	.016	.010	.006	
6.0	.137	.081	.041	.118	.070	.036	.081	.049	.025	.047	.029	.015	.015	.009	.005	
7.0	.130	.074	.035	.112	.064	.030	.078	.045	.022	.045	.027	.013	.015	.009	.004	
8.0	.124	.068	.030	.107	.059	.026	.074	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.118	.063	.026	.102	.055	.023	.071	.039	.016	.041	.023	.010	.013	.008	.003	
10.0	.113	.059	.023	.097	.051	.020	.068	.036	.014	.039	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 17 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: TCA-65W-VS
 HELVAR LL1X70

UGR(Unified Glare Rating) Table

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm											
NAME: TCA					TYPE:LED			WEIGHT:3.2kg			
SPEC.:65W					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				Viewed endwise					
x = 2H y = 2H	2H	22.6	24.0	22.8	24.2	24.4	22.1	23.5	22.4	23.7	23.9
	3H	23.7	25.0	24.0	25.2	25.4	23.1	24.4	23.4	24.6	24.8
	4H	24.2	25.5	24.5	25.7	26.0	23.6	24.8	23.9	25.0	25.3
	6H	25.0	26.2	25.3	26.4	26.7	24.0	25.1	24.3	25.4	25.7
	8H	25.5	26.7	25.9	26.9	27.2	24.1	25.2	24.5	25.5	25.8
	12H	26.3	27.3	26.6	27.6	27.9	24.2	25.3	24.6	25.6	25.9
4H	2H	22.9	24.1	23.2	24.4	24.6	22.5	23.8	22.8	24.0	24.3
	3H	24.3	25.3	24.6	25.6	25.9	23.7	24.8	24.1	25.1	25.4
	4H	25.0	26.0	25.4	26.3	26.7	24.4	25.4	24.8	25.7	26.0
	6H	26.0	26.9	26.4	27.3	27.6	25.0	25.9	25.4	26.2	26.6
	8H	26.7	27.5	27.1	27.9	28.3	25.2	26.1	25.6	26.4	26.8
	12H	27.6	28.4	28.1	28.8	29.2	25.4	26.2	25.8	26.5	26.9
8H	4H	25.3	26.1	25.7	26.5	26.9	24.7	25.5	25.1	25.9	26.3
	6H	26.6	27.2	27.0	27.6	28.1	25.5	26.2	26.0	26.6	27.1
	8H	27.5	28.1	27.9	28.5	28.9	25.9	26.5	26.4	27.0	27.4
	12H	28.7	29.2	29.1	29.6	30.1	26.2	26.8	26.7	27.2	27.7
12H	4H	25.3	26.1	25.7	26.5	26.9	24.8	25.6	25.2	25.9	26.3
	6H	26.7	27.3	27.1	27.7	28.1	25.7	26.3	26.2	26.8	27.2
	8H	27.6	28.2	28.1	28.6	29.1	26.2	26.7	26.7	27.2	27.6
Variations with the observer position at spacings:											
S = 1.0H	+ 0.4 / - 0.4					+ 0.4 / - 0.4					
1.5H	+ 0.1 / - 0.3					+ 0.3 / - 0.4					
2.0H	+ 0.1 / - 0.3					+ 0.4 / - 0.5					

CIE Pub.117, 6539 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 6.5$)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:20DEG
 Operators:LITPA
 Test Date:17 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: TCA-65W-VS
 HELVAR LL1X70

UTILIZATION FACTORS TABLE

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

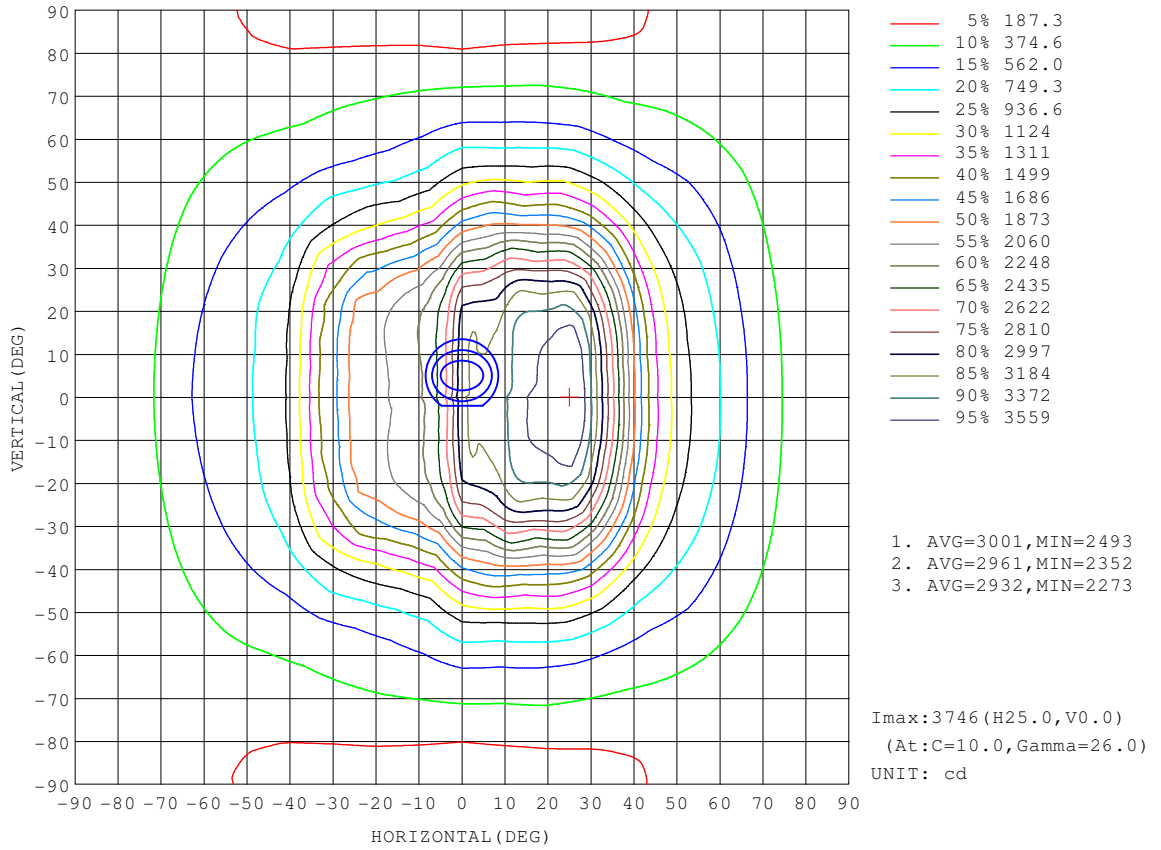
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	65	54	48	64	54	48	63	54	48	42
0.80	74	64	57	73	63	57	71	63	57	51
1.00	81	72	65	80	71	65	78	72	64	58
1.25	88	78	72	86	78	72	84	76	71	64
1.50	92	83	77	91	83	77	88	81	76	69
2.00	98	90	84	96	89	84	93	87	82	75
2.50	101	94	89	99	93	88	95	90	86	78
3.00	104	98	93	102	96	92	98	93	89	81
4.00	107	102	98	105	100	96	101	97	94	85
5.00	110	105	101	107	103	100	103	99	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: 17 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: TCA-65W-VS
 HELVAR LL1X70

ISOCANDELA DIAGRAM

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

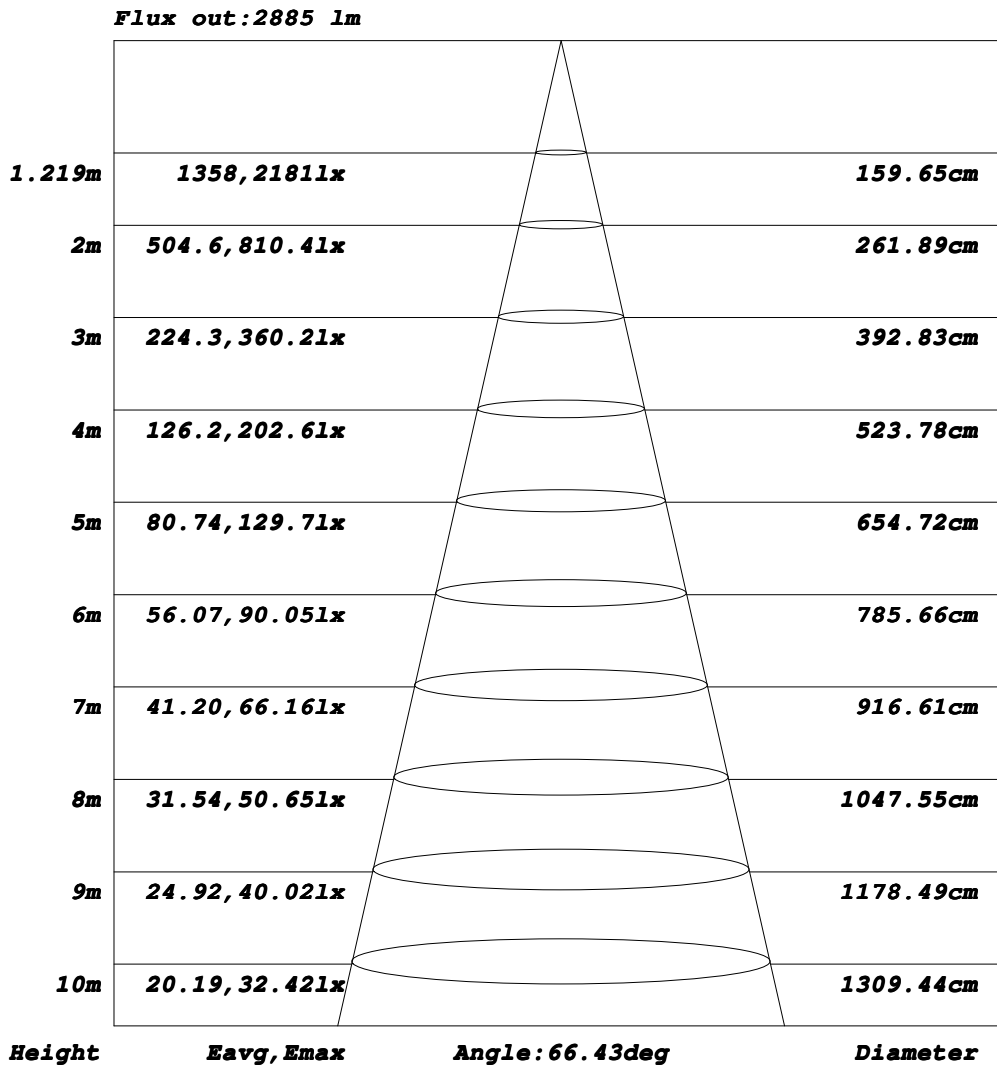


C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:20DEG
Operators:LITPA
Test Date:17 April 2019

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: TCA-65W-VS
HELVAR LL1X70

AAI Figure

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



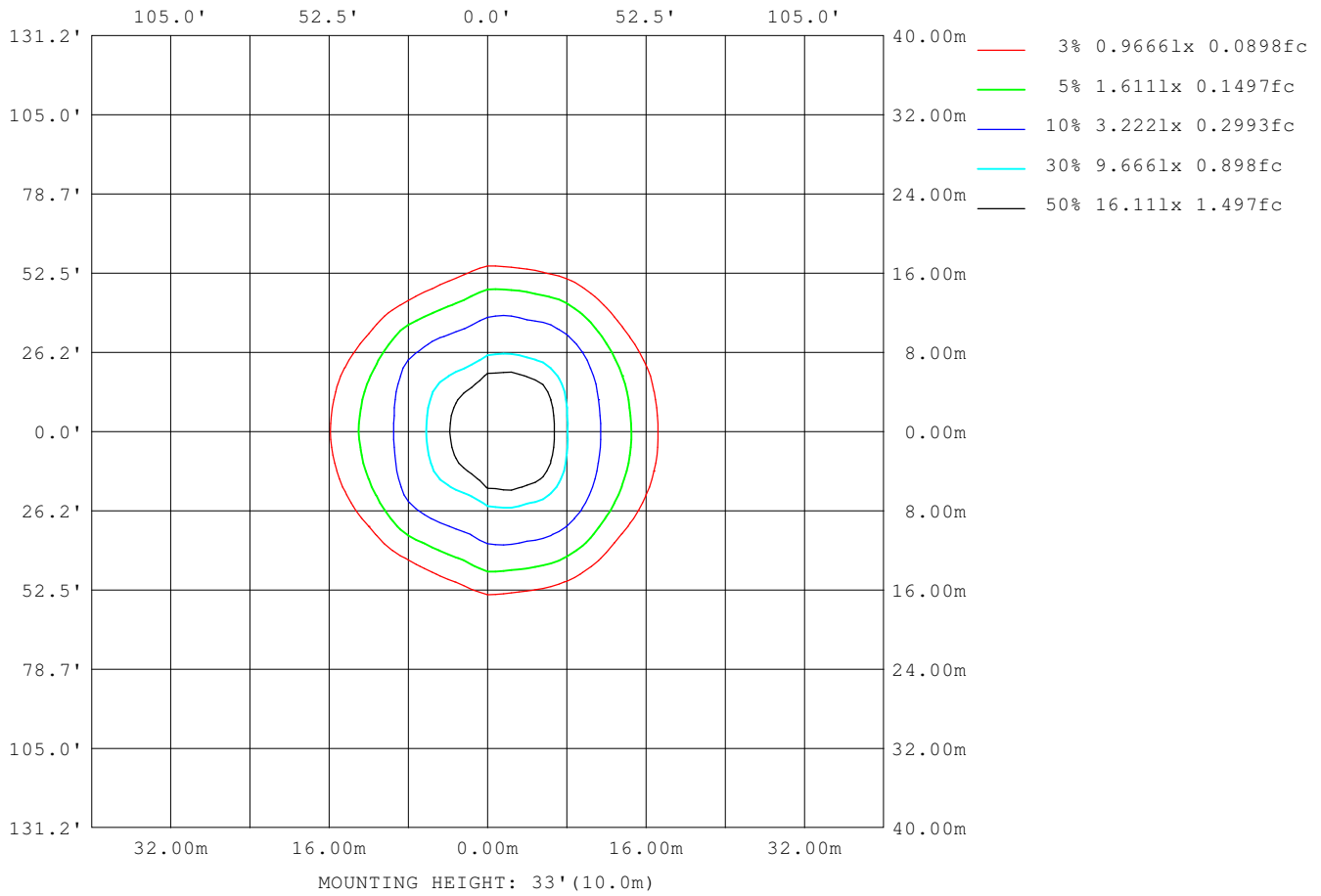
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 17 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: TCA-65W-VS
HELVAR LL1X70

ISOLUX DIAGRAM

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	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: 17 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: TCA-65W-VS
HELVAR LL1X70

LED Avg.L Report

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	DIM.: 68mmX1430mmX78mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

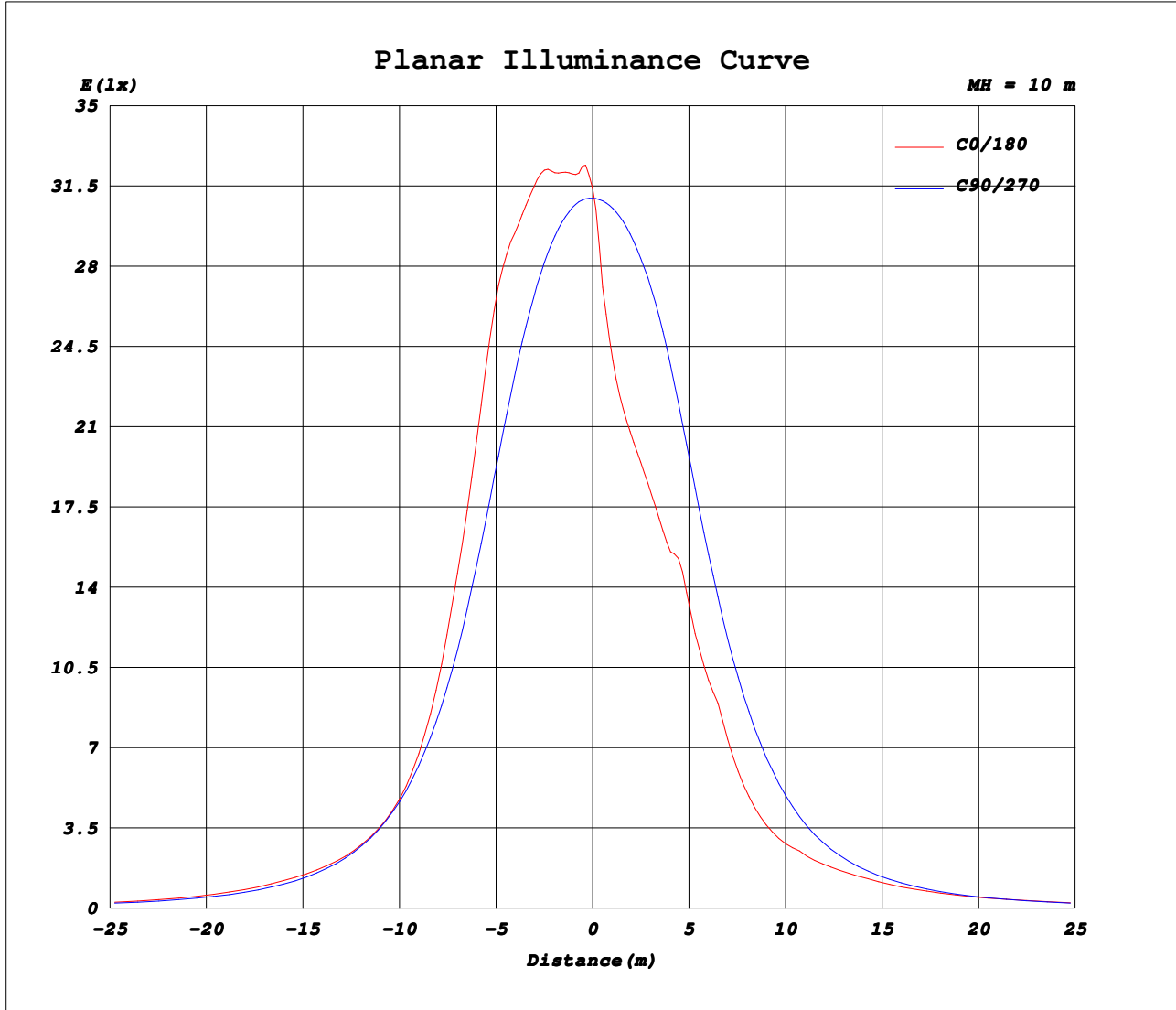
AvgL	cd/m2
L_0~180 (65) av	13301
L_0~180 (75) av	13170
L_0~180 (85) av	32336
L_90~270 (65) av	12344
L_90~270 (75) av	11832
L_90~270 (85) av	10662
L_45 (65) av	11937
L_45 (75) av	12419
L_45 (85) av	22314

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:20DEG
Operators:LITPA
Test Date:17 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: TCA-65W-VS
HELVAR LL1X70

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 17 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: TCA-65W-VS
 HELVAR LL1X70

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	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: 17 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: TCA-65W-VS
HELVAR LL1X70

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.31V I:0.2851A P:64.552W PF:0.9832 Freq:50.01Hz Lamp Flux:6538.67x1 lm		
NAME: TCA	TYPE:LED	WEIGHT:3.2kg
SPEC.:65W	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: 17 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: TCA-65W-VS
HELVAR LL1X70