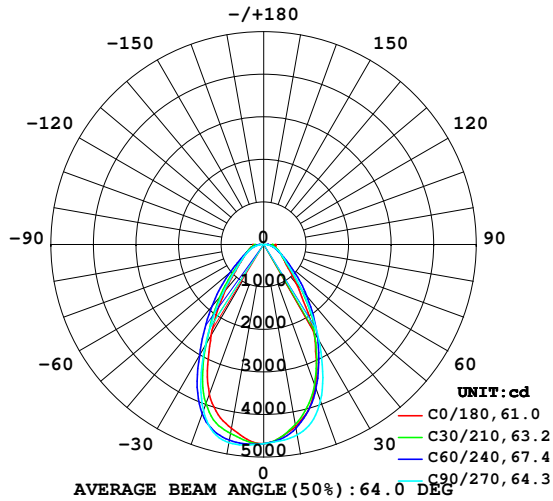


## LUMINAIRE PHOTOMETRIC TEST REPORT

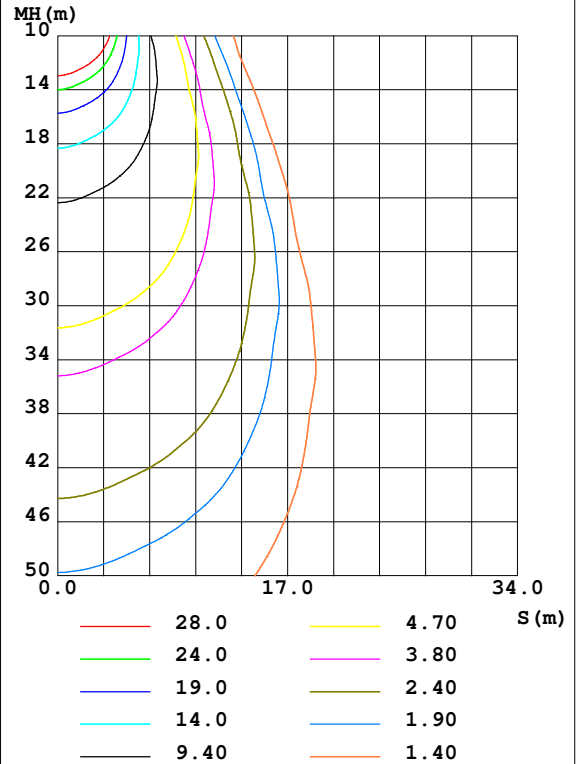
|  |                        |                  |
|--|------------------------|------------------|
| Test:U:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | DIM.: 68mmX1430mmX78mm | SERIAL No.:      |
| MFR.: LITPA AYDINLATMA   | SUR.:                  | Shielding Angle: |

| DATA OF LAMP      |         | PHOTOMETRIC DATA Eff: 103.74 lm/W |        |                     |           |
|-------------------|---------|-----------------------------------|--------|---------------------|-----------|
| MODEL             | TCA     | I <sub>max</sub> (cd)             | 4746   | S/MH (C0/180)       | 0.93      |
| NOMINAL POWER(W)  | 65W     | LOR (%)                           | 100.0  | S/MH (C90/270)      | 0.98      |
| RATED VOLTAGE(V)  | 220.0   | TOTAL FLUX (lm)                   | 6711.2 | η UP, DN (C0-180)   | 0.0, 48.3 |
| NOMINAL FLUX (lm) | 6711.16 | CIE CLASS                         | DIRECT | η UP, DN (C180-360) | 0.0, 51.7 |
| LAMPS INSIDE      | 1       | η up (%)                          | 0.0    | CIBSE SHR NOM       | 1.00      |
| TEST VOLTAGE (V)  | 220     | η down (%)                        | 100.0  | CIBSE SHR MAX       | 1.05      |

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: 16 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:

| $\gamma$ | C0                    | C45   | C90   | C135  | C180  | C225  | C270  | C315  | $\gamma$ | $\Phi$ zone | $\Phi$ total | %lum, lamp |
|----------|-----------------------|-------|-------|-------|-------|-------|-------|-------|----------|-------------|--------------|------------|
| 10       | 4341                  | 4318  | 4546  | 4384  | 4388  | 4587  | 4732  | 4534  | 0- 10    | 436.8       | 436.8        | 6.51, 6.51 |
| 20       | 3552                  | 3522  | 3911  | 3682  | 3743  | 4118  | 4152  | 3855  | 10- 20   | 1181        | 1618         | 24.1, 24.1 |
| 30       | 2317                  | 2451  | 2588  | 2614  | 2494  | 2919  | 2749  | 2669  | 20- 30   | 1476        | 3094         | 46.1, 46.1 |
| 40       | 1188                  | 1546  | 1395  | 1620  | 1405  | 1773  | 1494  | 1693  | 30- 40   | 1269        | 4363         | 65, 65     |
| 50       | 658.7                 | 871.0 | 744.2 | 905.0 | 768.8 | 982.9 | 799.2 | 951.1 | 40- 50   | 879.0       | 5242         | 78.1, 78.1 |
| 60       | 476.5                 | 490.5 | 484.4 | 513.1 | 516.6 | 550.3 | 508.5 | 520.8 | 50- 60   | 579.6       | 5822         | 86.8, 86.8 |
| 70       | 338.3                 | 312.0 | 321.9 | 328.2 | 369.7 | 347.0 | 332.9 | 324.3 | 60- 70   | 409.4       | 6231         | 92.9, 92.9 |
| 80       | 268.8                 | 201.9 | 159.4 | 218.8 | 269.1 | 233.3 | 164.2 | 209.9 | 70- 80   | 289.4       | 6521         | 97.2, 97.2 |
| 90       | 273.6                 | 155.7 | 9.808 | 146.0 | 255.7 | 156.9 | 9.950 | 156.5 | 80- 90   | 190.3       | 6711         | 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): 4850.5 lm

%lum = 72.3%

%lamp = 72.3%

Conical surface Flux(120deg): 5822.1 lm

%lum = 86.8%

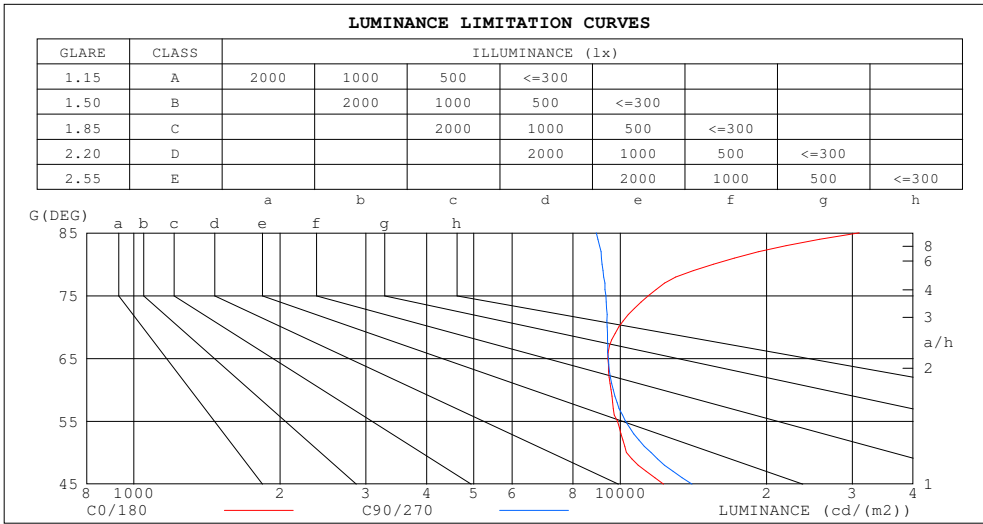
%lamp = 86.8%

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 20DEG  
 Operators: LITPA  
 Test Date: 16 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: TCA-65W-VS  
 HELVAR LL1X70

## LUMINANCE LIMITATION CURVES

|  |                        |                  |
|--|------------------------|------------------|
| Test:U:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | DIM.: 68mmX1430mmX78mm | SERIAL No.:      |
| MFR.: LITPA AYDINLATMA   | SUR.:                  | Shielding Angle: |



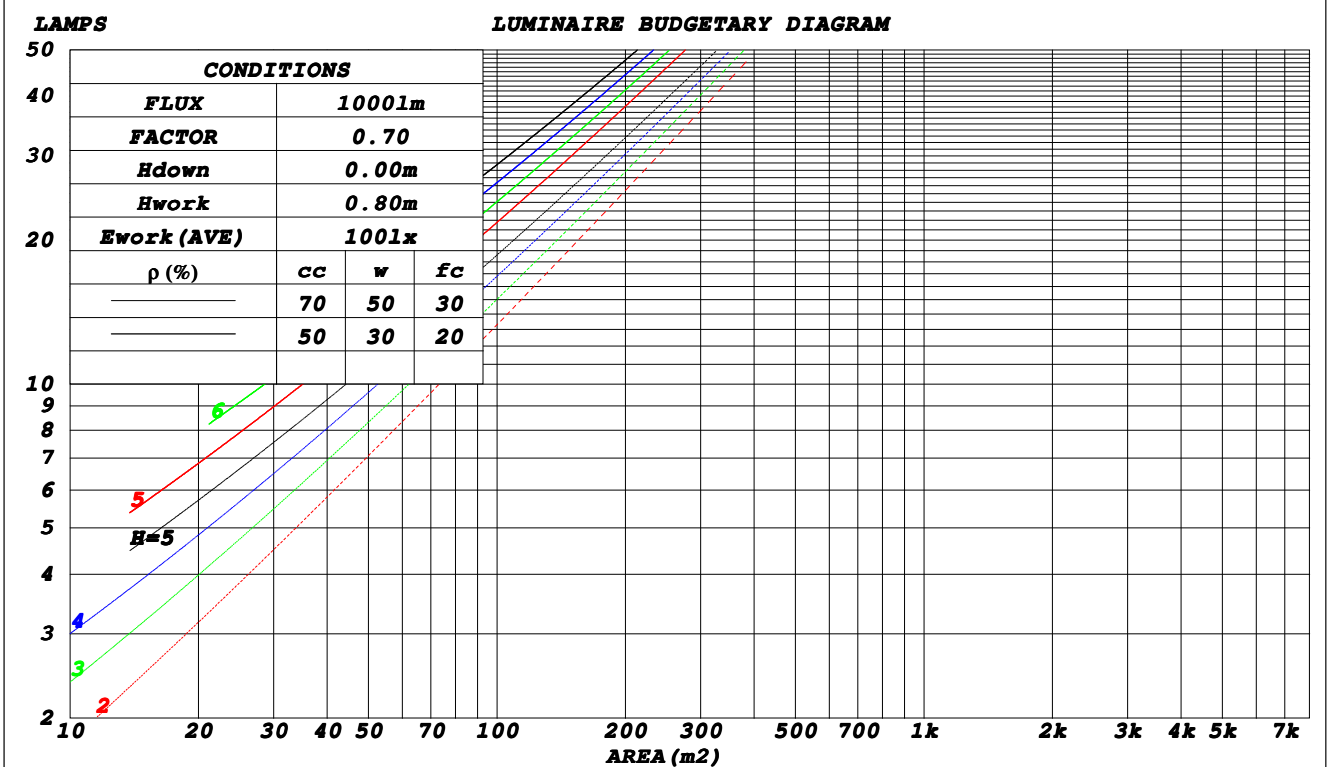
**C Range: 0 - 360DEG**  
**C Interval: 10.0DEG**  
**Test Speed: HIGH**  
**Temperature: 20DEG**  
**Operators: LITPA**  
**Test Date: 16 April 2019**

**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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | 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  | .93  | .91  | .92  | .90  | .89  | .87  |
| 2.0         | .95                   | .89  | .84  | .93  | .88  | .83  | .90                             | .85  | .82  | .87  | .83  | .80  | .84  | .81  | .78  | .76  |
| 3.0         | .86                   | .79  | .74  | .85  | .78  | .73  | .82                             | .76  | .72  | .79  | .74  | .71  | .77  | .73  | .69  | .67  |
| 4.0         | .78                   | .71  | .65  | .77  | .70  | .65  | .75                             | .69  | .64  | .72  | .67  | .63  | .70  | .66  | .62  | .60  |
| 5.0         | .72                   | .64  | .58  | .71  | .63  | .58  | .69                             | .62  | .57  | .67  | .61  | .57  | .65  | .60  | .56  | .54  |
| 6.0         | .66                   | .58  | .53  | .65  | .58  | .52  | .63                             | .57  | .52  | .62  | .56  | .52  | .60  | .55  | .51  | .49  |
| 7.0         | .61                   | .53  | .48  | .60  | .53  | .48  | .59                             | .52  | .48  | .57  | .52  | .47  | .56  | .51  | .47  | .45  |
| 8.0         | .57                   | .49  | .44  | .56  | .49  | .44  | .55                             | .48  | .44  | .54  | .48  | .43  | .52  | .47  | .43  | .42  |
| 9.0         | .53                   | .46  | .41  | .52  | .45  | .41  | .51                             | .45  | .40  | .50  | .44  | .40  | .49  | .44  | .40  | .38  |
| 10.0        | .49                   | .42  | .38  | .49  | .42  | .38  | .48                             | .42  | .37  | .47  | .41  | .37  | .46  | .41  | .37  | .36  |



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature: 20DEG  
Operators: LITPA  
Test Date: 16 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: TCA-65W-VS  
HELVAR LL1X70

## WEC AND CCEC

|  |                        |                  |
|--|------------------------|------------------|
| Test:U:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | 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         | .269                  | .153 | .048 | .262 | .149 | .047 | .249                            | .143 | .046 | .237 | .137 | .044 | .226 | .131 | .042 |   |  |
| 2.0         | .246                  | .135 | .041 | .240 | .132 | .041 | .229                            | .127 | .040 | .219 | .123 | .038 | .209 | .118 | .037 |   |  |
| 3.0         | .227                  | .121 | .036 | .222 | .119 | .036 | .212                            | .115 | .035 | .203 | .111 | .034 | .195 | .108 | .033 |   |  |
| 4.0         | .210                  | .109 | .032 | .206 | .108 | .032 | .197                            | .105 | .031 | .189 | .102 | .031 | .182 | .099 | .030 |   |  |
| 5.0         | .196                  | .100 | .029 | .192 | .099 | .029 | .184                            | .096 | .028 | .177 | .094 | .028 | .171 | .091 | .027 |   |  |
| 6.0         | .183                  | .092 | .026 | .180 | .091 | .026 | .173                            | .089 | .026 | .167 | .087 | .025 | .161 | .085 | .025 |   |  |
| 7.0         | .172                  | .085 | .024 | .169 | .084 | .024 | .163                            | .082 | .024 | .157 | .080 | .023 | .152 | .079 | .023 |   |  |
| 8.0         | .162                  | .079 | .022 | .159 | .078 | .022 | .153                            | .077 | .022 | .148 | .075 | .022 | .144 | .074 | .021 |   |  |
| 9.0         | .153                  | .074 | .021 | .150 | .073 | .021 | .145                            | .072 | .020 | .141 | .071 | .020 | .137 | .069 | .020 |   |  |
| 10.0        | .145                  | .069 | .019 | .142 | .069 | .019 | .138                            | .068 | .019 | .134 | .066 | .019 | .130 | .065 | .019 |   |  |

| $\rho_{cc}$ | 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                  | .156 | .138 | .152 | .134 | .118 | .104  | .092 | .082 | .060 | .053 | .048 | .019 | .017 | .015 |   |
| 2.0         | .166                  | .132 | .103 | .142 | .114 | .089 | .098  | .079 | .062 | .056 | .046 | .037 | .018 | .015 | .012 |   |
| 3.0         | .156                  | .114 | .080 | .134 | .098 | .070 | .092  | .068 | .049 | .053 | .040 | .029 | .017 | .013 | .009 |   |
| 4.0         | .147                  | .100 | .064 | .126 | .087 | .056 | .087  | .060 | .039 | .050 | .035 | .023 | .016 | .011 | .008 |   |
| 5.0         | .139                  | .089 | .052 | .120 | .077 | .045 | .082  | .054 | .032 | .048 | .032 | .019 | .015 | .010 | .006 |   |
| 6.0         | .132                  | .080 | .044 | .113 | .070 | .038 | .078  | .049 | .027 | .045 | .029 | .016 | .015 | .009 | .005 |   |
| 7.0         | .125                  | .073 | .037 | .108 | .064 | .032 | .074  | .045 | .023 | .043 | .026 | .014 | .014 | .009 | .004 |   |
| 8.0         | .119                  | .067 | .032 | .102 | .058 | .028 | .071  | .041 | .020 | .041 | .024 | .012 | .013 | .008 | .004 |   |
| 9.0         | .113                  | .062 | .028 | .098 | .054 | .024 | .068  | .038 | .017 | .039 | .022 | .010 | .013 | .007 | .003 |   |
| 10.0        | .108                  | .058 | .024 | .093 | .050 | .021 | .065  | .035 | .015 | .038 | .021 | .009 | .012 | .007 | .003 |   |

**C Range:** 0 - 360DEG  
**C Interval:** 10.0DEG  
**Test Speed:** HIGH  
**Temperature:** 20DEG  
**Operators:** LITPA  
**Test Date:** 16 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:** TCA-65W-VS  
 HELVAR LL1X70

UGR(Unified Glare Rating) Table

|  |                  |      |      |      |                        |                |      |                  |      |      |      |
|--|------------------|------|------|------|------------------------|----------------|------|------------------|------|------|------|
| Test:U:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 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  | 19.2             | 20.4 | 19.4 | 20.6 | 20.8                   | 19.6           | 20.9 | 19.9             | 21.1 | 21.3 |      |
|  | 3H               | 20.6 | 21.8 | 20.9 | 22.0                   | 22.2           | 20.7 | 21.9             | 21.0 | 22.1 | 22.3 |
|  | 4H               | 21.4 | 22.6 | 21.7 | 22.8                   | 23.0           | 21.2 | 22.4             | 21.5 | 22.6 | 22.9 |
|  | 6H               | 22.5 | 23.6 | 22.8 | 23.8                   | 24.1           | 21.8 | 22.8             | 22.1 | 23.1 | 23.3 |
|  | 8H               | 23.2 | 24.2 | 23.5 | 24.5                   | 24.8           | 22.0 | 23.0             | 22.3 | 23.3 | 23.5 |
|  | 12H              | 24.1 | 25.1 | 24.5 | 25.4                   | 25.7           | 22.1 | 23.1             | 22.5 | 23.4 | 23.7 |
| 4H   | 2H               | 19.6 | 20.8 | 19.9 | 21.0                   | 21.2           | 20.0 | 21.1             | 20.3 | 21.3 | 21.6 |
|  | 3H               | 21.3 | 22.3 | 21.7 | 22.6                   | 22.9           | 21.3 | 22.3             | 21.6 | 22.6 | 22.8 |
|  | 4H               | 22.4 | 23.3 | 22.8 | 23.6                   | 23.9           | 22.0 | 22.9             | 22.4 | 23.2 | 23.5 |
|  | 6H               | 23.7 | 24.5 | 24.1 | 24.8                   | 25.2           | 22.7 | 23.5             | 23.1 | 23.8 | 24.2 |
|  | 8H               | 24.5 | 25.3 | 24.9 | 25.6                   | 26.0           | 23.0 | 23.7             | 23.4 | 24.1 | 24.5 |
|  | 12H              | 25.6 | 26.3 | 26.1 | 26.7                   | 27.1           | 23.2 | 23.9             | 23.6 | 24.3 | 24.7 |
| 8H   | 4H               | 22.7 | 23.5 | 23.1 | 23.8                   | 24.2           | 22.4 | 23.1             | 22.8 | 23.5 | 23.9 |
|  | 6H               | 24.3 | 24.9 | 24.7 | 25.3                   | 25.7           | 23.3 | 23.9             | 23.7 | 24.3 | 24.7 |
|  | 8H               | 25.3 | 25.9 | 25.8 | 26.3                   | 26.8           | 23.7 | 24.2             | 24.1 | 24.7 | 25.1 |
|  | 12H              | 26.7 | 27.2 | 27.2 | 27.6                   | 28.1           | 24.0 | 24.5             | 24.5 | 25.0 | 25.4 |
| 12H  | 4H               | 22.8 | 23.5 | 23.2 | 23.8                   | 24.2           | 22.5 | 23.2             | 22.9 | 23.5 | 23.9 |
|  | 6H               | 24.4 | 25.0 | 24.9 | 25.4                   | 25.8           | 23.5 | 24.0             | 23.9 | 24.5 | 24.9 |
|  | 8H               | 25.5 | 26.0 | 26.0 | 26.5                   | 26.9           | 24.0 | 24.4             | 24.4 | 24.9 | 25.4 |
| Variations with the observer position at spacings:                               |                  |      |      |      |                        |                |      |                  |      |      |      |
| S = 1.0H   | + 0.2 / - 0.3    |      |      |      |                        | + 0.3 / - 0.4  |      |                  |      |      |      |
| 1.5H   | + 0.1 / - 0.1    |      |      |      |                        | + 0.3 / - 0.4  |      |                  |      |      |      |
| 2.0H   | + 0.2 / - 0.2    |      |      |      |                        | + 0.4 / - 0.3  |      |                  |      |      |      |

CIE Pub.117, 6711 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 6.6$ )

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:20DEG  
 Operators:LITPA  
 Test Date:16 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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | DIM.: 68mmX1430mmX78mm | SERIAL No.:      |
| MFR.: LITPA AYDINLATMA   | SUR.:                  | Shielding Angle: |

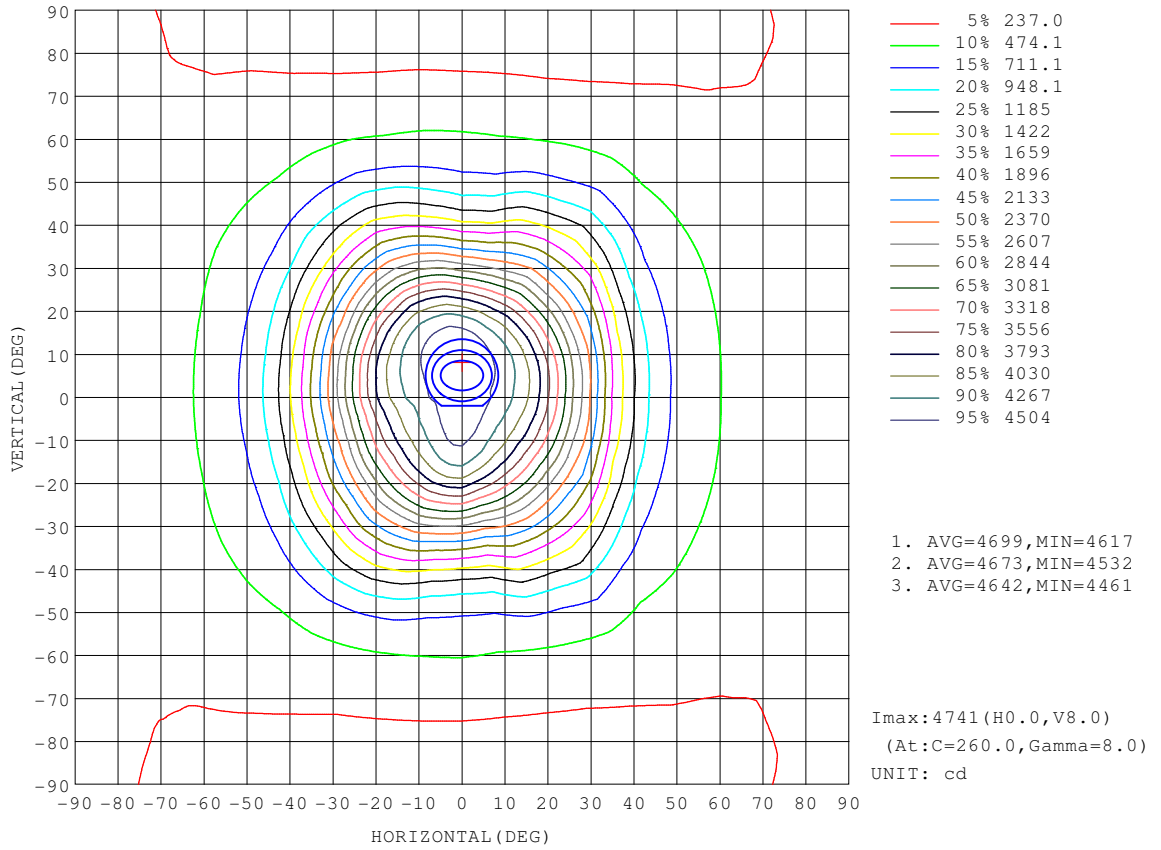
| REFLECTANCE                      |  |     |           |     |     |     |     |               |     |        |
|----------------------------------|--|-----|-----------|-----|-----|-----|-----|---------------|-----|--------|
| Ceiling                          | 0.8  | 0.8 | 0.8       | 0.7 | 0.7 | 0.7 | 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) $k(RI) \times RCR = 5$ |     |           |     |     |     |     |               |     |        |
| $k = 0.60$                       | 70   | 61  | 55        | 69  | 60  | 55  | 68  | 60            | 55  | 50     |
| 0.80                             | 79   | 70  | 64        | 78  | 69  | 64  | 77  | 69            | 63  | 58     |
| 1.00                             | 86   | 77  | 71        | 85  | 76  | 71  | 83  | 77            | 70  | 64     |
| 1.25                             | 91   | 83  | 77        | 90  | 82  | 77  | 88  | 81            | 76  | 70     |
| 1.50                             | 95   | 87  | 82        | 94  | 87  | 81  | 91  | 85            | 80  | 74     |
| 2.00                             | 100  | 93  | 88        | 99  | 92  | 87  | 95  | 90            | 86  | 79     |
| 2.50                             | 103  | 97  | 92        | 101 | 96  | 91  | 98  | 93            | 89  | 82     |
| 3.00                             | 106  | 100 | 96        | 104 | 99  | 94  | 100 | 96            | 92  | 85     |
| 4.00                             | 109  | 104 | 100       | 107 | 102 | 99  | 103 | 99            | 96  | 88     |
| 5.00                             | 111  | 107 | 103       | 108 | 105 | 102 | 104 | 101           | 99  | 90     |
| 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: 16 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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | DIM.: 68mmX1430mmX78mm | SERIAL No.:      |
| MFR.: LITPA AYDINLATMA   | SUR.:                  | Shielding Angle: |



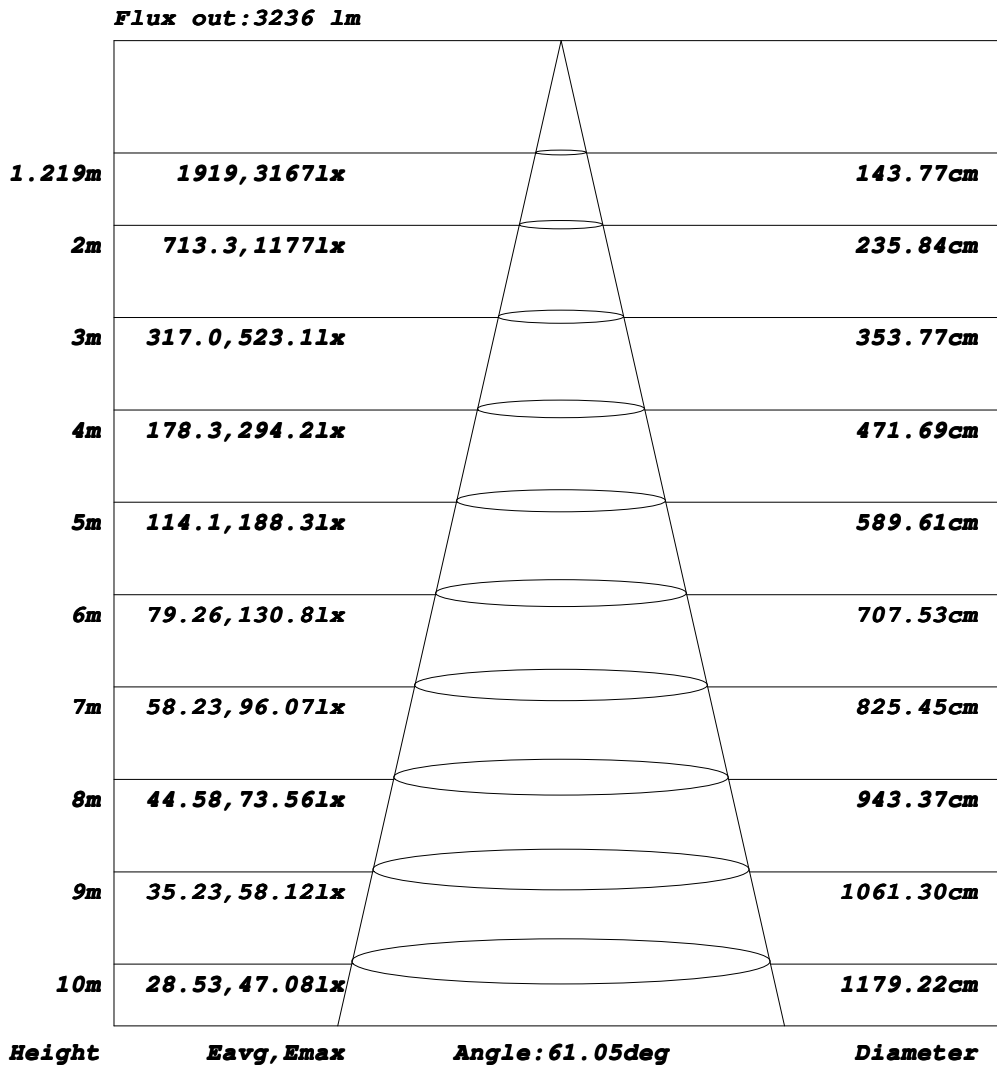
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:20DEG  
Operators:LITPA  
Test Date:16 April 2019

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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | DIM.: 68mmX1430mmX78mm | SERIAL No.:      |
| MFR.: LITPA AYDINLATMA   | SUR.:                  | Shielding Angle: |



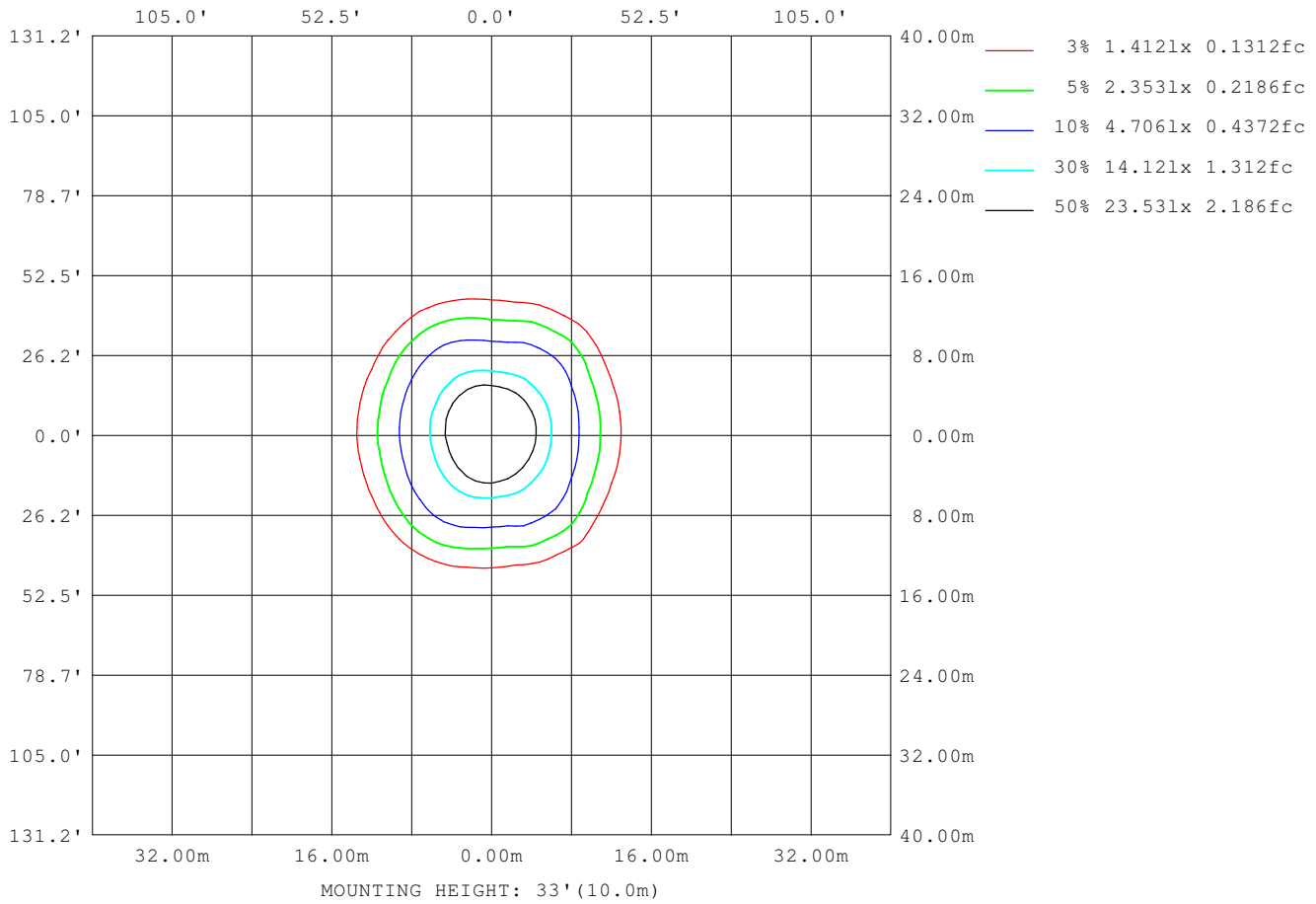
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 20DEG  
 Operators: LITPA  
 Test Date: 16 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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 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: 16 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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 lm |                        |                  |
| NAME: TCA  | TYPE:LED               | WEIGHT:3.2kg     |
| SPEC.:65W  | DIM.: 68mmX1430mmX78mm | SERIAL No.:      |
| MFR.: LITPA AYDINLATMA   | SUR.:                  | Shielding Angle: |

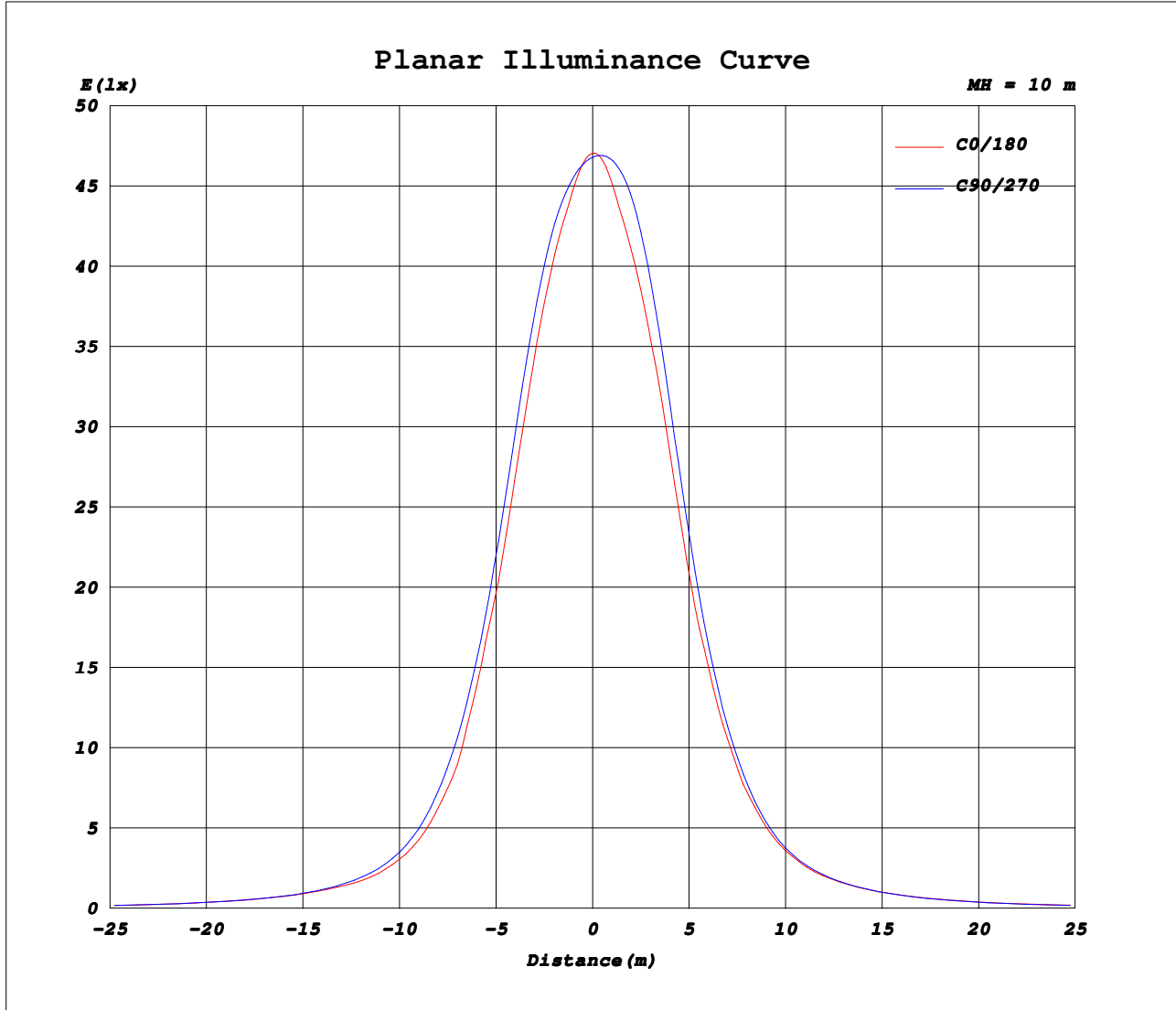
| AvgL             | cd/m2 |
|------------------|-------|
| L_0~180 (65) av  | 9816  |
| L_0~180 (75) av  | 11858 |
| L_0~180 (85) av  | 30177 |
| L_90~270 (65) av | 9650  |
| L_90~270 (75) av | 9504  |
| L_90~270 (85) av | 9019  |
| L_45 (65) av     | 9569  |
| L_45 (75) av     | 10447 |
| L_45 (85) av     | 19346 |

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:20DEG  
Operators:LITPA  
Test Date:16 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: 16 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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 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: 16 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:230.24V I:0.2858A P:64.690W PF:0.9833 Freq:50.01Hz Lamp Flux:6711.16x1 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: 16 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**