

## Photometric test report

Family  
Highbay 11

Order number: 51HLA1D24NLA + 59HL91004  
EAN: 4058352361443 + 4058352341674

LP number  
58926\_11



**Version** narrow distribution, UGR $\leq$ 25, prismatic cover, polycarbonate, LLD  
**Lamps** LED 4000 K | CRI  $\geq$  80  
**Controlgear** ECG-DALI  
**Rated values** Net luminous flux = 30010 lm  
Power consumption = 189.6 W  
Luminous efficacy = 158.3 lm/W

serial  
documentation  
31.03.2020

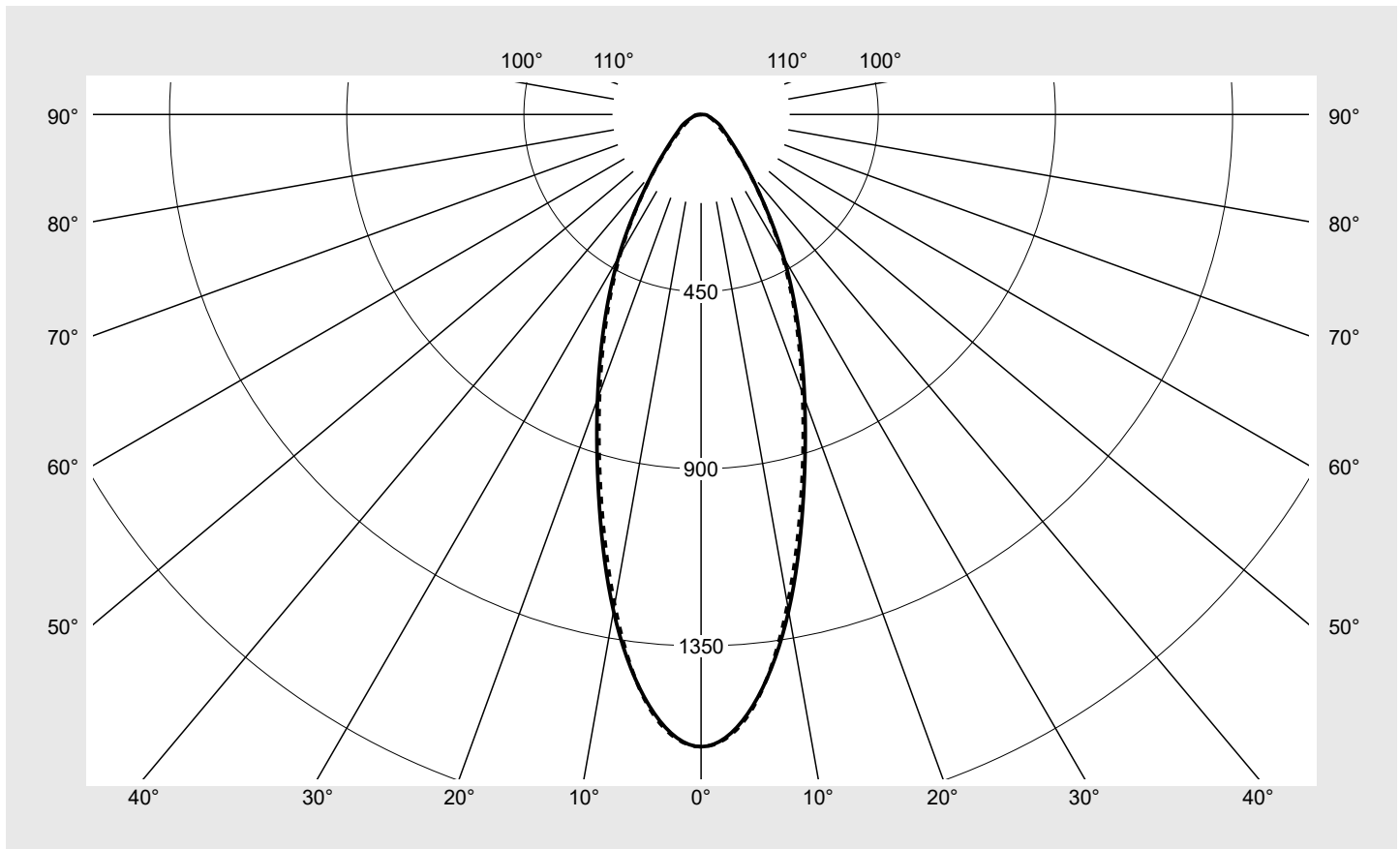
sitEco

Luminous intensity in cd/klm

C180-0

C270-90

Imax: 1606 cd/klm



### Classifications

DIN 5040 A 6 1  
CIE N1=80 N2=93 N3=98  
N4=99 N5=100

### Luminaire light output ratios

$\eta_{LB}$  100.0%  
 $\phi_u$  99.1%  
 $\phi_o$  0.9%

### Measurement conditions

DIN EN 13032 and DIN 5032

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| Table of values for luminous intensities |  | Maximum luminous intensity |



| C-planes<br>$\gamma$         | 0°<br>180° | 15°                  | 30°                  | 45°                  | 60°                  | 75°                  | 90°<br>270° | Phi-zone                | Total<br>Phi-zone |
|------------------------------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------|-------------------------|-------------------|
|                              |            | 165°<br>195°<br>345° | 150°<br>210°<br>330° | 135°<br>225°<br>315° | 120°<br>240°<br>300° | 105°<br>255°<br>285° |             |                         |                   |
| Luminous intensity in cd/klm |            |                      |                      |                      |                      |                      |             | Luminous flux in lm/klm |                   |
| 0°                           | 1606.0     | 1606.0               | 1606.0               | 1606.0               | 1606.0               | 1606.0               | 1606.0      | 9.6                     | 9.6               |
| 5°                           | 1507.9     | 1508.7               | 1512.2               | 1513.3               | 1508.7               | 1511.4               | 1513.0      | 72.2                    | 81.8              |
| 10°                          | 1280.6     | 1272.9               | 1259.5               | 1248.8               | 1248.0               | 1260.8               | 1264.2      | 120.0                   | 201.7             |
| 15°                          | 1004.5     | 985.6                | 950.6                | 929.5                | 940.1                | 972.0                | 986.2       | 136.5                   | 338.3             |
| 20°                          | 768.9      | 734.9                | 677.5                | 651.2                | 671.3                | 724.2                | 753.2       | 131.9                   | 470.1             |
| 25°                          | 579.4      | 536.1                | 467.6                | 439.1                | 462.6                | 526.2                | 566.8       | 116.0                   | 586.1             |
| 30°                          | 419.8      | 378.2                | 316.2                | 288.9                | 311.0                | 371.2                | 410.7       | 95.0                    | 681.2             |
| 35°                          | 281.6      | 253.0                | 209.3                | 188.3                | 206.3                | 251.7                | 279.5       | 72.8                    | 753.9             |
| 40°                          | 186.8      | 169.4                | 140.2                | 125.9                | 140.1                | 168.6                | 184.1       | 54.6                    | 808.5             |
| 45°                          | 126.3      | 118.0                | 99.1                 | 89.3                 | 99.3                 | 113.9                | 120.8       | 41.5                    | 850.1             |
| 50°                          | 90.6       | 86.0                 | 74.8                 | 68.1                 | 73.3                 | 80.0                 | 82.7        | 32.8                    | 882.9             |
| 55°                          | 68.9       | 67.2                 | 61.4                 | 56.4                 | 57.0                 | 58.6                 | 59.3        | 27.3                    | 910.2             |
| 60°                          | 55.5       | 53.3                 | 51.3                 | 48.2                 | 46.1                 | 44.3                 | 44.2        | 23.2                    | 933.4             |
| 65°                          | 39.9       | 40.4                 | 40.9                 | 39.4                 | 37.9                 | 35.0                 | 34.2        | 19.1                    | 952.4             |
| 70°                          | 27.7       | 27.4                 | 28.0                 | 26.9                 | 26.9                 | 26.7                 | 27.3        | 14.0                    | 966.5             |
| 75°                          | 20.8       | 20.4                 | 20.1                 | 18.4                 | 17.7                 | 18.4                 | 20.0        | 10.2                    | 976.7             |
| 80°                          | 16.9       | 16.2                 | 16.1                 | 14.4                 | 12.1                 | 10.7                 | 10.9        | 7.5                     | 984.2             |
| 85°                          | 12.6       | 12.2                 | 12.3                 | 10.2                 | 7.8                  | 6.8                  | 7.3         | 5.4                     | 989.6             |
| 90°                          | 4.9        | 5.5                  | 6.5                  | 6.9                  | 5.5                  | 5.3                  | 6.3         | 3.2                     | 992.8             |
| 95°                          | 3.0        | 3.5                  | 4.8                  | 5.4                  | 4.4                  | 4.2                  | 5.3         | 2.4                     | 995.2             |
| 100°                         | 1.8        | 2.0                  | 2.9                  | 3.6                  | 2.9                  | 2.5                  | 3.1         | 1.5                     | 996.6             |
| 105°                         | 1.4        | 1.2                  | 1.3                  | 1.8                  | 1.9                  | 1.8                  | 2.1         | 0.9                     | 997.5             |
| 110°                         | 1.1        | 1.0                  | 0.9                  | 0.8                  | 1.2                  | 1.2                  | 1.9         | 0.6                     | 998.1             |
| 115°                         | 1.0        | 0.9                  | 0.7                  | 0.6                  | 1.0                  | 0.9                  | 1.7         | 0.4                     | 998.5             |
| 120°                         | 0.8        | 0.7                  | 0.5                  | 0.5                  | 0.8                  | 0.9                  | 1.5         | 0.4                     | 998.9             |
| 125°                         | 0.6        | 0.5                  | 0.5                  | 0.5                  | 0.6                  | 0.8                  | 1.2         | 0.3                     | 999.2             |
| 130°                         | 0.8        | 0.8                  | 0.8                  | 0.8                  | 0.8                  | 1.0                  | 1.1         | 0.4                     | 999.5             |
| 135°                         | 1.2        | 1.2                  | 1.2                  | 1.2                  | 1.2                  | 1.2                  | 1.3         | 0.5                     | 1000.0            |
| 140°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 145°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 150°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 155°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 160°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 165°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 170°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 175°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |
| 180°                         | 0.0        | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0                  | 0.0         | 0.0                     | 1000.0            |

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|----------------------|--|-----------------------|

| UGR-Table                    |     | Standard room       |      |      |      |      |                    |      |      |      |      |
|------------------------------|-----|---------------------|------|------|------|------|--------------------|------|------|------|------|
| Reflection factor of ceiling | 0.7 | 0.7                 | 0.5  | 0.5  | 0.3  | 0.7  | 0.7                | 0.5  | 0.5  | 0.3  |      |
| Reflection factor of walls   | 0.5 | 0.3                 | 0.5  | 0.3  | 0.3  | 0.5  | 0.3                | 0.5  | 0.3  | 0.3  |      |
| Reflection factor of floor   | 0.2 | 0.2                 | 0.2  | 0.2  | 0.2  | 0.2  | 0.2                | 0.2  | 0.2  | 0.2  |      |
| Room dimensions              |     | View crosswise (C0) |      |      |      |      | View endwise (C90) |      |      |      |      |
| x                            | y   |                     |      |      |      |      |                    |      |      |      |      |
| 2H                           | 2H  | 19.9                | 21.2 | 20.2 | 21.5 | 21.8 | 19.4               | 20.7 | 19.8 | 21.0 | 21.3 |
|                              | 3H  | 20.7                | 21.8 | 21.1 | 22.2 | 22.5 | 20.3               | 21.4 | 20.6 | 21.7 | 22.1 |
|                              | 4H  | 21.1                | 22.1 | 21.5 | 22.5 | 22.8 | 20.7               | 21.7 | 21.1 | 22.1 | 22.4 |
|                              | 6H  | 21.5                | 22.4 | 21.9 | 22.8 | 23.2 | 20.9               | 21.9 | 21.3 | 22.3 | 22.7 |
|                              | 8H  | 21.8                | 22.6 | 22.2 | 23.0 | 23.4 | 21.1               | 21.9 | 21.5 | 22.3 | 22.7 |
|                              | 12H | 22.0                | 22.8 | 22.5 | 23.2 | 23.6 | 21.2               | 22.0 | 21.6 | 22.4 | 22.8 |
| 4H                           | 2H  | 20.2                | 21.3 | 20.6 | 21.6 | 22.0 | 19.8               | 20.9 | 20.2 | 21.2 | 21.6 |
|                              | 3H  | 21.2                | 22.1 | 21.6 | 22.5 | 22.9 | 20.8               | 21.7 | 21.3 | 22.1 | 22.5 |
|                              | 4H  | 21.7                | 22.4 | 22.1 | 22.9 | 23.3 | 21.3               | 22.1 | 21.7 | 22.5 | 22.9 |
|                              | 6H  | 22.2                | 22.9 | 22.7 | 23.3 | 23.8 | 21.6               | 22.3 | 22.1 | 22.8 | 23.2 |
|                              | 8H  | 22.5                | 23.1 | 23.0 | 23.6 | 24.1 | 21.8               | 22.4 | 22.3 | 22.8 | 23.3 |
|                              | 12H | 22.9                | 23.4 | 23.4 | 23.9 | 24.4 | 22.0               | 22.5 | 22.4 | 22.9 | 23.4 |
| 8H                           | 4H  | 21.8                | 22.4 | 22.3 | 22.9 | 23.3 | 21.5               | 22.1 | 22.0 | 22.5 | 23.0 |
|                              | 6H  | 22.5                | 23.0 | 23.0 | 23.5 | 24.0 | 21.9               | 22.4 | 22.4 | 22.9 | 23.4 |
|                              | 8H  | 23.0                | 23.4 | 23.5 | 23.9 | 24.4 | 22.1               | 22.6 | 22.6 | 23.0 | 23.6 |
|                              | 12H | 23.5                | 23.8 | 24.0 | 24.3 | 24.9 | 22.3               | 22.7 | 22.9 | 23.2 | 23.7 |
| 12H                          | 4H  | 21.8                | 22.3 | 22.3 | 22.8 | 23.3 | 21.5               | 22.0 | 22.0 | 22.5 | 23.0 |
|                              | 6H  | 22.6                | 23.0 | 23.1 | 23.5 | 24.0 | 22.0               | 22.4 | 22.5 | 22.9 | 23.5 |
|                              | 8H  | 23.1                | 23.4 | 23.6 | 23.9 | 24.5 | 22.2               | 22.6 | 22.8 | 23.1 | 23.7 |

| Luminance table |          | Max. for $\gamma \geq 65^\circ$ |         | Photometric dimensions in mm: |         | L = 612 | H(C0) = 21  | H(C180) = 21 |
|-----------------|----------|---------------------------------|---------|-------------------------------|---------|---------|-------------|--------------|
|                 |          |                                 |         |                               |         | B = 330 | H(C90) = 21 | H(C270) = 21 |
| C-planes        | $\gamma$ | 0°                              | 15°     | 30°                           | 45°     | 60°     | 75°         | 90°          |
|                 |          | 180°                            | 165°    | 150°                          | 135°    | 120°    | 105°        | 270°         |
|                 |          | 195°                            | 195°    | 210°                          | 225°    | 240°    | 255°        |              |
|                 |          | 345°                            | 345°    | 330°                          | 315°    | 300°    | 285°        |              |
|                 |          | Luminance in cd/m <sup>2</sup>  |         |                               |         |         |             |              |
| 45°             |          | 24958.7                         | 23170.1 | 19426.2                       | 17540.6 | 19650.7 | 22801.9     | 24540.3      |
| 50°             |          | 19472.2                         | 18334.5 | 15913.4                       | 14537.3 | 15791.2 | 17453.1     | 18363.6      |
| 55°             |          | 16361.4                         | 15829.7 | 14426.0                       | 13298.5 | 13571.9 | 14164.9     | 14635.0      |
| 60°             |          | 14843.0                         | 14130.2 | 13560.3                       | 12788.8 | 12367.6 | 12120.6     | 12387.9      |
| 65°             |          | 12351.5                         | 12345.1 | 12455.8                       | 12057.0 | 11767.3 | 11111.5     | 11206.5      |
| 70°             |          | 10238.7                         | 9970.5  | 10163.0                       | 9804.7  | 10004.3 | 10217.3     | 10844.8      |
| 75°             |          | 9632.8                          | 9266.1  | 9073.7                        | 8407.8  | 8247.8  | 8929.9      | 10160.1      |
| 80°             |          | 10644.1                         | 9939.1  | 9745.9                        | 8860.1  | 7671.8  | 7164.9      | 7838.0       |
| 85°             |          | 12425.4                         | 11516.1 | 11470.3                       | 9710.0  | 7772.2  | 7445.9      | 8949.5       |

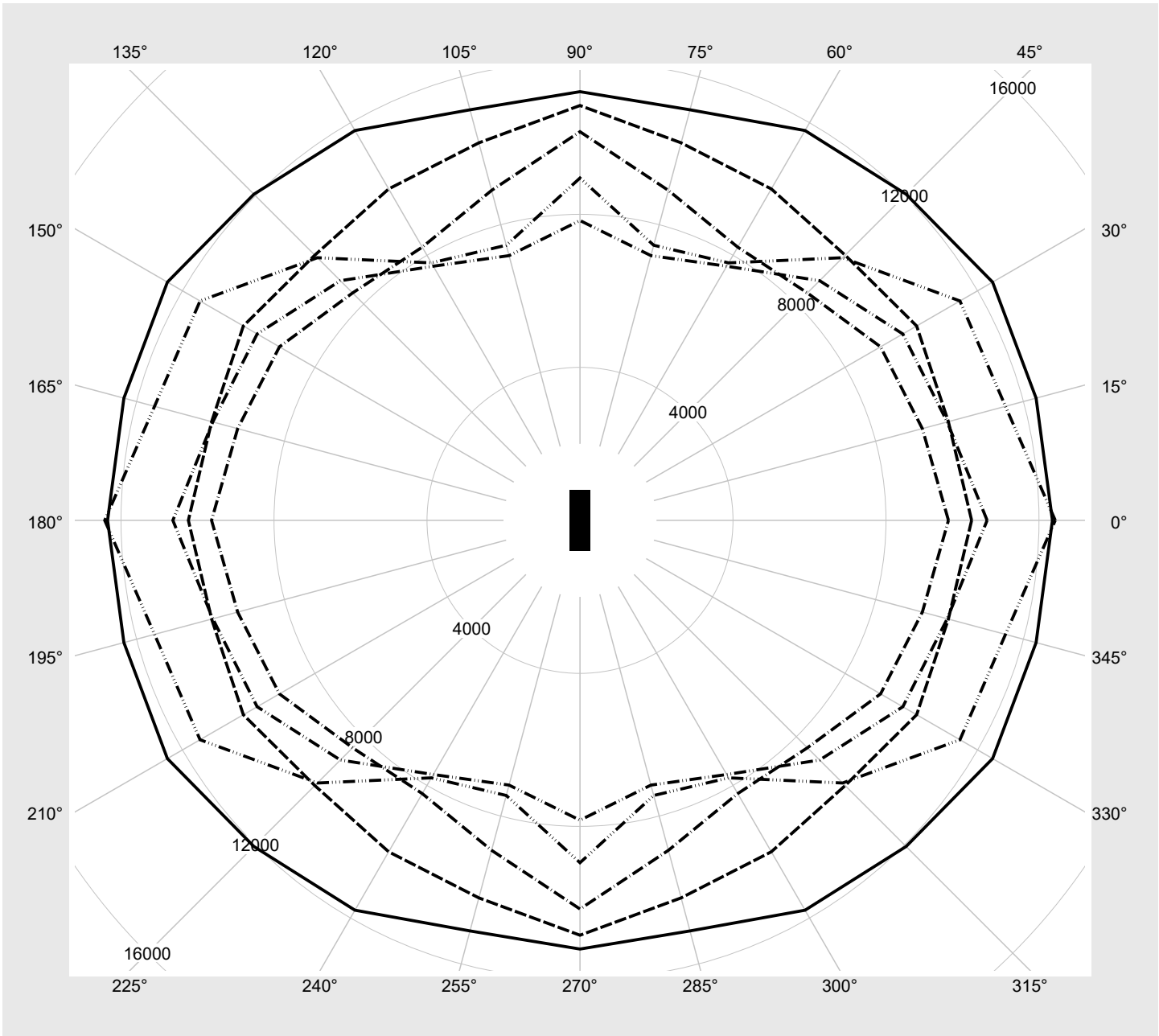
**Photometric test report**

|                             |  |                              |
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|-----------------------------|--|------------------------------|

**Luminance values in cd/m<sup>2</sup>**

$\gamma$  65°   
   $\gamma$  70°   
   $\gamma$  75°   
   $\gamma$  80°   
   $\gamma$  85°

**siteco**



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|                             |                                 |               |
|-----------------------------|---------------------------------|---------------|
| <b>Dimming levels table</b> | environmental temperature: 25°C | <b>siteco</b> |
|-----------------------------|---------------------------------|---------------|

| Luminous flux % | Dimming level linear | Dimming level logarithmic | Luminous flux [lm] | Power consumption [W] |
|-----------------|----------------------|---------------------------|--------------------|-----------------------|
| 100             | 254                  | 254                       | 30010              | 189.6                 |
| 95              | 240                  | 252                       | 28471              | 179.0                 |
| 90              | 227                  | 250                       | 27025              | 169.1                 |
| 85              | 213                  | 248                       | 25456              | 158.4                 |
| 80              | 200                  | 245                       | 23985              | 148.5                 |
| 75              | 187                  | 243                       | 22499              | 139.0                 |
| 70              | 174                  | 240                       | 21004              | 129.4                 |
| 65              | 161                  | 237                       | 19493              | 119.8                 |
| 60              | 148                  | 234                       | 17974              | 110.4                 |
| 55              | 136                  | 231                       | 16549              | 101.5                 |
| 50              | 123                  | 227                       | 15004              | 92.1                  |
| 45              | 110                  | 223                       | 13445              | 82.8                  |
| 40              | 98                   | 219                       | 11994              | 74.2                  |
| 35              | 86                   | 214                       | 10532              | 65.6                  |
| 30              | 74                   | 209                       | 9056               | 57.1                  |
| 25              | 61                   | 202                       | 7449               | 48.1                  |
| 20              | 49                   | 194                       | 5955               | 39.5                  |
| 15              | 37                   | 183                       | 4449               | 31.2                  |
| 10              | 26                   | 171                       | 3051               | 23.3                  |
| 5               | 14                   | 148                       | 1524               | 14.9                  |
| 1               | 4                    | 102                       | 242                | 7.9                   |