# Photometric test report

**Family**
**Silica® 21**

## Order number: 51MX24TAT4W
## EAN: 4058352685167

**LP number**
**59276_66**

**serial documentation**
**03.05.2023**

| | |
|---|---|
| **Version** | surface-mounted luminaire, reflector, black, direct distribution, asymmetric distribution, tunable white |
| **Lamps** | LED 4000 K \| CRI ≥ 80 |
| **Controlgear** | ECG-DALI |
| **Setting** | factory setting |
| **Rated values** | Net luminous flux = 3280 lm<br>Power consumption = 34.1 W<br>Luminous efficacy = 96.2 lm/W |

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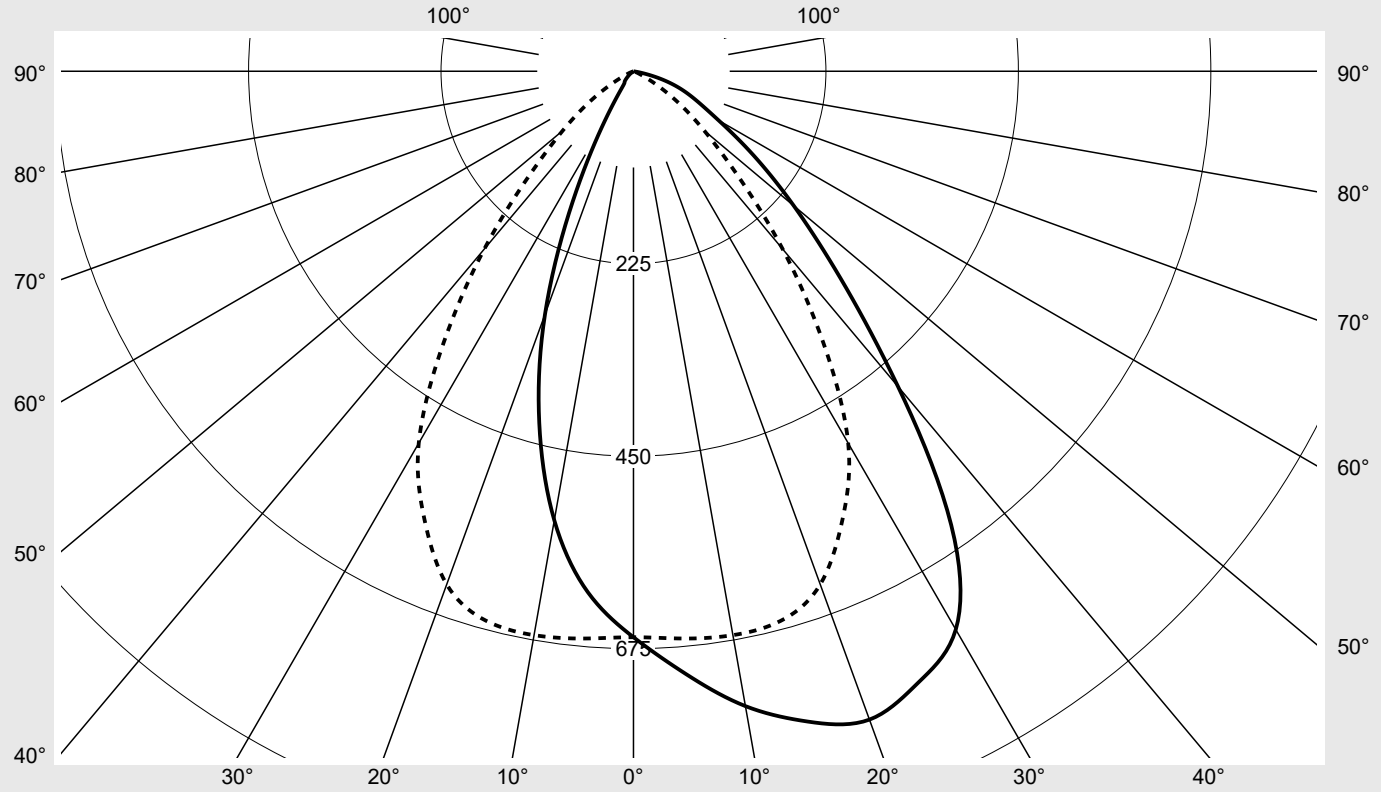
**Luminous intensity in cd/klm** C180-0 C270-90 **Imax: 826 cd/klm**




**Classifications**

| | |
|---|---|
| DIN 5040 | A 6 0 |
| CIE | N1=74 N2=94 N3=99 N4=100 N5=100 |

**Luminaire light output ratios**

| | |
|---|---|
| ηLB | 100.0% |
| $\phi_u$ | 100.0% |
| $\phi_o$ | 0.0% |

**Measurement conditions**

DIN EN 13032 and DIN 5032

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### Table of values for luminous intensities

Maximum luminous intensity

| C-planes | 0° | 15° 345° | 30° 330° | 45° 315° | 60° 300° | 75° 285° | 90° 270° |
|---|---|---|---|---|---|---|---|
| γ | Luminous intensity in cd/klm | | | | | | |
| 0° | 661.7 | 661.7 | 661.7 | 661.7 | 661.7 | 661.7 | 661.7 |
| 5° | 707.6 | 708.8 | 701.1 | 699.3 | 690.5 | 675.5 | 665.7 |
| 10° | 753.6 | 757.8 | 748.0 | 742.6 | 724.7 | 696.1 | 669.4 |
| 15° | 787.1 | 797.8 | 794.5 | 785.9 | 757.5 | 712.8 | 665.2 |
| 20° | 806.6 | 820.5 | 826.5 | 809.8 | 762.2 | 699.9 | 638.5 |
| 25° | 788.4 | 808.5 | 803.3 | 771.2 | 718.7 | 652.8 | 578.2 |
| 30° | 753.6 | 764.4 | 743.7 | 689.2 | 630.6 | 560.4 | 502.1 |
| 35° | 647.7 | 641.5 | 628.6 | 587.6 | 522.2 | 450.6 | 386.5 |
| 40° | 481.1 | 487.8 | 495.5 | 479.3 | 412.9 | 335.0 | 271.3 |
| 45° | 342.4 | 353.2 | 375.0 | 376.0 | 318.8 | 233.5 | 172.1 |
| 50° | 244.7 | 248.8 | 274.8 | 282.8 | 235.7 | 157.9 | 107.9 |
| 55° | 171.3 | 177.5 | 199.4 | 208.0 | 176.1 | 105.7 | 63.9 |
| 60° | 115.1 | 122.4 | 144.6 | 155.8 | 127.0 | 61.7 | 29.2 |
| 65° | 81.5 | 86.1 | 102.4 | 113.9 | 84.3 | 29.7 | 9.5 |
| 70° | 56.7 | 63.4 | 75.3 | 76.6 | 47.3 | 14.7 | 3.6 |
| 75° | 29.5 | 36.2 | 51.5 | 39.1 | 25.8 | 8.2 | 1.2 |
| 80° | 5.4 | 7.7 | 15.3 | 17.0 | 11.4 | 3.4 | 0.5 |
| 85° | 1.1 | 1.3 | 2.4 | 2.3 | 0.8 | 0.3 | 0.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 95° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 100° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 105° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 110° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 115° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 120° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 125° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 130° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 135° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 140° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 145° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 150° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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### Table of values for luminous intensities

Maximum luminous intensity

| C-planes | 105° 255° | 120° 240° | 135° 225° | 150° 210° | 165° 195° | 180° | Phi-zone | Total Phi-zone |
|---|---|---|---|---|---|---|---|---|
| γ | Luminous intensity in cd/klm | | | | | | Luminous flux in lm/klm | |
| 0° | 661.7 | 661.7 | 661.7 | 661.7 | 661.7 | 661.7 | 4.0 | 4.0 |
| 5° | 650.2 | 639.3 | 625.2 | 613.2 | 610.8 | 611.4 | 31.6 | 35.6 |
| 10° | 635.2 | 606.4 | 576.8 | 550.6 | 537.8 | 533.0 | 62.6 | 98.1 |
| 15° | 612.2 | 559.4 | 505.1 | 459.9 | 436.0 | 425.6 | 90.9 | 189.1 |
| 20° | 565.1 | 489.6 | 412.9 | 351.3 | 314.5 | 302.5 | 113.2 | 302.3 |
| 25° | 497.5 | 409.8 | 322.4 | 247.7 | 191.9 | 168.1 | 125.1 | 427.4 |
| 30° | 412.4 | 312.9 | 216.8 | 129.1 | 80.3 | 67.5 | 124.5 | 551.9 |
| 35° | 304.3 | 218.0 | 125.8 | 57.5 | 28.2 | 23.1 | 112.3 | 664.2 |
| 40° | 195.6 | 132.8 | 62.5 | 24.4 | 17.4 | 16.1 | 92.9 | 757.1 |
| 45° | 117.9 | 72.0 | 27.4 | 15.9 | 12.0 | 11.0 | 72.7 | 829.8 |
| 50° | 70.5 | 38.1 | 14.7 | 10.4 | 7.3 | 6.2 | 55.1 | 884.8 |
| 55° | 41.0 | 19.6 | 9.0 | 6.3 | 3.7 | 3.2 | 41.1 | 925.9 |
| 60° | 17.5 | 9.3 | 5.4 | 3.7 | 2.8 | 2.3 | 29.2 | 955.1 |
| 65° | 5.6 | 4.4 | 3.2 | 2.6 | 1.9 | 1.3 | 20.1 | 975.2 |
| 70° | 2.1 | 2.0 | 1.8 | 1.4 | 1.0 | 0.6 | 13.6 | 988.8 |
| 75° | 0.8 | 0.9 | 0.9 | 0.8 | 0.6 | 0.5 | 8.0 | 996.8 |
| 80° | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 2.7 | 999.5 |
| 85° | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.5 | 1000.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 95° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 100° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 105° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 110° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 115° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 120° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 125° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 130° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 135° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1000.0 |
| 140° | 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 | 1000.0 |
| 150° | 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 | 1000.0 |
| 160° | 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 | 1000.0 |
| 170° | 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 | 1000.0 |
| 180° | 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 x | y | View crosswise (C0) | | | | | View endwise (C90) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2H | 2H | 23.8 | 25.2 | 24.1 | 25.5 | 25.8 | 19.7 | 21.1 | 20.0 | 21.4 | 21.7 |
| | 3H | 24.3 | 25.5 | 24.7 | 25.9 | 26.2 | 19.6 | 20.9 | 20.0 | 21.2 | 21.6 |
| | 4H | 24.4 | 25.6 | 24.8 | 25.9 | 26.3 | 19.6 | 20.7 | 20.0 | 21.1 | 21.4 |
| | 6H | 24.4 | 25.5 | 24.8 | 25.8 | 26.2 | 19.5 | 20.5 | 19.9 | 20.9 | 21.3 |
| | 8H | 24.4 | 25.4 | 24.8 | 25.8 | 26.2 | 19.5 | 20.5 | 19.9 | 20.8 | 21.2 |
| | 12H | 24.4 | 25.3 | 24.9 | 25.7 | 26.1 | 19.5 | 20.4 | 19.9 | 20.8 | 21.2 |
| 4H | 2H | 24.2 | 25.3 | 24.6 | 25.7 | 26.0 | 20.4 | 21.6 | 20.8 | 21.9 | 22.3 |
| | 3H | 24.9 | 25.9 | 25.4 | 26.3 | 26.7 | 20.6 | 21.5 | 21.0 | 21.9 | 22.3 |
| | 4H | 25.2 | 26.0 | 25.6 | 26.4 | 26.9 | 20.5 | 21.4 | 21.0 | 21.8 | 22.2 |
| | 6H | 25.2 | 25.9 | 25.7 | 26.4 | 26.8 | 20.5 | 21.2 | 20.9 | 21.6 | 22.1 |
| | 8H | 25.2 | 25.8 | 25.6 | 26.3 | 26.8 | 20.5 | 21.1 | 20.9 | 21.6 | 22.0 |
| | 12H | 25.2 | 25.7 | 25.7 | 26.2 | 26.7 | 20.4 | 21.0 | 20.9 | 21.5 | 22.0 |
| 8H | 4H | 25.3 | 25.9 | 25.7 | 26.4 | 26.8 | 20.8 | 21.4 | 21.3 | 21.9 | 22.4 |
| | 6H | 25.3 | 25.8 | 25.8 | 26.3 | 26.8 | 20.8 | 21.3 | 21.3 | 21.8 | 22.3 |
| | 8H | 25.3 | 25.7 | 25.8 | 26.2 | 26.7 | 20.7 | 21.2 | 21.2 | 21.7 | 22.2 |
| | 12H | 25.2 | 25.6 | 25.8 | 26.1 | 26.7 | 20.7 | 21.1 | 21.2 | 21.6 | 22.1 |
| 12H | 4H | 25.3 | 25.8 | 25.8 | 26.3 | 26.8 | 20.8 | 21.4 | 21.3 | 21.8 | 22.3 |
| | 6H | 25.3 | 25.7 | 25.8 | 26.2 | 26.8 | 20.8 | 21.2 | 21.3 | 21.7 | 22.2 |
| | 8H | 25.3 | 25.6 | 25.8 | 26.1 | 26.7 | 20.8 | 21.1 | 21.3 | 21.6 | 22.2 |

### Luminance table

Max. for $\gamma >= 65°$

Photometric dimensions in mm: L = 1176, B = 49

| C-planes | 0° | 15° 345° | 30° 330° | 45° 315° | 60° 300° | 75° 285° | 90° 270° | 105° 255° | 120° 240° | 135° 225° | 150° 210° | 165° 195° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| γ | Luminance in cd/m² | | | | | | | | | | | | |
| 45° | 27562.9 | 28428.1 | 30184.7 | 30263.3 | 25666.6 | 18797.7 | 13852.3 | 9489.8 | 5799.2 | 2204.0 | 1276.8 | 969.2 | 887.9 |
| 50° | 21668.8 | 22034.2 | 24331.8 | 25043.2 | 20871.0 | 13979.9 | 9555.8 | 6242.1 | 3377.2 | 1298.8 | 921.0 | 647.9 | 548.0 |
| 55° | 17000.6 | 17614.7 | 19791.0 | 20642.1 | 17474.7 | 10488.0 | 6337.0 | 4073.4 | 1945.7 | 894.2 | 625.9 | 371.6 | 316.8 |
| 60° | 13100.4 | 13932.1 | 16460.8 | 17732.5 | 14462.4 | 7018.7 | 3324.5 | 1989.8 | 1061.7 | 617.9 | 418.9 | 315.1 | 267.0 |
| 65° | 10972.2 | 11595.1 | 13794.3 | 15339.8 | 11352.4 | 3997.6 | 1276.4 | 758.8 | 589.3 | 437.2 | 343.6 | 252.9 | 172.5 |
| 70° | 9442.1 | 10551.3 | 12528.0 | 12744.8 | 7864.7 | 2441.0 | 596.3 | 348.7 | 337.8 | 298.1 | 236.7 | 168.1 | 101.2 |
| 75° | 6479.9 | 7957.8 | 11329.0 | 8595.1 | 5684.8 | 1807.3 | 269.8 | 169.6 | 200.6 | 190.9 | 169.6 | 141.0 | 109.7 |
| 80° | 1765.2 | 2519.4 | 5028.4 | 5576.4 | 3743.7 | 1121.1 | 167.2 | 149.5 | 167.2 | 174.4 | 167.2 | 142.3 | 128.2 |
| 85° | 709.3 | 871.9 | 1595.5 | 1509.9 | 510.7 | 226.6 | 205.7 | 241.0 | 262.5 | 269.7 | 255.4 | 220.1 | 198.5 |

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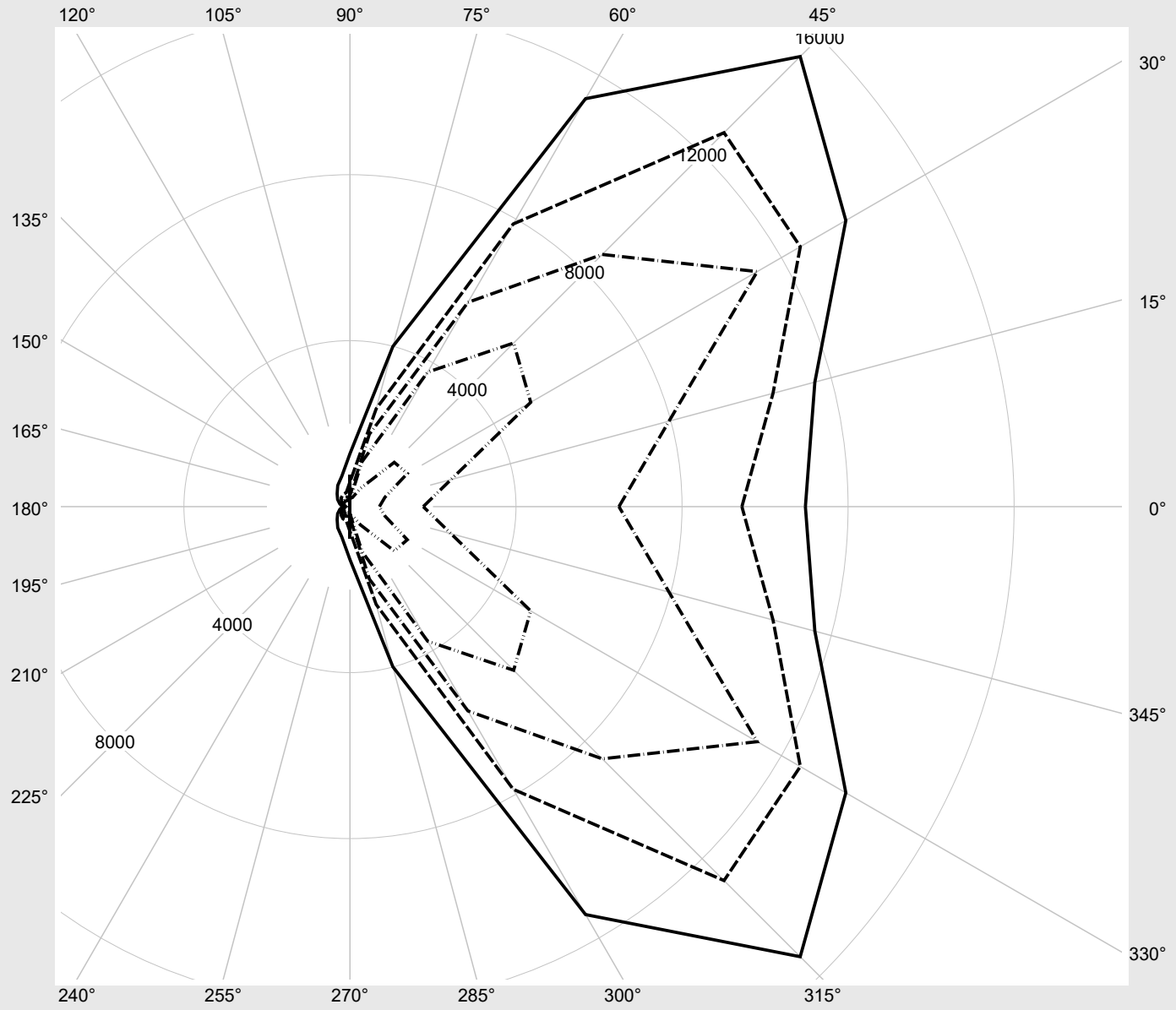
|---|---|---|
| **Silica® 21** | **EAN: 4058352685167** | **59276_66** |

**Luminance values in cd/m²**

γ 65° γ 70° γ 75° γ 80° γ 85°