

LUMINAIRE PHOTOMETRIC TEST REPORT

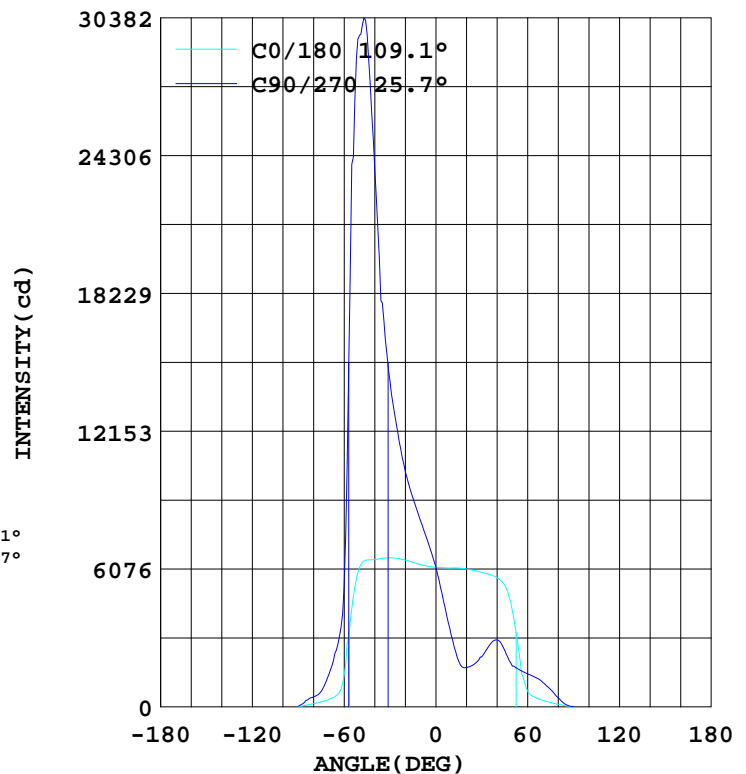
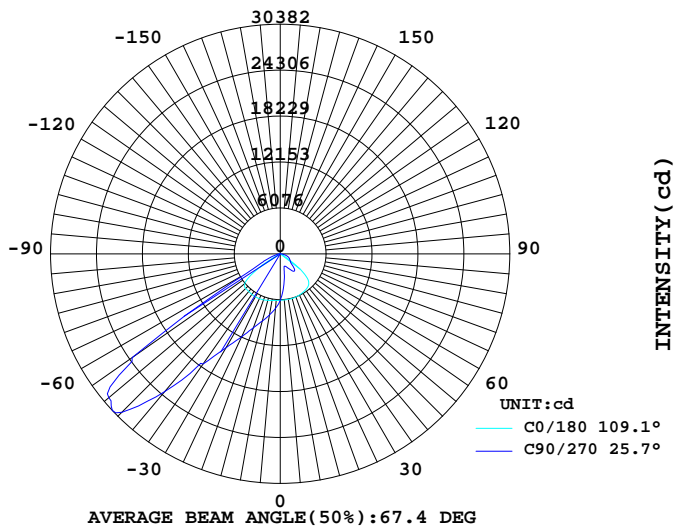
Report number:

| | | |
|--|--------------------------|-------------|
| MANUFACTURER: ILUMEN GMBH | Address: | |
| NAME: Kroos | TYPE: IL-SL13-N20040-P50 | WEIGHT: |
| SPECIFICATION: 5050LED 4000K P50 30X110° | DIMENSION: | SERIAL No.: |

| | | | | | |
|------------------|---------|--------------------|---------|------------------|-------|
| DATA OF LAMP | | Imax(cd) | 33343 | S/MH(C0/180) | 1.61 |
| MODEL | | EFFICIENCY(%) | 100.0 | S/MH(C90/270) | 2.27 |
| NOMINAL POWER(W) | 200 | TOTAL FLUX(lm) | 29000 | Voltage(V) | 230.1 |
| RATED VOLTAGE(V) | 230 | EFFICIENCY(lm/W) | 145.0 | Current(A) | 0.869 |
| NOMINAL FLUX(lm) | 29000.0 | η up(%) | 0.0 | Power(W) | 200.0 |
| LAMPS QUANTITY | 1 | η down(%) | 100.0 | Power Factor(PF) | 0.999 |
| TEST VOLTAGE(V) | 230.2 | Effective Flux(lm) | 29000.0 | EEI | 0.103 |

LUMINOUS INTENSITY DISTRIBUTION

LUMINOUS INTENSITY DISTRIBUTION



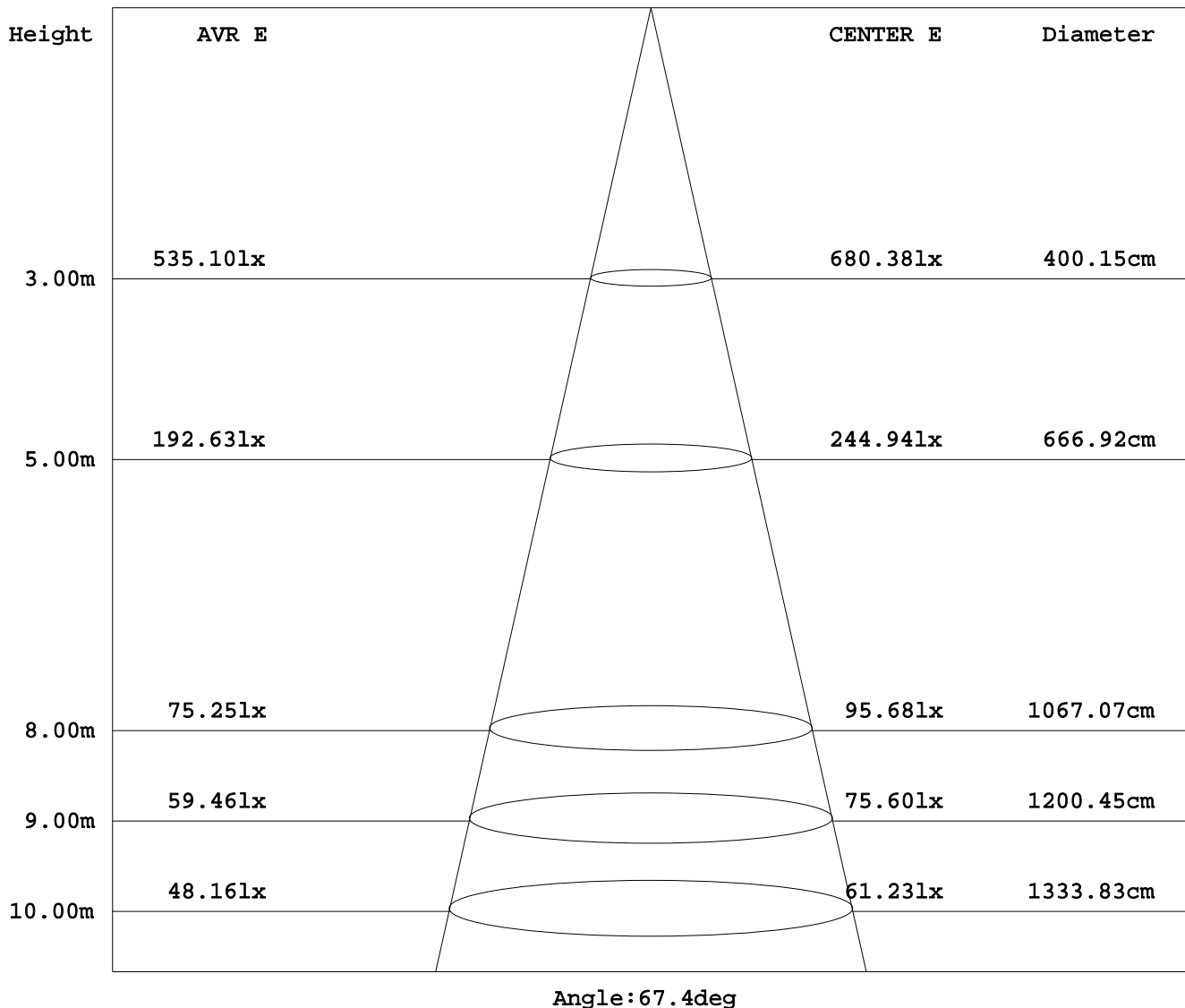
Test System:
 Temperature: 25.3 DEG
 Operators:
 Test Date: 2025.02.20

Test Set: 5.0deg/s C-Gamma (TYPE C)
 Humidity: 65.0%
 Test Distance: 10.000 m
 Remarks:

AVERAGE AND CENTER E Figure

Report number:

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| MANUFACTURER: ILUMEN GMBH | Address: | |
| NAME: Kroos | TYPE:IL-SL13-N20040-P50 | WEIGHT: |
| SPECIFICATION:5050LED 4000K P50 30X110° | DIMENSION: | SERIAL No.: |



Test System:
 Temperature:25.3DEG
 Operators:
 Test Date:2025.02.20

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 Humidity:65.0%
 Test Distance:10.000 m
 Remarks:

ZONAL FLUX DIAGRAM

Report number:

| | | |
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| MANUFACTURER: ILUMEN GMBH | Address: | |
| NAME: Kroos | TYPE:IL-SL13-N20040-P50 | WEIGHT: |
| SPECIFICATION:5050LED 4000K P50 30X110° | DIMENSION: | SERIAL No.: |

| γ | C0 | C45 | C90 | C135 | C180 | C225 | C270 | C315 | γ | zone | total |
|-------|--------------------------|-------|-------|-------|-------|-------|-------|-------|---------|---------|-------|
| 5.0 | 619.8 | 700.1 | 722.0 | 687.9 | 612.7 | 505.3 | 466.4 | 522.1 | 0- 5 | 145.7 | 145.7 |
| 10.0 | 626.9 | 779.2 | 819.7 | 760.8 | 612.4 | 393.9 | 317.3 | 419.8 | 5- 10 | 427.2 | 572.9 |
| 15.0 | 637.6 | 862.7 | 921.4 | 839.5 | 612.0 | 291.6 | 200.1 | 325.9 | 10- 15 | 697.2 | 1270 |
| 20.0 | 647.4 | 957.4 | 1039 | 927.4 | 608.0 | 213.9 | 173.5 | 235.3 | 15- 20 | 973.7 | 2244 |
| 25.0 | 654.5 | 1053 | 1212 | 1021 | 601.5 | 172.5 | 188.3 | 177.9 | 20- 25 | 1291 | 3535 |
| 30.0 | 657.6 | 1157 | 1435 | 1120 | 593.2 | 167.3 | 220.5 | 154.5 | 25- 30 | 1668 | 5203 |
| 35.0 | 655.5 | 1292 | 1781 | 1244 | 583.8 | 178.1 | 272.0 | 157.5 | 30- 35 | 2138 | 7341 |
| 40.0 | 649.1 | 1499 | 2382 | 1437 | 569.8 | 194.4 | 295.2 | 166.7 | 35- 40 | 2781 | 10122 |
| 45.0 | 648.1 | 1926 | 2966 | 1807 | 535.7 | 211.7 | 248.9 | 179.9 | 40- 45 | 3699 | 13821 |
| 50.0 | 613.9 | 2470 | 2960 | 2187 | 424.0 | 207.2 | 180.4 | 175.7 | 45- 50 | 4623 | 18444 |
| 55.0 | 432.7 | 2553 | 2392 | 2056 | 208.1 | 143.1 | 162.1 | 137.4 | 50- 55 | 4849 | 23294 |
| 60.0 | 137.0 | 1561 | 530.1 | 818.2 | 69.16 | 106.8 | 145.9 | 93.52 | 55- 60 | 3414 | 26708 |
| 65.0 | 50.89 | 197.4 | 250.7 | 110.8 | 41.48 | 86.87 | 130.2 | 76.56 | 60- 65 | 1208 | 27915 |
| 70.0 | 33.37 | 53.88 | 142.6 | 44.53 | 28.49 | 66.06 | 107.6 | 56.14 | 65- 70 | 497.0 | 28412 |
| 75.0 | 23.39 | 28.77 | 68.05 | 24.19 | 19.39 | 38.02 | 76.77 | 31.85 | 70- 75 | 301.6 | 28714 |
| 80.0 | 14.38 | 16.27 | 44.16 | 13.73 | 11.62 | 14.74 | 39.22 | 13.47 | 75- 80 | 176.2 | 28890 |
| 85.0 | 6.939 | 7.930 | 27.62 | 6.607 | 4.774 | 3.764 | 10.44 | 4.108 | 80- 85 | 84.17 | 28974 |
| 90.0 | 1.584 | 2.383 | 3.167 | 1.973 | 1.429 | 1.349 | 2.004 | 1.244 | 85- 90 | 25.55 | 29000 |
| 95.0 | | | | | | | | | 90- 95 | | |
| 100.0 | | | | | | | | | 95-100 | | |
| 105.0 | | | | | | | | | 100-105 | | |
| 110.0 | | | | | | | | | 105-110 | | |
| 115.0 | | | | | | | | | 110-115 | | |
| 120.0 | | | | | | | | | 115-120 | | |
| 125.0 | | | | | | | | | 120-125 | | |
| 130.0 | | | | | | | | | 125-130 | | |
| 135.0 | | | | | | | | | 130-135 | | |
| 140.0 | | | | | | | | | 135-140 | | |
| 145.0 | | | | | | | | | 140-145 | | |
| 150.0 | | | | | | | | | 145-150 | | |
| 155.0 | | | | | | | | | 150-155 | | |
| 160.0 | | | | | | | | | 155-160 | | |
| 165.0 | | | | | | | | | 160-165 | | |
| 170.0 | | | | | | | | | 165-170 | | |
| 175.0 | | | | | | | | | 170-175 | | |
| 180.0 | | | | | | | | | 175-180 | | |
| DEG | LUMINOUS INTENSITY:×10cd | | | | | | | | | UNIT:lm | |

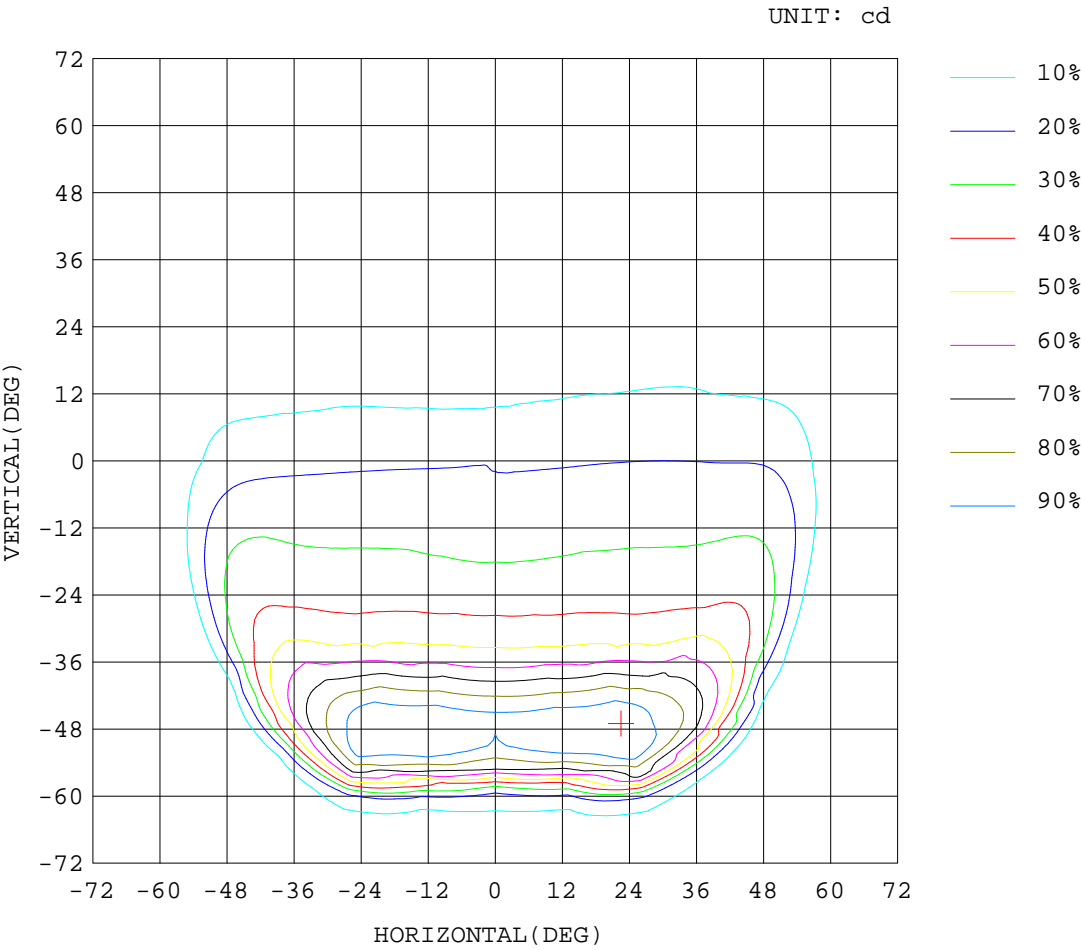
Test System:
 Temperature:25.3DEG
 Operators:
 Test Date:2025.02.20

Test Set: 5.0deg/s C-Gamma (TYPE C)
 Humidity:65.0%
 Test Distance:10.000 m
 Remarks:

ISOCANDELA DIAGRAM

Report number:

| | | |
|---|-------------------------|-------------|
| MANUFACTURER: ILUMEN GMBH | Address: | |
| NAME: Kroos | TYPE:IL-SL13-N20040-P50 | WEIGHT: |
| SPECIFICATION:5050LED 4000K P50 30X110° | DIMENSION: | SERIAL No.: |



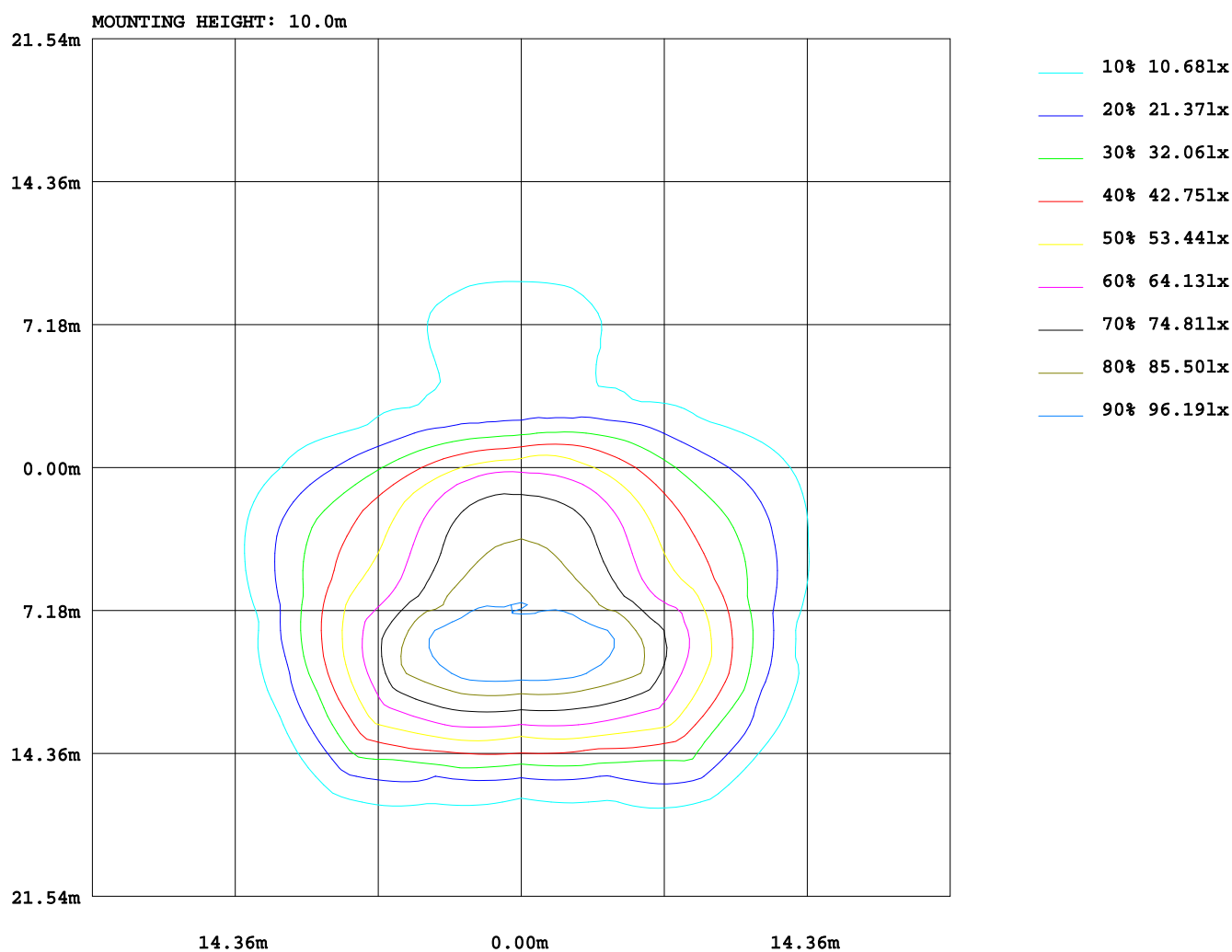
Test System:
Temperature:25.3DEG
Operators:
Test Date:2025.02.20

Test Set: 5.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:10.000 m
Remarks:

ISOLUX DIAGRAM

Report number:

| | | |
|--|--------------------------|-------------|
| MANUFACTURER: ILUMEN GMBH | Address: | |
| NAME: Kroos | TYPE: IL-SL13-N20040-P50 | WEIGHT: |
| SPECIFICATION: 5050LED 4000K P50 30X110° | DIMENSION: | SERIAL No.: |



Test System:
Temperature: 25.3DEG
Operators:
Test Date: 2025.02.20

Test Set: 5.0deg/s C-Gamma (TYPE C)
Humidity: 65.0%
Test Distance: 10.000 m
Remarks:

Uncorrected UGR Table

Report number:

| | | | | |
|---|-------------------------|--|-------------|--|
| MANUFACTURER: ILUMEN GMBH | Address: | | | |
| NAME: Kroos | TYPE:IL-SL13-N20040-P50 | | WEIGHT: | |
| SPECIFICATION:5050LED 4000K P50 30X110° | DIMENSION: | | SERIAL No.: | |

| | | | | | | | | | | |
|-----------------|------------------|------|------|------|------|----------------|------|------|------|------|
| 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 | 34.6 | 36.2 | 34.9 | 36.4 | 36.6 | 40.8 | 42.4 | 41.1 | 42.6 | 42.8 |
| 3H | 34.4 | 35.8 | 34.7 | 36.0 | 36.3 | 40.6 | 42.1 | 40.9 | 42.3 | 42.5 |
| 4H | 34.3 | 35.6 | 34.6 | 35.9 | 36.1 | 40.5 | 41.9 | 40.9 | 42.1 | 42.4 |
| 6H | 34.2 | 35.4 | 34.5 | 35.7 | 36.0 | 40.4 | 41.7 | 40.8 | 42.0 | 42.3 |
| 8H | 34.1 | 35.3 | 34.5 | 35.6 | 35.9 | 40.4 | 41.6 | 40.7 | 41.9 | 42.2 |
| 12H | 34.1 | 35.2 | 34.4 | 35.5 | 35.8 | 40.4 | 41.5 | 40.7 | 41.8 | 42.1 |
| 4H 2H | 36.2 | 37.6 | 36.5 | 37.8 | 38.1 | 40.7 | 42.1 | 41.0 | 42.3 | 42.6 |
| 3H | 36.0 | 37.2 | 36.4 | 37.5 | 37.8 | 40.6 | 41.8 | 40.9 | 42.0 | 42.3 |
| 4H | 35.9 | 37.0 | 36.3 | 37.3 | 37.6 | 40.5 | 41.6 | 40.9 | 41.9 | 42.2 |
| 6H | 35.8 | 36.8 | 36.2 | 37.1 | 37.5 | 40.5 | 41.4 | 40.8 | 41.7 | 42.1 |
| 8H | 35.8 | 36.6 | 36.2 | 37.0 | 37.4 | 40.4 | 41.3 | 40.8 | 41.6 | 42.0 |
| 12H | 35.8 | 36.5 | 36.2 | 36.9 | 37.3 | 40.4 | 41.2 | 40.8 | 41.5 | 41.9 |
| 8H 4H | 35.8 | 36.7 | 36.2 | 37.0 | 37.4 | 40.4 | 41.2 | 40.8 | 41.6 | 42.0 |
| 6H | 35.7 | 36.4 | 36.2 | 36.8 | 37.3 | 40.3 | 41.0 | 40.8 | 41.4 | 41.8 |
| 8H | 35.7 | 36.3 | 36.2 | 36.7 | 37.2 | 40.3 | 40.9 | 40.8 | 41.3 | 41.8 |
| 12H | 35.7 | 36.2 | 36.2 | 36.6 | 37.1 | 40.3 | 40.8 | 40.8 | 41.2 | 41.7 |
| 12H 4H | 35.8 | 36.5 | 36.2 | 36.9 | 37.3 | 40.4 | 41.1 | 40.8 | 41.5 | 41.9 |
| 6H | 35.7 | 36.3 | 36.2 | 36.7 | 37.2 | 40.3 | 40.9 | 40.8 | 41.3 | 41.8 |
| 8H | 35.7 | 36.2 | 36.2 | 36.6 | 37.1 | 40.3 | 40.8 | 40.7 | 41.2 | 41.7 |

Variations with the observer position at spacings:

| | | |
|----------|---------------|---------------|
| S = 1.0H | + 2.1 / - 4.9 | + 1.9 / - 2.5 |
| 1.5H | + 1.9 / - 4.4 | + 3.3 / - 6.2 |
| 2.0H | + 5.8 / -13.2 | + 2.3 / - 9.2 |

CIE Pub.117 Corrected 29000 lm Total Lamp Luminous Flux.(8log(F/F0) = 11.7)

Test System:
Temperature:25.3DEG
Operators:
Test Date:2025.02.20

Test Set: 5.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:10.000 m
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Report number:

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|---|---------------------------------|--------------------|
| MANUFACTURER: ILUMEN GMBH | Address: | |
| NAME: Kroos | TYPE: IL-SL13-N20040-P50 | WEIGHT: |
| SPECIFICATION: 5050LED 4000K P50 30X110° | DIMENSION: | SERIAL No.: |

UNIT: ×10cd

| C (DEG) γ (DEG) | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 | 195 | 210 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0.0 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 |
| 5.0 | 620 | 651 | 678 | 700 | 714 | 723 | 722 | 718 | 705 | 688 | 665 | 641 | 613 | 575 | 539 |
| 10.0 | 627 | 688 | 738 | 779 | 804 | 820 | 820 | 813 | 789 | 761 | 719 | 669 | 612 | 534 | 459 |
| 15.0 | 638 | 729 | 803 | 863 | 901 | 923 | 921 | 915 | 883 | 840 | 777 | 701 | 612 | 493 | 383 |
| 20.0 | 647 | 770 | 870 | 957 | 1001 | 1034 | 1039 | 1023 | 980 | 927 | 838 | 733 | 608 | 450 | 307 |
| 25.0 | 655 | 808 | 940 | 1053 | 1125 | 1194 | 1212 | 1185 | 1102 | 1021 | 898 | 765 | 602 | 407 | 238 |
| 30.0 | 658 | 846 | 1012 | 1157 | 1303 | 1410 | 1435 | 1407 | 1280 | 1120 | 960 | 799 | 593 | 355 | 179 |
| 35.0 | 656 | 887 | 1088 | 1292 | 1555 | 1733 | 1781 | 1737 | 1528 | 1244 | 1030 | 839 | 584 | 286 | 148 |
| 40.0 | 649 | 941 | 1188 | 1499 | 2007 | 2342 | 2382 | 2354 | 1959 | 1437 | 1130 | 897 | 570 | 208 | 137 |
| 45.0 | 648 | 1023 | 1345 | 1926 | 2738 | 2987 | 2966 | 2996 | 2652 | 1807 | 1282 | 966 | 536 | 129 | 128 |
| 50.0 | 614 | 1055 | 1498 | 2470 | 3305 | 3111 | 2960 | 3143 | 3177 | 2187 | 1344 | 942 | 424 | 92.6 | 118 |
| 55.0 | 433 | 770 | 1272 | 2553 | 3306 | 2598 | 2392 | 2694 | 3115 | 2056 | 952 | 573 | 208 | 74.1 | 102 |
| 60.0 | 137 | 121 | 423 | 1561 | 2484 | 830 | 530 | 918 | 2050 | 818 | 91.4 | 97.8 | 69.1 | 58.8 | 80.2 |
| 65.0 | 50.8 | 56.2 | 61.0 | 197 | 416 | 279 | 251 | 269 | 372 | 111 | 48.3 | 46.2 | 41.4 | 42.9 | 60.6 |
| 70.0 | 33.3 | 35.0 | 37.1 | 53.8 | 118 | 166 | 143 | 164 | 85.0 | 44.5 | 31.3 | 29.8 | 28.4 | 28.5 | 40.7 |
| 75.0 | 23.3 | 22.3 | 25.1 | 28.7 | 50.6 | 99.1 | 68.0 | 87.7 | 37.9 | 24.1 | 18.8 | 19.3 | 19.3 | 18.5 | 23.6 |
| 80.0 | 14.3 | 14.6 | 13.5 | 16.2 | 26.0 | 38.4 | 44.1 | 35.6 | 18.9 | 13.7 | 11.7 | 12.4 | 11.6 | 10.5 | 11.8 |
| 85.0 | 6.93 | 7.68 | 6.38 | 7.93 | 8.60 | 27.1 | 27.6 | 19.6 | 7.33 | 6.60 | 5.26 | 6.22 | 4.77 | 3.34 | 4.29 |
| 90.0 | 1.58 | 2.14 | 1.64 | 2.38 | 2.04 | 4.53 | 3.16 | 3.45 | 1.68 | 1.97 | 1.19 | 1.59 | 1.42 | 0.95 | 1.54 |

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Operators:
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Humidity:65.0%
Test Distance:10.000 m
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Report number:

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| MANUFACTURER: ILUMEN GMBH | Address: | |
| NAME: Kroos | TYPE:IL-SL13-N20040-P50 | WEIGHT: |
| SPECIFICATION:5050LED 4000K P50 30X110° | DIMENSION: | SERIAL No.: |

UNIT: ×10cd

| C (DEG) γ (DEG) | 225 | 240 | 255 | 270 | 285 | 300 | 315 | 330 | 345 |
|--------------------|------|------|------|------|------|------|------|------|------|
| 0.0 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 |
| 5.0 | 505 | 482 | 467 | 466 | 474 | 495 | 522 | 556 | 590 |
| 10.0 | 394 | 350 | 321 | 317 | 331 | 368 | 420 | 489 | 562 |
| 15.0 | 292 | 236 | 210 | 200 | 232 | 253 | 326 | 422 | 532 |
| 20.0 | 214 | 178 | 174 | 174 | 171 | 175 | 235 | 357 | 499 |
| 25.0 | 173 | 176 | 185 | 188 | 182 | 168 | 178 | 286 | 466 |
| 30.0 | 167 | 194 | 215 | 221 | 204 | 180 | 155 | 221 | 433 |
| 35.0 | 178 | 225 | 266 | 272 | 248 | 204 | 158 | 160 | 384 |
| 40.0 | 194 | 261 | 296 | 295 | 279 | 232 | 167 | 124 | 310 |
| 45.0 | 212 | 272 | 271 | 249 | 269 | 242 | 180 | 113 | 231 |
| 50.0 | 207 | 232 | 200 | 180 | 204 | 222 | 176 | 99.8 | 144 |
| 55.0 | 143 | 159 | 161 | 162 | 155 | 144 | 137 | 84.4 | 86.6 |
| 60.0 | 107 | 133 | 144 | 146 | 139 | 124 | 93.5 | 69.3 | 59.9 |
| 65.0 | 86.8 | 115 | 126 | 130 | 125 | 108 | 76.5 | 53.3 | 41.1 |
| 70.0 | 66.0 | 97.7 | 109 | 108 | 109 | 90.6 | 56.1 | 35.9 | 28.3 |
| 75.0 | 38.0 | 75.0 | 83.8 | 76.7 | 87.5 | 64.4 | 31.8 | 22.9 | 19.2 |
| 80.0 | 14.7 | 39.9 | 48.0 | 39.2 | 52.1 | 31.0 | 13.4 | 12.8 | 11.4 |
| 85.0 | 3.76 | 8.44 | 10.0 | 10.4 | 10.3 | 7.24 | 4.10 | 5.15 | 4.32 |
| 90.0 | 1.34 | 2.23 | 1.37 | 2.00 | 1.45 | 2.14 | 1.24 | 1.43 | 0.95 |

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Remarks: