

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P644471

Luminaire Tested: CRQ4DP-SR4F0-50D830-FLL-1DUDD-WW

Issue Date: 2/20/2023



Test Information

Test Method: LM-79-2019
Report Number: P644471
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2206-689-14)
Test Lab: INNOVATION CENTER
Issue Date: 2/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: CRQ4DP-SR4F0-50D830-FLL-1DUDD-WW
Description: NEO-RAY CIRQUE SUSPENDED LED LUMINAIRE
DOWNLIGHT - CURVED FROSTED LENS - 500 LUMENS PER FOOT
DIRECT ONLY
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

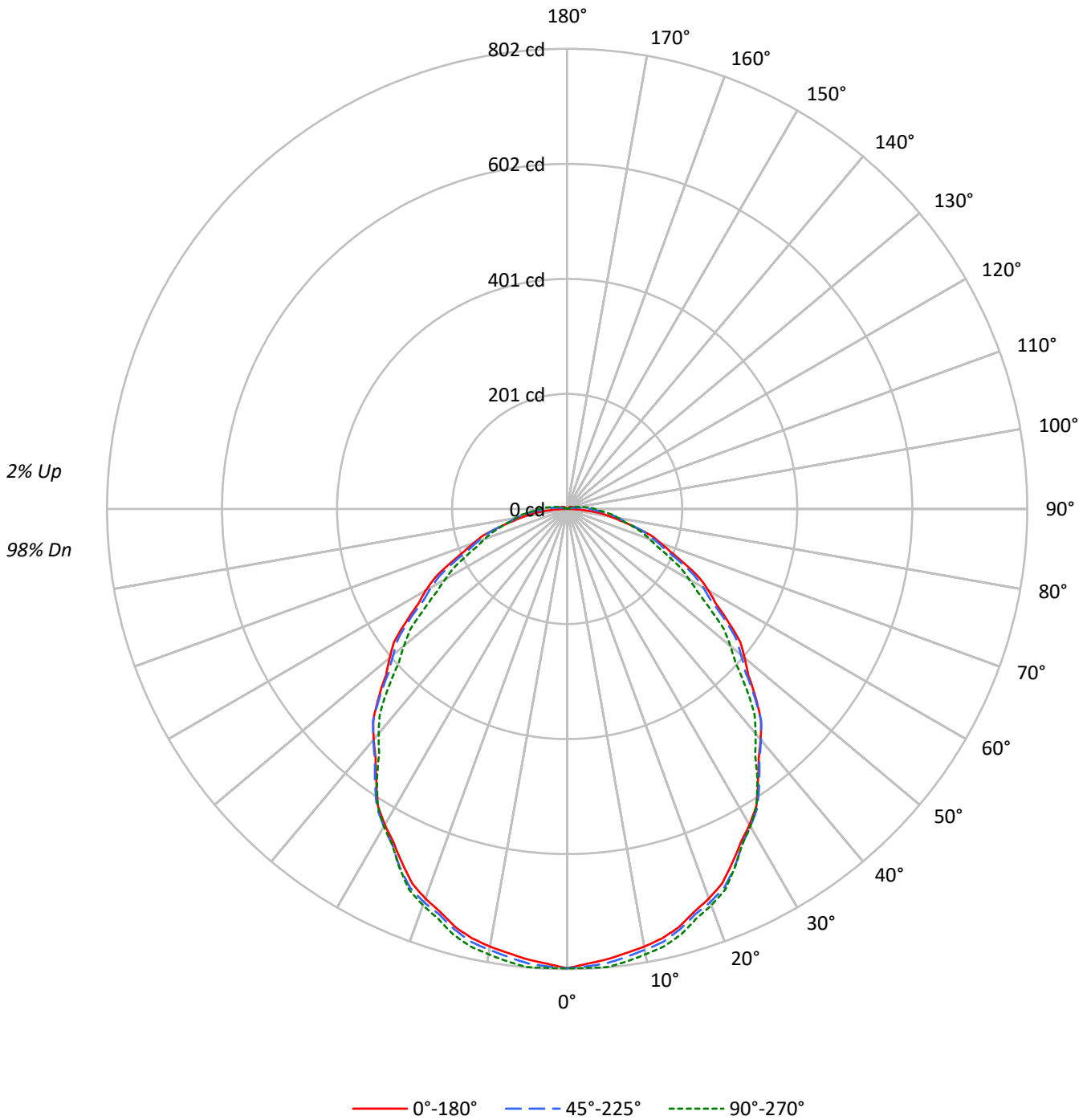
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2063.7 lumens
Efficiency: N/A
Efficacy: 144.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.3
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.02')
CIE Type: Direct

Input Watts (W): 14.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot





TEST NUMBER: P644471

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|----|
| RF | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | |
| RC | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | 0 | | |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | | 50 | 30 | 10 | | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 | | 105 | 105 | 105 | | 100 | 100 | 100 | 98 |
| 1 | 108 | 103 | 99 | 95 | 105 | 101 | 97 | 93 | 96 | 93 | 90 | | 92 | 89 | 87 | | 88 | 86 | 84 | 82 |
| 2 | 99 | 91 | 84 | 78 | 96 | 88 | 82 | 77 | 85 | 79 | 75 | | 81 | 77 | 73 | | 78 | 74 | 71 | 69 |
| 3 | 90 | 80 | 72 | 65 | 88 | 78 | 71 | 65 | 75 | 69 | 63 | | 72 | 67 | 62 | | 69 | 65 | 61 | 58 |
| 4 | 83 | 71 | 62 | 56 | 80 | 70 | 62 | 55 | 67 | 60 | 54 | | 64 | 58 | 53 | | 62 | 57 | 53 | 50 |
| 5 | 76 | 64 | 55 | 48 | 74 | 63 | 54 | 48 | 60 | 53 | 47 | | 58 | 52 | 47 | | 56 | 50 | 46 | 44 |
| 6 | 71 | 58 | 49 | 43 | 69 | 57 | 48 | 42 | 55 | 47 | 42 | | 53 | 46 | 41 | | 51 | 45 | 41 | 39 |
| 7 | 66 | 52 | 44 | 38 | 64 | 51 | 43 | 38 | 50 | 42 | 37 | | 48 | 42 | 37 | | 47 | 41 | 36 | 34 |
| 8 | 61 | 48 | 40 | 34 | 60 | 47 | 39 | 34 | 46 | 38 | 33 | | 44 | 38 | 33 | | 43 | 37 | 33 | 31 |
| 9 | 57 | 44 | 36 | 31 | 56 | 43 | 36 | 30 | 42 | 35 | 30 | | 41 | 35 | 30 | | 40 | 34 | 30 | 28 |
| 10 | 54 | 41 | 33 | 28 | 52 | 40 | 33 | 28 | 39 | 32 | 27 | | 38 | 32 | 27 | | 37 | 31 | 27 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 12925 | 12925 | 12925 |
| 5° | 12766 | 12758 | 12824 |
| 10° | 12684 | 12545 | 12588 |
| 15° | 12584 | 12317 | 12337 |
| 20° | 12386 | 12046 | 11973 |
| 25° | 12090 | 11685 | 11502 |
| 30° | 11804 | 11195 | 10960 |
| 35° | 11382 | 10673 | 10306 |
| 40° | 10999 | 10140 | 9566 |
| 45° | 10545 | 9485 | 8754 |
| 50° | 10063 | 8783 | 7904 |
| 55° | 9559 | 8138 | 7050 |
| 60° | 9101 | 7416 | 6288 |
| 65° | 8524 | 6671 | 5622 |
| 70° | 8029 | 6019 | 5101 |
| 75° | 7443 | 5495 | 4747 |
| 80° | 6905 | 5105 | 4547 |
| 85° | 6449 | 5092 | 4552 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 10545 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 75.6 | 3.7 |
| 10°-20° | 214.4 | 10.4 |
| 20°-30° | 316.5 | 15.3 |
| 30°-40° | 363.9 | 17.6 |
| 40°-50° | 353.0 | 17.1 |
| 50°-60° | 295.5 | 14.3 |
| 60°-70° | 212.9 | 10.3 |
| 70°-80° | 130.1 | 6.3 |
| 80°-90° | 63.2 | 3.1 |
| 90°-100° | 25.0 | 1.2 |
| 100°-110° | 9.1 | 0.4 |
| 110°-120° | 3.2 | 0.2 |
| 120°-130° | 1.3 | 0.1 |
| 130°-140° | 0.2 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 606.5 | 29.4 |
| 0°-40° | 970.4 | 47.0 |
| 0°-60° | 1618.8 | 78.4 |
| 0°-90° | 2025.0 | 98.1 |
| 90°-120° | 37.2 | 1.8 |
| 90°-150° | 38.7 | 1.9 |
| 90°-180° | 39.0 | 1.9 |
| 0°-180° | 2063.7 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0° | 800 | 800 | 800 | 800 | 800 | |
| 5° | 788 | 802 | 795 | 796 | 802 | 75 |
| 15° | 754 | 765 | 759 | 762 | 768 | 212 |
| 25° | 681 | 692 | 690 | 686 | 691 | 314 |
| 35° | 580 | 589 | 583 | 578 | 578 | 363 |
| 45° | 465 | 469 | 461 | 448 | 441 | 358 |
| 55° | 343 | 347 | 335 | 314 | 304 | 307 |
| 65° | 226 | 227 | 216 | 200 | 194 | 225 |
| 75° | 122 | 122 | 124 | 121 | 119 | 131 |
| 85° | 37 | 45 | 62 | 67 | 67 | 39 |
| 90° | 3 | 22 | 41 | 48 | 49 | 4 |
| 95° | 11 | 10 | 24 | 32 | 33 | 10 |
| 105° | 11 | 5 | 6 | 10 | 12 | 12 |
| 115° | 8 | 4 | 2 | 2 | 2 | 8 |
| 125° | 4 | 2 | 1 | 0 | 0 | 4 |
| 135° | 0 | 0 | 0 | 0 | 0 | 0 |
| 145° | 0 | 0 | 0 | 0 | 0 | 0 |
| 155° | 0 | 0 | 0 | 0 | 0 | 0 |
| 165° | 0 | 0 | 0 | 0 | 0 | 0 |
| 175° | 0 | 0 | 0 | 0 | 0 | 0 |
| 180° | 0 | 0 | 0 | 0 | 0 | 0 |



TEST NUMBER: P644471

CATALOG NUMBER: CRQ4DP-SR4F0-50D830-FLL-1DUDD-WW

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 800.5 | 800.5 | 800.5 | 800.5 | 800.5 |
| 2.5° | 793.3 | 804.8 | 797.8 | 799.6 | 800.5 |
| 5° | 788.1 | 802.4 | 794.8 | 796.1 | 801.6 |
| 7.5° | 780.8 | 794.1 | 787.4 | 788.9 | 795.3 |
| 10° | 774.5 | 787.8 | 780.1 | 782.5 | 788.1 |
| 12.5° | 766.3 | 778.7 | 772.9 | 775.3 | 780.8 |
| 15° | 754.1 | 765.2 | 758.7 | 762.2 | 767.7 |
| 17.5° | 736.0 | 748.0 | 741.0 | 743.0 | 748.5 |
| 20° | 722.5 | 733.5 | 729.3 | 729.4 | 734.9 |
| 22.5° | 706.2 | 718.1 | 714.8 | 712.2 | 718.6 |
| 25° | 680.6 | 691.7 | 689.7 | 686.4 | 690.8 |
| 27.5° | 655.3 | 663.5 | 659.6 | 656.3 | 659.6 |
| 30° | 635.4 | 645.4 | 638.8 | 635.5 | 638.8 |
| 32.5° | 613.7 | 623.7 | 617.1 | 612.8 | 614.4 |
| 35° | 580.0 | 588.9 | 583.4 | 577.8 | 577.8 |
| 37.5° | 548.1 | 553.9 | 550.2 | 540.6 | 538.2 |
| 40° | 524.6 | 531.3 | 525.7 | 514.4 | 511.0 |
| 42.5° | 500.2 | 506.8 | 500.4 | 488.1 | 483.0 |
| 45° | 464.7 | 469.1 | 461.3 | 447.6 | 440.9 |
| 47.5° | 428.1 | 432.7 | 422.0 | 406.8 | 398.9 |
| 50° | 403.6 | 409.2 | 395.7 | 379.7 | 370.9 |
| 52.5° | 380.1 | 383.9 | 371.3 | 352.6 | 344.6 |
| 55° | 342.6 | 347.0 | 334.7 | 314.1 | 304.1 |
| 57.5° | 307.5 | 311.7 | 297.1 | 277.5 | 269.8 |
| 60° | 284.9 | 288.2 | 273.6 | 253.1 | 245.3 |
| 62.5° | 259.6 | 262.9 | 249.2 | 231.4 | 223.6 |
| 65° | 226.1 | 227.2 | 216.0 | 200.0 | 194.5 |
| 67.5° | 194.7 | 194.7 | 185.2 | 173.3 | 168.9 |
| 70° | 173.0 | 173.0 | 166.2 | 157.1 | 152.6 |
| 72.5° | 153.1 | 152.2 | 148.1 | 141.7 | 138.2 |
| 75° | 122.1 | 122.1 | 124.4 | 120.9 | 118.7 |
| 77.5° | 95.0 | 93.2 | 102.9 | 102.4 | 101.3 |
| 80° | 76.9 | 76.9 | 89.3 | 91.6 | 90.5 |
| 82.5° | 60.6 | 62.4 | 78.5 | 81.6 | 80.5 |
| 85° | 37.3 | 45.0 | 62.2 | 66.7 | 66.7 |
| 87.5° | 17.0 | 30.4 | 48.8 | 54.7 | 54.9 |
| 90° | 3.4 | 22.2 | 40.7 | 47.5 | 48.6 |
| 92.5° | 7.0 | 17.0 | 33.5 | 40.3 | 42.3 |
| 95° | 11.3 | 10.2 | 23.7 | 31.7 | 32.8 |
| 97.5° | 13.6 | 6.7 | 17.2 | 23.8 | 25.1 |
| 100° | 13.6 | 5.8 | 13.6 | 19.3 | 21.5 |
| 102.5° | 12.7 | 4.9 | 9.9 | 15.6 | 17.0 |
| 105° | 11.3 | 4.7 | 5.7 | 10.2 | 12.4 |
| 107.5° | 9.9 | 3.5 | 3.2 | 6.4 | 7.5 |
| 110° | 9.0 | 3.5 | 2.3 | 4.5 | 5.7 |



TEST NUMBER: P644471

CATALOG NUMBER: CRQ4DP-SR4F0-50D830-FLL-1DUDD-WW

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 9.0 | 3.5 | 2.3 | 2.7 | 3.8 |
| 115° | 7.9 | 3.5 | 2.3 | 2.3 | 2.3 |
| 117.5° | 6.6 | 3.5 | 2.0 | 0.9 | 0.9 |
| 120° | 5.7 | 3.4 | 1.1 | 0.0 | 0.0 |
| 122.5° | 5.7 | 2.6 | 1.1 | 0.0 | 0.0 |
| 125° | 4.5 | 2.3 | 1.1 | 0.0 | 0.0 |
| 127.5° | 3.2 | 2.3 | 1.1 | 0.0 | 0.0 |
| 130° | 2.3 | 2.3 | 1.1 | 0.0 | 0.0 |
| 132.5° | 0.5 | 0.5 | 0.2 | 0.0 | 0.0 |
| 135° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 137.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 140° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 142.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 145° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 147.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 150° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 177.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)