

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P242554

Luminaire Tested: S123RDRP-S340D940-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242554
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-25)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-S340D940-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

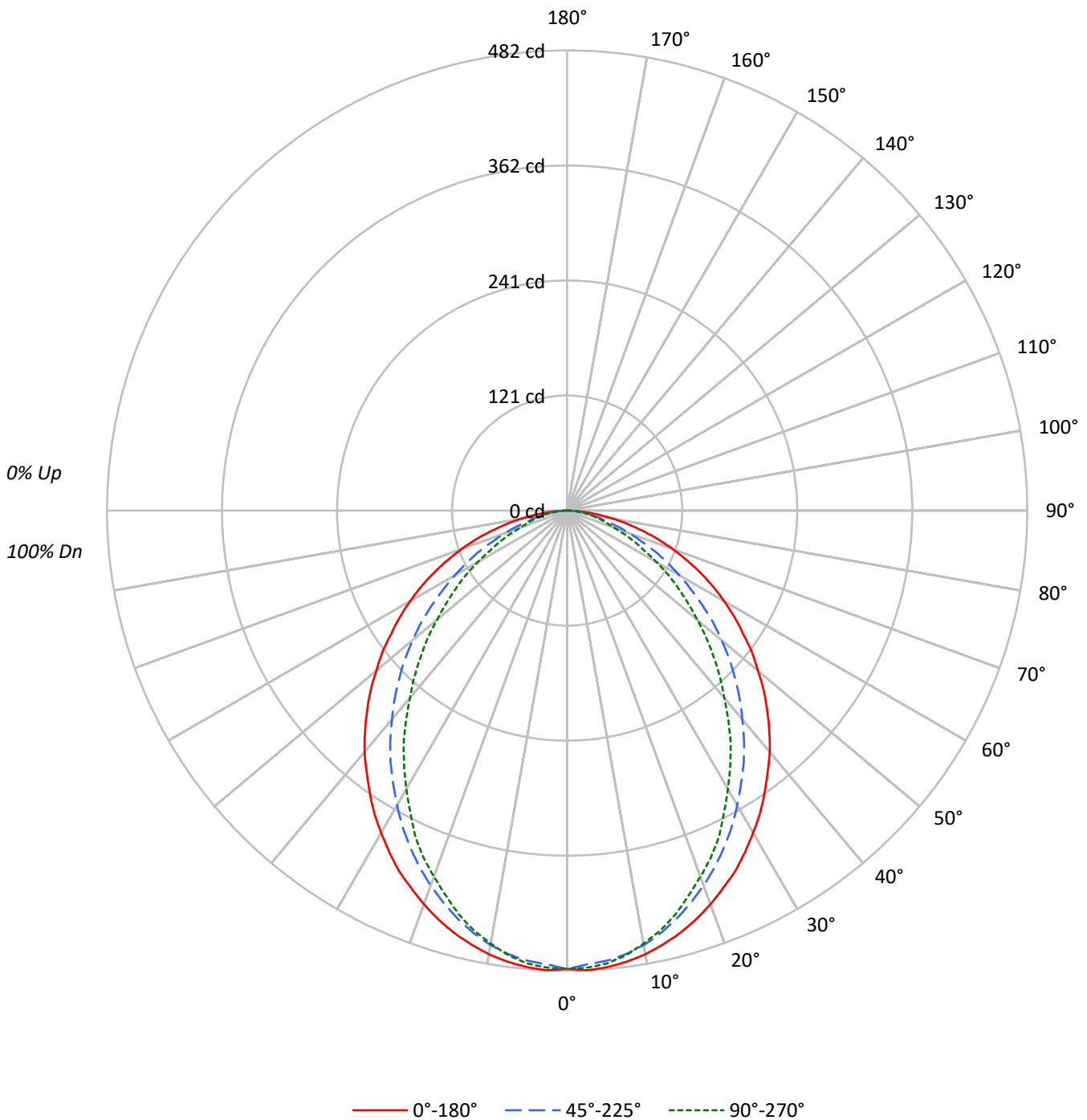
Lumens per Lamp: N/A
Luminaire Lumens: 1084.6 lumens
Efficiency: N/A
Efficacy: 93.5 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): 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



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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 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | | | | | | | | | | | | | | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 110 | 105 | 101 | 98 | 107 | 103 | 99 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 89 | 88 | 86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 83 | 78 | 84 | 80 | 77 | 81 | 78 | 75 | 73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 92 | 82 | 75 | 68 | 90 | 81 | 74 | 68 | 78 | 72 | 67 | 75 | 70 | 66 | 73 | 68 | 64 | 62 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 85 | 73 | 65 | 59 | 83 | 72 | 64 | 58 | 70 | 63 | 58 | 67 | 62 | 57 | 65 | 60 | 56 | 54 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 78 | 66 | 57 | 51 | 76 | 65 | 57 | 51 | 63 | 56 | 50 | 61 | 55 | 50 | 59 | 54 | 49 | 47 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 73 | 60 | 51 | 45 | 71 | 59 | 51 | 45 | 57 | 50 | 45 | 55 | 49 | 44 | 54 | 48 | 44 | 42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 67 | 54 | 46 | 40 | 66 | 54 | 46 | 40 | 52 | 45 | 40 | 51 | 44 | 39 | 49 | 44 | 39 | 37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 63 | 50 | 42 | 36 | 61 | 49 | 41 | 36 | 48 | 41 | 36 | 47 | 40 | 36 | 46 | 40 | 35 | 34 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 59 | 46 | 38 | 33 | 58 | 45 | 38 | 33 | 44 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 55 | 43 | 35 | 30 | 54 | 42 | 35 | 30 | 41 | 34 | 30 | 40 | 34 | 29 | 39 | 34 | 29 | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5819 | 5819 | 5819 |
| 5° | 5842 | 5760 | 5794 |
| 10° | 5808 | 5688 | 5669 |
| 15° | 5746 | 5555 | 5496 |
| 20° | 5660 | 5389 | 5263 |
| 25° | 5572 | 5203 | 5035 |
| 30° | 5454 | 4986 | 4714 |
| 35° | 5334 | 4771 | 4418 |
| 40° | 5225 | 4516 | 4054 |
| 45° | 5079 | 4265 | 3725 |
| 50° | 4920 | 3979 | 3355 |
| 55° | 4755 | 3654 | 3011 |
| 60° | 4606 | 3304 | 2633 |
| 65° | 4411 | 2925 | 2254 |
| 70° | 4168 | 2456 | 1822 |
| 75° | 3812 | 1934 | 1714 |
| 80° | 3399 | 1710 | 1578 |
| 85° | 2865 | 1516 | 1405 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5079 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 45.1 | 4.2 |
| 10°-20° | 125.5 | 11.6 |
| 20°-30° | 180.8 | 16.7 |
| 30°-40° | 203.6 | 18.8 |
| 40°-50° | 194.7 | 18.0 |
| 50°-60° | 159.4 | 14.7 |
| 60°-70° | 107.5 | 9.9 |
| 70°-80° | 53.9 | 5.0 |
| 80°-90° | 14.1 | 1.3 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 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° | 351.4 | 32.4 |
| 0°-40° | 555.0 | 51.2 |
| 0°-60° | 909.1 | 83.8 |
| 0°-90° | 1084.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1084.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 480 | 480 | 480 | 480 | 480 | |
| 5° | 480 | 478 | 473 | 477 | 476 | 46 |
| 15° | 458 | 454 | 443 | 441 | 438 | 129 |
| 25° | 417 | 407 | 389 | 381 | 376 | 192 |
| 35° | 360 | 346 | 322 | 306 | 299 | 226 |
| 45° | 296 | 279 | 249 | 227 | 217 | 229 |
| 55° | 225 | 206 | 173 | 150 | 142 | 202 |
| 65° | 154 | 132 | 102 | 83 | 79 | 152 |
| 75° | 81 | 63 | 41 | 37 | 37 | 87 |
| 85° | 21 | 12 | 11 | 10 | 10 | 24 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P242554

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 480.1 | 480.1 | 480.1 | 480.1 | 480.1 |
| 2.5° | 482.0 | 480.4 | 475.8 | 480.1 | 479.3 |
| 5° | 480.1 | 478.1 | 473.4 | 476.9 | 476.2 |
| 7.5° | 476.6 | 474.6 | 468.8 | 471.1 | 469.9 |
| 10° | 471.9 | 469.2 | 462.1 | 462.5 | 460.6 |
| 12.5° | 465.3 | 462.1 | 453.2 | 452.8 | 450.5 |
| 15° | 457.9 | 453.6 | 442.7 | 440.7 | 438.0 |
| 17.5° | 448.9 | 444.2 | 430.6 | 426.7 | 422.8 |
| 20° | 438.8 | 432.6 | 417.8 | 412.7 | 408.0 |
| 22.5° | 427.5 | 420.1 | 404.1 | 397.5 | 393.2 |
| 25° | 416.6 | 406.9 | 389.0 | 380.8 | 376.5 |
| 27.5° | 403.4 | 392.8 | 373.4 | 362.5 | 355.9 |
| 30° | 389.7 | 378.1 | 356.2 | 343.0 | 336.8 |
| 32.5° | 376.1 | 362.5 | 339.1 | 324.3 | 317.7 |
| 35° | 360.5 | 346.5 | 322.4 | 305.6 | 298.6 |
| 37.5° | 345.0 | 329.8 | 304.5 | 285.8 | 277.2 |
| 40° | 330.2 | 313.0 | 285.4 | 265.1 | 256.2 |
| 42.5° | 313.4 | 296.3 | 267.5 | 244.9 | 237.1 |
| 45° | 296.3 | 278.8 | 248.8 | 226.6 | 217.3 |
| 47.5° | 279.5 | 260.1 | 230.5 | 206.4 | 198.2 |
| 50° | 260.9 | 242.6 | 211.0 | 186.9 | 177.9 |
| 52.5° | 244.1 | 223.9 | 192.7 | 167.4 | 159.6 |
| 55° | 225.0 | 206.0 | 172.9 | 150.3 | 142.5 |
| 57.5° | 207.9 | 187.3 | 153.8 | 132.4 | 125.8 |
| 60° | 190.0 | 168.6 | 136.3 | 115.2 | 108.6 |
| 62.5° | 172.1 | 150.7 | 118.4 | 98.9 | 91.9 |
| 65° | 153.8 | 132.4 | 102.0 | 82.9 | 78.6 |
| 67.5° | 135.5 | 113.7 | 84.1 | 69.7 | 65.0 |
| 70° | 117.6 | 96.6 | 69.3 | 55.7 | 51.4 |
| 72.5° | 99.7 | 79.0 | 54.9 | 44.4 | 43.2 |
| 75° | 81.4 | 62.7 | 41.3 | 37.4 | 36.6 |
| 77.5° | 64.6 | 47.5 | 32.3 | 30.0 | 29.2 |
| 80° | 48.7 | 32.7 | 24.5 | 23.4 | 22.6 |
| 82.5° | 33.5 | 20.2 | 17.5 | 16.4 | 16.4 |
| 85° | 20.6 | 12.1 | 10.9 | 10.1 | 10.1 |
| 87.5° | 9.3 | 5.1 | 5.1 | 4.7 | 4.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference 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 | 17.57 | 19.12 | 17.93 | 19.44 | 19.75 | 14.94 | 16.49 | 15.30 | 16.81 | 17.12 |
| | 3H | 19.34 | 20.74 | 19.72 | 21.07 | 21.43 | 16.05 | 17.45 | 16.43 | 17.78 | 18.14 |
| | 4H | 20.00 | 21.32 | 20.40 | 21.67 | 22.04 | 16.44 | 17.76 | 16.84 | 18.11 | 18.48 |
| | 6H | 20.49 | 21.70 | 20.90 | 22.07 | 22.46 | 16.76 | 17.98 | 17.18 | 18.34 | 18.73 |
| | 8H | 20.64 | 21.79 | 21.06 | 22.18 | 22.58 | 16.87 | 18.03 | 17.30 | 18.42 | 18.82 |
| | 12H | 20.74 | 21.85 | 21.17 | 22.23 | 22.66 | 16.95 | 18.06 | 17.38 | 18.44 | 18.87 |
| 4H | 2H | 17.83 | 19.14 | 18.23 | 19.49 | 19.87 | 15.65 | 16.96 | 16.05 | 17.31 | 17.69 |
| | 3H | 19.79 | 20.88 | 20.20 | 21.28 | 21.68 | 16.93 | 18.02 | 17.34 | 18.42 | 18.82 |
| | 4H | 20.56 | 21.54 | 20.99 | 21.96 | 22.40 | 17.41 | 18.39 | 17.84 | 18.81 | 19.24 |
| | 6H | 21.16 | 22.01 | 21.61 | 22.45 | 22.91 | 17.83 | 18.68 | 18.28 | 19.13 | 19.58 |
| | 8H | 21.35 | 22.15 | 21.81 | 22.59 | 23.06 | 17.97 | 18.77 | 18.44 | 19.22 | 19.68 |
| | 12H | 21.49 | 22.21 | 21.98 | 22.69 | 23.16 | 18.08 | 18.80 | 18.57 | 19.28 | 19.75 |
| 8H | 4H | 20.62 | 21.42 | 21.08 | 21.86 | 22.33 | 17.73 | 18.53 | 18.19 | 18.97 | 19.44 |
| | 6H | 21.28 | 21.94 | 21.77 | 22.43 | 22.90 | 18.24 | 18.91 | 18.74 | 19.40 | 19.87 |
| | 8H | 21.51 | 22.10 | 22.02 | 22.61 | 23.10 | 18.45 | 19.04 | 18.96 | 19.55 | 20.04 |
| | 12H | 21.71 | 22.24 | 22.22 | 22.73 | 23.29 | 18.62 | 19.14 | 19.13 | 19.64 | 20.20 |
| 12H | 4H | 20.60 | 21.32 | 21.09 | 21.80 | 22.27 | 17.77 | 18.49 | 18.26 | 18.97 | 19.44 |
| | 6H | 21.26 | 21.86 | 21.78 | 22.37 | 22.85 | 18.30 | 18.90 | 18.82 | 19.41 | 19.90 |
| | 8H | 21.53 | 22.06 | 22.04 | 22.55 | 23.11 | 18.56 | 19.09 | 19.07 | 19.58 | 20.14 |