

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: P242436

Luminaire Tested: S123DRP-S340D840-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242436
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-11)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S340D840-X4F0-XX-UDD-F-W
Description: DEFINE 3 DIRECT RECESSED WITH SATIN FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

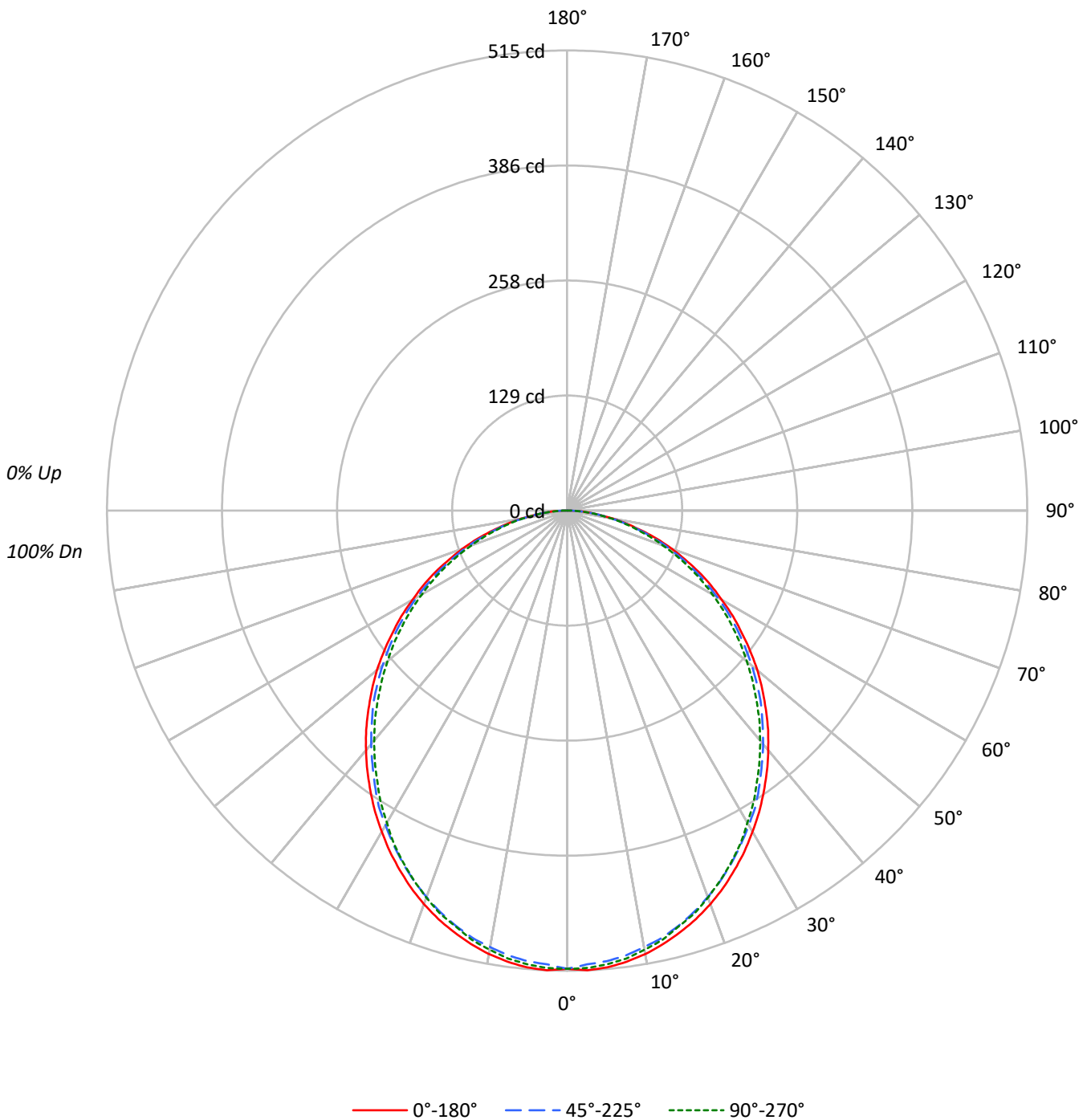
Lumens per Lamp: N/A
Luminaire Lumens: 1334.6 lumens
Efficiency: N/A
Efficacy: 115.1 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.3
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

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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CATALOG NUMBER: S123DRP-S340D840-X4F0-XX-UDD-F-W

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 | 109 | 104 | 100 | 96 | 106 | 102 | 98 | 95 | 98 | 94 | 92 | 94 | 91 | 89 | 90 | 88 | 86 | 84 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 99 | 91 | 84 | 79 | 97 | 89 | 83 | 78 | 86 | 80 | 76 | 82 | 78 | 74 | 79 | 76 | 72 | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 91 | 80 | 72 | 66 | 88 | 79 | 71 | 65 | 76 | 69 | 64 | 73 | 67 | 63 | 70 | 66 | 62 | 59 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 83 | 71 | 62 | 56 | 81 | 70 | 62 | 55 | 67 | 60 | 55 | 65 | 59 | 54 | 63 | 58 | 53 | 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 76 | 64 | 55 | 48 | 74 | 63 | 54 | 48 | 60 | 53 | 47 | 58 | 52 | 47 | 57 | 51 | 46 | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 71 | 57 | 49 | 42 | 69 | 56 | 48 | 42 | 55 | 47 | 42 | 53 | 46 | 41 | 51 | 46 | 41 | 39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 66 | 52 | 43 | 37 | 64 | 51 | 43 | 37 | 50 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 36 | 34 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 61 | 48 | 39 | 33 | 60 | 47 | 39 | 33 | 46 | 38 | 33 | 44 | 38 | 33 | 43 | 37 | 33 | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 57 | 44 | 36 | 30 | 56 | 43 | 35 | 30 | 42 | 35 | 30 | 41 | 34 | 30 | 40 | 34 | 30 | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 54 | 40 | 33 | 27 | 52 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 32 | 27 | 37 | 31 | 27 | 25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 6216 | 6216 | 6216 |
| 5° | 6244 | 6159 | 6202 |
| 10° | 6203 | 6105 | 6143 |
| 15° | 6131 | 6037 | 6047 |
| 20° | 6046 | 5937 | 5944 |
| 25° | 5933 | 5820 | 5808 |
| 30° | 5807 | 5690 | 5648 |
| 35° | 5676 | 5552 | 5481 |
| 40° | 5540 | 5400 | 5317 |
| 45° | 5389 | 5261 | 5132 |
| 50° | 5239 | 5088 | 4948 |
| 55° | 5040 | 4911 | 4761 |
| 60° | 4841 | 4703 | 4553 |
| 65° | 4666 | 4477 | 4337 |
| 70° | 4405 | 4221 | 4033 |
| 75° | 4028 | 3882 | 3719 |
| 80° | 3630 | 3476 | 3448 |
| 85° | 3185 | 3060 | 2948 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5389 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 48.3 | 3.6 |
| 10°-20° | 136.5 | 10.2 |
| 20°-30° | 201.6 | 15.1 |
| 30°-40° | 235.5 | 17.6 |
| 40°-50° | 236.7 | 17.7 |
| 50°-60° | 207.9 | 15.6 |
| 60°-70° | 154.9 | 11.6 |
| 70°-80° | 88.1 | 6.6 |
| 80°-90° | 25.0 | 1.9 |
| 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° | 386.5 | 29.0 |
| 0°-40° | 621.9 | 46.6 |
| 0°-60° | 1066.6 | 79.9 |
| 0°-90° | 1334.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1334.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 513 | 513 | 513 | 513 | 513 | |
| 5° | 513 | 511 | 506 | 511 | 510 | 49 |
| 15° | 489 | 487 | 481 | 485 | 482 | 138 |
| 25° | 444 | 441 | 435 | 436 | 434 | 204 |
| 35° | 384 | 381 | 375 | 373 | 370 | 240 |
| 45° | 314 | 313 | 307 | 302 | 299 | 243 |
| 55° | 238 | 238 | 232 | 228 | 225 | 214 |
| 65° | 163 | 160 | 156 | 153 | 151 | 161 |
| 75° | 86 | 84 | 83 | 81 | 79 | 92 |
| 85° | 23 | 22 | 22 | 21 | 21 | 26 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P242436

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 512.8 | 512.8 | 512.8 | 512.8 | 512.8 |
| 2.5° | 515.0 | 513.2 | 508.4 | 512.8 | 512.4 |
| 5° | 513.2 | 511.0 | 506.2 | 510.6 | 509.7 |
| 7.5° | 509.3 | 507.1 | 502.2 | 506.2 | 505.7 |
| 10° | 504.0 | 501.8 | 496.0 | 500.0 | 499.1 |
| 12.5° | 496.9 | 495.2 | 489.9 | 492.5 | 492.1 |
| 15° | 488.6 | 486.8 | 481.1 | 484.6 | 481.9 |
| 17.5° | 479.3 | 477.1 | 471.4 | 474.0 | 473.1 |
| 20° | 468.7 | 466.1 | 460.3 | 462.1 | 460.8 |
| 22.5° | 456.8 | 454.2 | 448.4 | 449.7 | 448.0 |
| 25° | 443.6 | 440.9 | 435.2 | 435.6 | 434.3 |
| 27.5° | 429.9 | 427.3 | 421.1 | 421.5 | 420.2 |
| 30° | 414.9 | 412.7 | 406.5 | 406.5 | 403.5 |
| 32.5° | 399.9 | 396.8 | 392.4 | 389.3 | 388.0 |
| 35° | 383.6 | 381.0 | 375.2 | 372.6 | 370.4 |
| 37.5° | 367.3 | 363.8 | 358.0 | 354.9 | 353.6 |
| 40° | 350.1 | 347.5 | 341.3 | 337.8 | 336.0 |
| 42.5° | 332.9 | 329.8 | 323.6 | 320.1 | 318.4 |
| 45° | 314.4 | 312.6 | 306.9 | 301.6 | 299.4 |
| 47.5° | 296.3 | 293.7 | 288.4 | 283.1 | 281.3 |
| 50° | 277.8 | 275.6 | 269.8 | 265.0 | 262.4 |
| 52.5° | 258.4 | 257.1 | 250.9 | 246.9 | 244.3 |
| 55° | 238.5 | 238.1 | 232.4 | 227.5 | 225.3 |
| 57.5° | 220.0 | 218.3 | 213.9 | 209.4 | 206.8 |
| 60° | 199.7 | 199.3 | 194.0 | 190.0 | 187.8 |
| 62.5° | 181.7 | 180.3 | 175.0 | 171.1 | 169.8 |
| 65° | 162.7 | 160.5 | 156.1 | 152.6 | 151.2 |
| 67.5° | 142.4 | 140.7 | 137.1 | 134.0 | 132.3 |
| 70° | 124.3 | 121.7 | 119.1 | 116.0 | 113.8 |
| 72.5° | 105.4 | 103.6 | 100.5 | 97.9 | 97.0 |
| 75° | 86.0 | 84.2 | 82.9 | 80.7 | 79.4 |
| 77.5° | 68.8 | 67.9 | 66.1 | 64.4 | 64.4 |
| 80° | 52.0 | 50.7 | 49.8 | 49.4 | 49.4 |
| 82.5° | 35.7 | 35.7 | 35.7 | 34.8 | 34.4 |
| 85° | 22.9 | 22.0 | 22.0 | 21.2 | 21.2 |
| 87.5° | 11.5 | 10.1 | 9.7 | 9.3 | 9.3 |
| 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 | 17.71 | 19.33 | 18.07 | 19.64 | 19.95 | 17.39 | 19.01 | 17.75 | 19.32 | 19.64 |
| | 3H | 19.48 | 20.94 | 19.85 | 21.27 | 21.63 | 19.11 | 20.57 | 19.48 | 20.90 | 21.26 |
| | 4H | 20.13 | 21.51 | 20.53 | 21.86 | 22.23 | 19.74 | 21.12 | 20.14 | 21.47 | 21.84 |
| | 6H | 20.62 | 21.90 | 21.03 | 22.26 | 22.65 | 20.23 | 21.51 | 20.64 | 21.87 | 22.26 |
| | 8H | 20.77 | 21.99 | 21.20 | 22.38 | 22.78 | 20.39 | 21.61 | 20.82 | 22.00 | 22.40 |
| | 12H | 20.88 | 22.05 | 21.31 | 22.43 | 22.86 | 20.50 | 21.66 | 20.93 | 22.05 | 22.47 |
| 4H | 2H | 18.29 | 19.66 | 18.68 | 20.01 | 20.39 | 18.03 | 19.41 | 18.43 | 19.76 | 20.13 |
| | 3H | 20.28 | 21.43 | 20.69 | 21.83 | 22.23 | 19.97 | 21.13 | 20.38 | 21.52 | 21.92 |
| | 4H | 21.06 | 22.11 | 21.49 | 22.52 | 22.96 | 20.73 | 21.78 | 21.16 | 22.19 | 22.63 |
| | 6H | 21.68 | 22.59 | 22.13 | 23.03 | 23.49 | 21.35 | 22.26 | 21.80 | 22.70 | 23.16 |
| | 8H | 21.88 | 22.74 | 22.34 | 23.18 | 23.64 | 21.55 | 22.41 | 22.01 | 22.85 | 23.31 |
| | 12H | 22.03 | 22.80 | 22.51 | 23.28 | 23.75 | 21.70 | 22.47 | 22.18 | 22.95 | 23.42 |
| 8H | 4H | 21.35 | 22.20 | 21.81 | 22.64 | 23.11 | 21.06 | 21.91 | 21.52 | 22.35 | 22.82 |
| | 6H | 22.08 | 22.79 | 22.58 | 23.28 | 23.76 | 21.79 | 22.50 | 22.28 | 22.99 | 23.46 |
| | 8H | 22.36 | 23.00 | 22.87 | 23.50 | 23.99 | 22.07 | 22.71 | 22.58 | 23.21 | 23.70 |
| | 12H | 22.59 | 23.15 | 23.09 | 23.64 | 24.20 | 22.30 | 22.86 | 22.80 | 23.35 | 23.91 |
| 12H | 4H | 21.38 | 22.14 | 21.86 | 22.62 | 23.09 | 21.09 | 21.86 | 21.57 | 22.33 | 22.80 |
| | 6H | 22.13 | 22.77 | 22.64 | 23.28 | 23.76 | 21.85 | 22.49 | 22.36 | 23.00 | 23.48 |
| | 8H | 22.47 | 23.03 | 22.97 | 23.52 | 24.08 | 22.19 | 22.76 | 22.70 | 23.25 | 23.81 |