

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



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: P930077

Luminaire Tested: DFN2DS-HX2F0-040DS835-FLL

Issue Date: 11/20/2024

Test Information

Test Method: LM-79-2019
Report Number: P930077
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333812)
Test Lab: INNOVATION CENTER
Issue Date: 11/20/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DS-HX2F0-040DS835-FLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens
Light Source: -
Ballast/Driver: -

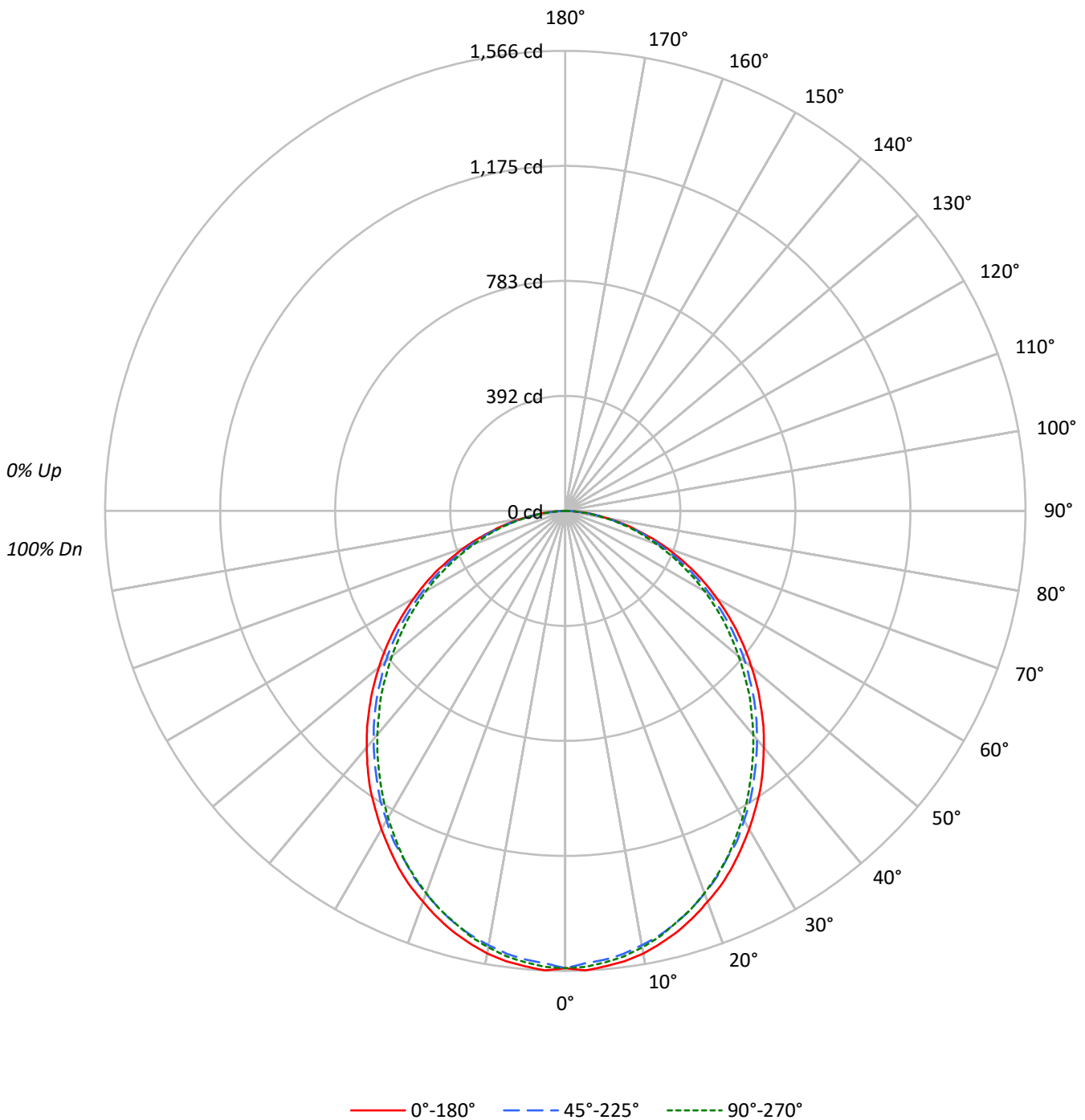
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3960.0 lumens
Efficiency: N/A
Efficacy: 103.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular (W 2.3' x L: 1.99' x H: 0')
CIE Type: Direct

Input Watts (W): 38.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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: P930077

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|----|
| RF | 20 | | | | | | | | | 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 | 50 | 30 | 10 | 0 | | | | | | | | | | | | | | | | |
| RCR | 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 102 | 100 | 100 | 100 | 100 | 96 | 96 | 96 | 96 | 96 | 96 | 84 | | | | | | | | | | | | | | | | |
| | 1 | 109 | 104 | 100 | 96 | 106 | 102 | 98 | 95 | 98 | 95 | 92 | 94 | 91 | 89 | 90 | 88 | 86 | 86 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | | | | | | | | | | | | | | | | |
| | 2 | 99 | 91 | 85 | 79 | 97 | 89 | 83 | 78 | 86 | 81 | 76 | 83 | 78 | 74 | 80 | 76 | 73 | 73 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | | | | | | | | | | | | | | | | |
| | 3 | 91 | 80 | 72 | 66 | 88 | 79 | 71 | 65 | 76 | 69 | 64 | 73 | 68 | 63 | 71 | 66 | 62 | 62 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | | | | | | | | | | | | | | | | |
| | 4 | 83 | 71 | 63 | 56 | 81 | 70 | 62 | 56 | 68 | 61 | 55 | 65 | 59 | 54 | 63 | 58 | 54 | 54 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | | | | | | | | | | | | | | | | |
| | 5 | 77 | 64 | 55 | 49 | 75 | 63 | 55 | 48 | 61 | 53 | 48 | 59 | 52 | 47 | 57 | 51 | 47 | 47 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | | | | | | | | | | | | | | | | |
| | 6 | 71 | 58 | 49 | 43 | 69 | 57 | 48 | 42 | 55 | 48 | 42 | 53 | 47 | 42 | 52 | 46 | 41 | 41 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | | | | | | | | | | | | | | | | |
| | 7 | 66 | 52 | 44 | 38 | 64 | 52 | 43 | 38 | 50 | 43 | 37 | 49 | 42 | 37 | 47 | 41 | 37 | 37 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | | | | | | | | | | | | | | | | |
| | 8 | 61 | 48 | 40 | 34 | 60 | 47 | 39 | 34 | 46 | 39 | 33 | 45 | 38 | 33 | 44 | 38 | 33 | 33 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | | | | | | | | | | | | | | | | |
| | 9 | 57 | 44 | 36 | 30 | 56 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 35 | 30 | 40 | 34 | 30 | 30 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | | | | | | | | | | | | | | | | |
| | 10 | 54 | 41 | 33 | 28 | 53 | 40 | 33 | 28 | 39 | 32 | 27 | 38 | 32 | 27 | 37 | 32 | 27 | 27 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3667 | 3667 | 3667 |
| 5° | 3681 | 3628 | 3650 |
| 10° | 3660 | 3592 | 3609 |
| 15° | 3614 | 3545 | 3541 |
| 20° | 3550 | 3475 | 3471 |
| 25° | 3486 | 3389 | 3389 |
| 30° | 3404 | 3310 | 3282 |
| 35° | 3328 | 3216 | 3168 |
| 40° | 3232 | 3121 | 3061 |
| 45° | 3137 | 3027 | 2952 |
| 50° | 3034 | 2929 | 2825 |
| 55° | 2927 | 2816 | 2712 |
| 60° | 2807 | 2680 | 2581 |
| 65° | 2679 | 2545 | 2429 |
| 70° | 2516 | 2381 | 2269 |
| 75° | 2289 | 2193 | 2139 |
| 80° | 2031 | 1969 | 1868 |
| 85° | 1657 | 1579 | 1417 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3137 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 146.5 | 3.7 |
| 10°-20° | 412.2 | 10.4 |
| 20°-30° | 605.7 | 15.3 |
| 30°-40° | 703.5 | 17.8 |
| 40°-50° | 702.6 | 17.7 |
| 50°-60° | 612.7 | 15.5 |
| 60°-70° | 452.9 | 11.4 |
| 70°-80° | 256.2 | 6.5 |
| 80°-90° | 67.6 | 1.7 |
| 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° | 1164.4 | 29.4 |
| 0°-40° | 1867.9 | 47.2 |
| 0°-60° | 3183.2 | 80.4 |
| 0°-90° | 3960.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3960.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1556 | 1556 | 1556 | 1556 | 1556 | |
| 5° | 1556 | 1550 | 1534 | 1546 | 1543 | 148 |
| 15° | 1482 | 1473 | 1453 | 1459 | 1452 | 417 |
| 25° | 1341 | 1329 | 1304 | 1306 | 1304 | 617 |
| 35° | 1157 | 1142 | 1118 | 1109 | 1102 | 722 |
| 45° | 941 | 931 | 908 | 892 | 886 | 727 |
| 55° | 712 | 703 | 686 | 668 | 660 | 637 |
| 65° | 480 | 471 | 456 | 443 | 436 | 475 |
| 75° | 251 | 248 | 241 | 232 | 235 | 268 |
| 85° | 61 | 60 | 58 | 54 | 52 | 72 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P930077

CATALOG NUMBER: DFN2DS-HX2F0-040DS835-FLL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1556.4 | 1556.4 | 1556.4 | 1556.4 | 1556.4 |
| 2.5° | 1565.5 | 1558.0 | 1541.5 | 1556.4 | 1553.6 |
| 5° | 1556.4 | 1550.5 | 1534.0 | 1545.9 | 1543.1 |
| 7.5° | 1545.9 | 1537.0 | 1520.5 | 1532.6 | 1529.6 |
| 10° | 1529.6 | 1519.1 | 1501.2 | 1513.1 | 1508.6 |
| 12.5° | 1507.0 | 1498.1 | 1480.2 | 1487.7 | 1484.6 |
| 15° | 1481.6 | 1472.7 | 1453.2 | 1459.2 | 1451.8 |
| 17.5° | 1450.2 | 1441.3 | 1421.8 | 1429.2 | 1421.8 |
| 20° | 1415.7 | 1406.8 | 1385.9 | 1390.3 | 1384.5 |
| 22.5° | 1381.4 | 1367.9 | 1348.4 | 1348.4 | 1345.4 |
| 25° | 1340.9 | 1329.0 | 1303.6 | 1306.5 | 1303.6 |
| 27.5° | 1296.0 | 1285.5 | 1266.2 | 1261.7 | 1254.3 |
| 30° | 1251.2 | 1239.2 | 1216.8 | 1212.3 | 1206.3 |
| 32.5° | 1203.3 | 1194.4 | 1170.4 | 1161.4 | 1155.3 |
| 35° | 1156.9 | 1142.0 | 1118.0 | 1109.0 | 1101.5 |
| 37.5° | 1104.5 | 1091.0 | 1067.0 | 1056.6 | 1049.1 |
| 40° | 1050.7 | 1038.6 | 1014.6 | 1001.3 | 995.3 |
| 42.5° | 998.3 | 986.2 | 962.4 | 947.3 | 938.4 |
| 45° | 941.4 | 931.0 | 908.4 | 892.1 | 886.0 |
| 47.5° | 886.0 | 875.5 | 851.6 | 835.1 | 826.2 |
| 50° | 827.6 | 820.1 | 799.2 | 778.2 | 770.7 |
| 52.5° | 770.7 | 760.3 | 740.9 | 724.4 | 713.9 |
| 55° | 712.5 | 703.4 | 685.5 | 667.5 | 660.1 |
| 57.5° | 654.0 | 646.6 | 627.0 | 609.1 | 603.1 |
| 60° | 595.6 | 589.7 | 568.8 | 552.3 | 547.8 |
| 62.5° | 538.8 | 528.3 | 513.4 | 498.4 | 492.4 |
| 65° | 480.5 | 471.4 | 456.5 | 443.0 | 435.6 |
| 67.5° | 420.6 | 413.0 | 399.7 | 389.2 | 383.2 |
| 70° | 365.2 | 359.2 | 345.7 | 335.2 | 329.3 |
| 72.5° | 308.4 | 302.3 | 294.9 | 284.4 | 279.9 |
| 75° | 251.4 | 248.5 | 240.9 | 232.0 | 235.0 |
| 77.5° | 200.5 | 194.5 | 191.5 | 187.0 | 182.6 |
| 80° | 149.7 | 148.1 | 145.1 | 140.7 | 137.7 |
| 82.5° | 101.8 | 101.8 | 100.4 | 94.3 | 94.3 |
| 85° | 61.3 | 59.9 | 58.4 | 53.8 | 52.4 |
| 87.5° | 27.0 | 24.0 | 21.0 | 16.5 | 14.9 |
| 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 | 15.80 | 17.41 | 16.16 | 17.72 | 18.04 | 15.35 | 16.96 | 15.72 | 17.28 | 17.59 |
| | 3H | 17.55 | 19.00 | 17.92 | 19.33 | 19.69 | 17.06 | 18.51 | 17.43 | 18.84 | 19.20 |
| | 4H | 18.19 | 19.56 | 18.59 | 19.91 | 20.29 | 17.70 | 19.07 | 18.10 | 19.42 | 19.79 |
| | 6H | 18.66 | 19.93 | 19.07 | 20.30 | 20.69 | 18.16 | 19.43 | 18.57 | 19.79 | 20.19 |
| | 8H | 18.81 | 20.02 | 19.23 | 20.41 | 20.80 | 18.30 | 19.51 | 18.73 | 19.90 | 20.30 |
| | 12H | 18.90 | 20.06 | 19.33 | 20.44 | 20.87 | 18.38 | 19.54 | 18.81 | 19.93 | 20.35 |
| 4H | 2H | 16.36 | 17.73 | 16.76 | 18.07 | 18.45 | 16.00 | 17.37 | 16.40 | 17.72 | 18.10 |
| | 3H | 18.33 | 19.48 | 18.74 | 19.88 | 20.28 | 17.93 | 19.07 | 18.34 | 19.47 | 19.87 |
| | 4H | 19.11 | 20.15 | 19.54 | 20.56 | 21.00 | 18.69 | 19.72 | 19.12 | 20.14 | 20.57 |
| | 6H | 19.71 | 20.61 | 20.16 | 21.05 | 21.51 | 19.27 | 20.18 | 19.73 | 20.62 | 21.08 |
| | 8H | 19.90 | 20.74 | 20.36 | 21.18 | 21.65 | 19.46 | 20.30 | 19.92 | 20.75 | 21.21 |
| | 12H | 20.03 | 20.79 | 20.51 | 21.26 | 21.73 | 19.57 | 20.33 | 20.06 | 20.81 | 21.28 |
| 8H | 4H | 19.38 | 20.23 | 19.84 | 20.67 | 21.14 | 19.01 | 19.85 | 19.47 | 20.30 | 20.76 |
| | 6H | 20.10 | 20.80 | 20.59 | 21.29 | 21.76 | 19.72 | 20.42 | 20.21 | 20.91 | 21.38 |
| | 8H | 20.36 | 20.99 | 20.87 | 21.49 | 21.98 | 19.96 | 20.60 | 20.47 | 21.10 | 21.59 |
| | 12H | 20.56 | 21.11 | 21.06 | 21.60 | 22.17 | 20.14 | 20.70 | 20.65 | 21.19 | 21.75 |
| 12H | 4H | 19.41 | 20.17 | 19.89 | 20.64 | 21.11 | 19.04 | 19.80 | 19.52 | 20.28 | 20.75 |
| | 6H | 20.14 | 20.77 | 20.65 | 21.28 | 21.77 | 19.77 | 20.41 | 20.28 | 20.91 | 21.40 |
| | 8H | 20.46 | 21.01 | 20.96 | 21.50 | 22.07 | 20.08 | 20.64 | 20.59 | 21.13 | 21.69 |