

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: P931436

Luminaire Tested: DFN2DS-TR3F0-090DS930-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931436  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-TR3F0-090DS930-RLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

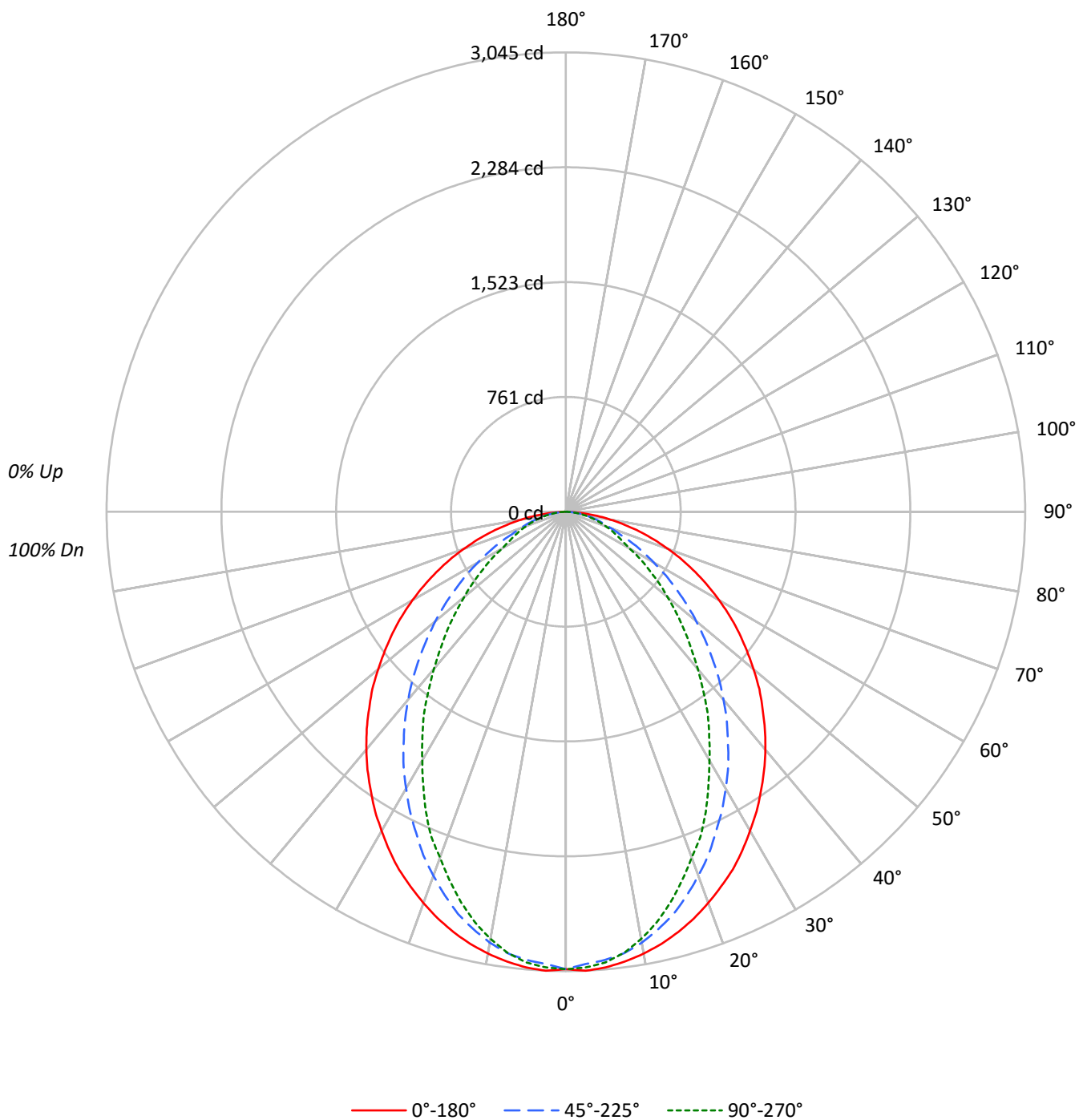
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6234.7 lumens  
Efficiency: N/A  
Efficacy: 62.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.16' x L: 2.74' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 99.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P931436

CATALOG NUMBER: DFN2DS-TR3F0-090DS930-RLL

### Luminous Intensity Polar Plot



TEST NUMBER: P931436

CATALOG NUMBER: DFN2DS-TR3F0-090DS930-RLL

**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 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 | 102 | 102 | 100 |
| 1   | 110 | 106 | 102 | 98  | 107 | 103 | 100 | 97  | 99  | 96  | 94  |  | 95  | 93  | 91  |  | 92  | 90  | 88  | 86  |
| 2   | 101 | 94  | 87  | 82  | 98  | 92  | 86  | 81  | 88  | 83  | 79  |  | 85  | 81  | 78  |  | 82  | 79  | 76  | 74  |
| 3   | 93  | 83  | 76  | 70  | 90  | 82  | 75  | 69  | 79  | 73  | 68  |  | 76  | 71  | 67  |  | 74  | 69  | 66  | 64  |
| 4   | 86  | 75  | 66  | 60  | 83  | 73  | 66  | 60  | 71  | 64  | 59  |  | 69  | 63  | 58  |  | 66  | 62  | 57  | 55  |
| 5   | 79  | 67  | 59  | 53  | 77  | 66  | 58  | 52  | 64  | 57  | 52  |  | 62  | 56  | 51  |  | 60  | 55  | 51  | 49  |
| 6   | 74  | 61  | 53  | 47  | 72  | 60  | 52  | 46  | 58  | 51  | 46  |  | 57  | 50  | 46  |  | 55  | 50  | 45  | 43  |
| 7   | 68  | 56  | 47  | 42  | 67  | 55  | 47  | 42  | 53  | 46  | 41  |  | 52  | 46  | 41  |  | 51  | 45  | 41  | 39  |
| 8   | 64  | 51  | 43  | 38  | 62  | 51  | 43  | 37  | 49  | 42  | 37  |  | 48  | 42  | 37  |  | 47  | 41  | 37  | 35  |
| 9   | 60  | 47  | 39  | 34  | 59  | 47  | 39  | 34  | 46  | 39  | 34  |  | 44  | 38  | 34  |  | 44  | 38  | 34  | 32  |
| 10  | 56  | 44  | 36  | 31  | 55  | 43  | 36  | 31  | 42  | 36  | 31  |  | 41  | 35  | 31  |  | 41  | 35  | 31  | 29  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3778 | 3778 | 3778 |
| 5°  | 3792 | 3730 | 3751 |
| 10° | 3763 | 3669 | 3638 |
| 15° | 3720 | 3561 | 3458 |
| 20° | 3660 | 3405 | 3234 |
| 25° | 3599 | 3229 | 3018 |
| 30° | 3513 | 3047 | 2739 |
| 35° | 3431 | 2851 | 2496 |
| 40° | 3347 | 2646 | 2214 |
| 45° | 3249 | 2417 | 1958 |
| 50° | 3149 | 2186 | 1708 |
| 55° | 3045 | 1937 | 1466 |
| 60° | 2926 | 1675 | 1217 |
| 65° | 2791 | 1407 | 1108 |
| 70° | 2629 | 1159 | 1019 |
| 75° | 2430 | 1057 | 951  |
| 80° | 2145 | 944  | 867  |
| 85° | 1684 | 745  | 745  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3249 cd/sqm

TEST NUMBER: P931436

CATALOG NUMBER: DFN2DS-TR3F0-090DS930-RLL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 284.1  | 4.6       |
| 10°-20°   | 780.0  | 12.5      |
| 20°-30°   | 1095.0 | 17.6      |
| 30°-40°   | 1193.7 | 19.1      |
| 40°-50°   | 1097.1 | 17.6      |
| 50°-60°   | 861.6  | 13.8      |
| 60°-70°   | 560.8  | 9.0       |
| 70°-80°   | 288.7  | 4.6       |
| 80°-90°   | 73.7   | 1.2       |
| 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°    | 2159.1 | 34.6      |
| 0°-40°    | 3352.8 | 53.8      |
| 0°-60°    | 5311.5 | 85.2      |
| 0°-90°    | 6234.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 6234.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3032 | 3032  | 3032 | 3032  | 3032 |      |
| 5°  | 3032 | 3018  | 2982 | 3007  | 2999 | 287  |
| 15° | 2883 | 2853  | 2760 | 2708  | 2680 | 813  |
| 25° | 2617 | 2529  | 2348 | 2236  | 2195 | 1204 |
| 35° | 2255 | 2115  | 1874 | 1701  | 1640 | 1412 |
| 45° | 1844 | 1660  | 1372 | 1177  | 1111 | 1424 |
| 55° | 1402 | 1188  | 892  | 727   | 675  | 1253 |
| 65° | 946  | 724   | 477  | 384   | 376  | 938  |
| 75° | 505  | 313   | 220  | 200   | 198  | 534  |
| 85° | 118  | 60    | 52   | 52    | 52   | 141  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P931436

CATALOG NUMBER: DFN2DS-TR3F0-090DS930-RLL

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3031.6 | 3031.6 | 3031.6 | 3031.6 | 3031.6 |
| 2.5°  | 3045.2 | 3031.6 | 3001.2 | 3028.9 | 3023.4 |
| 5°    | 3031.6 | 3017.9 | 2982.1 | 3006.8 | 2998.6 |
| 7.5°  | 3006.8 | 2990.5 | 2952.1 | 2962.9 | 2949.2 |
| 10°   | 2973.9 | 2954.7 | 2900.0 | 2891.5 | 2875.2 |
| 12.5° | 2932.9 | 2908.2 | 2833.9 | 2817.6 | 2787.3 |
| 15°   | 2883.4 | 2853.2 | 2760.0 | 2707.8 | 2680.5 |
| 17.5° | 2825.8 | 2781.8 | 2666.5 | 2606.3 | 2562.4 |
| 20°   | 2760.0 | 2705.0 | 2567.8 | 2499.4 | 2438.9 |
| 22.5° | 2688.7 | 2625.5 | 2466.3 | 2373.1 | 2332.1 |
| 25°   | 2617.4 | 2529.4 | 2348.4 | 2236.0 | 2194.7 |
| 27.5° | 2532.4 | 2438.9 | 2238.6 | 2109.7 | 2046.5 |
| 30°   | 2441.8 | 2337.3 | 2117.9 | 1978.2 | 1903.9 |
| 32.5° | 2353.9 | 2227.6 | 2002.9 | 1838.2 | 1769.4 |
| 35°   | 2255.3 | 2115.3 | 1873.9 | 1701.1 | 1640.5 |
| 37.5° | 2159.2 | 2008.2 | 1753.1 | 1563.7 | 1495.3 |
| 40°   | 2057.6 | 1893.2 | 1626.8 | 1432.1 | 1360.8 |
| 42.5° | 1953.4 | 1777.9 | 1500.7 | 1297.6 | 1229.2 |
| 45°   | 1843.7 | 1659.7 | 1371.8 | 1176.8 | 1111.0 |
| 47.5° | 1739.5 | 1544.8 | 1248.4 | 1053.4 | 993.2  |
| 50°   | 1624.2 | 1429.4 | 1127.6 | 938.1  | 880.8  |
| 52.5° | 1511.6 | 1305.8 | 1012.4 | 831.3  | 779.2  |
| 55°   | 1401.8 | 1187.9 | 891.5  | 727.1  | 675.0  |
| 57.5° | 1289.5 | 1070.0 | 784.8  | 631.1  | 587.1  |
| 60°   | 1174.2 | 954.7  | 672.1  | 532.4  | 488.4  |
| 62.5° | 1061.9 | 842.4  | 576.0  | 444.5  | 422.7  |
| 65°   | 946.5  | 724.2  | 477.3  | 384.2  | 375.8  |
| 67.5° | 836.8  | 614.4  | 384.2  | 337.3  | 329.2  |
| 70°   | 721.6  | 507.7  | 318.2  | 290.8  | 279.7  |
| 72.5° | 611.8  | 408.6  | 266.0  | 244.2  | 238.7  |
| 75°   | 504.7  | 312.6  | 219.5  | 200.2  | 197.6  |
| 77.5° | 397.9  | 222.1  | 172.9  | 161.9  | 156.3  |
| 80°   | 298.9  | 159.3  | 131.5  | 120.8  | 120.8  |
| 82.5° | 208.4  | 107.1  | 90.5   | 85.0   | 85.0   |
| 85°   | 117.8  | 60.2   | 52.1   | 52.1   | 52.1   |
| 87.5° | 43.9   | 21.8   | 21.8   | 19.2   | 19.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

TEST NUMBER: P931436

CATALOG NUMBER: DFN2DS-TR3F0-090DS930-RLL

**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 | 15.85            | 17.37 | 16.22 | 17.69 | 18.00 | 11.81          | 13.34 | 12.18 | 13.65 | 13.96 |
|                 | 3H   | 17.62            | 18.98 | 18.00 | 19.31 | 19.67 | 13.08          | 14.44 | 13.46 | 14.77 | 15.13 |
|                 | 4H   | 18.28            | 19.56 | 18.68 | 19.91 | 20.29 | 13.58          | 14.86 | 13.98 | 15.21 | 15.59 |
|                 | 6H   | 18.77            | 19.96 | 19.19 | 20.32 | 20.71 | 13.96          | 15.14 | 14.37 | 15.51 | 15.90 |
|                 | 8H   | 18.94            | 20.06 | 19.36 | 20.45 | 20.86 | 14.09          | 15.21 | 14.51 | 15.60 | 16.00 |
|                 | 12H  | 19.04            | 20.12 | 19.47 | 20.50 | 20.93 | 14.17          | 15.24 | 14.60 | 15.63 | 16.06 |
| 4H              | 2H   | 15.96            | 17.24 | 16.36 | 17.59 | 17.96 | 12.51          | 13.79 | 12.91 | 14.14 | 14.52 |
|                 | 3H   | 17.89            | 18.95 | 18.30 | 19.35 | 19.75 | 13.95          | 15.01 | 14.36 | 15.41 | 15.82 |
|                 | 4H   | 18.64            | 19.60 | 19.07 | 20.01 | 20.45 | 14.55          | 15.51 | 14.98 | 15.92 | 16.36 |
|                 | 6H   | 19.23            | 20.06 | 19.69 | 20.51 | 20.97 | 15.04          | 15.87 | 15.50 | 16.31 | 16.77 |
|                 | 8H   | 19.45            | 20.22 | 19.91 | 20.67 | 21.13 | 15.20          | 15.98 | 15.66 | 16.42 | 16.89 |
|                 | 12H  | 19.60            | 20.29 | 20.08 | 20.77 | 21.24 | 15.32          | 16.01 | 15.80 | 16.49 | 16.96 |
| 8H              | 4H   | 18.66            | 19.44 | 19.13 | 19.88 | 20.35 | 14.90          | 15.68 | 15.37 | 16.13 | 16.59 |
|                 | 6H   | 19.30            | 19.94 | 19.80 | 20.43 | 20.91 | 15.49          | 16.13 | 15.99 | 16.63 | 17.10 |
|                 | 8H   | 19.55            | 20.13 | 20.07 | 20.64 | 21.13 | 15.71          | 16.29 | 16.23 | 16.80 | 17.29 |
|                 | 12H  | 19.76            | 20.26 | 20.26 | 20.76 | 21.32 | 15.89          | 16.40 | 16.40 | 16.89 | 17.46 |
| 12H             | 4H   | 18.65            | 19.34 | 19.13 | 19.82 | 20.29 | 14.95          | 15.64 | 15.43 | 16.12 | 16.59 |
|                 | 6H   | 19.28            | 19.86 | 19.80 | 20.37 | 20.86 | 15.55          | 16.13 | 16.07 | 16.64 | 17.13 |
|                 | 8H   | 19.57            | 20.08 | 20.08 | 20.57 | 21.13 | 15.83          | 16.34 | 16.34 | 16.83 | 17.39 |