

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: P931336

Luminaire Tested: DFN2DS-TR3F0-040DS830-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931336  
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-TR3F0-040DS830-RLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

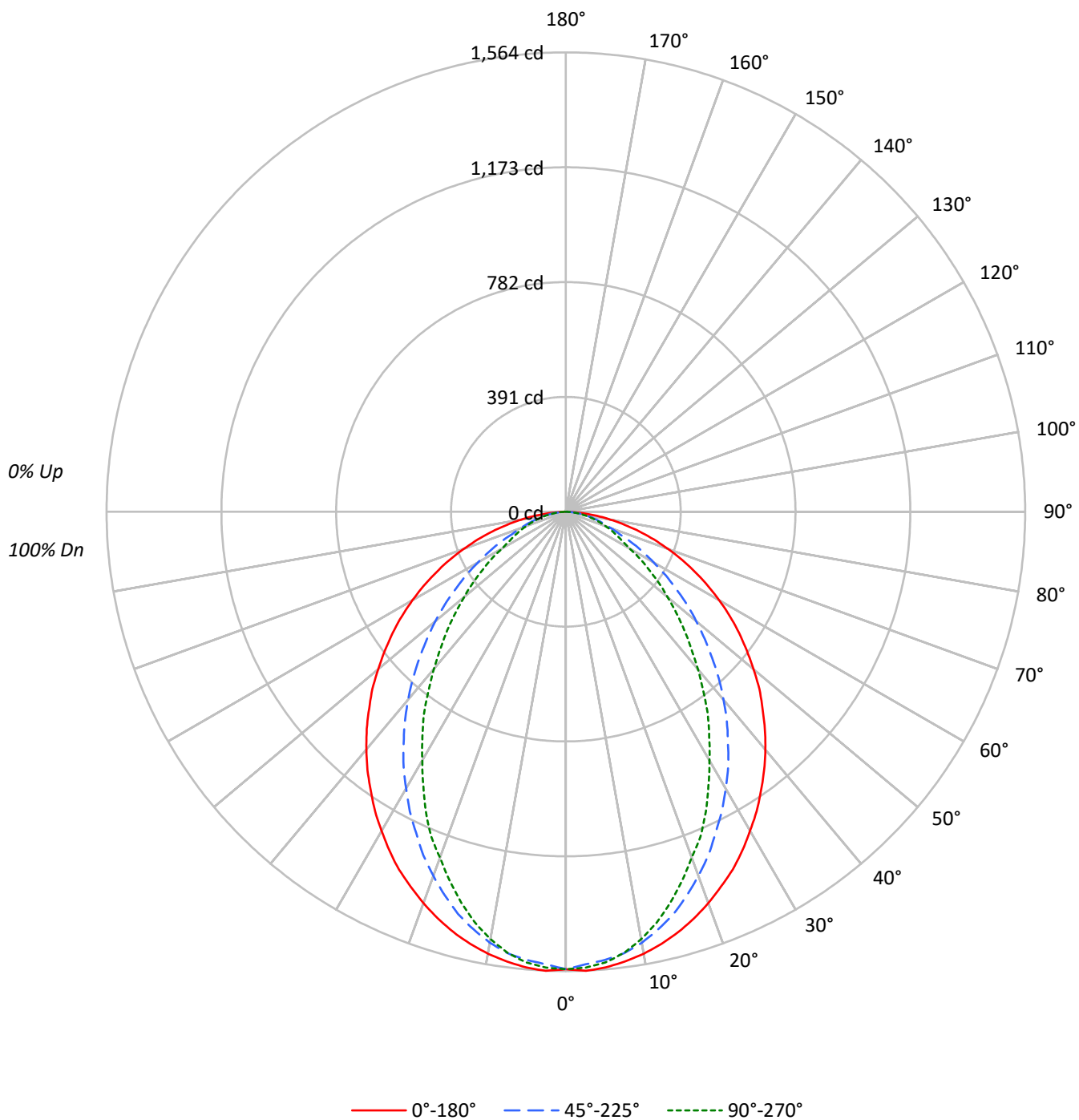
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3202.8 lumens  
Efficiency: N/A  
Efficacy: 81.7 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): 39.2  
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

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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  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 |
| 1   | 110 | 106 | 102 | 98  | 107 | 103 | 100 | 97  | 99  | 96  | 94  |  | 95  | 93  | 91  |  | 92  |
| 2   | 101 | 94  | 87  | 82  | 98  | 92  | 86  | 81  | 88  | 83  | 79  |  | 85  | 81  | 78  |  | 82  |
| 3   | 93  | 83  | 76  | 70  | 90  | 82  | 75  | 69  | 79  | 73  | 68  |  | 76  | 71  | 67  |  | 74  |
| 4   | 86  | 75  | 66  | 60  | 83  | 73  | 66  | 60  | 71  | 64  | 59  |  | 69  | 63  | 58  |  | 66  |
| 5   | 79  | 67  | 59  | 53  | 77  | 66  | 58  | 52  | 64  | 57  | 52  |  | 62  | 56  | 51  |  | 60  |
| 6   | 74  | 61  | 53  | 47  | 72  | 60  | 52  | 46  | 58  | 51  | 46  |  | 57  | 50  | 46  |  | 55  |
| 7   | 68  | 56  | 47  | 42  | 67  | 55  | 47  | 42  | 53  | 46  | 41  |  | 52  | 46  | 41  |  | 51  |
| 8   | 64  | 51  | 43  | 38  | 62  | 51  | 43  | 37  | 49  | 42  | 37  |  | 48  | 42  | 37  |  | 47  |
| 9   | 60  | 47  | 39  | 34  | 59  | 47  | 39  | 34  | 46  | 39  | 34  |  | 44  | 38  | 34  |  | 44  |
| 10  | 56  | 44  | 36  | 31  | 55  | 43  | 36  | 31  | 42  | 36  | 31  |  | 41  | 35  | 31  |  | 41  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1941 | 1941 | 1941 |
| 5°  | 1948 | 1916 | 1927 |
| 10° | 1933 | 1885 | 1869 |
| 15° | 1911 | 1829 | 1776 |
| 20° | 1880 | 1749 | 1661 |
| 25° | 1849 | 1659 | 1550 |
| 30° | 1805 | 1565 | 1407 |
| 35° | 1762 | 1464 | 1282 |
| 40° | 1719 | 1359 | 1137 |
| 45° | 1669 | 1242 | 1006 |
| 50° | 1617 | 1123 | 877  |
| 55° | 1565 | 995  | 753  |
| 60° | 1503 | 860  | 625  |
| 65° | 1434 | 723  | 569  |
| 70° | 1351 | 595  | 524  |
| 75° | 1248 | 543  | 489  |
| 80° | 1102 | 484  | 446  |
| 85° | 866  | 383  | 383  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1669 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 146.0  | 4.6       |
| 10°-20°   | 400.7  | 12.5      |
| 20°-30°   | 562.5  | 17.6      |
| 30°-40°   | 613.2  | 19.1      |
| 40°-50°   | 563.6  | 17.6      |
| 50°-60°   | 442.6  | 13.8      |
| 60°-70°   | 288.1  | 9.0       |
| 70°-80°   | 148.3  | 4.6       |
| 80°-90°   | 37.9   | 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°    | 1109.1 | 34.6      |
| 0°-40°    | 1722.3 | 53.8      |
| 0°-60°    | 2728.5 | 85.2      |
| 0°-90°    | 3202.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3202.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1557 | 1557  | 1557 | 1557  | 1557 |      |
| 5°  | 1557 | 1550  | 1532 | 1545  | 1540 | 148  |
| 15° | 1481 | 1466  | 1418 | 1391  | 1377 | 417  |
| 25° | 1344 | 1299  | 1206 | 1149  | 1127 | 618  |
| 35° | 1159 | 1087  | 963  | 874   | 843  | 725  |
| 45° | 947  | 853   | 705  | 605   | 571  | 731  |
| 55° | 720  | 610   | 458  | 374   | 347  | 644  |
| 65° | 486  | 372   | 245  | 197   | 193  | 482  |
| 75° | 259  | 161   | 113  | 103   | 102  | 274  |
| 85° | 61   | 31    | 27   | 27    | 27   | 73   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1557.3 | 1557.3 | 1557.3 | 1557.3 | 1557.3 |
| 2.5°  | 1564.4 | 1557.3 | 1541.8 | 1556.0 | 1553.1 |
| 5°    | 1557.3 | 1550.2 | 1531.9 | 1544.6 | 1540.5 |
| 7.5°  | 1544.6 | 1536.2 | 1516.5 | 1522.0 | 1515.0 |
| 10°   | 1527.7 | 1517.8 | 1489.7 | 1485.3 | 1477.1 |
| 12.5° | 1506.6 | 1493.9 | 1455.8 | 1447.4 | 1431.8 |
| 15°   | 1481.2 | 1465.7 | 1417.8 | 1391.1 | 1377.0 |
| 17.5° | 1451.6 | 1429.0 | 1369.8 | 1338.9 | 1316.3 |
| 20°   | 1417.8 | 1389.5 | 1319.1 | 1283.9 | 1252.9 |
| 22.5° | 1381.2 | 1348.8 | 1266.9 | 1219.0 | 1198.0 |
| 25°   | 1344.5 | 1299.4 | 1206.3 | 1148.7 | 1127.4 |
| 27.5° | 1300.9 | 1252.9 | 1150.0 | 1083.8 | 1051.3 |
| 30°   | 1254.4 | 1200.7 | 1087.9 | 1016.1 | 978.1  |
| 32.5° | 1209.2 | 1144.3 | 1028.9 | 944.3  | 908.9  |
| 35°   | 1158.6 | 1086.6 | 962.6  | 873.8  | 842.7  |
| 37.5° | 1109.2 | 1031.6 | 900.6  | 803.2  | 768.1  |
| 40°   | 1057.0 | 972.5  | 835.7  | 735.7  | 699.1  |
| 42.5° | 1003.4 | 913.3  | 770.9  | 666.6  | 631.4  |
| 45°   | 947.1  | 852.6  | 704.7  | 604.6  | 570.8  |
| 47.5° | 893.6  | 793.5  | 641.3  | 541.2  | 510.2  |
| 50°   | 834.3  | 734.3  | 579.2  | 481.9  | 452.4  |
| 52.5° | 776.5  | 670.8  | 520.1  | 427.0  | 400.3  |
| 55°   | 720.2  | 610.2  | 458.0  | 373.5  | 346.8  |
| 57.5° | 662.4  | 549.7  | 403.1  | 324.1  | 301.6  |
| 60°   | 603.2  | 490.4  | 345.2  | 273.5  | 250.9  |
| 62.5° | 545.5  | 432.8  | 295.9  | 228.3  | 217.1  |
| 65°   | 486.3  | 372.0  | 245.2  | 197.3  | 193.0  |
| 67.5° | 429.9  | 315.7  | 197.3  | 173.3  | 169.1  |
| 70°   | 370.7  | 260.7  | 163.4  | 149.4  | 143.7  |
| 72.5° | 314.3  | 210.0  | 136.7  | 125.5  | 122.6  |
| 75°   | 259.2  | 160.6  | 112.8  | 102.9  | 101.5  |
| 77.5° | 204.4  | 114.1  | 88.8   | 83.2   | 80.3   |
| 80°   | 153.5  | 81.8   | 67.5   | 62.1   | 62.1   |
| 82.5° | 107.1  | 55.0   | 46.5   | 43.6   | 43.6   |
| 85°   | 60.6   | 31.0   | 26.8   | 26.8   | 26.8   |
| 87.5° | 22.6   | 11.2   | 11.2   | 9.9    | 9.9    |
| 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 | 13.54            | 15.06 | 13.90 | 15.37 | 15.69 | 9.50           | 11.02 | 9.86  | 11.33 | 11.65 |
|                 | 3H   | 15.30            | 16.67 | 15.68 | 17.00 | 17.36 | 10.76          | 12.13 | 11.14 | 12.46 | 12.82 |
|                 | 4H   | 15.97            | 17.25 | 16.37 | 17.60 | 17.98 | 11.26          | 12.55 | 11.66 | 12.89 | 13.27 |
|                 | 6H   | 16.46            | 17.64 | 16.87 | 18.01 | 18.40 | 11.65          | 12.83 | 12.06 | 13.20 | 13.59 |
|                 | 8H   | 16.62            | 17.75 | 17.05 | 18.14 | 18.54 | 11.77          | 12.90 | 12.20 | 13.29 | 13.69 |
|                 | 12H  | 16.73            | 17.81 | 17.16 | 18.19 | 18.62 | 11.85          | 12.93 | 12.28 | 13.31 | 13.74 |
| 4H              | 2H   | 13.64            | 14.92 | 14.04 | 15.27 | 15.65 | 10.19          | 11.47 | 10.59 | 11.82 | 12.20 |
|                 | 3H   | 15.58            | 16.64 | 15.99 | 17.04 | 17.44 | 11.64          | 12.70 | 12.05 | 13.10 | 13.50 |
|                 | 4H   | 16.33            | 17.28 | 16.76 | 17.70 | 18.14 | 12.24          | 13.19 | 12.67 | 13.61 | 14.05 |
|                 | 6H   | 16.92            | 17.75 | 17.37 | 18.19 | 18.65 | 12.73          | 13.56 | 13.18 | 14.00 | 14.46 |
|                 | 8H   | 17.13            | 17.91 | 17.59 | 18.35 | 18.82 | 12.89          | 13.66 | 13.35 | 14.11 | 14.58 |
|                 | 12H  | 17.28            | 17.98 | 17.77 | 18.46 | 18.93 | 13.00          | 13.70 | 13.49 | 14.18 | 14.65 |
| 8H              | 4H   | 16.35            | 17.13 | 16.81 | 17.57 | 18.04 | 12.59          | 13.37 | 13.05 | 13.81 | 14.28 |
|                 | 6H   | 16.99            | 17.63 | 17.48 | 18.12 | 18.60 | 13.18          | 13.82 | 13.67 | 14.31 | 14.79 |
|                 | 8H   | 17.24            | 17.81 | 17.75 | 18.32 | 18.81 | 13.40          | 13.97 | 13.91 | 14.48 | 14.97 |
|                 | 12H  | 17.44            | 17.95 | 17.95 | 18.44 | 19.01 | 13.58          | 14.09 | 14.09 | 14.58 | 15.14 |
| 12H             | 4H   | 16.33            | 17.03 | 16.82 | 17.51 | 17.98 | 12.63          | 13.33 | 13.12 | 13.81 | 14.28 |
|                 | 6H   | 16.97            | 17.54 | 17.48 | 18.05 | 18.54 | 13.24          | 13.82 | 13.75 | 14.33 | 14.82 |
|                 | 8H   | 17.25            | 17.76 | 17.76 | 18.25 | 18.82 | 13.51          | 14.02 | 14.02 | 14.52 | 15.08 |