

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: P930536

Luminaire Tested: DFN2DS-PN3F0-040DS930-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930536  
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-PN3F0-040DS930-RLL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

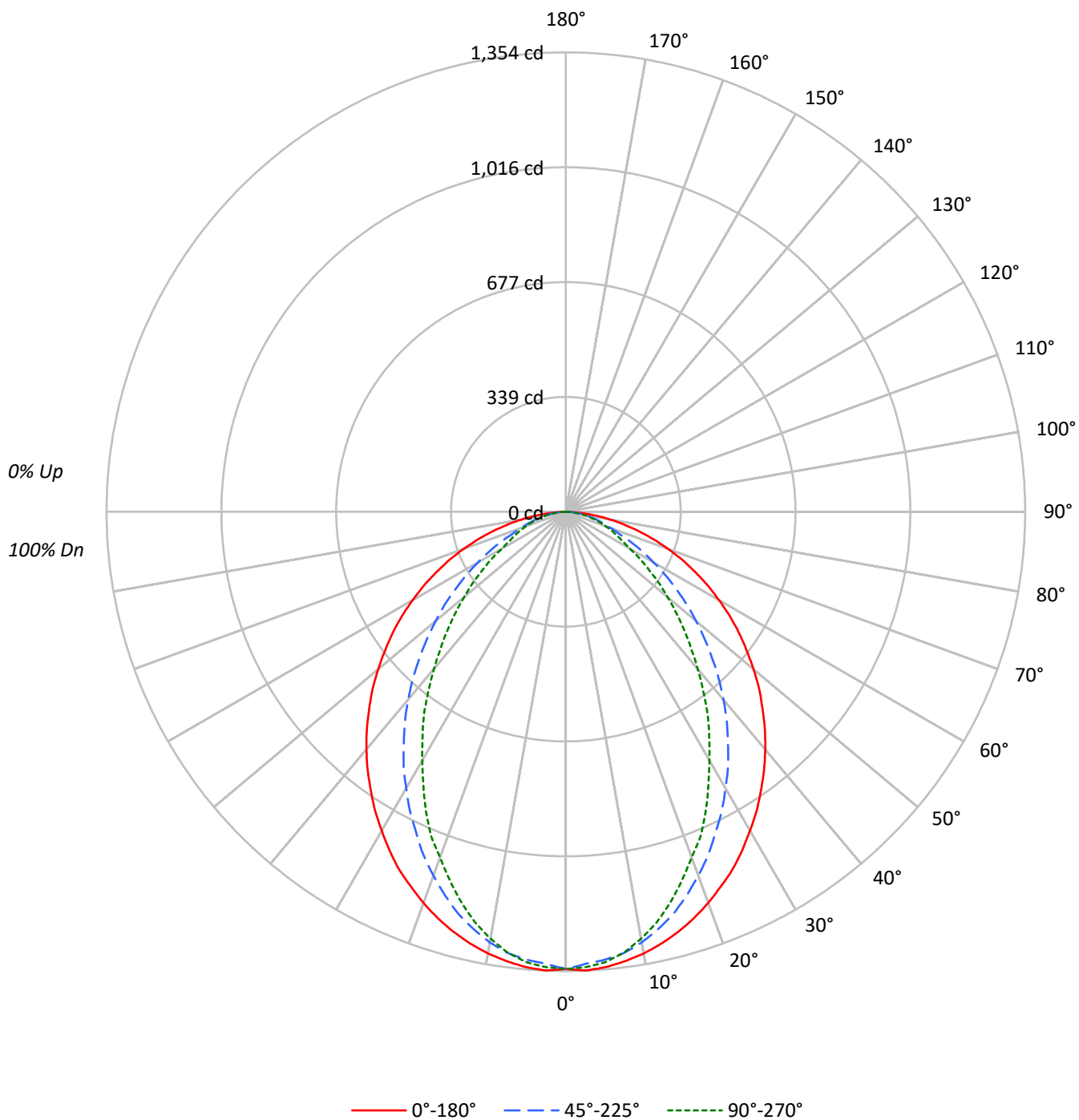
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2771.0 lumens  
Efficiency: N/A  
Efficacy: 71.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.11' x L: 2.96' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 38.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
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°  | 1575 | 1575 | 1575 |
| 5°  | 1581 | 1555 | 1564 |
| 10° | 1569 | 1530 | 1517 |
| 15° | 1551 | 1485 | 1442 |
| 20° | 1526 | 1420 | 1348 |
| 25° | 1500 | 1346 | 1258 |
| 30° | 1465 | 1270 | 1142 |
| 35° | 1430 | 1188 | 1040 |
| 40° | 1396 | 1103 | 923  |
| 45° | 1355 | 1008 | 816  |
| 50° | 1313 | 911  | 712  |
| 55° | 1270 | 808  | 611  |
| 60° | 1220 | 698  | 508  |
| 65° | 1164 | 587  | 462  |
| 70° | 1096 | 483  | 425  |
| 75° | 1013 | 441  | 397  |
| 80° | 894  | 393  | 362  |
| 85° | 703  | 310  | 310  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1355 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 126.3  | 4.6       |
| 10°-20°   | 346.7  | 12.5      |
| 20°-30°   | 486.7  | 17.6      |
| 30°-40°   | 530.5  | 19.1      |
| 40°-50°   | 487.6  | 17.6      |
| 50°-60°   | 382.9  | 13.8      |
| 60°-70°   | 249.3  | 9.0       |
| 70°-80°   | 128.3  | 4.6       |
| 80°-90°   | 32.8   | 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°    | 959.6  | 34.6      |
| 0°-40°    | 1490.1 | 53.8      |
| 0°-60°    | 2360.7 | 85.2      |
| 0°-90°    | 2771.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2771.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1347 | 1347  | 1347 | 1347  | 1347 |      |
| 5°  | 1347 | 1341  | 1325 | 1336  | 1333 | 128  |
| 15° | 1282 | 1268  | 1227 | 1204  | 1191 | 361  |
| 25° | 1163 | 1124  | 1044 | 994   | 975  | 535  |
| 35° | 1002 | 940   | 833  | 756   | 729  | 627  |
| 45° | 819  | 738   | 610  | 523   | 494  | 633  |
| 55° | 623  | 528   | 396  | 323   | 300  | 557  |
| 65° | 421  | 322   | 212  | 171   | 167  | 417  |
| 75° | 224  | 139   | 98   | 89    | 88   | 237  |
| 85° | 52   | 27    | 23   | 23    | 23   | 63   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1347.4 | 1347.4 | 1347.4 | 1347.4 | 1347.4 |
| 2.5°  | 1353.5 | 1347.4 | 1333.9 | 1346.2 | 1343.7 |
| 5°    | 1347.4 | 1341.2 | 1325.4 | 1336.4 | 1332.8 |
| 7.5°  | 1336.4 | 1329.1 | 1312.1 | 1316.8 | 1310.8 |
| 10°   | 1321.8 | 1313.2 | 1288.8 | 1285.1 | 1277.9 |
| 12.5° | 1303.5 | 1292.5 | 1259.5 | 1252.2 | 1238.8 |
| 15°   | 1281.5 | 1268.1 | 1226.7 | 1203.5 | 1191.4 |
| 17.5° | 1255.9 | 1236.4 | 1185.1 | 1158.4 | 1138.8 |
| 20°   | 1226.7 | 1202.2 | 1141.2 | 1110.8 | 1083.9 |
| 22.5° | 1195.0 | 1166.9 | 1096.1 | 1054.7 | 1036.5 |
| 25°   | 1163.2 | 1124.2 | 1043.7 | 993.8  | 975.4  |
| 27.5° | 1125.5 | 1083.9 | 995.0  | 937.7  | 909.5  |
| 30°   | 1085.3 | 1038.8 | 941.2  | 879.1  | 846.2  |
| 32.5° | 1046.2 | 990.1  | 890.1  | 817.0  | 786.4  |
| 35°   | 1002.4 | 940.1  | 832.8  | 756.0  | 729.1  |
| 37.5° | 959.7  | 892.5  | 779.1  | 695.0  | 664.6  |
| 40°   | 914.5  | 841.4  | 723.1  | 636.5  | 604.8  |
| 42.5° | 868.1  | 790.1  | 667.0  | 576.7  | 546.3  |
| 45°   | 819.4  | 737.7  | 609.7  | 523.1  | 493.8  |
| 47.5° | 773.1  | 686.6  | 554.9  | 468.2  | 441.4  |
| 50°   | 721.8  | 635.3  | 501.1  | 417.0  | 391.4  |
| 52.5° | 671.8  | 580.4  | 450.0  | 369.4  | 346.3  |
| 55°   | 623.1  | 528.0  | 396.3  | 323.1  | 300.0  |
| 57.5° | 573.1  | 475.6  | 348.7  | 280.4  | 261.0  |
| 60°   | 521.8  | 424.3  | 298.7  | 236.6  | 217.1  |
| 62.5° | 472.0  | 374.4  | 256.0  | 197.6  | 187.9  |
| 65°   | 420.7  | 321.8  | 212.1  | 170.7  | 167.0  |
| 67.5° | 372.0  | 273.1  | 170.7  | 150.0  | 146.3  |
| 70°   | 320.7  | 225.6  | 141.4  | 129.3  | 124.3  |
| 72.5° | 272.0  | 181.7  | 118.3  | 108.6  | 106.1  |
| 75°   | 224.3  | 139.0  | 97.6   | 89.0   | 87.9   |
| 77.5° | 176.9  | 98.7   | 76.9   | 72.0   | 69.4   |
| 80°   | 132.8  | 70.7   | 58.4   | 53.7   | 53.7   |
| 82.5° | 92.7   | 47.6   | 40.3   | 37.7   | 37.7   |
| 85°   | 52.4   | 26.8   | 23.1   | 23.1   | 23.1   |
| 87.5° | 19.6   | 9.7    | 9.7    | 8.6    | 8.6    |
| 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 | 12.81            | 14.34 | 13.18 | 14.65 | 14.96 | 8.77           | 10.29 | 9.14  | 10.61 | 10.92 |
|                 | 3H   | 14.58            | 15.94 | 14.96 | 16.27 | 16.63 | 10.04          | 11.40 | 10.42 | 11.73 | 12.09 |
|                 | 4H   | 15.25            | 16.53 | 15.64 | 16.87 | 17.25 | 10.54          | 11.82 | 10.94 | 12.17 | 12.55 |
|                 | 6H   | 15.73            | 16.92 | 16.15 | 17.28 | 17.68 | 10.92          | 12.10 | 11.33 | 12.47 | 12.86 |
|                 | 8H   | 15.90            | 17.03 | 16.33 | 17.42 | 17.82 | 11.05          | 12.17 | 11.47 | 12.56 | 12.96 |
|                 | 12H  | 16.00            | 17.08 | 16.43 | 17.46 | 17.89 | 11.13          | 12.20 | 11.56 | 12.59 | 13.02 |
| 4H              | 2H   | 12.92            | 14.20 | 13.32 | 14.55 | 14.93 | 9.47           | 10.75 | 9.87  | 11.10 | 11.48 |
|                 | 3H   | 14.85            | 15.91 | 15.26 | 16.31 | 16.71 | 10.91          | 11.97 | 11.32 | 12.37 | 12.78 |
|                 | 4H   | 15.60            | 16.56 | 16.03 | 16.97 | 17.41 | 11.51          | 12.47 | 11.94 | 12.88 | 13.32 |
|                 | 6H   | 16.19            | 17.02 | 16.65 | 17.47 | 17.93 | 12.00          | 12.83 | 12.46 | 13.27 | 13.73 |
|                 | 8H   | 16.41            | 17.18 | 16.87 | 17.63 | 18.10 | 12.16          | 12.94 | 12.62 | 13.38 | 13.85 |
|                 | 12H  | 16.56            | 17.25 | 17.04 | 17.73 | 18.20 | 12.28          | 12.97 | 12.76 | 13.45 | 13.92 |
| 8H              | 4H   | 15.62            | 16.40 | 16.09 | 16.85 | 17.31 | 11.87          | 12.64 | 12.33 | 13.09 | 13.55 |
|                 | 6H   | 16.26            | 16.90 | 16.76 | 17.40 | 17.87 | 12.45          | 13.09 | 12.95 | 13.59 | 14.06 |
|                 | 8H   | 16.51            | 17.09 | 17.03 | 17.60 | 18.09 | 12.67          | 13.25 | 13.19 | 13.76 | 14.25 |
|                 | 12H  | 16.72            | 17.23 | 17.23 | 17.72 | 18.28 | 12.85          | 13.36 | 13.36 | 13.85 | 14.42 |
| 12H             | 4H   | 15.61            | 16.30 | 16.09 | 16.78 | 17.25 | 11.91          | 12.60 | 12.39 | 13.08 | 13.55 |
|                 | 6H   | 16.24            | 16.82 | 16.76 | 17.33 | 17.82 | 12.52          | 13.09 | 13.03 | 13.60 | 14.09 |
|                 | 8H   | 16.53            | 17.04 | 17.04 | 17.53 | 18.09 | 12.79          | 13.30 | 13.30 | 13.79 | 14.35 |