

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: P931469

Luminaire Tested: DFN2DS-TR4F0-050DS927-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931469  
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-TR4F0-050DS927-FLL  
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

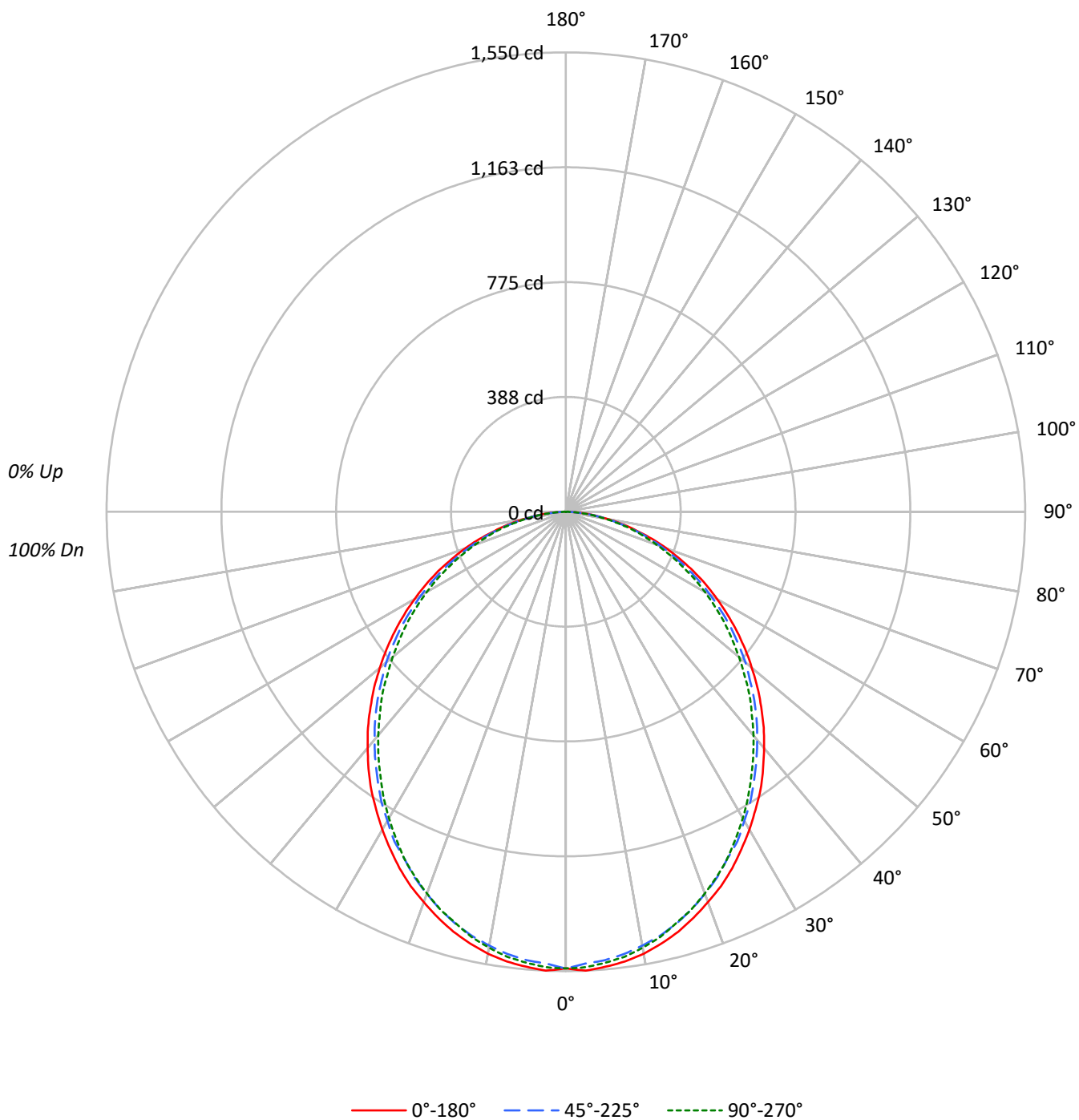
Lumens per Lamp: N/A  
Luminaire Lumens: 3920.4 lumens  
Efficiency: N/A  
Efficacy: 81.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.96' x L: 3.43' x H: 0')  
CIE Type: Direct

Input Watts (W): 48.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.996  
Total Harmonic Distortion (THDi): 0.064  
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   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 91  | 89  |  | 90  |
| 2   | 99  | 91  | 85  | 79  | 97  | 89  | 83  | 78  | 86  | 81  | 76  |  | 83  | 78  | 74  |  | 80  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 69  | 64  |  | 73  | 68  | 63  |  | 71  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  |  | 65  | 59  | 54  |  | 63  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 57  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  |  | 53  | 47  | 42  |  | 52  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 38  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 47  |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  |  | 45  | 38  | 33  |  | 44  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 36  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 40  |
| 10  | 54  | 41  | 33  | 28  | 53  | 40  | 33  | 28  | 39  | 32  | 27  |  | 38  | 32  | 27  |  | 37  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1224 | 1224 | 1224 |
| 5°  | 1229 | 1211 | 1218 |
| 10° | 1222 | 1199 | 1205 |
| 15° | 1206 | 1183 | 1182 |
| 20° | 1185 | 1160 | 1159 |
| 25° | 1164 | 1131 | 1131 |
| 30° | 1136 | 1105 | 1096 |
| 35° | 1111 | 1073 | 1058 |
| 40° | 1079 | 1042 | 1022 |
| 45° | 1047 | 1010 | 985  |
| 50° | 1013 | 978  | 943  |
| 55° | 977  | 940  | 905  |
| 60° | 937  | 895  | 862  |
| 65° | 894  | 849  | 811  |
| 70° | 840  | 795  | 757  |
| 75° | 764  | 732  | 714  |
| 80° | 678  | 657  | 624  |
| 85° | 553  | 527  | 473  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1047 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 145.0  | 3.7       |
| 10°-20°   | 408.0  | 10.4      |
| 20°-30°   | 599.7  | 15.3      |
| 30°-40°   | 696.5  | 17.8      |
| 40°-50°   | 695.6  | 17.7      |
| 50°-60°   | 606.6  | 15.5      |
| 60°-70°   | 448.4  | 11.4      |
| 70°-80°   | 253.7  | 6.5       |
| 80°-90°   | 67.0   | 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°    | 1152.7 | 29.4      |
| 0°-40°    | 1849.2 | 47.2      |
| 0°-60°    | 3151.4 | 80.4      |
| 0°-90°    | 3920.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3920.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1541 | 1541  | 1541 | 1541  | 1541 |      |
| 5°  | 1541 | 1535  | 1519 | 1530  | 1528 | 146  |
| 15° | 1467 | 1458  | 1439 | 1445  | 1437 | 413  |
| 25° | 1328 | 1316  | 1291 | 1293  | 1291 | 611  |
| 35° | 1145 | 1131  | 1107 | 1098  | 1090 | 715  |
| 45° | 932  | 922   | 899  | 883   | 877  | 719  |
| 55° | 705  | 696   | 679  | 661   | 654  | 631  |
| 65° | 476  | 467   | 452  | 439   | 431  | 470  |
| 75° | 249  | 246   | 238  | 230   | 233  | 266  |
| 85° | 61   | 59    | 58   | 53    | 52   | 71   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1540.8 | 1540.8 | 1540.8 | 1540.8 | 1540.8 |
| 2.5°  | 1549.8 | 1542.4 | 1526.1 | 1540.8 | 1538.1 |
| 5°    | 1540.8 | 1535.1 | 1518.7 | 1530.5 | 1527.7 |
| 7.5°  | 1530.5 | 1521.7 | 1505.4 | 1517.3 | 1514.3 |
| 10°   | 1514.3 | 1503.9 | 1486.2 | 1497.9 | 1493.6 |
| 12.5° | 1492.0 | 1483.2 | 1465.4 | 1472.8 | 1469.8 |
| 15°   | 1466.8 | 1458.0 | 1438.7 | 1444.7 | 1437.2 |
| 17.5° | 1435.7 | 1426.9 | 1407.5 | 1414.9 | 1407.5 |
| 20°   | 1401.6 | 1392.8 | 1372.1 | 1376.4 | 1370.6 |
| 22.5° | 1367.6 | 1354.2 | 1334.9 | 1334.9 | 1331.9 |
| 25°   | 1327.6 | 1315.7 | 1290.6 | 1293.4 | 1290.6 |
| 27.5° | 1283.0 | 1272.7 | 1253.5 | 1249.1 | 1241.7 |
| 30°   | 1238.7 | 1226.8 | 1204.6 | 1200.2 | 1194.3 |
| 32.5° | 1191.2 | 1182.5 | 1158.7 | 1149.7 | 1143.8 |
| 35°   | 1145.3 | 1130.6 | 1106.8 | 1097.9 | 1090.5 |
| 37.5° | 1093.4 | 1080.1 | 1056.4 | 1046.0 | 1038.6 |
| 40°   | 1040.2 | 1028.3 | 1004.5 | 991.3  | 985.3  |
| 42.5° | 988.3  | 976.4  | 952.8  | 937.8  | 929.0  |
| 45°   | 932.0  | 921.7  | 899.3  | 883.2  | 877.1  |
| 47.5° | 877.1  | 866.8  | 843.1  | 826.7  | 817.9  |
| 50°   | 819.3  | 812.0  | 791.2  | 770.5  | 763.0  |
| 52.5° | 763.0  | 752.6  | 733.5  | 717.2  | 706.8  |
| 55°   | 705.4  | 696.4  | 678.6  | 660.8  | 653.5  |
| 57.5° | 647.5  | 640.1  | 620.8  | 603.0  | 597.0  |
| 60°   | 589.6  | 583.9  | 563.1  | 546.7  | 542.4  |
| 62.5° | 533.4  | 523.0  | 508.2  | 493.4  | 487.5  |
| 65°   | 475.7  | 466.7  | 451.9  | 438.6  | 431.2  |
| 67.5° | 416.4  | 408.9  | 395.7  | 385.3  | 379.3  |
| 70°   | 361.5  | 355.6  | 342.2  | 331.8  | 326.1  |
| 72.5° | 305.3  | 299.3  | 291.9  | 281.6  | 277.1  |
| 75°   | 248.8  | 246.0  | 238.5  | 229.7  | 232.7  |
| 77.5° | 198.6  | 192.5  | 189.6  | 185.2  | 180.8  |
| 80°   | 148.3  | 146.7  | 143.7  | 139.3  | 136.3  |
| 82.5° | 100.7  | 100.7  | 99.3   | 93.4   | 93.4   |
| 85°   | 60.7   | 59.2   | 57.8   | 53.3   | 51.9   |
| 87.5° | 26.7   | 23.8   | 20.8   | 16.3   | 14.8   |
| 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 | 11.99            | 13.60 | 12.35 | 13.91 | 14.22 | 11.54          | 13.15 | 11.91 | 13.47 | 13.78 |
|                 | 3H   | 13.74            | 15.19 | 14.11 | 15.52 | 15.88 | 13.24          | 14.70 | 13.62 | 15.03 | 15.39 |
|                 | 4H   | 14.38            | 15.75 | 14.78 | 16.10 | 16.47 | 13.89          | 15.26 | 14.29 | 15.60 | 15.98 |
|                 | 6H   | 14.85            | 16.12 | 15.26 | 16.48 | 16.87 | 14.35          | 15.62 | 14.76 | 15.98 | 16.37 |
|                 | 8H   | 14.99            | 16.20 | 15.42 | 16.59 | 16.99 | 14.49          | 15.70 | 14.92 | 16.09 | 16.49 |
|                 | 12H  | 15.08            | 16.24 | 15.51 | 16.63 | 17.05 | 14.57          | 15.73 | 15.00 | 16.11 | 16.54 |
| 4H              | 2H   | 12.55            | 13.91 | 12.94 | 14.26 | 14.64 | 12.19          | 13.56 | 12.59 | 13.91 | 14.29 |
|                 | 3H   | 14.52            | 15.67 | 14.93 | 16.06 | 16.46 | 14.11          | 15.26 | 14.52 | 15.66 | 16.06 |
|                 | 4H   | 15.30            | 16.33 | 15.73 | 16.75 | 17.18 | 14.87          | 15.91 | 15.30 | 16.32 | 16.76 |
|                 | 6H   | 15.89            | 16.80 | 16.35 | 17.24 | 17.70 | 15.46          | 16.37 | 15.92 | 16.81 | 17.26 |
|                 | 8H   | 16.08            | 16.93 | 16.54 | 17.37 | 17.84 | 15.65          | 16.49 | 16.11 | 16.93 | 17.40 |
|                 | 12H  | 16.21            | 16.97 | 16.70 | 17.45 | 17.92 | 15.76          | 16.52 | 16.24 | 17.00 | 17.47 |
| 8H              | 4H   | 15.57            | 16.42 | 16.03 | 16.86 | 17.32 | 15.20          | 16.04 | 15.66 | 16.49 | 16.95 |
|                 | 6H   | 16.28            | 16.99 | 16.78 | 17.48 | 17.95 | 15.90          | 16.61 | 16.40 | 17.09 | 17.57 |
|                 | 8H   | 16.54            | 17.17 | 17.05 | 17.68 | 18.17 | 16.15          | 16.78 | 16.66 | 17.29 | 17.78 |
|                 | 12H  | 16.74            | 17.30 | 17.25 | 17.79 | 18.35 | 16.33          | 16.89 | 16.84 | 17.38 | 17.94 |
| 12H             | 4H   | 15.60            | 16.36 | 16.08 | 16.83 | 17.30 | 15.23          | 15.99 | 15.71 | 16.47 | 16.94 |
|                 | 6H   | 16.33            | 16.96 | 16.84 | 17.47 | 17.95 | 15.96          | 16.59 | 16.47 | 17.10 | 17.59 |
|                 | 8H   | 16.64            | 17.20 | 17.15 | 17.69 | 18.25 | 16.27          | 16.82 | 16.77 | 17.31 | 17.88 |