

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: P930534

Luminaire Tested: DFN2DS-PN3F0-040DS927-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930534  
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-PN3F0-040DS927-RLL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

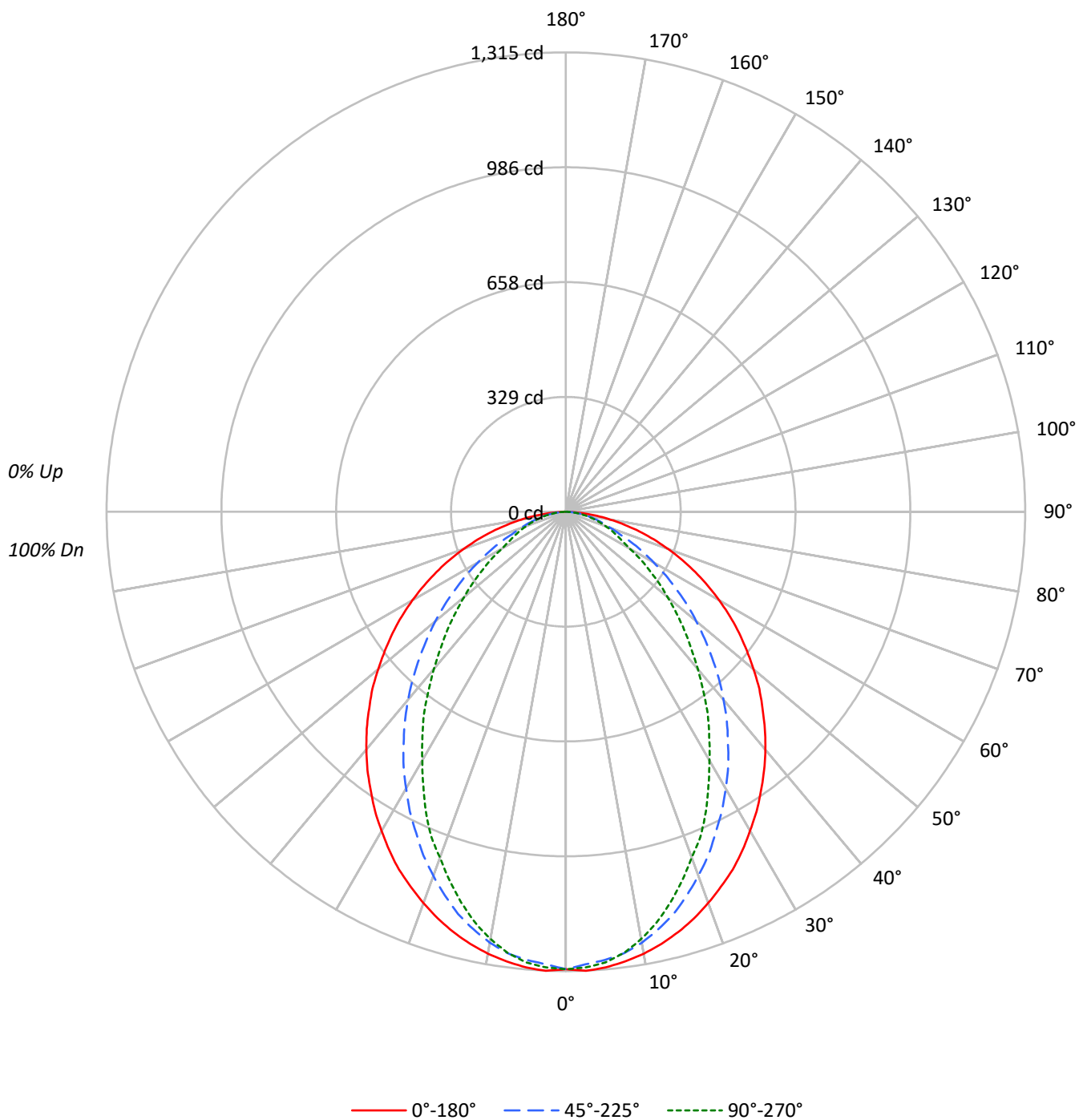
Lumens per Lamp: N/A  
Luminaire Lumens: 2692.8 lumens  
Efficiency: N/A  
Efficacy: 69.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.11' x L: 2.96' x H: 0')  
CIE Type: Direct

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°  | 1531 | 1531 | 1531 |
| 5°  | 1536 | 1511 | 1520 |
| 10° | 1525 | 1487 | 1474 |
| 15° | 1507 | 1443 | 1401 |
| 20° | 1483 | 1380 | 1310 |
| 25° | 1458 | 1308 | 1223 |
| 30° | 1424 | 1235 | 1110 |
| 35° | 1390 | 1155 | 1011 |
| 40° | 1356 | 1072 | 897  |
| 45° | 1316 | 980  | 793  |
| 50° | 1276 | 886  | 692  |
| 55° | 1234 | 785  | 594  |
| 60° | 1186 | 679  | 493  |
| 65° | 1131 | 570  | 449  |
| 70° | 1065 | 470  | 413  |
| 75° | 985  | 428  | 386  |
| 80° | 869  | 382  | 351  |
| 85° | 683  | 302  | 302  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1316 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 122.7  | 4.6       |
| 10°-20°   | 336.9  | 12.5      |
| 20°-30°   | 473.0  | 17.6      |
| 30°-40°   | 515.5  | 19.1      |
| 40°-50°   | 473.8  | 17.6      |
| 50°-60°   | 372.1  | 13.8      |
| 60°-70°   | 242.2  | 9.0       |
| 70°-80°   | 124.7  | 4.6       |
| 80°-90°   | 31.8   | 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°    | 932.5  | 34.6      |
| 0°-40°    | 1448.1 | 53.8      |
| 0°-60°    | 2294.1 | 85.2      |
| 0°-90°    | 2692.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2692.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1309 | 1309  | 1309 | 1309  | 1309 |      |
| 5°  | 1309 | 1303  | 1288 | 1299  | 1295 | 124  |
| 15° | 1245 | 1232  | 1192 | 1170  | 1158 | 351  |
| 25° | 1130 | 1092  | 1014 | 966   | 948  | 520  |
| 35° | 974  | 914   | 809  | 735   | 708  | 610  |
| 45° | 796  | 717   | 592  | 508   | 480  | 615  |
| 55° | 606  | 513   | 385  | 314   | 292  | 541  |
| 65° | 409  | 313   | 206  | 166   | 162  | 405  |
| 75° | 218  | 135   | 95   | 86    | 85   | 231  |
| 85° | 51   | 26    | 22   | 22    | 22   | 61   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P930534

CATALOG NUMBER: DFN2DS-PN3F0-040DS927-RLL

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1309.3 | 1309.3 | 1309.3 | 1309.3 | 1309.3 |
| 2.5°  | 1315.3 | 1309.3 | 1296.3 | 1308.2 | 1305.8 |
| 5°    | 1309.3 | 1303.4 | 1288.0 | 1298.6 | 1295.2 |
| 7.5°  | 1298.6 | 1291.6 | 1275.0 | 1279.6 | 1273.8 |
| 10°   | 1284.5 | 1276.1 | 1252.5 | 1248.8 | 1241.9 |
| 12.5° | 1266.7 | 1256.0 | 1224.0 | 1216.9 | 1203.8 |
| 15°   | 1245.3 | 1232.3 | 1192.0 | 1169.5 | 1157.7 |
| 17.5° | 1220.5 | 1201.5 | 1151.6 | 1125.7 | 1106.7 |
| 20°   | 1192.0 | 1168.3 | 1109.0 | 1079.5 | 1053.4 |
| 22.5° | 1161.2 | 1134.0 | 1065.2 | 1024.9 | 1007.3 |
| 25°   | 1130.4 | 1092.5 | 1014.2 | 965.8  | 947.9  |
| 27.5° | 1093.8 | 1053.4 | 966.9  | 911.2  | 883.9  |
| 30°   | 1054.6 | 1009.5 | 914.7  | 854.3  | 822.3  |
| 32.5° | 1016.7 | 962.1  | 865.0  | 793.9  | 764.2  |
| 35°   | 974.1  | 913.6  | 809.3  | 734.7  | 708.5  |
| 37.5° | 932.6  | 867.3  | 757.2  | 675.3  | 645.8  |
| 40°   | 888.7  | 817.7  | 702.7  | 618.6  | 587.7  |
| 42.5° | 843.6  | 767.8  | 648.2  | 560.4  | 530.9  |
| 45°   | 796.3  | 716.8  | 592.5  | 508.3  | 479.9  |
| 47.5° | 751.3  | 667.2  | 539.2  | 455.0  | 428.9  |
| 50°   | 701.5  | 617.4  | 487.0  | 405.2  | 380.4  |
| 52.5° | 652.8  | 564.0  | 437.3  | 359.0  | 336.5  |
| 55°   | 605.5  | 513.1  | 385.1  | 314.0  | 291.5  |
| 57.5° | 556.9  | 462.1  | 338.9  | 272.5  | 253.6  |
| 60°   | 507.1  | 412.3  | 290.3  | 229.9  | 211.0  |
| 62.5° | 458.6  | 363.8  | 248.8  | 192.0  | 182.6  |
| 65°   | 408.8  | 312.8  | 206.2  | 165.9  | 162.3  |
| 67.5° | 361.5  | 265.4  | 165.9  | 145.7  | 142.2  |
| 70°   | 311.7  | 219.2  | 137.4  | 125.6  | 120.8  |
| 72.5° | 264.3  | 176.5  | 114.9  | 105.5  | 103.1  |
| 75°   | 218.0  | 135.0  | 94.8   | 86.5   | 85.4   |
| 77.5° | 171.9  | 95.9   | 74.7   | 69.9   | 67.5   |
| 80°   | 129.1  | 68.7   | 56.8   | 52.2   | 52.2   |
| 82.5° | 90.1   | 46.3   | 39.1   | 36.7   | 36.7   |
| 85°   | 50.9   | 26.1   | 22.5   | 22.5   | 22.5   |
| 87.5° | 19.0   | 9.4    | 9.4    | 8.3    | 8.3    |
| 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 | 12.71            | 14.23 | 13.08 | 14.55 | 14.86 | 8.67           | 10.19 | 9.04  | 10.51 | 10.82 |
|                 | 3H   | 14.48            | 15.84 | 14.86 | 16.17 | 16.53 | 9.94           | 11.30 | 10.32 | 11.63 | 11.99 |
|                 | 4H   | 15.15            | 16.43 | 15.54 | 16.77 | 17.15 | 10.44          | 11.72 | 10.84 | 12.07 | 12.45 |
|                 | 6H   | 15.63            | 16.82 | 16.05 | 17.18 | 17.58 | 10.82          | 12.00 | 11.23 | 12.37 | 12.76 |
|                 | 8H   | 15.80            | 16.93 | 16.23 | 17.32 | 17.72 | 10.95          | 12.07 | 11.37 | 12.46 | 12.86 |
|                 | 12H  | 15.90            | 16.98 | 16.33 | 17.36 | 17.79 | 11.03          | 12.11 | 11.46 | 12.49 | 12.92 |
| 4H              | 2H   | 12.82            | 14.10 | 13.22 | 14.45 | 14.82 | 9.37           | 10.65 | 9.77  | 11.00 | 11.38 |
|                 | 3H   | 14.75            | 15.81 | 15.16 | 16.21 | 16.61 | 10.81          | 11.88 | 11.22 | 12.28 | 12.68 |
|                 | 4H   | 15.50            | 16.46 | 15.93 | 16.87 | 17.31 | 11.41          | 12.37 | 11.84 | 12.78 | 13.22 |
|                 | 6H   | 16.09            | 16.92 | 16.55 | 17.37 | 17.83 | 11.90          | 12.73 | 12.36 | 13.18 | 13.63 |
|                 | 8H   | 16.31            | 17.08 | 16.77 | 17.53 | 18.00 | 12.06          | 12.84 | 12.53 | 13.28 | 13.75 |
|                 | 12H  | 16.46            | 17.15 | 16.94 | 17.63 | 18.10 | 12.18          | 12.87 | 12.66 | 13.35 | 13.82 |
| 8H              | 4H   | 15.52            | 16.30 | 15.99 | 16.75 | 17.21 | 11.77          | 12.54 | 12.23 | 12.99 | 13.45 |
|                 | 6H   | 16.16            | 16.80 | 16.66 | 17.30 | 17.77 | 12.35          | 13.00 | 12.85 | 13.49 | 13.96 |
|                 | 8H   | 16.41            | 16.99 | 16.93 | 17.50 | 17.99 | 12.57          | 13.15 | 13.09 | 13.66 | 14.15 |
|                 | 12H  | 16.62            | 17.13 | 17.13 | 17.62 | 18.18 | 12.75          | 13.26 | 13.26 | 13.75 | 14.32 |
| 12H             | 4H   | 15.51            | 16.20 | 15.99 | 16.68 | 17.15 | 11.81          | 12.50 | 12.29 | 12.98 | 13.45 |
|                 | 6H   | 16.14            | 16.72 | 16.66 | 17.23 | 17.72 | 12.42          | 12.99 | 12.93 | 13.50 | 13.99 |
|                 | 8H   | 16.43            | 16.94 | 16.94 | 17.43 | 17.99 | 12.69          | 13.20 | 13.20 | 13.69 | 14.26 |