

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: P931154

Luminaire Tested: DFN2DS-SQ4F0-100DS950-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931154  
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-SQ4F0-100DS950-RLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

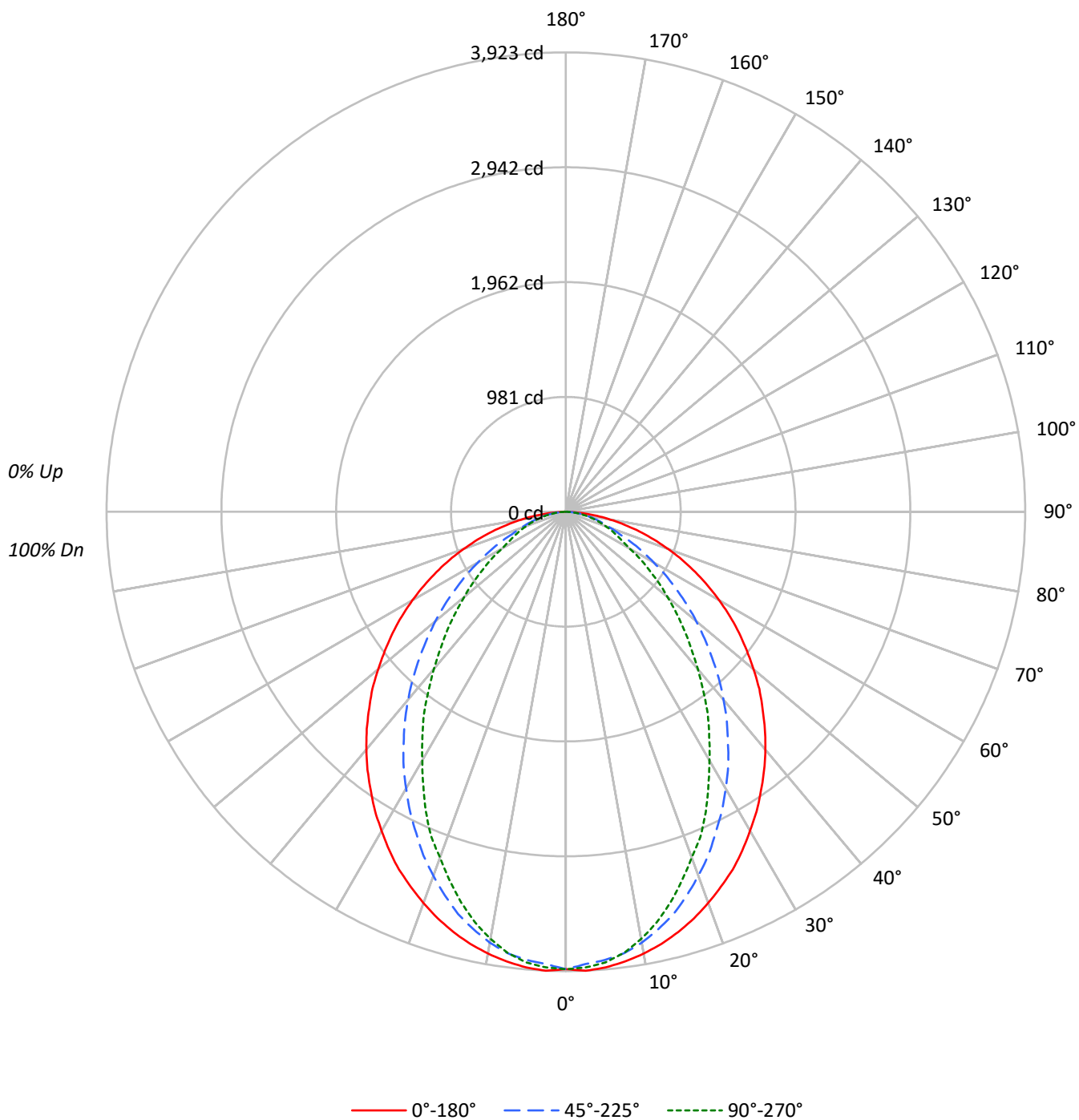
Lumens per Lamp: N/A  
Luminaire Lumens: 8032.5 lumens  
Efficiency: N/A  
Efficacy: 79.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.92' x L: 3.92' x H: 0')  
CIE Type: Direct

Input Watts (W): 100.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
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   | 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°  | 2741 | 2741 | 2741 |
| 5°  | 2751 | 2706 | 2721 |
| 10° | 2730 | 2662 | 2639 |
| 15° | 2699 | 2583 | 2509 |
| 20° | 2655 | 2470 | 2346 |
| 25° | 2611 | 2342 | 2189 |
| 30° | 2549 | 2211 | 1987 |
| 35° | 2489 | 2068 | 1810 |
| 40° | 2428 | 1920 | 1606 |
| 45° | 2357 | 1754 | 1420 |
| 50° | 2284 | 1586 | 1239 |
| 55° | 2209 | 1405 | 1064 |
| 60° | 2123 | 1215 | 883  |
| 65° | 2025 | 1021 | 804  |
| 70° | 1907 | 841  | 739  |
| 75° | 1763 | 766  | 690  |
| 80° | 1556 | 685  | 629  |
| 85° | 1223 | 540  | 540  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2357 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 366.0  | 4.6       |
| 10°-20°   | 1004.9 | 12.5      |
| 20°-30°   | 1410.8 | 17.6      |
| 30°-40°   | 1537.9 | 19.1      |
| 40°-50°   | 1413.5 | 17.6      |
| 50°-60°   | 1110.1 | 13.8      |
| 60°-70°   | 722.5  | 9.0       |
| 70°-80°   | 371.9  | 4.6       |
| 80°-90°   | 95.0   | 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°    | 2781.7 | 34.6      |
| 0°-40°    | 4319.6 | 53.8      |
| 0°-60°    | 6843.1 | 85.2      |
| 0°-90°    | 8032.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 8032.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3906 | 3906  | 3906 | 3906  | 3906 |      |
| 5°  | 3906 | 3888  | 3842 | 3874  | 3863 | 370  |
| 15° | 3715 | 3676  | 3556 | 3489  | 3453 | 1047 |
| 25° | 3372 | 3259  | 3026 | 2881  | 2828 | 1551 |
| 35° | 2906 | 2725  | 2414 | 2192  | 2114 | 1819 |
| 45° | 2375 | 2138  | 1767 | 1516  | 1431 | 1834 |
| 55° | 1806 | 1530  | 1149 | 937   | 870  | 1614 |
| 65° | 1220 | 933   | 615  | 495   | 484  | 1209 |
| 75° | 650  | 403   | 283  | 258   | 255  | 688  |
| 85° | 152  | 78    | 67   | 67    | 67   | 182  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3905.7 | 3905.7 | 3905.7 | 3905.7 | 3905.7 |
| 2.5°  | 3923.3 | 3905.7 | 3866.7 | 3902.3 | 3895.2 |
| 5°    | 3905.7 | 3888.0 | 3841.9 | 3873.8 | 3863.3 |
| 7.5°  | 3873.8 | 3852.8 | 3803.2 | 3817.1 | 3799.6 |
| 10°   | 3831.4 | 3806.6 | 3736.2 | 3725.3 | 3704.3 |
| 12.5° | 3778.6 | 3746.6 | 3651.0 | 3630.0 | 3591.0 |
| 15°   | 3714.8 | 3675.8 | 3555.8 | 3488.7 | 3453.4 |
| 17.5° | 3640.5 | 3583.9 | 3435.5 | 3357.8 | 3301.2 |
| 20°   | 3555.8 | 3484.9 | 3308.3 | 3220.2 | 3142.1 |
| 22.5° | 3463.9 | 3382.5 | 3177.4 | 3057.5 | 3004.5 |
| 25°   | 3372.0 | 3258.8 | 3025.5 | 2880.7 | 2827.5 |
| 27.5° | 3262.5 | 3142.1 | 2884.1 | 2718.0 | 2636.6 |
| 30°   | 3145.9 | 3011.2 | 2728.5 | 2548.6 | 2452.9 |
| 32.5° | 3032.7 | 2869.9 | 2580.4 | 2368.2 | 2279.6 |
| 35°   | 2905.5 | 2725.2 | 2414.3 | 2191.5 | 2113.5 |
| 37.5° | 2781.8 | 2587.1 | 2258.6 | 2014.6 | 1926.4 |
| 40°   | 2650.9 | 2439.0 | 2095.9 | 1845.0 | 1753.2 |
| 42.5° | 2516.6 | 2290.5 | 1933.6 | 1671.8 | 1583.6 |
| 45°   | 2375.3 | 2138.3 | 1767.4 | 1516.2 | 1431.4 |
| 47.5° | 2241.1 | 1990.2 | 1608.4 | 1357.1 | 1279.5 |
| 50°   | 2092.5 | 1841.6 | 1452.7 | 1208.7 | 1134.8 |
| 52.5° | 1947.4 | 1682.3 | 1304.3 | 1071.0 | 1003.9 |
| 55°   | 1806.0 | 1530.4 | 1148.6 | 936.8  | 869.6  |
| 57.5° | 1661.3 | 1378.5 | 1011.1 | 813.0  | 756.4  |
| 60°   | 1512.8 | 1230.0 | 865.9  | 685.9  | 629.3  |
| 62.5° | 1368.0 | 1085.2 | 742.1  | 572.7  | 544.5  |
| 65°   | 1219.5 | 933.0  | 615.0  | 495.0  | 484.1  |
| 67.5° | 1078.2 | 791.6  | 495.0  | 434.6  | 424.1  |
| 70°   | 929.6  | 654.0  | 409.8  | 374.6  | 360.4  |
| 72.5° | 788.2  | 526.5  | 342.8  | 314.6  | 307.5  |
| 75°   | 650.3  | 402.8  | 282.7  | 258.0  | 254.6  |
| 77.5° | 512.7  | 286.1  | 222.7  | 208.5  | 201.4  |
| 80°   | 385.1  | 205.2  | 169.5  | 155.6  | 155.6  |
| 82.5° | 268.5  | 138.0  | 116.6  | 109.5  | 109.5  |
| 85°   | 151.9  | 77.6   | 67.1   | 67.1   | 67.1   |
| 87.5° | 56.6   | 28.2   | 28.2   | 24.8   | 24.8   |
| 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 | 14.74            | 16.26 | 15.10 | 16.57 | 16.89 | 10.70          | 12.22 | 11.06 | 12.53 | 12.85 |
|                 | 3H   | 16.50            | 17.87 | 16.88 | 18.20 | 18.56 | 11.96          | 13.33 | 12.34 | 13.66 | 14.02 |
|                 | 4H   | 17.17            | 18.45 | 17.57 | 18.80 | 19.18 | 12.46          | 13.75 | 12.86 | 14.09 | 14.47 |
|                 | 6H   | 17.66            | 18.84 | 18.07 | 19.21 | 19.60 | 12.85          | 14.03 | 13.26 | 14.40 | 14.79 |
|                 | 8H   | 17.82            | 18.95 | 18.25 | 19.34 | 19.74 | 12.97          | 14.10 | 13.40 | 14.49 | 14.89 |
|                 | 12H  | 17.93            | 19.00 | 18.36 | 19.39 | 19.82 | 13.05          | 14.13 | 13.48 | 14.51 | 14.94 |
| 4H              | 2H   | 14.84            | 16.12 | 15.24 | 16.47 | 16.85 | 11.39          | 12.67 | 11.79 | 13.02 | 13.40 |
|                 | 3H   | 16.77            | 17.84 | 17.19 | 18.24 | 18.64 | 12.84          | 13.90 | 13.25 | 14.30 | 14.70 |
|                 | 4H   | 17.52            | 18.48 | 17.96 | 18.90 | 19.33 | 13.44          | 14.39 | 13.87 | 14.81 | 15.25 |
|                 | 6H   | 18.12            | 18.95 | 18.57 | 19.39 | 19.85 | 13.92          | 14.76 | 14.38 | 15.20 | 15.66 |
|                 | 8H   | 18.33            | 19.11 | 18.79 | 19.55 | 20.02 | 14.09          | 14.86 | 14.55 | 15.31 | 15.77 |
|                 | 12H  | 18.48            | 19.18 | 18.97 | 19.66 | 20.13 | 14.20          | 14.90 | 14.69 | 15.38 | 15.85 |
| 8H              | 4H   | 17.55            | 18.33 | 18.01 | 18.77 | 19.24 | 13.79          | 14.57 | 14.25 | 15.01 | 15.48 |
|                 | 6H   | 18.19            | 18.83 | 18.68 | 19.32 | 19.80 | 14.38          | 15.02 | 14.87 | 15.51 | 15.99 |
|                 | 8H   | 18.44            | 19.01 | 18.95 | 19.52 | 20.01 | 14.60          | 15.17 | 15.11 | 15.68 | 16.17 |
|                 | 12H  | 18.64            | 19.15 | 19.15 | 19.64 | 20.21 | 14.78          | 15.29 | 15.29 | 15.78 | 16.34 |
| 12H             | 4H   | 17.53            | 18.23 | 18.01 | 18.71 | 19.18 | 13.83          | 14.53 | 14.32 | 15.01 | 15.48 |
|                 | 6H   | 18.17            | 18.74 | 18.68 | 19.25 | 19.74 | 14.44          | 15.02 | 14.95 | 15.53 | 16.01 |
|                 | 8H   | 18.45            | 18.96 | 18.96 | 19.45 | 20.02 | 14.71          | 15.22 | 15.22 | 15.71 | 16.28 |