

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: P930987

Luminaire Tested: DFN2DS-SQ3F0-080DS935-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930987  
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-SQ3F0-080DS935-FLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

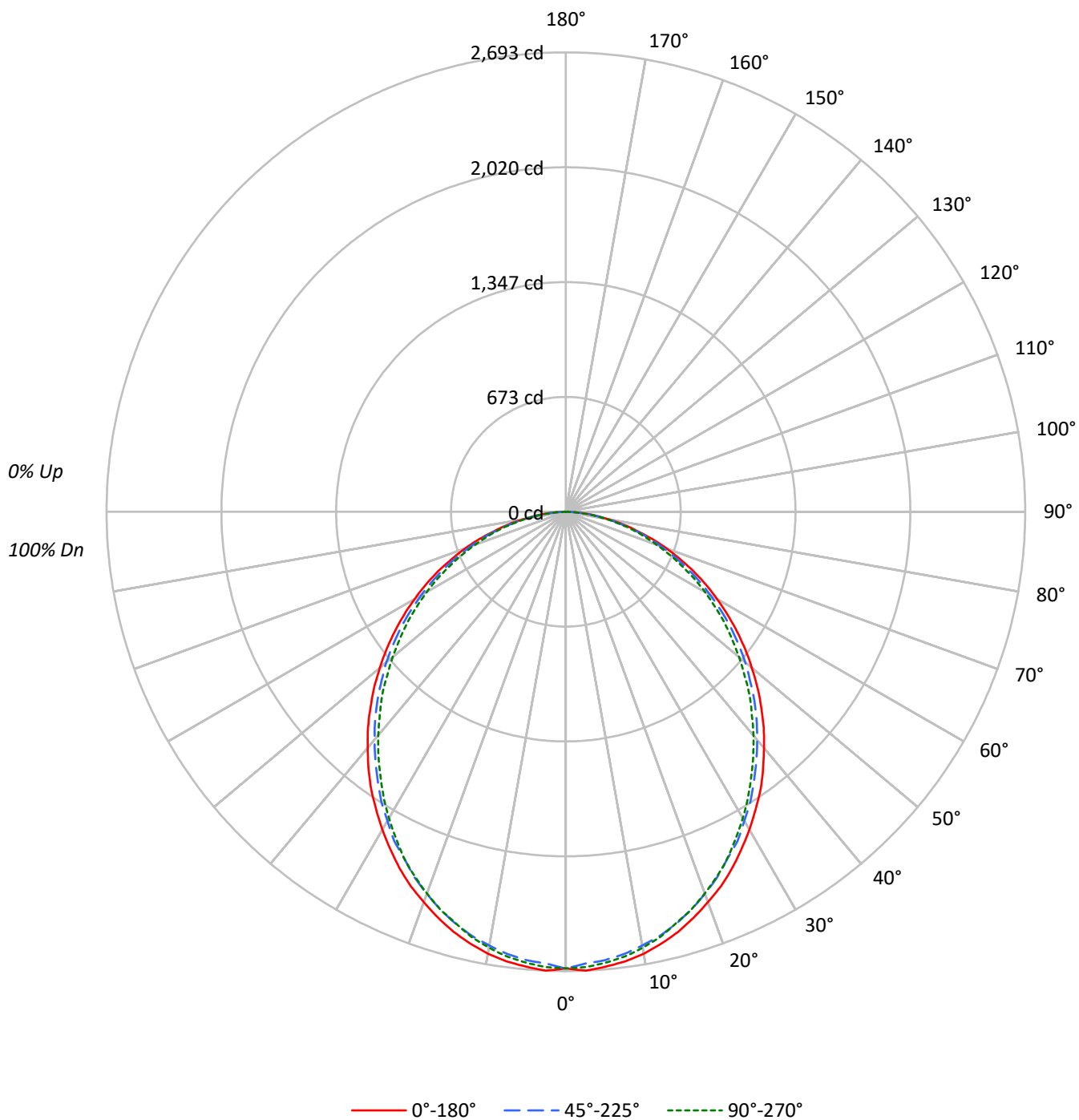
Lumens per Lamp: N/A  
Luminaire Lumens: 6811.2 lumens  
Efficiency: N/A  
Efficacy: 83.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.06' x L: 3.06' x H: 0')  
CIE Type: Direct

Input Watts (W): 82  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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  |     |     | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  | 30  | 10  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 | 102 | 102 | 100 |
| 1   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 91  | 89  |  | 90  | 88  | 86  | 84  |
| 2   | 99  | 91  | 85  | 79  | 97  | 89  | 83  | 78  | 86  | 81  | 76  |  | 83  | 78  | 74  |  | 80  | 76  | 73  | 71  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 69  | 64  |  | 73  | 68  | 63  |  | 71  | 66  | 62  | 60  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  |  | 65  | 59  | 54  |  | 63  | 58  | 54  | 51  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 57  | 51  | 47  | 45  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  |  | 53  | 47  | 42  |  | 52  | 46  | 41  | 39  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 38  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 47  | 41  | 37  | 35  |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  |  | 45  | 38  | 33  |  | 44  | 38  | 33  | 31  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 36  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 40  | 34  | 30  | 28  |
| 10  | 54  | 41  | 33  | 28  | 53  | 40  | 33  | 28  | 39  | 32  | 27  |  | 38  | 32  | 27  |  | 37  | 32  | 27  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3067 | 3067 | 3067 |
| 5°  | 3079 | 3035 | 3053 |
| 10° | 3061 | 3004 | 3019 |
| 15° | 3023 | 2965 | 2962 |
| 20° | 2969 | 2907 | 2904 |
| 25° | 2916 | 2835 | 2835 |
| 30° | 2847 | 2769 | 2745 |
| 35° | 2783 | 2690 | 2650 |
| 40° | 2703 | 2610 | 2560 |
| 45° | 2624 | 2532 | 2470 |
| 50° | 2537 | 2450 | 2363 |
| 55° | 2448 | 2355 | 2268 |
| 60° | 2348 | 2242 | 2159 |
| 65° | 2241 | 2129 | 2031 |
| 70° | 2104 | 1992 | 1897 |
| 75° | 1914 | 1834 | 1789 |
| 80° | 1700 | 1648 | 1563 |
| 85° | 1386 | 1321 | 1185 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2624 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 252.0  | 3.7       |
| 10°-20°   | 708.9  | 10.4      |
| 20°-30°   | 1041.8 | 15.3      |
| 30°-40°   | 1210.0 | 17.8      |
| 40°-50°   | 1208.5 | 17.7      |
| 50°-60°   | 1053.8 | 15.5      |
| 60°-70°   | 779.0  | 11.4      |
| 70°-80°   | 440.7  | 6.5       |
| 80°-90°   | 116.3  | 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°    | 2002.7 | 29.4      |
| 0°-40°    | 3212.8 | 47.2      |
| 0°-60°    | 5475.1 | 80.4      |
| 0°-90°    | 6811.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 6811.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2677 | 2677  | 2677 | 2677  | 2677 |      |
| 5°  | 2677 | 2667  | 2639 | 2659  | 2654 | 254  |
| 15° | 2548 | 2533  | 2500 | 2510  | 2497 | 718  |
| 25° | 2306 | 2286  | 2242 | 2247  | 2242 | 1061 |
| 35° | 1990 | 1964  | 1923 | 1907  | 1895 | 1243 |
| 45° | 1619 | 1601  | 1562 | 1534  | 1524 | 1250 |
| 55° | 1225 | 1210  | 1179 | 1148  | 1135 | 1096 |
| 65° | 826  | 811   | 785  | 762   | 749  | 817  |
| 75° | 432  | 427   | 414  | 399   | 404  | 462  |
| 85° | 105  | 103   | 100  | 93    | 90   | 124  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P930987

CATALOG NUMBER: DFN2DS-SQ3F0-080DS935-FLL

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2677.0 | 2677.0 | 2677.0 | 2677.0 | 2677.0 |
| 2.5°  | 2692.6 | 2679.8 | 2651.4 | 2677.0 | 2672.1 |
| 5°    | 2677.0 | 2666.9 | 2638.6 | 2659.0 | 2654.1 |
| 7.5°  | 2659.0 | 2643.7 | 2615.3 | 2636.1 | 2630.9 |
| 10°   | 2630.9 | 2612.9 | 2582.0 | 2602.4 | 2594.9 |
| 12.5° | 2592.1 | 2576.8 | 2545.9 | 2558.8 | 2553.6 |
| 15°   | 2548.4 | 2533.1 | 2499.5 | 2509.9 | 2497.1 |
| 17.5° | 2494.3 | 2479.0 | 2445.4 | 2458.3 | 2445.4 |
| 20°   | 2435.1 | 2419.8 | 2383.7 | 2391.4 | 2381.3 |
| 22.5° | 2376.1 | 2352.9 | 2319.2 | 2319.2 | 2314.1 |
| 25°   | 2306.4 | 2286.0 | 2242.3 | 2247.2 | 2242.3 |
| 27.5° | 2229.1 | 2211.1 | 2177.8 | 2170.1 | 2157.3 |
| 30°   | 2152.2 | 2131.3 | 2092.9 | 2085.2 | 2074.8 |
| 32.5° | 2069.7 | 2054.4 | 2013.1 | 1997.5 | 1987.2 |
| 35°   | 1989.9 | 1964.2 | 1923.0 | 1907.4 | 1894.6 |
| 37.5° | 1899.7 | 1876.5 | 1835.3 | 1817.3 | 1804.5 |
| 40°   | 1807.2 | 1786.4 | 1745.2 | 1722.2 | 1711.8 |
| 42.5° | 1717.1 | 1696.3 | 1655.3 | 1629.4 | 1614.1 |
| 45°   | 1619.3 | 1601.2 | 1562.4 | 1534.3 | 1524.0 |
| 47.5° | 1524.0 | 1505.9 | 1464.7 | 1436.3 | 1421.0 |
| 50°   | 1423.5 | 1410.7 | 1374.5 | 1338.5 | 1325.7 |
| 52.5° | 1325.7 | 1307.6 | 1274.3 | 1246.0 | 1227.9 |
| 55°   | 1225.4 | 1209.8 | 1179.1 | 1148.2 | 1135.3 |
| 57.5° | 1125.0 | 1112.2 | 1078.5 | 1047.7 | 1037.2 |
| 60°   | 1024.4 | 1014.4 | 978.2  | 949.9  | 942.2  |
| 62.5° | 926.6  | 908.7  | 883.0  | 857.3  | 846.9  |
| 65°   | 826.5  | 810.9  | 785.2  | 762.0  | 749.1  |
| 67.5° | 723.4  | 710.4  | 687.4  | 669.4  | 659.0  |
| 70°   | 628.1  | 617.7  | 594.6  | 576.5  | 566.4  |
| 72.5° | 530.4  | 520.0  | 507.1  | 489.2  | 481.5  |
| 75°   | 432.3  | 427.4  | 414.3  | 399.0  | 404.2  |
| 77.5° | 344.9  | 334.5  | 329.4  | 321.7  | 314.1  |
| 80°   | 257.6  | 254.8  | 249.7  | 242.0  | 236.8  |
| 82.5° | 175.1  | 175.1  | 172.6  | 162.2  | 162.2  |
| 85°   | 105.4  | 102.9  | 100.5  | 92.6   | 90.1   |
| 87.5° | 46.4   | 41.3   | 36.0   | 28.4   | 25.7   |
| 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 | 15.18            | 16.79 | 15.54 | 17.10 | 17.42 | 14.73          | 16.34 | 15.10 | 16.66 | 16.97 |
|                 | 3H   | 16.93            | 18.38 | 17.30 | 18.71 | 19.07 | 16.44          | 17.89 | 16.81 | 18.22 | 18.58 |
|                 | 4H   | 17.57            | 18.94 | 17.97 | 19.29 | 19.67 | 17.08          | 18.45 | 17.48 | 18.80 | 19.17 |
|                 | 6H   | 18.04            | 19.31 | 18.45 | 19.68 | 20.07 | 17.54          | 18.81 | 17.95 | 19.17 | 19.56 |
|                 | 8H   | 18.19            | 19.40 | 18.61 | 19.79 | 20.18 | 17.68          | 18.89 | 18.11 | 19.28 | 19.68 |
|                 | 12H  | 18.28            | 19.44 | 18.71 | 19.82 | 20.25 | 17.76          | 18.92 | 18.19 | 19.31 | 19.73 |
| 4H              | 2H   | 15.74            | 17.11 | 16.14 | 17.45 | 17.83 | 15.38          | 16.75 | 15.78 | 17.10 | 17.48 |
|                 | 3H   | 17.71            | 18.86 | 18.12 | 19.26 | 19.66 | 17.31          | 18.45 | 17.72 | 18.85 | 19.25 |
|                 | 4H   | 18.49            | 19.52 | 18.92 | 19.94 | 20.37 | 18.06          | 19.10 | 18.50 | 19.51 | 19.95 |
|                 | 6H   | 19.09            | 19.99 | 19.54 | 20.43 | 20.89 | 18.65          | 19.56 | 19.11 | 20.00 | 20.45 |
|                 | 8H   | 19.27            | 20.12 | 19.74 | 20.56 | 21.03 | 18.84          | 19.68 | 19.30 | 20.13 | 20.59 |
|                 | 12H  | 19.41            | 20.17 | 19.89 | 20.64 | 21.11 | 18.95          | 19.71 | 19.43 | 20.19 | 20.66 |
| 8H              | 4H   | 18.76            | 19.61 | 19.22 | 20.05 | 20.52 | 18.39          | 19.23 | 18.85 | 19.68 | 20.14 |
|                 | 6H   | 19.48            | 20.18 | 19.97 | 20.67 | 21.14 | 19.09          | 19.80 | 19.59 | 20.29 | 20.76 |
|                 | 8H   | 19.74            | 20.37 | 20.25 | 20.87 | 21.36 | 19.34          | 19.97 | 19.85 | 20.48 | 20.97 |
|                 | 12H  | 19.94            | 20.49 | 20.44 | 20.98 | 21.54 | 19.52          | 20.08 | 20.03 | 20.57 | 21.13 |
| 12H             | 4H   | 18.79            | 19.55 | 19.27 | 20.02 | 20.49 | 18.42          | 19.18 | 18.90 | 19.66 | 20.13 |
|                 | 6H   | 19.52            | 20.15 | 20.03 | 20.66 | 21.15 | 19.15          | 19.79 | 19.66 | 20.29 | 20.78 |
|                 | 8H   | 19.84            | 20.39 | 20.34 | 20.88 | 21.45 | 19.46          | 20.02 | 19.96 | 20.51 | 21.07 |