

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: P930979

Luminaire Tested: DFN2DS-SQ3F0-080DS840-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930979  
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-SQ3F0-080DS840-FLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

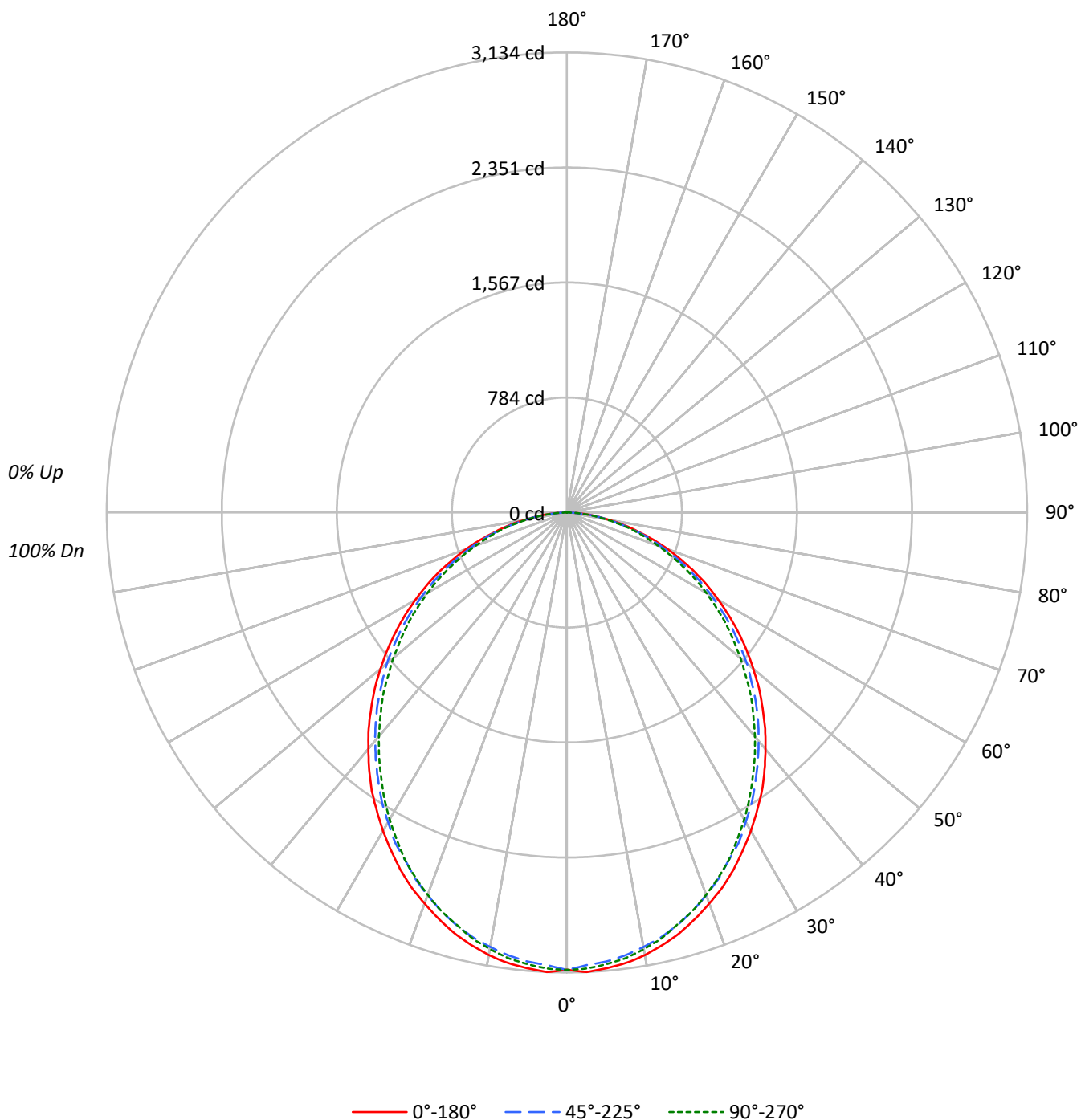
Lumens per Lamp: N/A  
Luminaire Lumens: 7927.9 lumens  
Efficiency: N/A  
Efficacy: 96.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.06' x L: 3.06' x H: 0')  
CIE Type: Direct

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  |
| 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°  | 3570 | 3570 | 3570 |
| 5°  | 3584 | 3532 | 3553 |
| 10° | 3563 | 3497 | 3514 |
| 15° | 3519 | 3451 | 3448 |
| 20° | 3456 | 3383 | 3380 |
| 25° | 3394 | 3300 | 3300 |
| 30° | 3314 | 3223 | 3195 |
| 35° | 3240 | 3131 | 3085 |
| 40° | 3146 | 3038 | 2980 |
| 45° | 3054 | 2947 | 2874 |
| 50° | 2954 | 2852 | 2750 |
| 55° | 2849 | 2742 | 2640 |
| 60° | 2733 | 2609 | 2513 |
| 65° | 2608 | 2478 | 2364 |
| 70° | 2449 | 2319 | 2209 |
| 75° | 2228 | 2135 | 2083 |
| 80° | 1978 | 1917 | 1819 |
| 85° | 1613 | 1538 | 1379 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 3054 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 293.3  | 3.7       |
| 10°-20°   | 825.2  | 10.4      |
| 20°-30°   | 1212.7 | 15.3      |
| 30°-40°   | 1408.4 | 17.8      |
| 40°-50°   | 1406.7 | 17.7      |
| 50°-60°   | 1226.6 | 15.5      |
| 60°-70°   | 906.7  | 11.4      |
| 70°-80°   | 513.0  | 6.5       |
| 80°-90°   | 135.4  | 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       |
| <hr/>     |        |           |
| 0°-30°    | 2331.1 | 29.4      |
| 0°-40°    | 3739.5 | 47.2      |
| 0°-60°    | 6372.8 | 80.4      |
| 0°-90°    | 7927.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7927.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3116 | 3116  | 3116 | 3116  | 3116 |      |
| 5°  | 3116 | 3104  | 3071 | 3095  | 3089 | 296  |
| 15° | 2966 | 2948  | 2909 | 2921  | 2906 | 835  |
| 25° | 2685 | 2661  | 2610 | 2616  | 2610 | 1235 |
| 35° | 2316 | 2286  | 2238 | 2220  | 2205 | 1446 |
| 45° | 1885 | 1864  | 1819 | 1786  | 1774 | 1455 |
| 55° | 1426 | 1408  | 1372 | 1336  | 1321 | 1275 |
| 65° | 962  | 944   | 914  | 887   | 872  | 951  |
| 75° | 503  | 498   | 482  | 464   | 470  | 537  |
| 85° | 123  | 120   | 117  | 108   | 105  | 144  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3115.9 | 3115.9 | 3115.9 | 3115.9 | 3115.9 |
| 2.5°  | 3134.0 | 3119.1 | 3086.1 | 3115.9 | 3110.2 |
| 5°    | 3115.9 | 3104.2 | 3071.2 | 3095.0 | 3089.3 |
| 7.5°  | 3095.0 | 3077.2 | 3044.1 | 3068.3 | 3062.3 |
| 10°   | 3062.3 | 3041.2 | 3005.3 | 3029.1 | 3020.3 |
| 12.5° | 3017.1 | 2999.3 | 2963.4 | 2978.3 | 2972.3 |
| 15°   | 2966.3 | 2948.4 | 2909.3 | 2921.4 | 2906.5 |
| 17.5° | 2903.3 | 2885.5 | 2846.3 | 2861.4 | 2846.3 |
| 20°   | 2834.3 | 2816.5 | 2774.6 | 2783.5 | 2771.7 |
| 22.5° | 2765.7 | 2738.6 | 2699.5 | 2699.5 | 2693.5 |
| 25°   | 2684.6 | 2660.8 | 2609.9 | 2615.6 | 2609.9 |
| 27.5° | 2594.6 | 2573.7 | 2534.8 | 2525.9 | 2511.0 |
| 30°   | 2505.0 | 2480.8 | 2436.0 | 2427.1 | 2415.0 |
| 32.5° | 2409.0 | 2391.2 | 2343.1 | 2325.0 | 2313.0 |
| 35°   | 2316.1 | 2286.3 | 2238.2 | 2220.1 | 2205.2 |
| 37.5° | 2211.2 | 2184.2 | 2136.2 | 2115.2 | 2100.3 |
| 40°   | 2103.5 | 2079.3 | 2031.3 | 2004.6 | 1992.5 |
| 42.5° | 1998.6 | 1974.4 | 1926.7 | 1896.5 | 1878.8 |
| 45°   | 1884.8 | 1863.8 | 1818.6 | 1785.9 | 1773.9 |
| 47.5° | 1773.9 | 1752.9 | 1704.8 | 1671.8 | 1654.0 |
| 50°   | 1656.9 | 1641.9 | 1599.9 | 1558.0 | 1543.0 |
| 52.5° | 1543.0 | 1522.0 | 1483.3 | 1450.2 | 1429.2 |
| 55°   | 1426.3 | 1408.2 | 1372.4 | 1336.4 | 1321.4 |
| 57.5° | 1309.4 | 1294.5 | 1255.4 | 1219.4 | 1207.3 |
| 60°   | 1192.4 | 1180.7 | 1138.6 | 1105.6 | 1096.7 |
| 62.5° | 1078.6 | 1057.7 | 1027.7 | 997.9  | 985.8  |
| 65°   | 962.0  | 943.8  | 913.9  | 886.9  | 872.0  |
| 67.5° | 842.0  | 826.8  | 800.1  | 779.2  | 767.1  |
| 70°   | 731.1  | 719.0  | 692.1  | 671.1  | 659.3  |
| 72.5° | 617.3  | 605.3  | 590.3  | 569.4  | 560.5  |
| 75°   | 503.2  | 497.5  | 482.3  | 464.5  | 470.5  |
| 77.5° | 401.5  | 389.4  | 383.4  | 374.5  | 365.6  |
| 80°   | 299.8  | 296.6  | 290.6  | 281.7  | 275.6  |
| 82.5° | 203.8  | 203.8  | 200.9  | 188.8  | 188.8  |
| 85°   | 122.7  | 119.8  | 117.0  | 107.8  | 104.9  |
| 87.5° | 54.1   | 48.0   | 41.9   | 33.0   | 29.9   |
| 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 | 15.70            | 17.32 | 16.07 | 17.63 | 17.94 | 15.26          | 16.87 | 15.62 | 17.18 | 17.50 |
|                 | 3H   | 17.45            | 18.91 | 17.83 | 19.24 | 19.60 | 16.96          | 18.42 | 17.34 | 18.74 | 19.10 |
|                 | 4H   | 18.10            | 19.47 | 18.50 | 19.82 | 20.19 | 17.61          | 18.97 | 18.00 | 19.32 | 19.70 |
|                 | 6H   | 18.57            | 19.84 | 18.98 | 20.20 | 20.59 | 18.07          | 19.34 | 18.48 | 19.70 | 20.09 |
|                 | 8H   | 18.71            | 19.92 | 19.14 | 20.31 | 20.71 | 18.21          | 19.42 | 18.63 | 19.81 | 20.21 |
|                 | 12H  | 18.80            | 19.96 | 19.23 | 20.34 | 20.77 | 18.29          | 19.45 | 18.72 | 19.83 | 20.26 |
| 4H              | 2H   | 16.26            | 17.63 | 16.66 | 17.98 | 18.36 | 15.91          | 17.28 | 16.31 | 17.63 | 18.00 |
|                 | 3H   | 18.24            | 19.39 | 18.65 | 19.78 | 20.18 | 17.83          | 18.98 | 18.24 | 19.38 | 19.78 |
|                 | 4H   | 19.02            | 20.05 | 19.45 | 20.47 | 20.90 | 18.59          | 19.63 | 19.02 | 20.04 | 20.48 |
|                 | 6H   | 19.61            | 20.52 | 20.07 | 20.96 | 21.41 | 19.18          | 20.09 | 19.63 | 20.53 | 20.98 |
|                 | 8H   | 19.80            | 20.65 | 20.26 | 21.09 | 21.56 | 19.36          | 20.21 | 19.82 | 20.65 | 21.12 |
|                 | 12H  | 19.93            | 20.69 | 20.41 | 21.17 | 21.64 | 19.48          | 20.24 | 19.96 | 20.72 | 21.19 |
| 8H              | 4H   | 19.29            | 20.14 | 19.75 | 20.58 | 21.04 | 18.92          | 19.76 | 19.38 | 20.20 | 20.67 |
|                 | 6H   | 20.00            | 20.71 | 20.50 | 21.20 | 21.67 | 19.62          | 20.33 | 20.12 | 20.81 | 21.29 |
|                 | 8H   | 20.26            | 20.89 | 20.77 | 21.40 | 21.89 | 19.87          | 20.50 | 20.38 | 21.01 | 21.50 |
|                 | 12H  | 20.46            | 21.02 | 20.97 | 21.51 | 22.07 | 20.05          | 20.61 | 20.56 | 21.10 | 21.66 |
| 12H             | 4H   | 19.32            | 20.08 | 19.80 | 20.55 | 21.02 | 18.95          | 19.71 | 19.43 | 20.19 | 20.66 |
|                 | 6H   | 20.05            | 20.68 | 20.56 | 21.19 | 21.67 | 19.68          | 20.31 | 20.19 | 20.82 | 21.31 |
|                 | 8H   | 20.36            | 20.92 | 20.87 | 21.41 | 21.97 | 19.99          | 20.54 | 20.49 | 21.03 | 21.59 |