

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: P930821

Luminaire Tested: DFN2DS-SQ2F0-040DS927-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930821  
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-SQ2F0-040DS927-FLL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

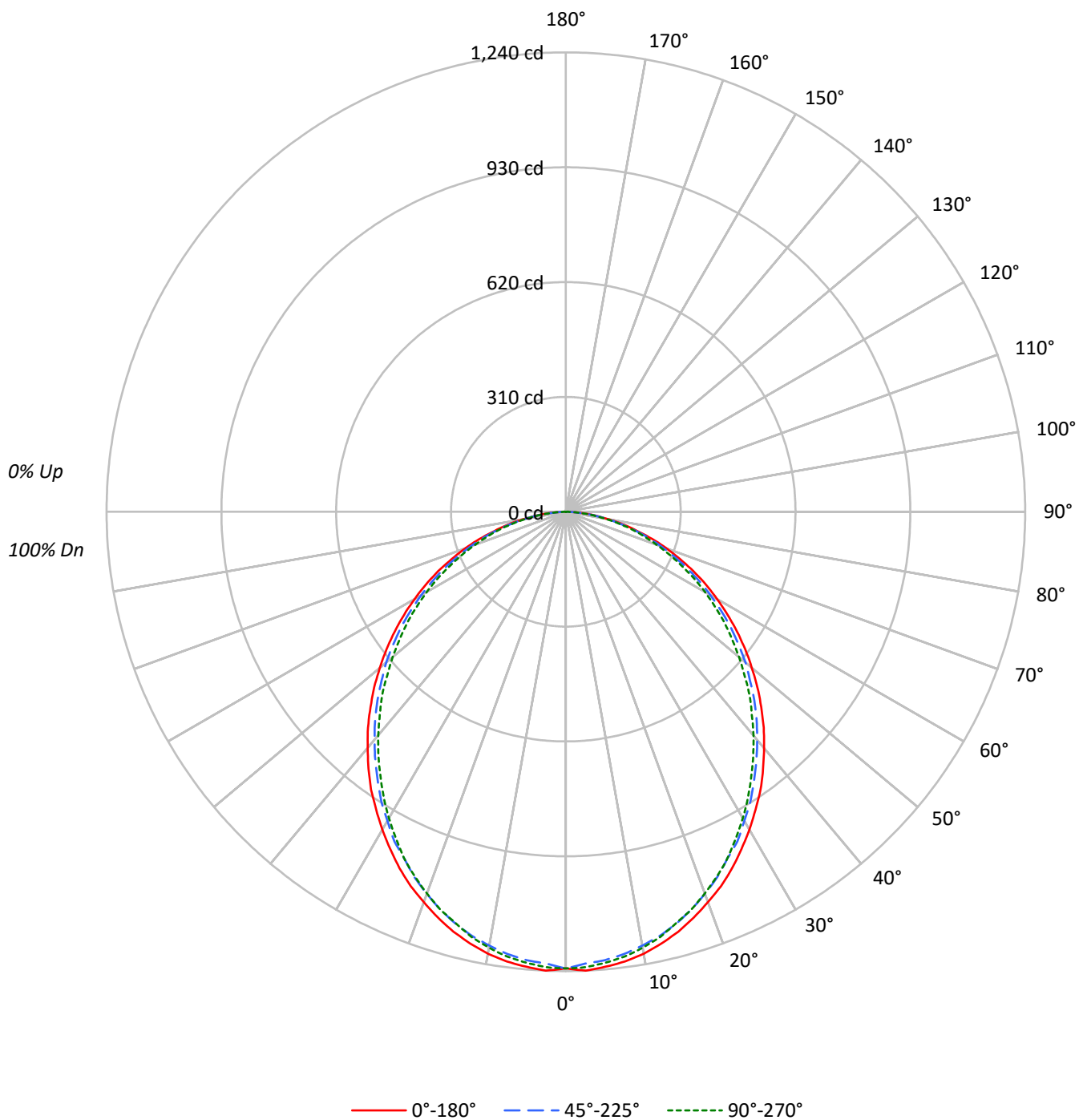
Lumens per Lamp: N/A  
Luminaire Lumens: 3136.3 lumens  
Efficiency: N/A  
Efficacy: 83.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 2.21' x L: 2.21' x H: 0')  
CIE Type: Direct

Input Watts (W): 37.4  
Input Voltage (V): 120  
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°  | 2711 | 2711 | 2711 |
| 5°  | 2721 | 2682 | 2698 |
| 10° | 2705 | 2655 | 2668 |
| 15° | 2671 | 2620 | 2617 |
| 20° | 2624 | 2568 | 2566 |
| 25° | 2577 | 2505 | 2505 |
| 30° | 2516 | 2447 | 2426 |
| 35° | 2460 | 2377 | 2342 |
| 40° | 2389 | 2307 | 2263 |
| 45° | 2319 | 2237 | 2182 |
| 50° | 2242 | 2165 | 2088 |
| 55° | 2163 | 2081 | 2004 |
| 60° | 2074 | 1981 | 1908 |
| 65° | 1980 | 1881 | 1795 |
| 70° | 1859 | 1760 | 1677 |
| 75° | 1692 | 1621 | 1581 |
| 80° | 1502 | 1455 | 1382 |
| 85° | 1224 | 1168 | 1047 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2319 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 116.0  | 3.7       |
| 10°-20°   | 326.4  | 10.4      |
| 20°-30°   | 479.7  | 15.3      |
| 30°-40°   | 557.2  | 17.8      |
| 40°-50°   | 556.5  | 17.7      |
| 50°-60°   | 485.2  | 15.5      |
| 60°-70°   | 358.7  | 11.4      |
| 70°-80°   | 202.9  | 6.5       |
| 80°-90°   | 53.6   | 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°    | 922.2  | 29.4      |
| 0°-40°    | 1479.4 | 47.2      |
| 0°-60°    | 2521.1 | 80.4      |
| 0°-90°    | 3136.3 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3136.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1233 | 1233  | 1233 | 1233  | 1233 |      |
| 5°  | 1233 | 1228  | 1215 | 1224  | 1222 | 117  |
| 15° | 1173 | 1166  | 1151 | 1156  | 1150 | 330  |
| 25° | 1062 | 1053  | 1032 | 1035  | 1032 | 489  |
| 35° | 916  | 904   | 886  | 878   | 872  | 572  |
| 45° | 746  | 737   | 720  | 706   | 702  | 575  |
| 55° | 564  | 557   | 543  | 529   | 523  | 504  |
| 65° | 381  | 373   | 362  | 351   | 345  | 376  |
| 75° | 199  | 197   | 191  | 184   | 186  | 213  |
| 85° | 48   | 47    | 46   | 43    | 42   | 57   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1232.7 | 1232.7 | 1232.7 | 1232.7 | 1232.7 |
| 2.5°  | 1239.9 | 1233.9 | 1220.9 | 1232.7 | 1230.5 |
| 5°    | 1232.7 | 1228.0 | 1214.9 | 1224.4 | 1222.1 |
| 7.5°  | 1224.4 | 1217.3 | 1204.2 | 1213.8 | 1211.4 |
| 10°   | 1211.4 | 1203.1 | 1189.0 | 1198.4 | 1194.8 |
| 12.5° | 1193.5 | 1186.5 | 1172.3 | 1178.3 | 1175.8 |
| 15°   | 1173.4 | 1166.4 | 1150.9 | 1155.7 | 1149.8 |
| 17.5° | 1148.6 | 1141.5 | 1126.1 | 1131.9 | 1126.1 |
| 20°   | 1121.2 | 1114.2 | 1097.6 | 1101.1 | 1096.5 |
| 22.5° | 1094.1 | 1083.4 | 1067.9 | 1067.9 | 1065.6 |
| 25°   | 1062.0 | 1052.6 | 1032.5 | 1034.7 | 1032.5 |
| 27.5° | 1026.4 | 1018.1 | 1002.8 | 999.3  | 993.4  |
| 30°   | 991.0  | 981.4  | 963.7  | 960.1  | 955.4  |
| 32.5° | 953.0  | 946.0  | 927.0  | 919.8  | 915.0  |
| 35°   | 916.3  | 904.5  | 885.5  | 878.3  | 872.4  |
| 37.5° | 874.8  | 864.1  | 845.1  | 836.8  | 830.9  |
| 40°   | 832.2  | 822.6  | 803.6  | 793.0  | 788.3  |
| 42.5° | 790.7  | 781.1  | 762.2  | 750.3  | 743.2  |
| 45°   | 745.6  | 737.4  | 719.5  | 706.5  | 701.7  |
| 47.5° | 701.7  | 693.4  | 674.5  | 661.4  | 654.4  |
| 50°   | 655.5  | 649.5  | 633.0  | 616.3  | 610.4  |
| 52.5° | 610.4  | 602.2  | 586.8  | 573.7  | 565.4  |
| 55°   | 564.3  | 557.1  | 542.9  | 528.7  | 522.8  |
| 57.5° | 518.0  | 512.1  | 496.6  | 482.4  | 477.7  |
| 60°   | 471.7  | 467.0  | 450.5  | 437.4  | 433.9  |
| 62.5° | 426.7  | 418.4  | 406.6  | 394.7  | 390.0  |
| 65°   | 380.6  | 373.3  | 361.5  | 350.9  | 345.0  |
| 67.5° | 333.1  | 327.1  | 316.6  | 308.2  | 303.5  |
| 70°   | 289.2  | 284.5  | 273.8  | 265.5  | 260.8  |
| 72.5° | 244.3  | 239.4  | 233.6  | 225.2  | 221.7  |
| 75°   | 199.1  | 196.8  | 190.8  | 183.7  | 186.1  |
| 77.5° | 158.8  | 154.0  | 151.7  | 148.1  | 144.6  |
| 80°   | 118.6  | 117.3  | 114.9  | 111.4  | 109.1  |
| 82.5° | 80.6   | 80.6   | 79.5   | 74.7   | 74.7   |
| 85°   | 48.5   | 47.4   | 46.3   | 42.6   | 41.5   |
| 87.5° | 21.4   | 19.0   | 16.6   | 13.1   | 11.8   |
| 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 | 14.75            | 16.36 | 15.11 | 16.67 | 16.99 | 14.30          | 15.91 | 14.67 | 16.23 | 16.54 |
|                 | 3H   | 16.50            | 17.95 | 16.87 | 18.28 | 18.64 | 16.01          | 17.46 | 16.38 | 17.79 | 18.15 |
|                 | 4H   | 17.14            | 18.51 | 17.54 | 18.86 | 19.24 | 16.65          | 18.02 | 17.05 | 18.37 | 18.74 |
|                 | 6H   | 17.61            | 18.88 | 18.02 | 19.25 | 19.64 | 17.11          | 18.38 | 17.52 | 18.74 | 19.14 |
|                 | 8H   | 17.76            | 18.97 | 18.18 | 19.36 | 19.75 | 17.25          | 18.46 | 17.68 | 18.85 | 19.25 |
|                 | 12H  | 17.85            | 19.01 | 18.28 | 19.39 | 19.82 | 17.33          | 18.49 | 17.76 | 18.88 | 19.30 |
| 4H              | 2H   | 15.31            | 16.68 | 15.71 | 17.02 | 17.40 | 14.95          | 16.32 | 15.35 | 16.67 | 17.05 |
|                 | 3H   | 17.28            | 18.43 | 17.69 | 18.83 | 19.23 | 16.88          | 18.02 | 17.29 | 18.42 | 18.82 |
|                 | 4H   | 18.06            | 19.09 | 18.49 | 19.51 | 19.94 | 17.64          | 18.67 | 18.07 | 19.08 | 19.52 |
|                 | 6H   | 18.66            | 19.56 | 19.11 | 20.00 | 20.46 | 18.22          | 19.13 | 18.68 | 19.57 | 20.02 |
|                 | 8H   | 18.84            | 19.69 | 19.31 | 20.13 | 20.60 | 18.41          | 19.25 | 18.87 | 19.70 | 20.16 |
|                 | 12H  | 18.98            | 19.74 | 19.46 | 20.21 | 20.68 | 18.52          | 19.28 | 19.00 | 19.76 | 20.23 |
| 8H              | 4H   | 18.33            | 19.18 | 18.79 | 19.62 | 20.09 | 17.96          | 18.80 | 18.42 | 19.25 | 19.71 |
|                 | 6H   | 19.05            | 19.75 | 19.54 | 20.24 | 20.71 | 18.66          | 19.37 | 19.16 | 19.86 | 20.33 |
|                 | 8H   | 19.31            | 19.94 | 19.82 | 20.44 | 20.93 | 18.91          | 19.54 | 19.42 | 20.05 | 20.54 |
|                 | 12H  | 19.51            | 20.06 | 20.01 | 20.55 | 21.11 | 19.09          | 19.65 | 19.60 | 20.14 | 20.70 |
| 12H             | 4H   | 18.36            | 19.12 | 18.84 | 19.59 | 20.06 | 17.99          | 18.75 | 18.47 | 19.23 | 19.70 |
|                 | 6H   | 19.09            | 19.72 | 19.60 | 20.23 | 20.72 | 18.72          | 19.36 | 19.23 | 19.86 | 20.35 |
|                 | 8H   | 19.41            | 19.96 | 19.91 | 20.45 | 21.02 | 19.03          | 19.59 | 19.53 | 20.08 | 20.64 |