

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: P930048

Luminaire Tested: DFN2DS-HX2F0-020DS927-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930048  
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-HX2F0-020DS927-RLL  
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

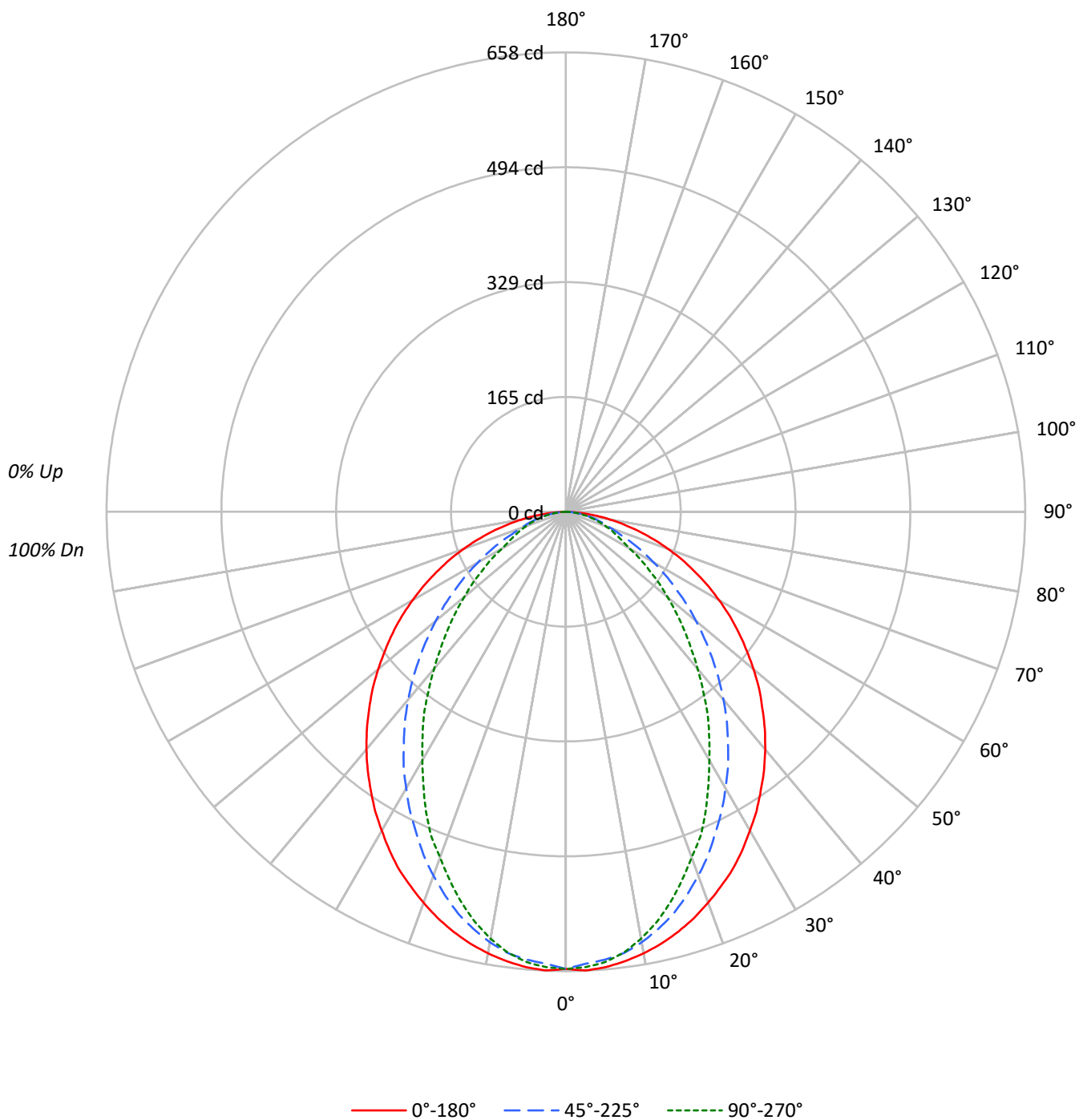
Lumens per Lamp: N/A  
Luminaire Lumens: 1346.4 lumens  
Efficiency: N/A  
Efficacy: 76.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 2.3' x L: 1.99' x H: 0')  
CIE Type: Direct

Input Watts (W): 17.6  
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  |     |     | 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   | 110 | 106 | 102 | 98  | 107 | 103 | 100 | 97  | 99  | 96  | 94  |  | 95  | 93  | 91  |  | 92  | 90  | 88  | 86  |
| 2   | 101 | 94  | 87  | 82  | 98  | 92  | 86  | 81  | 88  | 83  | 79  |  | 85  | 81  | 78  |  | 82  | 79  | 76  | 74  |
| 3   | 93  | 83  | 76  | 70  | 90  | 82  | 75  | 69  | 79  | 73  | 68  |  | 76  | 71  | 67  |  | 74  | 69  | 66  | 64  |
| 4   | 86  | 75  | 66  | 60  | 83  | 73  | 66  | 60  | 71  | 64  | 59  |  | 69  | 63  | 58  |  | 66  | 62  | 57  | 55  |
| 5   | 79  | 67  | 59  | 53  | 77  | 66  | 58  | 52  | 64  | 57  | 52  |  | 62  | 56  | 51  |  | 60  | 55  | 51  | 49  |
| 6   | 74  | 61  | 53  | 47  | 72  | 60  | 52  | 46  | 58  | 51  | 46  |  | 57  | 50  | 46  |  | 55  | 50  | 45  | 43  |
| 7   | 68  | 56  | 47  | 42  | 67  | 55  | 47  | 42  | 53  | 46  | 41  |  | 52  | 46  | 41  |  | 51  | 45  | 41  | 39  |
| 8   | 64  | 51  | 43  | 38  | 62  | 51  | 43  | 37  | 49  | 42  | 37  |  | 48  | 42  | 37  |  | 47  | 41  | 37  | 35  |
| 9   | 60  | 47  | 39  | 34  | 59  | 47  | 39  | 34  | 46  | 39  | 34  |  | 44  | 38  | 34  |  | 44  | 38  | 34  | 32  |
| 10  | 56  | 44  | 36  | 31  | 55  | 43  | 36  | 31  | 42  | 36  | 31  |  | 41  | 35  | 31  |  | 41  | 35  | 31  | 29  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1543 | 1543 | 1543 |
| 5°  | 1548 | 1523 | 1531 |
| 10° | 1536 | 1498 | 1485 |
| 15° | 1519 | 1454 | 1412 |
| 20° | 1494 | 1391 | 1321 |
| 25° | 1470 | 1318 | 1232 |
| 30° | 1435 | 1244 | 1118 |
| 35° | 1401 | 1164 | 1019 |
| 40° | 1367 | 1081 | 904  |
| 45° | 1327 | 987  | 799  |
| 50° | 1286 | 893  | 697  |
| 55° | 1243 | 791  | 599  |
| 60° | 1195 | 684  | 497  |
| 65° | 1140 | 575  | 453  |
| 70° | 1073 | 473  | 416  |
| 75° | 992  | 432  | 389  |
| 80° | 875  | 385  | 354  |
| 85° | 687  | 303  | 303  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1327 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 61.4   | 4.6       |
| 10°-20°   | 168.4  | 12.5      |
| 20°-30°   | 236.5  | 17.6      |
| 30°-40°   | 257.8  | 19.1      |
| 40°-50°   | 236.9  | 17.6      |
| 50°-60°   | 186.1  | 13.8      |
| 60°-70°   | 121.1  | 9.0       |
| 70°-80°   | 62.3   | 4.6       |
| 80°-90°   | 15.9   | 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°    | 466.3  | 34.6      |
| 0°-40°    | 724.0  | 53.8      |
| 0°-60°    | 1147.0 | 85.2      |
| 0°-90°    | 1346.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1346.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 655 | 655   | 655 | 655   | 655 |      |
| 5°  | 655 | 652   | 644 | 649   | 648 | 62   |
| 15° | 623 | 616   | 596 | 585   | 579 | 175  |
| 25° | 565 | 546   | 507 | 483   | 474 | 260  |
| 35° | 487 | 457   | 405 | 367   | 354 | 305  |
| 45° | 398 | 358   | 296 | 254   | 240 | 307  |
| 55° | 303 | 256   | 192 | 157   | 146 | 271  |
| 65° | 204 | 156   | 103 | 83    | 81  | 203  |
| 75° | 109 | 68    | 47  | 43    | 43  | 115  |
| 85° | 25  | 13    | 11  | 11    | 11  | 31   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 654.7 | 654.7 | 654.7 | 654.7 | 654.7 |
| 2.5°  | 657.6 | 654.7 | 648.1 | 654.1 | 652.9 |
| 5°    | 654.7 | 651.7 | 644.0 | 649.4 | 647.5 |
| 7.5°  | 649.4 | 645.8 | 637.5 | 639.9 | 636.8 |
| 10°   | 642.2 | 638.0 | 626.2 | 624.4 | 620.9 |
| 12.5° | 633.4 | 628.0 | 612.0 | 608.5 | 601.9 |
| 15°   | 622.7 | 616.1 | 596.0 | 584.7 | 578.9 |
| 17.5° | 610.2 | 600.7 | 575.9 | 562.8 | 553.4 |
| 20°   | 596.0 | 584.1 | 554.6 | 539.7 | 526.7 |
| 22.5° | 580.6 | 567.0 | 532.6 | 512.5 | 503.6 |
| 25°   | 565.3 | 546.2 | 507.1 | 482.9 | 473.9 |
| 27.5° | 546.9 | 526.7 | 483.4 | 455.6 | 441.9 |
| 30°   | 527.3 | 504.7 | 457.4 | 427.2 | 411.1 |
| 32.5° | 508.3 | 481.1 | 432.5 | 397.0 | 382.1 |
| 35°   | 487.0 | 456.8 | 404.7 | 367.3 | 354.3 |
| 37.5° | 466.3 | 433.6 | 378.6 | 337.7 | 322.9 |
| 40°   | 444.3 | 408.8 | 351.3 | 309.3 | 293.8 |
| 42.5° | 421.8 | 384.0 | 324.1 | 280.2 | 265.5 |
| 45°   | 398.1 | 358.4 | 296.3 | 254.2 | 239.9 |
| 47.5° | 375.6 | 333.6 | 269.6 | 227.5 | 214.5 |
| 50°   | 350.8 | 308.7 | 243.5 | 202.6 | 190.2 |
| 52.5° | 326.4 | 282.0 | 218.6 | 179.5 | 168.3 |
| 55°   | 302.7 | 256.5 | 192.5 | 157.1 | 145.7 |
| 57.5° | 278.5 | 231.0 | 169.5 | 136.3 | 126.8 |
| 60°   | 253.6 | 206.2 | 145.2 | 115.0 | 105.5 |
| 62.5° | 229.3 | 181.9 | 124.4 | 96.0  | 91.2  |
| 65°   | 204.4 | 156.4 | 103.1 | 83.0  | 81.2  |
| 67.5° | 180.7 | 132.7 | 83.0  | 72.9  | 71.1  |
| 70°   | 155.8 | 109.6 | 68.7  | 62.8  | 60.4  |
| 72.5° | 132.1 | 88.2  | 57.4  | 52.7  | 51.6  |
| 75°   | 109.0 | 67.5  | 47.4  | 43.2  | 42.7  |
| 77.5° | 85.9  | 48.0  | 37.3  | 34.9  | 33.7  |
| 80°   | 64.5  | 34.4  | 28.4  | 26.1  | 26.1  |
| 82.5° | 45.0  | 23.1  | 19.6  | 18.4  | 18.4  |
| 85°   | 25.4  | 13.0  | 11.2  | 11.2  | 11.2  |
| 87.5° | 9.5   | 4.8   | 4.8   | 4.1   | 4.1   |
| 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 | 12.74            | 14.26 | 13.10 | 14.57 | 14.89 | 8.70           | 10.22 | 9.07  | 10.54 | 10.85 |
|                 | 3H   | 14.50            | 15.87 | 14.88 | 16.20 | 16.56 | 9.97           | 11.33 | 10.35 | 11.66 | 12.02 |
|                 | 4H   | 15.17            | 16.45 | 15.57 | 16.80 | 17.18 | 10.47          | 11.75 | 10.87 | 12.10 | 12.48 |
|                 | 6H   | 15.66            | 16.84 | 16.07 | 17.21 | 17.60 | 10.85          | 12.03 | 11.26 | 12.40 | 12.79 |
|                 | 8H   | 15.83            | 16.95 | 16.25 | 17.34 | 17.74 | 10.97          | 12.10 | 11.40 | 12.49 | 12.89 |
|                 | 12H  | 15.93            | 17.01 | 16.36 | 17.39 | 17.82 | 11.06          | 12.13 | 11.49 | 12.52 | 12.94 |
| 4H              | 2H   | 12.84            | 14.12 | 13.24 | 14.47 | 14.85 | 9.40           | 10.68 | 9.80  | 11.03 | 11.41 |
|                 | 3H   | 14.78            | 15.84 | 15.19 | 16.24 | 16.64 | 10.84          | 11.90 | 11.25 | 12.30 | 12.70 |
|                 | 4H   | 15.53            | 16.48 | 15.96 | 16.90 | 17.34 | 11.44          | 12.40 | 11.87 | 12.81 | 13.25 |
|                 | 6H   | 16.12            | 16.95 | 16.58 | 17.39 | 17.85 | 11.93          | 12.76 | 12.38 | 13.20 | 13.66 |
|                 | 8H   | 16.33            | 17.11 | 16.80 | 17.55 | 18.02 | 12.09          | 12.87 | 12.55 | 13.31 | 13.78 |
|                 | 12H  | 16.49            | 17.18 | 16.97 | 17.66 | 18.13 | 12.21          | 12.90 | 12.69 | 13.38 | 13.85 |
| 8H              | 4H   | 15.55            | 16.33 | 16.01 | 16.77 | 17.24 | 11.79          | 12.57 | 12.26 | 13.01 | 13.48 |
|                 | 6H   | 16.19            | 16.83 | 16.68 | 17.32 | 17.80 | 12.38          | 13.02 | 12.88 | 13.51 | 13.99 |
|                 | 8H   | 16.44            | 17.01 | 16.95 | 17.52 | 18.01 | 12.60          | 13.18 | 13.11 | 13.69 | 14.18 |
|                 | 12H  | 16.64            | 17.15 | 17.15 | 17.64 | 18.21 | 12.78          | 13.29 | 13.29 | 13.78 | 14.35 |
| 12H             | 4H   | 15.53            | 16.23 | 16.02 | 16.71 | 17.18 | 11.84          | 12.53 | 12.32 | 13.01 | 13.48 |
|                 | 6H   | 16.17            | 16.75 | 16.68 | 17.26 | 17.74 | 12.44          | 13.02 | 12.96 | 13.53 | 14.02 |
|                 | 8H   | 16.45            | 16.96 | 16.96 | 17.45 | 18.02 | 12.72          | 13.23 | 13.23 | 13.72 | 14.28 |

END OF REPORT