

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: P930129

Luminaire Tested: DFN2DS-HX3F0-030DS830-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930129  
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-HX3F0-030DS830-FLL  
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

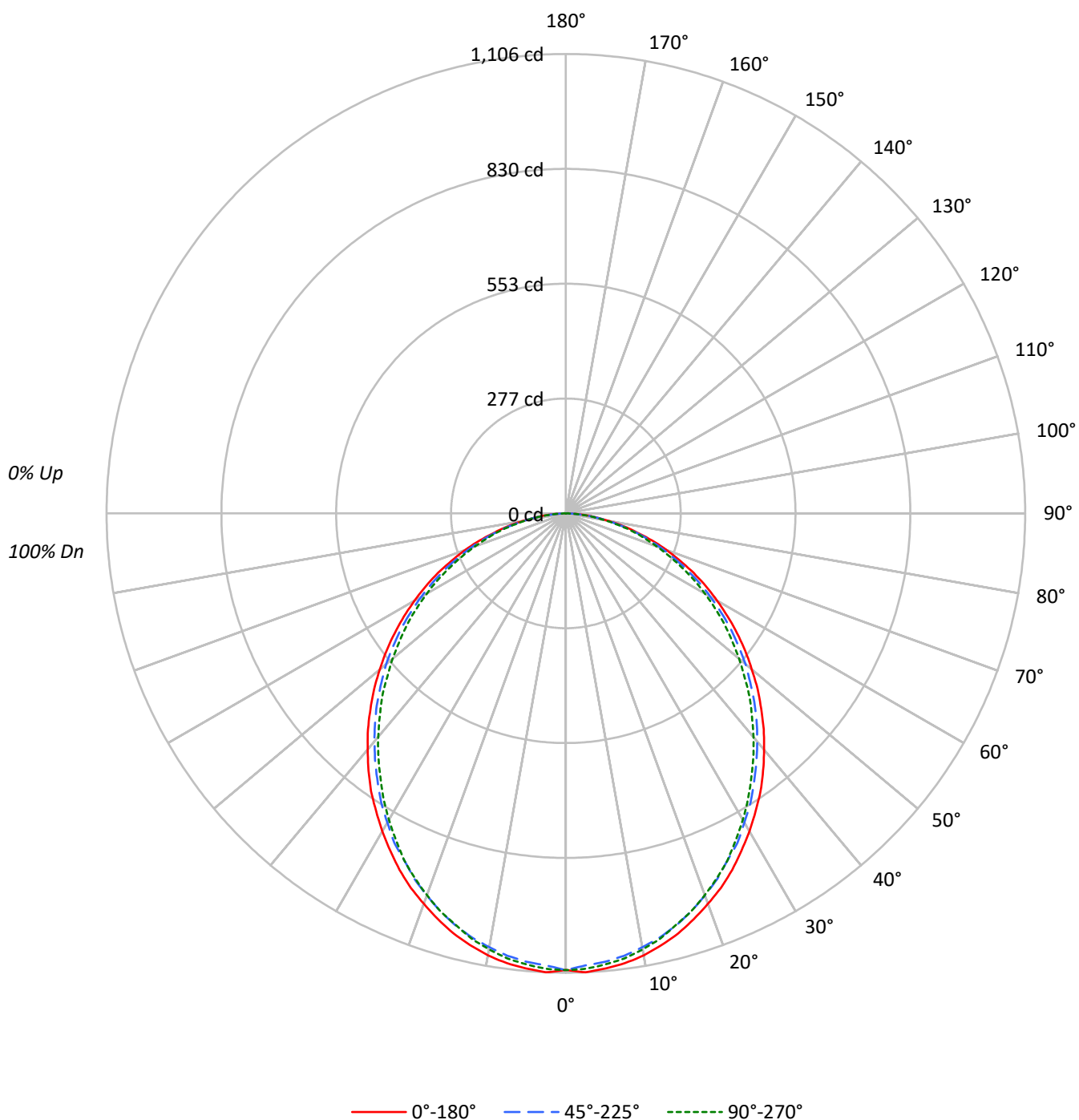
Lumens per Lamp: N/A  
Luminaire Lumens: 2797.8 lumens  
Efficiency: N/A  
Efficacy: 99.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.28' x L: 2.84' x H: 0')  
CIE Type: Direct

Input Watts (W): 28.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.983  
Total Harmonic Distortion (THDi): 0.073  
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°  | 1274 | 1274 | 1274 |
| 5°  | 1279 | 1260 | 1268 |
| 10° | 1271 | 1247 | 1254 |
| 15° | 1255 | 1231 | 1230 |
| 20° | 1233 | 1207 | 1206 |
| 25° | 1211 | 1177 | 1177 |
| 30° | 1182 | 1150 | 1140 |
| 35° | 1156 | 1117 | 1100 |
| 40° | 1122 | 1084 | 1063 |
| 45° | 1090 | 1051 | 1025 |
| 50° | 1054 | 1017 | 981  |
| 55° | 1017 | 978  | 942  |
| 60° | 975  | 931  | 897  |
| 65° | 931  | 884  | 844  |
| 70° | 874  | 827  | 788  |
| 75° | 795  | 762  | 743  |
| 80° | 706  | 684  | 649  |
| 85° | 575  | 549  | 492  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1090 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 103.5  | 3.7       |
| 10°-20°   | 291.2  | 10.4      |
| 20°-30°   | 427.9  | 15.3      |
| 30°-40°   | 497.0  | 17.8      |
| 40°-50°   | 496.4  | 17.7      |
| 50°-60°   | 432.9  | 15.5      |
| 60°-70°   | 320.0  | 11.4      |
| 70°-80°   | 181.1  | 6.5       |
| 80°-90°   | 47.8   | 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°    | 822.6  | 29.4      |
| 0°-40°    | 1319.7 | 47.2      |
| 0°-60°    | 2249.0 | 80.4      |
| 0°-90°    | 2797.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2797.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1100 | 1100  | 1100 | 1100  | 1100 |      |
| 5°  | 1100 | 1096  | 1084 | 1092  | 1090 | 104  |
| 15° | 1047 | 1040  | 1027 | 1031  | 1026 | 295  |
| 25° | 947  | 939   | 921  | 923   | 921  | 436  |
| 35° | 817  | 807   | 790  | 784   | 778  | 510  |
| 45° | 665  | 658   | 642  | 630   | 626  | 513  |
| 55° | 503  | 497   | 484  | 472   | 466  | 450  |
| 65° | 340  | 333   | 322  | 313   | 308  | 336  |
| 75° | 178  | 176   | 170  | 164   | 166  | 190  |
| 85° | 43   | 42    | 41   | 38    | 37   | 51   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1099.6 | 1099.6 | 1099.6 | 1099.6 | 1099.6 |
| 2.5°  | 1106.0 | 1100.7 | 1089.0 | 1099.6 | 1097.6 |
| 5°    | 1099.6 | 1095.5 | 1083.8 | 1092.2 | 1090.2 |
| 7.5°  | 1092.2 | 1085.9 | 1074.3 | 1082.8 | 1080.7 |
| 10°   | 1080.7 | 1073.2 | 1060.6 | 1069.0 | 1065.9 |
| 12.5° | 1064.7 | 1058.4 | 1045.8 | 1051.0 | 1048.9 |
| 15°   | 1046.8 | 1040.5 | 1026.7 | 1030.9 | 1025.6 |
| 17.5° | 1024.5 | 1018.3 | 1004.5 | 1009.7 | 1004.5 |
| 20°   | 1000.2 | 993.9  | 979.1  | 982.2  | 978.1  |
| 22.5° | 976.0  | 966.5  | 952.6  | 952.6  | 950.5  |
| 25°   | 947.4  | 939.0  | 921.0  | 923.1  | 921.0  |
| 27.5° | 915.6  | 908.2  | 894.5  | 891.4  | 886.1  |
| 30°   | 884.0  | 875.5  | 859.7  | 856.5  | 852.2  |
| 32.5° | 850.2  | 843.8  | 826.9  | 820.5  | 816.2  |
| 35°   | 817.4  | 806.8  | 789.9  | 783.5  | 778.2  |
| 37.5° | 780.4  | 770.8  | 753.9  | 746.4  | 741.2  |
| 40°   | 742.3  | 733.8  | 716.9  | 707.4  | 703.2  |
| 42.5° | 705.3  | 696.8  | 679.9  | 669.3  | 663.0  |
| 45°   | 665.1  | 657.7  | 641.8  | 630.2  | 626.0  |
| 47.5° | 626.0  | 618.6  | 601.7  | 590.0  | 583.7  |
| 50°   | 584.7  | 579.4  | 564.6  | 549.8  | 544.6  |
| 52.5° | 544.6  | 537.1  | 523.5  | 511.8  | 504.3  |
| 55°   | 503.4  | 497.0  | 484.3  | 471.7  | 466.4  |
| 57.5° | 462.1  | 456.8  | 443.0  | 430.3  | 426.1  |
| 60°   | 420.8  | 416.6  | 401.9  | 390.2  | 387.1  |
| 62.5° | 380.7  | 373.2  | 362.7  | 352.1  | 347.9  |
| 65°   | 339.5  | 333.1  | 322.5  | 313.0  | 307.8  |
| 67.5° | 297.2  | 291.8  | 282.3  | 275.0  | 270.7  |
| 70°   | 258.0  | 253.8  | 244.3  | 236.8  | 232.7  |
| 72.5° | 217.9  | 213.6  | 208.3  | 200.9  | 197.8  |
| 75°   | 177.6  | 175.6  | 170.2  | 163.9  | 166.1  |
| 77.5° | 141.7  | 137.4  | 135.3  | 132.2  | 129.1  |
| 80°   | 105.8  | 104.7  | 102.5  | 99.4   | 97.3   |
| 82.5° | 71.9   | 71.9   | 70.9   | 66.6   | 66.6   |
| 85°   | 43.3   | 42.3   | 41.3   | 38.1   | 37.0   |
| 87.5° | 19.0   | 17.0   | 14.8   | 11.7   | 10.6   |
| 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 | 12.12            | 13.73 | 12.49 | 14.05 | 14.36 | 11.68          | 13.29 | 12.04 | 13.60 | 13.92 |
|                 | 3H   | 13.87            | 15.33 | 14.25 | 15.65 | 16.01 | 13.38          | 14.84 | 13.76 | 15.16 | 15.52 |
|                 | 4H   | 14.52            | 15.89 | 14.92 | 16.24 | 16.61 | 14.02          | 15.39 | 14.42 | 15.74 | 16.12 |
|                 | 6H   | 14.99            | 16.26 | 15.40 | 16.62 | 17.01 | 14.49          | 15.76 | 14.90 | 16.12 | 16.51 |
|                 | 8H   | 15.13            | 16.34 | 15.56 | 16.73 | 17.13 | 14.63          | 15.84 | 15.05 | 16.23 | 16.63 |
|                 | 12H  | 15.22            | 16.38 | 15.65 | 16.76 | 17.19 | 14.71          | 15.87 | 15.14 | 16.25 | 16.68 |
| 4H              | 2H   | 12.68            | 14.05 | 13.08 | 14.40 | 14.78 | 12.33          | 13.70 | 12.73 | 14.05 | 14.42 |
|                 | 3H   | 14.66            | 15.81 | 15.07 | 16.20 | 16.60 | 14.25          | 15.40 | 14.66 | 15.80 | 16.20 |
|                 | 4H   | 15.44            | 16.47 | 15.87 | 16.89 | 17.32 | 15.01          | 16.05 | 15.44 | 16.46 | 16.90 |
|                 | 6H   | 16.03            | 16.94 | 16.49 | 17.38 | 17.83 | 15.60          | 16.50 | 16.05 | 16.95 | 17.40 |
|                 | 8H   | 16.22            | 17.07 | 16.68 | 17.51 | 17.98 | 15.78          | 16.63 | 16.24 | 17.07 | 17.54 |
|                 | 12H  | 16.35            | 17.11 | 16.83 | 17.59 | 18.06 | 15.90          | 16.66 | 16.38 | 17.14 | 17.61 |
| 8H              | 4H   | 15.71            | 16.56 | 16.17 | 17.00 | 17.46 | 15.33          | 16.18 | 15.80 | 16.62 | 17.09 |
|                 | 6H   | 16.42            | 17.13 | 16.92 | 17.61 | 18.09 | 16.04          | 16.74 | 16.54 | 17.23 | 17.71 |
|                 | 8H   | 16.68            | 17.31 | 17.19 | 17.82 | 18.31 | 16.29          | 16.92 | 16.80 | 17.43 | 17.91 |
|                 | 12H  | 16.88            | 17.44 | 17.39 | 17.93 | 18.49 | 16.47          | 17.03 | 16.98 | 17.52 | 18.08 |
| 12H             | 4H   | 15.73            | 16.49 | 16.22 | 16.97 | 17.44 | 15.37          | 16.13 | 15.85 | 16.61 | 17.08 |
|                 | 6H   | 16.47            | 17.10 | 16.98 | 17.61 | 18.09 | 16.10          | 16.73 | 16.61 | 17.24 | 17.72 |
|                 | 8H   | 16.78            | 17.34 | 17.29 | 17.83 | 18.39 | 16.40          | 16.96 | 16.91 | 17.45 | 18.01 |