

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: P735870

Luminaire Tested: S122DR-S290D950-X4F0-XX-UDD-W-W

Issue Date: 1/24/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P735870  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2308-143-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 1/24/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S122DR-S290D950-X4F0-XX-UDD-W-W  
Description: DEFINE 2 DIRECT RECESSED WITH WALL WASH OPTIC  
Light Source: 5000K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1229.2 lumens  
Efficiency: N/A  
Efficacy: 98.3 lumens/watt  
Spacing Criteria (0/90/45): 0.9 / 1.11 / 1.12  
Luminous Opening: Rectangular (W 4' x L: 0.14' x H: 0')  
CIE Type: Direct

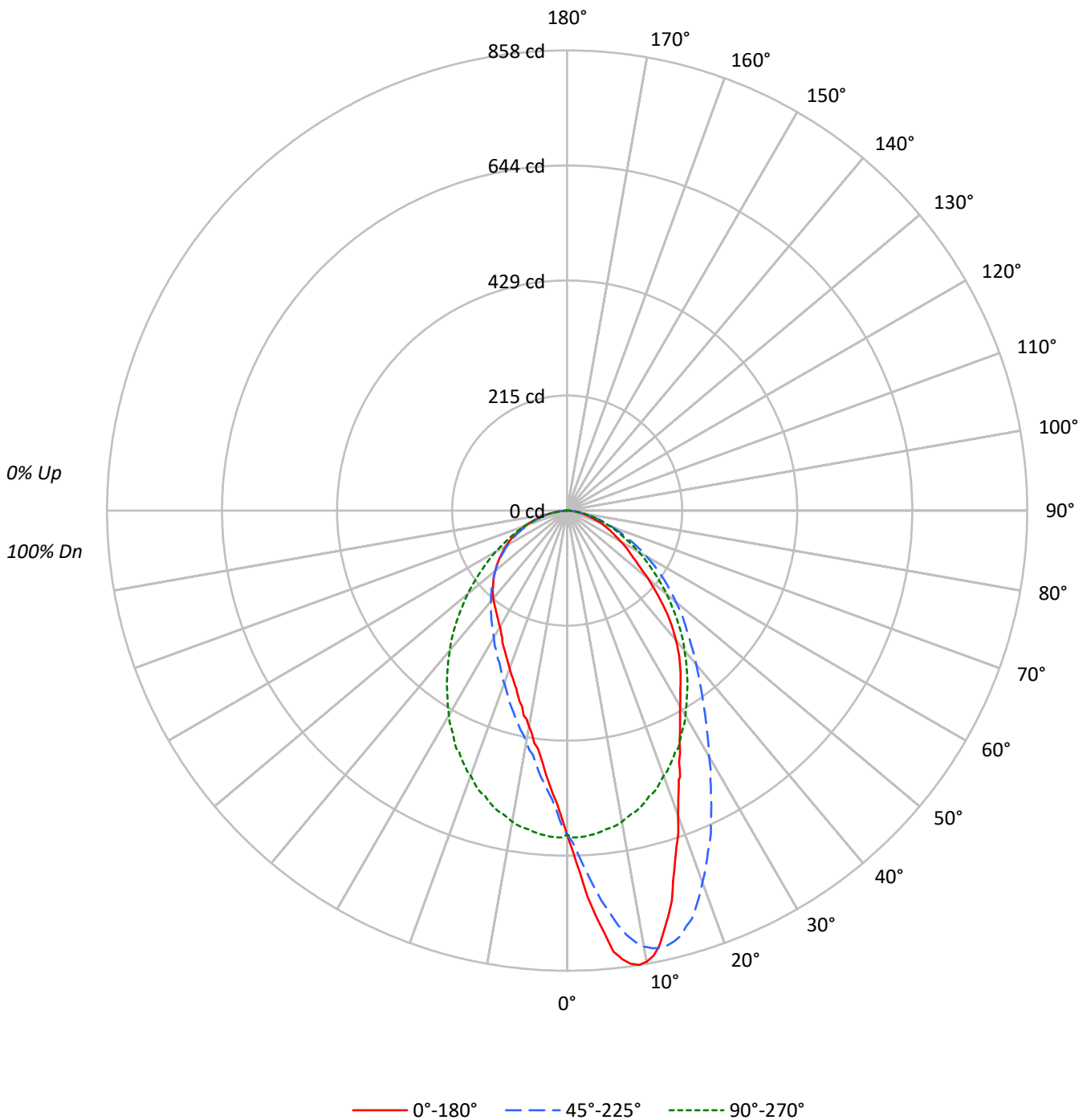
Input Watts (W): 12.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P735870

CATALOG NUMBER: S122DR-S290D950-X4F0-XX-UDD-W-W

### Luminous Intensity Polar Plot



TEST NUMBER: P735870

CATALOG NUMBER: S122DR-S290D950-X4F0-XX-UDD-W-W

**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  | 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 |    |    |    |    | 100 |   |  |   |
| 1   | 110 | 106 | 102 | 98  | 107 | 103 | 100 | 97  | 99  | 96  | 94  | 95  | 93  | 91  | 92  | 90  | 88  | 86  |    |    |    |    | 86  |   |  |   |
| 2   | 101 | 94  | 87  | 82  | 98  | 92  | 86  | 81  | 88  | 83  | 79  | 85  | 81  | 78  | 82  | 79  | 76  | 74  |    |    |    |    | 74  |   |  |   |
| 3   | 93  | 83  | 76  | 70  | 91  | 82  | 75  | 69  | 79  | 73  | 68  | 76  | 71  | 67  | 74  | 69  | 66  | 64  |    |    |    |    | 64  |   |  |   |
| 4   | 86  | 75  | 67  | 60  | 83  | 73  | 66  | 60  | 71  | 64  | 59  | 69  | 63  | 58  | 67  | 62  | 58  | 56  |    |    |    |    | 56  |   |  |   |
| 5   | 79  | 67  | 59  | 53  | 77  | 66  | 58  | 53  | 64  | 57  | 52  | 62  | 56  | 52  | 61  | 55  | 51  | 49  |    |    |    |    | 49  |   |  |   |
| 6   | 74  | 61  | 53  | 47  | 72  | 60  | 52  | 47  | 59  | 52  | 46  | 57  | 51  | 46  | 55  | 50  | 46  | 44  |    |    |    |    | 44  |   |  |   |
| 7   | 69  | 56  | 48  | 42  | 67  | 55  | 47  | 42  | 54  | 47  | 42  | 52  | 46  | 41  | 51  | 45  | 41  | 39  |    |    |    |    | 39  |   |  |   |
| 8   | 64  | 51  | 43  | 38  | 63  | 51  | 43  | 38  | 50  | 43  | 38  | 48  | 42  | 37  | 47  | 41  | 37  | 35  |    |    |    |    | 35  |   |  |   |
| 9   | 60  | 48  | 40  | 35  | 59  | 47  | 40  | 34  | 46  | 39  | 34  | 45  | 39  | 34  | 44  | 38  | 34  | 32  |    |    |    |    | 32  |   |  |   |
| 10  | 57  | 44  | 37  | 32  | 55  | 44  | 36  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 41  | 35  | 31  | 30  |    |    |    |    | 30  |   |  |   |

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

|     | 0°    | 45°   | 90°   | 135°  | 180°  |
|-----|-------|-------|-------|-------|-------|
| 0°  | 11613 | 11613 | 11613 | 11613 | 11613 |
| 5°  | 15229 | 14077 | 11673 | 9790  | 9342  |
| 10° | 16670 | 16112 | 11500 | 8559  | 7975  |
| 15° | 14996 | 16319 | 11187 | 7725  | 7072  |
| 20° | 12375 | 15094 | 10761 | 7008  | 6413  |
| 25° | 10577 | 13465 | 10384 | 6481  | 5945  |
| 30° | 9355  | 11759 | 9788  | 6073  | 5566  |
| 35° | 8651  | 10416 | 9177  | 5786  | 5409  |
| 40° | 7919  | 9397  | 8544  | 5543  | 5377  |
| 45° | 6975  | 8579  | 7902  | 5371  | 5306  |
| 50° | 5873  | 7909  | 7240  | 5227  | 5239  |
| 55° | 4940  | 7279  | 6541  | 5050  | 5147  |
| 60° | 4452  | 6578  | 5939  | 4901  | 5044  |
| 65° | 4043  | 5781  | 5289  | 4666  | 4948  |
| 70° | 3642  | 4996  | 4760  | 4316  | 4693  |
| 75° | 3179  | 4226  | 4070  | 3914  | 4285  |
| 80° | 2668  | 3310  | 3310  | 3398  | 3586  |
| 85° | 2007  | 2382  | 2470  | 2646  | 2558  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 12597 cd/sqm



TEST NUMBER: P735870

CATALOG NUMBER: S122DR-S290D950-X4F0-XX-UDD-W-W

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 59.5   | 4.8       |
| 10°-20°   | 163.2  | 13.3      |
| 20°-30°   | 214.0  | 17.4      |
| 30°-40°   | 226.2  | 18.4      |
| 40°-50°   | 210.0  | 17.1      |
| 50°-60°   | 168.1  | 13.7      |
| 60°-70°   | 115.0  | 9.4       |
| 70°-80°   | 59.3   | 4.8       |
| 80°-90°   | 14.1   | 1.1       |
| 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°    | 436.6  | 35.5      |
| 0°-40°    | 662.8  | 53.9      |
| 0°-60°    | 1040.9 | 84.7      |
| 0°-90°    | 1229.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1229.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0°  | 604 | 604 | 604 | 604  | 604  |      |
| 5°  | 789 | 730 | 605 | 507  | 484  | 78   |
| 15° | 754 | 820 | 562 | 388  | 355  | 207  |
| 25° | 499 | 635 | 490 | 306  | 280  | 230  |
| 35° | 369 | 444 | 391 | 247  | 230  | 230  |
| 45° | 257 | 316 | 291 | 198  | 195  | 197  |
| 55° | 147 | 217 | 195 | 151  | 154  | 135  |
| 65° | 89  | 127 | 116 | 103  | 109  | 88   |
| 75° | 43  | 57  | 55  | 53   | 58   | 46   |
| 85° | 9   | 11  | 11  | 12   | 12   | 11   |
| 90° | 0   | 0   | 0   | 0    | 0    |      |

TEST NUMBER: P735870

CATALOG NUMBER: S122DR-S290D950-X4F0-XX-UDD-W-W

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0°    | 604.2 | 604.2 | 604.2 | 604.2 | 604.2 | 604.2  | 604.2 | 604.2  | 604.2 |
| 1°    | 637.4 | 634.1 | 619.5 | 620.4 | 609.6 | 597.5  | 586.3 | 579.2  | 573.4 |
| 2°    | 674.7 | 668.1 | 645.3 | 634.1 | 609.6 | 583.8  | 560.6 | 554.3  | 546.4 |
| 3°    | 720.0 | 704.2 | 672.7 | 646.1 | 608.7 | 571.4  | 539.4 | 528.2  | 526.9 |
| 4°    | 756.5 | 742.4 | 700.5 | 658.6 | 606.6 | 559.3  | 523.2 | 511.1  | 505.3 |
| 5°    | 789.3 | 780.2 | 729.6 | 674.3 | 605.0 | 547.7  | 507.4 | 490.8  | 484.2 |
| 6°    | 827.1 | 808.5 | 752.8 | 690.1 | 602.1 | 536.5  | 493.3 | 473.4  | 464.2 |
| 7°    | 842.5 | 830.9 | 779.0 | 700.5 | 598.3 | 523.6  | 475.4 | 453.8  | 447.2 |
| 8°    | 853.3 | 848.7 | 799.7 | 717.5 | 596.7 | 511.6  | 459.7 | 446.4  | 438.5 |
| 9°    | 857.9 | 854.1 | 814.7 | 724.6 | 593.8 | 505.3  | 451.8 | 429.8  | 421.0 |
| 10°   | 854.1 | 855.8 | 825.5 | 735.4 | 589.2 | 492.5  | 438.5 | 419.4  | 408.6 |
| 11°   | 845.4 | 849.6 | 831.3 | 747.8 | 583.4 | 482.1  | 426.4 | 406.9  | 396.5 |
| 12°   | 828.8 | 837.9 | 833.8 | 756.5 | 578.0 | 472.9  | 418.1 | 399.4  | 390.3 |
| 13°   | 803.1 | 823.4 | 832.1 | 760.3 | 574.7 | 462.6  | 407.8 | 386.2  | 374.5 |
| 14°   | 779.8 | 801.0 | 827.6 | 768.6 | 568.9 | 450.9  | 398.2 | 376.6  | 366.6 |
| 15°   | 753.6 | 778.1 | 820.1 | 771.1 | 562.2 | 441.4  | 388.2 | 364.6  | 355.4 |
| 16°   | 717.1 | 749.9 | 806.4 | 774.0 | 554.3 | 430.6  | 379.1 | 356.7  | 344.6 |
| 17°   | 686.8 | 722.1 | 796.0 | 775.6 | 550.2 | 422.3  | 371.2 | 344.6  | 336.8 |
| 18°   | 659.0 | 698.8 | 777.3 | 774.4 | 543.5 | 412.7  | 359.6 | 335.9  | 328.4 |
| 19°   | 637.0 | 669.3 | 758.6 | 771.5 | 534.4 | 403.6  | 350.9 | 329.7  | 321.0 |
| 20°   | 605.0 | 642.4 | 737.9 | 770.2 | 526.1 | 395.3  | 342.6 | 321.0  | 313.5 |
| 21°   | 578.4 | 616.6 | 718.8 | 766.1 | 520.3 | 387.4  | 336.3 | 312.7  | 306.0 |
| 22.5° | 543.5 | 577.2 | 686.8 | 758.2 | 507.4 | 374.1  | 322.6 | 304.8  | 295.6 |
| 23°   | 539.4 | 568.0 | 678.5 | 755.7 | 503.7 | 371.2  | 318.1 | 300.2  | 292.7 |
| 24°   | 513.2 | 543.5 | 659.0 | 747.8 | 494.1 | 362.1  | 310.6 | 294.8  | 286.1 |
| 25°   | 498.7 | 523.6 | 634.9 | 740.4 | 489.6 | 353.8  | 305.6 | 287.8  | 280.3 |
| 26°   | 478.3 | 507.0 | 613.3 | 729.6 | 479.6 | 346.3  | 297.7 | 281.5  | 274.5 |
| 27°   | 463.4 | 487.5 | 590.9 | 721.7 | 468.0 | 338.4  | 291.5 | 275.3  | 266.6 |
| 28°   | 448.9 | 472.1 | 569.3 | 708.8 | 459.7 | 329.7  | 286.9 | 269.9  | 261.6 |
| 29°   | 433.9 | 454.3 | 551.8 | 698.8 | 451.8 | 322.2  | 279.9 | 262.8  | 255.0 |
| 30°   | 421.5 | 440.1 | 529.8 | 685.5 | 441.0 | 313.5  | 273.6 | 257.9  | 250.8 |
| 32.5° | 392.8 | 408.6 | 485.0 | 654.0 | 415.2 | 296.1  | 258.7 | 244.2  | 240.0 |
| 35°   | 368.7 | 379.1 | 443.9 | 618.7 | 391.1 | 277.4  | 246.6 | 232.5  | 230.5 |
| 37.5° | 343.4 | 353.4 | 406.5 | 581.7 | 365.8 | 260.3  | 232.9 | 223.8  | 222.1 |
| 40°   | 315.6 | 328.9 | 374.5 | 545.2 | 340.5 | 243.7  | 220.9 | 213.8  | 214.3 |
| 42.5° | 287.8 | 303.1 | 343.4 | 502.4 | 316.8 | 228.0  | 209.3 | 204.3  | 205.1 |
| 45°   | 256.6 | 276.1 | 315.6 | 463.4 | 290.7 | 213.0  | 197.6 | 195.2  | 195.2 |
| 47.5° | 224.2 | 249.1 | 291.5 | 423.1 | 265.7 | 198.1  | 186.4 | 184.8  | 185.6 |
| 50°   | 196.4 | 218.8 | 264.5 | 384.1 | 242.1 | 184.4  | 174.8 | 174.4  | 175.2 |
| 52.5° | 169.0 | 191.4 | 240.8 | 347.5 | 218.0 | 171.9  | 163.6 | 163.6  | 164.4 |
| 55°   | 147.4 | 164.8 | 217.2 | 309.3 | 195.2 | 157.4  | 150.7 | 152.0  | 153.6 |
| 57.5° | 132.5 | 144.1 | 193.9 | 272.8 | 174.0 | 143.3  | 139.1 | 139.9  | 142.0 |
| 60°   | 115.8 | 125.0 | 171.1 | 239.2 | 154.5 | 129.6  | 127.5 | 129.1  | 131.2 |
| 62.5° | 100.9 | 108.8 | 149.5 | 208.9 | 133.3 | 116.3  | 115.4 | 117.9  | 120.0 |
| 65°   | 88.9  | 94.3  | 127.1 | 178.1 | 116.3 | 103.0  | 102.6 | 106.3  | 108.8 |



TEST NUMBER: P735870

CATALOG NUMBER: S122DR-S290D950-X4F0-XX-UDD-W-W

**CANDELA DISTRIBUTION (continued):**

|       | 0°   | 22.5° | 45°   | 67.5° | 90°  | 112.5° | 135° | 157.5° | 180° |
|-------|------|-------|-------|-------|------|--------|------|--------|------|
| 67.5° | 76.4 | 80.6  | 107.5 | 149.1 | 99.2 | 89.7   | 89.7 | 93.8   | 95.9 |
| 70°   | 64.8 | 68.1  | 88.9  | 122.9 | 84.7 | 76.4   | 76.8 | 81.8   | 83.5 |
| 72.5° | 52.7 | 55.6  | 72.2  | 98.8  | 68.5 | 63.9   | 65.2 | 69.3   | 71.0 |
| 75°   | 42.8 | 44.8  | 56.9  | 78.1  | 54.8 | 51.1   | 52.7 | 56.5   | 57.7 |
| 77.5° | 32.8 | 34.5  | 41.9  | 57.3  | 41.9 | 39.9   | 41.5 | 44.8   | 44.8 |
| 80°   | 24.1 | 24.5  | 29.9  | 40.3  | 29.9 | 28.7   | 30.7 | 32.4   | 32.4 |
| 82.5° | 15.8 | 16.6  | 19.5  | 25.7  | 19.9 | 19.5   | 20.3 | 21.6   | 21.6 |
| 85°   | 9.1  | 9.6   | 10.8  | 14.1  | 11.2 | 11.2   | 12.0 | 12.0   | 11.6 |
| 87.5° | 3.7  | 4.2   | 4.6   | 5.4   | 5.0  | 5.4    | 5.4  | 4.6    | 5.0  |
| 90°   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0    | 0.0  | 0.0    | 0.0  |

(END OF REPORT)