

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: P644186

Luminaire Tested: CRQ4DIP-SR4F0-100D125U835-FLLOOB-1DUDD-WW

Issue Date: 2/20/2023



**Test Information**

Test Method: LM-79-2019  
Report Number: P644186  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2203-563-26, G2-2206-689-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 2/20/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: CRQ4DIP-SR4F0-100D125U835-FLLOOB-1DUDD-WW  
Description: NEO-RAY CIRQUE SUSPENDED LED LUMINAIRE  
DOWNLIGHT - CURVED FROSTED LENS - 1000 LUMENS PER FOOT  
UPLIGHT - BATWING OPTIC - 1250 LUMENS PER FOOT  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

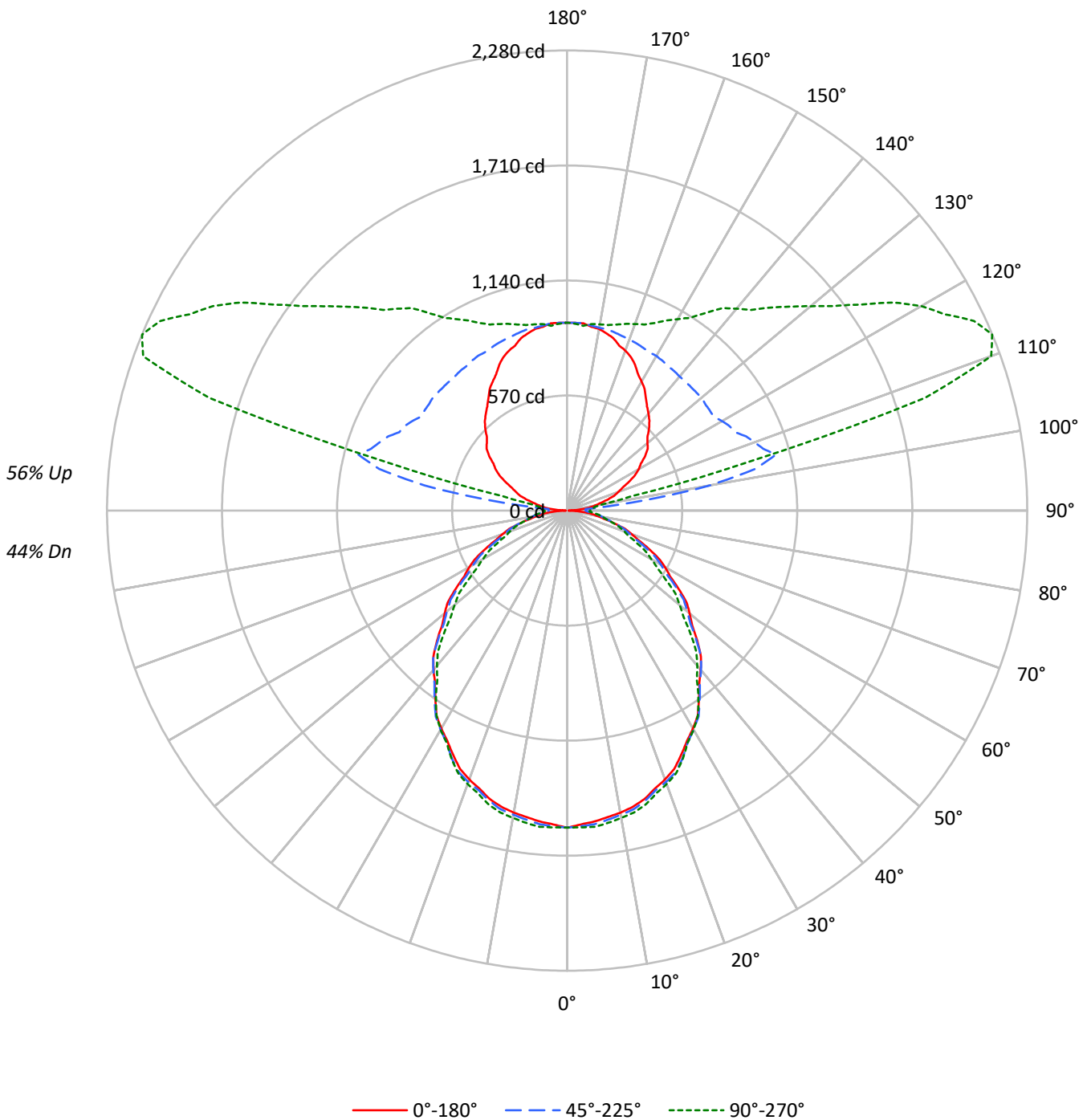
Lumens per Lamp: N/A  
Luminaire Lumens: 9053.0 lumens  
Efficiency: N/A  
Efficacy: 132.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.3  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.33')  
CIE Type: General Diffuse

Input Watts (W): 68.1  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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

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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 | 50 | 30 | 10 | 0  |   |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
| 0   | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 80 | 80 | 80 | 65 | 65 | 65 | 51 | 51 | 51 | 44 |    |    |    |   |
| 1   | 96  | 92  | 88  | 84  | 88 | 84 | 81 | 78 | 70 | 67 | 65 | 57 | 55 | 53 | 44 | 43 | 42 | 37 |    |    |    |   |
| 2   | 88  | 80  | 74  | 69  | 80 | 74 | 68 | 64 | 61 | 57 | 54 | 50 | 47 | 45 | 39 | 37 | 36 | 31 |    |    |    |   |
| 3   | 80  | 71  | 63  | 58  | 73 | 65 | 59 | 53 | 54 | 49 | 46 | 44 | 41 | 38 | 35 | 32 | 30 | 26 |    |    |    |   |
| 4   | 73  | 63  | 55  | 49  | 67 | 58 | 51 | 45 | 48 | 43 | 39 | 39 | 36 | 33 | 31 | 28 | 26 | 23 |    |    |    |   |
| 5   | 67  | 56  | 48  | 42  | 61 | 51 | 44 | 39 | 43 | 38 | 34 | 35 | 31 | 28 | 28 | 25 | 23 | 20 |    |    |    |   |
| 6   | 62  | 50  | 42  | 36  | 56 | 46 | 39 | 34 | 39 | 33 | 29 | 32 | 28 | 25 | 26 | 23 | 20 | 17 |    |    |    |   |
| 7   | 57  | 45  | 37  | 32  | 52 | 42 | 35 | 30 | 35 | 30 | 26 | 29 | 25 | 22 | 23 | 20 | 18 | 15 |    |    |    |   |
| 8   | 53  | 41  | 33  | 28  | 49 | 38 | 31 | 26 | 32 | 27 | 23 | 27 | 23 | 20 | 21 | 18 | 16 | 14 |    |    |    |   |
| 9   | 49  | 37  | 30  | 25  | 45 | 35 | 28 | 23 | 29 | 24 | 20 | 24 | 20 | 18 | 20 | 17 | 15 | 12 |    |    |    |   |
| 10  | 46  | 34  | 27  | 22  | 42 | 32 | 25 | 21 | 27 | 22 | 18 | 23 | 19 | 16 | 18 | 15 | 13 | 11 |    |    |    |   |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 25362 | 25362 | 25362 |
| 5°  | 24882 | 22393 | 21698 |
| 10° | 24555 | 19922 | 18743 |
| 15° | 24195 | 17842 | 16394 |
| 20° | 23642 | 16006 | 14340 |
| 25° | 22904 | 14292 | 12496 |
| 30° | 22180 | 12629 | 10846 |
| 35° | 21196 | 11107 | 9309  |
| 40° | 20279 | 9724  | 7892  |
| 45° | 19218 | 8357  | 6586  |
| 50° | 18097 | 7078  | 5402  |
| 55° | 16910 | 5956  | 4356  |
| 60° | 15777 | 4882  | 3482  |
| 65° | 14381 | 3893  | 2756  |
| 70° | 13037 | 3050  | 2177  |
| 75° | 11401 | 2343  | 1717  |
| 80° | 9528  | 1742  | 1337  |
| 85° | 6945  | 1267  | 1016  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 19218 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 148.3  | 1.6       |
| 10°-20°   | 420.7  | 4.6       |
| 20°-30°   | 621.1  | 6.9       |
| 30°-40°   | 714.0  | 7.9       |
| 40°-50°   | 692.7  | 7.7       |
| 50°-60°   | 579.8  | 6.4       |
| 60°-70°   | 417.7  | 4.6       |
| 70°-80°   | 255.3  | 2.8       |
| 80°-90°   | 126.1  | 1.4       |
| 90°-100°  | 163.5  | 1.8       |
| 100°-110° | 833.5  | 9.2       |
| 110°-120° | 1113.6 | 12.3      |
| 120°-130° | 903.9  | 10.0      |
| 130°-140° | 725.2  | 8.0       |
| 140°-150° | 571.5  | 6.3       |
| 150°-160° | 417.9  | 4.6       |
| 160°-170° | 259.6  | 2.9       |
| 170°-180° | 88.5   | 1.0       |
| 0°-30°    | 1190.0 | 13.1      |
| 0°-40°    | 1904.1 | 21.0      |
| 0°-60°    | 3176.6 | 35.1      |
| 0°-90°    | 3975.7 | 43.9      |
| 90°-120°  | 2110.7 | 23.3      |
| 90°-150°  | 4311.3 | 47.6      |
| 90°-180°  | 5077.0 | 56.1      |
| 0°-180°   | 9053.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1571 | 1571  | 1571 | 1571  | 1571 |      |
| 5°   | 1546 | 1575  | 1560 | 1562  | 1573 | 147  |
| 15°  | 1480 | 1502  | 1489 | 1496  | 1506 | 416  |
| 25°  | 1336 | 1357  | 1353 | 1347  | 1356 | 615  |
| 35°  | 1138 | 1156  | 1145 | 1134  | 1134 | 713  |
| 45°  | 912  | 920   | 905  | 878   | 865  | 703  |
| 55°  | 672  | 681   | 657  | 616   | 597  | 603  |
| 65°  | 444  | 446   | 424  | 392   | 382  | 441  |
| 75°  | 240  | 240   | 244  | 237   | 233  | 256  |
| 85°  | 73   | 88    | 122  | 131   | 131  | 77   |
| 90°  | 7    | 49    | 92   | 111   | 113  | 10   |
| 95°  | 69   | 107   | 93   | 115   | 129  | 71   |
| 105° | 204  | 288   | 1071 | 1374  | 920  | 215  |
| 115° | 338  | 398   | 918  | 1903  | 2224 | 335  |
| 125° | 472  | 530   | 863  | 1505  | 1780 | 419  |
| 135° | 574  | 637   | 867  | 1240  | 1423 | 442  |
| 145° | 679  | 736   | 872  | 1080  | 1195 | 427  |
| 155° | 796  | 825   | 890  | 979   | 1025 | 366  |
| 165° | 884  | 896   | 914  | 937   | 954  | 248  |
| 175° | 931  | 937   | 931  | 925   | 919  | 88   |
| 180° | 931  | 931   | 931  | 931   | 931  |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1570.8 | 1570.8 | 1570.8 | 1570.8 | 1570.8 |
| 2.5°   | 1556.6 | 1579.1 | 1565.4 | 1569.0 | 1570.8 |
| 5°     | 1546.4 | 1574.6 | 1559.7 | 1562.1 | 1573.0 |
| 7.5°   | 1532.2 | 1558.2 | 1545.0 | 1548.0 | 1560.6 |
| 10°    | 1519.7 | 1545.8 | 1530.8 | 1535.5 | 1546.4 |
| 12.5°  | 1503.8 | 1528.1 | 1516.6 | 1521.3 | 1532.2 |
| 15°    | 1479.8 | 1501.5 | 1488.7 | 1495.6 | 1506.4 |
| 17.5°  | 1444.3 | 1467.7 | 1454.1 | 1457.9 | 1468.7 |
| 20°    | 1417.7 | 1439.4 | 1431.0 | 1431.2 | 1442.1 |
| 22.5°  | 1385.7 | 1409.2 | 1402.6 | 1397.6 | 1410.1 |
| 25°    | 1335.6 | 1357.3 | 1353.3 | 1346.9 | 1355.6 |
| 27.5°  | 1285.9 | 1302.0 | 1294.3 | 1287.8 | 1294.3 |
| 30°    | 1246.9 | 1266.4 | 1253.5 | 1247.0 | 1253.5 |
| 32.5°  | 1204.3 | 1223.8 | 1210.9 | 1202.5 | 1205.6 |
| 35°    | 1138.1 | 1155.5 | 1144.8 | 1133.7 | 1133.7 |
| 37.5°  | 1075.6 | 1086.9 | 1079.6 | 1060.8 | 1056.1 |
| 40°    | 1029.4 | 1042.4 | 1031.6 | 1009.3 | 1002.8 |
| 42.5°  | 981.5  | 994.5  | 982.0  | 957.8  | 947.8  |
| 45°    | 911.8  | 920.5  | 905.2  | 878.3  | 865.3  |
| 47.5°  | 840.0  | 849.1  | 828.0  | 798.3  | 782.7  |
| 50°    | 792.0  | 802.9  | 776.5  | 745.1  | 727.7  |
| 52.5°  | 745.9  | 753.3  | 728.6  | 691.8  | 676.2  |
| 55°    | 672.2  | 680.9  | 656.7  | 616.3  | 596.8  |
| 57.5°  | 603.5  | 611.7  | 583.0  | 544.5  | 529.4  |
| 60°    | 559.1  | 565.6  | 536.9  | 496.6  | 481.4  |
| 62.5°  | 509.4  | 515.9  | 489.0  | 454.0  | 438.8  |
| 65°    | 443.7  | 445.9  | 423.8  | 392.4  | 381.6  |
| 67.5°  | 382.0  | 382.0  | 363.4  | 340.1  | 331.5  |
| 70°    | 339.4  | 339.4  | 326.1  | 308.2  | 299.5  |
| 72.5°  | 300.4  | 298.7  | 290.6  | 278.1  | 271.1  |
| 75°    | 239.6  | 239.6  | 244.0  | 237.3  | 233.0  |
| 77.5°  | 186.4  | 182.9  | 201.9  | 201.0  | 198.8  |
| 80°    | 150.9  | 150.9  | 175.3  | 179.7  | 177.5  |
| 82.5°  | 118.9  | 122.4  | 154.0  | 160.1  | 158.0  |
| 85°    | 73.2   | 88.4   | 122.0  | 130.9  | 130.9  |
| 87.5°  | 33.3   | 60.9   | 98.2   | 110.9  | 111.3  |
| 90°    | 6.7    | 49.3   | 91.6   | 110.8  | 113.0  |
| 92.5°  | 27.8   | 53.1   | 91.4   | 115.5  | 124.0  |
| 95°    | 69.0   | 106.9  | 93.4   | 115.1  | 128.8  |
| 97.5°  | 109.8  | 179.9  | 378.0  | 148.2  | 137.1  |
| 100°   | 137.9  | 220.0  | 717.6  | 241.2  | 176.8  |
| 102.5° | 164.2  | 250.9  | 954.1  | 567.4  | 327.2  |
| 105°   | 203.7  | 288.0  | 1071.0 | 1374.0 | 920.3  |
| 107.5° | 243.2  | 303.9  | 1018.1 | 1983.0 | 1860.4 |
| 110°   | 269.5  | 327.4  | 988.2  | 2079.5 | 2236.3 |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5°  | 90°    |
|--------|-------|-------|-------|--------|--------|
| 112.5° | 297.7 | 355.5 | 960.1 | 2017.4 | 2279.6 |
| 115°   | 337.6 | 397.6 | 917.9 | 1903.1 | 2223.7 |
| 117.5° | 378.3 | 439.8 | 906.9 | 1777.7 | 2107.5 |
| 120°   | 409.3 | 467.9 | 886.4 | 1682.5 | 2026.1 |
| 122.5° | 432.7 | 494.2 | 863.0 | 1602.3 | 1918.3 |
| 125°   | 471.5 | 530.1 | 863.0 | 1505.3 | 1780.1 |
| 127.5° | 502.8 | 565.2 | 864.2 | 1392.8 | 1664.2 |
| 130°   | 519.7 | 588.4 | 868.9 | 1317.5 | 1575.2 |
| 132.5° | 539.6 | 608.3 | 867.1 | 1283.7 | 1495.5 |
| 135°   | 573.9 | 636.8 | 866.6 | 1239.7 | 1422.9 |
| 137.5° | 603.1 | 670.7 | 866.6 | 1191.1 | 1348.0 |
| 140°   | 626.6 | 689.5 | 866.6 | 1162.7 | 1305.8 |
| 142.5° | 650.0 | 708.4 | 871.3 | 1129.7 | 1263.7 |
| 145°   | 679.3 | 736.5 | 872.5 | 1080.1 | 1194.6 |
| 147.5° | 714.4 | 764.8 | 879.5 | 1044.3 | 1132.5 |
| 150°   | 737.8 | 783.6 | 884.2 | 1020.6 | 1095.0 |
| 152.5° | 761.2 | 802.5 | 884.2 | 1001.5 | 1062.2 |
| 155°   | 796.4 | 825.0 | 890.1 | 978.9  | 1024.7 |
| 157.5° | 824.5 | 852.0 | 897.1 | 964.6  | 997.8  |
| 160°   | 843.2 | 866.1 | 901.8 | 955.1  | 983.8  |
| 162.5° | 857.3 | 880.2 | 906.5 | 950.2  | 969.7  |
| 165°   | 884.2 | 895.7 | 913.5 | 937.3  | 954.5  |
| 167.5° | 899.4 | 909.7 | 919.3 | 931.3  | 941.6  |
| 170°   | 913.5 | 919.2 | 919.3 | 931.2  | 936.9  |
| 172.5° | 918.2 | 928.5 | 924.0 | 926.5  | 932.2  |
| 175°   | 931.1 | 936.8 | 931.1 | 925.1  | 919.3  |
| 177.5° | 931.1 | 935.6 | 931.1 | 931.0  | 926.4  |
| 180°   | 931.1 | 931.1 | 931.1 | 931.1  | 931.1  |

(END OF REPORT)