

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P243356

Luminaire Tested: **S123DR-H340D830-X4F0-XX-UDD-D-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243356  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-54)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DR-H340D830-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1284.3 lumens  
Efficiency: N/A  
Efficacy: 114.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.23' x L: 3.88' x H: 0.08')  
CIE Type: Direct

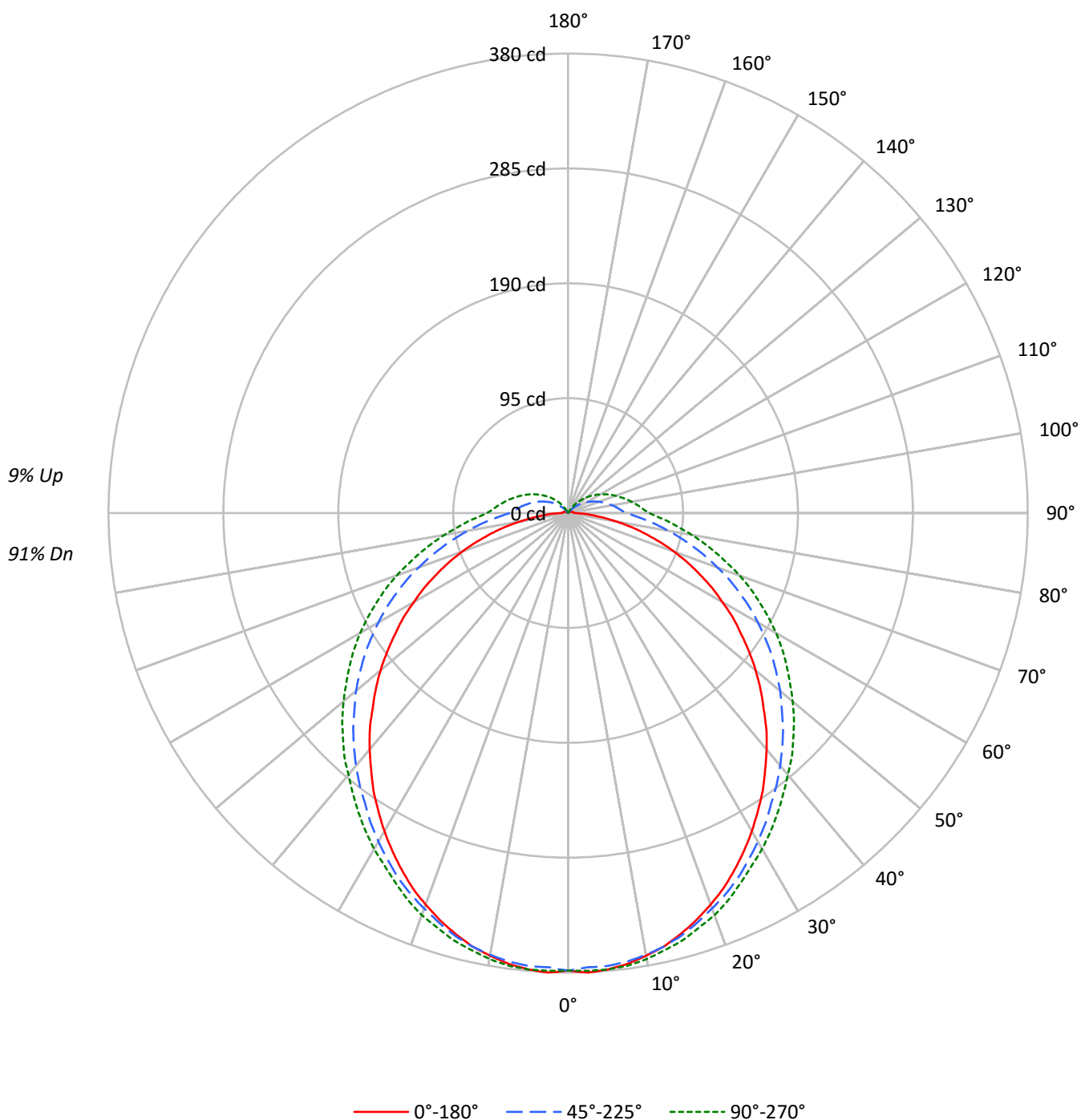
Input Watts (W): 11.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |
| 0   | 117 | 117 | 117 | 117 | 113 | 113 | 113 | 113 | 106 | 106 | 106 | 100 | 100 | 100 | 94 | 94 | 94 |
| 1   | 105 | 100 | 95  | 90  | 101 | 96  | 92  | 88  | 91  | 87  | 84  | 85  | 82  | 80  | 80 | 78 | 76 |
| 2   | 95  | 86  | 79  | 72  | 91  | 83  | 77  | 71  | 78  | 73  | 68  | 74  | 69  | 65  | 69 | 66 | 62 |
| 3   | 86  | 75  | 66  | 60  | 83  | 73  | 65  | 58  | 69  | 62  | 56  | 65  | 59  | 54  | 61 | 56 | 52 |
| 4   | 79  | 66  | 57  | 50  | 76  | 64  | 56  | 49  | 61  | 53  | 48  | 57  | 51  | 46  | 54 | 49 | 45 |
| 5   | 72  | 59  | 50  | 43  | 70  | 57  | 49  | 42  | 54  | 47  | 41  | 51  | 45  | 40  | 49 | 43 | 39 |
| 6   | 67  | 53  | 44  | 37  | 64  | 52  | 43  | 37  | 49  | 41  | 36  | 46  | 40  | 35  | 44 | 38 | 34 |
| 7   | 62  | 48  | 39  | 33  | 60  | 47  | 38  | 32  | 44  | 37  | 32  | 42  | 36  | 31  | 40 | 34 | 30 |
| 8   | 57  | 44  | 35  | 29  | 55  | 43  | 34  | 29  | 41  | 33  | 28  | 39  | 32  | 27  | 37 | 31 | 27 |
| 9   | 54  | 40  | 32  | 26  | 52  | 39  | 31  | 26  | 37  | 30  | 25  | 36  | 29  | 25  | 34 | 28 | 24 |
| 10  | 50  | 37  | 29  | 24  | 49  | 36  | 29  | 23  | 35  | 28  | 23  | 33  | 27  | 22  | 32 | 26 | 22 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4587 | 4587 | 4587 |
| 5°  | 4600 | 4469 | 4467 |
| 10° | 4558 | 4356 | 4332 |
| 15° | 4494 | 4231 | 4183 |
| 20° | 4409 | 4084 | 4031 |
| 25° | 4310 | 3947 | 3858 |
| 30° | 4200 | 3794 | 3711 |
| 35° | 4089 | 3639 | 3564 |
| 40° | 3968 | 3512 | 3425 |
| 45° | 3834 | 3386 | 3309 |
| 50° | 3721 | 3259 | 3188 |
| 55° | 3584 | 3128 | 3068 |
| 60° | 3440 | 2983 | 2953 |
| 65° | 3290 | 2830 | 2810 |
| 70° | 3115 | 2664 | 2672 |
| 75° | 2857 | 2483 | 2509 |
| 80° | 2526 | 2304 | 2366 |
| 85° | 2244 | 2161 | 2258 |

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 35.9   | 2.8       |
| 10°-20°   | 102.4  | 8.0       |
| 20°-30°   | 153.4  | 11.9      |
| 30°-40°   | 183.5  | 14.3      |
| 40°-50°   | 192.5  | 15.0      |
| 50°-60°   | 180.9  | 14.1      |
| 60°-70°   | 151.4  | 11.8      |
| 70°-80°   | 108.7  | 8.5       |
| 80°-90°   | 65.1   | 5.1       |
| 90°-100°  | 41.3   | 3.2       |
| 100°-110° | 30.4   | 2.4       |
| 110°-120° | 20.4   | 1.6       |
| 120°-130° | 11.7   | 0.9       |
| 130°-140° | 5.4    | 0.4       |
| 140°-150° | 1.2    | 0.1       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 291.7  | 22.7      |
| 0°-40°    | 475.3  | 37.0      |
| 0°-60°    | 848.7  | 66.1      |
| 0°-90°    | 1173.9 | 91.4      |
| 90°-120°  | 92.0   | 7.2       |
| 90°-150°  | 110.4  | 8.6       |
| 90°-180°  | 110.0  | 8.6       |
| 0°-180°   | 1284.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0°   | 378 | 378   | 378 | 378   | 378 |      |
| 5°   | 379 | 378   | 376 | 379   | 379 | 36   |
| 15°  | 360 | 363   | 362 | 367   | 366 | 102  |
| 25°  | 326 | 330   | 333 | 338   | 337 | 150  |
| 35°  | 280 | 287   | 293 | 300   | 302 | 175  |
| 45°  | 228 | 240   | 251 | 260   | 263 | 177  |
| 55°  | 175 | 189   | 206 | 217   | 221 | 157  |
| 65°  | 120 | 138   | 156 | 170   | 174 | 119  |
| 75°  | 66  | 86    | 107 | 122   | 126 | 70   |
| 85°  | 20  | 41    | 64  | 78    | 84  | 21   |
| 90°  | 6   | 26    | 48  | 63    | 67  | 4    |
| 95°  | 4   | 21    | 42  | 55    | 60  | 4    |
| 105° | 3   | 14    | 32  | 44    | 47  | 3    |
| 115° | 2   | 7     | 22  | 33    | 36  | 2    |
| 125° | 2   | 2     | 14  | 22    | 26  | 1    |
| 135° | 1   | 0     | 6   | 13    | 15  | 1    |
| 145° | 0   | 0     | 0   | 4     | 6   | 0    |
| 155° | 0   | 0     | 0   | 0     | 0   | 0    |
| 165° | 0   | 0     | 0   | 0     | 0   | 0    |
| 175° | 0   | 0     | 0   | 0     | 0   | 0    |
| 180° | 0   | 0     | 0   | 0     | 0   | 0    |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 0°     | 378.4 | 378.4 | 378.4 | 378.4 | 378.4 |
| 2.5°   | 380.4 | 379.2 | 376.0 | 379.6 | 378.8 |
| 5°     | 378.8 | 378.4 | 376.0 | 379.2 | 378.8 |
| 7.5°   | 376.0 | 376.0 | 374.1 | 377.6 | 377.6 |
| 10°    | 371.7 | 372.9 | 370.9 | 374.8 | 374.5 |
| 12.5°  | 367.0 | 368.5 | 367.0 | 371.3 | 370.1 |
| 15°    | 360.2 | 362.6 | 361.8 | 366.6 | 365.8 |
| 17.5°  | 352.8 | 355.5 | 355.1 | 359.9 | 359.5 |
| 20°    | 344.5 | 348.0 | 348.0 | 352.8 | 353.9 |
| 22.5°  | 335.8 | 339.7 | 340.9 | 345.6 | 346.4 |
| 25°    | 325.5 | 329.9 | 332.6 | 337.8 | 337.4 |
| 27.5°  | 314.9 | 320.0 | 323.2 | 328.7 | 328.7 |
| 30°    | 303.8 | 309.7 | 313.7 | 319.6 | 320.8 |
| 32.5°  | 292.0 | 299.1 | 303.8 | 310.1 | 311.7 |
| 35°    | 280.5 | 287.3 | 292.8 | 300.3 | 302.2 |
| 37.5°  | 267.5 | 275.8 | 283.3 | 291.2 | 292.4 |
| 40°    | 255.3 | 264.4 | 272.7 | 280.9 | 282.5 |
| 42.5°  | 242.7 | 252.1 | 262.0 | 270.3 | 273.8 |
| 45°    | 228.5 | 239.9 | 251.3 | 260.0 | 263.2 |
| 47.5°  | 215.8 | 227.3 | 239.5 | 249.8 | 253.3 |
| 50°    | 202.4 | 214.3 | 228.9 | 238.7 | 242.3 |
| 52.5°  | 188.6 | 201.6 | 217.0 | 227.7 | 231.2 |
| 55°    | 174.8 | 189.4 | 205.6 | 216.6 | 220.6 |
| 57.5°  | 161.8 | 176.4 | 193.3 | 205.6 | 209.9 |
| 60°    | 147.2 | 163.4 | 181.1 | 193.7 | 198.5 |
| 62.5°  | 134.2 | 150.7 | 169.3 | 181.9 | 186.6 |
| 65°    | 120.0 | 137.7 | 156.3 | 170.1 | 174.4 |
| 67.5°  | 106.9 | 124.3 | 144.4 | 158.2 | 163.0 |
| 70°    | 93.1  | 111.3 | 131.4 | 145.6 | 150.7 |
| 72.5°  | 79.3  | 98.6  | 119.2 | 133.8 | 138.1 |
| 75°    | 65.9  | 86.0  | 106.9 | 121.5 | 126.3 |
| 77.5°  | 53.3  | 73.4  | 95.1  | 109.7 | 114.8 |
| 80°    | 40.6  | 61.6  | 84.0  | 98.6  | 103.8 |
| 82.5°  | 29.6  | 50.9  | 73.8  | 88.0  | 92.7  |
| 85°    | 20.1  | 41.0  | 63.9  | 78.5  | 83.7  |
| 87.5°  | 11.8  | 33.1  | 55.2  | 69.8  | 74.2  |
| 90°    | 5.5   | 26.0  | 48.1  | 62.7  | 67.1  |
| 92.5°  | 5.1   | 23.3  | 44.6  | 58.4  | 62.7  |
| 95°    | 4.3   | 21.3  | 41.8  | 55.2  | 59.6  |
| 97.5°  | 4.3   | 19.3  | 39.5  | 52.5  | 56.4  |
| 100°   | 3.9   | 17.4  | 37.1  | 49.3  | 53.3  |
| 102.5° | 3.6   | 15.4  | 34.3  | 46.6  | 50.5  |
| 105°   | 3.2   | 13.8  | 32.0  | 43.8  | 47.3  |
| 107.5° | 2.8   | 11.8  | 29.6  | 41.0  | 44.6  |
| 110°   | 2.8   | 10.3  | 27.2  | 38.3  | 41.8  |

TEST NUMBER: P243356

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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45°  | 67.5° | 90°  |
|--------|-----|-------|------|-------|------|
| 112.5° | 2.4 | 8.7   | 24.9 | 35.5  | 39.1 |
| 115°   | 2.0 | 7.1   | 22.5 | 32.7  | 36.3 |
| 117.5° | 2.0 | 5.5   | 20.1 | 30.4  | 33.5 |
| 120°   | 2.0 | 4.3   | 18.2 | 27.6  | 30.8 |
| 122.5° | 1.6 | 2.8   | 16.2 | 25.3  | 28.4 |
| 125°   | 1.6 | 1.6   | 13.8 | 22.5  | 25.6 |
| 127.5° | 1.2 | 0.8   | 11.8 | 20.1  | 22.9 |
| 130°   | 1.2 | 0.8   | 9.9  | 17.8  | 20.5 |
| 132.5° | 0.8 | 0.8   | 7.9  | 15.4  | 18.2 |
| 135°   | 0.8 | 0.4   | 5.9  | 13.0  | 15.4 |
| 137.5° | 0.8 | 0.4   | 3.9  | 10.7  | 13.0 |
| 140°   | 0.4 | 0.4   | 2.0  | 8.3   | 10.7 |
| 142.5° | 0.4 | 0.0   | 0.4  | 6.3   | 8.3  |
| 145°   | 0.4 | 0.0   | 0.0  | 3.9   | 5.5  |
| 147.5° | 0.4 | 0.0   | 0.0  | 2.0   | 3.6  |
| 150°   | 0.4 | 0.0   | 0.0  | 0.0   | 1.2  |
| 152.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 155°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 157.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 160°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 162.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 165°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 167.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 170°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 172.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 175°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 177.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 180°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |

(END OF REPORT)