

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P1219594

Luminaire Tested: **LDSQA6A15950D010TE LARL20NF 6LSQA1H**

Issue Date: 3/3/2020

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

**Test Information**

Test Method: LM-41-14  
Report Number: P1219594  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29055)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA6A15950D010TE LARL20NF 6LSQA1H  
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 20° NARROW FLOOD  
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

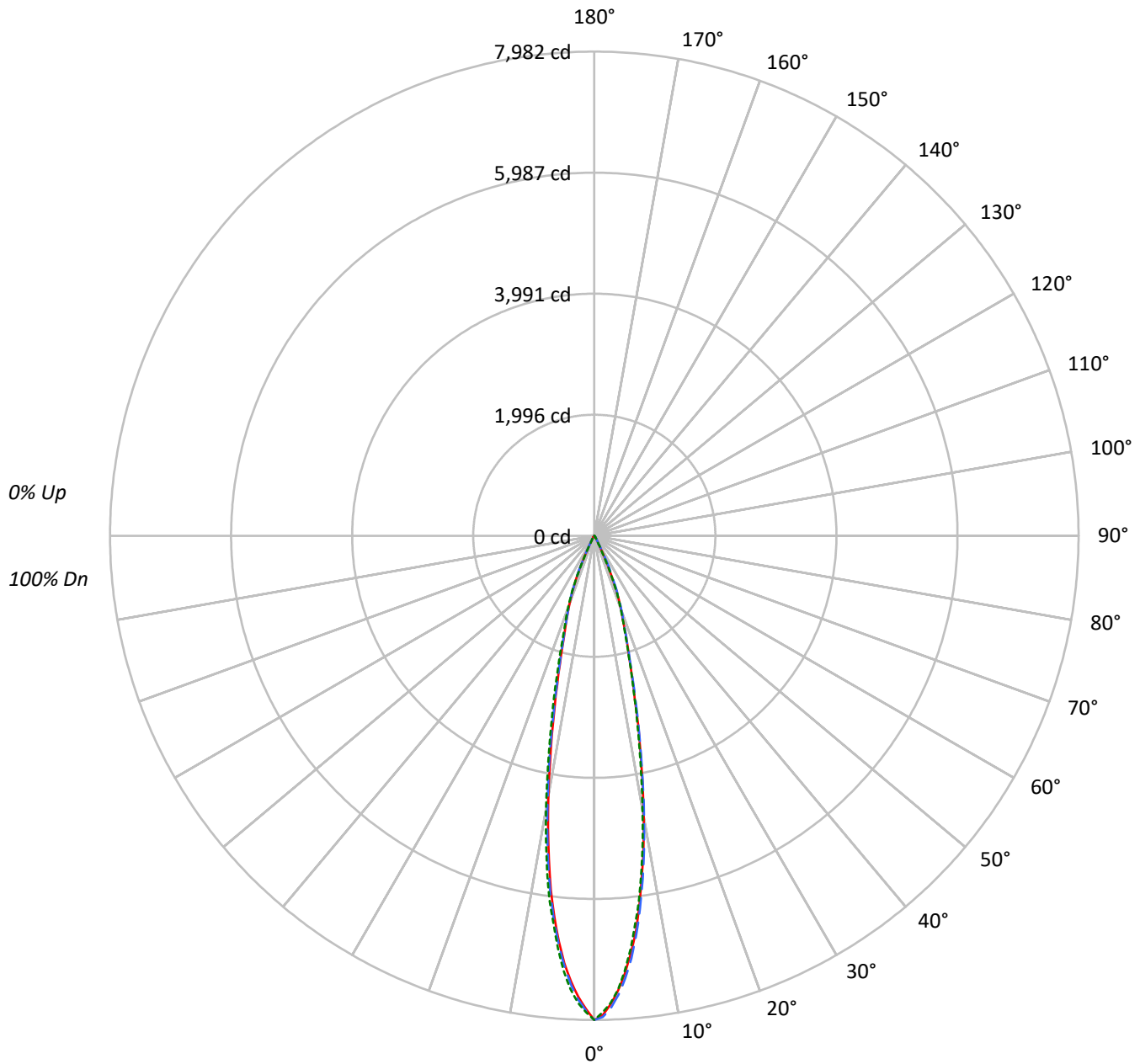
Lumens per Lamp: N/A  
Luminaire Lumens: 1523.8 lumens  
Efficiency: N/A  
Efficacy: 74.3 lumens/watt  
Spacing Criteria (0/90/45): 0.37 / 0.38 / 0.39  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 20.5  
Input Voltage (V): NR  
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  | 50  | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |
| 1   | 115 | 113 | 111 | 110 | 113 | 111 | 109 | 108 | 107 | 106 | 105 | 103 | 102 | 102 | 100 | 99  | 99  | 97  |    |    |
| 2   | 112 | 108 | 105 | 103 | 110 | 107 | 104 | 102 | 103 | 101 | 100 | 101 | 99  | 97  | 98  | 97  | 95  | 94  |    |    |
| 3   | 108 | 104 | 100 | 98  | 107 | 103 | 99  | 97  | 100 | 98  | 95  | 98  | 96  | 94  | 96  | 94  | 93  | 91  |    |    |
| 4   | 105 | 100 | 96  | 93  | 104 | 99  | 96  | 93  | 97  | 94  | 92  | 95  | 93  | 91  | 94  | 92  | 90  | 89  |    |    |
| 5   | 102 | 97  | 93  | 90  | 101 | 96  | 92  | 89  | 94  | 91  | 89  | 93  | 90  | 88  | 91  | 89  | 87  | 86  |    |    |
| 6   | 99  | 94  | 90  | 87  | 98  | 93  | 89  | 86  | 92  | 88  | 86  | 90  | 88  | 85  | 89  | 87  | 85  | 84  |    |    |
| 7   | 97  | 91  | 87  | 84  | 96  | 90  | 86  | 84  | 89  | 86  | 83  | 88  | 85  | 83  | 87  | 85  | 83  | 82  |    |    |
| 8   | 94  | 88  | 84  | 82  | 93  | 88  | 84  | 81  | 87  | 83  | 81  | 86  | 83  | 81  | 85  | 82  | 80  | 80  |    |    |
| 9   | 92  | 86  | 82  | 79  | 91  | 85  | 82  | 79  | 85  | 81  | 79  | 84  | 81  | 79  | 83  | 80  | 78  | 78  |    |    |
| 10  | 90  | 84  | 80  | 77  | 89  | 83  | 80  | 77  | 83  | 79  | 77  | 82  | 79  | 77  | 81  | 79  | 77  | 76  |    |    |

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

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 343670 | 343670 | 343670 |
| 5°  | 298668 | 295613 | 290275 |
| 10° | 205186 | 200193 | 190164 |
| 15° | 106850 | 105909 | 97547  |
| 20° | 59413  | 58144  | 55006  |
| 25° | 19654  | 18209  | 21359  |
| 30° | 4355   | 4027   | 3594   |
| 35° | 1629   | 1603   | 1424   |
| 40° | 641    | 613    | 579    |
| 45° | 195    | 195    | 195    |
| 50° | 33     | 33     | 67     |
| 55° | 38     | 0      | 38     |
| 60° | 0      | 0      | 0      |
| 65° | 0      | 0      | 0      |
| 70° | 0      | 0      | 0      |
| 75° | 0      | 0      | 0      |
| 80° | 0      | 0      | 0      |
| 85° | 0      | 0      | 0      |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 583.0  | 38.3      |
| 10°-20°   | 675.7  | 44.3      |
| 20°-30°   | 234.8  | 15.4      |
| 30°-40°   | 25.0   | 1.6       |
| 40°-50°   | 4.8    | 0.3       |
| 50°-60°   | 0.5    | 0.0       |
| 60°-70°   | 0.0    | 0.0       |
| 70°-80°   | 0.0    | 0.0       |
| 80°-90°   | 0.0    | 0.0       |
| 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°    | 1493.6 | 98.0      |
| 0°-40°    | 1518.6 | 99.7      |
| 0°-60°    | 1523.8 | 100.0     |
| 0°-90°    | 1523.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1523.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90°  | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0°  | 7982 | 7982 | 7982 | 7982 | 7982 |      |
| 5°  | 6910 | 6994 | 6840 | 6755 | 6716 | 587  |
| 15° | 2397 | 2449 | 2376 | 2238 | 2188 | 690  |
| 25° | 414  | 538  | 383  | 470  | 450  | 224  |
| 35° | 31   | 44   | 30   | 39   | 27   | 23   |
| 45° | 3    | 9    | 3    | 8    | 3    | 3    |
| 55° | 0    | 0    | 0    | 0    | 0    | 0    |
| 65° | 0    | 0    | 0    | 0    | 0    | 0    |
| 75° | 0    | 0    | 0    | 0    | 0    | 0    |
| 85° | 0    | 0    | 0    | 0    | 0    | 0    |
| 90° | 0    | 0    | 0    | 0    | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    | 112.5° | 135°   | 157.5° | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 7982.0 | 7982.0 | 7982.0 | 7982.0 | 7982.0 | 7982.0 | 7982.0 | 7982.0 | 7982.0 |
| 1°    | 7908.6 | 7907.4 | 7935.7 | 7943.3 | 7857.4 | 7974.9 | 7835.2 | 7978.2 | 7805.8 |
| 2°    | 7730.7 | 7740.5 | 7789.0 | 7782.4 | 7707.4 | 7810.7 | 7646.5 | 7759.0 | 7604.1 |
| 3°    | 7505.2 | 7522.5 | 7578.6 | 7574.2 | 7486.6 | 7575.3 | 7401.3 | 7501.8 | 7356.1 |
| 4°    | 7228.9 | 7269.7 | 7316.5 | 7329.0 | 7195.8 | 7275.7 | 7106.6 | 7200.6 | 7062.0 |
| 5°    | 6910.4 | 6964.2 | 6994.1 | 6977.3 | 6839.7 | 6913.1 | 6755.4 | 6889.2 | 6716.2 |
| 6°    | 6550.4 | 6592.2 | 6614.6 | 6584.7 | 6432.4 | 6515.6 | 6368.2 | 6481.9 | 6312.8 |
| 7°    | 6122.0 | 6169.3 | 6187.3 | 6157.8 | 6052.4 | 6086.1 | 5938.7 | 6033.9 | 5875.7 |
| 8°    | 5646.3 | 5717.5 | 5720.2 | 5693.6 | 5584.3 | 5547.3 | 5463.0 | 5532.6 | 5382.5 |
| 9°    | 5179.2 | 5232.6 | 5231.4 | 5211.9 | 5091.1 | 5037.3 | 4955.2 | 5004.7 | 4871.5 |
| 10°   | 4693.2 | 4741.0 | 4724.7 | 4706.7 | 4579.0 | 4519.2 | 4440.4 | 4466.5 | 4349.6 |
| 11°   | 4178.3 | 4239.1 | 4213.0 | 4195.7 | 4068.5 | 4009.7 | 3930.9 | 3938.0 | 3835.2 |
| 12°   | 3658.0 | 3744.4 | 3713.4 | 3702.0 | 3584.6 | 3527.5 | 3456.2 | 3448.6 | 3351.3 |
| 13°   | 3221.4 | 3274.6 | 3244.2 | 3238.2 | 3135.0 | 3085.5 | 2970.8 | 3001.2 | 2912.5 |
| 14°   | 2755.5 | 2848.5 | 2821.2 | 2818.5 | 2733.6 | 2687.5 | 2581.5 | 2605.4 | 2528.1 |
| 15°   | 2397.1 | 2471.0 | 2449.3 | 2448.3 | 2376.0 | 2331.9 | 2237.9 | 2257.4 | 2188.4 |
| 16°   | 2071.0 | 2140.5 | 2124.7 | 2127.4 | 2063.4 | 2024.7 | 1943.1 | 1959.5 | 1904.0 |
| 17°   | 1843.7 | 1868.7 | 1854.0 | 1854.0 | 1800.8 | 1776.8 | 1706.6 | 1722.4 | 1679.0 |
| 18°   | 1617.5 | 1626.8 | 1636.0 | 1637.6 | 1590.9 | 1574.6 | 1515.8 | 1529.9 | 1494.1 |
| 19°   | 1432.1 | 1454.3 | 1459.8 | 1460.9 | 1419.6 | 1410.3 | 1359.8 | 1370.6 | 1341.3 |
| 20°   | 1296.7 | 1309.8 | 1311.4 | 1308.6 | 1269.0 | 1261.4 | 1216.3 | 1226.1 | 1200.5 |
| 21°   | 1140.2 | 1162.9 | 1158.0 | 1153.7 | 1112.4 | 1106.5 | 1068.4 | 1070.0 | 1045.0 |
| 22°   | 965.6  | 1006.4 | 1000.9 | 993.3  | 937.4  | 929.1  | 919.4  | 915.6  | 891.7  |
| 23°   | 751.9  | 847.1  | 842.2  | 831.3  | 749.7  | 774.2  | 768.2  | 761.2  | 738.9  |
| 24°   | 576.9  | 688.9  | 686.2  | 669.2  | 561.1  | 622.0  | 615.5  | 609.4  | 592.1  |
| 25°   | 413.7  | 537.2  | 537.7  | 511.6  | 383.3  | 492.5  | 469.8  | 465.4  | 449.6  |
| 26°   | 295.8  | 399.6  | 402.4  | 364.8  | 235.5  | 355.6  | 339.2  | 333.3  | 320.7  |
| 27°   | 179.9  | 278.4  | 283.8  | 239.2  | 146.8  | 238.7  | 228.4  | 221.8  | 186.0  |
| 28°   | 124.0  | 181.6  | 188.1  | 147.9  | 114.7  | 159.3  | 146.8  | 139.2  | 108.2  |
| 29°   | 106.0  | 118.6  | 123.4  | 104.4  | 96.8   | 106.0  | 100.0  | 96.8   | 87.6   |
| 30°   | 87.6   | 90.3   | 92.5   | 86.4   | 81.0   | 83.7   | 81.0   | 78.3   | 72.3   |
| 32.5° | 55.4   | 60.3   | 62.0   | 57.6   | 52.7   | 54.4   | 54.4   | 50.5   | 45.7   |
| 35°   | 31.0   | 38.6   | 43.5   | 38.1   | 30.5   | 36.4   | 39.1   | 33.7   | 27.1   |
| 37.5° | 19.0   | 23.9   | 30.5   | 23.9   | 18.5   | 23.4   | 28.3   | 21.2   | 17.4   |
| 40°   | 11.4   | 14.7   | 21.7   | 14.7   | 10.9   | 14.1   | 19.6   | 13.0   | 10.3   |
| 42.5° | 6.6    | 8.7    | 14.1   | 8.7    | 6.0    | 8.1    | 13.0   | 7.6    | 6.0    |
| 45°   | 3.2    | 4.9    | 8.7    | 4.9    | 3.2    | 4.9    | 8.1    | 4.4    | 3.2    |
| 47.5° | 1.7    | 2.7    | 4.9    | 2.7    | 1.7    | 2.7    | 4.4    | 2.7    | 1.7    |
| 50°   | 0.5    | 1.0    | 2.7    | 1.0    | 0.5    | 1.0    | 2.7    | 1.0    | 1.0    |
| 52.5° | 0.5    | 0.5    | 1.7    | 0.5    | 0.5    | 0.5    | 1.0    | 0.5    | 0.5    |
| 55°   | 0.5    | 0.5    | 0.5    | 0.5    | 0.0    | 0.5    | 0.5    | 0.5    | 0.5    |
| 57.5° | 0.5    | 0.0    | 0.5    | 0.0    | 0.0    | 0.0    | 0.5    | 0.5    | 0.5    |
| 60°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.5    | 0.0    |



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**CANDELA DISTRIBUTION (continued):**

|       | 0°  | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|-------|-----|-------|-----|-------|-----|--------|------|--------|------|
| 67.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 70°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 72.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 75°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 77.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 80°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 82.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 85°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 87.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 90°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |

Classified

Scaled Data Report

Cooper Lighting Solutions Photometric Lab

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Peachtree City, GA 30269

Scaled Data Report





— 0°-180°    - - 45°-225°    - - - 90°-270°

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Peachtree City, GA 30269

Scaled Data Report



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Peachtree City, GA 30269

Scaled Data Report



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Scaled Data Report



|       |     |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 62.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 65°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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