

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: P208741

Luminaire Tested: **LDSQA6A30830D010TE LARL15SP 6LSQA1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P208741  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29053)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA6A30830D010TE LARL15SP 6LSQA1H  
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 15° SPOT  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2369.4 lumens  
Efficiency: N/A  
Efficacy: 53.1 lumens/watt  
Spacing Criteria (0/90/45): 0.31 / 0.31 / 0.36  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
CIE Type: Direct

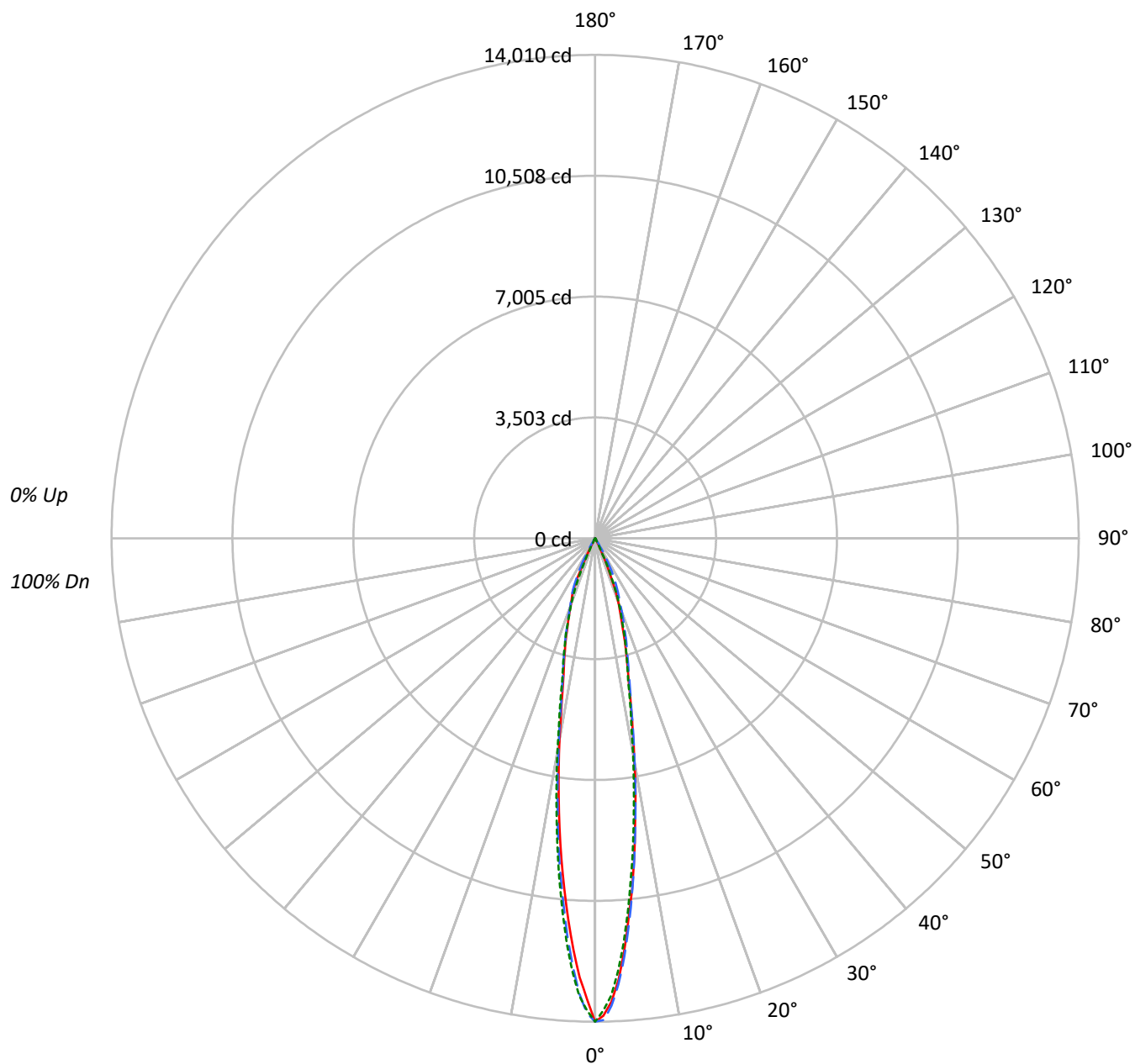
Input Watts (W): 44.62  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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  |     |     |     |     | 0   |
| 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 | 100 | 100 |
| 1   | 115 | 113 | 111 | 110 | 113 | 111 | 109 | 108 | 107 | 106 | 105 | 103 | 102 | 101 | 100 | 99  | 99  | 97  | 97  | 97  |
| 2   | 112 | 108 | 105 | 103 | 109 | 106 | 104 | 102 | 103 | 101 | 99  | 100 | 99  | 97  | 98  | 96  | 95  | 94  | 94  | 94  |
| 3   | 108 | 104 | 100 | 97  | 106 | 102 | 99  | 97  | 100 | 97  | 95  | 98  | 95  | 94  | 96  | 94  | 92  | 91  | 91  | 91  |
| 4   | 105 | 100 | 96  | 93  | 103 | 99  | 95  | 93  | 97  | 94  | 91  | 95  | 92  | 90  | 93  | 91  | 90  | 88  | 88  | 88  |
| 5   | 102 | 96  | 92  | 89  | 101 | 95  | 92  | 89  | 94  | 91  | 88  | 92  | 90  | 88  | 91  | 89  | 87  | 86  | 86  | 86  |
| 6   | 99  | 93  | 89  | 86  | 98  | 92  | 89  | 86  | 91  | 88  | 85  | 90  | 87  | 85  | 89  | 86  | 84  | 83  | 83  | 83  |
| 7   | 97  | 90  | 86  | 83  | 95  | 90  | 86  | 83  | 89  | 85  | 83  | 88  | 85  | 82  | 87  | 84  | 82  | 81  | 81  | 81  |
| 8   | 94  | 88  | 84  | 81  | 93  | 87  | 83  | 81  | 86  | 83  | 80  | 85  | 82  | 80  | 85  | 82  | 80  | 79  | 79  | 79  |
| 9   | 92  | 85  | 81  | 79  | 91  | 85  | 81  | 79  | 84  | 81  | 78  | 83  | 80  | 78  | 83  | 80  | 78  | 77  | 77  | 77  |
| 10  | 89  | 83  | 79  | 77  | 89  | 83  | 79  | 76  | 82  | 79  | 76  | 81  | 78  | 76  | 81  | 78  | 76  | 75  | 75  | 75  |

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

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 603214 | 603214 | 603214 |
| 5°  | 479540 | 469310 | 441498 |
| 10° | 285709 | 275186 | 258909 |
| 15° | 156113 | 156376 | 151473 |
| 20° | 89438  | 91917  | 94483  |
| 25° | 23616  | 24547  | 44105  |
| 30° | 3222   | 2978   | 2884   |
| 35° | 1293   | 1240   | 1188   |
| 40° | 495    | 495    | 495    |
| 45° | 237    | 177    | 237    |
| 50° | 134    | 67     | 194    |
| 55° | 75     | 0      | 150    |
| 60° | 86     | 0      | 0      |
| 65° | 102    | 0      | 0      |
| 70° | 126    | 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°    | 889.7  | 37.5      |
| 10°-20°   | 1001.2 | 42.3      |
| 20°-30°   | 445.8  | 18.8      |
| 30°-40°   | 27.2   | 1.1       |
| 40°-50°   | 4.4    | 0.2       |
| 50°-60°   | 0.8    | 0.0       |
| 60°-70°   | 0.2    | 0.0       |
| 70°-80°   | 0.1    | 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°    | 2336.8 | 98.6      |
| 0°-40°    | 2364.0 | 99.8      |
| 0°-60°    | 2369.1 | 100.0     |
| 0°-90°    | 2369.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2369.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°    | 45°   | 90°   | 135°  | 180°  | Flux |
|-----|-------|-------|-------|-------|-------|------|
| 0°  | 14010 | 14010 | 14010 | 14010 | 14010 |      |
| 5°  | 11095 | 11225 | 10859 | 10604 | 10215 | 912  |
| 15° | 3502  | 3655  | 3508  | 3484  | 3398  | 987  |
| 25° | 497   | 1328  | 517   | 1283  | 928   | 293  |
| 35° | 25    | 39    | 24    | 40    | 23    | 18   |
| 45° | 4     | 7     | 3     | 7     | 4     | 3    |
| 55° | 1     | 1     | 0     | 1     | 2     | 1    |
| 65° | 1     | 0     | 0     | 0     | 0     | 1    |
| 75° | 0     | 0     | 0     | 0     | 0     | 0    |
| 85° | 0     | 0     | 0     | 0     | 0     | 0    |
| 90° | 0     | 0     | 0     | 0     | 0     | 0    |



TEST NUMBER: P208741

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 22.5°   | 45°     | 67.5°   | 90°     | 112.5°  | 135°    | 157.5°  | 180°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 14010.1 | 14010.1 | 14010.1 | 14010.1 | 14010.1 | 14010.1 | 14010.1 | 14010.1 | 14010.1 |
| 1°    | 13838.2 | 13964.9 | 13964.9 | 13934.5 | 13682.0 | 13869.7 | 13763.6 | 13649.6 | 13352.9 |
| 2°    | 13440.3 | 13569.0 | 13556.3 | 13440.3 | 13257.6 | 13335.2 | 13189.8 | 13048.4 | 12736.9 |
| 3°    | 12826.3 | 12964.9 | 12939.3 | 12818.5 | 12574.8 | 12622.0 | 12413.7 | 12306.6 | 11949.0 |
| 4°    | 12001.1 | 12177.0 | 12146.5 | 12012.9 | 11768.3 | 11765.3 | 11547.2 | 11434.3 | 11103.2 |
| 5°    | 11095.3 | 11279.0 | 11225.0 | 11115.0 | 10858.6 | 10812.4 | 10604.1 | 10523.6 | 10215.1 |
| 6°    | 10224.9 | 10339.9 | 10283.9 | 10192.5 | 9915.5  | 9887.0  | 9689.5  | 9620.7  | 9335.8  |
| 7°    | 9297.5  | 9377.1  | 9322.1  | 9251.3  | 8971.4  | 8934.0  | 8772.9  | 8718.9  | 8440.9  |
| 8°    | 8320.0  | 8434.0  | 8355.4  | 8311.2  | 8046.9  | 7995.8  | 7833.7  | 7797.4  | 7574.4  |
| 9°    | 7485.0  | 7523.3  | 7439.8  | 7307.2  | 7153.9  | 7101.8  | 6929.9  | 6894.5  | 6738.3  |
| 10°   | 6535.0  | 6653.9  | 6589.0  | 6475.1  | 6294.3  | 6333.6  | 6084.1  | 6054.6  | 5922.0  |
| 11°   | 5708.8  | 5833.5  | 5764.8  | 5662.6  | 5499.5  | 5522.1  | 5317.8  | 5194.0  | 5173.4  |
| 12°   | 5027.0  | 5084.0  | 5063.3  | 4980.8  | 4849.2  | 4856.0  | 4674.3  | 4575.1  | 4554.4  |
| 13°   | 4362.9  | 4465.1  | 4474.9  | 4407.1  | 4248.9  | 4321.6  | 4186.0  | 4105.5  | 4073.1  |
| 14°   | 3912.9  | 3990.5  | 4022.0  | 4020.0  | 3849.1  | 3912.9  | 3805.9  | 3741.0  | 3708.6  |
| 15°   | 3502.3  | 3603.5  | 3654.6  | 3651.6  | 3508.2  | 3573.0  | 3483.6  | 3432.5  | 3398.2  |
| 16°   | 3117.2  | 3255.7  | 3339.2  | 3325.5  | 3191.8  | 3258.7  | 3170.2  | 3120.1  | 3081.8  |
| 17°   | 2730.1  | 2920.7  | 3043.5  | 3017.0  | 2877.5  | 2962.0  | 2877.5  | 2834.3  | 2794.0  |
| 18°   | 2432.4  | 2588.6  | 2761.6  | 2704.6  | 2549.4  | 2681.0  | 2608.3  | 2573.9  | 2536.6  |
| 19°   | 2165.2  | 2272.3  | 2497.3  | 2396.1  | 2255.6  | 2404.9  | 2350.9  | 2323.4  | 2288.0  |
| 20°   | 1952.0  | 2044.4  | 2244.8  | 2125.0  | 2006.1  | 2127.9  | 2113.2  | 2091.5  | 2062.1  |
| 21°   | 1678.9  | 1854.8  | 2015.9  | 1904.9  | 1748.7  | 1920.6  | 1939.3  | 1927.5  | 1905.9  |
| 22°   | 1329.2  | 1645.5  | 1849.9  | 1647.5  | 1443.2  | 1769.3  | 1807.6  | 1798.8  | 1783.1  |
| 23°   | 1034.5  | 1399.0  | 1696.6  | 1410.7  | 1123.9  | 1601.3  | 1658.3  | 1652.4  | 1600.3  |
| 24°   | 754.5   | 1145.5  | 1504.1  | 1132.7  | 808.5   | 1372.4  | 1481.5  | 1471.6  | 1283.0  |
| 25°   | 497.1   | 892.0   | 1328.2  | 849.8   | 516.7   | 1110.1  | 1283.0  | 1266.3  | 928.4   |
| 26°   | 319.3   | 652.3   | 1170.0  | 580.6   | 275.1   | 829.2   | 1072.8  | 1025.6  | 575.7   |
| 27°   | 153.3   | 454.9   | 976.5   | 341.9   | 133.6   | 553.1   | 860.6   | 755.5   | 278.0   |
| 28°   | 96.3    | 238.7   | 776.1   | 170.0   | 90.4    | 307.5   | 659.2   | 479.4   | 109.0   |
| 29°   | 78.6    | 117.9   | 574.7   | 96.3    | 73.7    | 141.5   | 472.5   | 233.8   | 75.6    |
| 30°   | 64.8    | 78.6    | 392.0   | 73.7    | 59.9    | 78.6    | 310.4   | 91.4    | 58.0    |
| 32.5° | 41.3    | 49.1    | 90.4    | 46.2    | 39.3    | 45.2    | 73.7    | 44.2    | 36.3    |
| 35°   | 24.6    | 31.4    | 39.3    | 30.5    | 23.6    | 29.5    | 40.3    | 28.5    | 22.6    |
| 37.5° | 14.7    | 18.7    | 25.5    | 18.7    | 14.7    | 18.7    | 25.5    | 18.7    | 13.8    |
| 40°   | 8.8     | 11.8    | 17.7    | 11.8    | 8.8     | 11.8    | 17.7    | 11.8    | 8.8     |
| 42.5° | 5.9     | 6.9     | 11.8    | 6.9     | 4.9     | 6.9     | 11.8    | 7.9     | 5.9     |
| 45°   | 3.9     | 4.9     | 6.9     | 3.9     | 2.9     | 3.9     | 6.9     | 4.9     | 3.9     |
| 47.5° | 2.9     | 2.9     | 3.9     | 2.0     | 2.0     | 2.9     | 4.9     | 3.9     | 2.9     |
| 50°   | 2.0     | 2.0     | 2.9     | 1.0     | 1.0     | 1.0     | 2.9     | 2.9     | 2.9     |
| 52.5° | 1.0     | 1.0     | 1.0     | 0.0     | 0.0     | 0.0     | 2.0     | 2.0     | 2.0     |
| 55°   | 1.0     | 1.0     | 1.0     | 0.0     | 0.0     | 0.0     | 1.0     | 2.0     | 2.0     |
| 57.5° | 1.0     | 1.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 2.0     | 2.0     |
| 60°   | 1.0     | 1.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 2.0     | 0.0     |



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**CANDELA DISTRIBUTION (continued):**

|       | 0°  | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|-------|-----|-------|-----|-------|-----|--------|------|--------|------|
| 67.5° | 1.0 | 1.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 70°   | 1.0 | 1.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  |
| 72.5° | 1.0 | 1.0   | 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  |



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







|       |     |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 62.5° | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 65°   | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



(END OF REPORT)