

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: P182618

Luminaire Tested: **LDSQA4A09927D010TE LAR15SP 4LSQA1H-LSF-20**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182618
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26829)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A09927D010TE LAR15SP 4LSQA1H-LSF-20
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 15° SPOT WITH SOLITE LENS
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 824.4 lumens
Efficiency: N/A
Efficacy: 59.6 lumens/watt
Spacing Criteria (0/90/45): 0.35 / 0.35 / 0.39
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

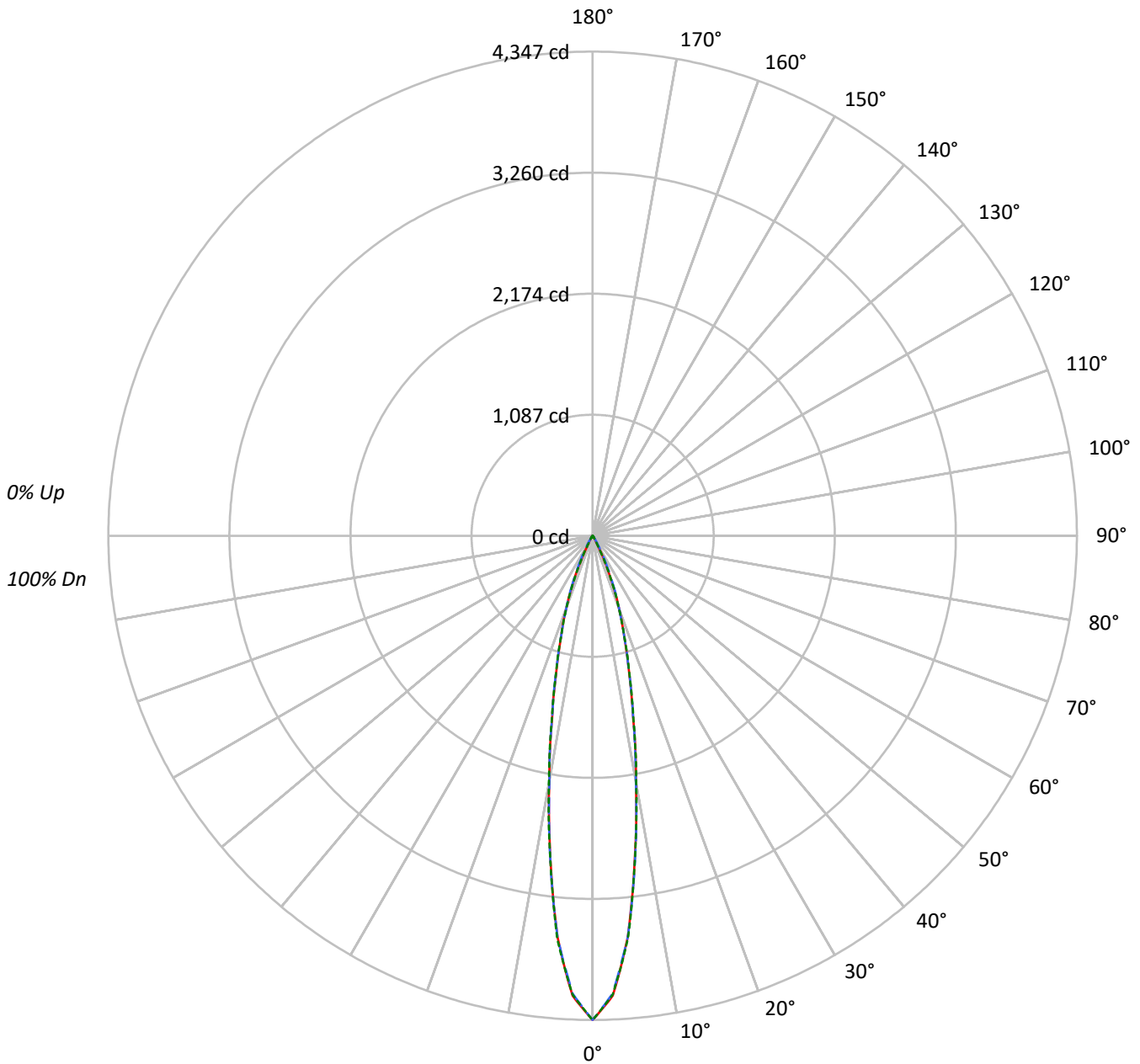
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|-----|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | |
| RC | 80 | | | | | | | | | 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 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | 100 | | | | | | | | | | | | | | | |
| 1 | 115 | 113 | 111 | 109 | 113 | 111 | 109 | 108 | 107 | 106 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 97 | 98 | 98 | 97 | | | | | | | | | | | | | | | |
| 2 | 111 | 108 | 105 | 102 | 109 | 106 | 104 | 101 | 103 | 101 | 99 | 100 | 99 | 97 | 98 | 96 | 95 | 94 | 94 | 95 | 95 | 94 | | | | | | | | | | | | | | | |
| 3 | 108 | 103 | 100 | 97 | 106 | 102 | 99 | 96 | 100 | 97 | 95 | 97 | 95 | 93 | 95 | 93 | 92 | 91 | 91 | 92 | 92 | 91 | | | | | | | | | | | | | | | |
| 4 | 105 | 99 | 96 | 93 | 103 | 98 | 95 | 92 | 96 | 93 | 91 | 95 | 92 | 90 | 93 | 91 | 89 | 88 | 88 | 89 | 89 | 88 | | | | | | | | | | | | | | | |
| 5 | 102 | 96 | 92 | 89 | 100 | 95 | 91 | 89 | 93 | 90 | 88 | 92 | 89 | 87 | 91 | 88 | 86 | 85 | 85 | 86 | 86 | 85 | | | | | | | | | | | | | | | |
| 6 | 99 | 93 | 89 | 86 | 98 | 92 | 88 | 85 | 91 | 87 | 85 | 89 | 87 | 84 | 88 | 86 | 84 | 83 | 83 | 84 | 84 | 83 | | | | | | | | | | | | | | | |
| 7 | 96 | 90 | 86 | 83 | 95 | 89 | 85 | 83 | 88 | 85 | 82 | 87 | 84 | 82 | 86 | 83 | 81 | 80 | 80 | 81 | 81 | 80 | | | | | | | | | | | | | | | |
| 8 | 94 | 87 | 83 | 80 | 93 | 87 | 83 | 80 | 86 | 82 | 80 | 85 | 82 | 80 | 84 | 81 | 79 | 78 | 78 | 79 | 79 | 78 | | | | | | | | | | | | | | | |
| 9 | 91 | 85 | 81 | 78 | 90 | 84 | 80 | 78 | 83 | 80 | 78 | 83 | 80 | 77 | 82 | 79 | 77 | 76 | 76 | 77 | 77 | 76 | | | | | | | | | | | | | | | |
| 10 | 89 | 82 | 78 | 76 | 88 | 82 | 78 | 76 | 81 | 78 | 76 | 81 | 78 | 75 | 80 | 77 | 75 | 74 | 74 | 75 | 75 | 74 | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 421147 | 421147 | 421147 |
| 5° | 351630 | 351630 | 353303 |
| 10° | 220290 | 219798 | 222021 |
| 15° | 125717 | 126429 | 126640 |
| 20° | 71175 | 70959 | 70649 |
| 25° | 26712 | 34547 | 27300 |
| 30° | 5481 | 11567 | 5526 |
| 35° | 2176 | 3761 | 2129 |
| 40° | 1113 | 1644 | 1062 |
| 45° | 740 | 863 | 630 |
| 50° | 437 | 437 | 316 |
| 55° | 220 | 287 | 135 |
| 60° | 155 | 155 | 78 |
| 65° | 92 | 92 | 92 |
| 70° | 113 | 113 | 113 |
| 75° | 0 | 0 | 0 |
| 80° | 0 | 0 | 0 |
| 85° | 0 | 0 | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 300.4 | 36.4 |
| 10°-20° | 357.3 | 43.3 |
| 20°-30° | 142.4 | 17.3 |
| 30°-40° | 18.0 | 2.2 |
| 40°-50° | 4.4 | 0.5 |
| 50°-60° | 1.3 | 0.2 |
| 60°-70° | 0.4 | 0.1 |
| 70°-80° | 0.2 | 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° | 800.1 | 97.1 |
| 0°-40° | 818.1 | 99.2 |
| 0°-60° | 823.8 | 99.9 |
| 0°-90° | 824.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 824.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4347 | 4347 | 4347 | 4347 | 4347 | |
| 5° | 3616 | 3649 | 3616 | 3619 | 3633 | 300 |
| 15° | 1254 | 1261 | 1261 | 1261 | 1263 | 356 |
| 25° | 250 | 307 | 323 | 294 | 255 | 129 |
| 35° | 18 | 22 | 32 | 21 | 18 | 13 |
| 45° | 5 | 5 | 6 | 5 | 5 | 4 |
| 55° | 1 | 1 | 2 | 1 | 1 | 1 |
| 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 | 0 |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4347.3 | 4347.3 | 4347.3 | 4347.3 | 4347.3 |
| 2.5° | 4133.8 | 4156.0 | 4113.3 | 4117.5 | 4122.9 |
| 5° | 3615.9 | 3649.0 | 3615.9 | 3619.3 | 3633.1 |
| 7.5° | 2909.7 | 2938.6 | 2919.7 | 2928.1 | 2913.0 |
| 10° | 2239.4 | 2249.9 | 2234.4 | 2241.9 | 2257.0 |
| 12.5° | 1683.8 | 1695.6 | 1684.3 | 1684.7 | 1691.4 |
| 15° | 1253.5 | 1261.0 | 1260.6 | 1260.6 | 1262.7 |
| 17.5° | 936.1 | 946.2 | 935.3 | 936.1 | 938.6 |
| 20° | 690.4 | 697.1 | 688.3 | 687.0 | 685.3 |
| 22.5° | 471.0 | 485.2 | 490.7 | 483.5 | 460.9 |
| 25° | 249.9 | 306.9 | 323.2 | 294.3 | 255.4 |
| 27.5° | 100.5 | 152.8 | 188.8 | 149.5 | 109.3 |
| 30° | 49.0 | 66.6 | 103.4 | 68.2 | 49.4 |
| 32.5° | 28.9 | 36.0 | 56.5 | 35.6 | 28.5 |
| 35° | 18.4 | 22.2 | 31.8 | 21.4 | 18.0 |
| 37.5° | 12.1 | 14.7 | 19.7 | 14.2 | 11.7 |
| 40° | 8.8 | 10.0 | 13.0 | 9.6 | 8.4 |
| 42.5° | 6.7 | 7.1 | 8.8 | 7.1 | 6.3 |
| 45° | 5.4 | 5.4 | 6.3 | 5.0 | 4.6 |
| 47.5° | 4.2 | 4.2 | 4.2 | 3.8 | 2.9 |
| 50° | 2.9 | 2.9 | 2.9 | 2.5 | 2.1 |
| 52.5° | 2.1 | 2.1 | 2.1 | 1.7 | 1.3 |
| 55° | 1.3 | 1.3 | 1.7 | 1.3 | 0.8 |
| 57.5° | 1.3 | 0.8 | 1.3 | 0.8 | 0.8 |
| 60° | 0.8 | 0.8 | 0.8 | 0.4 | 0.4 |
| 62.5° | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 65° | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 67.5° | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 70° | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 72.5° | 0.4 | 0.4 | 0.4 | 0.4 | 0.0 |
| 75° | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| 77.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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







(END OF REPORT)