

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: HALO

Report Number: P20070

Luminaire Tested: **EL405830-TL402SCS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P20070
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: EL405830-TL402SCS
Description: HALO 4 INCH RECESSED LED DOWNLIGHT WITH SPECULAR UPPER AND LOWER REFLECTORS IN TRIM WITH PRISMATIC LENS IN UNIT 1 LED MODULE EL405830
Light Source: (1)SURFACE MOUNT LED
14 WATTS
Ballast/Driver: 120 VOLT ELECTRONIC DRIVER

Summary

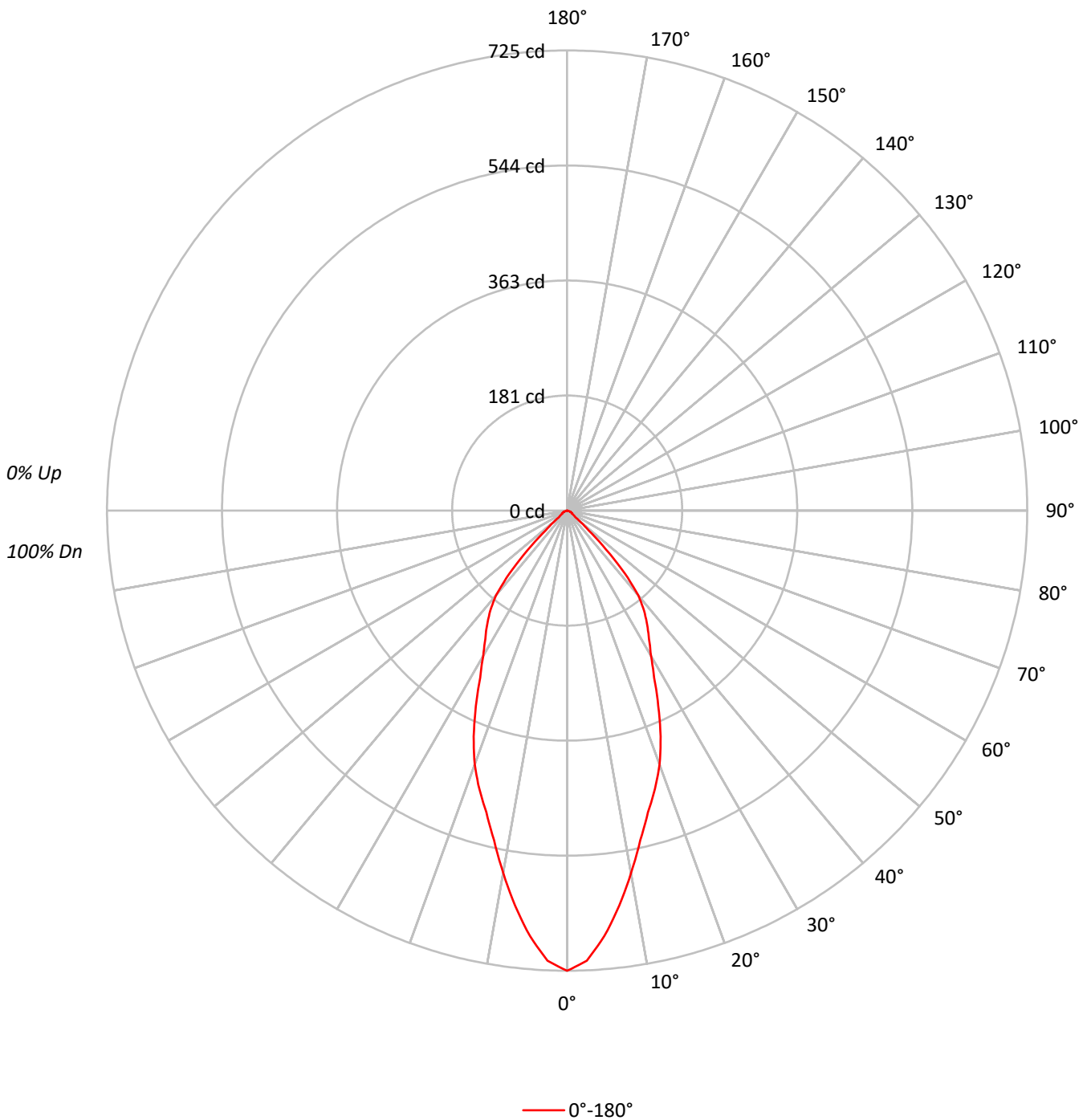
Lumens per Lamp: 582 (1 lamp)
Luminaire Lumens: 584.4 lumens
Efficiency: 100.4%
Efficacy: 39.8 lumens/watt
Spacing Criteria (0/90/45): 0.71 / 0.71 / 0.79
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 14.7
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 | | | | 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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 120 | 120 | 120 | 120 | 117 | 117 | 117 | 117 | 112 | 112 | 112 | 107 | 107 | 107 | 102 | 102 | 102 | 100 |
| 1 | 113 | 110 | 108 | 105 | 111 | 108 | 106 | 104 | 104 | 102 | 101 | 100 | 99 | 98 | 97 | 96 | 95 | 93 |
| 2 | 107 | 102 | 98 | 94 | 105 | 100 | 96 | 93 | 97 | 94 | 91 | 94 | 91 | 89 | 91 | 89 | 87 | 85 |
| 3 | 101 | 94 | 89 | 85 | 99 | 93 | 88 | 84 | 90 | 86 | 83 | 88 | 84 | 81 | 86 | 83 | 80 | 78 |
| 4 | 96 | 88 | 82 | 77 | 94 | 86 | 81 | 77 | 84 | 79 | 76 | 82 | 78 | 75 | 80 | 77 | 74 | 72 |
| 5 | 90 | 81 | 75 | 71 | 89 | 81 | 75 | 70 | 79 | 74 | 70 | 77 | 72 | 69 | 75 | 71 | 68 | 67 |
| 6 | 86 | 76 | 70 | 65 | 84 | 75 | 69 | 65 | 74 | 68 | 64 | 72 | 67 | 64 | 71 | 67 | 63 | 62 |
| 7 | 81 | 71 | 65 | 60 | 80 | 70 | 64 | 60 | 69 | 64 | 60 | 68 | 63 | 59 | 67 | 62 | 59 | 57 |
| 8 | 77 | 67 | 60 | 56 | 76 | 66 | 60 | 56 | 65 | 59 | 55 | 64 | 59 | 55 | 63 | 58 | 55 | 54 |
| 9 | 73 | 63 | 56 | 52 | 72 | 62 | 56 | 52 | 61 | 56 | 52 | 60 | 55 | 52 | 59 | 55 | 51 | 50 |
| 10 | 69 | 59 | 53 | 49 | 68 | 59 | 53 | 49 | 58 | 52 | 49 | 57 | 52 | 48 | 56 | 52 | 48 | 47 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|-------|
| | 0° |
| 0° | 89426 |
| 5° | 83329 |
| 10° | 72644 |
| 15° | 62827 |
| 20° | 55917 |
| 25° | 46273 |
| 30° | 37601 |
| 35° | 33127 |
| 40° | 28017 |
| 45° | 15176 |
| 50° | 4605 |
| 55° | 2581 |
| 60° | 2220 |
| 65° | 2043 |
| 70° | 1803 |
| 75° | 953 |
| 80° | 710 |
| 85° | 1415 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 61.3 | 10.5 | 10.5 |
| 10°-20° | 138.6 | 23.7 | 23.8 |
| 20°-30° | 155.9 | 26.7 | 26.8 |
| 30°-40° | 136.8 | 23.4 | 23.5 |
| 40°-50° | 69.3 | 11.9 | 11.9 |
| 50°-60° | 11.9 | 2.0 | 2.0 |
| 60°-70° | 6.9 | 1.2 | 1.2 |
| 70°-80° | 2.6 | 0.4 | 0.5 |
| 80°-90° | 1.0 | 0.2 | 0.2 |
| 90°-100° | 0.0 | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 | 0.0 |
| 0°-30° | 355.9 | 60.9 | 61.1 |
| 0°-40° | 492.7 | 84.3 | 84.7 |
| 0°-60° | 573.9 | 98.2 | 98.6 |
| 0°-90° | 584.4 | 100.0 | 100.4 |
| 90°-120° | 0.0 | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 | 0.0 |
| 0°-180° | 584.4 | 100.0 | 100.4 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|-----|------|
| 0° | 725 | |
| 5° | 673 | 61 |
| 15° | 492 | 139 |
| 25° | 340 | 156 |
| 35° | 220 | 137 |
| 45° | 87 | 69 |
| 55° | 12 | 12 |
| 65° | 7 | 7 |
| 75° | 2 | 3 |
| 85° | 1 | 1 |
| 90° | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° |
|-------|-----|
| 0° | 725 |
| 2.5° | 710 |
| 5° | 673 |
| 7.5° | 628 |
| 10° | 580 |
| 12.5° | 532 |
| 15° | 492 |
| 17.5° | 460 |
| 20° | 426 |
| 22.5° | 385 |
| 25° | 340 |
| 27.5° | 297 |
| 30° | 264 |
| 32.5° | 240 |
| 35° | 220 |
| 37.5° | 199 |
| 40° | 174 |
| 42.5° | 135 |
| 45° | 87 |
| 47.5° | 46 |
| 50° | 24 |
| 52.5° | 15 |
| 55° | 12 |
| 57.5° | 10 |
| 60° | 9 |
| 62.5° | 8 |
| 65° | 7 |
| 67.5° | 6 |
| 70° | 5 |
| 72.5° | 4 |
| 75° | 2 |
| 77.5° | 1 |
| 80° | 1 |
| 82.5° | 1 |
| 85° | 1 |
| 87.5° | 1 |
| 90° | 0 |

(END OF REPORT)