

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: P85083

Luminaire Tested: **EL405835-TLS408TBZBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P85083
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: EL405835-TLS408TBZBB
Description: ***THIS IS A REVISION OF P21159 TO UPDATE CATALOG NUMBER***HALO 4 INCH RECESSED FIXTURE WITH 4 INCH TUSCAN BRONZE SQUARE TRIM, BLACK SQUARE BAFFLE, SOLITE LENS AND UPPER TRIM REFLECTOR. ---ABSOLUTE PHOTOMETRY IS BASED ON CALIBRATION FACTORS CREATED USING A 500 WATT, NIST TRACEABLE, OMNI-DIRECTIONAL LAB LUMEN STANDARD IN THE GONIOPHOTOMETER WITH TEST DISTANCE OF 28.75 FEET----
Light Source: (1) SMT LED 3500K
(1) 221 14 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 565 (1 lamp)
Luminaire Lumens: 564.9 lumens
Efficiency: 100.0%
Efficacy: 41.2 lumens/watt
Spacing Criteria (0/90/45): 0.6 / 0.6 / 0.66
Luminous Opening: Vertical Cylinder (Dia: 0.33' x H: 0.1')
CIE Type: Direct

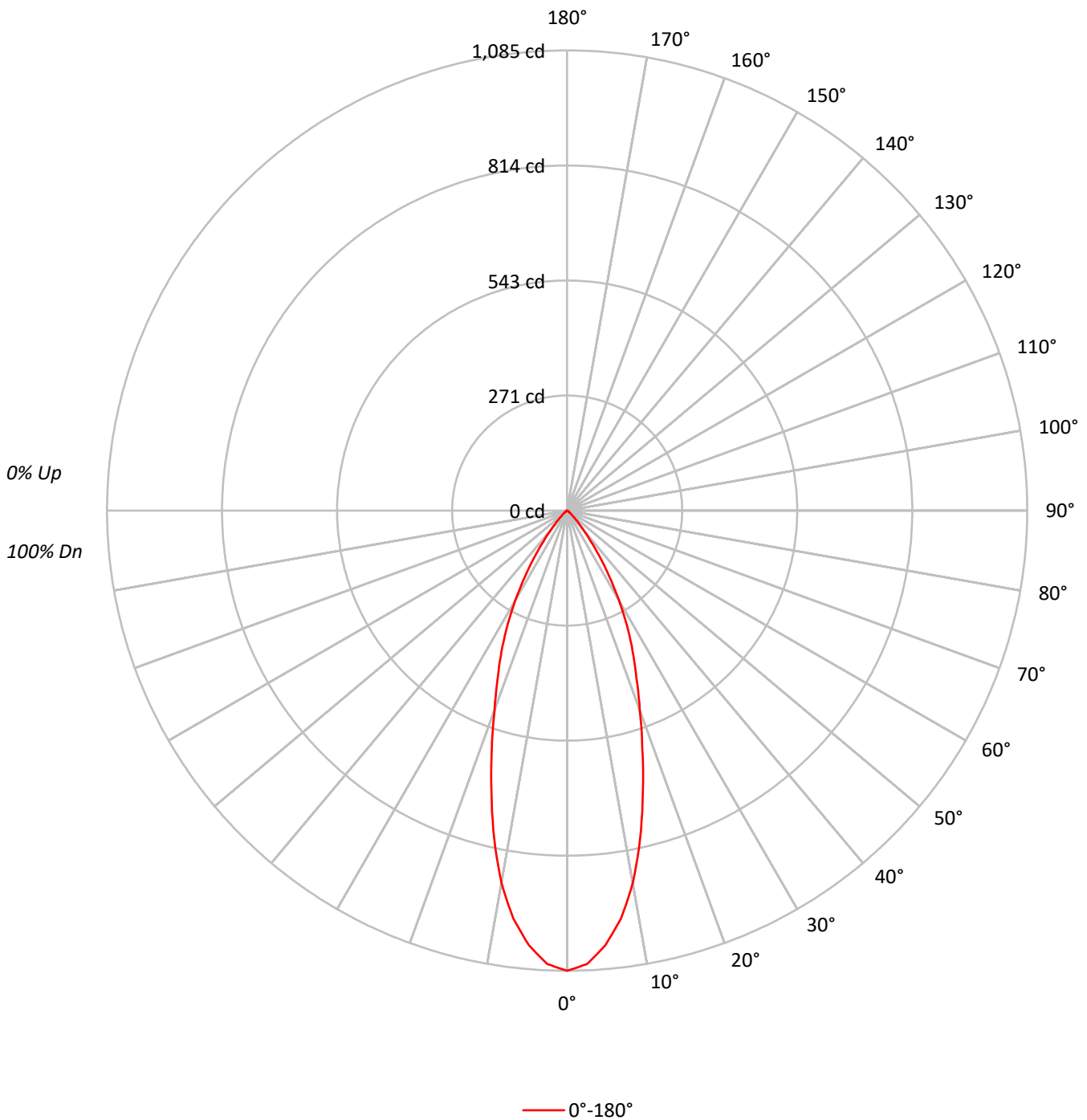
Input Watts (W): 13.7
Input Voltage (V): NR
Input Current (A_{in}): 0.12010
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 114 | 111 | 109 | 107 | 112 | 109 | 107 | 105 | 105 | 104 | 102 | 102 | 100 | 99 | 98 | 97 | 96 | 95 |
| 2 | 109 | 105 | 101 | 98 | 107 | 103 | 99 | 97 | 100 | 97 | 95 | 97 | 94 | 93 | 94 | 92 | 91 | 89 |
| 3 | 104 | 98 | 94 | 90 | 102 | 97 | 93 | 89 | 94 | 91 | 88 | 92 | 89 | 87 | 90 | 87 | 85 | 84 |
| 4 | 99 | 93 | 88 | 84 | 98 | 92 | 87 | 83 | 89 | 85 | 82 | 87 | 84 | 81 | 86 | 83 | 80 | 79 |
| 5 | 95 | 88 | 82 | 78 | 94 | 87 | 82 | 78 | 85 | 81 | 77 | 83 | 80 | 77 | 82 | 79 | 76 | 75 |
| 6 | 91 | 83 | 77 | 74 | 90 | 82 | 77 | 73 | 81 | 76 | 73 | 79 | 75 | 72 | 78 | 75 | 72 | 71 |
| 7 | 87 | 79 | 73 | 69 | 86 | 78 | 73 | 69 | 77 | 72 | 69 | 76 | 72 | 69 | 75 | 71 | 68 | 67 |
| 8 | 83 | 75 | 69 | 66 | 82 | 74 | 69 | 66 | 73 | 69 | 65 | 72 | 68 | 65 | 71 | 68 | 65 | 63 |
| 9 | 80 | 71 | 66 | 62 | 79 | 71 | 66 | 62 | 70 | 65 | 62 | 69 | 65 | 62 | 68 | 64 | 62 | 60 |
| 10 | 77 | 68 | 63 | 59 | 76 | 68 | 63 | 59 | 67 | 62 | 59 | 66 | 62 | 59 | 65 | 62 | 59 | 58 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|--------|
| | 0° |
| 0° | 133818 |
| 5° | 123311 |
| 10° | 104625 |
| 15° | 79930 |
| 20° | 57735 |
| 25° | 42223 |
| 30° | 28426 |
| 35° | 16098 |
| 40° | 7426 |
| 45° | 3055 |
| 50° | 1253 |
| 55° | 584 |
| 60° | 312 |
| 65° | 176 |
| 70° | 0 |
| 75° | 0 |
| 80° | 0 |
| 85° | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 93.9 | 16.6 | 16.6 |
| 10°-20° | 190.6 | 33.7 | 33.7 |
| 20°-30° | 166.7 | 29.5 | 29.5 |
| 30°-40° | 86.8 | 15.4 | 15.4 |
| 40°-50° | 21.6 | 3.8 | 3.8 |
| 50°-60° | 4.3 | 0.8 | 0.8 |
| 60°-70° | 1.1 | 0.2 | 0.2 |
| 70°-80° | 0.0 | 0.0 | 0.0 |
| 80°-90° | 0.0 | 0.0 | 0.0 |
| 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° | 451.2 | 79.9 | 79.9 |
| 0°-40° | 538.0 | 95.2 | 95.2 |
| 0°-60° | 563.9 | 99.8 | 99.8 |
| 0°-90° | 564.9 | 100.0 | 100.0 |
| 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° | 564.9 | 100.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|------|------|
| 0° | 1085 | |
| 5° | 1029 | 94 |
| 15° | 690 | 191 |
| 25° | 366 | 167 |
| 35° | 136 | 87 |
| 45° | 24 | 22 |
| 55° | 4 | 4 |
| 65° | 1 | 1 |
| 75° | 0 | 0 |
| 85° | 0 | 0 |
| 90° | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° |
|-------|--------|
| 0° | 1084.9 |
| 2.5° | 1070.2 |
| 5° | 1029.2 |
| 7.5° | 970.4 |
| 10° | 891.6 |
| 12.5° | 794.0 |
| 15° | 690.0 |
| 17.5° | 590.2 |
| 20° | 501.0 |
| 22.5° | 427.4 |
| 25° | 365.5 |
| 27.5° | 304.6 |
| 30° | 243.6 |
| 32.5° | 186.9 |
| 35° | 135.5 |
| 37.5° | 92.4 |
| 40° | 60.9 |
| 42.5° | 38.9 |
| 45° | 24.2 |
| 47.5° | 15.8 |
| 50° | 9.5 |
| 52.5° | 6.3 |
| 55° | 4.2 |
| 57.5° | 3.2 |
| 60° | 2.1 |
| 62.5° | 1.1 |
| 65° | 1.1 |
| 67.5° | 1.1 |
| 70° | 0.0 |
| 72.5° | 0.0 |
| 75° | 0.0 |
| 77.5° | 0.0 |
| 80° | 0.0 |
| 82.5° | 0.0 |
| 85° | 0.0 |
| 87.5° | 0.0 |
| 90° | 0.0 |

(END OF REPORT)