

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: P85102

Luminaire Tested: **ELSG405830SN(25 deg Beam-0 deg tilt)**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P85102  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: ELSG405830SN(25 deg Beam-0 deg tilt)  
Description: HALO 4 INCH RECESSED FIXTURE WITH SQUARE TUSCAN BRONZE(SN) TRIM, TUSCAN BRONZE(SN) GIMBAL, NARROW UPPER REFLECTOR AND CLEAR LENS .  
---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 3000K  
(1) SMT LED 3000K  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: 601 (1 lamp)  
Luminaire Lumens: 604.7 lumens  
Efficiency: 100.6%  
Efficacy: 44.5 lumens/watt  
Spacing Criteria (0/90/45): 0.38 / 0.38 / 0.42  
Luminous Opening: Vertical Cylinder (Dia: 0.33' x H: 0.1')  
CIE Type: Direct

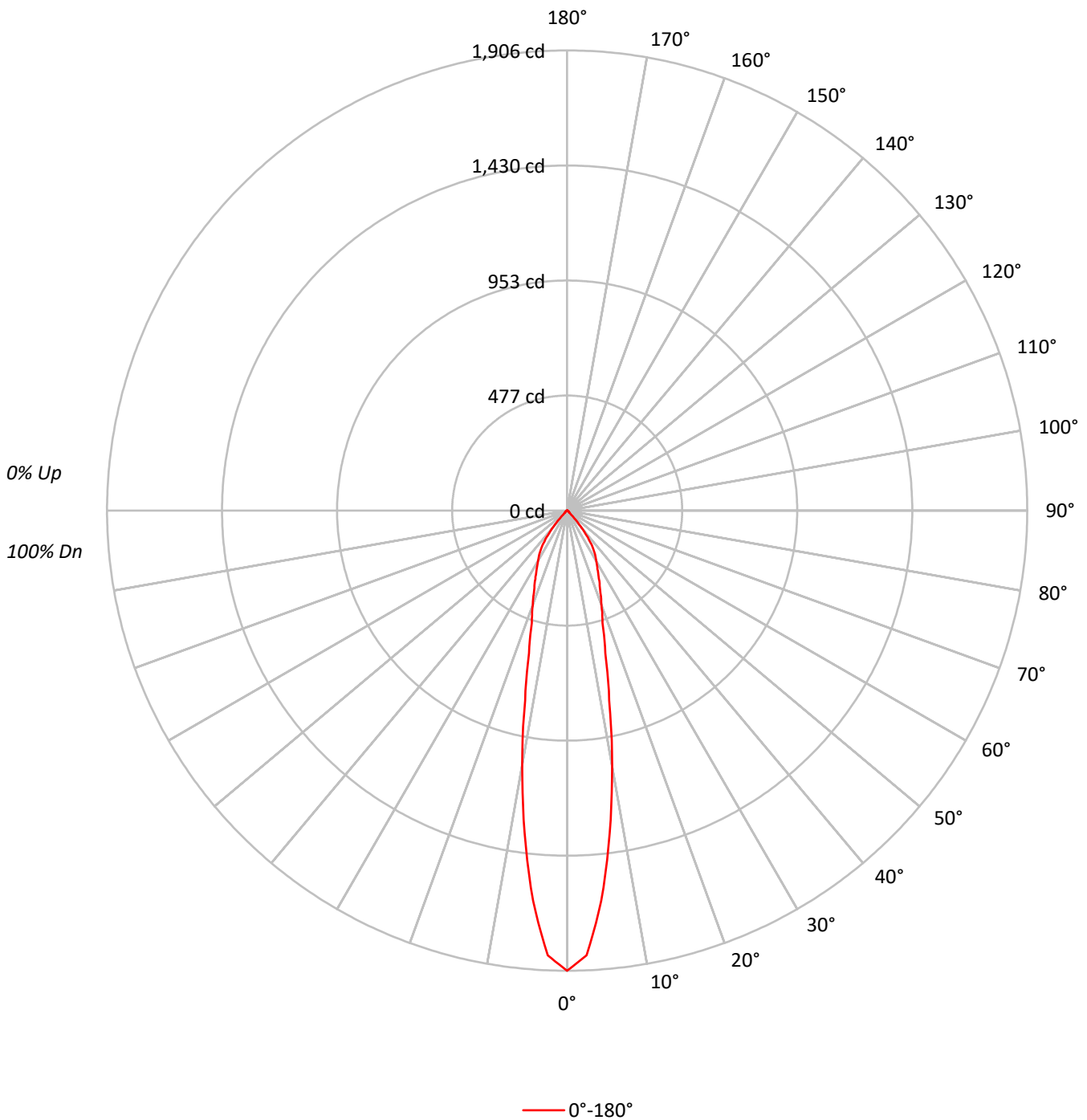
Input Watts (W): 13.6  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 0.1191  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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  | 50  | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| 0   | 120 | 120 | 120 | 120 | 117 | 117 | 117 | 117 | 112 | 112 | 112 | 107 | 107 | 107 | 103 | 103 | 103 | 101 |    |    |
| 1   | 115 | 112 | 110 | 108 | 112 | 110 | 108 | 106 | 106 | 104 | 103 | 102 | 101 | 100 | 99  | 98  | 97  | 95  |    |    |
| 2   | 110 | 105 | 101 | 98  | 108 | 103 | 100 | 97  | 100 | 98  | 95  | 97  | 95  | 93  | 95  | 93  | 91  | 90  |    |    |
| 3   | 105 | 99  | 94  | 91  | 103 | 98  | 93  | 90  | 95  | 92  | 89  | 93  | 90  | 87  | 90  | 88  | 86  | 85  |    |    |
| 4   | 100 | 93  | 88  | 85  | 99  | 92  | 88  | 84  | 90  | 86  | 83  | 88  | 85  | 82  | 86  | 84  | 81  | 80  |    |    |
| 5   | 96  | 88  | 83  | 79  | 94  | 88  | 83  | 79  | 86  | 82  | 78  | 84  | 80  | 78  | 83  | 79  | 77  | 76  |    |    |
| 6   | 92  | 84  | 79  | 75  | 91  | 83  | 78  | 74  | 82  | 77  | 74  | 80  | 76  | 73  | 79  | 76  | 73  | 72  |    |    |
| 7   | 88  | 80  | 74  | 71  | 87  | 79  | 74  | 70  | 78  | 73  | 70  | 77  | 73  | 70  | 76  | 72  | 69  | 68  |    |    |
| 8   | 85  | 76  | 71  | 67  | 84  | 76  | 71  | 67  | 75  | 70  | 67  | 74  | 69  | 66  | 73  | 69  | 66  | 65  |    |    |
| 9   | 81  | 73  | 67  | 64  | 80  | 72  | 67  | 64  | 71  | 67  | 64  | 71  | 66  | 63  | 70  | 66  | 63  | 62  |    |    |
| 10  | 78  | 70  | 64  | 61  | 77  | 69  | 64  | 61  | 68  | 64  | 61  | 68  | 64  | 61  | 67  | 63  | 60  | 59  |    |    |

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

|     |        |
|-----|--------|
|     | 0°     |
| 0°  | 235097 |
| 5°  | 194456 |
| 10° | 125911 |
| 15° | 70779  |
| 20° | 47940  |
| 25° | 36042  |
| 30° | 28240  |
| 35° | 21741  |
| 40° | 11340  |
| 45° | 2651   |
| 50° | 1582   |
| 55° | 974    |
| 60° | 297    |
| 65° | 321    |
| 70° | 352    |
| 75° | 196    |
| 80° | 224    |
| 85° | 264    |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10°    | 137.1  | 22.7      | 22.8   |
| 10°-20°   | 178.4  | 29.5      | 29.7   |
| 20°-30°   | 144.6  | 23.9      | 24.1   |
| 30°-40°   | 108.8  | 18.0      | 18.1   |
| 40°-50°   | 26.0   | 4.3       | 4.3    |
| 50°-60°   | 6.2    | 1.0       | 1.0    |
| 60°-70°   | 1.7    | 0.3       | 0.3    |
| 70°-80°   | 1.2    | 0.2       | 0.2    |
| 80°-90°   | 0.7    | 0.1       | 0.1    |
| 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°    | 460.1  | 76.1      | 76.6   |
| 0°-40°    | 568.9  | 94.1      | 94.7   |
| 0°-60°    | 601.1  | 99.4      | 100.0  |
| 0°-90°    | 604.7  | 100.0     | 100.6  |
| 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°   | 604.7  | 100.0     | 100.6  |

**CANDELA DISTRIBUTION:**

|     | 0°   | Flux |
|-----|------|------|
| 0°  | 1906 |      |
| 5°  | 1623 | 137  |
| 15° | 611  | 178  |
| 25° | 312  | 145  |
| 35° | 183  | 109  |
| 45° | 21   | 26   |
| 55° | 7    | 6    |
| 65° | 2    | 2    |
| 75° | 1    | 1    |
| 85° | 1    | 1    |
| 90° | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°   |
|-------|------|
| 0°    | 1906 |
| 2.5°  | 1844 |
| 5°    | 1623 |
| 7.5°  | 1348 |
| 10°   | 1073 |
| 12.5° | 806  |
| 15°   | 611  |
| 17.5° | 488  |
| 20°   | 416  |
| 22.5° | 357  |
| 25°   | 312  |
| 27.5° | 272  |
| 30°   | 242  |
| 32.5° | 214  |
| 35°   | 183  |
| 37.5° | 140  |
| 40°   | 93   |
| 42.5° | 51   |
| 45°   | 21   |
| 47.5° | 14   |
| 50°   | 12   |
| 52.5° | 10   |
| 55°   | 7    |
| 57.5° | 4    |
| 60°   | 2    |
| 62.5° | 2    |
| 65°   | 2    |
| 67.5° | 1    |
| 70°   | 2    |
| 72.5° | 1    |
| 75°   | 1    |
| 77.5° | 1    |
| 80°   | 1    |
| 82.5° | 1    |
| 85°   | 1    |
| 87.5° | 0    |
| 90°   | 0    |

(END OF REPORT)