

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: P20060

Luminaire Tested: **EL405827-TL400H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P20060  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL405827-TL400H  
Description: HALO 4 INCH RECESSED LED DOWNLIGHT WITH HAZED SEMI-SPECULAR REFLECTOR IN TRIM UNIT 1 LED MODULE EL405827  
Light Source: (1)SURFACE MOUNT LED  
14 WATTS  
Ballast/Driver: 120 VOLT ELECTRONIC DRIVER

**Summary**

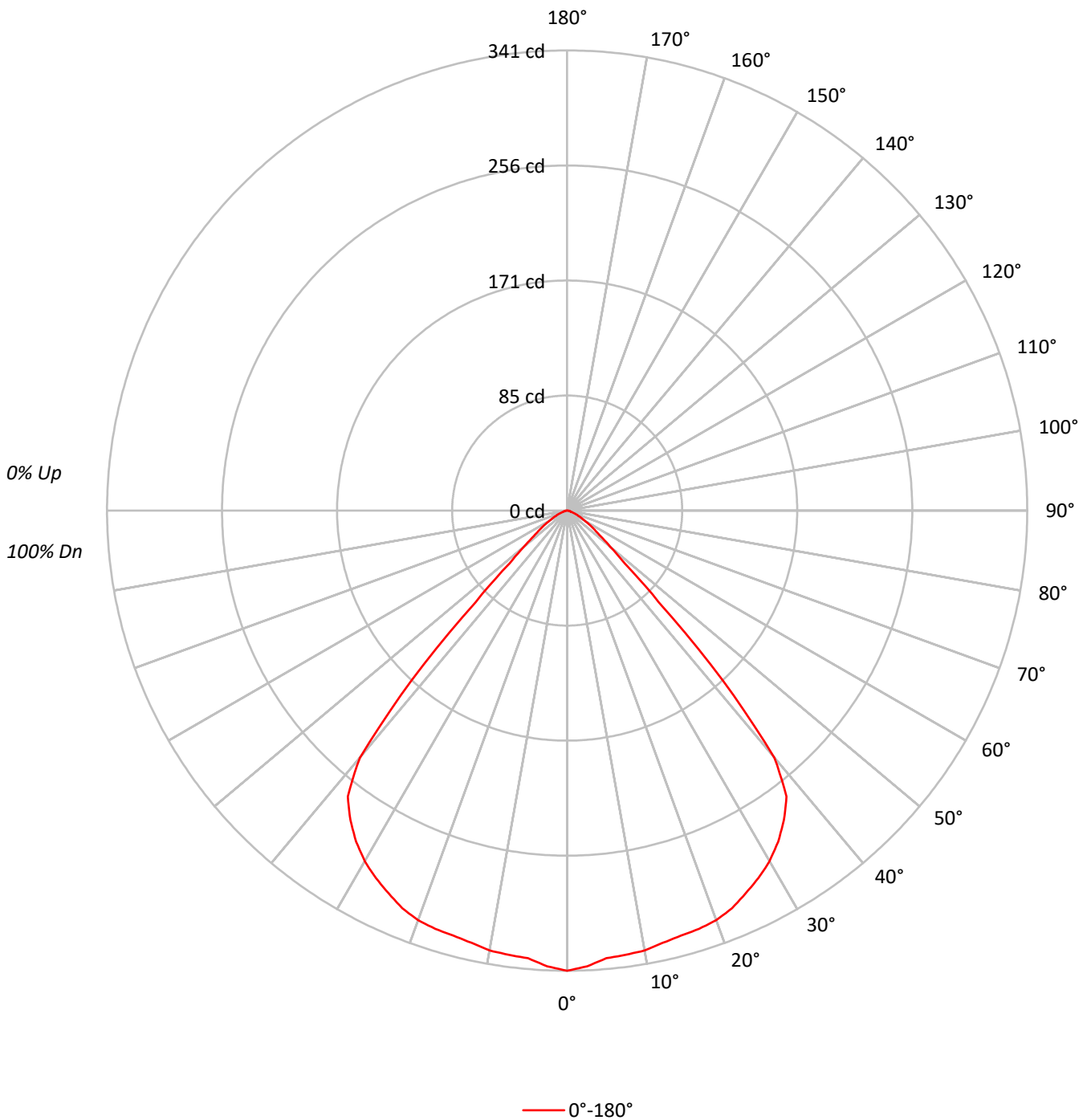
Lumens per Lamp: 565 (1 lamp)  
Luminaire Lumens: 566.2 lumens  
Efficiency: 100.2%  
Efficacy: 0.6 lumens/watt  
Spacing Criteria (0/90/45): 1.3 / 1.3 / 1.25  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 999  
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  |     |     |  | 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 | 117 | 117 | 117 | 117 | 111 | 111 | 111 |  | 107 | 107 | 107 |  | 102 | 102 | 102 | 100 |
| 1   | 113 | 109 | 106 | 104 | 110 | 107 | 105 | 102 | 103 | 101 | 99  |  | 99  | 98  | 96  |  | 96  | 94  | 93  | 91  |
| 2   | 106 | 100 | 95  | 91  | 103 | 98  | 94  | 90  | 95  | 91  | 88  |  | 92  | 89  | 86  |  | 89  | 86  | 84  | 82  |
| 3   | 99  | 91  | 85  | 81  | 97  | 90  | 84  | 80  | 87  | 82  | 79  |  | 85  | 81  | 77  |  | 82  | 79  | 76  | 74  |
| 4   | 93  | 84  | 77  | 72  | 91  | 82  | 76  | 72  | 80  | 75  | 71  |  | 78  | 73  | 70  |  | 76  | 72  | 69  | 67  |
| 5   | 87  | 77  | 70  | 65  | 85  | 76  | 69  | 64  | 74  | 68  | 64  |  | 72  | 67  | 63  |  | 70  | 66  | 63  | 61  |
| 6   | 81  | 71  | 64  | 58  | 80  | 70  | 63  | 58  | 68  | 62  | 58  |  | 67  | 61  | 57  |  | 65  | 61  | 57  | 55  |
| 7   | 76  | 65  | 58  | 53  | 75  | 64  | 58  | 53  | 63  | 57  | 53  |  | 62  | 56  | 52  |  | 61  | 56  | 52  | 50  |
| 8   | 72  | 60  | 53  | 48  | 70  | 60  | 53  | 48  | 59  | 52  | 48  |  | 57  | 52  | 48  |  | 56  | 51  | 48  | 46  |
| 9   | 67  | 56  | 49  | 44  | 66  | 55  | 49  | 44  | 54  | 48  | 44  |  | 53  | 48  | 44  |  | 53  | 47  | 44  | 42  |
| 10  | 63  | 52  | 45  | 41  | 62  | 52  | 45  | 41  | 51  | 45  | 41  |  | 50  | 44  | 41  |  | 49  | 44  | 40  | 39  |

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

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 42061 |
| 5°  | 41231 |
| 10° | 41457 |
| 15° | 41629 |
| 20° | 42398 |
| 25° | 42598 |
| 30° | 42728 |
| 35° | 42162 |
| 40° | 38483 |
| 45° | 16746 |
| 50° | 8059  |
| 55° | 5376  |
| 60° | 3700  |
| 65° | 2627  |
| 70° | 1803  |
| 75° | 953   |
| 80° | 1421  |
| 85° | 1415  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10°    | 31.8   | 5.6       | 5.6    |
| 10°-20°   | 92.4   | 16.3      | 16.4   |
| 20°-30°   | 144.4  | 25.5      | 25.6   |
| 30°-40°   | 173.3  | 30.6      | 30.7   |
| 40°-50°   | 87.9   | 15.5      | 15.6   |
| 50°-60°   | 23.2   | 4.1       | 4.1    |
| 60°-70°   | 9.4    | 1.7       | 1.7    |
| 70°-80°   | 2.8    | 0.5       | 0.5    |
| 80°-90°   | 1.1    | 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°    | 268.6  | 47.4      | 47.5   |
| 0°-40°    | 441.9  | 78.0      | 78.2   |
| 0°-60°    | 553.0  | 97.7      | 97.9   |
| 0°-90°    | 566.2  | 100.0     | 100.2  |
| 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°   | 566.2  | 100.0     | 100.2  |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 341 |      |
| 5°  | 333 | 32   |
| 15° | 326 | 92   |
| 25° | 313 | 144  |
| 35° | 280 | 173  |
| 45° | 96  | 88   |
| 55° | 25  | 23   |
| 65° | 9   | 9    |
| 75° | 2   | 3    |
| 85° | 1   | 1    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°  |
|-------|-----|
| 0°    | 341 |
| 2.5°  | 338 |
| 5°    | 333 |
| 7.5°  | 332 |
| 10°   | 331 |
| 12.5° | 328 |
| 15°   | 326 |
| 17.5° | 325 |
| 20°   | 323 |
| 22.5° | 319 |
| 25°   | 313 |
| 27.5° | 307 |
| 30°   | 300 |
| 32.5° | 291 |
| 35°   | 280 |
| 37.5° | 267 |
| 40°   | 239 |
| 42.5° | 171 |
| 45°   | 96  |
| 47.5° | 58  |
| 50°   | 42  |
| 52.5° | 31  |
| 55°   | 25  |
| 57.5° | 20  |
| 60°   | 15  |
| 62.5° | 12  |
| 65°   | 9   |
| 67.5° | 7   |
| 70°   | 5   |
| 72.5° | 3   |
| 75°   | 2   |
| 77.5° | 2   |
| 80°   | 2   |
| 82.5° | 1   |
| 85°   | 1   |
| 87.5° | 1   |
| 90°   | 0   |

(END OF REPORT)