

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: P20359

Luminaire Tested: **EL405827-TL402SBKS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P20359  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL405827-TL402SBKS  
Description: HALO 4 INCH RECESSED LED DOWNLIGHT WITH SPECULAR BLACK FINISH  
REFLECTOR AND PRISMATIC LENS IN TRIM EL405827-TL402SBKS  
Light Source: (1)SURFACE MOUNT LED  
14 WATTS  
Ballast/Driver: 120 VOLT ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: 516 (1 lamp)  
Luminaire Lumens: 517.4 lumens  
Efficiency: 100.3%  
Efficacy: 37.5 lumens/watt  
Spacing Criteria (0/90/45): 0.48 / 0.48 / 0.67  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

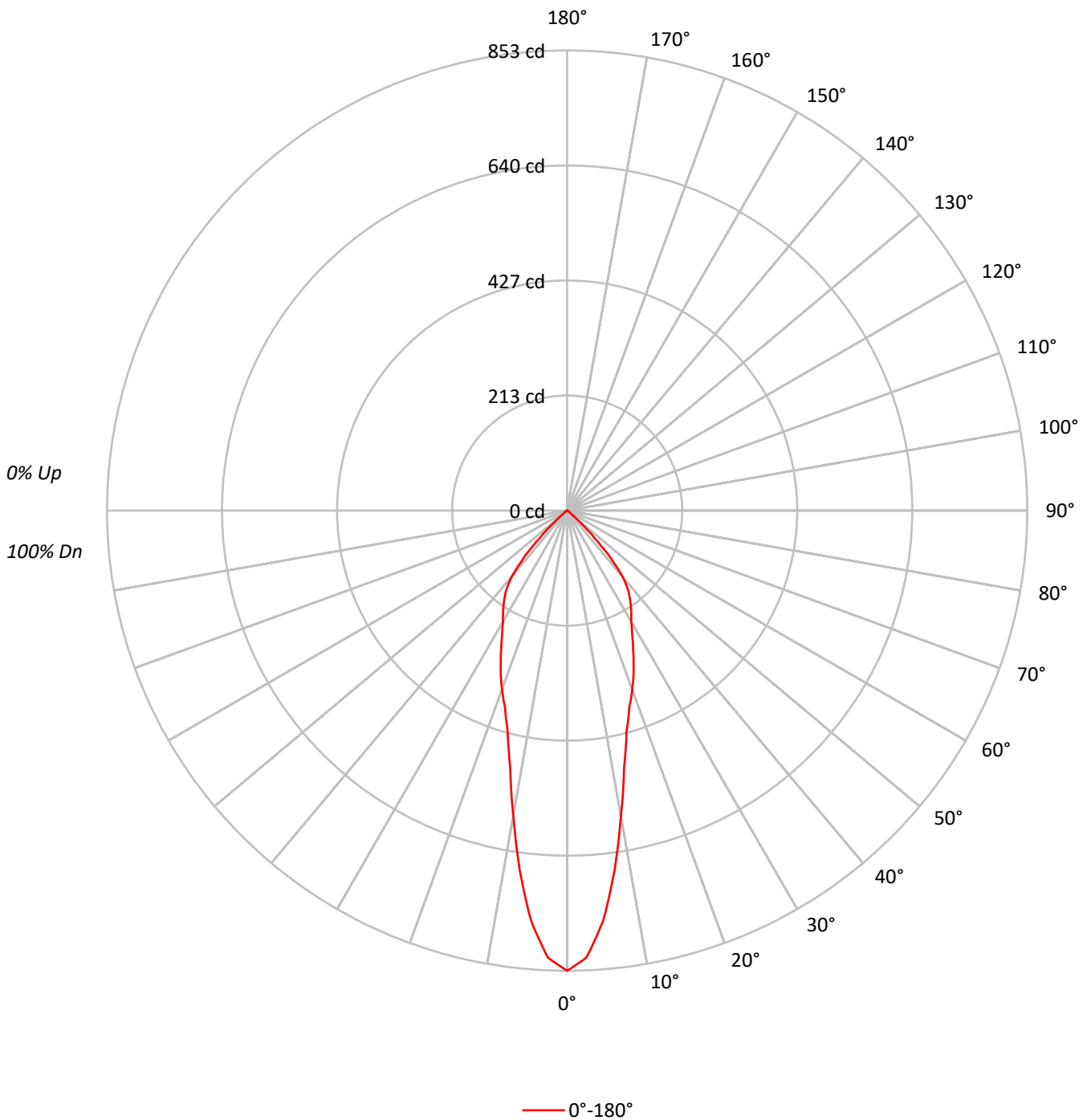
Input Watts (W): 13.8  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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   | 114 | 111 | 108 | 106 | 111 | 108 | 106 | 104 | 104 | 103 | 101 |  | 101 | 99  | 98  |  | 97  | 96  | 95  | 93  |
| 2   | 108 | 103 | 98  | 95  | 105 | 101 | 97  | 94  | 98  | 94  | 92  |  | 95  | 92  | 90  |  | 92  | 90  | 88  | 86  |
| 3   | 102 | 95  | 90  | 86  | 100 | 94  | 89  | 85  | 91  | 87  | 84  |  | 89  | 85  | 83  |  | 86  | 84  | 81  | 80  |
| 4   | 96  | 89  | 83  | 78  | 95  | 87  | 82  | 78  | 85  | 81  | 77  |  | 83  | 79  | 76  |  | 81  | 78  | 75  | 74  |
| 5   | 91  | 83  | 77  | 72  | 90  | 82  | 76  | 72  | 80  | 75  | 71  |  | 78  | 74  | 71  |  | 77  | 73  | 70  | 68  |
| 6   | 87  | 77  | 71  | 67  | 85  | 77  | 71  | 66  | 75  | 70  | 66  |  | 74  | 69  | 65  |  | 72  | 68  | 65  | 64  |
| 7   | 82  | 73  | 66  | 62  | 81  | 72  | 66  | 62  | 71  | 65  | 61  |  | 69  | 65  | 61  |  | 68  | 64  | 61  | 59  |
| 8   | 78  | 68  | 62  | 58  | 77  | 68  | 62  | 58  | 66  | 61  | 57  |  | 65  | 61  | 57  |  | 64  | 60  | 57  | 55  |
| 9   | 74  | 64  | 58  | 54  | 73  | 64  | 58  | 54  | 63  | 57  | 54  |  | 62  | 57  | 54  |  | 61  | 57  | 53  | 52  |
| 10  | 71  | 61  | 55  | 51  | 70  | 60  | 54  | 51  | 59  | 54  | 50  |  | 59  | 54  | 50  |  | 58  | 53  | 50  | 49  |

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

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 82635 |
| 5°  | 74296 |
| 10° | 56464 |
| 15° | 42624 |
| 20° | 36392 |
| 25° | 30998 |
| 30° | 26623 |
| 35° | 24126 |
| 40° | 20234 |
| 45° | 9864  |
| 50° | 2110  |
| 55° | 844   |
| 60° | 775   |
| 65° | 688   |
| 70° | 566   |
| 75° | 374   |
| 80° | 558   |
| 85° | 1112  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10°    | 66.8   | 12.9      | 12.9   |
| 10°-20°   | 121.6  | 23.5      | 23.6   |
| 20°-30°   | 133.6  | 25.8      | 25.9   |
| 30°-40°   | 126.3  | 24.4      | 24.5   |
| 40°-50°   | 58.7   | 11.4      | 11.4   |
| 50°-60°   | 5.5    | 1.1       | 1.1    |
| 60°-70°   | 2.7    | 0.5       | 0.5    |
| 70°-80°   | 1.2    | 0.2       | 0.2    |
| 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°    | 321.9  | 62.2      | 62.4   |
| 0°-40°    | 448.2  | 86.6      | 86.9   |
| 0°-60°    | 512.5  | 99.1      | 99.3   |
| 0°-90°    | 517.4  | 100.0     | 100.3  |
| 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°   | 517.4  | 100.0     | 100.3  |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 853 |      |
| 5°  | 764 | 67   |
| 15° | 425 | 122  |
| 25° | 290 | 134  |
| 35° | 204 | 126  |
| 45° | 72  | 59   |
| 55° | 5   | 6    |
| 65° | 3   | 3    |
| 75° | 1   | 1    |
| 85° | 1   | 1    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°  |
|-------|-----|
| 0°    | 853 |
| 2.5°  | 829 |
| 5°    | 764 |
| 7.5°  | 673 |
| 10°   | 574 |
| 12.5° | 488 |
| 15°   | 425 |
| 17.5° | 383 |
| 20°   | 353 |
| 22.5° | 322 |
| 25°   | 290 |
| 27.5° | 261 |
| 30°   | 238 |
| 32.5° | 221 |
| 35°   | 204 |
| 37.5° | 186 |
| 40°   | 160 |
| 42.5° | 120 |
| 45°   | 72  |
| 47.5° | 33  |
| 50°   | 14  |
| 52.5° | 7   |
| 55°   | 5   |
| 57.5° | 4   |
| 60°   | 4   |
| 62.5° | 3   |
| 65°   | 3   |
| 67.5° | 2   |
| 70°   | 2   |
| 72.5° | 1   |
| 75°   | 1   |
| 77.5° | 1   |
| 80°   | 1   |
| 82.5° | 1   |
| 85°   | 1   |
| 87.5° | 1   |
| 90°   | 0   |

(END OF REPORT)