

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: P20088

Luminaire Tested: **EL405840-TL402WHS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P20088  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL405840-TL402WHS  
Description: HALO 4 INCH RECESSED LED DOWNLIGHT WITH WHITE PAINTED REFLECTOR IN TRIM WITH PRISMATIC LENS IN UNIT 1 LED MODULE EL405840  
Light Source: (1)SURFACE MOUNT LED  
14 WATTS  
Ballast/Driver: 120 VOLT ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: 628 (1 lamp)  
Luminaire Lumens: 629.1 lumens  
Efficiency: 100.2%  
Efficacy: 44.0 lumens/watt  
Spacing Criteria (0/90/45): 0.66 / 0.66 / 0.85  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

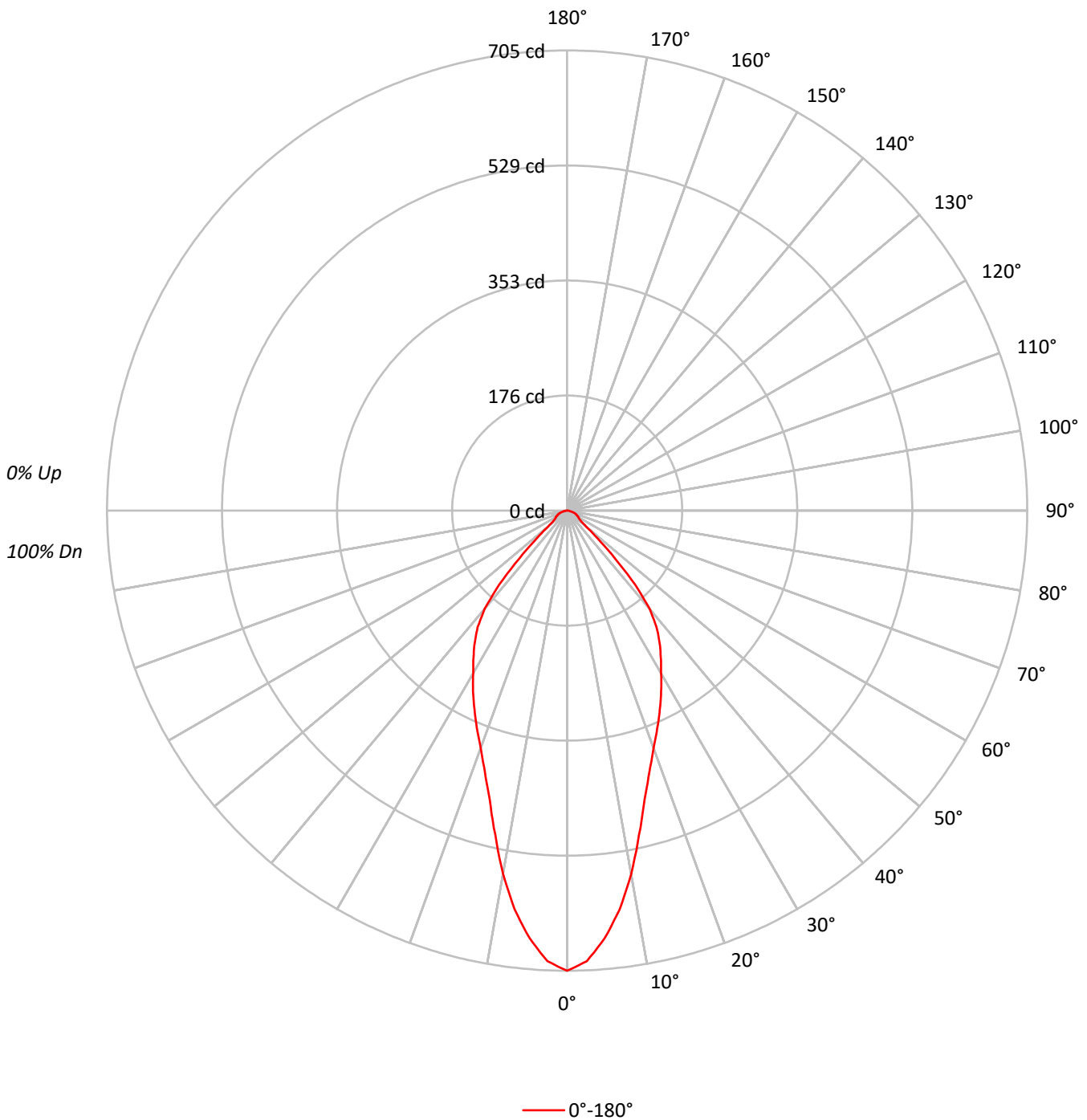
Input Watts (W): 14.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 116 | 116 | 116 | 116 | 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  | 95  | 93  | 91  |
| 2   | 106 | 100 | 95  | 92  | 104 | 98  | 94  | 90  | 95  | 92  | 88  |  | 92  | 89  | 87  |  | 89  | 87  | 85  | 83  |
| 3   | 100 | 92  | 86  | 82  | 97  | 91  | 85  | 81  | 88  | 83  | 80  |  | 85  | 82  | 78  |  | 83  | 80  | 77  | 75  |
| 4   | 94  | 85  | 79  | 74  | 92  | 84  | 78  | 73  | 81  | 76  | 72  |  | 79  | 75  | 71  |  | 77  | 74  | 71  | 69  |
| 5   | 88  | 79  | 72  | 67  | 86  | 78  | 71  | 67  | 76  | 70  | 66  |  | 74  | 69  | 65  |  | 72  | 68  | 65  | 63  |
| 6   | 83  | 73  | 66  | 61  | 81  | 72  | 66  | 61  | 70  | 65  | 61  |  | 69  | 64  | 60  |  | 68  | 63  | 60  | 58  |
| 7   | 78  | 68  | 61  | 56  | 77  | 67  | 61  | 56  | 66  | 60  | 56  |  | 65  | 59  | 56  |  | 63  | 59  | 55  | 54  |
| 8   | 74  | 63  | 57  | 52  | 73  | 63  | 56  | 52  | 62  | 56  | 52  |  | 61  | 55  | 51  |  | 60  | 55  | 51  | 50  |
| 9   | 70  | 59  | 53  | 48  | 69  | 59  | 53  | 48  | 58  | 52  | 48  |  | 57  | 52  | 48  |  | 56  | 51  | 48  | 46  |
| 10  | 67  | 56  | 49  | 45  | 65  | 55  | 49  | 45  | 54  | 49  | 45  |  | 54  | 48  | 45  |  | 53  | 48  | 45  | 43  |

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

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 86959 |
| 5°  | 81471 |
| 10° | 70765 |
| 15° | 58485 |
| 20° | 50798 |
| 25° | 45729 |
| 30° | 41019 |
| 35° | 37193 |
| 40° | 31559 |
| 45° | 18141 |
| 50° | 7292  |
| 55° | 4946  |
| 60° | 4934  |
| 65° | 4670  |
| 70° | 4688  |
| 75° | 3813  |
| 80° | 2841  |
| 85° | 2830  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10°    | 59.9   | 9.5       | 9.5    |
| 10°-20°   | 129.4  | 20.6      | 20.6   |
| 20°-30°   | 154.5  | 24.6      | 24.6   |
| 30°-40°   | 153.0  | 24.3      | 24.4   |
| 40°-50°   | 82.8   | 13.2      | 13.2   |
| 50°-60°   | 22.3   | 3.5       | 3.6    |
| 60°-70°   | 16.2   | 2.6       | 2.6    |
| 70°-80°   | 8.8    | 1.4       | 1.4    |
| 80°-90°   | 2.2    | 0.3       | 0.3    |
| 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°    | 343.8  | 54.6      | 54.7   |
| 0°-40°    | 496.7  | 79.0      | 79.1   |
| 0°-60°    | 601.9  | 95.7      | 95.8   |
| 0°-90°    | 629.1  | 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°   | 629.1  | 100.0     | 100.2  |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 705 |      |
| 5°  | 658 | 60   |
| 15° | 458 | 129  |
| 25° | 336 | 154  |
| 35° | 247 | 153  |
| 45° | 104 | 83   |
| 55° | 23  | 22   |
| 65° | 16  | 16   |
| 75° | 8   | 9    |
| 85° | 2   | 2    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°  |
|-------|-----|
| 0°    | 705 |
| 2.5°  | 691 |
| 5°    | 658 |
| 7.5°  | 616 |
| 10°   | 565 |
| 12.5° | 509 |
| 15°   | 458 |
| 17.5° | 419 |
| 20°   | 387 |
| 22.5° | 361 |
| 25°   | 336 |
| 27.5° | 312 |
| 30°   | 288 |
| 32.5° | 267 |
| 35°   | 247 |
| 37.5° | 225 |
| 40°   | 196 |
| 42.5° | 154 |
| 45°   | 104 |
| 47.5° | 62  |
| 50°   | 38  |
| 52.5° | 27  |
| 55°   | 23  |
| 57.5° | 21  |
| 60°   | 20  |
| 62.5° | 18  |
| 65°   | 16  |
| 67.5° | 15  |
| 70°   | 13  |
| 72.5° | 11  |
| 75°   | 8   |
| 77.5° | 6   |
| 80°   | 4   |
| 82.5° | 3   |
| 85°   | 2   |
| 87.5° | 1   |
| 90°   | 0   |

(END OF REPORT)