

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: P123690

Luminaire Tested: **EL406930-TL411WB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P123690  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13981)  
Test Lab: INNOVATION CENTER-P1  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL406930-TL411WB  
Description: HALO 4-INCH RECESSED LED DOWNLIGHT  
WHITE BAFFLE, DIFFUSE DROP LENS AND WHITE TRIM RING  
Light Source: (1)SURFACE MOUNT LED, 3000K CCT, 90CRI  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

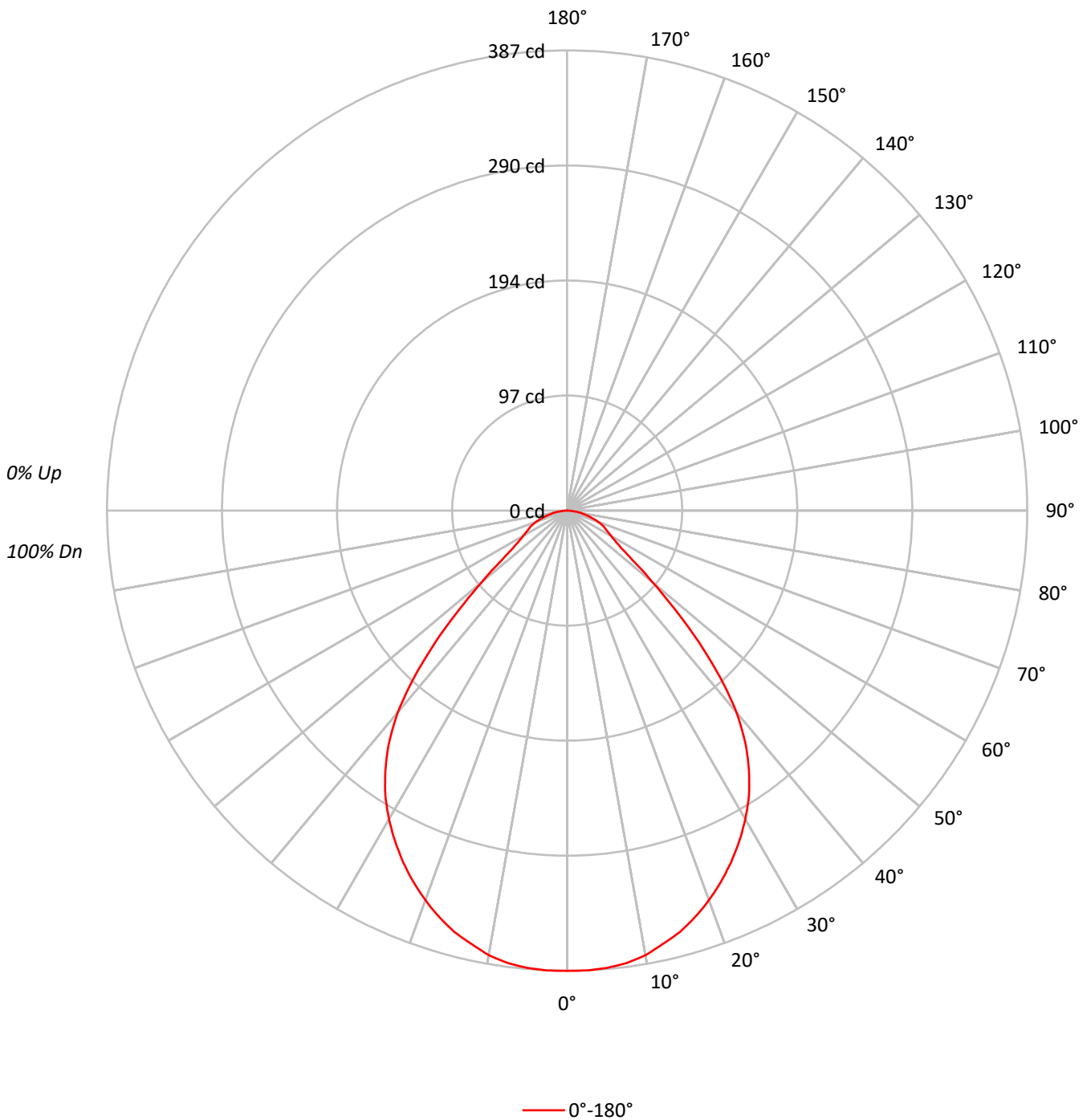
Lumens per Lamp: N/A  
Luminaire Lumens: 690.0 lumens  
Efficiency: N/A  
Efficacy: 53.1 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.16 / 1.2  
Luminous Opening: Circular (Dia: 0.25' x H: 0')  
CIE Type: Direct

Input Watts (W): 13  
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 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 | 102 | 102 | 100 |
| 1   | 111 | 107 | 104 | 101 | 109 | 105 | 102 | 99  | 101 | 99  | 96  |  | 97  | 95  | 93  |  | 94  | 92  | 91  | 89  |
| 2   | 103 | 97  | 91  | 87  | 101 | 95  | 90  | 86  | 91  | 87  | 84  |  | 88  | 85  | 82  |  | 85  | 83  | 80  | 78  |
| 3   | 96  | 87  | 81  | 75  | 94  | 86  | 80  | 75  | 83  | 78  | 73  |  | 80  | 76  | 72  |  | 78  | 74  | 71  | 69  |
| 4   | 89  | 79  | 72  | 66  | 87  | 78  | 71  | 66  | 76  | 70  | 65  |  | 73  | 68  | 64  |  | 71  | 67  | 63  | 62  |
| 5   | 83  | 72  | 65  | 59  | 81  | 71  | 64  | 59  | 69  | 63  | 58  |  | 67  | 62  | 58  |  | 66  | 61  | 57  | 55  |
| 6   | 78  | 66  | 58  | 53  | 76  | 65  | 58  | 53  | 64  | 57  | 52  |  | 62  | 56  | 52  |  | 61  | 55  | 51  | 50  |
| 7   | 73  | 61  | 53  | 48  | 71  | 60  | 53  | 48  | 59  | 52  | 47  |  | 57  | 51  | 47  |  | 56  | 51  | 47  | 45  |
| 8   | 68  | 56  | 49  | 43  | 67  | 55  | 48  | 43  | 54  | 48  | 43  |  | 53  | 47  | 43  |  | 52  | 47  | 43  | 41  |
| 9   | 64  | 52  | 45  | 40  | 63  | 51  | 44  | 40  | 50  | 44  | 39  |  | 49  | 44  | 39  |  | 48  | 43  | 39  | 38  |
| 10  | 60  | 48  | 41  | 37  | 59  | 48  | 41  | 36  | 47  | 41  | 36  |  | 46  | 40  | 36  |  | 45  | 40  | 36  | 34  |

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

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 84884 |
| 5°  | 84966 |
| 10° | 84523 |
| 15° | 83269 |
| 20° | 81370 |
| 25° | 78948 |
| 30° | 75885 |
| 35° | 71367 |
| 40° | 63490 |
| 45° | 48625 |
| 50° | 31999 |
| 55° | 21600 |
| 60° | 18727 |
| 65° | 18264 |
| 70° | 17759 |
| 75° | 16267 |
| 80° | 14775 |
| 85° | 10819 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 36.7   | 5.3       |
| 10°-20°   | 103.2  | 15.0      |
| 20°-30°   | 150.0  | 21.7      |
| 30°-40°   | 165.3  | 24.0      |
| 40°-50°   | 120.2  | 17.4      |
| 50°-60°   | 54.3   | 7.9       |
| 60°-70°   | 34.9   | 5.1       |
| 70°-80°   | 20.4   | 3.0       |
| 80°-90°   | 5.1    | 0.7       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 289.9  | 42.0      |
| 0°-40°    | 455.1  | 66.0      |
| 0°-60°    | 629.7  | 91.3      |
| 0°-90°    | 690.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 690.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 387 |      |
| 5°  | 386 | 37   |
| 15° | 367 | 103  |
| 25° | 326 | 150  |
| 35° | 267 | 165  |
| 45° | 157 | 120  |
| 55° | 56  | 54   |
| 65° | 35  | 35   |
| 75° | 19  | 20   |
| 85° | 4   | 5    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    |
|-------|-------|
| 0°    | 387.1 |
| 2.5°  | 387.1 |
| 5°    | 386.0 |
| 7.5°  | 383.9 |
| 10°   | 379.6 |
| 12.5° | 373.2 |
| 15°   | 366.8 |
| 17.5° | 358.3 |
| 20°   | 348.7 |
| 22.5° | 338.0 |
| 25°   | 326.3 |
| 27.5° | 313.5 |
| 30°   | 299.7 |
| 32.5° | 284.7 |
| 35°   | 266.6 |
| 37.5° | 246.3 |
| 40°   | 221.8 |
| 42.5° | 190.9 |
| 45°   | 156.8 |
| 47.5° | 122.6 |
| 50°   | 93.8  |
| 52.5° | 71.4  |
| 55°   | 56.5  |
| 57.5° | 48.0  |
| 60°   | 42.7  |
| 62.5° | 38.4  |
| 65°   | 35.2  |
| 67.5° | 32.0  |
| 70°   | 27.7  |
| 72.5° | 23.5  |
| 75°   | 19.2  |
| 77.5° | 14.9  |
| 80°   | 11.7  |
| 82.5° | 7.5   |
| 85°   | 4.3   |
| 87.5° | 1.1   |
| 90°   | 0.0   |

(END OF REPORT)