

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: P123678

Luminaire Tested: **EL406930-TL410TBZ**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P123678  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13978)  
Test Lab: INNOVATION CENTER-P1  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL406930-TL410TBZ  
Description: HALO 4-INCH RECESSED LED DOWNLIGHT  
TUSCAN BRONZE REFLECTOR, DIFFUSE DROP LENS AND TUSCAN BRONZE TRIM RING  
Light Source: (1)SURFACE MOUNT LED, 3000K CCT, 90CRI  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 500.0 lumens  
Efficiency: N/A  
Efficacy: 38.5 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.17  
Luminous Opening: Circular (Dia: 0.29' x H: 0')  
CIE Type: Direct

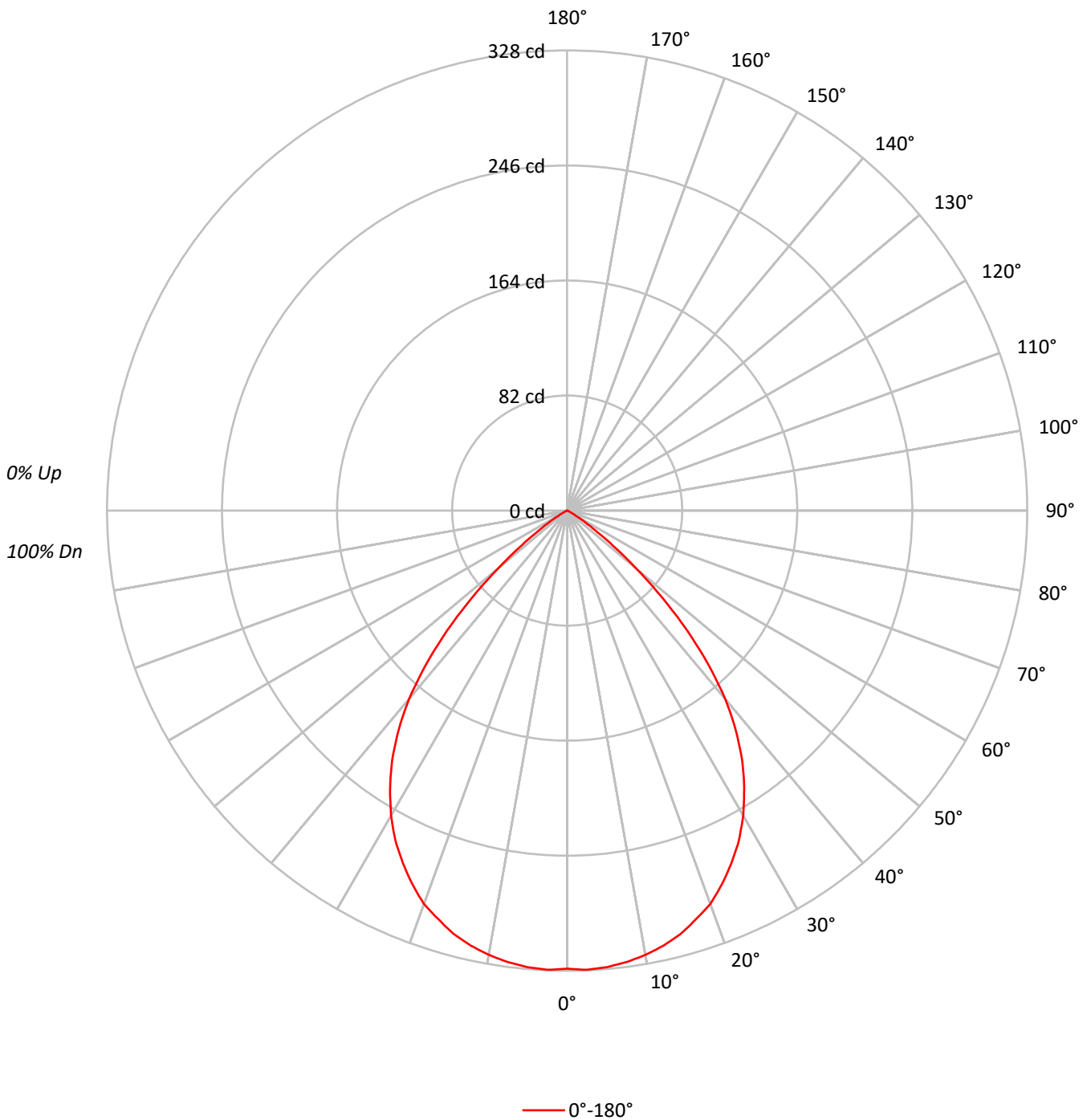
Input Watts (W): 13  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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   | 113 | 109 | 107 | 104 | 110 | 107 | 105 | 102 | 103 | 101 | 99  |  | 99  | 98  | 96  |  | 96  | 95  | 94  | 92  |
| 2   | 106 | 100 | 96  | 92  | 104 | 98  | 94  | 91  | 95  | 92  | 89  |  | 92  | 89  | 87  |  | 89  | 87  | 85  | 83  |
| 3   | 99  | 92  | 86  | 81  | 97  | 90  | 85  | 81  | 88  | 83  | 79  |  | 85  | 81  | 78  |  | 83  | 80  | 77  | 75  |
| 4   | 93  | 84  | 78  | 73  | 91  | 83  | 77  | 72  | 81  | 75  | 71  |  | 79  | 74  | 71  |  | 77  | 73  | 70  | 68  |
| 5   | 87  | 77  | 70  | 65  | 85  | 76  | 70  | 65  | 74  | 69  | 64  |  | 73  | 68  | 64  |  | 71  | 67  | 63  | 62  |
| 6   | 82  | 71  | 64  | 59  | 80  | 70  | 64  | 59  | 69  | 63  | 59  |  | 67  | 62  | 58  |  | 66  | 61  | 58  | 56  |
| 7   | 77  | 66  | 59  | 54  | 75  | 65  | 58  | 54  | 64  | 58  | 53  |  | 62  | 57  | 53  |  | 61  | 56  | 53  | 51  |
| 8   | 72  | 61  | 54  | 49  | 71  | 60  | 54  | 49  | 59  | 53  | 49  |  | 58  | 53  | 49  |  | 57  | 52  | 48  | 47  |
| 9   | 68  | 57  | 50  | 45  | 67  | 56  | 50  | 45  | 55  | 49  | 45  |  | 54  | 49  | 45  |  | 53  | 48  | 45  | 43  |
| 10  | 64  | 53  | 46  | 42  | 63  | 52  | 46  | 42  | 51  | 46  | 41  |  | 51  | 45  | 41  |  | 50  | 45  | 41  | 40  |

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

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 52617 |
| 5°  | 52817 |
| 10° | 52610 |
| 15° | 52121 |
| 20° | 51159 |
| 25° | 49275 |
| 30° | 46693 |
| 35° | 42815 |
| 40° | 36888 |
| 45° | 27568 |
| 50° | 16166 |
| 55° | 6797  |
| 60° | 1933  |
| 65° | 381   |
| 70° | 0     |
| 75° | 0     |
| 80° | 0     |
| 85° | 0     |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 31.0   | 6.2       |
| 10°-20°   | 87.9   | 17.6      |
| 20°-30°   | 127.3  | 25.5      |
| 30°-40°   | 134.7  | 26.9      |
| 40°-50°   | 92.1   | 18.4      |
| 50°-60°   | 25.0   | 5.0       |
| 60°-70°   | 2.0    | 0.4       |
| 70°-80°   | 0.0    | 0.0       |
| 80°-90°   | 0.0    | 0.0       |
| 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°    | 246.2  | 49.2      |
| 0°-40°    | 380.9  | 76.2      |
| 0°-60°    | 498.0  | 99.6      |
| 0°-90°    | 500.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 500.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 327 |      |
| 5°  | 327 | 31   |
| 15° | 312 | 88   |
| 25° | 277 | 127  |
| 35° | 218 | 135  |
| 45° | 121 | 92   |
| 55° | 24  | 25   |
| 65° | 1   | 2    |
| 75° | 0   | 0    |
| 85° | 0   | 0    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

| 0°    |       |
|-------|-------|
| 0°    | 326.6 |
| 2.5°  | 327.6 |
| 5°    | 326.6 |
| 7.5°  | 324.6 |
| 10°   | 321.6 |
| 12.5° | 317.5 |
| 15°   | 312.5 |
| 17.5° | 305.4 |
| 20°   | 298.4 |
| 22.5° | 288.3 |
| 25°   | 277.2 |
| 27.5° | 265.1 |
| 30°   | 251.0 |
| 32.5° | 234.9 |
| 35°   | 217.7 |
| 37.5° | 197.6 |
| 40°   | 175.4 |
| 42.5° | 149.2 |
| 45°   | 121.0 |
| 47.5° | 91.7  |
| 50°   | 64.5  |
| 52.5° | 41.3  |
| 55°   | 24.2  |
| 57.5° | 13.1  |
| 60°   | 6.0   |
| 62.5° | 3.0   |
| 65°   | 1.0   |
| 67.5° | 1.0   |
| 70°   | 0.0   |
| 72.5° | 0.0   |
| 75°   | 0.0   |
| 77.5° | 0.0   |
| 80°   | 0.0   |
| 82.5° | 0.0   |
| 85°   | 0.0   |
| 87.5° | 0.0   |
| 90°   | 0.0   |

(END OF REPORT)