

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: P123675

Luminaire Tested: **EL406935-TL410SN**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P123675  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13977)  
Test Lab: INNOVATION CENTER-P1  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL406935-TL410SN  
Description: HALO 4-INCH RECESSED LED DOWNLIGHT  
SATIN NICKEL REFLECTOR, DIFFUSE DROP LENS AND SATIN NICKEL TRIM RING  
Light Source: (1)SURFACE MOUNT LED, 3500K CCT, 90CRI  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

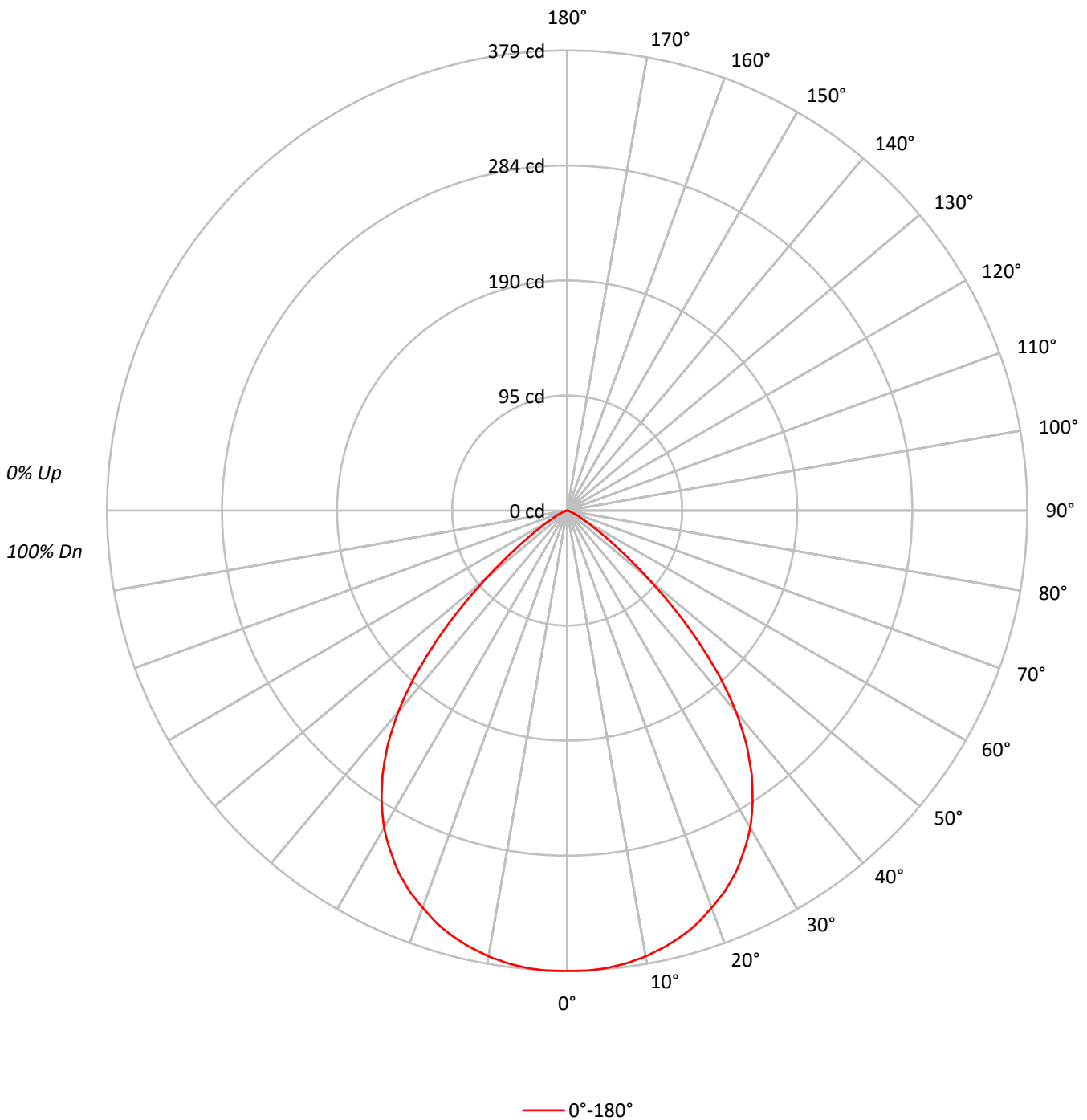
Lumens per Lamp: N/A  
Luminaire Lumens: 620.0 lumens  
Efficiency: N/A  
Efficacy: 47.7 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.18 / 1.2  
Luminous Opening: Circular (Dia: 0.29' x H: 0')  
CIE Type: Direct

Input Watts (W): 13  
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 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1   | 112 | 109 | 106 | 104 | 110 | 107 | 104 | 102 | 103 | 101 | 99  | 99  | 97  | 96  | 96  | 94  | 93  | 91  |
| 2   | 105 | 99  | 95  | 91  | 103 | 98  | 93  | 90  | 94  | 91  | 88  | 91  | 88  | 86  | 89  | 86  | 84  | 82  |
| 3   | 98  | 91  | 85  | 80  | 96  | 89  | 84  | 79  | 87  | 82  | 78  | 84  | 80  | 77  | 82  | 78  | 76  | 74  |
| 4   | 92  | 83  | 76  | 71  | 90  | 82  | 75  | 71  | 79  | 74  | 70  | 77  | 73  | 69  | 75  | 71  | 68  | 66  |
| 5   | 86  | 76  | 69  | 64  | 84  | 75  | 68  | 63  | 73  | 67  | 63  | 71  | 66  | 62  | 70  | 65  | 62  | 60  |
| 6   | 81  | 70  | 63  | 57  | 79  | 69  | 62  | 57  | 67  | 61  | 57  | 66  | 60  | 56  | 64  | 60  | 56  | 54  |
| 7   | 75  | 64  | 57  | 52  | 74  | 64  | 57  | 52  | 62  | 56  | 52  | 61  | 55  | 51  | 60  | 55  | 51  | 49  |
| 8   | 71  | 59  | 52  | 47  | 69  | 59  | 52  | 47  | 58  | 51  | 47  | 57  | 51  | 47  | 55  | 50  | 47  | 45  |
| 9   | 67  | 55  | 48  | 43  | 65  | 55  | 48  | 43  | 54  | 47  | 43  | 53  | 47  | 43  | 52  | 47  | 43  | 41  |
| 10  | 63  | 51  | 45  | 40  | 62  | 51  | 44  | 40  | 50  | 44  | 40  | 49  | 44  | 40  | 48  | 43  | 39  | 38  |

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

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 61107 |
| 5°  | 61162 |
| 10° | 60986 |
| 15° | 60560 |
| 20° | 59662 |
| 25° | 58411 |
| 30° | 56124 |
| 35° | 52118 |
| 40° | 45552 |
| 45° | 34859 |
| 50° | 21880 |
| 55° | 11488 |
| 60° | 5542  |
| 65° | 3278  |
| 70° | 1507  |
| 75° | 685   |
| 80° | 0     |
| 85° | 0     |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 35.9   | 5.8       |
| 10°-20°   | 102.3  | 16.5      |
| 20°-30°   | 150.8  | 24.3      |
| 30°-40°   | 164.0  | 26.5      |
| 40°-50°   | 116.9  | 18.9      |
| 50°-60°   | 39.6   | 6.4       |
| 60°-70°   | 8.9    | 1.4       |
| 70°-80°   | 1.6    | 0.3       |
| 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°    | 289.0  | 46.6      |
| 0°-40°    | 453.0  | 73.1      |
| 0°-60°    | 609.6  | 98.3      |
| 0°-90°    | 620.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 620.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 379 |      |
| 5°  | 378 | 36   |
| 15° | 363 | 102  |
| 25° | 329 | 151  |
| 35° | 265 | 164  |
| 45° | 153 | 117  |
| 55° | 41  | 40   |
| 65° | 9   | 9    |
| 75° | 1   | 2    |
| 85° | 0   | 0    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    |
|-------|-------|
| 0°    | 379.3 |
| 2.5°  | 379.3 |
| 5°    | 378.2 |
| 7.5°  | 376.0 |
| 10°   | 372.8 |
| 12.5° | 368.5 |
| 15°   | 363.1 |
| 17.5° | 356.6 |
| 20°   | 348.0 |
| 22.5° | 339.4 |
| 25°   | 328.6 |
| 27.5° | 315.7 |
| 30°   | 301.7 |
| 32.5° | 284.4 |
| 35°   | 265.0 |
| 37.5° | 242.4 |
| 40°   | 216.6 |
| 42.5° | 186.4 |
| 45°   | 153.0 |
| 47.5° | 119.6 |
| 50°   | 87.3  |
| 52.5° | 60.3  |
| 55°   | 40.9  |
| 57.5° | 25.9  |
| 60°   | 17.2  |
| 62.5° | 11.9  |
| 65°   | 8.6   |
| 67.5° | 5.4   |
| 70°   | 3.2   |
| 72.5° | 2.2   |
| 75°   | 1.1   |
| 77.5° | 1.1   |
| 80°   | 0.0   |
| 82.5° | 0.0   |
| 85°   | 0.0   |
| 87.5° | 0.0   |
| 90°   | 0.0   |

(END OF REPORT)