

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P990857

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4RDMB-600LM-2700K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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### **Test Information**

Test Method: LM-79-08  
 Report Number: P990857  
 Test Lab: Cooper Lighting Solutions  
 Issue Date: 5/13/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML4ALSFL9FS1E-TIR4D25NFL-TL4RDMB-600LM-2700K  
 Description: 4IN ROUND ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE BLACK TRIM  
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT  
 Ballast/Driver: -

### **Summary**

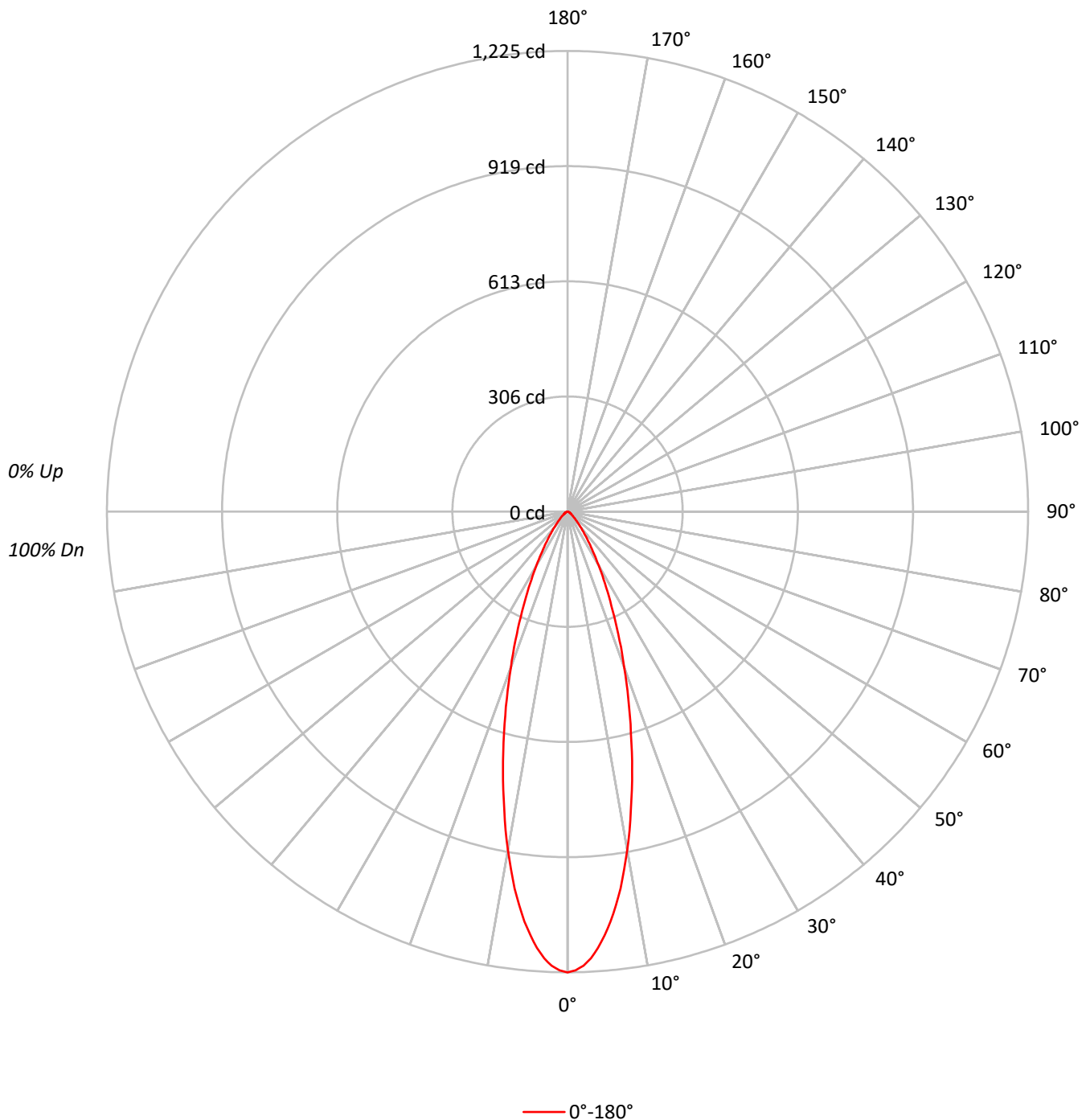
Lumens per Lamp: N/A  
 Luminaire Lumens: 519.1 lumens  
 Efficiency: N/A  
 Efficacy: 67.4 lumens/watt  
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.56  
 Luminous Opening: Circular (Dia: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 7.7  
 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

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | GONIO 1 IN0055        | 4/22/2021        | 10/22/2021           |
| Power Meter                    | XITRON 2801 IN0197    | 12/1/2020        | 12/1/2021            |
| AC Power Source                | CHROMA 61505 IN0196   | 12/1/2020        | 12/1/2021            |
| DC Power Supply                | AGILENT E3634A IN0198 | 11/30/2020       | 11/30/2021           |
| Room Thermometer               | ONSET IN0143          | 12/1/2020        | 12/1/2021            |

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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  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 |
| 1   | 114 | 111 | 109 | 107 | 111 | 109 | 107 | 105 | 105 | 103 | 102 |  | 101 | 100 | 99  |  | 98  |
| 2   | 109 | 104 | 100 | 97  | 107 | 102 | 99  | 96  | 99  | 96  | 94  |  | 96  | 94  | 92  |  | 94  |
| 3   | 104 | 98  | 93  | 90  | 102 | 96  | 92  | 89  | 94  | 90  | 87  |  | 92  | 89  | 86  |  | 89  |
| 4   | 99  | 92  | 87  | 83  | 97  | 91  | 86  | 83  | 89  | 85  | 82  |  | 87  | 84  | 81  |  | 85  |
| 5   | 95  | 87  | 82  | 78  | 93  | 86  | 81  | 78  | 85  | 80  | 77  |  | 83  | 79  | 76  |  | 82  |
| 6   | 91  | 83  | 77  | 74  | 90  | 82  | 77  | 73  | 81  | 76  | 73  |  | 79  | 75  | 72  |  | 78  |
| 7   | 87  | 79  | 73  | 70  | 86  | 78  | 73  | 69  | 77  | 72  | 69  |  | 76  | 72  | 69  |  | 75  |
| 8   | 84  | 75  | 70  | 66  | 83  | 75  | 69  | 66  | 74  | 69  | 66  |  | 73  | 68  | 65  |  | 72  |
| 9   | 80  | 72  | 66  | 63  | 79  | 71  | 66  | 63  | 70  | 66  | 63  |  | 70  | 65  | 62  |  | 69  |
| 10  | 77  | 69  | 64  | 60  | 76  | 68  | 63  | 60  | 68  | 63  | 60  |  | 67  | 63  | 60  |  | 66  |

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

|     |        |
|-----|--------|
|     | 0°     |
| 0°  | 151148 |
| 5°  | 140062 |
| 10° | 114439 |
| 15° | 84420  |
| 20° | 57821  |
| 25° | 37563  |
| 30° | 23515  |
| 35° | 14380  |
| 40° | 8727   |
| 45° | 5477   |
| 50° | 3665   |
| 55° | 2645   |
| 60° | 2122   |
| 65° | 1985   |
| 70° | 1551   |
| 75° | 858    |
| 80° | 0      |
| 85° | 0      |

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 101.0  | 19.5      |
| 10°-20°   | 181.6  | 35.0      |
| 20°-30°   | 128.8  | 24.8      |
| 30°-40°   | 61.9   | 11.9      |
| 40°-50°   | 25.6   | 4.9       |
| 50°-60°   | 11.6   | 2.2       |
| 60°-70°   | 6.5    | 1.2       |
| 70°-80°   | 2.2    | 0.4       |
| 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°    | 411.4  | 79.3      |
| 0°-40°    | 473.3  | 91.2      |
| 0°-60°    | 510.4  | 98.3      |
| 0°-90°    | 519.1  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 519.1  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | Flux |
|-----|------|------|
| 0°  | 1225 |      |
| 5°  | 1131 | 101  |
| 15° | 661  | 182  |
| 25° | 276  | 129  |
| 35° | 96   | 62   |
| 45° | 31   | 26   |
| 55° | 12   | 12   |
| 65° | 7    | 6    |
| 75° | 2    | 2    |
| 85° | 0    | 0    |
| 90° | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

| 0°    |        |
|-------|--------|
| 0°    | 1225.4 |
| 1°    | 1219.9 |
| 2°    | 1208.2 |
| 3°    | 1189.1 |
| 4°    | 1163.2 |
| 5°    | 1131.2 |
| 6°    | 1096.0 |
| 7°    | 1054.8 |
| 8°    | 1012.3 |
| 9°    | 963.0  |
| 10°   | 913.7  |
| 11°   | 863.2  |
| 12°   | 810.2  |
| 13°   | 759.7  |
| 14°   | 709.8  |
| 15°   | 661.1  |
| 16°   | 611.8  |
| 17°   | 566.8  |
| 18°   | 522.5  |
| 19°   | 481.8  |
| 20°   | 440.5  |
| 22.5° | 352.4  |
| 25°   | 276.0  |
| 27.5° | 214.4  |
| 30°   | 165.1  |
| 32.5° | 125.1  |
| 35°   | 95.5   |
| 37.5° | 72.1   |
| 40°   | 54.2   |
| 42.5° | 41.3   |
| 45°   | 31.4   |
| 47.5° | 24.6   |
| 50°   | 19.1   |
| 52.5° | 15.4   |
| 55°   | 12.3   |
| 57.5° | 10.5   |
| 60°   | 8.6    |
| 62.5° | 7.4    |
| 65°   | 6.8    |
| 67.5° | 5.5    |
| 70°   | 4.3    |
| 72.5° | 3.1    |
| 75°   | 1.8    |
| 77.5° | 1.2    |
| 80°   | 0.0    |

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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**CANDELA DISTRIBUTION (continued):**

|       | 0°  |
|-------|-----|
| 82.5° | 0.0 |
| 85°   | 0.0 |
| 87.5° | 0.0 |
| 90°   | 0.0 |

(END OF REPORT)