

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: P601407

Luminaire Tested: **ML4DM08LSNFL95FS1E - TIR4D25NFL - TL41R\_ TL42S\_ 2700K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P601407  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML4DM08LSNFL95FS1E - TIR4D25NFL - TL41R\_ TL42S\_ 2700K  
 Description: DIRECT MOUNT, 25D OPTIC, OPEN TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 2700K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 1001.1 lumens  
 Efficiency: N/A  
 Efficacy: 97.2 lumens/watt  
 Spacing Criteria (0/90/45): 0.43 / 0.43 / 0.46  
 Luminous Opening: Circular (Dia: 0.21' x H: 0')  
 CIE Type: Direct

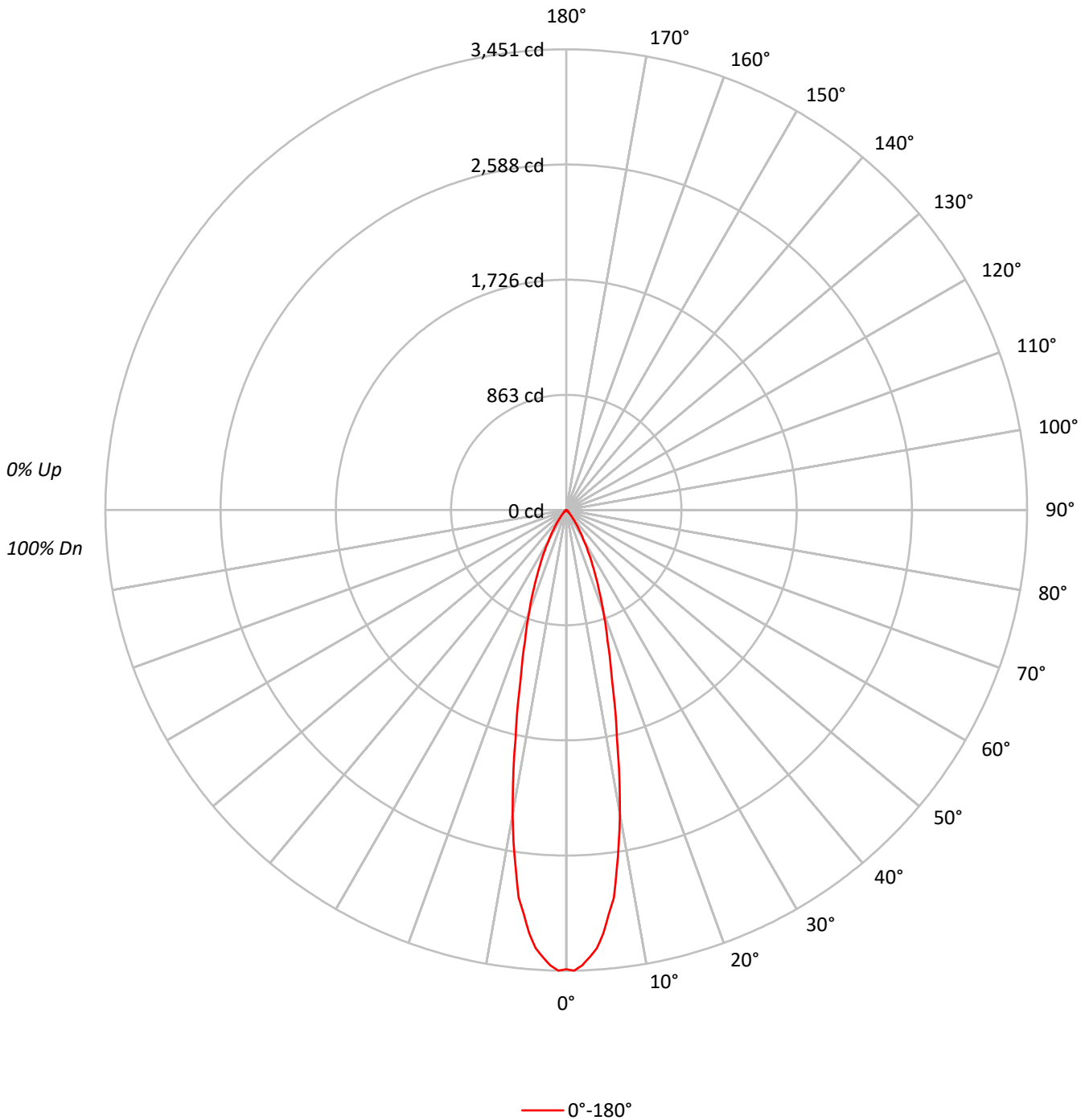
Input Watts (W): 10.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



| Meas             |                       | Calibration Due Date |            |
|------------------|-----------------------|----------------------|------------|
| Instrument       | Identificatio         |                      |            |
| Photometer       | GONIO 1 11111111      | 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  |     | 0   |     |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | 100 |
| 1   | 115 | 112 | 110 | 108 | 112 | 110 | 108 | 107 | 106 | 105 | 103 | 102 | 101 | 100 | 99  | 98  | 97  | 96  | 96  | 96  |
| 2   | 110 | 106 | 103 | 100 | 108 | 105 | 102 | 99  | 101 | 99  | 97  | 98  | 97  | 95  | 96  | 94  | 93  | 91  | 91  | 91  |
| 3   | 106 | 101 | 97  | 94  | 104 | 100 | 96  | 93  | 97  | 94  | 91  | 95  | 92  | 90  | 93  | 90  | 89  | 87  | 87  | 87  |
| 4   | 102 | 96  | 92  | 88  | 101 | 95  | 91  | 88  | 93  | 90  | 87  | 91  | 88  | 86  | 89  | 87  | 85  | 84  | 84  | 84  |
| 5   | 98  | 92  | 87  | 84  | 97  | 91  | 87  | 83  | 89  | 86  | 83  | 88  | 84  | 82  | 86  | 84  | 81  | 80  | 80  | 80  |
| 6   | 95  | 88  | 83  | 80  | 94  | 87  | 83  | 80  | 86  | 82  | 79  | 85  | 81  | 78  | 83  | 80  | 78  | 77  | 77  | 77  |
| 7   | 92  | 84  | 80  | 76  | 91  | 84  | 79  | 76  | 83  | 79  | 76  | 82  | 78  | 75  | 81  | 77  | 75  | 74  | 74  | 74  |
| 8   | 89  | 81  | 76  | 73  | 88  | 81  | 76  | 73  | 80  | 76  | 73  | 79  | 75  | 72  | 78  | 75  | 72  | 71  | 71  | 71  |
| 9   | 86  | 78  | 74  | 70  | 85  | 78  | 73  | 70  | 77  | 73  | 70  | 76  | 72  | 70  | 75  | 72  | 70  | 69  | 69  | 69  |
| 10  | 83  | 75  | 71  | 68  | 82  | 75  | 71  | 68  | 74  | 70  | 68  | 74  | 70  | 67  | 73  | 70  | 67  | 66  | 66  | 66  |

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

|     |         |
|-----|---------|
|     | 0°      |
| 0°  | 1086011 |
| 5°  | 1008983 |
| 10° | 741792  |
| 15° | 432658  |
| 20° | 273025  |
| 25° | 168107  |
| 30° | 96003   |
| 35° | 51885   |
| 40° | 24567   |
| 45° | 12236   |
| 50° | 7025    |
| 55° | 3303    |
| 60° | 1516    |
| 65° | 897     |
| 70° | 1108    |
| 75° | 0       |
| 80° | 0       |
| 85° | 0       |

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 275.8  | 27.5      |
| 10°-20°   | 380.4  | 38.0      |
| 20°-30°   | 225.4  | 22.5      |
| 30°-40°   | 88.1   | 8.8       |
| 40°-50°   | 23.5   | 2.4       |
| 50°-60°   | 6.1    | 0.6       |
| 60°-70°   | 1.6    | 0.2       |
| 70°-80°   | 0.2    | 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°    | 881.6  | 88.1      |
| 0°-40°    | 969.7  | 96.9      |
| 0°-60°    | 999.3  | 99.8      |
| 0°-90°    | 1001.1 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1001.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | Flux |
|-----|------|------|
| 0°  | 3439 |      |
| 5°  | 3183 | 276  |
| 15° | 1324 | 380  |
| 25° | 482  | 225  |
| 35° | 135  | 88   |
| 45° | 27   | 24   |
| 55° | 6    | 6    |
| 65° | 1    | 2    |
| 75° | 0    | 0    |
| 85° | 0    | 0    |
| 90° | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

| 0°    |        |
|-------|--------|
| 0°    | 3439.3 |
| 1°    | 3451.2 |
| 2°    | 3413.1 |
| 3°    | 3353.5 |
| 4°    | 3290.4 |
| 5°    | 3183.2 |
| 6°    | 3043.8 |
| 7°    | 2925.9 |
| 8°    | 2718.6 |
| 9°    | 2518.4 |
| 10°   | 2313.5 |
| 12.5° | 1757.2 |
| 15°   | 1323.5 |
| 17.5° | 1026.9 |
| 20°   | 812.5  |
| 22.5° | 630.2  |
| 25°   | 482.5  |
| 27.5° | 361.0  |
| 30°   | 263.3  |
| 32.5° | 191.8  |
| 35°   | 134.6  |
| 37.5° | 89.3   |
| 40°   | 59.6   |
| 42.5° | 39.3   |
| 45°   | 27.4   |
| 47.5° | 20.3   |
| 50°   | 14.3   |
| 52.5° | 9.5    |
| 55°   | 6.0    |
| 57.5° | 3.6    |
| 60°   | 2.4    |
| 62.5° | 2.4    |
| 65°   | 1.2    |
| 67.5° | 1.2    |
| 70°   | 1.2    |
| 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)