

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: P990818

Luminaire Tested: **ML3ALSFLD2W1E-TIR4D25NFL-TL3SDMB-600LM-2700K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P990818  
 Test Lab: Cooper Lighting Solutions  
 Issue Date: 5/13/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML3ALSFLD2W1E-TIR4D25NFL-TL3SDMB-600LM-2700K  
 Description: 3IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE BLACK TRIM  
 Light Source: (1) D2W LED 90CRI / 2700K CCT  
 Ballast/Driver: -

**Summary**

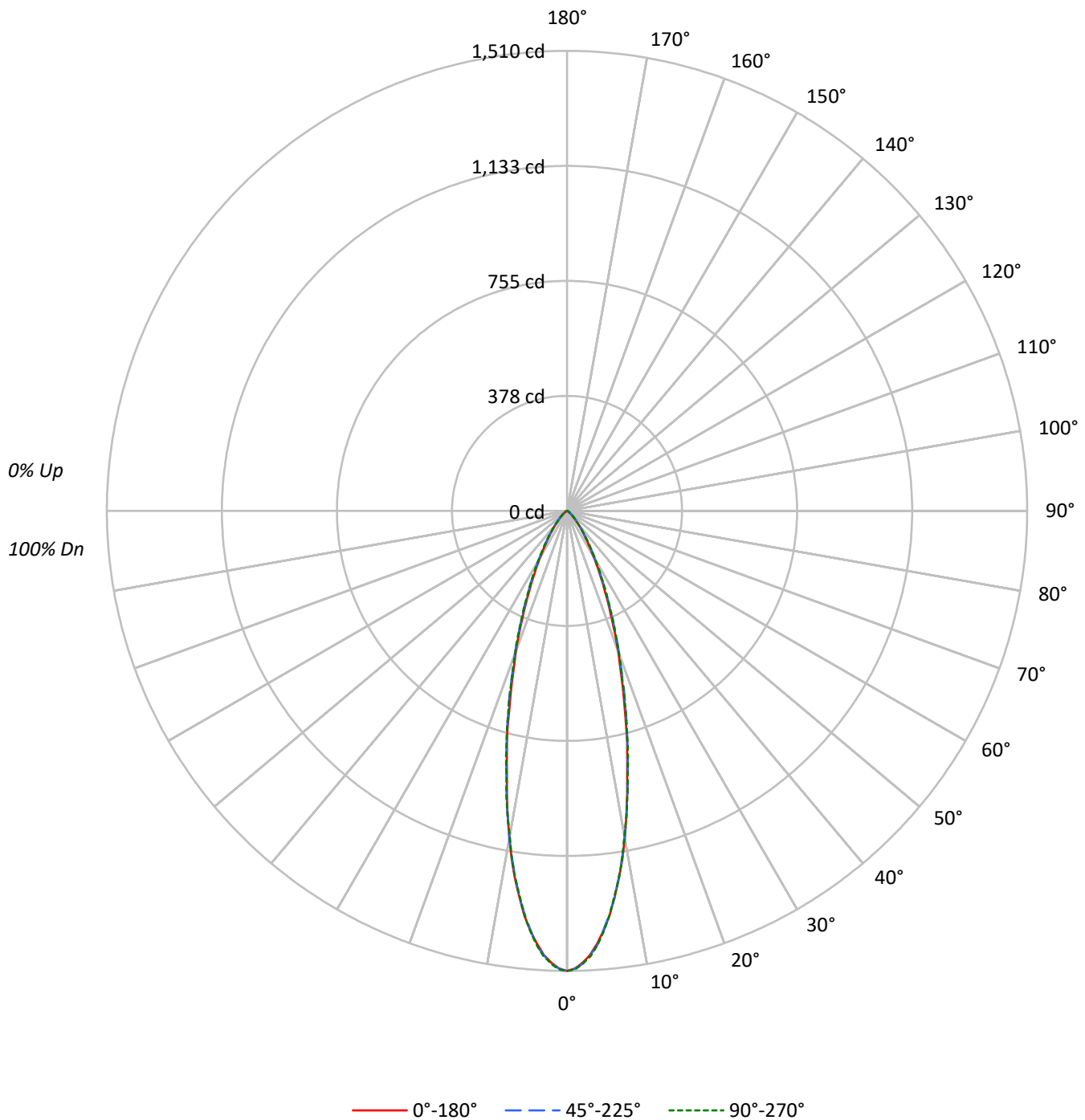
Lumens per Lamp: N/A  
 Luminaire Lumens: 589.3 lumens  
 Efficiency: N/A  
 Efficacy: 62.7 lumens/watt  
 Spacing Criteria (0/90/45): 0.49 / 0.5 / 0.54  
 Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')  
 CIE Type: Direct

Input Watts (W): 9.4  
 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 | 112 | 109 | 107 | 105 | 105 | 104 | 102 |  | 102 | 100 | 99  |  | 98  |
| 2   | 109 | 105 | 101 | 98  | 107 | 103 | 100 | 97  | 100 | 97  | 95  |  | 97  | 95  | 93  |  | 94  |
| 3   | 104 | 99  | 94  | 90  | 102 | 97  | 93  | 90  | 95  | 91  | 88  |  | 92  | 89  | 87  |  | 90  |
| 4   | 100 | 93  | 88  | 84  | 98  | 92  | 87  | 84  | 90  | 86  | 83  |  | 88  | 85  | 82  |  | 86  |
| 5   | 96  | 88  | 83  | 79  | 94  | 87  | 82  | 79  | 86  | 81  | 78  |  | 84  | 80  | 77  |  | 82  |
| 6   | 92  | 84  | 79  | 75  | 90  | 83  | 78  | 74  | 82  | 77  | 74  |  | 80  | 76  | 74  |  | 79  |
| 7   | 88  | 80  | 75  | 71  | 87  | 79  | 74  | 71  | 78  | 74  | 70  |  | 77  | 73  | 70  |  | 76  |
| 8   | 85  | 76  | 71  | 67  | 83  | 76  | 71  | 67  | 75  | 70  | 67  |  | 74  | 70  | 67  |  | 73  |
| 9   | 81  | 73  | 68  | 64  | 80  | 72  | 68  | 64  | 72  | 67  | 64  |  | 71  | 67  | 64  |  | 70  |
| 10  | 78  | 70  | 65  | 61  | 78  | 70  | 65  | 61  | 69  | 64  | 61  |  | 68  | 64  | 61  |  | 67  |

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

|     | 0°     | 45°    | 90°    |
|-----|--------|--------|--------|
| 0°  | 260073 | 260073 | 260073 |
| 5°  | 238904 | 238454 | 239370 |
| 10° | 190496 | 190793 | 189255 |
| 15° | 135096 | 136041 | 136202 |
| 20° | 89768  | 91711  | 91399  |
| 25° | 56628  | 59136  | 59136  |
| 30° | 34821  | 36750  | 37267  |
| 35° | 21382  | 22685  | 23043  |
| 40° | 12927  | 14119  | 13714  |
| 45° | 7745   | 8841   | 8184   |
| 50° | 4742   | 5921   | 4984   |
| 55° | 2913   | 3723   | 3183   |
| 60° | 2136   | 2756   | 2136   |
| 65° | 1426   | 1793   | 1793   |
| 70° | 1360   | 1360   | 1360   |
| 75° | 599    | 1198   | 599    |
| 80° | 0      | 0      | 0      |
| 85° | 0      | 0      | 0      |

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 122.4  | 20.8      |
| 10°-20°   | 209.4  | 35.5      |
| 20°-30°   | 143.8  | 24.4      |
| 30°-40°   | 69.3   | 11.8      |
| 40°-50°   | 27.9   | 4.7       |
| 50°-60°   | 10.6   | 1.8       |
| 60°-70°   | 4.4    | 0.7       |
| 70°-80°   | 1.4    | 0.2       |
| 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°    | 475.6  | 80.7      |
| 0°-40°    | 544.9  | 92.5      |
| 0°-60°    | 583.4  | 99.0      |
| 0°-90°    | 589.3  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 589.3  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1510 | 1510  | 1510 | 1510  | 1510 |      |
| 5°  | 1382 | 1384  | 1379 | 1386  | 1385 | 123  |
| 15° | 758  | 757   | 763  | 765   | 764  | 207  |
| 25° | 298  | 303   | 311  | 314   | 311  | 140  |
| 35° | 102  | 103   | 108  | 111   | 110  | 66   |
| 45° | 32   | 34    | 36   | 35    | 34   | 26   |
| 55° | 10   | 11    | 12   | 12    | 11   | 9    |
| 65° | 4    | 4     | 4    | 4     | 4    | 4    |
| 75° | 1    | 1     | 2    | 1     | 1    | 1    |
| 85° | 0    | 0     | 0    | 0     | 0    | 0    |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1510.1 | 1510.1 | 1510.1 | 1510.1 | 1510.1 |
| 1°    | 1502.2 | 1502.2 | 1503.1 | 1502.2 | 1505.7 |
| 2°    | 1483.6 | 1484.5 | 1487.2 | 1487.2 | 1487.2 |
| 3°    | 1458.9 | 1458.0 | 1459.7 | 1462.4 | 1464.2 |
| 4°    | 1422.6 | 1421.7 | 1428.8 | 1427.0 | 1428.8 |
| 5°    | 1381.9 | 1383.7 | 1379.3 | 1386.4 | 1384.6 |
| 6°    | 1336.0 | 1333.3 | 1331.5 | 1336.8 | 1334.2 |
| 7°    | 1278.5 | 1281.1 | 1278.5 | 1284.7 | 1274.1 |
| 8°    | 1221.0 | 1219.3 | 1215.7 | 1217.5 | 1220.1 |
| 9°    | 1159.1 | 1157.4 | 1153.8 | 1153.8 | 1156.5 |
| 10°   | 1089.3 | 1085.7 | 1091.0 | 1086.6 | 1082.2 |
| 11°   | 1019.4 | 1016.8 | 1022.1 | 1018.5 | 1021.2 |
| 12°   | 947.8  | 952.2  | 954.0  | 953.1  | 954.9  |
| 13°   | 877.1  | 885.0  | 885.0  | 886.8  | 884.2  |
| 14°   | 816.1  | 822.3  | 822.3  | 824.0  | 826.7  |
| 15°   | 757.7  | 756.8  | 763.0  | 764.8  | 763.9  |
| 16°   | 691.4  | 696.7  | 703.8  | 704.7  | 703.8  |
| 17°   | 633.9  | 639.2  | 650.7  | 649.9  | 647.2  |
| 18°   | 581.8  | 587.1  | 594.2  | 592.4  | 590.6  |
| 19°   | 530.5  | 534.0  | 544.6  | 546.4  | 541.1  |
| 20°   | 489.8  | 489.8  | 500.4  | 498.7  | 498.7  |
| 22.5° | 382.8  | 386.4  | 396.1  | 397.9  | 396.1  |
| 25°   | 298.0  | 303.3  | 311.2  | 313.9  | 311.2  |
| 27.5° | 229.9  | 232.5  | 241.4  | 243.1  | 244.0  |
| 30°   | 175.1  | 176.8  | 184.8  | 191.0  | 187.4  |
| 32.5° | 132.6  | 136.2  | 142.3  | 145.9  | 145.0  |
| 35°   | 101.7  | 102.6  | 107.9  | 111.4  | 109.6  |
| 37.5° | 76.0   | 78.7   | 82.2   | 84.0   | 81.3   |
| 40°   | 57.5   | 58.4   | 62.8   | 62.8   | 61.0   |
| 42.5° | 42.4   | 44.2   | 47.7   | 47.7   | 45.1   |
| 45°   | 31.8   | 33.6   | 36.3   | 35.4   | 33.6   |
| 47.5° | 23.0   | 25.6   | 27.4   | 26.5   | 24.8   |
| 50°   | 17.7   | 18.6   | 22.1   | 20.3   | 18.6   |
| 52.5° | 13.3   | 14.1   | 16.8   | 15.0   | 14.1   |
| 55°   | 9.7    | 10.6   | 12.4   | 11.5   | 10.6   |
| 57.5° | 7.1    | 8.0    | 9.7    | 8.8    | 8.0    |
| 60°   | 6.2    | 6.2    | 8.0    | 7.1    | 6.2    |
| 62.5° | 4.4    | 5.3    | 6.2    | 5.3    | 5.3    |
| 65°   | 3.5    | 4.4    | 4.4    | 4.4    | 4.4    |
| 67.5° | 2.7    | 3.5    | 3.5    | 3.5    | 3.5    |
| 70°   | 2.7    | 2.7    | 2.7    | 2.7    | 2.7    |
| 72.5° | 1.8    | 1.8    | 2.7    | 1.8    | 1.8    |
| 75°   | 0.9    | 0.9    | 1.8    | 0.9    | 0.9    |
| 77.5° | 0.0    | 0.9    | 0.9    | 0.9    | 0.9    |
| 80°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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**CANDELA DISTRIBUTION (continued):**

|       | 0°  | 22.5° | 45° | 67.5° | 90° |
|-------|-----|-------|-----|-------|-----|
| 82.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 85°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 87.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 90°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |

(END OF REPORT)