

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: P601358

Luminaire Tested: **ML4DM06NFL9FS1E - TIR4D25NFL - TL41R_ TL42S_ 5000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601358
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4DM06NFL9FS1E - TIR4D25NFL - TL41R_ TL42S_ 5000K
 Description: DIRECT MOUNT, 25D OPTIC, OPEN TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 5000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 927.4 lumens
 Efficiency: N/A
 Efficacy: 111.7 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

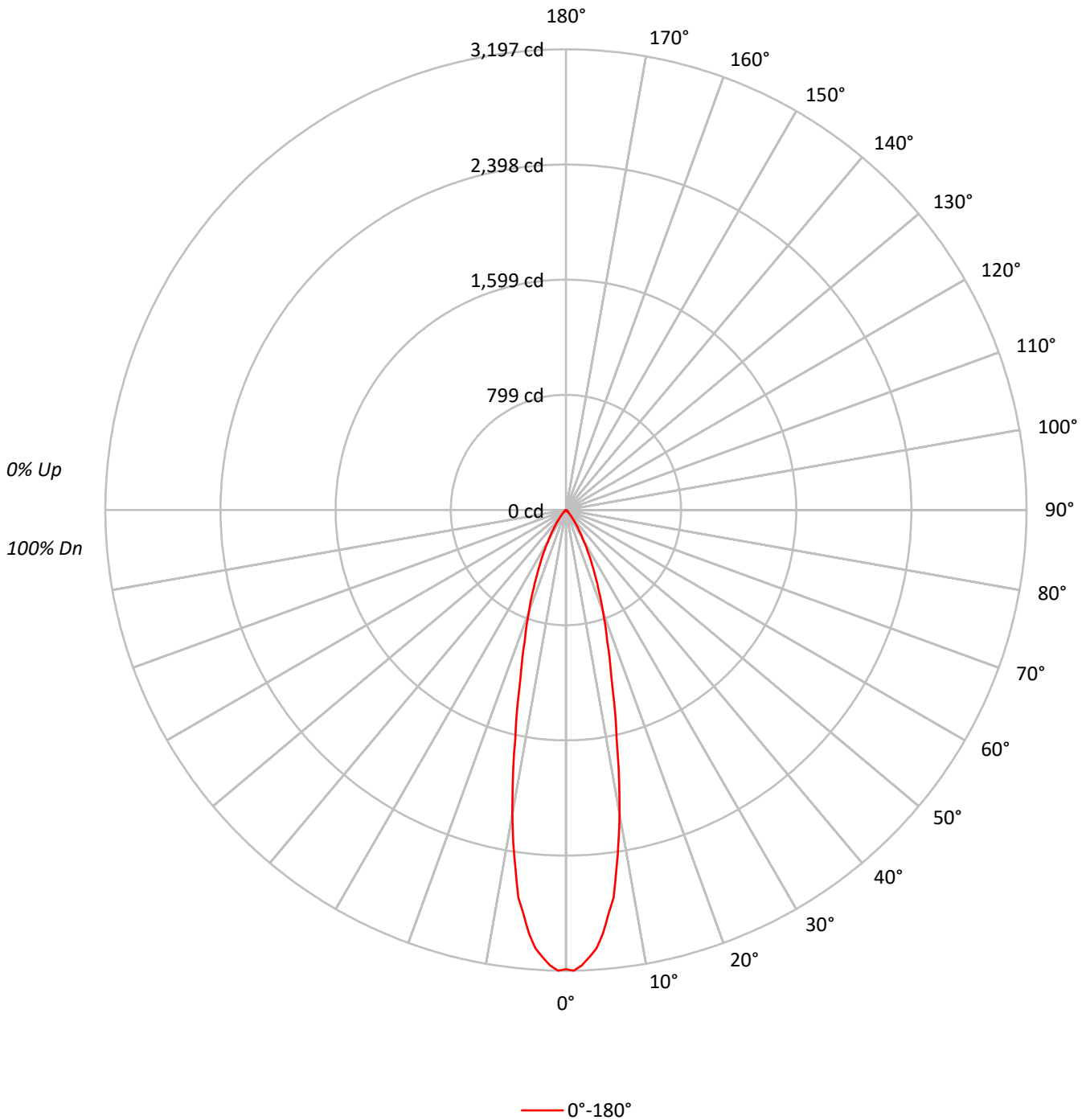
Input Watts (W): 8.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



| 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 | | |
| 1 | 115 | 112 | 110 | 108 | 112 | 110 | 108 | 107 | 106 | 105 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 96 | | |
| 2 | 110 | 106 | 103 | 100 | 108 | 105 | 102 | 99 | 101 | 99 | 97 | 98 | 97 | 95 | 96 | 94 | 93 | 91 | | |
| 3 | 106 | 101 | 97 | 94 | 104 | 100 | 96 | 93 | 97 | 94 | 91 | 95 | 92 | 90 | 93 | 90 | 89 | 87 | | |
| 4 | 102 | 96 | 92 | 88 | 101 | 95 | 91 | 88 | 93 | 90 | 87 | 91 | 88 | 86 | 89 | 87 | 85 | 84 | | |
| 5 | 98 | 92 | 87 | 84 | 97 | 91 | 87 | 83 | 89 | 86 | 83 | 88 | 84 | 82 | 86 | 84 | 81 | 80 | | |
| 6 | 95 | 88 | 83 | 80 | 94 | 87 | 83 | 80 | 86 | 82 | 79 | 85 | 81 | 79 | 83 | 80 | 78 | 77 | | |
| 7 | 92 | 84 | 80 | 76 | 91 | 84 | 79 | 76 | 83 | 79 | 76 | 82 | 78 | 75 | 81 | 77 | 75 | 74 | | |
| 8 | 89 | 81 | 76 | 73 | 88 | 81 | 76 | 73 | 80 | 76 | 73 | 79 | 75 | 72 | 78 | 75 | 72 | 71 | | |
| 9 | 86 | 78 | 74 | 70 | 85 | 78 | 73 | 70 | 77 | 73 | 70 | 76 | 72 | 70 | 75 | 72 | 70 | 69 | | |
| 10 | 83 | 75 | 71 | 68 | 82 | 75 | 71 | 68 | 74 | 70 | 68 | 74 | 70 | 67 | 73 | 70 | 67 | 66 | | |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|---------|
| | 0° |
| 0° | 1006091 |
| 5° | 934717 |
| 10° | 687188 |
| 15° | 400817 |
| 20° | 252930 |
| 25° | 155739 |
| 30° | 88929 |
| 35° | 48069 |
| 40° | 22754 |
| 45° | 11343 |
| 50° | 6484 |
| 55° | 3028 |
| 60° | 1389 |
| 65° | 822 |
| 70° | 1016 |
| 75° | 0 |
| 80° | 0 |
| 85° | 0 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 255.5 | 27.5 |
| 10°-20° | 352.4 | 38.0 |
| 20°-30° | 208.8 | 22.5 |
| 30°-40° | 81.7 | 8.8 |
| 40°-50° | 21.8 | 2.4 |
| 50°-60° | 5.6 | 0.6 |
| 60°-70° | 1.5 | 0.2 |
| 70°-80° | 0.1 | 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° | 816.7 | 88.1 |
| 0°-40° | 898.3 | 96.9 |
| 0°-60° | 925.7 | 99.8 |
| 0°-90° | 927.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 927.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|------|------|
| 0° | 3186 | |
| 5° | 2949 | 255 |
| 15° | 1226 | 352 |
| 25° | 447 | 209 |
| 35° | 125 | 82 |
| 45° | 25 | 22 |
| 55° | 6 | 6 |
| 65° | 1 | 1 |
| 75° | 0 | 0 |
| 85° | 0 | 0 |
| 90° | 0 | |

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CANDELA DISTRIBUTION (FULL):

| 0° | |
|-------|--------|
| 0° | 3186.2 |
| 1° | 3197.2 |
| 2° | 3161.9 |
| 3° | 3106.7 |
| 4° | 3048.2 |
| 5° | 2948.9 |
| 6° | 2819.7 |
| 7° | 2710.5 |
| 8° | 2518.5 |
| 9° | 2333.1 |
| 10° | 2143.2 |
| 12.5° | 1627.8 |
| 15° | 1226.1 |
| 17.5° | 951.3 |
| 20° | 752.7 |
| 22.5° | 583.8 |
| 25° | 447.0 |
| 27.5° | 334.4 |
| 30° | 243.9 |
| 32.5° | 177.7 |
| 35° | 124.7 |
| 37.5° | 82.8 |
| 40° | 55.2 |
| 42.5° | 36.4 |
| 45° | 25.4 |
| 47.5° | 18.8 |
| 50° | 13.2 |
| 52.5° | 8.8 |
| 55° | 5.5 |
| 57.5° | 3.3 |
| 60° | 2.2 |
| 62.5° | 2.2 |
| 65° | 1.1 |
| 67.5° | 1.1 |
| 70° | 1.1 |
| 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)