

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: P601362

Luminaire Tested: **ML4DM06NFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 4000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601362
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4DM06NFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 4000K
 Description: DIRECT MOUNT, 25D OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 835.6 lumens
 Efficiency: N/A
 Efficacy: 100.7 lumens/watt
 Spacing Criteria (0/90/45): 0.44 / 0.44 / 0.47
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

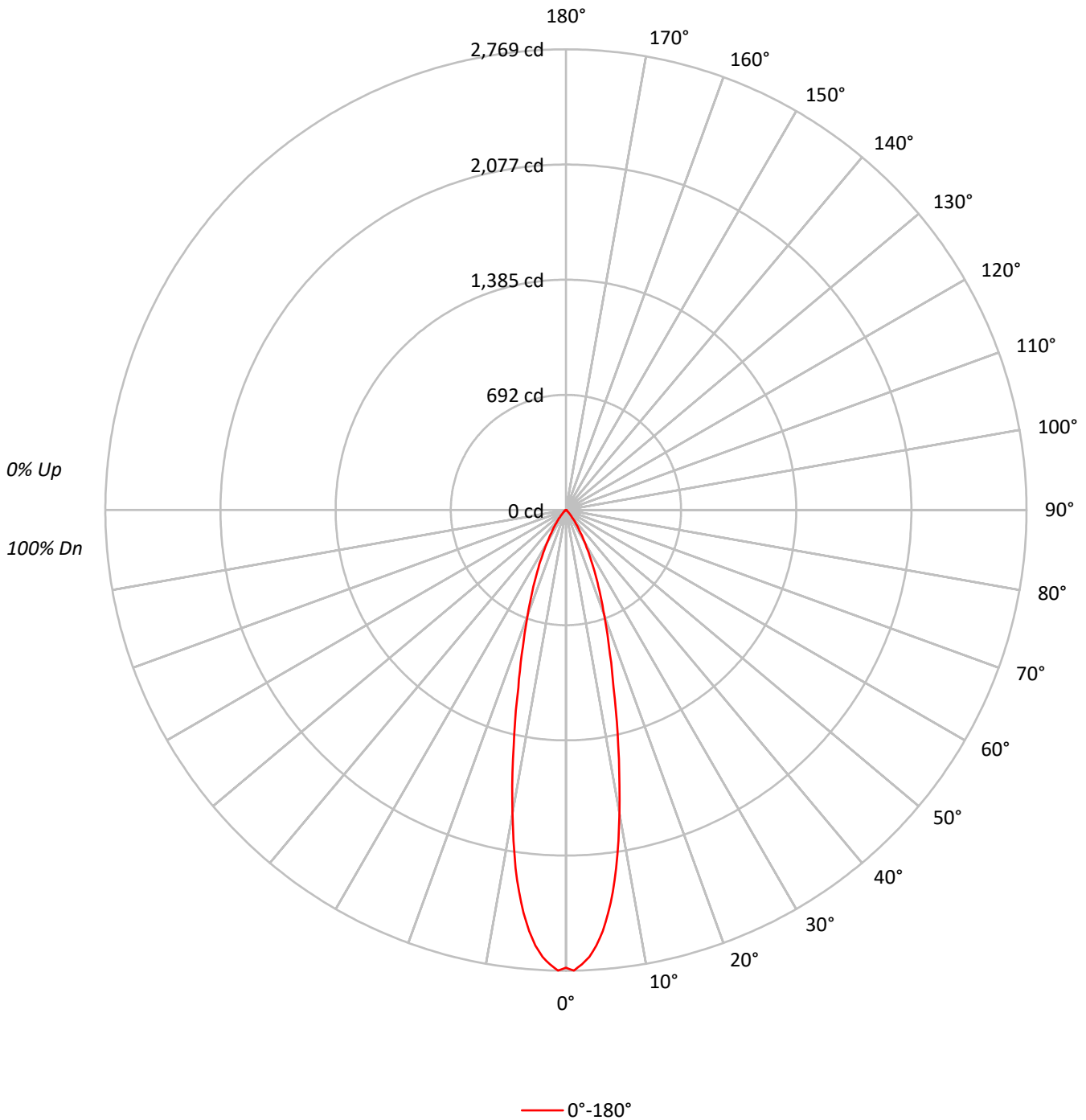
Input Watts (W): 8.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



| 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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 114 | 112 | 110 | 108 | 112 | 110 | 108 | 106 | 106 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 95 |
| 2 | 110 | 106 | 103 | 100 | 108 | 104 | 101 | 99 | 101 | 99 | 96 | 98 | 96 | 94 | 95 | 94 | 92 | 91 |
| 3 | 106 | 100 | 96 | 93 | 104 | 99 | 95 | 92 | 97 | 93 | 91 | 94 | 92 | 89 | 92 | 90 | 88 | 87 |
| 4 | 102 | 96 | 91 | 88 | 100 | 94 | 90 | 87 | 92 | 89 | 86 | 90 | 87 | 85 | 89 | 86 | 84 | 83 |
| 5 | 98 | 91 | 86 | 83 | 96 | 90 | 86 | 83 | 89 | 85 | 82 | 87 | 84 | 81 | 86 | 83 | 80 | 79 |
| 6 | 94 | 87 | 82 | 79 | 93 | 86 | 82 | 79 | 85 | 81 | 78 | 84 | 80 | 78 | 83 | 79 | 77 | 76 |
| 7 | 91 | 84 | 79 | 75 | 90 | 83 | 78 | 75 | 82 | 78 | 75 | 81 | 77 | 74 | 80 | 76 | 74 | 73 |
| 8 | 88 | 80 | 75 | 72 | 87 | 80 | 75 | 72 | 79 | 75 | 72 | 78 | 74 | 71 | 77 | 74 | 71 | 70 |
| 9 | 85 | 77 | 72 | 69 | 84 | 77 | 72 | 69 | 76 | 72 | 69 | 75 | 71 | 69 | 74 | 71 | 68 | 67 |
| 10 | 82 | 74 | 70 | 67 | 81 | 74 | 70 | 67 | 73 | 69 | 66 | 73 | 69 | 66 | 72 | 69 | 66 | 65 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|--------|
| | 0° |
| 0° | 868607 |
| 5° | 805583 |
| 10° | 593209 |
| 15° | 361491 |
| 20° | 225947 |
| 25° | 141071 |
| 30° | 82111 |
| 35° | 46450 |
| 40° | 24402 |
| 45° | 12727 |
| 50° | 7270 |
| 55° | 4074 |
| 60° | 2021 |
| 65° | 1569 |
| 70° | 1016 |
| 75° | 1342 |
| 80° | 0 |
| 85° | 0 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 220.2 | 26.3 |
| 10°-20° | 314.2 | 37.6 |
| 20°-30° | 188.7 | 22.6 |
| 30°-40° | 78.6 | 9.4 |
| 40°-50° | 24.1 | 2.9 |
| 50°-60° | 7.4 | 0.9 |
| 60°-70° | 1.8 | 0.2 |
| 70°-80° | 0.7 | 0.1 |
| 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° | 723.0 | 86.5 |
| 0°-40° | 801.6 | 95.9 |
| 0°-60° | 833.1 | 99.7 |
| 0°-90° | 835.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 835.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|------|------|
| 0° | 2751 | |
| 5° | 2542 | 220 |
| 15° | 1106 | 314 |
| 25° | 405 | 189 |
| 35° | 120 | 79 |
| 45° | 28 | 24 |
| 55° | 7 | 7 |
| 65° | 2 | 2 |
| 75° | 1 | 1 |
| 85° | 0 | 0 |
| 90° | 0 | |

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CANDELA DISTRIBUTION (FULL):

| | 0° |
|-------|--------|
| 0° | 2750.8 |
| 1° | 2768.8 |
| 2° | 2732.8 |
| 3° | 2689.5 |
| 4° | 2625.0 |
| 5° | 2541.5 |
| 6° | 2434.7 |
| 7° | 2314.2 |
| 8° | 2173.6 |
| 9° | 2013.9 |
| 10° | 1850.1 |
| 12.5° | 1449.4 |
| 15° | 1105.8 |
| 17.5° | 857.4 |
| 20° | 672.4 |
| 22.5° | 524.4 |
| 25° | 404.9 |
| 27.5° | 304.5 |
| 30° | 225.2 |
| 32.5° | 164.9 |
| 35° | 120.5 |
| 37.5° | 85.6 |
| 40° | 59.2 |
| 42.5° | 41.2 |
| 45° | 28.5 |
| 47.5° | 20.1 |
| 50° | 14.8 |
| 52.5° | 11.6 |
| 55° | 7.4 |
| 57.5° | 5.3 |
| 60° | 3.2 |
| 62.5° | 2.1 |
| 65° | 2.1 |
| 67.5° | 1.1 |
| 70° | 1.1 |
| 72.5° | 1.1 |
| 75° | 1.1 |
| 77.5° | 0.0 |
| 80° | 0.0 |
| 82.5° | 0.0 |
| 85° | 0.0 |
| 87.5° | 0.0 |
| 90° | 0.0 |

(END OF REPORT)