

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: P645278

Luminaire Tested: **RLNL4079FSD2W1EWHDM-4000K**

Issue Date: 02/28/2023

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P645278
 Test Lab: ETA Testing Technology
 Issue Date: 02/28/2023
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: RLNL4079FSD2W1EWHDM-4000K
 Description: 4" 90 CRI COLOR TUNING RECESSED DOWNLIGHT DIRECT MOUNT FIXTURE w/
 NIGHTLIGHT
 Light Source: 90 CRI 4000K LEDS
 Ballast/Driver: ELECTRICAL DRIVER

Summary

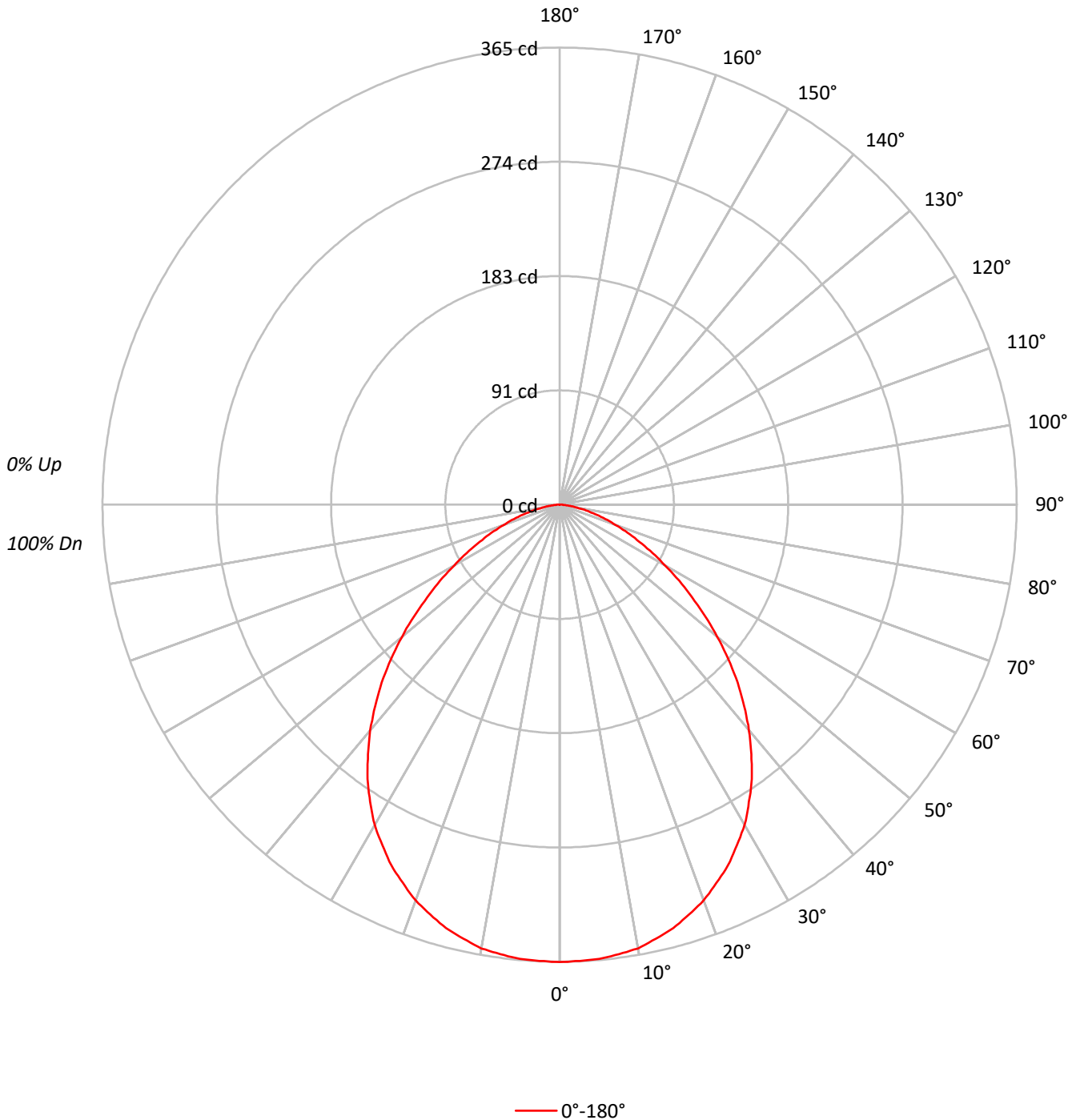
Lumens per Lamp: N/A
 Luminaire Lumens: 825.4 lumens
 Efficiency: N/A
 Efficacy: 87.8 lumens/watt
 Spacing Criteria (0/90/45): 1.2 / 1.2 / 1.27
 Luminous Opening: Circular (Dia: 0.35' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.4
 Input Voltage (V): 120
 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 |

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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 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | 87 | 87 |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 76 | 74 | 74 | 74 |
| 3 | 93 | 84 | 76 | 70 | 91 | 82 | 75 | 70 | 79 | 73 | 69 | 77 | 72 | 67 | 74 | 70 | 66 | 64 | 64 | 64 |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 60 | 71 | 65 | 60 | 69 | 63 | 59 | 67 | 62 | 58 | 56 | 56 | 56 |
| 5 | 79 | 68 | 59 | 53 | 77 | 66 | 59 | 53 | 64 | 57 | 52 | 62 | 56 | 52 | 61 | 55 | 51 | 49 | 49 | 49 |
| 6 | 74 | 61 | 53 | 47 | 72 | 60 | 52 | 47 | 59 | 52 | 46 | 57 | 51 | 46 | 55 | 50 | 45 | 44 | 44 | 44 |
| 7 | 69 | 56 | 48 | 42 | 67 | 55 | 47 | 42 | 54 | 46 | 41 | 52 | 46 | 41 | 51 | 45 | 41 | 39 | 39 | 39 |
| 8 | 64 | 51 | 43 | 38 | 62 | 50 | 43 | 37 | 49 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 37 | 35 | 35 | 35 |
| 9 | 60 | 47 | 39 | 34 | 59 | 47 | 39 | 34 | 45 | 39 | 34 | 44 | 38 | 34 | 43 | 38 | 33 | 32 | 32 | 32 |
| 10 | 56 | 44 | 36 | 31 | 55 | 43 | 36 | 31 | 42 | 35 | 31 | 41 | 35 | 31 | 40 | 35 | 31 | 29 | 29 | 29 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|-------|
| | 0° |
| 0° | 39905 |
| 5° | 39940 |
| 10° | 39925 |
| 15° | 39613 |
| 20° | 39094 |
| 25° | 38333 |
| 30° | 37270 |
| 35° | 35677 |
| 40° | 33554 |
| 45° | 31040 |
| 50° | 27938 |
| 55° | 24556 |
| 60° | 21267 |
| 65° | 18136 |
| 70° | 15203 |
| 75° | 12200 |
| 80° | 8991 |
| 85° | 5767 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 34.6 | 4.2 |
| 10°-20° | 98.7 | 12.0 |
| 20°-30° | 146.2 | 17.7 |
| 30°-40° | 166.8 | 20.2 |
| 40°-50° | 154.6 | 18.7 |
| 50°-60° | 116.1 | 14.1 |
| 60°-70° | 70.5 | 8.5 |
| 70°-80° | 31.5 | 3.8 |
| 80°-90° | 6.4 | 0.8 |
| 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° | 279.5 | 33.9 |
| 0°-40° | 446.3 | 54.1 |
| 0°-60° | 716.9 | 86.9 |
| 0°-90° | 825.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 825.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|-----|------|
| 0° | 365 | |
| 5° | 364 | 35 |
| 15° | 350 | 99 |
| 25° | 318 | 146 |
| 35° | 267 | 167 |
| 45° | 201 | 155 |
| 55° | 129 | 116 |
| 65° | 70 | 71 |
| 75° | 29 | 32 |
| 85° | 5 | 6 |
| 90° | 0 | |

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



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CANDELA DISTRIBUTION (FULL):

| | 0° |
|-----|-------|
| 0° | 365.2 |
| 5° | 364.2 |
| 10° | 359.9 |
| 15° | 350.2 |
| 20° | 336.2 |
| 25° | 318.0 |
| 30° | 295.4 |
| 35° | 267.5 |
| 40° | 235.3 |
| 45° | 200.9 |
| 50° | 164.4 |
| 55° | 128.9 |
| 60° | 97.3 |
| 65° | 70.2 |
| 70° | 47.6 |
| 75° | 28.9 |
| 80° | 14.3 |
| 85° | 4.6 |
| 90° | 0.0 |

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NVLAP Lab Code: 200050-0



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| | | | |
|------------------|--------------|-----------|-----------|
| Room Thermometer | ONSET IN0143 | 12/1/2020 | 12/1/2021 |
|------------------|--------------|-----------|-----------|

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(END OF REPORT)