

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: P601252

Luminaire Tested: **ML408LSFL95FS1E - TIR4D40FL - 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: P601252
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML408LSFL95FS1E - TIR4D40FL - TL43R2G_ TL44S2G_ 4000K
 Description: RETROFIT, 40D OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 4000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 995.8 lumens
 Efficiency: N/A
 Efficacy: 96.7 lumens/watt
 Spacing Criteria (0/90/45): 0.67 / 0.67 / 0.63
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

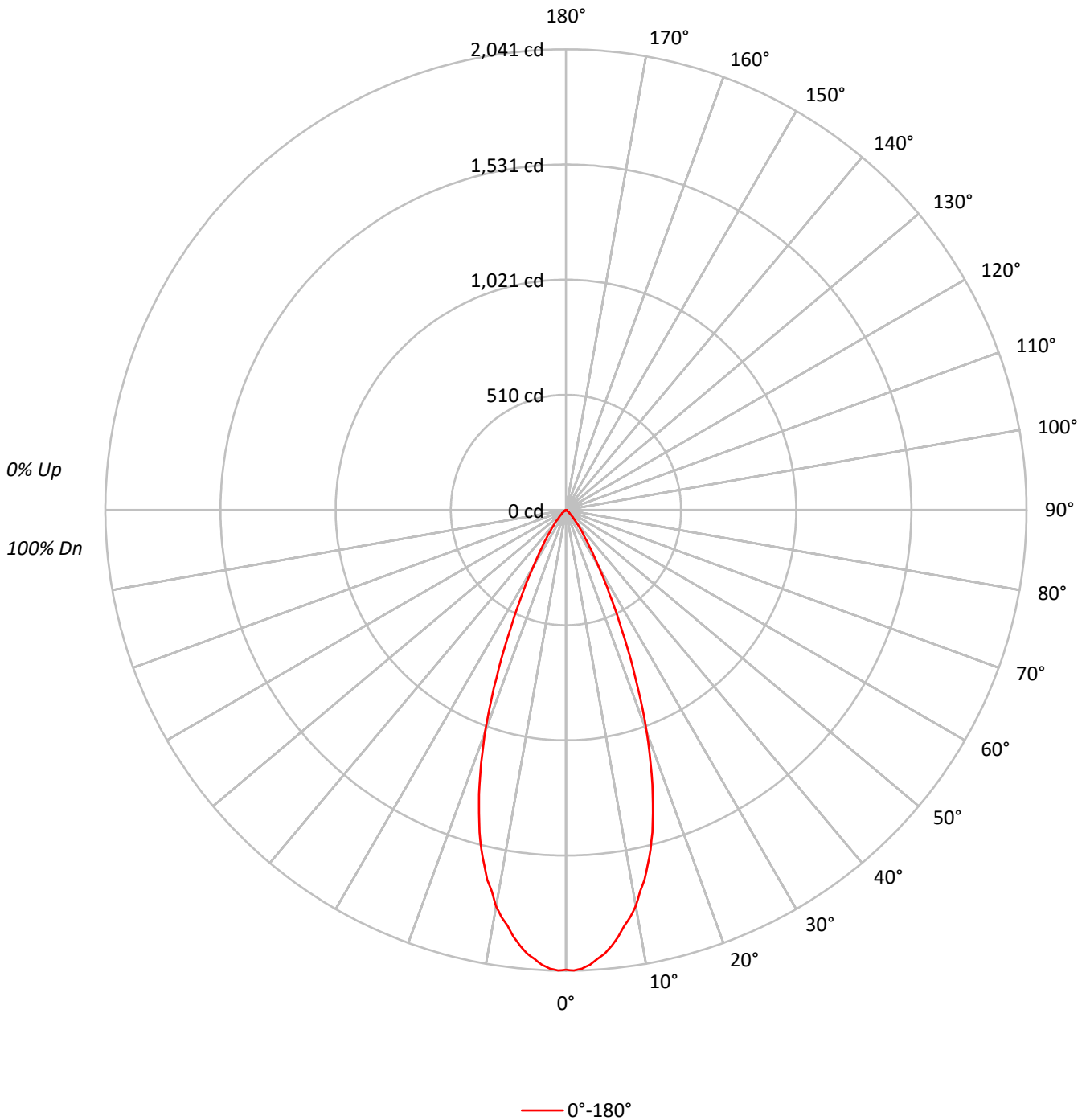
Input Watts (W): 10.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



| 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 | 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 | 109 | 105 | 102 | 99 | 107 | 104 | 100 | 98 | 100 | 98 | 95 | 97 | 95 | 93 | 95 | 93 | 92 | 90 |
| 3 | 105 | 99 | 95 | 92 | 103 | 98 | 94 | 91 | 95 | 92 | 89 | 93 | 90 | 88 | 91 | 89 | 87 | 85 |
| 4 | 101 | 94 | 89 | 86 | 99 | 93 | 89 | 85 | 91 | 87 | 84 | 89 | 86 | 83 | 87 | 85 | 82 | 81 |
| 5 | 97 | 89 | 84 | 81 | 95 | 88 | 84 | 80 | 87 | 83 | 80 | 85 | 82 | 79 | 84 | 81 | 78 | 77 |
| 6 | 93 | 85 | 80 | 76 | 91 | 84 | 79 | 76 | 83 | 79 | 75 | 82 | 78 | 75 | 80 | 77 | 75 | 73 |
| 7 | 89 | 81 | 76 | 72 | 88 | 80 | 76 | 72 | 79 | 75 | 72 | 78 | 74 | 71 | 77 | 74 | 71 | 70 |
| 8 | 86 | 77 | 72 | 69 | 85 | 77 | 72 | 69 | 76 | 72 | 68 | 75 | 71 | 68 | 74 | 71 | 68 | 67 |
| 9 | 82 | 74 | 69 | 66 | 81 | 74 | 69 | 66 | 73 | 68 | 65 | 72 | 68 | 65 | 71 | 68 | 65 | 64 |
| 10 | 79 | 71 | 66 | 63 | 78 | 71 | 66 | 63 | 70 | 66 | 63 | 69 | 65 | 62 | 69 | 65 | 62 | 61 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|--------|
| | 0° |
| 0° | 643151 |
| 5° | 625258 |
| 10° | 571502 |
| 15° | 483426 |
| 20° | 352160 |
| 25° | 204063 |
| 30° | 104717 |
| 35° | 54854 |
| 40° | 29596 |
| 45° | 15764 |
| 50° | 9285 |
| 55° | 4845 |
| 60° | 2400 |
| 65° | 1868 |
| 70° | 1200 |
| 75° | 0 |
| 80° | 0 |
| 85° | 0 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------------|--------------|--------------|
| 0°-10° | 181.9 | 18.3 |
| 10°-20° | 401.2 | 40.3 |
| 20°-30° | 275.9 | 27.7 |
| 30°-40° | 95.6 | 9.6 |
| 40°-50° | 29.7 | 3.0 |
| 50°-60° | 8.9 | 0.9 |
| 60°-70° | 2.2 | 0.2 |
| 70°-80° | 0.5 | 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° | 858.9 | 86.2 |
| 0°-40° | 954.5 | 95.9 |
| 0°-60° | 993.2 | 99.7 |
| 0°-90° | 995.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 995.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|------|------|
| 0° | 2037 | |
| 5° | 1973 | 182 |
| 15° | 1479 | 401 |
| 25° | 586 | 276 |
| 35° | 142 | 96 |
| 45° | 35 | 30 |
| 55° | 9 | 9 |
| 65° | 2 | 2 |
| 75° | 0 | 1 |
| 85° | 0 | 0 |
| 90° | 0 | |

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CANDELA DISTRIBUTION (FULL):

| 0° | |
|-------|--------|
| 0° | 2036.8 |
| 1° | 2040.6 |
| 2° | 2033.0 |
| 3° | 2017.9 |
| 4° | 1994.0 |
| 5° | 1972.6 |
| 6° | 1941.1 |
| 7° | 1904.5 |
| 8° | 1860.4 |
| 9° | 1825.2 |
| 10° | 1782.4 |
| 11° | 1721.9 |
| 12° | 1675.3 |
| 13° | 1612.3 |
| 14° | 1549.3 |
| 15° | 1478.8 |
| 17.5° | 1274.7 |
| 20° | 1048.0 |
| 22.5° | 804.9 |
| 25° | 585.7 |
| 27.5° | 415.7 |
| 30° | 287.2 |
| 32.5° | 201.5 |
| 35° | 142.3 |
| 37.5° | 102.0 |
| 40° | 71.8 |
| 42.5° | 50.4 |
| 45° | 35.3 |
| 47.5° | 25.2 |
| 50° | 18.9 |
| 52.5° | 13.9 |
| 55° | 8.8 |
| 57.5° | 6.3 |
| 60° | 3.8 |
| 62.5° | 2.5 |
| 65° | 2.5 |
| 67.5° | 1.3 |
| 70° | 1.3 |
| 72.5° | 1.3 |
| 75° | 0.0 |
| 77.5° | 0.0 |
| 80° | 0.0 |
| 82.5° | 0.0 |
| 85° | 0.0 |
| 87.5° | 0.0 |

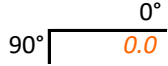
Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269


NVLAP Lab Code: 200050-0



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CANDELA DISTRIBUTION (continued):



(END OF REPORT)