

Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P677515

Luminaire Tested: ML406FL9FS1E-TL40R2GMW-3000K

Issue Date: 4/25/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P677515  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2304-979-1)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 4/25/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML406FL9FS1E-TL40R2GMW-3000K  
Description: RETROFIT, CONICAL LENS TRIM  
Light Source: (1) SELECTABLE LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

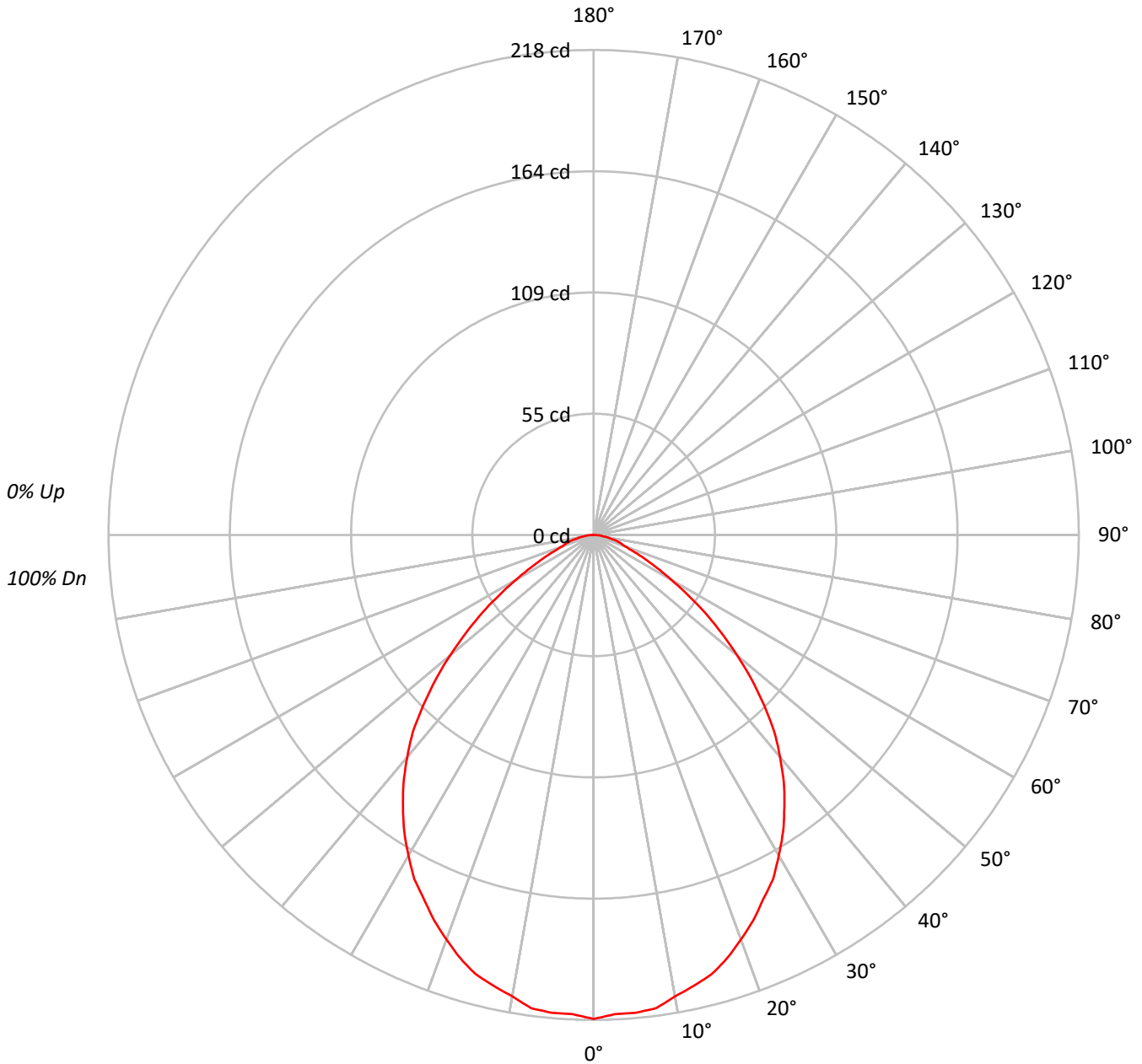
Lumens per Lamp: N/A  
Luminaire Lumens: 432.0 lumens  
Efficiency: N/A  
Efficacy: 52.1 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.23  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 8.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: 24 FT



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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   | 111 | 107 | 103 | 100 | 108 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 93  | 92  | 90  | 88  |    |    |
| 2   | 103 | 96  | 90  | 85  | 100 | 94  | 89  | 84  | 90  | 86  | 82  | 87  | 84  | 80  | 84  | 81  | 79  | 77  |    |    |
| 3   | 95  | 86  | 79  | 73  | 92  | 84  | 78  | 73  | 81  | 76  | 71  | 79  | 74  | 70  | 76  | 72  | 69  | 67  |    |    |
| 4   | 88  | 77  | 70  | 64  | 86  | 76  | 69  | 63  | 74  | 67  | 62  | 71  | 66  | 62  | 69  | 65  | 61  | 59  |    |    |
| 5   | 81  | 70  | 62  | 56  | 79  | 69  | 61  | 56  | 67  | 60  | 55  | 65  | 59  | 55  | 63  | 58  | 54  | 52  |    |    |
| 6   | 76  | 64  | 56  | 50  | 74  | 63  | 55  | 50  | 61  | 54  | 49  | 59  | 53  | 49  | 58  | 53  | 48  | 47  |    |    |
| 7   | 70  | 58  | 50  | 45  | 69  | 57  | 50  | 45  | 56  | 49  | 44  | 55  | 48  | 44  | 53  | 48  | 44  | 42  |    |    |
| 8   | 66  | 53  | 46  | 40  | 64  | 53  | 45  | 40  | 52  | 45  | 40  | 50  | 44  | 40  | 49  | 44  | 40  | 38  |    |    |
| 9   | 62  | 49  | 42  | 37  | 60  | 49  | 42  | 37  | 48  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 36  | 34  |    |    |
| 10  | 58  | 46  | 38  | 34  | 57  | 45  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 43  | 37  | 33  | 31  |    |    |

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

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 26840 |
| 5°  | 26695 |
| 10° | 26377 |
| 15° | 26114 |
| 20° | 25399 |
| 25° | 24565 |
| 30° | 23700 |
| 35° | 22496 |
| 40° | 20980 |
| 45° | 18892 |
| 50° | 16157 |
| 55° | 13161 |
| 60° | 9892  |
| 65° | 7326  |
| 70° | 5410  |
| 75° | 5242  |
| 80° | 4262  |
| 85° | 4246  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 18892 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 20.4   | 4.7       |
| 10°-20°   | 57.4   | 13.3      |
| 20°-30°   | 83.2   | 19.3      |
| 30°-40°   | 93.2   | 21.6      |
| 40°-50°   | 83.2   | 19.3      |
| 50°-60°   | 54.7   | 12.7      |
| 60°-70°   | 25.6   | 5.9       |
| 70°-80°   | 11.2   | 2.6       |
| 80°-90°   | 3.0    | 0.7       |
| 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°    | 161.1  | 37.3      |
| 0°-40°    | 254.4  | 58.9      |
| 0°-60°    | 392.2  | 90.8      |
| 0°-90°    | 432.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 432.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 218 |      |
| 5°  | 216 | 20   |
| 15° | 204 | 57   |
| 25° | 180 | 83   |
| 35° | 149 | 93   |
| 45° | 108 | 83   |
| 55° | 61  | 55   |
| 65° | 25  | 26   |
| 75° | 11  | 11   |
| 85° | 3   | 3    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    |
|-------|-------|
| 0°    | 217.6 |
| 2.5°  | 215.6 |
| 5°    | 215.6 |
| 7.5°  | 214.6 |
| 10°   | 210.6 |
| 12.5° | 207.6 |
| 15°   | 204.5 |
| 17.5° | 199.5 |
| 20°   | 193.5 |
| 22.5° | 187.5 |
| 25°   | 180.5 |
| 27.5° | 174.5 |
| 30°   | 166.4 |
| 32.5° | 158.4 |
| 35°   | 149.4 |
| 37.5° | 140.4 |
| 40°   | 130.3 |
| 42.5° | 120.3 |
| 45°   | 108.3 |
| 47.5° | 96.3  |
| 50°   | 84.2  |
| 52.5° | 72.2  |
| 55°   | 61.2  |
| 57.5° | 50.1  |
| 60°   | 40.1  |
| 62.5° | 32.1  |
| 65°   | 25.1  |
| 67.5° | 19.1  |
| 70°   | 15.0  |
| 72.5° | 13.0  |
| 75°   | 11.0  |
| 77.5° | 8.0   |
| 80°   | 6.0   |
| 82.5° | 4.0   |
| 85°   | 3.0   |
| 87.5° | 1.0   |
| 90°   | 0.0   |

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

Scaled Data Report



Report Generated By 670245859 / DESKTOP-T8S5UU9

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Scaled Data Report



— 0°-180°

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Scaled Data Report



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