

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P300529

Luminaire Tested: **ML4D09\_27D2WE - TIR50WFL55 - TL41RMB - TL42SMB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P300529  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1902-156-43)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: ML4D09\_27D2WE - TIR50WFL55 - TL41RMB - TL42SMB  
Description: ML4 2700K, 900LM DIM-TO-WARM, 55 DEG WFL OPTIC, WITH ROUND/SQUARE PINHOLE MATTE BLACK FLANGE  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 541.0 lumens  
Efficiency: N/A  
Efficacy: 48.3 lumens/watt  
Spacing Criteria (0/90/45): 0.73 / 0.73 / 0.73  
Luminous Opening: Circular (Dia: 0.19' x H: 0')  
CIE Type: Direct

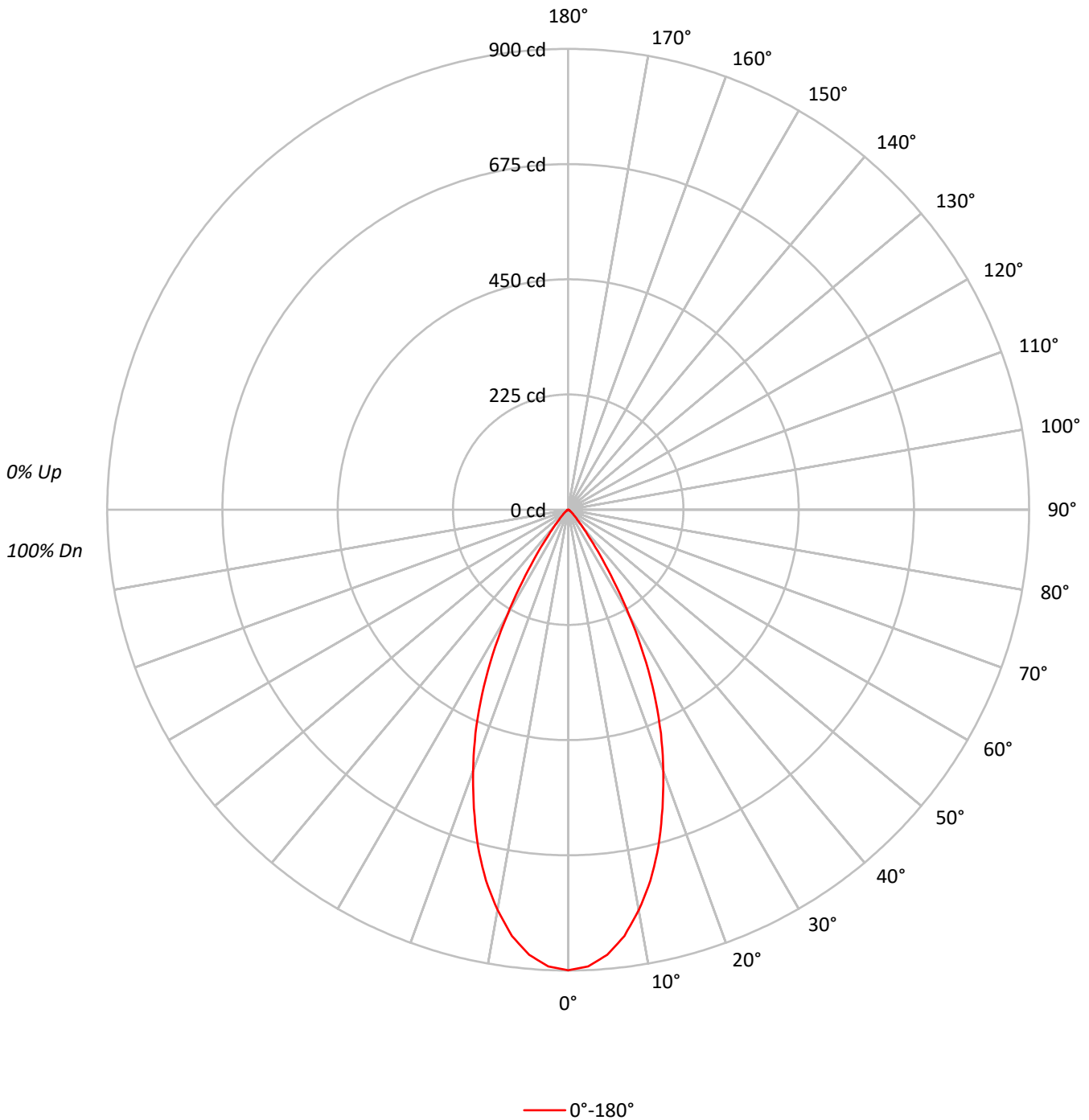
Input Watts (W): 11.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 111 | 109 | 107 | 112 | 109 | 107 | 105 | 105 | 104 | 102 | 102 | 100 | 99  | 98  | 97  | 96  | 95  |
| 2   | 109 | 105 | 101 | 98  | 107 | 103 | 100 | 97  | 100 | 97  | 95  | 97  | 95  | 93  | 94  | 92  | 91  | 89  |
| 3   | 104 | 98  | 94  | 90  | 102 | 97  | 93  | 90  | 94  | 91  | 88  | 92  | 89  | 87  | 90  | 87  | 85  | 84  |
| 4   | 100 | 93  | 88  | 84  | 98  | 92  | 87  | 83  | 90  | 86  | 82  | 88  | 84  | 81  | 86  | 83  | 81  | 79  |
| 5   | 95  | 88  | 82  | 78  | 94  | 87  | 82  | 78  | 85  | 81  | 77  | 83  | 80  | 77  | 82  | 79  | 76  | 75  |
| 6   | 91  | 83  | 78  | 74  | 90  | 82  | 77  | 73  | 81  | 76  | 73  | 79  | 75  | 72  | 78  | 75  | 72  | 71  |
| 7   | 87  | 79  | 73  | 69  | 86  | 78  | 73  | 69  | 77  | 72  | 69  | 76  | 72  | 69  | 75  | 71  | 68  | 67  |
| 8   | 83  | 75  | 69  | 66  | 82  | 74  | 69  | 66  | 73  | 69  | 65  | 72  | 68  | 65  | 71  | 68  | 65  | 64  |
| 9   | 80  | 71  | 66  | 62  | 79  | 71  | 66  | 62  | 70  | 65  | 62  | 69  | 65  | 62  | 68  | 64  | 62  | 60  |
| 10  | 77  | 68  | 63  | 59  | 76  | 68  | 63  | 59  | 67  | 62  | 59  | 66  | 62  | 59  | 65  | 61  | 59  | 57  |

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

|     |        |
|-----|--------|
|     | 0°     |
| 0°  | 350693 |
| 5°  | 341467 |
| 10° | 314183 |
| 15° | 274720 |
| 20° | 225181 |
| 25° | 171107 |
| 30° | 107538 |
| 35° | 50921  |
| 40° | 20864  |
| 45° | 9924   |
| 50° | 6065   |
| 55° | 3398   |
| 60° | 1559   |
| 65° | 922    |
| 70° | 0      |
| 75° | 0      |
| 80° | 0      |
| 85° | 0      |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 80.8   | 14.9      |
| 10°-20°   | 187.8  | 34.7      |
| 20°-30°   | 178.7  | 33.0      |
| 30°-40°   | 72.6   | 13.4      |
| 40°-50°   | 15.7   | 2.9       |
| 50°-60°   | 4.6    | 0.9       |
| 60°-70°   | 0.7    | 0.1       |
| 70°-80°   | 0.0    | 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°    | 447.4  | 82.7      |
| 0°-40°    | 520.0  | 96.1      |
| 0°-60°    | 540.3  | 99.9      |
| 0°-90°    | 541.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 541.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 900 |      |
| 5°  | 873 | 81   |
| 15° | 681 | 188  |
| 25° | 398 | 179  |
| 35° | 107 | 73   |
| 45° | 18  | 16   |
| 55° | 5   | 5    |
| 65° | 1   | 1    |
| 75° | 0   | 0    |
| 85° | 0   | 0    |
| 90° | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    |
|-------|-------|
| 0°    | 899.6 |
| 2.5°  | 892.6 |
| 5°    | 872.6 |
| 7.5°  | 839.6 |
| 10°   | 793.7 |
| 12.5° | 741.7 |
| 15°   | 680.7 |
| 17.5° | 611.7 |
| 20°   | 542.8 |
| 22.5° | 472.8 |
| 25°   | 397.8 |
| 27.5° | 318.9 |
| 30°   | 238.9 |
| 32.5° | 164.9 |
| 35°   | 107.0 |
| 37.5° | 66.0  |
| 40°   | 41.0  |
| 42.5° | 26.0  |
| 45°   | 18.0  |
| 47.5° | 13.0  |
| 50°   | 10.0  |
| 52.5° | 7.0   |
| 55°   | 5.0   |
| 57.5° | 3.0   |
| 60°   | 2.0   |
| 62.5° | 1.0   |
| 65°   | 1.0   |
| 67.5° | 0.0   |
| 70°   | 0.0   |
| 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)