

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: P300484

Luminaire Tested: **ML4D09\_27D2WE - TIR45SP15 - TL41RMB - TL42SMB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P300484  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1902-156-64)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: ML4D09\_27D2WE - TIR45SP15 - TL41RMB - TL42SMB  
Description: ML4 2700K, 900LM DIM-TO-WARM, 15 DEG SP 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: 486.0 lumens  
Efficiency: N/A  
Efficacy: 43.4 lumens/watt  
Spacing Criteria (0/90/45): 0.32 / 0.32 / 0.32  
Luminous Opening: Circular (Dia: 0.19' x H: 0')  
CIE Type: Direct

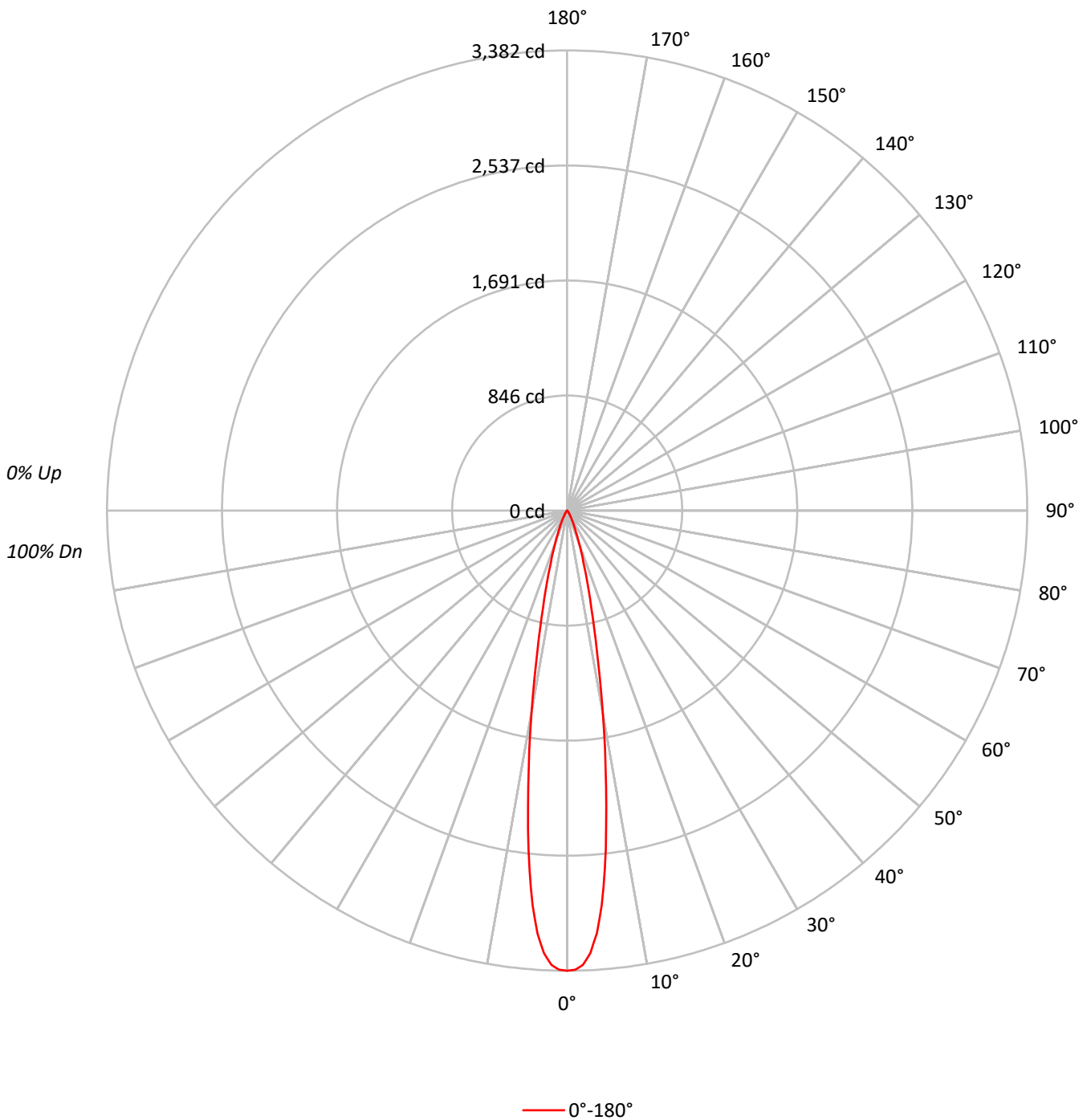
Input Watts (W): 11.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P300484

CATALOG NUMBER: ML4D09\_27D2WE - TIR45SP15 - TL41RMB - TL42SMB

### Luminous Intensity Polar Plot





TEST NUMBER: P300484

CATALOG NUMBER: ML4D09\_27D2WE - TIR45SP15 - TL41RMB - TL42SMB

**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   | 115 | 113 | 112 | 110 | 113 | 111 | 110 | 108 | 107 | 106 | 105 |  | 104 | 103 | 102 |  | 100 | 100 | 99  | 97  |
| 2   | 112 | 109 | 106 | 103 | 110 | 107 | 104 | 102 | 104 | 102 | 100 |  | 101 | 99  | 98  |  | 98  | 97  | 96  | 95  |
| 3   | 109 | 104 | 101 | 98  | 107 | 103 | 100 | 98  | 101 | 98  | 96  |  | 98  | 96  | 95  |  | 96  | 95  | 93  | 92  |
| 4   | 106 | 101 | 97  | 94  | 104 | 100 | 97  | 94  | 98  | 95  | 93  |  | 96  | 94  | 92  |  | 94  | 92  | 91  | 90  |
| 5   | 103 | 98  | 94  | 91  | 102 | 97  | 93  | 91  | 95  | 92  | 90  |  | 94  | 91  | 89  |  | 92  | 90  | 89  | 88  |
| 6   | 101 | 95  | 91  | 88  | 99  | 94  | 91  | 88  | 93  | 90  | 88  |  | 92  | 89  | 87  |  | 91  | 88  | 86  | 85  |
| 7   | 98  | 92  | 89  | 86  | 97  | 92  | 88  | 86  | 91  | 88  | 85  |  | 90  | 87  | 85  |  | 89  | 86  | 84  | 84  |
| 8   | 96  | 90  | 86  | 84  | 95  | 90  | 86  | 84  | 89  | 85  | 83  |  | 88  | 85  | 83  |  | 87  | 85  | 83  | 82  |
| 9   | 94  | 88  | 84  | 82  | 93  | 87  | 84  | 82  | 87  | 84  | 81  |  | 86  | 83  | 81  |  | 85  | 83  | 81  | 80  |
| 10  | 92  | 86  | 82  | 80  | 91  | 86  | 82  | 80  | 85  | 82  | 80  |  | 84  | 81  | 79  |  | 84  | 81  | 79  | 78  |

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

|     |         |
|-----|---------|
|     | 0°      |
| 0°  | 1318452 |
| 5°  | 1139645 |
| 10° | 595392  |
| 15° | 247639  |
| 20° | 106575  |
| 25° | 48132   |
| 30° | 19806   |
| 35° | 9994    |
| 40° | 5598    |
| 45° | 2757    |
| 50° | 1213    |
| 55° | 680     |
| 60° | 780     |
| 65° | 0       |
| 70° | 0       |
| 75° | 0       |
| 80° | 0       |
| 85° | 0       |



TEST NUMBER: P300484

CATALOG NUMBER: ML4D09\_27D2WE - TIR45SP15 - TL41RMB - TL42SMB

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 228.4  | 47.0      |
| 10°-20°   | 182.2  | 37.5      |
| 20°-30°   | 55.2   | 11.4      |
| 30°-40°   | 14.5   | 3.0       |
| 40°-50°   | 4.1    | 0.8       |
| 50°-60°   | 1.2    | 0.3       |
| 60°-70°   | 0.4    | 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°    | 465.9  | 95.9      |
| 0°-40°    | 480.4  | 98.8      |
| 0°-60°    | 485.7  | 99.9      |
| 0°-90°    | 486.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 486.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | Flux |
|-----|------|------|
| 0°  | 3382 |      |
| 5°  | 2912 | 228  |
| 15° | 614  | 182  |
| 25° | 112  | 55   |
| 35° | 21   | 14   |
| 45° | 5    | 4    |
| 55° | 1    | 1    |
| 65° | 0    | 0    |
| 75° | 0    | 0    |
| 85° | 0    | 0    |
| 90° | 0    |      |



TEST NUMBER: P300484

CATALOG NUMBER: ML4D09\_27D2WE - TIR45SP15 - TL41RMB - TL42SMB

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     |
|-------|--------|
| 0°    | 3382.1 |
| 1°    | 3375.1 |
| 2°    | 3341.1 |
| 3°    | 3257.1 |
| 4°    | 3115.2 |
| 5°    | 2912.3 |
| 6°    | 2650.5 |
| 7°    | 2355.6 |
| 8°    | 2049.8 |
| 9°    | 1776.0 |
| 10°   | 1504.1 |
| 11°   | 1260.3 |
| 12°   | 1049.4 |
| 13°   | 878.5  |
| 14°   | 732.6  |
| 15°   | 613.6  |
| 17.5° | 394.8  |
| 20°   | 256.9  |
| 22.5° | 167.9  |
| 25°   | 111.9  |
| 27.5° | 71.0   |
| 30°   | 44.0   |
| 32.5° | 30.0   |
| 35°   | 21.0   |
| 37.5° | 16.0   |
| 40°   | 11.0   |
| 42.5° | 7.0    |
| 45°   | 5.0    |
| 47.5° | 3.0    |
| 50°   | 2.0    |
| 52.5° | 2.0    |
| 55°   | 1.0    |
| 57.5° | 1.0    |
| 60°   | 1.0    |
| 62.5° | 1.0    |
| 65°   | 0.0    |
| 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    |



TEST NUMBER: P300484

CATALOG NUMBER: ML4D09\_27D2WE - TIR45SP15 - TL41RMB - TL42SMB

CANDELA DISTRIBUTION (continued):

90° |  $\frac{0^\circ}{0.0}$

(END OF REPORT)