

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: P275343

Luminaire Tested: **ML4D09_940 - TIR45FL40 - TL41RMW - TL42SMW**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P275343
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1808-901-9)
Test Lab: INNOVATION CENTER(G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML4D09_940 - TIR45FL40 - TL41RMW - TL42SMW
Description: ML4 900LM 2700K, 90CRI, 40° FL OPTIC, WITH ROUND PINHOLE MATTE WHITE FLANGE
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1224.4 lumens
Efficiency: N/A
Efficacy: 108.3 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 0.65 / 0.62
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

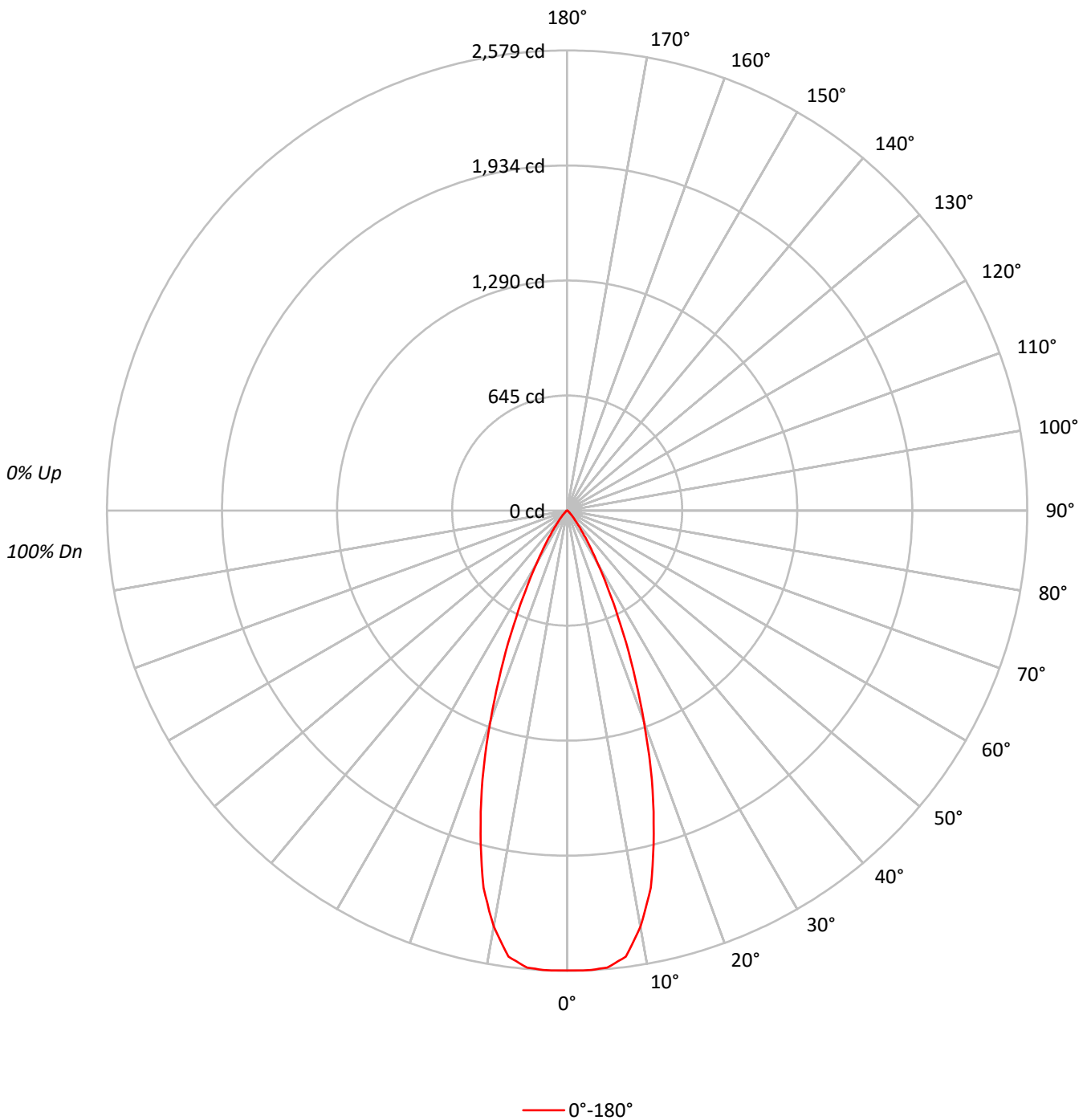
Input Watts (W): 11.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 110 | 106 | 102 | 99 | 108 | 104 | 101 | 98 | 101 | 98 | 96 | | 98 | 96 | 94 | | 95 | 93 | 92 | 90 |
| 3 | 105 | 100 | 96 | 92 | 103 | 99 | 95 | 92 | 96 | 93 | 90 | | 94 | 91 | 89 | | 91 | 89 | 87 | 86 |
| 4 | 101 | 95 | 90 | 87 | 99 | 94 | 89 | 86 | 92 | 88 | 85 | | 90 | 87 | 84 | | 88 | 85 | 83 | 82 |
| 5 | 97 | 90 | 85 | 82 | 96 | 89 | 85 | 81 | 88 | 84 | 81 | | 86 | 83 | 80 | | 85 | 82 | 79 | 78 |
| 6 | 93 | 86 | 81 | 77 | 92 | 85 | 81 | 77 | 84 | 80 | 77 | | 83 | 79 | 76 | | 81 | 78 | 76 | 74 |
| 7 | 90 | 82 | 77 | 74 | 89 | 82 | 77 | 73 | 80 | 76 | 73 | | 79 | 76 | 73 | | 78 | 75 | 72 | 71 |
| 8 | 87 | 79 | 74 | 70 | 86 | 78 | 73 | 70 | 77 | 73 | 70 | | 76 | 72 | 70 | | 75 | 72 | 69 | 68 |
| 9 | 83 | 75 | 70 | 67 | 82 | 75 | 70 | 67 | 74 | 70 | 67 | | 73 | 69 | 67 | | 73 | 69 | 66 | 65 |
| 10 | 81 | 72 | 68 | 64 | 80 | 72 | 67 | 64 | 71 | 67 | 64 | | 71 | 67 | 64 | | 70 | 66 | 64 | 63 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|---------|
| | 0° |
| 0° | 1271439 |
| 5° | 1273473 |
| 10° | 1186096 |
| 15° | 957567 |
| 20° | 659192 |
| 25° | 384172 |
| 30° | 193871 |
| 35° | 91189 |
| 40° | 43281 |
| 45° | 22258 |
| 50° | 11360 |
| 55° | 6881 |
| 60° | 4539 |
| 65° | 2685 |
| 70° | 3318 |
| 75° | 0 |
| 80° | 0 |
| 85° | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 239.5 | 19.6 |
| 10°-20° | 510.0 | 41.7 |
| 20°-30° | 331.9 | 27.1 |
| 30°-40° | 104.7 | 8.6 |
| 40°-50° | 27.0 | 2.2 |
| 50°-60° | 7.7 | 0.6 |
| 60°-70° | 2.8 | 0.2 |
| 70°-80° | 0.6 | 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° | 1081.5 | 88.3 |
| 0°-40° | 1186.2 | 96.9 |
| 0°-60° | 1220.9 | 99.7 |
| 0°-90° | 1224.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1224.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|------|------|
| 0° | 2577 | |
| 5° | 2571 | 240 |
| 15° | 1875 | 510 |
| 25° | 706 | 332 |
| 35° | 151 | 105 |
| 45° | 32 | 27 |
| 55° | 8 | 8 |
| 65° | 2 | 3 |
| 75° | 0 | 1 |
| 85° | 0 | 0 |
| 90° | 0 | |



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CANDELA DISTRIBUTION (FULL):

| 0° | |
|-------|--------|
| 0° | 2577.0 |
| 2.5° | 2579.2 |
| 5° | 2571.3 |
| 7.5° | 2521.2 |
| 10° | 2367.5 |
| 12.5° | 2164.9 |
| 15° | 1874.7 |
| 17.5° | 1577.6 |
| 20° | 1255.5 |
| 22.5° | 968.6 |
| 25° | 705.7 |
| 27.5° | 504.2 |
| 30° | 340.3 |
| 32.5° | 231.1 |
| 35° | 151.4 |
| 37.5° | 101.3 |
| 40° | 67.2 |
| 42.5° | 46.7 |
| 45° | 31.9 |
| 47.5° | 22.8 |
| 50° | 14.8 |
| 52.5° | 11.4 |
| 55° | 8.0 |
| 57.5° | 5.7 |
| 60° | 4.6 |
| 62.5° | 3.4 |
| 65° | 2.3 |
| 67.5° | 2.3 |
| 70° | 2.3 |
| 72.5° | 1.1 |
| 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)