

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 COMMERCIAL

Report Number: P434681

Luminaire Tested: **HCM4R15935ED010MMS**

Issue Date: 11/24/2020

Test Information

Test Method: LM-41-14
Report Number: P434681
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2008-933-1)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 11/24/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HCM4R15935ED010MMS
Description: HALO COMMERCIAL 4INCH ADJUSTABLE MULTIPLE, 15 DEG REFLECTOR OPTIC
Light Source: HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5014.1 lumens
Efficiency: N/A
Efficacy: 92.7 lumens/watt
Spacing Criteria (0/90/45): 0.25 / 0.25 / 0.25
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

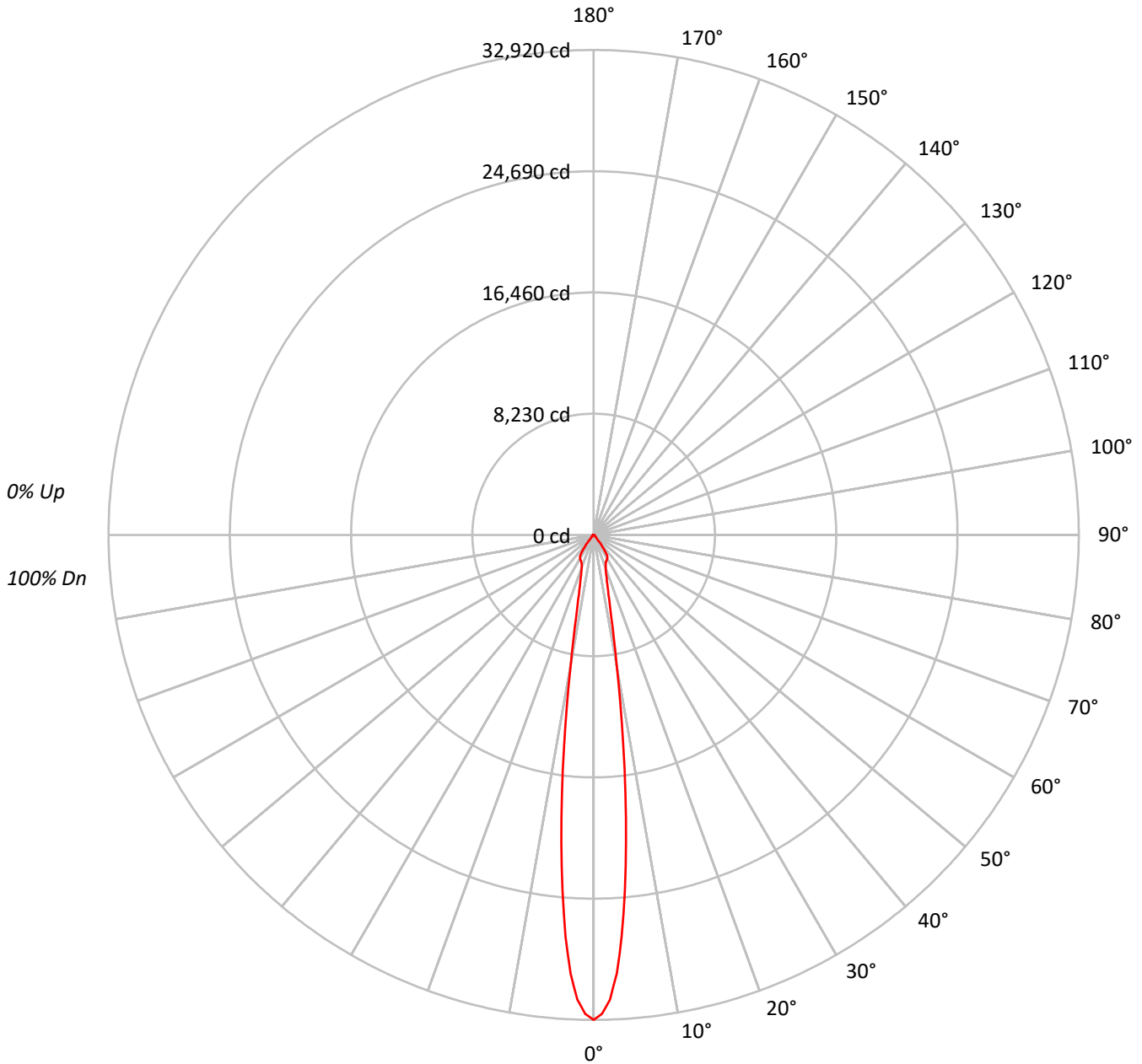
Input Watts (W): 54.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 50 | 30 | 10 |
| 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 | 93 | 91 | 89 | | |
| 3 | 105 | 99 | 95 | 91 | 103 | 98 | 94 | 90 | 95 | 92 | 89 | 93 | 90 | 88 | 91 | 88 | 86 | 85 | | |
| 4 | 101 | 94 | 89 | 86 | 99 | 93 | 88 | 85 | 91 | 87 | 84 | 89 | 86 | 83 | 87 | 84 | 82 | 81 | | |
| 5 | 97 | 90 | 85 | 81 | 95 | 89 | 84 | 81 | 87 | 83 | 80 | 85 | 82 | 79 | 84 | 81 | 79 | 77 | | |
| 6 | 93 | 86 | 81 | 77 | 92 | 85 | 80 | 77 | 83 | 79 | 76 | 82 | 79 | 76 | 81 | 78 | 75 | 74 | | |
| 7 | 90 | 82 | 77 | 74 | 89 | 82 | 77 | 73 | 80 | 76 | 73 | 79 | 75 | 73 | 78 | 75 | 72 | 71 | | |
| 8 | 87 | 79 | 74 | 71 | 86 | 78 | 74 | 70 | 77 | 73 | 70 | 77 | 73 | 70 | 76 | 72 | 70 | 68 | | |
| 9 | 84 | 76 | 71 | 68 | 83 | 76 | 71 | 68 | 75 | 71 | 68 | 74 | 70 | 67 | 73 | 70 | 67 | 66 | | |
| 10 | 81 | 74 | 69 | 66 | 81 | 73 | 69 | 66 | 72 | 68 | 65 | 72 | 68 | 65 | 71 | 68 | 65 | 64 | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° |
|-----|----------|
| 0° | 16242252 |
| 5° | 12016743 |
| 10° | 4531862 |
| 15° | 1862881 |
| 20° | 1249866 |
| 25° | 1086645 |
| 30° | 1052588 |
| 35° | 820822 |
| 40° | 275658 |
| 45° | 134106 |
| 50° | 117360 |
| 55° | 82663 |
| 60° | 73316 |
| 65° | 71330 |
| 70° | 75589 |
| 75° | 99889 |
| 80° | 124163 |
| 85° | 24908 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 1787.1 | 35.6 |
| 10°-20° | 1123.9 | 22.4 |
| 20°-30° | 935.9 | 18.7 |
| 30°-40° | 781.4 | 15.6 |
| 40°-50° | 165.9 | 3.3 |
| 50°-60° | 91.4 | 1.8 |
| 60°-70° | 61.1 | 1.2 |
| 70°-80° | 53.1 | 1.1 |
| 80°-90° | 14.2 | 0.3 |
| 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° | 3846.9 | 76.7 |
| 0°-40° | 4628.3 | 92.3 |
| 0°-60° | 4885.6 | 97.4 |
| 0°-90° | 5014.1 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5014.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|-------|------|
| 0° | 32920 | |
| 5° | 24263 | ### |
| 15° | 3647 | 1124 |
| 25° | 1996 | 936 |
| 35° | 1363 | 781 |
| 45° | 192 | 166 |
| 55° | 96 | 91 |
| 65° | 61 | 61 |
| 75° | 52 | 53 |
| 85° | 4 | 14 |
| 90° | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° |
|-------|---------|
| 0° | 32920.4 |
| 1° | 32522.9 |
| 2° | 31557.6 |
| 3° | 29832.3 |
| 4° | 27320.8 |
| 5° | 24263.3 |
| 6° | 20991.8 |
| 7° | 17663.5 |
| 8° | 14409.5 |
| 9° | 11531.1 |
| 10° | 9045.8 |
| 11° | 7132.7 |
| 12° | 5778.6 |
| 13° | 4830.8 |
| 14° | 4153.8 |
| 15° | 3647.1 |
| 16° | 3258.4 |
| 17° | 2957.0 |
| 18° | 2721.2 |
| 19° | 2537.7 |
| 20° | 2380.5 |
| 22.5° | 2114.0 |
| 25° | 1996.1 |
| 26° | 1961.2 |
| 27° | 1935.0 |
| 28° | 1908.7 |
| 29° | 1878.2 |
| 30° | 1847.6 |
| 32.5° | 1725.3 |
| 35° | 1362.8 |
| 37.5° | 869.2 |
| 40° | 428.0 |
| 42.5° | 205.3 |
| 45° | 192.2 |
| 47.5° | 179.1 |
| 50° | 152.9 |
| 52.5° | 117.9 |
| 55° | 96.1 |
| 57.5° | 83.0 |
| 60° | 74.3 |
| 62.5° | 65.5 |
| 65° | 61.1 |
| 67.5° | 56.8 |



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CANDELA DISTRIBUTION (continued):

| | 0° |
|-------|------|
| 75° | 52.4 |
| 77.5° | 48.0 |
| 80° | 43.7 |
| 82.5° | 26.2 |
| 85° | 4.4 |
| 87.5° | 0.0 |
| 90° | 0.0 |



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— 0°-180°







| | | |
|-------|--|------|
| 70° | | 52.4 |
| 72.5° | | 52.4 |



(END OF REPORT)