

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: P434679

Luminaire Tested: **HCM4R15930ED010MW**

Issue Date: 11/24/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P434679  
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: HCM4R15930ED010MW  
Description: HALO COMMERCIAL 4INCH ADJUSTABLE MULTIPLE, 15 DEG REFLECTOR OPTIC  
Light Source: HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4768.4 lumens  
Efficiency: N/A  
Efficacy: 88.1 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

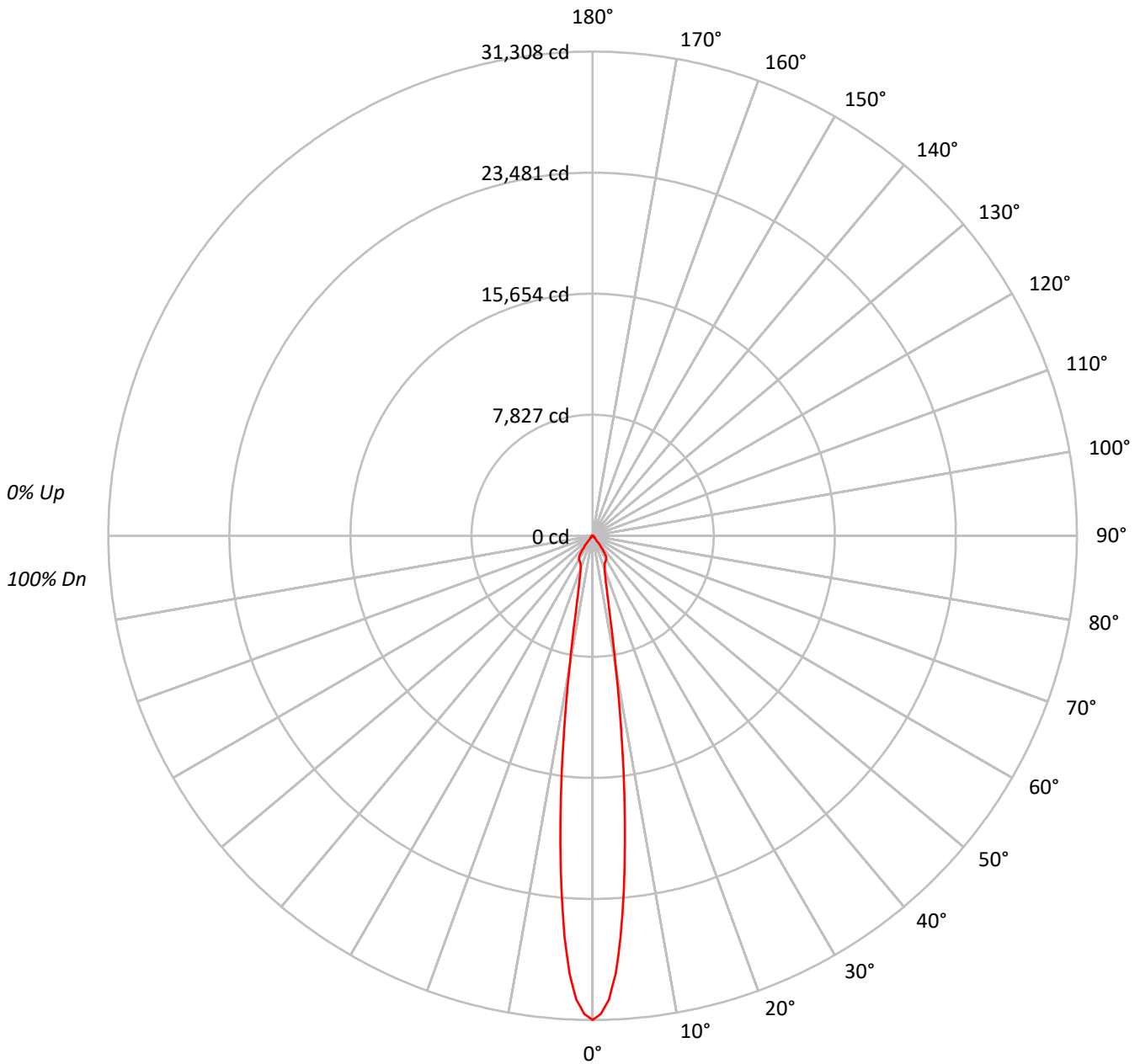
Input Watts (W): 54.1  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    | 100 |
| 1   | 114 | 111 | 109 | 107 | 112 | 109 | 107 | 105 | 105 | 104 | 102 | 102 | 100 | 99  | 98  | 97  | 96  | 95  |    |    | 95  |
| 2   | 109 | 105 | 101 | 98  | 107 | 103 | 100 | 97  | 100 | 97  | 95  | 97  | 95  | 93  | 94  | 93  | 91  | 89  |    |    | 89  |
| 3   | 105 | 99  | 95  | 91  | 103 | 98  | 94  | 90  | 95  | 92  | 89  | 93  | 90  | 88  | 91  | 88  | 86  | 85  |    |    | 85  |
| 4   | 101 | 94  | 89  | 86  | 99  | 93  | 88  | 85  | 91  | 87  | 84  | 89  | 86  | 83  | 87  | 84  | 82  | 81  |    |    | 81  |
| 5   | 97  | 90  | 85  | 81  | 95  | 89  | 84  | 81  | 87  | 83  | 80  | 85  | 82  | 79  | 84  | 81  | 79  | 77  |    |    | 77  |
| 6   | 93  | 86  | 81  | 77  | 92  | 85  | 80  | 77  | 83  | 79  | 76  | 82  | 79  | 76  | 81  | 78  | 75  | 74  |    |    | 74  |
| 7   | 90  | 82  | 77  | 74  | 89  | 82  | 77  | 73  | 80  | 76  | 73  | 79  | 75  | 73  | 78  | 75  | 72  | 71  |    |    | 71  |
| 8   | 87  | 79  | 74  | 71  | 86  | 78  | 74  | 70  | 77  | 73  | 70  | 77  | 73  | 70  | 76  | 72  | 70  | 68  |    |    | 68  |
| 9   | 84  | 76  | 71  | 68  | 83  | 76  | 71  | 68  | 75  | 71  | 68  | 74  | 70  | 67  | 73  | 70  | 67  | 66  |    |    | 66  |
| 10  | 81  | 74  | 69  | 66  | 81  | 73  | 69  | 66  | 72  | 68  | 65  | 72  | 68  | 65  | 71  | 68  | 65  | 64  |    |    | 64  |

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

|     | 0°       |
|-----|----------|
| 0°  | 15446530 |
| 5°  | 11428072 |
| 10° | 4309823  |
| 15° | 1771655  |
| 20° | 1188646  |
| 25° | 1033404  |
| 30° | 1001030  |
| 35° | 780588   |
| 40° | 262197   |
| 45° | 127548   |
| 50° | 111604   |
| 55° | 78621    |
| 60° | 69665    |
| 65° | 67945    |
| 70° | 71839    |
| 75° | 94932    |
| 80° | 117912   |
| 85° | 23776    |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 1699.5 | 35.6      |
| 10°-20°   | 1068.9 | 22.4      |
| 20°-30°   | 890.0  | 18.7      |
| 30°-40°   | 743.1  | 15.6      |
| 40°-50°   | 157.8  | 3.3       |
| 50°-60°   | 87.0   | 1.8       |
| 60°-70°   | 58.1   | 1.2       |
| 70°-80°   | 50.5   | 1.1       |
| 80°-90°   | 13.5   | 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°    | 3658.4 | 76.7      |
| 0°-40°    | 4401.6 | 92.3      |
| 0°-60°    | 4646.3 | 97.4      |
| 0°-90°    | 4768.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4768.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°    | Flux |
|-----|-------|------|
| 0°  | 31308 |      |
| 5°  | 23075 | ###  |
| 15° | 3468  | 1069 |
| 25° | 1898  | 890  |
| 35° | 1296  | 743  |
| 45° | 183   | 158  |
| 55° | 91    | 87   |
| 65° | 58    | 58   |
| 75° | 50    | 50   |
| 85° | 4     | 14   |
| 90° | 0     |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      |
|-------|---------|
| 0°    | 31307.6 |
| 1°    | 30929.6 |
| 2°    | 30011.6 |
| 3°    | 28370.9 |
| 4°    | 25982.4 |
| 5°    | 23074.7 |
| 6°    | 19963.4 |
| 7°    | 16798.2 |
| 8°    | 13703.6 |
| 9°    | 10966.2 |
| 10°   | 8602.6  |
| 11°   | 6783.3  |
| 12°   | 5495.6  |
| 13°   | 4594.2  |
| 14°   | 3950.3  |
| 15°   | 3468.5  |
| 16°   | 3098.8  |
| 17°   | 2812.2  |
| 18°   | 2587.9  |
| 19°   | 2413.4  |
| 20°   | 2263.9  |
| 22.5° | 2010.5  |
| 25°   | 1898.3  |
| 26°   | 1865.1  |
| 27°   | 1840.2  |
| 28°   | 1815.2  |
| 29°   | 1786.2  |
| 30°   | 1757.1  |
| 32.5° | 1640.8  |
| 35°   | 1296.0  |
| 37.5° | 826.6   |
| 40°   | 407.1   |
| 42.5° | 195.2   |
| 45°   | 182.8   |
| 47.5° | 170.3   |
| 50°   | 145.4   |
| 52.5° | 112.2   |
| 55°   | 91.4    |
| 57.5° | 78.9    |
| 60°   | 70.6    |
| 62.5° | 62.3    |
| 65°   | 58.2    |
| 67.5° | 54.0    |



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**CANDELA DISTRIBUTION (continued):**

|       | 0°   |
|-------|------|
| 75°   | 49.8 |
| 77.5° | 45.7 |
| 80°   | 41.5 |
| 82.5° | 24.9 |
| 85°   | 4.2  |
| 87.5° | 0.0  |
| 90°   | 0.0  |



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— 0°-180°







|       |  |      |
|-------|--|------|
| 70°   |  | 49.8 |
| 72.5° |  | 49.8 |



(END OF REPORT)