

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: P434672

Luminaire Tested: **HCM3R40940ED010MMS**

Issue Date: 11/24/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P434672  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2008-933-3)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 11/24/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HCM3R40940ED010MMS  
Description: HALO COMMERCIAL 4INCH ADJUSTABLE MULTIPLE, 40 DEG REFLECTOR OPTIC  
Light Source: HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3870.6 lumens  
Efficiency: N/A  
Efficacy: 94.6 lumens/watt  
Spacing Criteria (0/90/45): 0.72 / 0.72 / 0.76  
Luminous Opening: Circular (Dia: 0.17' x H: 0')  
CIE Type: Direct

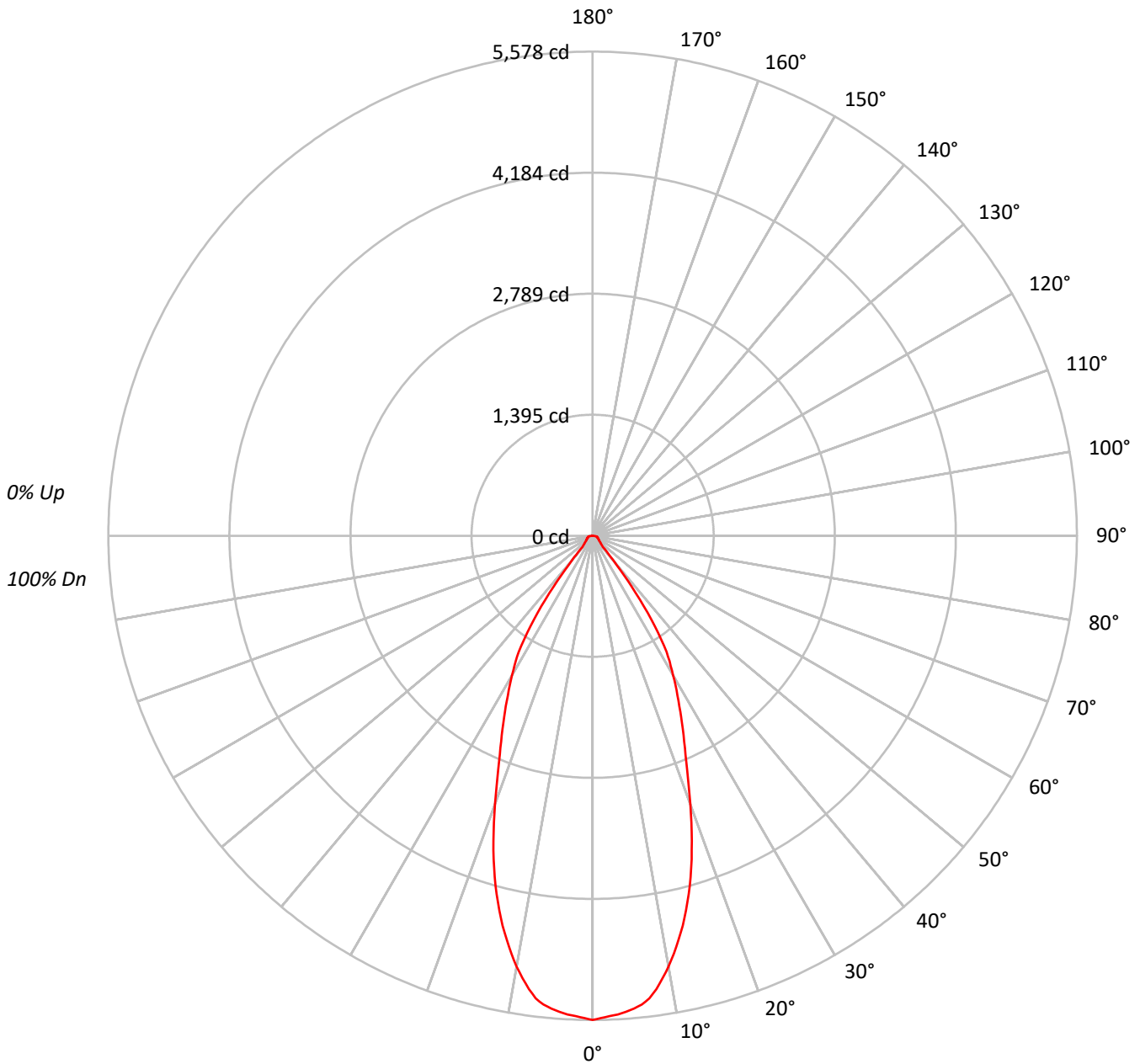
Input Watts (W): 40.9  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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   | 113 | 110 | 108 | 105 | 111 | 108 | 106 | 104 | 104 | 102 | 100 | 100 | 99  | 97  | 97  | 96  | 95  | 93  |    |    |
| 2   | 107 | 102 | 98  | 95  | 105 | 101 | 97  | 94  | 97  | 94  | 92  | 94  | 92  | 90  | 92  | 90  | 88  | 86  |    |    |
| 3   | 102 | 95  | 90  | 86  | 100 | 94  | 89  | 86  | 91  | 88  | 84  | 89  | 86  | 83  | 87  | 84  | 82  | 80  |    |    |
| 4   | 97  | 89  | 84  | 80  | 95  | 88  | 83  | 79  | 86  | 82  | 78  | 84  | 80  | 77  | 82  | 79  | 76  | 75  |    |    |
| 5   | 92  | 84  | 78  | 74  | 91  | 83  | 78  | 73  | 81  | 76  | 73  | 80  | 75  | 72  | 78  | 74  | 72  | 70  |    |    |
| 6   | 88  | 79  | 73  | 69  | 86  | 78  | 73  | 69  | 77  | 72  | 68  | 75  | 71  | 68  | 74  | 70  | 67  | 66  |    |    |
| 7   | 84  | 75  | 69  | 65  | 82  | 74  | 68  | 64  | 73  | 68  | 64  | 72  | 67  | 64  | 70  | 66  | 63  | 62  |    |    |
| 8   | 80  | 71  | 65  | 61  | 79  | 70  | 64  | 61  | 69  | 64  | 60  | 68  | 63  | 60  | 67  | 63  | 60  | 58  |    |    |
| 9   | 76  | 67  | 61  | 57  | 75  | 66  | 61  | 57  | 66  | 61  | 57  | 65  | 60  | 57  | 64  | 60  | 57  | 55  |    |    |
| 10  | 73  | 64  | 58  | 54  | 72  | 63  | 58  | 54  | 62  | 57  | 54  | 62  | 57  | 54  | 61  | 57  | 54  | 52  |    |    |

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

|     |         |
|-----|---------|
|     | 0°      |
| 0°  | 2752170 |
| 5°  | 2707906 |
| 10° | 2524492 |
| 15° | 2183704 |
| 20° | 1725713 |
| 25° | 1335810 |
| 30° | 1057317 |
| 35° | 711925  |
| 40° | 233730  |
| 45° | 98870   |
| 50° | 84892   |
| 55° | 77330   |
| 60° | 74994   |
| 65° | 80670   |
| 70° | 84822   |
| 75° | 105417  |
| 80° | 127573  |
| 85° | 19813   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 509.1  | 13.2      |
| 10°-20°   | 1173.4 | 30.3      |
| 20°-30°   | 1133.6 | 29.3      |
| 30°-40°   | 705.3  | 18.2      |
| 40°-50°   | 128.8  | 3.3       |
| 50°-60°   | 81.1   | 2.1       |
| 60°-70°   | 67.2   | 1.7       |
| 70°-80°   | 57.5   | 1.5       |
| 80°-90°   | 14.5   | 0.4       |
| 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°    | 2816.1 | 72.8      |
| 0°-40°    | 3521.4 | 91.0      |
| 0°-60°    | 3731.3 | 96.4      |
| 0°-90°    | 3870.6 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3870.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | Flux |
|-----|------|------|
| 0°  | 5578 |      |
| 5°  | 5468 | 509  |
| 15° | 4275 | 1173 |
| 25° | 2454 | 1134 |
| 35° | 1182 | 705  |
| 45° | 142  | 129  |
| 55° | 90   | 81   |
| 65° | 69   | 67   |
| 75° | 55   | 58   |
| 85° | 4    | 15   |
| 90° | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     |
|-------|--------|
| 0°    | 5578.2 |
| 1°    | 5557.4 |
| 2°    | 5536.7 |
| 3°    | 5522.9 |
| 4°    | 5498.7 |
| 5°    | 5467.6 |
| 6°    | 5429.5 |
| 7°    | 5370.8 |
| 8°    | 5274.0 |
| 9°    | 5160.0 |
| 10°   | 5039.0 |
| 11°   | 4904.2 |
| 12°   | 4759.1 |
| 13°   | 4610.4 |
| 14°   | 4448.0 |
| 15°   | 4275.2 |
| 16°   | 4092.0 |
| 17°   | 3898.5 |
| 18°   | 3698.0 |
| 19°   | 3494.1 |
| 20°   | 3286.8 |
| 21°   | 3089.8 |
| 22°   | 2903.1 |
| 23°   | 2737.2 |
| 24°   | 2592.1 |
| 25°   | 2453.8 |
| 26°   | 2326.0 |
| 27°   | 2201.5 |
| 28°   | 2080.6 |
| 29°   | 1966.5 |
| 30°   | 1855.9 |
| 32.5° | 1586.4 |
| 35°   | 1182.0 |
| 37.5° | 736.2  |
| 40°   | 362.9  |
| 42.5° | 172.8  |
| 45°   | 141.7  |
| 47.5° | 124.4  |
| 50°   | 110.6  |
| 52.5° | 96.8   |
| 55°   | 89.9   |
| 57.5° | 82.9   |
| 60°   | 76.0   |



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**CANDELA DISTRIBUTION (continued):**

|       | 0°   |
|-------|------|
| 67.5° | 62.2 |
| 70°   | 58.8 |
| 72.5° | 58.8 |
| 75°   | 55.3 |
| 77.5° | 51.8 |
| 80°   | 44.9 |
| 82.5° | 27.6 |
| 85°   | 3.5  |
| 87.5° | 0.0  |
| 90°   | 0.0  |



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— 0°-180°







|       |  |      |
|-------|--|------|
| 62.5° |  | 72.6 |
| 65°   |  | 69.1 |



(END OF REPORT)