

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: P580990

Luminaire Tested: **HC405D010-HM40525827-41WWBB**

Issue Date: 9/9/2021

Test Information

Test Method: LM-41-14
Report Number: P580990
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-17)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 9/9/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC405D010-HM40525827-41WWBB
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 484.7 lumens
Efficiency: N/A
Efficacy: 80.8 lumens/watt
Spacing Criteria (0/90/45): 1.11 / 1.04 / 1.12
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

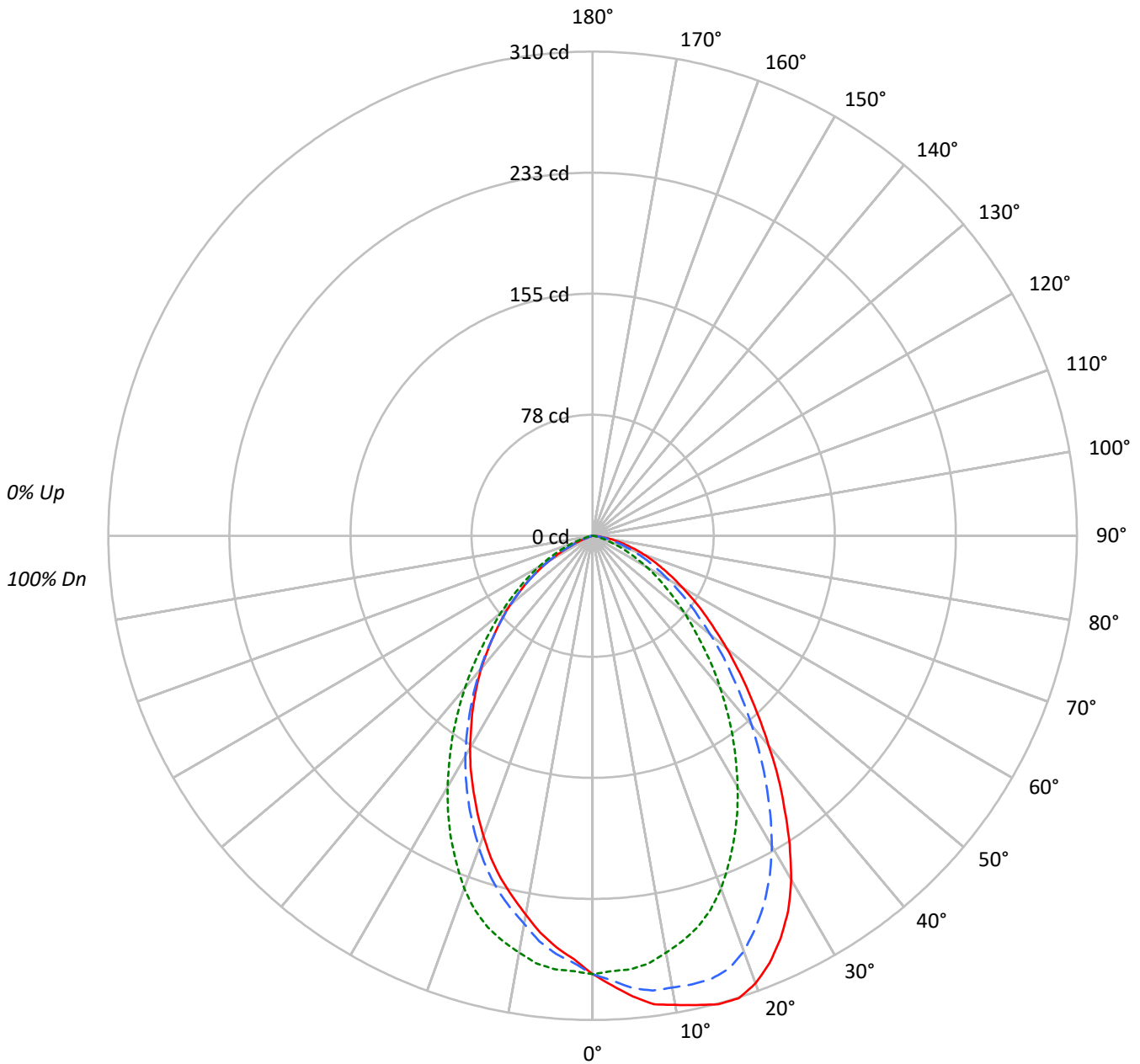
Input Watts (W): 6
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | |
| RC | 80 | | | | | | | | | 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 | | | | | | | | | | | | | | | | | | | |
| 1 | 111 | 108 | 104 | 101 | 109 | 105 | 102 | 100 | 101 | 99 | 97 | 97 | 95 | 94 | 94 | 92 | 91 | 89 | | | | | | | | | | | | | | | | | | | |
| 2 | 103 | 97 | 91 | 87 | 101 | 95 | 90 | 86 | 92 | 87 | 84 | 88 | 85 | 82 | 85 | 83 | 80 | 78 | | | | | | | | | | | | | | | | | | | |
| 3 | 96 | 87 | 80 | 75 | 94 | 86 | 79 | 74 | 83 | 78 | 73 | 80 | 76 | 72 | 78 | 74 | 71 | 69 | | | | | | | | | | | | | | | | | | | |
| 4 | 89 | 79 | 72 | 66 | 87 | 78 | 71 | 65 | 75 | 69 | 65 | 73 | 68 | 64 | 71 | 67 | 63 | 61 | | | | | | | | | | | | | | | | | | | |
| 5 | 83 | 72 | 64 | 58 | 81 | 71 | 64 | 58 | 69 | 62 | 58 | 67 | 61 | 57 | 65 | 60 | 56 | 55 | | | | | | | | | | | | | | | | | | | |
| 6 | 77 | 66 | 58 | 52 | 75 | 65 | 57 | 52 | 63 | 57 | 52 | 61 | 56 | 51 | 60 | 55 | 51 | 49 | | | | | | | | | | | | | | | | | | | |
| 7 | 72 | 60 | 53 | 47 | 71 | 59 | 52 | 47 | 58 | 51 | 47 | 57 | 51 | 46 | 55 | 50 | 46 | 44 | | | | | | | | | | | | | | | | | | | |
| 8 | 68 | 56 | 48 | 43 | 66 | 55 | 48 | 43 | 54 | 47 | 42 | 53 | 47 | 42 | 51 | 46 | 42 | 40 | | | | | | | | | | | | | | | | | | | |
| 9 | 64 | 52 | 44 | 39 | 62 | 51 | 44 | 39 | 50 | 43 | 39 | 49 | 43 | 39 | 48 | 43 | 39 | 37 | | | | | | | | | | | | | | | | | | | |
| 10 | 60 | 48 | 41 | 36 | 59 | 47 | 41 | 36 | 46 | 40 | 36 | 46 | 40 | 36 | 45 | 39 | 36 | 34 | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° |
|-----|-------|-------|-------|
| 0° | 34611 | 34611 | 34611 |
| 5° | 36662 | 34495 | 32762 |
| 10° | 38201 | 33942 | 30849 |
| 15° | 39650 | 33137 | 29000 |
| 20° | 40035 | 31542 | 26817 |
| 25° | 38720 | 29166 | 24552 |
| 30° | 36205 | 26434 | 22347 |
| 35° | 32269 | 23505 | 20087 |
| 40° | 28210 | 20433 | 17873 |
| 45° | 24578 | 17339 | 15455 |
| 50° | 21453 | 14699 | 13241 |
| 55° | 18795 | 12172 | 10731 |
| 60° | 16430 | 9868 | 7869 |
| 65° | 14330 | 7355 | 4436 |
| 70° | 12514 | 4760 | 1443 |
| 75° | 10294 | 2478 | 381 |
| 80° | 7671 | 1137 | 355 |
| 85° | 4529 | 708 | 708 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 26.5 | 5.5 |
| 10°-20° | 74.1 | 15.3 |
| 20°-30° | 102.5 | 21.1 |
| 30°-40° | 103.1 | 21.3 |
| 40°-50° | 83.1 | 17.2 |
| 50°-60° | 56.2 | 11.6 |
| 60°-70° | 28.6 | 5.9 |
| 70°-80° | 9.2 | 1.9 |
| 80°-90° | 1.4 | 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° | 203.1 | 41.9 |
| 0°-40° | 306.1 | 63.2 |
| 0°-60° | 445.5 | 91.9 |
| 0°-90° | 484.7 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 484.7 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0° | 281 | 281 | 281 | 281 | 281 | |
| 5° | 296 | 291 | 279 | 269 | 265 | 29 |
| 15° | 310 | 294 | 260 | 235 | 227 | 87 |
| 25° | 284 | 260 | 214 | 188 | 180 | 130 |
| 35° | 214 | 194 | 156 | 136 | 133 | 134 |
| 45° | 141 | 126 | 99 | 89 | 89 | 109 |
| 55° | 87 | 76 | 57 | 50 | 50 | 79 |
| 65° | 49 | 40 | 25 | 16 | 15 | 49 |
| 75° | 22 | 15 | 5 | 1 | 1 | 23 |
| 85° | 3 | 2 | 0 | 0 | 0 | 4 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0° | 280.6 | 280.6 | 280.6 | 280.6 | 280.6 | 280.6 | 280.6 | 280.6 | 280.6 |
| 2.5° | 288.2 | 286.6 | 285.0 | 282.2 | 279.0 | 275.8 | 273.8 | 272.2 | 271.4 |
| 5° | 296.1 | 294.2 | 290.6 | 284.5 | 278.6 | 273.0 | 268.7 | 265.8 | 264.6 |
| 7.5° | 302.6 | 299.8 | 293.7 | 285.3 | 276.1 | 267.4 | 261.8 | 257.9 | 256.3 |
| 10° | 305.0 | 301.7 | 293.7 | 282.6 | 271.0 | 260.3 | 252.2 | 248.2 | 246.3 |
| 12.5° | 307.7 | 304.2 | 294.2 | 280.2 | 265.8 | 253.0 | 243.9 | 238.7 | 236.6 |
| 15° | 310.5 | 305.8 | 293.7 | 276.6 | 259.5 | 244.7 | 234.7 | 229.5 | 227.1 |
| 17.5° | 310.5 | 305.0 | 290.6 | 270.6 | 251.1 | 235.5 | 224.3 | 218.4 | 216.3 |
| 20° | 305.0 | 298.5 | 283.0 | 261.0 | 240.3 | 223.5 | 212.7 | 206.8 | 204.3 |
| 22.5° | 296.1 | 289.0 | 272.2 | 249.5 | 227.5 | 211.1 | 200.3 | 194.8 | 192.4 |
| 25° | 284.5 | 277.4 | 259.8 | 236.3 | 214.3 | 197.9 | 188.0 | 182.8 | 180.4 |
| 27.5° | 271.0 | 263.0 | 245.5 | 221.9 | 200.3 | 184.8 | 175.6 | 170.8 | 168.8 |
| 30° | 254.2 | 246.6 | 229.5 | 206.3 | 185.6 | 171.3 | 162.9 | 158.4 | 156.9 |
| 32.5° | 234.7 | 228.2 | 211.6 | 190.0 | 170.5 | 157.3 | 149.7 | 146.1 | 144.5 |
| 35° | 214.3 | 208.4 | 193.6 | 173.7 | 156.1 | 143.7 | 136.5 | 134.2 | 133.4 |
| 37.5° | 195.2 | 190.0 | 175.6 | 157.3 | 141.3 | 130.5 | 124.2 | 122.6 | 121.8 |
| 40° | 175.2 | 171.6 | 158.4 | 141.6 | 126.9 | 117.4 | 112.1 | 111.0 | 111.0 |
| 42.5° | 157.3 | 153.2 | 141.6 | 126.6 | 113.4 | 103.7 | 100.2 | 99.0 | 99.4 |
| 45° | 140.9 | 136.9 | 126.1 | 112.1 | 99.4 | 91.4 | 88.6 | 88.6 | 88.6 |
| 47.5° | 125.8 | 122.1 | 112.1 | 97.8 | 87.4 | 81.0 | 78.2 | 78.2 | 78.7 |
| 50° | 111.8 | 109.4 | 98.2 | 85.8 | 76.6 | 70.6 | 68.7 | 68.2 | 69.0 |
| 52.5° | 98.6 | 95.8 | 85.8 | 74.7 | 65.8 | 61.1 | 59.0 | 58.7 | 59.0 |
| 55° | 87.4 | 84.2 | 75.5 | 64.7 | 56.6 | 51.9 | 49.5 | 49.1 | 49.9 |
| 57.5° | 76.6 | 74.2 | 65.0 | 55.5 | 47.9 | 43.1 | 41.1 | 40.3 | 40.7 |
| 60° | 66.6 | 64.2 | 55.8 | 46.6 | 40.0 | 35.1 | 32.3 | 31.6 | 31.9 |
| 62.5° | 57.4 | 55.5 | 47.4 | 38.7 | 31.9 | 27.6 | 24.7 | 22.7 | 23.5 |
| 65° | 49.1 | 47.1 | 40.0 | 31.1 | 25.2 | 20.3 | 16.3 | 14.8 | 15.2 |
| 67.5° | 41.9 | 39.5 | 32.7 | 24.7 | 18.7 | 13.6 | 9.2 | 8.4 | 8.4 |
| 70° | 34.7 | 32.3 | 26.3 | 19.2 | 13.2 | 7.2 | 4.0 | 4.0 | 4.0 |
| 72.5° | 27.9 | 26.0 | 20.3 | 14.4 | 8.4 | 3.2 | 1.6 | 1.6 | 1.6 |
| 75° | 21.6 | 20.0 | 15.2 | 10.0 | 5.2 | 1.6 | 1.2 | 0.8 | 0.8 |
| 77.5° | 16.0 | 14.4 | 10.8 | 6.8 | 3.2 | 0.8 | 0.8 | 0.8 | 0.8 |
| 80° | 10.8 | 9.5 | 7.2 | 4.0 | 1.6 | 0.5 | 0.5 | 0.5 | 0.5 |
| 82.5° | 6.4 | 5.6 | 4.0 | 2.0 | 0.8 | 0.5 | 0.5 | 0.5 | 0.5 |
| 85° | 3.2 | 2.4 | 1.6 | 0.8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 87.5° | 0.8 | 0.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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— 0°-180° - - 45°-225° - - - - 90°-270°







(END OF REPORT)