

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: P581550

Luminaire Tested: **HC407D010-HM40525940-41WWWB**

Issue Date: 9/9/2021

Test Information

Test Method: LM-41-14
Report Number: P581550
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-18)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 9/9/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC407D010-HM40525940-41WWWB
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 828.8 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.07 / 1.15
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

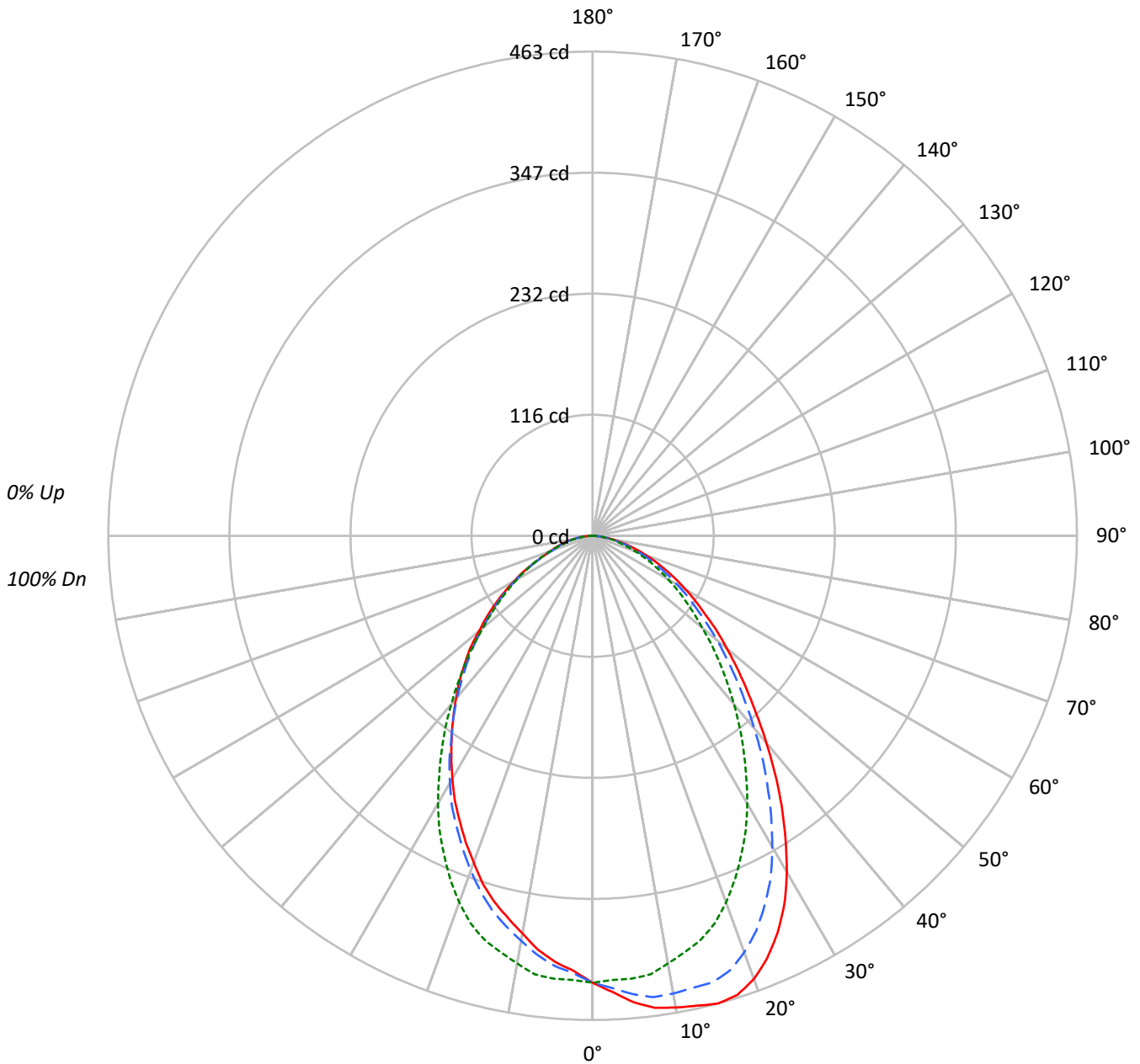
Input Watts (W): 8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|-----|---|--|---|
| RF | 20 | | | | | 20 | | | | | 20 | | | | | 20 | | | | | 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 | 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 | 110 | 106 | 103 | 99 | 108 | 104 | 101 | 98 | 100 | 97 | 95 | 96 | 94 | 92 | 92 | 91 | 89 | 87 | | | | | 87 | | | |
| 2 | 102 | 95 | 89 | 84 | 99 | 93 | 87 | 83 | 89 | 85 | 81 | 86 | 82 | 79 | 83 | 80 | 77 | 75 | | | | | 75 | | | |
| 3 | 94 | 85 | 77 | 72 | 92 | 83 | 76 | 71 | 80 | 75 | 70 | 78 | 73 | 69 | 75 | 71 | 68 | 66 | | | | | 66 | | | |
| 4 | 87 | 76 | 68 | 62 | 85 | 75 | 68 | 62 | 72 | 66 | 61 | 70 | 65 | 60 | 68 | 63 | 60 | 58 | | | | | 58 | | | |
| 5 | 81 | 69 | 61 | 55 | 79 | 68 | 60 | 55 | 66 | 59 | 54 | 64 | 58 | 53 | 62 | 57 | 53 | 51 | | | | | 51 | | | |
| 6 | 75 | 63 | 55 | 49 | 73 | 62 | 54 | 49 | 60 | 53 | 48 | 59 | 53 | 48 | 57 | 52 | 47 | 46 | | | | | 46 | | | |
| 7 | 70 | 58 | 50 | 44 | 68 | 57 | 49 | 44 | 55 | 48 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | 41 | | | |
| 8 | 65 | 53 | 45 | 40 | 64 | 52 | 45 | 40 | 51 | 44 | 39 | 50 | 44 | 39 | 49 | 43 | 39 | 37 | | | | | 37 | | | |
| 9 | 61 | 49 | 41 | 36 | 60 | 48 | 41 | 36 | 47 | 41 | 36 | 46 | 40 | 36 | 45 | 40 | 36 | 34 | | | | | 34 | | | |
| 10 | 58 | 45 | 38 | 33 | 57 | 45 | 38 | 33 | 44 | 38 | 33 | 43 | 37 | 33 | 42 | 37 | 33 | 31 | | | | | 31 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° |
|-----|-------|-------|-------|
| 0° | 52706 | 52706 | 52706 |
| 5° | 55433 | 52647 | 50666 |
| 10° | 57364 | 52016 | 48371 |
| 15° | 59136 | 51066 | 46303 |
| 20° | 59199 | 48961 | 43631 |
| 25° | 56970 | 45769 | 40924 |
| 30° | 52897 | 42116 | 38199 |
| 35° | 47417 | 37915 | 35356 |
| 40° | 41607 | 33830 | 32686 |
| 45° | 36370 | 29951 | 30160 |
| 50° | 32103 | 26212 | 27172 |
| 55° | 28322 | 23247 | 24429 |
| 60° | 25286 | 20574 | 21388 |
| 65° | 22415 | 18095 | 18095 |
| 70° | 19583 | 15435 | 15435 |
| 75° | 16775 | 13058 | 14631 |
| 80° | 13283 | 11720 | 13283 |
| 85° | 8491 | 10190 | 12454 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 40.5 | 4.9 |
| 10°-20° | 114.0 | 13.8 |
| 20°-30° | 159.7 | 19.3 |
| 30°-40° | 164.6 | 19.9 |
| 40°-50° | 140.1 | 16.9 |
| 50°-60° | 103.8 | 12.5 |
| 60°-70° | 65.2 | 7.9 |
| 70°-80° | 32.4 | 3.9 |
| 80°-90° | 8.5 | 1.0 |
| 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° | 314.3 | 37.9 |
| 0°-40° | 478.8 | 57.8 |
| 0°-60° | 722.8 | 87.2 |
| 0°-90° | 828.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 828.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0° | 427 | 427 | 427 | 427 | 427 | |
| 5° | 448 | 440 | 425 | 413 | 409 | 43 |
| 15° | 463 | 442 | 400 | 371 | 363 | 130 |
| 25° | 419 | 390 | 336 | 307 | 301 | 191 |
| 35° | 315 | 291 | 252 | 235 | 235 | 196 |
| 45° | 208 | 194 | 172 | 168 | 173 | 162 |
| 55° | 132 | 121 | 108 | 110 | 114 | 119 |
| 65° | 77 | 69 | 62 | 61 | 62 | 77 |
| 75° | 35 | 31 | 27 | 30 | 31 | 38 |
| 85° | 6 | 6 | 7 | 8 | 9 | 8 |
| 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° | 427.3 | 427.3 | 427.3 | 427.3 | 427.3 | 427.3 | 427.3 | 427.3 | 427.3 |
| 2.5° | 436.7 | 435.1 | 432.9 | 429.0 | 425.2 | 421.9 | 418.6 | 417.0 | 416.4 |
| 5° | 447.7 | 444.4 | 440.0 | 432.9 | 425.2 | 418.6 | 413.1 | 410.4 | 409.2 |
| 7.5° | 455.3 | 452.0 | 445.0 | 433.9 | 423.0 | 413.1 | 404.3 | 400.5 | 399.3 |
| 10° | 458.0 | 454.3 | 444.4 | 429.6 | 415.3 | 403.2 | 393.3 | 388.4 | 386.2 |
| 12.5° | 460.3 | 455.3 | 442.7 | 425.2 | 407.6 | 392.8 | 382.4 | 375.8 | 374.2 |
| 15° | 463.1 | 457.5 | 442.2 | 420.7 | 399.9 | 382.4 | 370.9 | 364.8 | 362.6 |
| 17.5° | 460.3 | 454.3 | 436.1 | 412.0 | 388.4 | 369.2 | 356.5 | 351.1 | 348.9 |
| 20° | 451.0 | 444.4 | 424.0 | 398.3 | 373.0 | 353.3 | 340.7 | 335.1 | 332.4 |
| 22.5° | 436.7 | 429.6 | 408.7 | 381.2 | 355.5 | 336.3 | 324.2 | 318.8 | 317.0 |
| 25° | 418.6 | 411.5 | 389.5 | 361.5 | 336.3 | 317.6 | 307.3 | 302.3 | 300.7 |
| 27.5° | 397.2 | 390.1 | 368.7 | 341.2 | 317.0 | 299.5 | 291.3 | 286.3 | 285.3 |
| 30° | 371.4 | 364.3 | 343.4 | 318.2 | 295.7 | 279.3 | 272.7 | 268.8 | 268.2 |
| 32.5° | 342.9 | 336.8 | 317.6 | 294.6 | 273.2 | 259.5 | 254.6 | 251.8 | 251.3 |
| 35° | 314.9 | 308.3 | 291.3 | 270.5 | 251.8 | 239.8 | 235.3 | 234.8 | 234.8 |
| 37.5° | 286.3 | 279.8 | 266.1 | 246.8 | 231.0 | 220.0 | 218.4 | 218.8 | 218.8 |
| 40° | 258.4 | 252.4 | 240.2 | 224.4 | 210.1 | 201.9 | 201.3 | 202.5 | 203.0 |
| 42.5° | 232.0 | 227.1 | 216.1 | 202.5 | 190.4 | 183.8 | 184.4 | 186.5 | 188.2 |
| 45° | 208.5 | 204.0 | 194.3 | 182.1 | 171.7 | 166.7 | 168.4 | 171.2 | 172.9 |
| 47.5° | 187.1 | 183.2 | 173.9 | 163.0 | 154.2 | 150.9 | 153.1 | 156.4 | 158.5 |
| 50° | 167.3 | 164.0 | 155.2 | 143.7 | 136.6 | 134.4 | 137.1 | 140.4 | 141.6 |
| 52.5° | 149.8 | 146.5 | 137.1 | 127.2 | 121.8 | 120.7 | 123.5 | 126.2 | 127.8 |
| 55° | 131.7 | 128.9 | 121.2 | 112.4 | 108.1 | 107.5 | 110.3 | 112.4 | 113.6 |
| 57.5° | 116.9 | 114.1 | 107.0 | 99.3 | 95.5 | 94.9 | 97.6 | 99.3 | 99.8 |
| 60° | 102.5 | 99.8 | 93.3 | 86.1 | 83.4 | 83.4 | 85.0 | 86.1 | 86.7 |
| 62.5° | 89.4 | 86.7 | 80.7 | 74.7 | 72.4 | 72.4 | 72.4 | 72.9 | 74.7 |
| 65° | 76.8 | 74.7 | 69.1 | 63.6 | 62.0 | 60.9 | 60.9 | 60.9 | 62.0 |
| 67.5° | 65.3 | 63.0 | 58.7 | 53.7 | 52.1 | 50.5 | 50.0 | 51.0 | 51.0 |
| 70° | 54.3 | 52.7 | 48.3 | 44.4 | 42.8 | 41.2 | 40.6 | 42.8 | 42.8 |
| 72.5° | 44.4 | 42.8 | 40.1 | 36.2 | 34.6 | 34.0 | 35.2 | 36.2 | 36.8 |
| 75° | 35.2 | 33.5 | 31.3 | 29.0 | 27.4 | 28.0 | 29.6 | 30.2 | 30.7 |
| 77.5° | 26.3 | 25.8 | 23.6 | 22.0 | 22.0 | 22.5 | 23.6 | 24.7 | 25.3 |
| 80° | 18.7 | 18.1 | 17.0 | 15.9 | 16.5 | 17.5 | 18.1 | 19.2 | 18.7 |
| 82.5° | 11.5 | 11.5 | 10.9 | 10.9 | 11.5 | 12.6 | 13.2 | 13.8 | 14.2 |
| 85° | 6.0 | 6.0 | 6.0 | 6.6 | 7.2 | 7.6 | 8.2 | 8.8 | 8.8 |
| 87.5° | 1.6 | 2.2 | 2.2 | 2.7 | 3.3 | 3.3 | 3.9 | 3.9 | 3.9 |
| 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)