

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: METALUX

Report Number: 236p256

Luminaire Tested: **HBL-832-N-UNV-EB82-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-41-14
Report Number: 236p256
Test Lab: METALUX RESEARCH LABS
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: HBL-832-N-UNV-EB82-U
Description: OPEN HIGH BAY LUMINAIRE WITH SPECULAR REFLECTOR, NARROW
DISTRIBUTION, NO UPLIGHT
Light Source: EIGHT 32 WATT T8 - 3100 LUMENS EA
Ballast/Driver: -

Summary

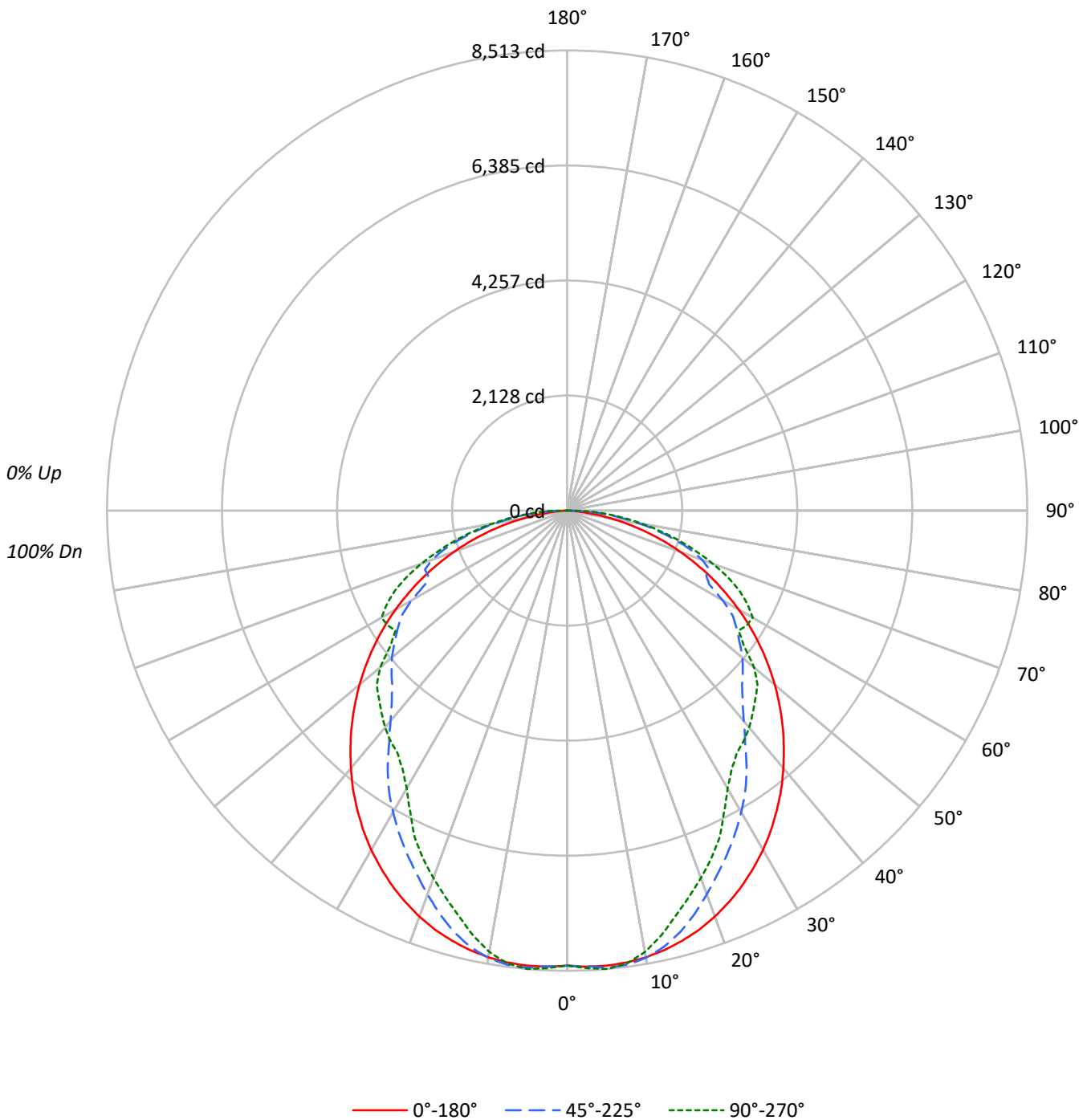
Lumens per Lamp: 3100 (8 lamps)
Luminaire Lumens: 23006.2 lumens
Efficiency: 92.8%
Efficacy: 104.6 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.08 / 1.24
Luminous Opening: Rectangular (W 2.06' x L: 3.75' x H: 0')
CIE Type: Direct

Input Watts (W): 220
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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 110 | 110 | 110 | 110 | 108 | 108 | 108 | 108 | 103 | 103 | 103 | | 99 | 99 | 99 | | 95 | 95 | 95 | 93 |
| 1 | 100 | 95 | 91 | 87 | 98 | 93 | 89 | 86 | 89 | 86 | 83 | | 86 | 83 | 81 | | 82 | 80 | 78 | 76 |
| 2 | 91 | 83 | 76 | 71 | 88 | 81 | 75 | 70 | 78 | 73 | 68 | | 75 | 70 | 67 | | 72 | 68 | 65 | 63 |
| 3 | 83 | 73 | 65 | 58 | 80 | 71 | 64 | 58 | 68 | 62 | 57 | | 66 | 60 | 56 | | 63 | 59 | 55 | 53 |
| 4 | 76 | 64 | 56 | 49 | 73 | 63 | 55 | 49 | 61 | 54 | 48 | | 58 | 53 | 48 | | 56 | 51 | 47 | 45 |
| 5 | 70 | 57 | 49 | 43 | 68 | 56 | 48 | 42 | 54 | 47 | 42 | | 52 | 46 | 41 | | 51 | 45 | 41 | 39 |
| 6 | 64 | 52 | 43 | 37 | 63 | 51 | 43 | 37 | 49 | 42 | 37 | | 48 | 41 | 36 | | 46 | 40 | 36 | 34 |
| 7 | 60 | 47 | 39 | 33 | 58 | 46 | 38 | 33 | 45 | 38 | 33 | | 43 | 37 | 32 | | 42 | 36 | 32 | 30 |
| 8 | 56 | 43 | 35 | 29 | 54 | 42 | 35 | 29 | 41 | 34 | 29 | | 40 | 34 | 29 | | 39 | 33 | 29 | 27 |
| 9 | 52 | 39 | 32 | 27 | 51 | 39 | 32 | 26 | 38 | 31 | 26 | | 37 | 31 | 26 | | 36 | 30 | 26 | 24 |
| 10 | 49 | 36 | 29 | 24 | 48 | 36 | 29 | 24 | 35 | 28 | 24 | | 34 | 28 | 24 | | 33 | 28 | 24 | 22 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 11717 | 11717 | 11717 |
| 5° | 11805 | 11854 | 11893 |
| 10° | 11859 | 11872 | 11718 |
| 15° | 11868 | 11633 | 11178 |
| 20° | 11835 | 11186 | 10711 |
| 25° | 11759 | 10761 | 10244 |
| 30° | 11647 | 10351 | 9536 |
| 35° | 11492 | 9834 | 9298 |
| 40° | 11307 | 9234 | 9520 |
| 45° | 11098 | 9006 | 9691 |
| 50° | 10856 | 9163 | 9778 |
| 55° | 10572 | 9298 | 9397 |
| 60° | 10201 | 9244 | 11031 |
| 65° | 9721 | 9349 | 11598 |
| 70° | 9050 | 10803 | 11650 |
| 75° | 8044 | 11018 | 11539 |
| 80° | 6508 | 10739 | 11348 |
| 85° | 3976 | 10539 | 11673 |



TEST NUMBER: 236p256

CATALOG NUMBER: HBL-832-N-UNV-EB82-U

ZONAL LUMENS:

CANDELA DISTRIBUTION:

| Zone | Lumens | % Fixture | % Lamp | | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----------|---------|-----------|--------|-----|------|-------|------|-------|------|------|
| 0°-10° | 806.0 | 3.5 | 3.2 | 0° | 8419 | 8419 | 8419 | 8419 | 8419 | |
| 10°-20° | 2263.8 | 9.8 | 9.1 | 5° | 8450 | 8456 | 8485 | 8503 | 8513 | 805 |
| 20°-30° | 3267.5 | 14.2 | 13.2 | 15° | 8237 | 8275 | 8074 | 7834 | 7758 | 2324 |
| 30°-40° | 3717.4 | 16.2 | 15.0 | 25° | 7658 | 7522 | 7008 | 6764 | 6671 | 3527 |
| 40°-50° | 3816.7 | 16.6 | 15.4 | 35° | 6764 | 6328 | 5788 | 5461 | 5473 | 4231 |
| 50°-60° | 3496.9 | 15.2 | 14.1 | 45° | 5639 | 5048 | 4576 | 4836 | 4924 | 4347 |
| 60°-70° | 2975.9 | 12.9 | 12.0 | 55° | 4357 | 3650 | 3832 | 3842 | 3873 | 3892 |
| 70°-80° | 1987.2 | 8.6 | 8.0 | 65° | 2952 | 2503 | 2839 | 3433 | 3522 | 2917 |
| 80°-90° | 674.9 | 2.9 | 2.7 | 75° | 1496 | 1480 | 2049 | 2129 | 2146 | 1585 |
| 90°-100° | 0.0 | 0.0 | 0.0 | 85° | 249 | 559 | 660 | 717 | 731 | 334 |
| 100°-110° | 0.0 | 0.0 | 0.0 | 90° | 0 | 0 | 0 | 0 | 0 | |
| 110°-120° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 120°-130° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 130°-140° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 140°-150° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 150°-160° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 160°-170° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 170°-180° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 0°-30° | 6337.2 | 27.5 | 25.6 | | | | | | | |
| 0°-40° | 10054.6 | 43.7 | 40.5 | | | | | | | |
| 0°-60° | 17368.2 | 75.5 | 70.0 | | | | | | | |
| 0°-90° | 23006.2 | 100.0 | 92.8 | | | | | | | |
| 90°-120° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 90°-150° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 90°-180° | 0.0 | 0.0 | 0.0 | | | | | | | |
| 0°-180° | 23006.2 | 100.0 | 92.8 | | | | | | | |



TEST NUMBER: 236p256

CATALOG NUMBER: HBL-832-N-UNV-EB82-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|------|-------|------|-------|------|
| 0° | 8419 | 8419 | 8419 | 8419 | 8419 |
| 2.5° | 8445 | 8441 | 8442 | 8458 | 8472 |
| 5° | 8450 | 8456 | 8485 | 8503 | 8513 |
| 7.5° | 8432 | 8457 | 8477 | 8455 | 8452 |
| 10° | 8392 | 8433 | 8401 | 8323 | 8292 |
| 12.5° | 8324 | 8373 | 8268 | 8110 | 8047 |
| 15° | 8237 | 8275 | 8074 | 7834 | 7758 |
| 17.5° | 8127 | 8138 | 7829 | 7556 | 7493 |
| 20° | 7991 | 7963 | 7553 | 7298 | 7232 |
| 22.5° | 7834 | 7756 | 7275 | 7036 | 6966 |
| 25° | 7658 | 7522 | 7008 | 6764 | 6671 |
| 27.5° | 7459 | 7251 | 6732 | 6442 | 6288 |
| 30° | 7248 | 6958 | 6441 | 6055 | 5934 |
| 32.5° | 7015 | 6641 | 6138 | 5721 | 5668 |
| 35° | 6764 | 6328 | 5788 | 5461 | 5473 |
| 37.5° | 6504 | 6015 | 5409 | 5270 | 5368 |
| 40° | 6224 | 5698 | 5083 | 5153 | 5240 |
| 42.5° | 5932 | 5374 | 4800 | 5010 | 5080 |
| 45° | 5639 | 5048 | 4576 | 4836 | 4924 |
| 47.5° | 5330 | 4718 | 4409 | 4671 | 4777 |
| 50° | 5014 | 4371 | 4232 | 4514 | 4516 |
| 52.5° | 4689 | 4013 | 4025 | 4226 | 4124 |
| 55° | 4357 | 3650 | 3832 | 3842 | 3873 |
| 57.5° | 4017 | 3297 | 3636 | 3637 | 3943 |
| 60° | 3665 | 2996 | 3321 | 3711 | 3963 |
| 62.5° | 3308 | 2734 | 2959 | 3669 | 3761 |
| 65° | 2952 | 2503 | 2839 | 3433 | 3522 |
| 67.5° | 2586 | 2267 | 2847 | 3179 | 3213 |
| 70° | 2224 | 2036 | 2655 | 2843 | 2863 |
| 72.5° | 1857 | 1759 | 2386 | 2486 | 2506 |
| 75° | 1496 | 1480 | 2049 | 2129 | 2146 |
| 77.5° | 1142 | 1372 | 1695 | 1756 | 1770 |
| 80° | 812 | 1180 | 1340 | 1404 | 1416 |
| 82.5° | 503 | 878 | 991 | 1052 | 1068 |
| 85° | 249 | 559 | 660 | 717 | 731 |
| 87.5° | 72 | 267 | 351 | 405 | 421 |
| 90° | 0 | 0 | 0 | 0 | 0 |

(END OF REPORT)