

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: 236p329

Luminaire Tested: **HBI-632-N-A-UNV-EB83/PLUS-SDF-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-41-14  
Report Number: 236p329  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: HBI-632-N-A-UNV-EB83/PLUS-SDF-U  
Description: HBI SERIES, FULL BODY STEEL HOUSING, WITH SIX T8 LAMPS  
NARROW DISTRIBUTION SPECULAR REFLECTOR AND SLOTTED DOORFRAME (SDF)  
WITH PRISMATIC ACRYLIC LENS, NO UPLIGHT  
Light Source: SIX T8 LINEAR FLUORESCENT LAMPS, F32T8 32W - 2850 LUMENS EA  
Ballast/Driver: -

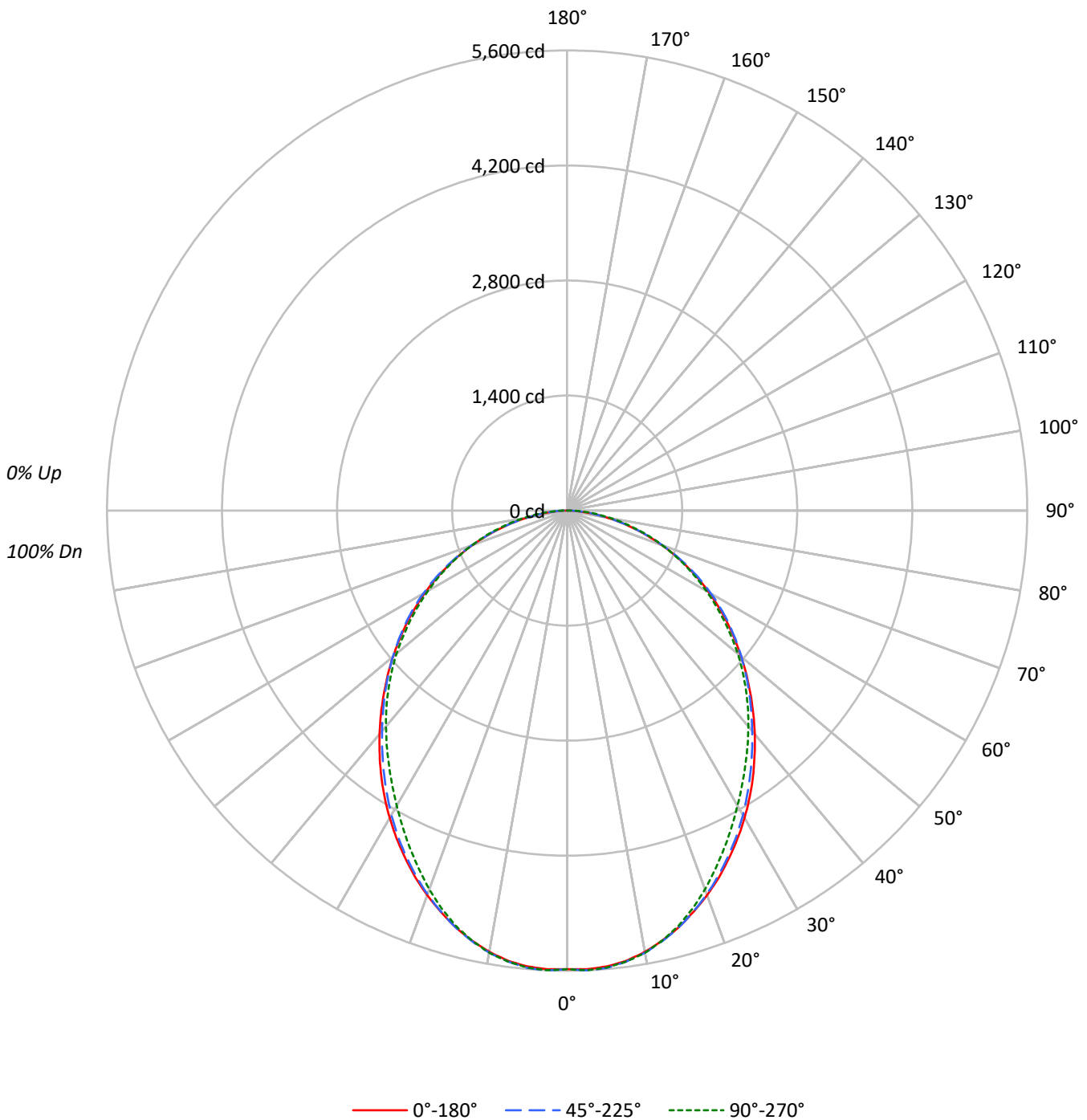
**Summary**

Lumens per Lamp: 2850 (6 lamps)  
Luminaire Lumens: 13894.7 lumens  
Efficiency: 81.3%  
Efficacy: 64.0 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.12 / 1.26  
Luminous Opening: Rectangular (W 1.23' x L: 3.92' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 217  
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

TEST NUMBER: 236p329

CATALOG NUMBER: HBI-632-N-A-UNV-EB83/PLUS-SDF-U

### Luminous Intensity Polar Plot





TEST NUMBER: 236p329

CATALOG NUMBER: HBI-632-N-A-UNV-EB83/PLUS-SDF-U

**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 | 50 | 30 | 10 | 0 |  |  |  |    |  |  |  |  |  |  |  |  |   |
| RCR |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 0   | 97 | 97 | 97 | 97 | 94 | 94 | 94 | 94 | 90 | 90 | 90 | 86 | 86 | 86 | 83 | 83 | 83 | 81 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 89 | 85 | 81 | 78 | 86 | 83 | 80 | 77 | 79 | 77 | 74 | 76 | 74 | 72 | 73 | 72 | 70 | 68 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 81 | 74 | 69 | 64 | 79 | 73 | 67 | 63 | 70 | 65 | 62 | 67 | 63 | 60 | 65 | 62 | 59 | 57 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 74 | 65 | 59 | 53 | 72 | 64 | 58 | 53 | 62 | 56 | 52 | 59 | 55 | 51 | 57 | 53 | 50 | 49 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 68 | 58 | 51 | 46 | 66 | 57 | 50 | 45 | 55 | 49 | 45 | 53 | 48 | 44 | 51 | 47 | 43 | 42 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 62 | 52 | 45 | 39 | 61 | 51 | 44 | 39 | 49 | 43 | 39 | 48 | 42 | 38 | 46 | 42 | 38 | 36 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 58 | 47 | 40 | 35 | 56 | 46 | 39 | 34 | 45 | 39 | 34 | 43 | 38 | 34 | 42 | 37 | 34 | 32 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 53 | 43 | 36 | 31 | 52 | 42 | 35 | 31 | 41 | 35 | 30 | 40 | 34 | 30 | 38 | 34 | 30 | 28 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 50 | 39 | 32 | 27 | 49 | 38 | 32 | 27 | 37 | 31 | 27 | 36 | 31 | 27 | 35 | 31 | 27 | 25 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 47 | 36 | 29 | 25 | 46 | 35 | 29 | 25 | 34 | 29 | 25 | 34 | 28 | 25 | 33 | 28 | 24 | 23 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 44 | 33 | 27 | 23 | 43 | 33 | 27 | 23 | 32 | 26 | 22 | 31 | 26 | 22 | 30 | 26 | 22 | 21 |    |    |    |    |    |   |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 12476 | 12476 | 12476 |
| 5°  | 12497 | 12537 | 12526 |
| 10° | 12380 | 12401 | 12405 |
| 15° | 12150 | 12155 | 12111 |
| 20° | 11852 | 11823 | 11668 |
| 25° | 11506 | 11447 | 11171 |
| 30° | 11148 | 11045 | 10704 |
| 35° | 10768 | 10615 | 10317 |
| 40° | 10367 | 10227 | 10011 |
| 45° | 9973  | 9903  | 9726  |
| 50° | 9618  | 9628  | 9430  |
| 55° | 9277  | 9363  | 9079  |
| 60° | 8921  | 9055  | 8738  |
| 65° | 8518  | 8639  | 8412  |
| 70° | 7988  | 8073  | 8054  |
| 75° | 7291  | 7326  | 7602  |
| 80° | 6386  | 6373  | 7043  |
| 85° | 5259  | 5413  | 6644  |



TEST NUMBER: 236p329

CATALOG NUMBER: HBI-632-N-A-UNV-EB83/PLUS-SDF-U

**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

| Zone      | Lumens  | % Fixture | % Lamp |      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----------|---------|-----------|--------|------|------|-------|------|-------|------|------|
| 0°-10°    | 528.6   | 3.8       | 3.1    | 0°   | 5580 | 5580  | 5580 | 5580  | 5580 |      |
| 10°-20°   | 1475.0  | 10.6      | 8.6    | 5°   | 5568 | 5577  | 5586 | 5580  | 5581 | 528  |
| 20°-30°   | 2125.6  | 15.3      | 12.4   | 15°  | 5249 | 5249  | 5251 | 5237  | 5232 | 1477 |
| 30°-40°   | 2428.5  | 17.5      | 14.2   | 25°  | 4664 | 4673  | 4640 | 4559  | 4528 | 2148 |
| 40°-50°   | 2419.1  | 17.4      | 14.1   | 35°  | 3945 | 3961  | 3889 | 3809  | 3780 | 2466 |
| 50°-60°   | 2131.6  | 15.3      | 12.5   | 45°  | 3154 | 3176  | 3132 | 3113  | 3076 | 2437 |
| 60°-70°   | 1601.6  | 11.5      | 9.4    | 55°  | 2380 | 2393  | 2402 | 2386  | 2329 | 2128 |
| 70°-80°   | 912.8   | 6.6       | 5.3    | 65°  | 1610 | 1621  | 1633 | 1621  | 1590 | 1593 |
| 80°-90°   | 265.9   | 1.9       | 1.6    | 75°  | 844  | 850   | 848  | 882   | 880  | 896  |
| 90°-100°  | 5.9     | 0.0       | 0.0    | 85°  | 205  | 207   | 211  | 249   | 259  | 229  |
| 100°-110° | 0.0     | 0.0       | 0.0    | 90°  | 22   | 31    | 39   | 59    | 63   | 19   |
| 110°-120° | 0.0     | 0.0       | 0.0    | 95°  | 0    | 0     | 0    | 0     | 0    | 0    |
| 120°-130° | 0.0     | 0.0       | 0.0    | 105° | 0    | 0     | 0    | 0     | 0    | 0    |
| 130°-140° | 0.0     | 0.0       | 0.0    | 115° | 0    | 0     | 0    | 0     | 0    | 0    |
| 140°-150° | 0.0     | 0.0       | 0.0    | 125° | 0    | 0     | 0    | 0     | 0    | 0    |
| 150°-160° | 0.0     | 0.0       | 0.0    | 135° | 0    | 0     | 0    | 0     | 0    | 0    |
| 160°-170° | 0.0     | 0.0       | 0.0    | 145° | 0    | 0     | 0    | 0     | 0    | 0    |
| 170°-180° | 0.0     | 0.0       | 0.0    | 155° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-30°    | 4129.2  | 29.7      | 24.1   | 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-40°    | 6557.7  | 47.2      | 38.3   | 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-60°    | 11108.5 | 79.9      | 65.0   | 180° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-90°    | 13888.8 | 100.0     | 81.2   |      |      |       |      |       |      |      |
| 90°-120°  | 5.9     | 0.0       | 0.0    |      |      |       |      |       |      |      |
| 90°-150°  | 5.9     | 0.0       | 0.0    |      |      |       |      |       |      |      |
| 90°-180°  | 6.0     | 0.0       | 0.0    |      |      |       |      |       |      |      |
| 0°-180°   | 13894.7 | 100.0     | 81.3   |      |      |       |      |       |      |      |



TEST NUMBER: 236p329

CATALOG NUMBER: HBI-632-N-A-UNV-EB83/PLUS-SDF-U

**CANDELA DISTRIBUTION (FULL):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 0°     | 5580 | 5580  | 5580 | 5580  | 5580 |
| 2.5°   | 5585 | 5594  | 5600 | 5598  | 5599 |
| 5°     | 5568 | 5577  | 5586 | 5580  | 5581 |
| 7.5°   | 5525 | 5531  | 5535 | 5534  | 5534 |
| 10°    | 5453 | 5459  | 5462 | 5461  | 5464 |
| 12.5°  | 5359 | 5360  | 5366 | 5361  | 5357 |
| 15°    | 5249 | 5249  | 5251 | 5237  | 5232 |
| 17.5°  | 5118 | 5119  | 5115 | 5087  | 5077 |
| 20°    | 4981 | 4980  | 4969 | 4926  | 4904 |
| 22.5°  | 4831 | 4830  | 4809 | 4744  | 4718 |
| 25°    | 4664 | 4673  | 4640 | 4559  | 4528 |
| 27.5°  | 4496 | 4506  | 4463 | 4371  | 4337 |
| 30°    | 4318 | 4335  | 4278 | 4179  | 4146 |
| 32.5°  | 4135 | 4150  | 4084 | 3991  | 3963 |
| 35°    | 3945 | 3961  | 3889 | 3809  | 3780 |
| 37.5°  | 3748 | 3767  | 3695 | 3629  | 3606 |
| 40°    | 3552 | 3572  | 3504 | 3458  | 3430 |
| 42.5°  | 3355 | 3373  | 3316 | 3284  | 3256 |
| 45°    | 3154 | 3176  | 3132 | 3113  | 3076 |
| 47.5°  | 2961 | 2977  | 2949 | 2936  | 2894 |
| 50°    | 2765 | 2783  | 2768 | 2760  | 2711 |
| 52.5°  | 2571 | 2587  | 2586 | 2574  | 2518 |
| 55°    | 2380 | 2393  | 2402 | 2386  | 2329 |
| 57.5°  | 2185 | 2201  | 2216 | 2195  | 2140 |
| 60°    | 1995 | 2008  | 2025 | 2003  | 1954 |
| 62.5°  | 1802 | 1814  | 1829 | 1809  | 1770 |
| 65°    | 1610 | 1621  | 1633 | 1621  | 1590 |
| 67.5°  | 1417 | 1427  | 1434 | 1432  | 1410 |
| 70°    | 1222 | 1231  | 1235 | 1247  | 1232 |
| 72.5°  | 1030 | 1038  | 1039 | 1062  | 1055 |
| 75°    | 844  | 850   | 848  | 882   | 880  |
| 77.5°  | 665  | 668   | 666  | 707   | 711  |
| 80°    | 496  | 496   | 495  | 538   | 547  |
| 82.5°  | 340  | 340   | 341  | 384   | 395  |
| 85°    | 205  | 207   | 211  | 249   | 259  |
| 87.5°  | 97   | 101   | 107  | 137   | 146  |
| 90°    | 22   | 31    | 39   | 59    | 63   |
| 92.5°  | 0    | 0     | 0    | 0     | 0    |
| 95°    | 0    | 0     | 0    | 0     | 0    |
| 97.5°  | 0    | 0     | 0    | 0     | 0    |
| 100°   | 0    | 0     | 0    | 0     | 0    |
| 102.5° | 0    | 0     | 0    | 0     | 0    |
| 105°   | 0    | 0     | 0    | 0     | 0    |
| 107.5° | 0    | 0     | 0    | 0     | 0    |
| 110°   | 0    | 0     | 0    | 0     | 0    |



TEST NUMBER: 236p329

CATALOG NUMBER: HBI-632-N-A-UNV-EB83/PLUS-SDF-U

**CANDELA DISTRIBUTION (continued):**

|        | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|----|-------|-----|-------|-----|
| 112.5° | 0  | 0     | 0   | 0     | 0   |
| 115°   | 0  | 0     | 0   | 0     | 0   |
| 117.5° | 0  | 0     | 0   | 0     | 0   |
| 120°   | 0  | 0     | 0   | 0     | 0   |
| 122.5° | 0  | 0     | 0   | 0     | 0   |
| 125°   | 0  | 0     | 0   | 0     | 0   |
| 127.5° | 0  | 0     | 0   | 0     | 0   |
| 130°   | 0  | 0     | 0   | 0     | 0   |
| 132.5° | 0  | 0     | 0   | 0     | 0   |
| 135°   | 0  | 0     | 0   | 0     | 0   |
| 137.5° | 0  | 0     | 0   | 0     | 0   |
| 140°   | 0  | 0     | 0   | 0     | 0   |
| 142.5° | 0  | 0     | 0   | 0     | 0   |
| 145°   | 0  | 0     | 0   | 0     | 0   |
| 147.5° | 0  | 0     | 0   | 0     | 0   |
| 150°   | 0  | 0     | 0   | 0     | 0   |
| 152.5° | 0  | 0     | 0   | 0     | 0   |
| 155°   | 0  | 0     | 0   | 0     | 0   |
| 157.5° | 0  | 0     | 0   | 0     | 0   |
| 160°   | 0  | 0     | 0   | 0     | 0   |
| 162.5° | 0  | 0     | 0   | 0     | 0   |
| 165°   | 0  | 0     | 0   | 0     | 0   |
| 167.5° | 0  | 0     | 0   | 0     | 0   |
| 170°   | 0  | 0     | 0   | 0     | 0   |
| 172.5° | 0  | 0     | 0   | 0     | 0   |
| 175°   | 0  | 0     | 0   | 0     | 0   |
| 177.5° | 0  | 0     | 0   | 0     | 0   |
| 180°   | 0  | 0     | 0   | 0     | 0   |

(END OF REPORT)