

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: 236P332

Luminaire Tested: **HBI-632-W-UNV-EB82/PLUS-UPL-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-41-14
Report Number: 236P332
Test Lab: METALUX RESEARCH LABS
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: HBI-632-W-UNV-EB82/PLUS-UPL-U
Description: HBI SERIES, FULL BODY STEEL HOUSING, WITH SIX T8 LAMPS
WIDE DISTRIBUTION WHITE ALUM REFLECTOR WITH UPLIGHT
Light Source: SIX T8 LINEAR FLUORESCENT LAMPS, F32T8 32W - 2850 LUMENS EA
Ballast/Driver: -

Summary

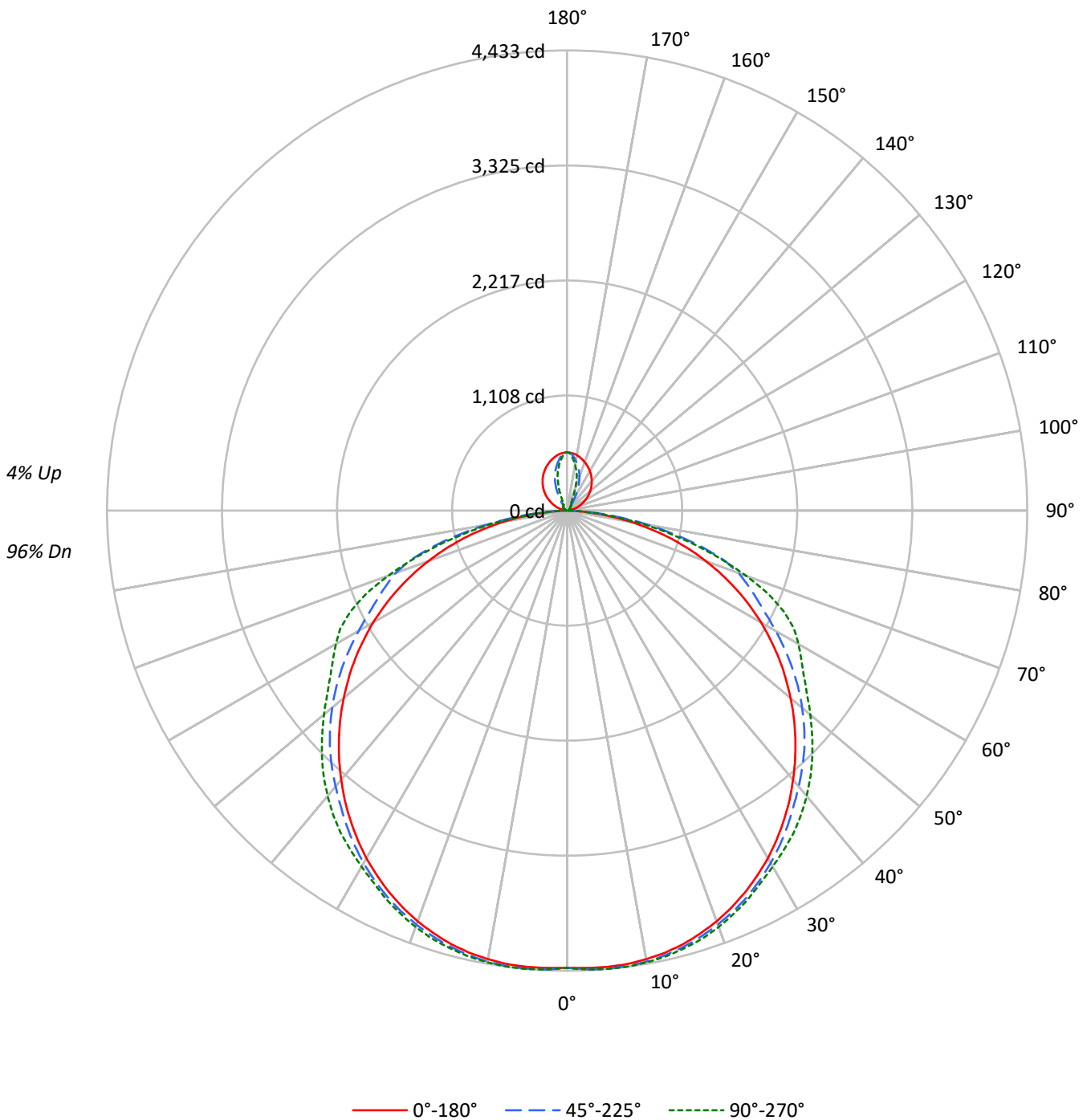
Lumens per Lamp: 2850 (6 lamps)
Luminaire Lumens: 14977.1 lumens
Efficiency: 87.6%
Efficacy: 69.7 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.34 / 1.44
Luminous Opening: Rectangular (W 1.23' x L: 3.92' x H: 0')
CIE Type: Direct

Input Watts (W): 215
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: 236P332

CATALOG NUMBER: HBI-632-W-UNV-EB82/PLUS-UPL-U

Luminous Intensity Polar Plot





TEST NUMBER: 236P332

CATALOG NUMBER: HBI-632-W-UNV-EB82/PLUS-UPL-U

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 | 0 | |
| RCR | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 103 | 103 | 103 | 103 | 101 | 101 | 101 | 101 | 95 | 95 | 95 | 90 | 90 | 90 | 86 | 86 | 86 | 84 | | | | |
| 1 | 94 | 89 | 85 | 82 | 91 | 87 | 83 | 80 | 83 | 80 | 77 | 78 | 76 | 74 | 75 | 73 | 71 | 69 | | | | |
| 2 | 85 | 77 | 71 | 66 | 82 | 75 | 69 | 64 | 71 | 67 | 62 | 68 | 64 | 60 | 65 | 61 | 59 | 56 | | | | |
| 3 | 77 | 67 | 60 | 54 | 74 | 66 | 59 | 53 | 62 | 56 | 52 | 59 | 54 | 50 | 57 | 53 | 49 | 47 | | | | |
| 4 | 70 | 59 | 51 | 45 | 68 | 58 | 50 | 45 | 55 | 49 | 44 | 53 | 47 | 43 | 50 | 46 | 42 | 40 | | | | |
| 5 | 64 | 53 | 45 | 39 | 62 | 51 | 44 | 38 | 49 | 42 | 37 | 47 | 41 | 37 | 45 | 40 | 36 | 34 | | | | |
| 6 | 59 | 47 | 39 | 33 | 57 | 46 | 39 | 33 | 44 | 38 | 33 | 42 | 36 | 32 | 41 | 35 | 31 | 29 | | | | |
| 7 | 55 | 43 | 35 | 29 | 53 | 42 | 34 | 29 | 40 | 33 | 29 | 39 | 33 | 28 | 37 | 32 | 28 | 26 | | | | |
| 8 | 51 | 39 | 31 | 26 | 49 | 38 | 31 | 26 | 37 | 30 | 25 | 35 | 29 | 25 | 34 | 29 | 25 | 23 | | | | |
| 9 | 48 | 36 | 28 | 23 | 46 | 35 | 28 | 23 | 34 | 27 | 23 | 32 | 27 | 23 | 31 | 26 | 22 | 21 | | | | |
| 10 | 45 | 33 | 26 | 21 | 43 | 32 | 25 | 21 | 31 | 25 | 21 | 30 | 24 | 20 | 29 | 24 | 20 | 19 | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 9849 | 9849 | 9849 |
| 5° | 9904 | 9943 | 9949 |
| 10° | 9965 | 10017 | 10033 |
| 15° | 10007 | 10067 | 10104 |
| 20° | 10019 | 10100 | 10157 |
| 25° | 10009 | 10127 | 10184 |
| 30° | 9984 | 10126 | 10226 |
| 35° | 9938 | 10110 | 10367 |
| 40° | 9883 | 10128 | 10475 |
| 45° | 9831 | 10223 | 10564 |
| 50° | 9774 | 10282 | 10637 |
| 55° | 9722 | 10330 | 10856 |
| 60° | 9650 | 10374 | 11506 |
| 65° | 9533 | 10666 | 12189 |
| 70° | 9302 | 11486 | 11983 |
| 75° | 8881 | 11550 | 11023 |
| 80° | 7944 | 10198 | 9451 |
| 85° | 5541 | 7491 | 6388 |



TEST NUMBER: 236P332

CATALOG NUMBER: HBI-632-W-UNV-EB82/PLUS-UPL-U

ZONAL LUMENS:

CANDELA DISTRIBUTION:

| Zone | Lumens | % Fixture | % Lamp | | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----------|---------|-----------|--------|------|------|-------|------|-------|------|------|
| 0°-10° | 421.8 | 2.8 | 2.5 | 0° | 4405 | 4405 | 4405 | 4405 | 4405 | |
| 10°-20° | 1227.4 | 8.2 | 7.2 | 5° | 4413 | 4421 | 4430 | 4429 | 4433 | 420 |
| 20°-30° | 1888.9 | 12.6 | 11.0 | 15° | 4323 | 4333 | 4349 | 4359 | 4365 | 1220 |
| 30°-40° | 2324.4 | 15.5 | 13.6 | 25° | 4057 | 4073 | 4105 | 4120 | 4128 | 1870 |
| 40°-50° | 2488.8 | 16.6 | 14.6 | 35° | 3641 | 3665 | 3704 | 3768 | 3798 | 2278 |
| 50°-60° | 2360.8 | 15.8 | 13.8 | 45° | 3109 | 3135 | 3233 | 3318 | 3341 | 2399 |
| 60°-70° | 2010.6 | 13.4 | 11.8 | 55° | 2494 | 2513 | 2650 | 2739 | 2785 | 2228 |
| 70°-80° | 1286.9 | 8.6 | 7.5 | 65° | 1802 | 1844 | 2016 | 2258 | 2304 | 1779 |
| 80°-90° | 343.7 | 2.3 | 2.0 | 75° | 1028 | 1104 | 1337 | 1297 | 1276 | 1081 |
| 90°-100° | 14.9 | 0.1 | 0.1 | 85° | 216 | 328 | 292 | 265 | 249 | 262 |
| 100°-110° | 27.1 | 0.2 | 0.2 | 90° | 9 | 13 | 16 | 17 | 18 | 12 |
| 110°-120° | 43.4 | 0.3 | 0.3 | 95° | 11 | 11 | 14 | 11 | 8 | 19 |
| 120°-130° | 60.8 | 0.4 | 0.4 | 105° | 77 | 20 | 21 | 16 | 21 | 84 |
| 130°-140° | 81.5 | 0.5 | 0.5 | 115° | 158 | 28 | 31 | 20 | 20 | 158 |
| 140°-150° | 103.2 | 0.7 | 0.6 | 125° | 246 | 43 | 30 | 48 | 47 | 219 |
| 150°-160° | 124.2 | 0.8 | 0.7 | 135° | 330 | 139 | 58 | 41 | 36 | 254 |
| 160°-170° | 118.6 | 0.8 | 0.7 | 145° | 405 | 274 | 79 | 70 | 70 | 253 |
| 170°-180° | 49.9 | 0.3 | 0.3 | 155° | 469 | 384 | 257 | 148 | 113 | 216 |
| 0°-30° | 3538.1 | 23.6 | 20.7 | 165° | 521 | 482 | 420 | 373 | 355 | 147 |
| 0°-40° | 5862.6 | 39.1 | 34.3 | 175° | 555 | 554 | 542 | 528 | 523 | 53 |
| 0°-60° | 10712.2 | 71.5 | 62.6 | 180° | 562 | 562 | 562 | 562 | 562 | |
| 0°-90° | 14353.4 | 95.8 | 83.9 | | | | | | | |
| 90°-120° | 85.3 | 0.6 | 0.5 | | | | | | | |
| 90°-150° | 330.9 | 2.2 | 1.9 | | | | | | | |
| 90°-180° | 624.0 | 4.2 | 3.6 | | | | | | | |
| 0°-180° | 14977.1 | 100.0 | 87.6 | | | | | | | |



TEST NUMBER: 236P332

CATALOG NUMBER: HBI-632-W-UNV-EB82/PLUS-UPL-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|------|-------|------|
| 0° | 4405 | 4405 | 4405 | 4405 | 4405 |
| 2.5° | 4410 | 4417 | 4425 | 4426 | 4425 |
| 5° | 4413 | 4421 | 4430 | 4429 | 4433 |
| 7.5° | 4407 | 4415 | 4426 | 4430 | 4431 |
| 10° | 4389 | 4398 | 4412 | 4414 | 4419 |
| 12.5° | 4362 | 4370 | 4386 | 4393 | 4399 |
| 15° | 4323 | 4333 | 4349 | 4359 | 4365 |
| 17.5° | 4271 | 4283 | 4301 | 4315 | 4325 |
| 20° | 4211 | 4224 | 4245 | 4263 | 4269 |
| 22.5° | 4138 | 4153 | 4179 | 4197 | 4202 |
| 25° | 4057 | 4073 | 4105 | 4120 | 4128 |
| 27.5° | 3965 | 3985 | 4016 | 4037 | 4041 |
| 30° | 3867 | 3885 | 3922 | 3944 | 3961 |
| 32.5° | 3758 | 3781 | 3817 | 3854 | 3880 |
| 35° | 3641 | 3665 | 3704 | 3768 | 3798 |
| 37.5° | 3518 | 3543 | 3585 | 3671 | 3700 |
| 40° | 3386 | 3415 | 3470 | 3565 | 3589 |
| 42.5° | 3251 | 3276 | 3354 | 3444 | 3472 |
| 45° | 3109 | 3135 | 3233 | 3318 | 3341 |
| 47.5° | 2963 | 2985 | 3097 | 3181 | 3201 |
| 50° | 2810 | 2831 | 2956 | 3032 | 3058 |
| 52.5° | 2654 | 2673 | 2805 | 2885 | 2914 |
| 55° | 2494 | 2513 | 2650 | 2739 | 2785 |
| 57.5° | 2327 | 2353 | 2485 | 2606 | 2674 |
| 60° | 2158 | 2194 | 2320 | 2491 | 2573 |
| 62.5° | 1982 | 2021 | 2158 | 2382 | 2464 |
| 65° | 1802 | 1844 | 2016 | 2258 | 2304 |
| 67.5° | 1614 | 1656 | 1888 | 2083 | 2097 |
| 70° | 1423 | 1471 | 1757 | 1849 | 1833 |
| 72.5° | 1228 | 1281 | 1578 | 1574 | 1556 |
| 75° | 1028 | 1104 | 1337 | 1297 | 1276 |
| 77.5° | 824 | 951 | 1062 | 1021 | 998 |
| 80° | 617 | 789 | 792 | 755 | 734 |
| 82.5° | 410 | 568 | 531 | 497 | 478 |
| 85° | 216 | 328 | 292 | 265 | 249 |
| 87.5° | 62 | 123 | 94 | 79 | 72 |
| 90° | 9 | 13 | 16 | 17 | 18 |
| 92.5° | 9 | 16 | 20 | 13 | 6 |
| 95° | 11 | 11 | 14 | 11 | 8 |
| 97.5° | 31 | 13 | 12 | 10 | 8 |
| 100° | 45 | 12 | 15 | 10 | 9 |
| 102.5° | 59 | 15 | 15 | 15 | 10 |
| 105° | 77 | 20 | 21 | 16 | 21 |
| 107.5° | 100 | 24 | 17 | 23 | 18 |
| 110° | 120 | 21 | 18 | 25 | 32 |



TEST NUMBER: 236P332

CATALOG NUMBER: HBI-632-W-UNV-EB82/PLUS-UPL-U

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 140 | 22 | 25 | 20 | 26 |
| 115° | 158 | 28 | 31 | 20 | 20 |
| 117.5° | 179 | 34 | 37 | 27 | 23 |
| 120° | 201 | 40 | 38 | 35 | 31 |
| 122.5° | 223 | 41 | 34 | 42 | 39 |
| 125° | 246 | 43 | 30 | 48 | 47 |
| 127.5° | 268 | 55 | 35 | 45 | 52 |
| 130° | 289 | 77 | 43 | 39 | 48 |
| 132.5° | 310 | 106 | 49 | 34 | 40 |
| 135° | 330 | 139 | 58 | 41 | 36 |
| 137.5° | 349 | 173 | 61 | 50 | 43 |
| 140° | 368 | 207 | 57 | 57 | 54 |
| 142.5° | 387 | 241 | 58 | 66 | 61 |
| 145° | 405 | 274 | 79 | 70 | 70 |
| 147.5° | 423 | 305 | 116 | 63 | 72 |
| 150° | 438 | 332 | 161 | 66 | 62 |
| 152.5° | 454 | 359 | 209 | 98 | 74 |
| 155° | 469 | 384 | 257 | 148 | 113 |
| 157.5° | 483 | 409 | 304 | 205 | 171 |
| 160° | 497 | 434 | 348 | 265 | 233 |
| 162.5° | 509 | 458 | 386 | 322 | 296 |
| 165° | 521 | 482 | 420 | 373 | 355 |
| 167.5° | 532 | 505 | 453 | 416 | 402 |
| 170° | 542 | 525 | 484 | 454 | 444 |
| 172.5° | 550 | 543 | 515 | 492 | 484 |
| 175° | 555 | 554 | 542 | 528 | 523 |
| 177.5° | 559 | 560 | 559 | 555 | 554 |
| 180° | 562 | 562 | 562 | 562 | 562 |

(END OF REPORT)