

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: 236P254

Luminaire Tested: **HBL-854T5-M-UNV-EBT2-UPL-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-41-14
Report Number: 236P254
Test Lab: METALUX RESEARCH LABS
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: HBL-854T5-M-UNV-EBT2-UPL-U
Description: OPEN HIGH BAY LUMINAIRE WITH MATTE REFLECTOR, MEDIUM
DISTRIBUTION WITH UPLIGHT
Light Source: EIGHT 54 WATT T5HO - 4400 LUMENS EA
Ballast/Driver: -

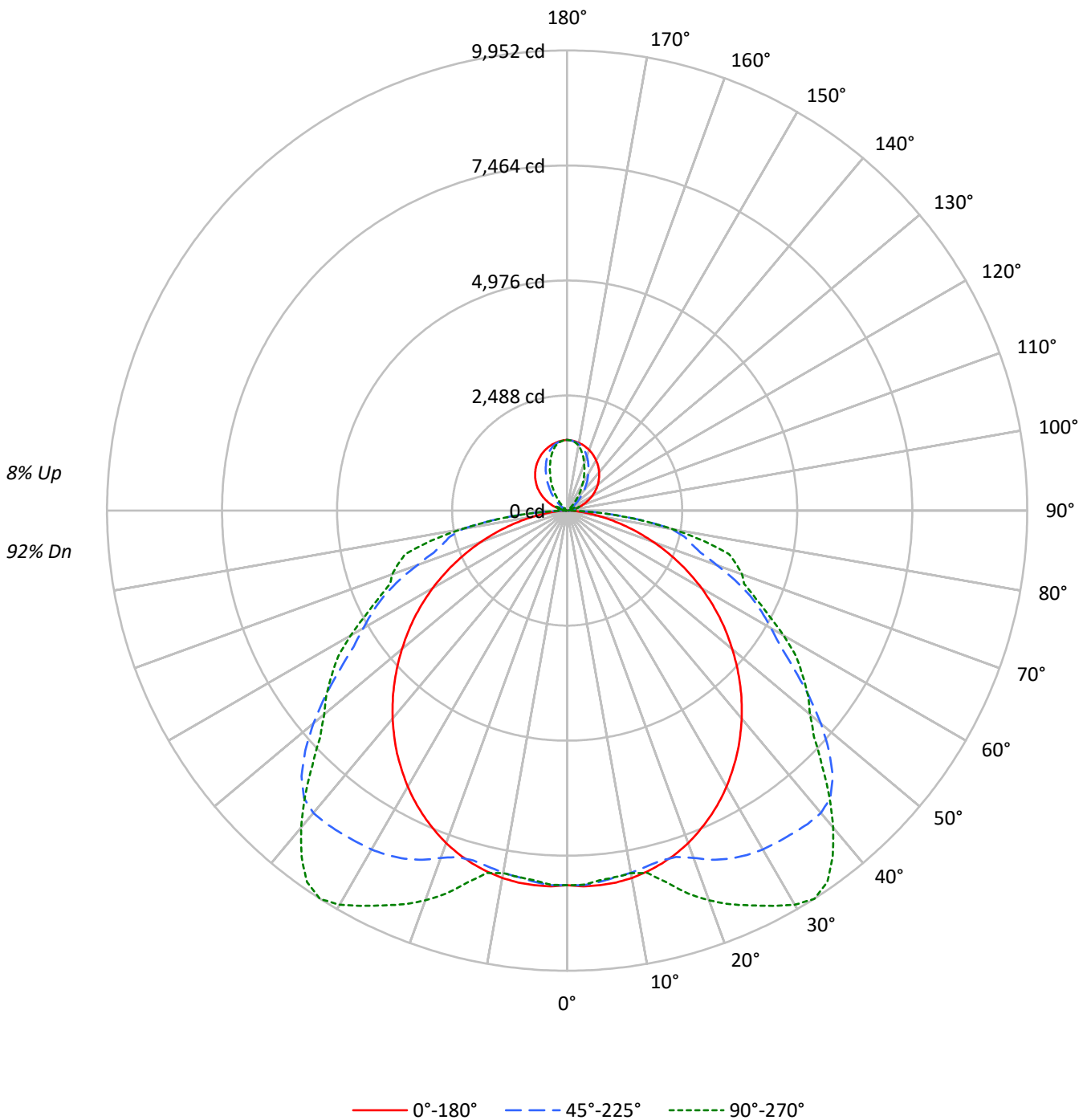
Summary

Lumens per Lamp: 4400 (8 lamps)
Luminaire Lumens: 33125.9 lumens
Efficiency: 94.1%
Efficacy: 71.5 lumens/watt
Spacing Criteria (0/90/45): 1.26 / 1.67 / 1.64
Luminous Opening: Rectangular (W 2.08' x L: 3.75' x H: 0')
CIE Type: Direct

Input Watts (W): 463
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: 236P254
CATALOG NUMBER: HBL-854T5-M-UNV-EBT2-UPL-U

Luminous Intensity Polar Plot





TEST NUMBER: 236P254

CATALOG NUMBER: HBL-854T5-M-UNV-EBT2-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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 110 | 110 | 110 | 110 | 107 | 107 | 107 | 107 | 101 | 101 | 101 | 95 | 95 | 95 | 89 | 89 | 89 | 87 |
| 1 | 100 | 95 | 90 | 87 | 96 | 92 | 88 | 84 | 87 | 83 | 80 | 82 | 79 | 77 | 77 | 75 | 73 | 71 |
| 2 | 90 | 82 | 75 | 69 | 87 | 79 | 73 | 68 | 75 | 70 | 65 | 71 | 66 | 63 | 67 | 63 | 60 | 58 |
| 3 | 82 | 71 | 63 | 57 | 79 | 69 | 62 | 56 | 65 | 59 | 54 | 62 | 56 | 52 | 58 | 54 | 50 | 48 |
| 4 | 74 | 63 | 54 | 47 | 72 | 61 | 53 | 47 | 57 | 51 | 45 | 54 | 49 | 44 | 52 | 47 | 42 | 40 |
| 5 | 68 | 55 | 47 | 40 | 66 | 54 | 46 | 40 | 51 | 44 | 39 | 49 | 42 | 37 | 46 | 41 | 36 | 34 |
| 6 | 63 | 50 | 41 | 35 | 60 | 48 | 40 | 34 | 46 | 39 | 33 | 44 | 37 | 32 | 41 | 36 | 32 | 29 |
| 7 | 58 | 45 | 36 | 30 | 56 | 44 | 36 | 30 | 42 | 34 | 29 | 40 | 33 | 28 | 38 | 32 | 28 | 26 |
| 8 | 54 | 41 | 32 | 27 | 52 | 40 | 32 | 26 | 38 | 31 | 26 | 36 | 30 | 25 | 34 | 29 | 25 | 23 |
| 9 | 50 | 37 | 29 | 24 | 48 | 36 | 29 | 24 | 35 | 28 | 23 | 33 | 27 | 23 | 32 | 26 | 22 | 20 |
| 10 | 47 | 34 | 26 | 21 | 45 | 33 | 26 | 21 | 32 | 25 | 21 | 31 | 25 | 20 | 29 | 24 | 20 | 18 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 11161 | 11161 | 11161 |
| 5° | 11251 | 11147 | 11103 |
| 10° | 11287 | 11128 | 11139 |
| 15° | 11273 | 11174 | 11878 |
| 20° | 11221 | 11718 | 13153 |
| 25° | 11108 | 12631 | 14322 |
| 30° | 10968 | 13466 | 15661 |
| 35° | 10786 | 14325 | 16495 |
| 40° | 10559 | 15354 | 16097 |
| 45° | 10302 | 15831 | 15186 |
| 50° | 9997 | 15349 | 14695 |
| 55° | 9666 | 14410 | 14936 |
| 60° | 9253 | 14026 | 14894 |
| 65° | 8701 | 14263 | 14670 |
| 70° | 7988 | 13878 | 16218 |
| 75° | 7032 | 14772 | 19281 |
| 80° | 5792 | 18162 | 18479 |
| 85° | 4126 | 15287 | 14591 |



TEST NUMBER: 236P254

CATALOG NUMBER: HBL-854T5-M-UNV-EBT2-UPL-U

ZONAL LUMENS:

CANDELA DISTRIBUTION:

| Zone | Lumens | % Fixture | % Lamp | | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----------|---------|-----------|--------|------|------|-------|------|-------|------|------|
| 0°-10° | 767.4 | 2.3 | 2.2 | 0° | 8101 | 8101 | 8101 | 8101 | 8101 | |
| 10°-20° | 2272.0 | 6.9 | 6.5 | 5° | 8135 | 8105 | 8060 | 8031 | 8028 | 774 |
| 20°-30° | 3819.8 | 11.5 | 10.9 | 15° | 7903 | 7799 | 7834 | 8128 | 8327 | 2230 |
| 30°-40° | 5149.8 | 15.5 | 14.6 | 25° | 7307 | 7233 | 8309 | 9131 | 9421 | 3366 |
| 40°-50° | 5573.1 | 16.8 | 15.8 | 35° | 6413 | 6819 | 8517 | 9630 | 9807 | 4008 |
| 50°-60° | 5128.4 | 15.5 | 14.6 | 45° | 5287 | 6371 | 8125 | 7949 | 7794 | 4075 |
| 60°-70° | 4122.7 | 12.4 | 11.7 | 55° | 4024 | 5666 | 5999 | 6141 | 6218 | 3594 |
| 70°-80° | 2837.8 | 8.6 | 8.1 | 65° | 2669 | 4222 | 4375 | 4455 | 4500 | 2642 |
| 80°-90° | 949.3 | 2.9 | 2.7 | 75° | 1321 | 2289 | 2775 | 3437 | 3622 | 1407 |
| 90°-100° | 69.4 | 0.2 | 0.2 | 85° | 261 | 889 | 967 | 950 | 923 | 310 |
| 100°-110° | 158.6 | 0.5 | 0.5 | 90° | 7 | 12 | 13 | 13 | 12 | 19 |
| 110°-120° | 143.7 | 0.4 | 0.4 | 95° | 35 | 62 | 66 | 55 | 38 | 53 |
| 120°-130° | 235.9 | 0.7 | 0.7 | 105° | 233 | 38 | 139 | 240 | 246 | 246 |
| 130°-140° | 376.8 | 1.1 | 1.1 | 115° | 484 | 168 | 49 | 53 | 55 | 480 |
| 140°-150° | 492.6 | 1.5 | 1.4 | 125° | 744 | 445 | 135 | 58 | 52 | 664 |
| 150°-160° | 503.5 | 1.5 | 1.4 | 135° | 972 | 749 | 408 | 217 | 163 | 750 |
| 160°-170° | 382.7 | 1.2 | 1.1 | 145° | 1170 | 1044 | 742 | 551 | 485 | 731 |
| 170°-180° | 142.4 | 0.4 | 0.4 | 155° | 1328 | 1277 | 1087 | 926 | 873 | 612 |
| 0°-30° | 6859.2 | 20.7 | 19.5 | 165° | 1445 | 1433 | 1373 | 1301 | 1272 | 408 |
| 0°-40° | 12009.0 | 36.3 | 34.1 | 175° | 1513 | 1512 | 1507 | 1504 | 1504 | 144 |
| 0°-60° | 22710.5 | 68.6 | 64.5 | 180° | 1528 | 1528 | 1528 | 1528 | 1528 | |
| 0°-90° | 30620.3 | 92.4 | 87.0 | | | | | | | |
| 90°-120° | 371.7 | 1.1 | 1.1 | | | | | | | |
| 90°-150° | 1477.0 | 4.5 | 4.2 | | | | | | | |
| 90°-180° | 2506.0 | 7.6 | 7.1 | | | | | | | |
| 0°-180° | 33125.9 | 100.0 | 94.1 | | | | | | | |



TEST NUMBER: 236P254

CATALOG NUMBER: HBL-854T5-M-UNV-EBT2-UPL-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|------|-------|------|
| 0° | 8101 | 8101 | 8101 | 8101 | 8101 |
| 2.5° | 8135 | 8126 | 8111 | 8096 | 8099 |
| 5° | 8135 | 8105 | 8060 | 8031 | 8028 |
| 7.5° | 8113 | 8059 | 7999 | 7991 | 7995 |
| 10° | 8068 | 7989 | 7954 | 7949 | 7962 |
| 12.5° | 7998 | 7898 | 7886 | 7949 | 8026 |
| 15° | 7903 | 7799 | 7834 | 8128 | 8327 |
| 17.5° | 7790 | 7686 | 7853 | 8447 | 8684 |
| 20° | 7653 | 7545 | 7992 | 8722 | 8971 |
| 22.5° | 7488 | 7393 | 8175 | 8948 | 9216 |
| 25° | 7307 | 7233 | 8309 | 9131 | 9421 |
| 27.5° | 7111 | 7084 | 8403 | 9286 | 9638 |
| 30° | 6894 | 6966 | 8464 | 9459 | 9844 |
| 32.5° | 6658 | 6882 | 8493 | 9604 | 9952 |
| 35° | 6413 | 6819 | 8517 | 9630 | 9807 |
| 37.5° | 6146 | 6745 | 8544 | 9414 | 9436 |
| 40° | 5871 | 6646 | 8537 | 9018 | 8950 |
| 42.5° | 5584 | 6518 | 8426 | 8512 | 8393 |
| 45° | 5287 | 6371 | 8125 | 7949 | 7794 |
| 47.5° | 4977 | 6205 | 7680 | 7353 | 7240 |
| 50° | 4664 | 6029 | 7161 | 6818 | 6856 |
| 52.5° | 4346 | 5845 | 6592 | 6444 | 6566 |
| 55° | 4024 | 5666 | 5999 | 6141 | 6218 |
| 57.5° | 3692 | 5453 | 5470 | 5789 | 5873 |
| 60° | 3358 | 5153 | 5090 | 5444 | 5405 |
| 62.5° | 3016 | 4733 | 4745 | 4980 | 4922 |
| 65° | 2669 | 4222 | 4375 | 4455 | 4500 |
| 67.5° | 2325 | 3668 | 3924 | 4045 | 4143 |
| 70° | 1983 | 3108 | 3445 | 3765 | 4026 |
| 72.5° | 1647 | 2644 | 3029 | 3639 | 3829 |
| 75° | 1321 | 2289 | 2775 | 3437 | 3622 |
| 77.5° | 1015 | 1881 | 2594 | 3009 | 3011 |
| 80° | 730 | 1482 | 2289 | 2334 | 2329 |
| 82.5° | 473 | 1208 | 1635 | 1646 | 1618 |
| 85° | 261 | 889 | 967 | 950 | 923 |
| 87.5° | 86 | 351 | 338 | 308 | 292 |
| 90° | 7 | 12 | 13 | 13 | 12 |
| 92.5° | 42 | 66 | 68 | 48 | 26 |
| 95° | 35 | 62 | 66 | 55 | 38 |
| 97.5° | 77 | 79 | 97 | 83 | 72 |
| 100° | 122 | 45 | 147 | 135 | 128 |
| 102.5° | 171 | 39 | 176 | 198 | 191 |
| 105° | 233 | 38 | 139 | 240 | 246 |
| 107.5° | 293 | 46 | 60 | 252 | 275 |
| 110° | 355 | 71 | 47 | 148 | 241 |



TEST NUMBER: 236P254

CATALOG NUMBER: HBL-854T5-M-UNV-EBT2-UPL-U

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|------|-------|------|
| 112.5° | 419 | 112 | 48 | 65 | 107 |
| 115° | 484 | 168 | 49 | 53 | 55 |
| 117.5° | 551 | 231 | 52 | 54 | 52 |
| 120° | 615 | 299 | 66 | 52 | 51 |
| 122.5° | 679 | 371 | 92 | 52 | 51 |
| 125° | 744 | 445 | 135 | 58 | 52 |
| 127.5° | 806 | 522 | 192 | 75 | 60 |
| 130° | 865 | 598 | 261 | 108 | 80 |
| 132.5° | 918 | 673 | 331 | 154 | 113 |
| 135° | 972 | 749 | 408 | 217 | 163 |
| 137.5° | 1026 | 827 | 491 | 294 | 234 |
| 140° | 1074 | 901 | 570 | 373 | 309 |
| 142.5° | 1124 | 974 | 655 | 461 | 396 |
| 145° | 1170 | 1044 | 742 | 551 | 485 |
| 147.5° | 1213 | 1106 | 827 | 641 | 578 |
| 150° | 1255 | 1169 | 914 | 736 | 676 |
| 152.5° | 1292 | 1225 | 1001 | 831 | 772 |
| 155° | 1328 | 1277 | 1087 | 926 | 873 |
| 157.5° | 1363 | 1324 | 1170 | 1025 | 974 |
| 160° | 1393 | 1366 | 1248 | 1123 | 1076 |
| 162.5° | 1421 | 1404 | 1318 | 1219 | 1180 |
| 165° | 1445 | 1433 | 1373 | 1301 | 1272 |
| 167.5° | 1467 | 1460 | 1423 | 1374 | 1356 |
| 170° | 1486 | 1482 | 1462 | 1434 | 1424 |
| 172.5° | 1502 | 1500 | 1489 | 1477 | 1474 |
| 175° | 1513 | 1512 | 1507 | 1504 | 1504 |
| 177.5° | 1522 | 1523 | 1521 | 1519 | 1520 |
| 180° | 1528 | 1528 | 1528 | 1528 | 1528 |

(END OF REPORT)