

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: 236P251

Luminaire Tested: **HBL-854T5-N-UNV-EBT2-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-41-14  
Report Number: 236P251  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: HBL-854T5-N-UNV-EBT2-U  
Description: OPEN HIGH BAY LUMINAIRE WITH SPECULAR REFLECTOR, NARROW  
DISTRIBUTION, NO UPLIGHT  
Light Source: EIGHT 54 WATT T5HO - 4400 LUMENS EA  
Ballast/Driver: -

**Summary**

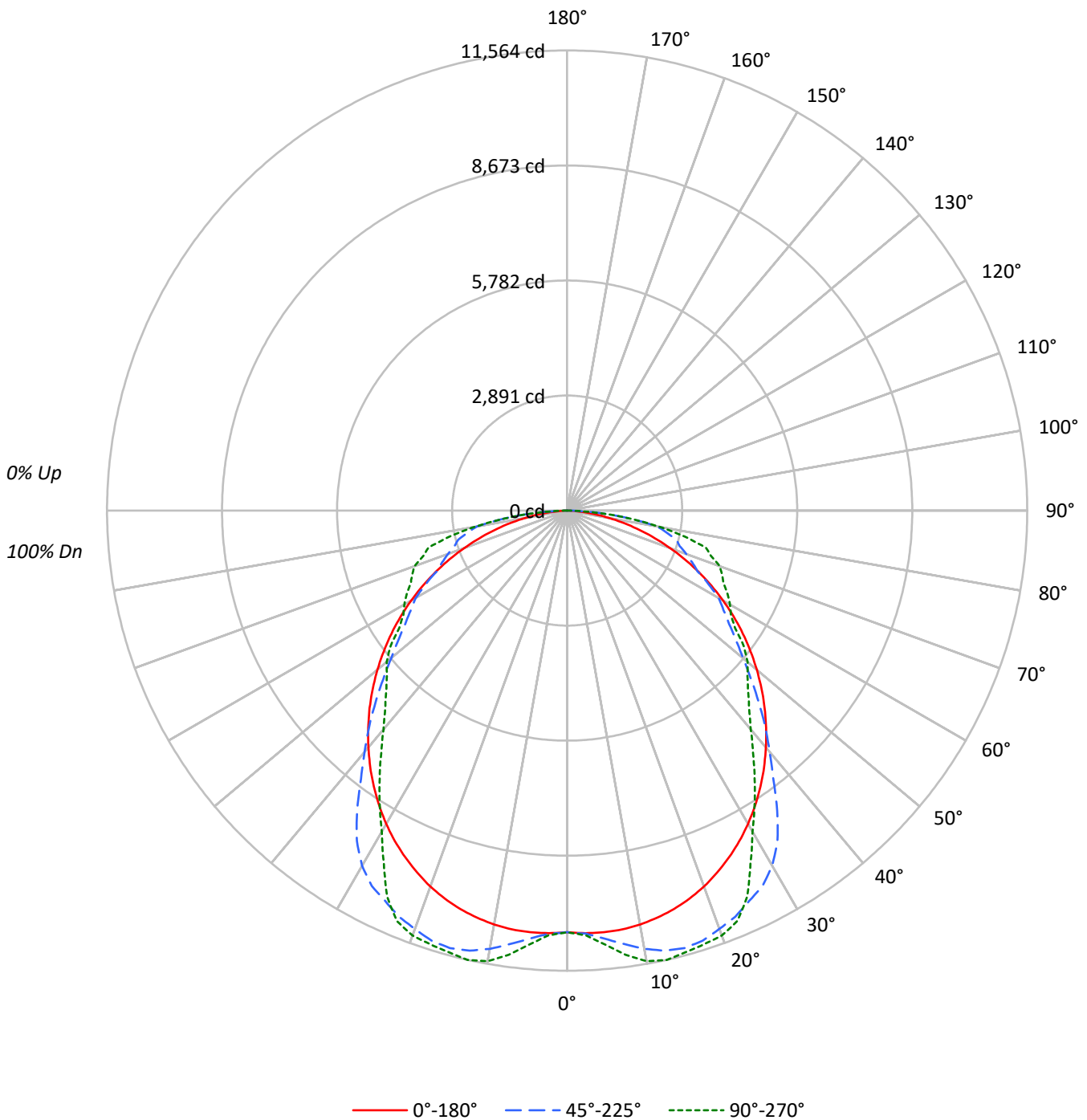
Lumens per Lamp: 4400 (8 lamps)  
Luminaire Lumens: 32322.3 lumens  
Efficiency: 91.8%  
Efficacy: 71.2 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.27 / 1.35  
Luminous Opening: Rectangular (W 2.08' x L: 3.75' x H: 0')  
CIE Type: Direct

Input Watts (W): 454  
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   | 109 | 109 | 109 | 109 | 107 | 107 | 107 | 107 | 102 | 102 | 102 |  | 98 | 98 | 98 |  | 94 | 94 | 94 | 92 |
| 1   | 99  | 95  | 90  | 87  | 97  | 92  | 89  | 85  | 89  | 85  | 82  |  | 85 | 82 | 80 |  | 82 | 79 | 78 | 76 |
| 2   | 90  | 82  | 76  | 70  | 88  | 80  | 74  | 69  | 77  | 72  | 68  |  | 74 | 70 | 66 |  | 71 | 68 | 65 | 63 |
| 3   | 82  | 72  | 64  | 58  | 80  | 71  | 63  | 58  | 68  | 62  | 57  |  | 65 | 60 | 56 |  | 63 | 58 | 55 | 53 |
| 4   | 75  | 64  | 56  | 49  | 73  | 63  | 55  | 49  | 60  | 54  | 48  |  | 58 | 52 | 48 |  | 56 | 51 | 47 | 45 |
| 5   | 69  | 57  | 49  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  |  | 52 | 46 | 41 |  | 51 | 45 | 41 | 39 |
| 6   | 64  | 52  | 43  | 37  | 62  | 51  | 43  | 37  | 49  | 42  | 37  |  | 47 | 41 | 36 |  | 46 | 40 | 36 | 34 |
| 7   | 59  | 47  | 39  | 33  | 58  | 46  | 38  | 33  | 45  | 38  | 33  |  | 43 | 37 | 32 |  | 42 | 36 | 32 | 30 |
| 8   | 55  | 43  | 35  | 29  | 54  | 42  | 35  | 29  | 41  | 34  | 29  |  | 40 | 34 | 29 |  | 39 | 33 | 29 | 27 |
| 9   | 52  | 39  | 32  | 27  | 50  | 39  | 31  | 27  | 38  | 31  | 26  |  | 37 | 31 | 26 |  | 36 | 30 | 26 | 24 |
| 10  | 48  | 36  | 29  | 24  | 47  | 36  | 29  | 24  | 35  | 28  | 24  |  | 34 | 28 | 24 |  | 33 | 28 | 24 | 22 |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 14598 | 14598 | 14598 |
| 5°  | 14713 | 14930 | 15136 |
| 10° | 14778 | 15644 | 16088 |
| 15° | 14790 | 16235 | 16393 |
| 20° | 14743 | 16404 | 16659 |
| 25° | 14624 | 16456 | 16274 |
| 30° | 14465 | 16396 | 14824 |
| 35° | 14245 | 15486 | 13819 |
| 40° | 13977 | 14236 | 12916 |
| 45° | 13682 | 13261 | 12529 |
| 50° | 13334 | 12368 | 12687 |
| 55° | 12950 | 11941 | 12368 |
| 60° | 12480 | 12105 | 13020 |
| 65° | 11870 | 11795 | 14139 |
| 70° | 11078 | 12834 | 16436 |
| 75° | 10061 | 15113 | 19228 |
| 80° | 8537  | 18304 | 18685 |
| 85° | 5691  | 16014 | 15255 |



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

| Zone      | Lumens  | % Fixture | % Lamp |     | 0°    | 22.5° | 45°   | 67.5° | 90°   | Flux |
|-----------|---------|-----------|--------|-----|-------|-------|-------|-------|-------|------|
| 0°-10°    | 1040.5  | 3.2       | 3.0    | 0°  | 10595 | 10595 | 10595 | 10595 | 10595 |      |
| 10°-20°   | 3149.2  | 9.7       | 8.9    | 5°  | 10638 | 10678 | 10795 | 10899 | 10944 | ###  |
| 20°-30°   | 4848.9  | 15.0      | 13.8   | 15° | 10369 | 10847 | 11382 | 11463 | 11493 | 2925 |
| 30°-40°   | 5521.5  | 17.1      | 15.7   | 25° | 9620  | 10509 | 10825 | 10869 | 10705 | 4432 |
| 40°-50°   | 5392.4  | 16.7      | 15.3   | 35° | 8469  | 9393  | 9207  | 8415  | 8216  | 5295 |
| 50°-60°   | 4741.9  | 14.7      | 13.5   | 45° | 7022  | 7956  | 6806  | 6425  | 6430  | 5413 |
| 60°-70°   | 3810.4  | 11.8      | 10.8   | 55° | 5391  | 5670  | 4971  | 5216  | 5149  | 4817 |
| 70°-80°   | 2825.6  | 8.7       | 8.0    | 65° | 3641  | 3459  | 3618  | 4163  | 4337  | 3602 |
| 80°-90°   | 992.0   | 3.1       | 2.8    | 75° | 1890  | 1959  | 2839  | 3406  | 3612  | 2001 |
| 90°-100°  | 0.0     | 0.0       | 0.0    | 85° | 360   | 923   | 1013  | 991   | 965   | 461  |
| 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°    | 9038.6  | 28.0      | 25.7   |     |       |       |       |       |       |      |
| 0°-40°    | 14560.1 | 45.0      | 41.4   |     |       |       |       |       |       |      |
| 0°-60°    | 24694.3 | 76.4      | 70.2   |     |       |       |       |       |       |      |
| 0°-90°    | 32322.3 | 100.0     | 91.8   |     |       |       |       |       |       |      |
| 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°   | 32322.3 | 100.0     | 91.8   |     |       |       |       |       |       |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 10595 | 10595 | 10595 | 10595 | 10595 |
| 2.5°  | 10631 | 10626 | 10641 | 10667 | 10681 |
| 5°    | 10638 | 10678 | 10795 | 10899 | 10944 |
| 7.5°  | 10618 | 10741 | 10989 | 11184 | 11261 |
| 10°   | 10563 | 10795 | 11182 | 11422 | 11499 |
| 12.5° | 10479 | 10834 | 11327 | 11519 | 11564 |
| 15°   | 10369 | 10847 | 11382 | 11463 | 11493 |
| 17.5° | 10224 | 10832 | 11330 | 11363 | 11429 |
| 20°   | 10055 | 10775 | 11188 | 11281 | 11362 |
| 22.5° | 9848  | 10668 | 11046 | 11156 | 11169 |
| 25°   | 9620  | 10509 | 10825 | 10869 | 10705 |
| 27.5° | 9369  | 10295 | 10632 | 10304 | 9983  |
| 30°   | 9092  | 10026 | 10306 | 9577  | 9318  |
| 32.5° | 8791  | 9719  | 9839  | 8951  | 8766  |
| 35°   | 8469  | 9393  | 9207  | 8415  | 8216  |
| 37.5° | 8129  | 9054  | 8508  | 7854  | 7675  |
| 40°   | 7771  | 8716  | 7915  | 7326  | 7181  |
| 42.5° | 7402  | 8354  | 7364  | 6834  | 6767  |
| 45°   | 7022  | 7956  | 6806  | 6425  | 6430  |
| 47.5° | 6624  | 7495  | 6268  | 6084  | 6141  |
| 50°   | 6221  | 6933  | 5770  | 5795  | 5919  |
| 52.5° | 5810  | 6310  | 5339  | 5564  | 5597  |
| 55°   | 5391  | 5670  | 4971  | 5216  | 5149  |
| 57.5° | 4964  | 5070  | 4660  | 4799  | 4878  |
| 60°   | 4529  | 4513  | 4393  | 4555  | 4725  |
| 62.5° | 4087  | 3969  | 4010  | 4373  | 4546  |
| 65°   | 3641  | 3459  | 3618  | 4163  | 4337  |
| 67.5° | 3194  | 2997  | 3397  | 3964  | 4219  |
| 70°   | 2750  | 2625  | 3186  | 3861  | 4080  |
| 72.5° | 2314  | 2304  | 2965  | 3620  | 3785  |
| 75°   | 1890  | 1959  | 2839  | 3406  | 3612  |
| 77.5° | 1474  | 1648  | 2560  | 3014  | 3025  |
| 80°   | 1076  | 1418  | 2307  | 2362  | 2355  |
| 82.5° | 697   | 1223  | 1671  | 1684  | 1658  |
| 85°   | 360   | 923   | 1013  | 991   | 965   |
| 87.5° | 101   | 393   | 381   | 353   | 326   |
| 90°   | 0     | 0     | 0     | 0     | 0     |

(END OF REPORT)