

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: 165P127

Luminaire Tested: **P410T5-354-UPL-TBW**

Issue Date: 3/3/2020



Test Information

Test Method: LM-41-14
Report Number: 165P127
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: P410T5-354-UPL-TBW
Description: P410T5 Series Dedicated Luminare with New TBW, faceted reflector, tall sockets, and 16 unlensed uplight apertures.
Light Source: Three - F54T5/HO/830 - 4400 Lumens ea. - 54 Watts ea.
Ballast/Driver: Two - Triad B254PUNV-D Electronic - L.O.B.F. = Unknown

Summary

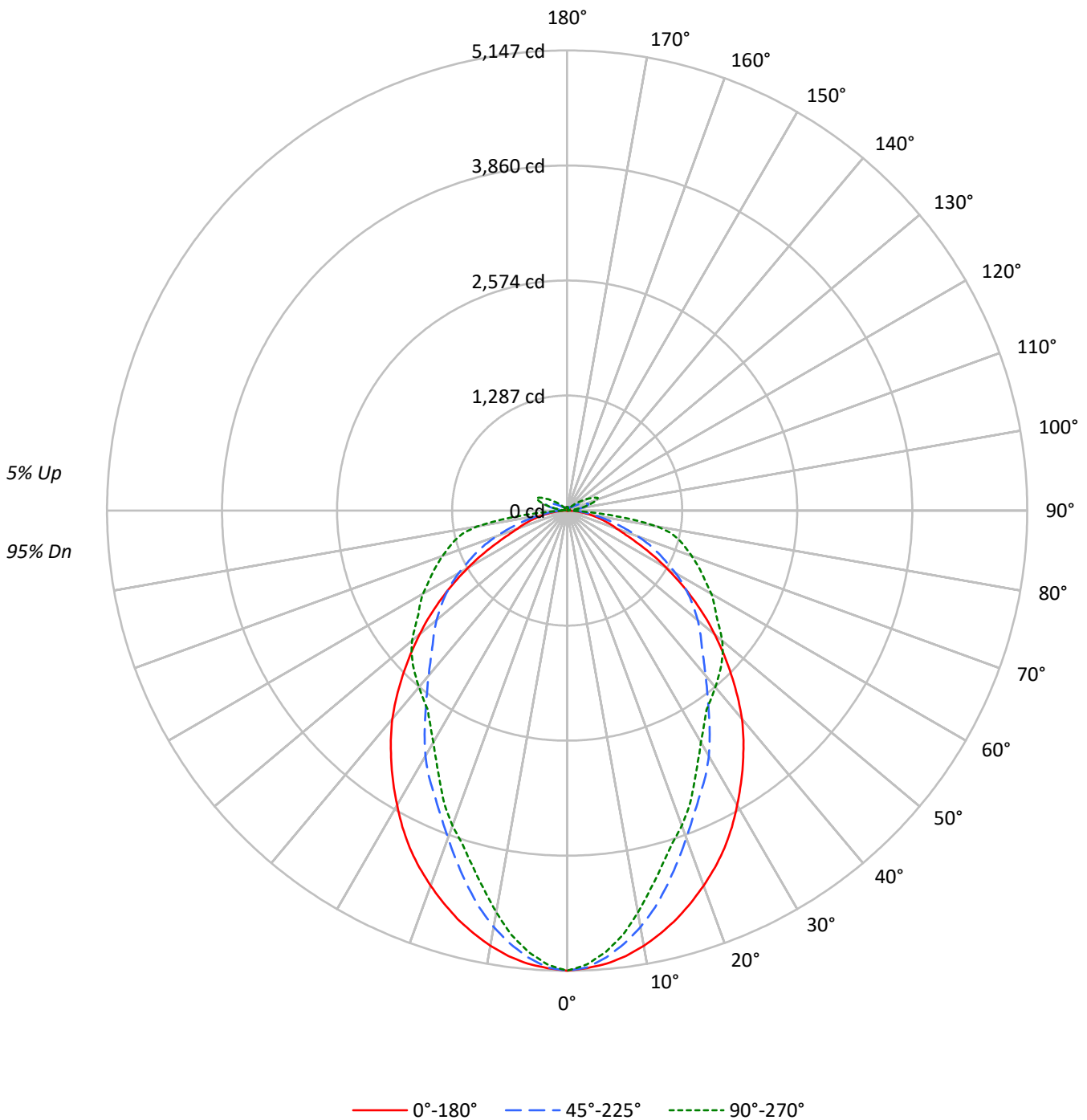
Lumens per Lamp: 4400 (3 lamps)
Luminaire Lumens: 11285.7 lumens
Efficiency: 85.5%
Efficacy: 64.5 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 0.91 / 1.09
Luminous Opening: Rectangular w/ Sides (W: 0.75' x L: 3.85' x H: 0.13')
CIE Type: Direct

Input Watts (W): 175
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 | 101 | 101 | 101 | 101 | 98 | 98 | 98 | 98 | 92 | 92 | 92 | | 87 | 87 | 87 | | 83 | 83 | 83 | 81 |
| 1 | 92 | 88 | 84 | 81 | 89 | 86 | 82 | 79 | 81 | 79 | 76 | | 77 | 75 | 73 | | 73 | 72 | 70 | 68 |
| 2 | 84 | 77 | 71 | 67 | 81 | 75 | 70 | 65 | 71 | 67 | 63 | | 68 | 64 | 61 | | 65 | 62 | 59 | 57 |
| 3 | 77 | 68 | 61 | 56 | 74 | 66 | 60 | 55 | 63 | 58 | 54 | | 60 | 56 | 52 | | 57 | 54 | 51 | 49 |
| 4 | 71 | 61 | 53 | 48 | 68 | 59 | 52 | 47 | 56 | 51 | 46 | | 54 | 49 | 45 | | 52 | 47 | 44 | 42 |
| 5 | 65 | 54 | 47 | 42 | 63 | 53 | 46 | 41 | 51 | 45 | 40 | | 49 | 44 | 39 | | 47 | 42 | 39 | 37 |
| 6 | 60 | 49 | 42 | 37 | 58 | 48 | 41 | 36 | 46 | 40 | 36 | | 44 | 39 | 35 | | 43 | 38 | 34 | 32 |
| 7 | 56 | 45 | 38 | 33 | 54 | 44 | 37 | 32 | 42 | 36 | 32 | | 41 | 35 | 31 | | 39 | 34 | 31 | 29 |
| 8 | 52 | 41 | 34 | 29 | 51 | 40 | 34 | 29 | 39 | 33 | 29 | | 37 | 32 | 28 | | 36 | 31 | 28 | 26 |
| 9 | 49 | 38 | 31 | 27 | 48 | 37 | 31 | 26 | 36 | 30 | 26 | | 35 | 29 | 26 | | 34 | 29 | 25 | 24 |
| 10 | 46 | 35 | 29 | 24 | 45 | 35 | 28 | 24 | 33 | 28 | 24 | | 32 | 27 | 23 | | 31 | 27 | 23 | 22 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 19187 | 19187 | 19187 |
| 5° | 18979 | 18536 | 18265 |
| 10° | 18600 | 17450 | 16760 |
| 15° | 18091 | 16083 | 15139 |
| 20° | 17494 | 14677 | 13993 |
| 25° | 16862 | 13522 | 12798 |
| 30° | 16061 | 12585 | 11711 |
| 35° | 15249 | 11400 | 11034 |
| 40° | 14395 | 10431 | 10956 |
| 45° | 13244 | 9776 | 10968 |
| 50° | 12014 | 9421 | 10882 |
| 55° | 10627 | 8966 | 10591 |
| 60° | 9023 | 8332 | 10688 |
| 65° | 7271 | 7552 | 10694 |
| 70° | 5915 | 6529 | 10942 |
| 75° | 5308 | 5169 | 11404 |
| 80° | 4594 | 3823 | 11064 |
| 85° | 3456 | 2687 | 4907 |



TEST NUMBER: 165P127

CATALOG NUMBER: P410T5-354-UPL-TBW

ZONAL LUMENS:

CANDELA DISTRIBUTION:

| Zone | Lumens | % Fixture | % Lamp | | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----------|---------|-----------|--------|------|------|-------|------|-------|------|------|
| 0°-10° | 470.4 | 4.2 | 3.6 | 0° | 5147 | 5147 | 5147 | 5147 | 5147 | |
| 10°-20° | 1228.2 | 10.9 | 9.3 | 5° | 5087 | 5064 | 5017 | 4985 | 4955 | 481 |
| 20°-30° | 1670.9 | 14.8 | 12.7 | 15° | 4730 | 4566 | 4331 | 4171 | 4105 | 1331 |
| 30°-40° | 1811.8 | 16.1 | 13.7 | 25° | 4164 | 3833 | 3512 | 3433 | 3363 | 1913 |
| 40°-50° | 1779.6 | 15.8 | 13.5 | 35° | 3430 | 2984 | 2762 | 2712 | 2719 | 2144 |
| 50°-60° | 1554.0 | 13.8 | 11.8 | 45° | 2597 | 2251 | 2126 | 2326 | 2441 | 2003 |
| 60°-70° | 1174.5 | 10.4 | 8.9 | 55° | 1714 | 1505 | 1668 | 1891 | 2033 | 1532 |
| 70°-80° | 736.9 | 6.5 | 5.6 | 65° | 884 | 907 | 1125 | 1427 | 1663 | 891 |
| 80°-90° | 240.8 | 2.1 | 1.8 | 75° | 415 | 439 | 555 | 935 | 1304 | 441 |
| 90°-100° | 66.8 | 0.6 | 0.5 | 85° | 112 | 129 | 168 | 260 | 342 | 121 |
| 100°-110° | 186.7 | 1.7 | 1.4 | 90° | 2 | 32 | 68 | 90 | 13 | 7 |
| 110°-120° | 179.6 | 1.6 | 1.4 | 95° | 4 | 62 | 57 | 48 | 19 | 5 |
| 120°-130° | 93.2 | 0.8 | 0.7 | 105° | 21 | 92 | 242 | 264 | 257 | 22 |
| 130°-140° | 39.7 | 0.4 | 0.3 | 115° | 33 | 67 | 179 | 298 | 344 | 32 |
| 140°-150° | 24.0 | 0.2 | 0.2 | 125° | 37 | 56 | 83 | 160 | 181 | 33 |
| 150°-160° | 15.0 | 0.1 | 0.1 | 135° | 38 | 41 | 54 | 50 | 57 | 30 |
| 160°-170° | 10.0 | 0.1 | 0.1 | 145° | 39 | 39 | 40 | 39 | 32 | 24 |
| 170°-180° | 3.6 | 0.0 | 0.0 | 155° | 39 | 44 | 27 | 24 | 23 | 18 |
| 0°-30° | 3369.5 | 29.9 | 25.5 | 165° | 39 | 41 | 41 | 31 | 26 | 11 |
| 0°-40° | 5181.2 | 45.9 | 39.3 | 175° | 38 | 39 | 38 | 37 | 35 | 4 |
| 0°-60° | 8514.9 | 75.4 | 64.5 | 180° | 37 | 37 | 37 | 37 | 37 | |
| 0°-90° | 10667.2 | 94.5 | 80.8 | | | | | | | |
| 90°-120° | 433.1 | 3.8 | 3.3 | | | | | | | |
| 90°-150° | 590.0 | 5.2 | 4.5 | | | | | | | |
| 90°-180° | 619.0 | 5.5 | 4.7 | | | | | | | |
| 0°-180° | 11285.7 | 100.0 | 85.5 | | | | | | | |



TEST NUMBER: 165P127

CATALOG NUMBER: P410T5-354-UPL-TBW

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|------|-------|------|
| 0° | 5147 | 5147 | 5147 | 5147 | 5147 |
| 2.5° | 5122 | 5124 | 5114 | 5102 | 5081 |
| 5° | 5087 | 5064 | 5017 | 4985 | 4955 |
| 7.5° | 5026 | 4972 | 4886 | 4823 | 4785 |
| 10° | 4943 | 4857 | 4729 | 4620 | 4563 |
| 12.5° | 4843 | 4720 | 4544 | 4392 | 4327 |
| 15° | 4730 | 4566 | 4331 | 4171 | 4105 |
| 17.5° | 4602 | 4401 | 4112 | 3956 | 3904 |
| 20° | 4464 | 4223 | 3897 | 3778 | 3750 |
| 22.5° | 4320 | 4035 | 3691 | 3621 | 3574 |
| 25° | 4164 | 3833 | 3512 | 3433 | 3363 |
| 27.5° | 3990 | 3623 | 3349 | 3220 | 3165 |
| 30° | 3804 | 3408 | 3171 | 3030 | 2993 |
| 32.5° | 3618 | 3194 | 2968 | 2861 | 2846 |
| 35° | 3430 | 2984 | 2762 | 2712 | 2719 |
| 37.5° | 3239 | 2791 | 2577 | 2587 | 2647 |
| 40° | 3042 | 2613 | 2407 | 2501 | 2579 |
| 42.5° | 2822 | 2441 | 2259 | 2415 | 2509 |
| 45° | 2597 | 2251 | 2126 | 2326 | 2441 |
| 47.5° | 2374 | 2043 | 2019 | 2240 | 2360 |
| 50° | 2155 | 1848 | 1908 | 2137 | 2264 |
| 52.5° | 1937 | 1672 | 1787 | 2022 | 2145 |
| 55° | 1714 | 1505 | 1668 | 1891 | 2033 |
| 57.5° | 1494 | 1340 | 1540 | 1771 | 1952 |
| 60° | 1281 | 1189 | 1401 | 1671 | 1864 |
| 62.5° | 1076 | 1047 | 1256 | 1555 | 1754 |
| 65° | 884 | 907 | 1125 | 1427 | 1663 |
| 67.5° | 710 | 766 | 994 | 1311 | 1572 |
| 70° | 593 | 637 | 840 | 1189 | 1482 |
| 72.5° | 502 | 529 | 690 | 1064 | 1393 |
| 75° | 415 | 439 | 555 | 935 | 1304 |
| 77.5° | 333 | 355 | 430 | 800 | 1203 |
| 80° | 255 | 273 | 326 | 658 | 1022 |
| 82.5° | 181 | 199 | 243 | 450 | 687 |
| 85° | 112 | 129 | 168 | 260 | 342 |
| 87.5° | 46 | 70 | 109 | 142 | 80 |
| 90° | 2 | 32 | 68 | 90 | 13 |
| 92.5° | 1 | 27 | 44 | 58 | 11 |
| 95° | 4 | 62 | 57 | 48 | 19 |
| 97.5° | 8 | 97 | 105 | 87 | 67 |
| 100° | 13 | 108 | 161 | 145 | 132 |
| 102.5° | 17 | 100 | 209 | 206 | 197 |
| 105° | 21 | 92 | 242 | 264 | 257 |
| 107.5° | 25 | 84 | 248 | 310 | 313 |
| 110° | 28 | 76 | 228 | 337 | 351 |



TEST NUMBER: 165P127

CATALOG NUMBER: P410T5-354-UPL-TBW

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|----|-------|-----|-------|-----|
| 112.5° | 31 | 71 | 204 | 332 | 371 |
| 115° | 33 | 67 | 179 | 298 | 344 |
| 117.5° | 34 | 65 | 154 | 262 | 302 |
| 120° | 35 | 63 | 130 | 224 | 260 |
| 122.5° | 36 | 59 | 105 | 191 | 219 |
| 125° | 37 | 56 | 83 | 160 | 181 |
| 127.5° | 37 | 53 | 66 | 128 | 147 |
| 130° | 38 | 49 | 57 | 98 | 115 |
| 132.5° | 38 | 45 | 55 | 71 | 85 |
| 135° | 38 | 41 | 54 | 50 | 57 |
| 137.5° | 39 | 39 | 52 | 40 | 37 |
| 140° | 39 | 37 | 48 | 39 | 29 |
| 142.5° | 39 | 38 | 45 | 40 | 30 |
| 145° | 39 | 39 | 40 | 39 | 32 |
| 147.5° | 39 | 41 | 36 | 36 | 31 |
| 150° | 39 | 42 | 31 | 34 | 30 |
| 152.5° | 39 | 43 | 28 | 29 | 27 |
| 155° | 39 | 44 | 27 | 24 | 23 |
| 157.5° | 39 | 43 | 30 | 21 | 19 |
| 160° | 39 | 42 | 33 | 21 | 18 |
| 162.5° | 39 | 41 | 38 | 25 | 20 |
| 165° | 39 | 41 | 41 | 31 | 26 |
| 167.5° | 38 | 40 | 40 | 37 | 34 |
| 170° | 38 | 39 | 39 | 39 | 37 |
| 172.5° | 38 | 39 | 39 | 38 | 37 |
| 175° | 38 | 39 | 38 | 37 | 35 |
| 177.5° | 38 | 38 | 38 | 36 | 35 |
| 180° | 37 | 37 | 37 | 37 | 37 |

(END OF REPORT)