

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P475110

Luminaire Tested: **22CZ2-24-HRP-UNV-L830-CD1-U**

Issue Date: 02/10/2021

Test Information

Test Method: LM-79-08
Report Number: P475110
Test Lab: INNOVATION CENTER(G3)
Issue Date: 02/10/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 22CZ2-24-HRP-UNV-L830-CD1-U
Description: 2'X2' TROFFER LED MODULE, SMOOTH LENS W/ HRP INSERT
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

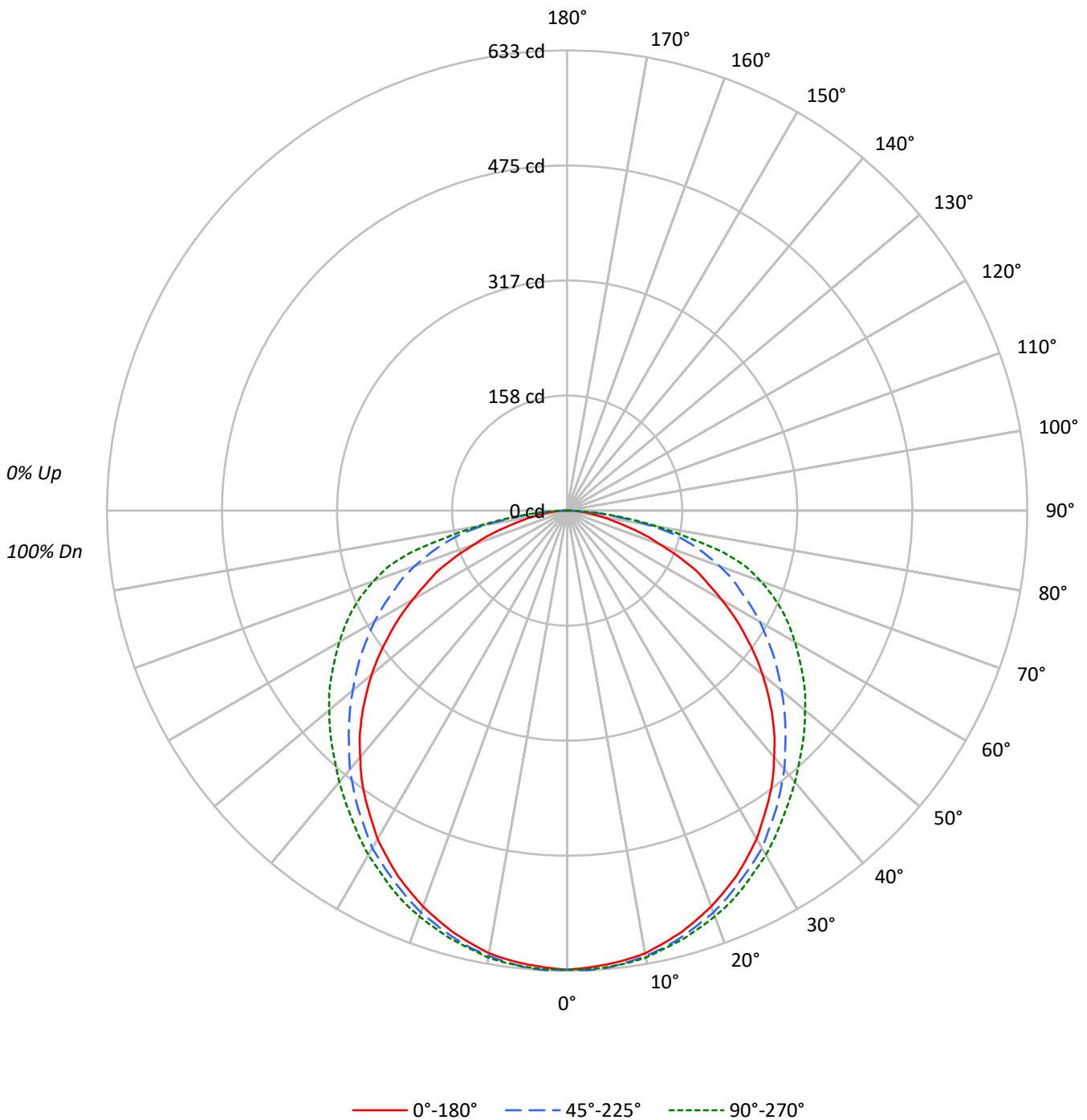
Lumens per Lamp: N/A
Luminaire Lumens: 1918.2 lumens
Efficiency: N/A
Efficacy: 103.7 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.29 / 1.38
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 18.5
Input Voltage (V): 120
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 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 |
| 1 | 108 | 103 | 98 | 94 | 105 | 101 | 96 | 93 | 96 | 93 | 90 | 92 | 90 | 87 | 89 | 87 | 84 |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 80 | 75 | 84 | 78 | 73 | 80 | 75 | 71 | 77 | 73 | 70 |
| 3 | 89 | 78 | 69 | 62 | 86 | 76 | 68 | 62 | 73 | 66 | 61 | 70 | 64 | 60 | 68 | 63 | 59 |
| 4 | 81 | 69 | 59 | 52 | 79 | 67 | 59 | 52 | 65 | 57 | 51 | 62 | 56 | 51 | 60 | 55 | 50 |
| 5 | 74 | 61 | 52 | 45 | 72 | 60 | 51 | 45 | 58 | 50 | 44 | 56 | 49 | 44 | 54 | 48 | 43 |
| 6 | 69 | 55 | 46 | 39 | 67 | 54 | 45 | 39 | 52 | 44 | 39 | 50 | 43 | 38 | 49 | 43 | 38 |
| 7 | 64 | 50 | 41 | 34 | 62 | 49 | 40 | 34 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 38 | 33 |
| 8 | 59 | 45 | 37 | 31 | 58 | 45 | 36 | 31 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 35 | 30 |
| 9 | 55 | 42 | 33 | 28 | 54 | 41 | 33 | 27 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 27 |
| 10 | 52 | 38 | 30 | 25 | 50 | 38 | 30 | 25 | 37 | 30 | 25 | 36 | 29 | 25 | 35 | 29 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1700 | 1700 | 1700 |
| 5° | 1693 | 1706 | 1703 |
| 10° | 1690 | 1700 | 1706 |
| 15° | 1675 | 1692 | 1702 |
| 20° | 1660 | 1684 | 1701 |
| 25° | 1642 | 1671 | 1700 |
| 30° | 1620 | 1666 | 1700 |
| 35° | 1590 | 1646 | 1697 |
| 40° | 1555 | 1632 | 1713 |
| 45° | 1520 | 1617 | 1741 |
| 50° | 1469 | 1611 | 1788 |
| 55° | 1402 | 1624 | 1856 |
| 60° | 1322 | 1647 | 1947 |
| 65° | 1248 | 1680 | 2081 |
| 70° | 1066 | 1752 | 2228 |
| 75° | 893 | 1825 | 2315 |
| 80° | 733 | 1762 | 1931 |
| 85° | 633 | 1306 | 1420 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 59.9 | 3.1 |
| 10°-20° | 171.2 | 8.9 |
| 20°-30° | 259.5 | 13.5 |
| 30°-40° | 313.4 | 16.3 |
| 40°-50° | 329.3 | 17.2 |
| 50°-60° | 309.8 | 16.2 |
| 60°-70° | 258.3 | 13.5 |
| 70°-80° | 171.2 | 8.9 |
| 80°-90° | 45.6 | 2.4 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 490.6 | 25.6 |
| 0°-40° | 804.0 | 41.9 |
| 0°-60° | 1443.1 | 75.2 |
| 0°-90° | 1918.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1918.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 632 | 632 | 632 | 632 | 632 | |
| 5° | 627 | 628 | 632 | 632 | 630 | 60 |
| 15° | 601 | 604 | 608 | 610 | 611 | 170 |
| 25° | 553 | 557 | 563 | 570 | 572 | 255 |
| 35° | 484 | 489 | 501 | 512 | 517 | 303 |
| 45° | 399 | 405 | 425 | 446 | 457 | 308 |
| 55° | 299 | 312 | 346 | 381 | 396 | 267 |
| 65° | 196 | 213 | 264 | 307 | 327 | 191 |
| 75° | 86 | 120 | 176 | 212 | 223 | 93 |
| 85° | 20 | 31 | 42 | 46 | 46 | 24 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P475110

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 631.6 | 631.6 | 631.6 | 631.6 | 631.6 |
| 2.5° | 629.3 | 630.4 | 632.9 | 632.9 | 631.6 |
| 5° | 626.8 | 628.0 | 631.6 | 631.6 | 630.4 |
| 7.5° | 623.2 | 624.5 | 626.8 | 629.3 | 628.0 |
| 10° | 618.4 | 619.5 | 622.0 | 624.5 | 624.5 |
| 12.5° | 609.9 | 611.1 | 615.9 | 617.2 | 617.2 |
| 15° | 601.4 | 603.8 | 607.5 | 609.9 | 611.1 |
| 17.5° | 590.6 | 592.9 | 597.7 | 602.7 | 602.7 |
| 20° | 579.7 | 582.0 | 588.1 | 592.9 | 594.1 |
| 22.5° | 566.3 | 569.9 | 576.0 | 582.0 | 584.5 |
| 25° | 553.1 | 556.7 | 562.7 | 569.9 | 572.4 |
| 27.5° | 537.2 | 540.9 | 549.4 | 557.9 | 559.0 |
| 30° | 521.5 | 525.2 | 536.1 | 543.3 | 547.0 |
| 32.5° | 502.2 | 507.0 | 517.9 | 528.8 | 532.4 |
| 35° | 484.0 | 488.9 | 501.0 | 511.9 | 516.7 |
| 37.5° | 464.7 | 469.5 | 482.8 | 496.2 | 502.2 |
| 40° | 442.8 | 448.9 | 464.7 | 479.2 | 487.6 |
| 42.5° | 422.3 | 428.4 | 444.1 | 463.5 | 471.9 |
| 45° | 399.3 | 405.3 | 424.8 | 446.5 | 457.4 |
| 47.5° | 375.1 | 382.3 | 405.3 | 432.1 | 442.8 |
| 50° | 350.9 | 359.4 | 384.8 | 415.1 | 427.1 |
| 52.5° | 325.5 | 336.4 | 365.5 | 398.2 | 412.6 |
| 55° | 298.9 | 312.2 | 346.1 | 381.2 | 395.7 |
| 57.5° | 273.4 | 285.6 | 325.5 | 363.0 | 378.7 |
| 60° | 245.6 | 261.3 | 306.1 | 344.8 | 361.8 |
| 62.5° | 219.0 | 236.0 | 285.6 | 326.8 | 344.8 |
| 65° | 196.0 | 212.9 | 263.8 | 307.3 | 326.8 |
| 67.5° | 165.8 | 188.8 | 245.6 | 286.8 | 306.1 |
| 70° | 135.5 | 167.0 | 222.7 | 265.0 | 283.2 |
| 72.5° | 112.6 | 142.8 | 199.7 | 242.0 | 259.0 |
| 75° | 85.9 | 119.8 | 175.5 | 211.7 | 222.7 |
| 77.5° | 64.1 | 99.2 | 150.1 | 168.3 | 169.4 |
| 80° | 47.3 | 76.2 | 113.7 | 119.8 | 124.6 |
| 82.5° | 32.7 | 53.2 | 73.9 | 81.0 | 83.5 |
| 85° | 20.5 | 31.4 | 42.3 | 46.0 | 46.0 |
| 87.5° | 10.9 | 12.1 | 14.5 | 14.5 | 14.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)