

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: P475151

Luminaire Tested: **22CZ2-29VHE-HRP-UNV-L835-CD1-U**

Issue Date: 02/10/2021

Test Information

Test Method: LM-79-08
Report Number: P475151
Test Lab: INNOVATION CENTER(G3)
Issue Date: 02/10/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 22CZ2-29VHE-HRP-UNV-L835-CD1-U
Description: 2'X2' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS W/ HRP
INSERT
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2368.6 lumens
Efficiency: N/A
Efficacy: 119.0 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

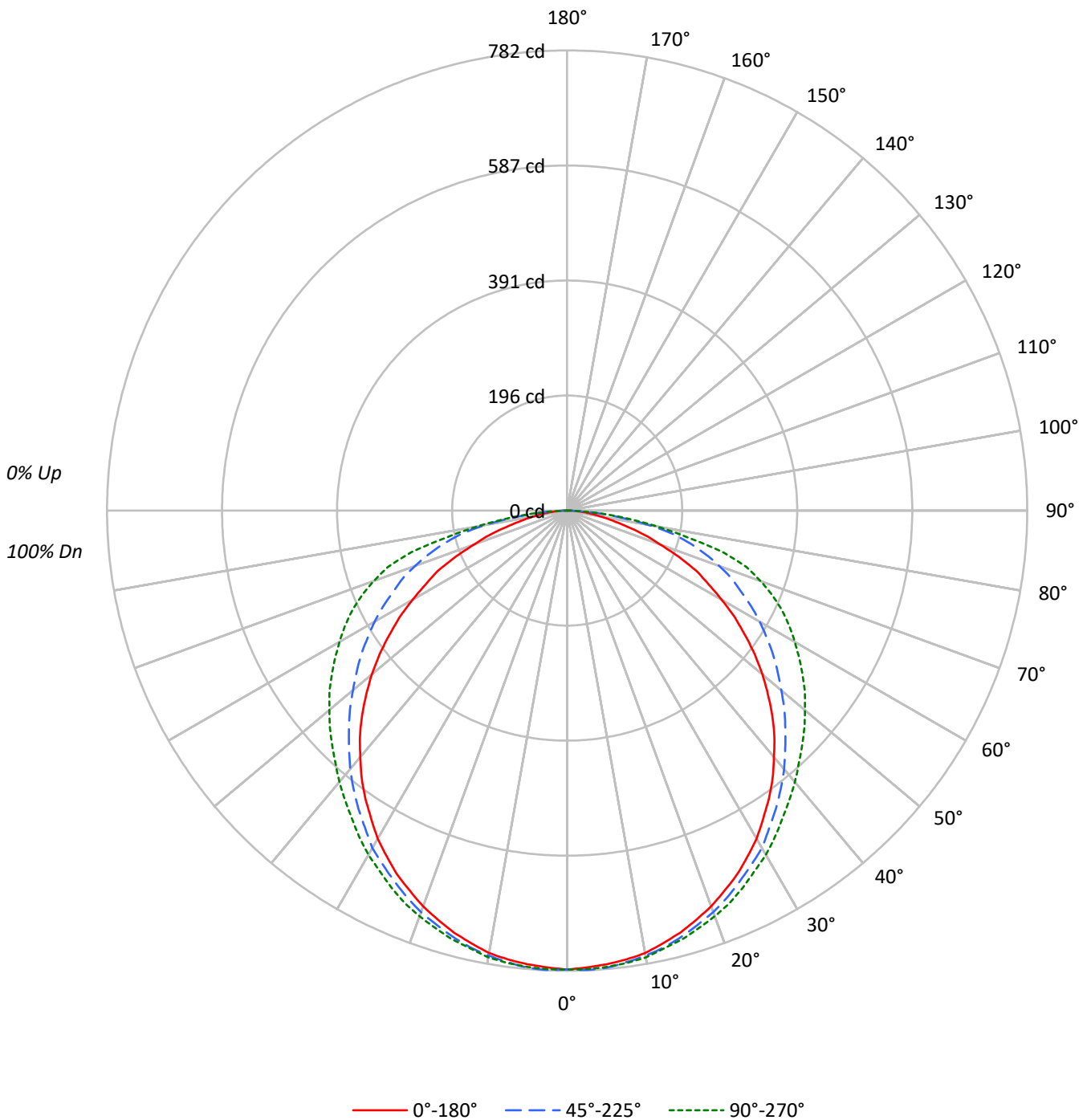
Input Watts (W): 19.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 0 | | |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | | 50 | 30 | 10 | | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | | 106 | 106 | 106 | | 102 | 102 | 102 | 100 |
| 1 | 108 | 103 | 98 | 94 | 105 | 101 | 96 | 93 | 96 | 93 | 90 | | 92 | 90 | 87 | | 89 | 87 | 84 | 82 |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 80 | 75 | 84 | 78 | 73 | | 80 | 75 | 71 | | 77 | 73 | 70 | 68 |
| 3 | 89 | 78 | 69 | 62 | 86 | 76 | 68 | 62 | 73 | 66 | 61 | | 70 | 64 | 60 | | 68 | 63 | 59 | 56 |
| 4 | 81 | 69 | 59 | 52 | 79 | 67 | 59 | 52 | 65 | 57 | 51 | | 62 | 56 | 51 | | 60 | 55 | 50 | 48 |
| 5 | 74 | 61 | 52 | 45 | 72 | 60 | 51 | 45 | 58 | 50 | 44 | | 56 | 49 | 44 | | 54 | 48 | 43 | 41 |
| 6 | 69 | 55 | 46 | 39 | 67 | 54 | 45 | 39 | 52 | 44 | 39 | | 50 | 43 | 38 | | 49 | 43 | 38 | 36 |
| 7 | 64 | 50 | 41 | 34 | 62 | 49 | 40 | 34 | 47 | 40 | 34 | | 46 | 39 | 34 | | 44 | 38 | 33 | 31 |
| 8 | 59 | 45 | 37 | 31 | 58 | 45 | 36 | 31 | 43 | 36 | 30 | | 42 | 35 | 30 | | 41 | 35 | 30 | 28 |
| 9 | 55 | 42 | 33 | 28 | 54 | 41 | 33 | 27 | 40 | 32 | 27 | | 39 | 32 | 27 | | 38 | 31 | 27 | 25 |
| 10 | 52 | 38 | 30 | 25 | 50 | 38 | 30 | 25 | 37 | 30 | 25 | | 36 | 29 | 25 | | 35 | 29 | 24 | 23 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2099 | 2099 | 2099 |
| 5° | 2091 | 2107 | 2103 |
| 10° | 2086 | 2099 | 2107 |
| 15° | 2069 | 2090 | 2102 |
| 20° | 2050 | 2080 | 2101 |
| 25° | 2028 | 2063 | 2099 |
| 30° | 2001 | 2057 | 2099 |
| 35° | 1963 | 2032 | 2096 |
| 40° | 1921 | 2015 | 2115 |
| 45° | 1877 | 1996 | 2149 |
| 50° | 1814 | 1989 | 2208 |
| 55° | 1731 | 2005 | 2292 |
| 60° | 1632 | 2034 | 2405 |
| 65° | 1542 | 2074 | 2569 |
| 70° | 1317 | 2163 | 2751 |
| 75° | 1103 | 2253 | 2858 |
| 80° | 903 | 2176 | 2385 |
| 85° | 781 | 1615 | 1751 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 73.9 | 3.1 |
| 10°-20° | 211.4 | 8.9 |
| 20°-30° | 320.5 | 13.5 |
| 30°-40° | 386.9 | 16.3 |
| 40°-50° | 406.6 | 17.2 |
| 50°-60° | 382.5 | 16.2 |
| 60°-70° | 319.0 | 13.5 |
| 70°-80° | 211.4 | 8.9 |
| 80°-90° | 56.3 | 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° | 605.8 | 25.6 |
| 0°-40° | 992.8 | 41.9 |
| 0°-60° | 1781.9 | 75.2 |
| 0°-90° | 2368.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2368.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 780 | 780 | 780 | 780 | 780 | |
| 5° | 774 | 775 | 780 | 780 | 778 | 74 |
| 15° | 742 | 746 | 750 | 753 | 754 | 209 |
| 25° | 683 | 687 | 695 | 704 | 707 | 314 |
| 35° | 598 | 604 | 619 | 632 | 638 | 374 |
| 45° | 493 | 500 | 524 | 551 | 565 | 380 |
| 55° | 369 | 386 | 427 | 471 | 489 | 330 |
| 65° | 242 | 263 | 326 | 379 | 404 | 236 |
| 75° | 106 | 148 | 217 | 262 | 275 | 115 |
| 85° | 25 | 39 | 52 | 57 | 57 | 29 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CATALOG NUMBER: 22CZ2-29VHE-HRP-UNV-L835-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 779.9 | 779.9 | 779.9 | 779.9 | 779.9 |
| 2.5° | 777.0 | 778.4 | 781.5 | 781.5 | 779.9 |
| 5° | 773.9 | 775.4 | 779.9 | 779.9 | 778.4 |
| 7.5° | 769.5 | 771.0 | 773.9 | 777.0 | 775.4 |
| 10° | 763.5 | 765.0 | 768.0 | 771.0 | 771.0 |
| 12.5° | 753.1 | 754.5 | 760.5 | 762.1 | 762.1 |
| 15° | 742.5 | 745.6 | 750.1 | 753.1 | 754.5 |
| 17.5° | 729.2 | 732.1 | 738.0 | 744.1 | 744.1 |
| 20° | 715.7 | 718.6 | 726.2 | 732.1 | 733.6 |
| 22.5° | 699.2 | 703.7 | 711.3 | 718.6 | 721.7 |
| 25° | 682.9 | 687.4 | 694.8 | 703.7 | 706.8 |
| 27.5° | 663.3 | 667.8 | 678.4 | 688.8 | 690.3 |
| 30° | 643.9 | 648.4 | 661.9 | 670.9 | 675.4 |
| 32.5° | 620.1 | 626.0 | 639.4 | 652.9 | 657.4 |
| 35° | 597.6 | 603.7 | 618.6 | 632.1 | 638.0 |
| 37.5° | 573.7 | 579.7 | 596.2 | 612.7 | 620.1 |
| 40° | 546.8 | 554.3 | 573.7 | 591.7 | 602.1 |
| 42.5° | 521.5 | 529.0 | 548.4 | 572.3 | 582.7 |
| 45° | 493.1 | 500.5 | 524.5 | 551.3 | 564.7 |
| 47.5° | 463.1 | 472.1 | 500.5 | 533.5 | 546.8 |
| 50° | 433.3 | 443.7 | 475.1 | 512.5 | 527.4 |
| 52.5° | 401.9 | 415.3 | 451.2 | 491.6 | 509.4 |
| 55° | 369.0 | 385.5 | 427.4 | 470.6 | 488.6 |
| 57.5° | 337.6 | 352.7 | 401.9 | 448.2 | 467.6 |
| 60° | 303.3 | 322.7 | 378.0 | 425.8 | 446.8 |
| 62.5° | 270.4 | 291.4 | 352.7 | 403.5 | 425.8 |
| 65° | 242.1 | 262.9 | 325.7 | 379.4 | 403.5 |
| 67.5° | 204.7 | 233.1 | 303.3 | 354.1 | 378.0 |
| 70° | 167.4 | 206.2 | 274.9 | 327.2 | 349.6 |
| 72.5° | 139.0 | 176.3 | 246.5 | 298.8 | 319.8 |
| 75° | 106.1 | 148.0 | 216.7 | 261.5 | 274.9 |
| 77.5° | 79.2 | 122.5 | 185.3 | 207.7 | 209.2 |
| 80° | 58.3 | 94.1 | 140.4 | 148.0 | 153.9 |
| 82.5° | 40.4 | 65.7 | 91.2 | 100.0 | 103.1 |
| 85° | 25.3 | 38.8 | 52.3 | 56.7 | 56.7 |
| 87.5° | 13.5 | 14.9 | 18.0 | 18.0 | 18.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)