

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: P474455

Luminaire Tested: **24CZ2-155VHE-HRP-UNV-L835-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474455
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-155VHE-HRP-UNV-L835-CD1-U
Description: 2'X4' 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: 12593.2 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.3 / 1.4
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

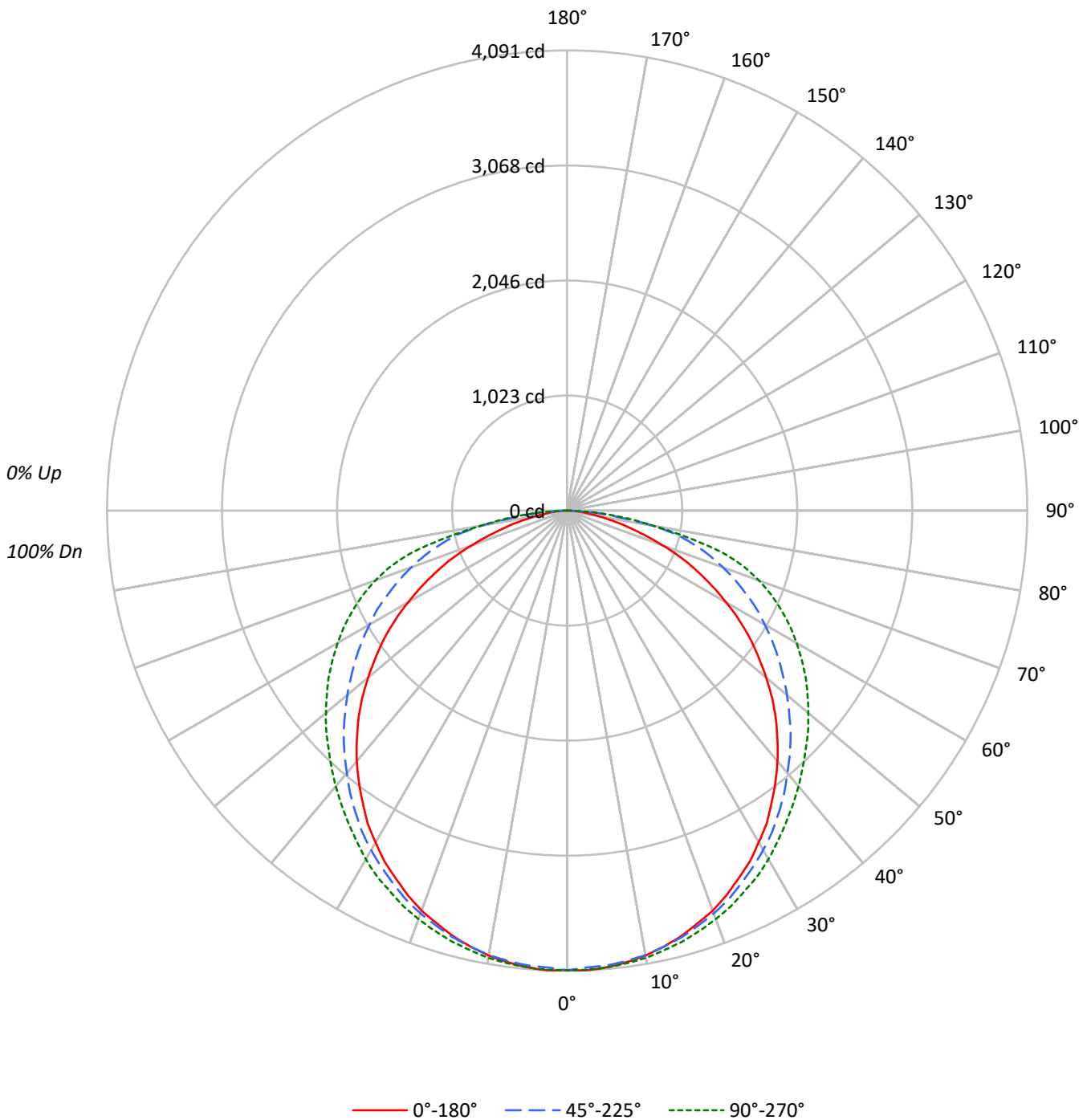
Input Watts (W): 114
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 86 | 84 | 82 |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 80 | 75 | 83 | 78 | 73 | 80 | 75 | 71 | 77 | 73 | 70 | 67 |
| 3 | 89 | 78 | 69 | 62 | 86 | 76 | 68 | 62 | 73 | 66 | 61 | 70 | 64 | 59 | 68 | 63 | 58 | 56 |
| 4 | 81 | 68 | 59 | 52 | 79 | 67 | 59 | 52 | 65 | 57 | 51 | 62 | 56 | 50 | 60 | 54 | 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 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 36 |
| 7 | 63 | 50 | 41 | 34 | 62 | 49 | 40 | 34 | 47 | 39 | 34 | 46 | 39 | 34 | 44 | 38 | 33 | 31 |
| 8 | 59 | 45 | 36 | 30 | 57 | 44 | 36 | 30 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 34 | 30 | 28 |
| 9 | 55 | 41 | 33 | 27 | 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 | 24 | 35 | 29 | 24 | 23 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5498 | 5498 | 5498 |
| 5° | 5505 | 5483 | 5505 |
| 10° | 5488 | 5482 | 5517 |
| 15° | 5456 | 5471 | 5523 |
| 20° | 5420 | 5457 | 5533 |
| 25° | 5353 | 5432 | 5541 |
| 30° | 5291 | 5414 | 5562 |
| 35° | 5205 | 5386 | 5568 |
| 40° | 5111 | 5353 | 5621 |
| 45° | 4996 | 5347 | 5708 |
| 50° | 4834 | 5341 | 5860 |
| 55° | 4662 | 5379 | 6072 |
| 60° | 4397 | 5462 | 6341 |
| 65° | 4062 | 5590 | 6698 |
| 70° | 3546 | 5786 | 7135 |
| 75° | 2877 | 6084 | 7373 |
| 80° | 2125 | 5966 | 5966 |
| 85° | 1629 | 4394 | 4962 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 387.1 | 3.1 |
| 10°-20° | 1111.5 | 8.8 |
| 20°-30° | 1692.1 | 13.4 |
| 30°-40° | 2054.6 | 16.3 |
| 40°-50° | 2170.7 | 17.2 |
| 50°-60° | 2048.3 | 16.3 |
| 60°-70° | 1703.1 | 13.5 |
| 70°-80° | 1120.5 | 8.9 |
| 80°-90° | 305.4 | 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° | 3190.7 | 25.3 |
| 0°-40° | 5245.3 | 41.7 |
| 0°-60° | 9464.3 | 75.2 |
| 0°-90° | 12593.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 12593.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4086 | 4086 | 4086 | 4086 | 4086 | |
| 5° | 4076 | 4076 | 4059 | 4076 | 4076 | 387 |
| 15° | 3917 | 3922 | 3928 | 3965 | 3965 | 1105 |
| 25° | 3606 | 3627 | 3659 | 3722 | 3732 | 1663 |
| 35° | 3169 | 3206 | 3279 | 3364 | 3390 | 1983 |
| 45° | 2625 | 2678 | 2810 | 2947 | 3000 | 2022 |
| 55° | 1988 | 2072 | 2293 | 2510 | 2589 | 1770 |
| 65° | 1276 | 1424 | 1756 | 2014 | 2104 | 1261 |
| 75° | 554 | 807 | 1170 | 1386 | 1418 | 596 |
| 85° | 106 | 232 | 285 | 316 | 321 | 129 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474455

CATALOG NUMBER: 24CZ2-155VHE-HRP-UNV-L835-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4085.9 | 4085.9 | 4085.9 | 4085.9 | 4085.9 |
| 2.5° | 4091.3 | 4085.9 | 4064.8 | 4085.9 | 4085.9 |
| 5° | 4075.6 | 4075.6 | 4059.3 | 4075.6 | 4075.6 |
| 7.5° | 4049.1 | 4049.1 | 4038.2 | 4059.3 | 4059.3 |
| 10° | 4017.1 | 4017.1 | 4012.3 | 4038.2 | 4038.2 |
| 12.5° | 3970.1 | 3974.9 | 3970.1 | 4001.5 | 4001.5 |
| 15° | 3917.0 | 3922.5 | 3927.9 | 3964.7 | 3964.7 |
| 17.5° | 3848.9 | 3859.1 | 3870.0 | 3911.6 | 3917.0 |
| 20° | 3785.6 | 3790.4 | 3811.5 | 3859.1 | 3864.6 |
| 22.5° | 3701.1 | 3716.8 | 3743.3 | 3790.4 | 3806.7 |
| 25° | 3605.9 | 3627.0 | 3658.9 | 3722.2 | 3732.5 |
| 27.5° | 3516.6 | 3532.3 | 3574.5 | 3643.2 | 3664.3 |
| 30° | 3405.7 | 3432.2 | 3484.7 | 3553.4 | 3579.9 |
| 32.5° | 3300.2 | 3326.7 | 3390.0 | 3463.6 | 3484.7 |
| 35° | 3168.7 | 3205.5 | 3279.1 | 3363.5 | 3390.0 |
| 37.5° | 3042.1 | 3078.9 | 3168.7 | 3263.4 | 3295.3 |
| 40° | 2910.0 | 2952.3 | 3047.5 | 3157.9 | 3200.1 |
| 42.5° | 2767.7 | 2825.6 | 2931.2 | 3052.4 | 3100.0 |
| 45° | 2625.4 | 2678.5 | 2809.9 | 2946.8 | 2999.9 |
| 47.5° | 2472.8 | 2536.1 | 2678.5 | 2841.9 | 2905.2 |
| 50° | 2309.4 | 2388.4 | 2551.8 | 2730.9 | 2799.7 |
| 52.5° | 2146.0 | 2235.3 | 2419.8 | 2620.0 | 2694.1 |
| 55° | 1987.5 | 2071.9 | 2293.2 | 2509.6 | 2588.6 |
| 57.5° | 1813.8 | 1919.3 | 2161.7 | 2393.3 | 2472.8 |
| 60° | 1634.1 | 1750.5 | 2029.7 | 2272.1 | 2356.5 |
| 62.5° | 1455.0 | 1587.1 | 1903.1 | 2146.0 | 2235.3 |
| 65° | 1275.9 | 1423.6 | 1755.9 | 2014.0 | 2103.8 |
| 67.5° | 1101.7 | 1265.1 | 1618.4 | 1877.1 | 1966.4 |
| 70° | 901.5 | 1107.1 | 1470.7 | 1724.0 | 1813.8 |
| 72.5° | 717.0 | 954.5 | 1328.4 | 1565.9 | 1645.0 |
| 75° | 553.5 | 806.8 | 1170.4 | 1386.3 | 1418.2 |
| 77.5° | 405.8 | 659.1 | 1007.0 | 1080.6 | 1086.0 |
| 80° | 274.3 | 527.0 | 770.0 | 759.2 | 770.0 |
| 82.5° | 179.1 | 395.5 | 484.8 | 543.3 | 548.1 |
| 85° | 105.5 | 232.1 | 284.6 | 316.5 | 321.4 |
| 87.5° | 52.5 | 79.0 | 100.1 | 105.5 | 115.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)