

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: P473900

Luminaire Tested: **24CZ2-130VHE-UNV-L840-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P473900
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-130VHE-UNV-L840-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,RIBBED LENS
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13261.0 lumens
Efficiency: N/A
Efficacy: 143.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.36
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

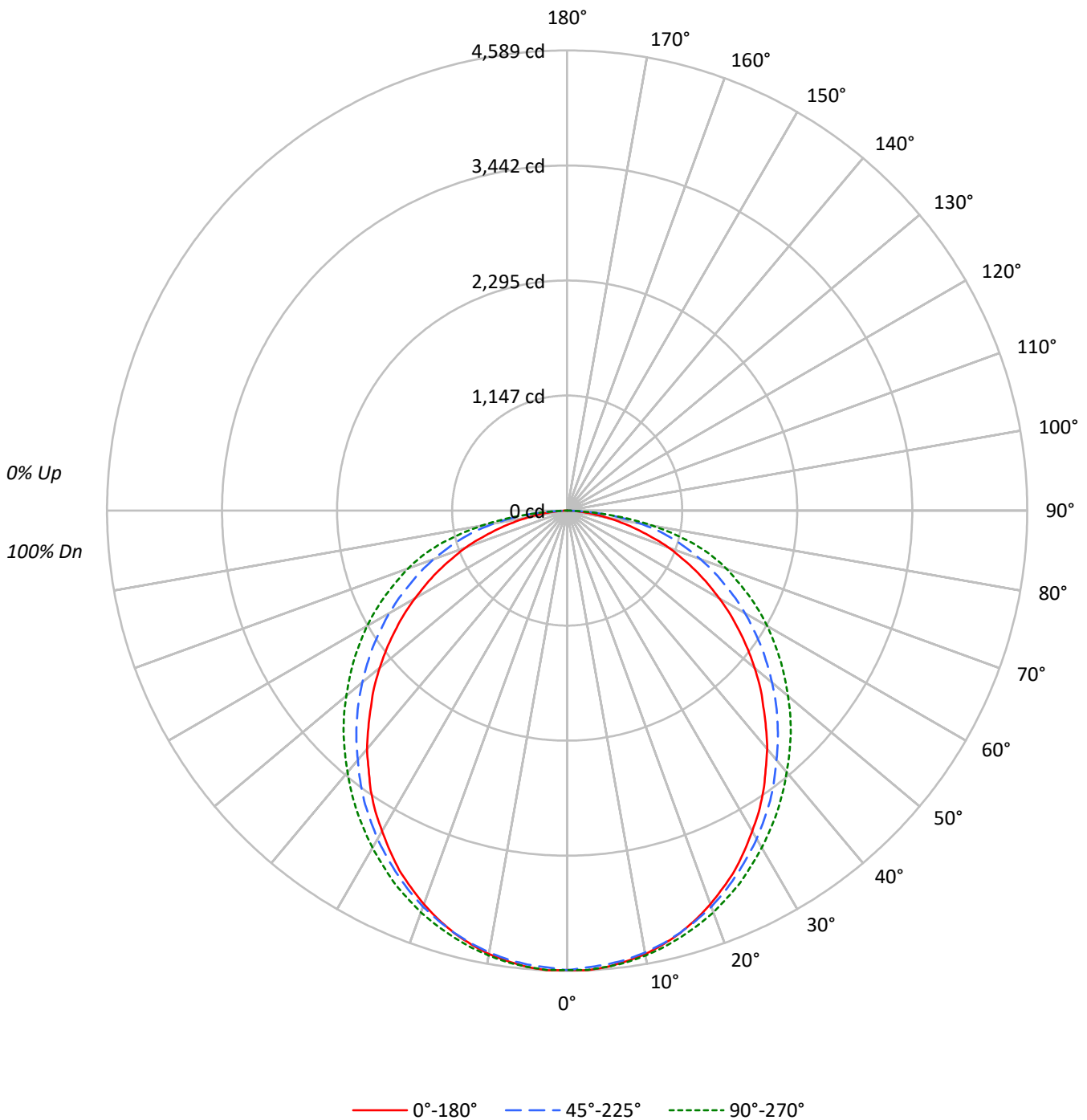
Input Watts (W): 92.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 99 | 95 | 105 | 101 | 97 | 93 | 97 | 93 | 90 | | 93 | 90 | 87 | | 89 | 87 | 85 | 83 |
| 2 | 98 | 89 | 82 | 76 | 95 | 88 | 81 | 75 | 84 | 78 | 74 | | 81 | 76 | 72 | | 78 | 74 | 70 | 68 |
| 3 | 89 | 78 | 70 | 63 | 87 | 77 | 69 | 63 | 74 | 67 | 61 | | 71 | 65 | 60 | | 68 | 63 | 59 | 57 |
| 4 | 82 | 69 | 60 | 53 | 79 | 68 | 59 | 53 | 65 | 58 | 52 | | 63 | 57 | 51 | | 61 | 55 | 51 | 48 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 58 | 51 | 45 | | 56 | 50 | 44 | | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 46 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 39 | | 51 | 44 | 39 | | 49 | 43 | 39 | 37 |
| 7 | 64 | 50 | 41 | 35 | 62 | 50 | 41 | 35 | 48 | 40 | 35 | | 47 | 40 | 35 | | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 37 | 31 | 58 | 45 | 37 | 31 | 44 | 36 | 31 | | 43 | 36 | 31 | | 41 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 40 | 33 | 28 | | 39 | 33 | 28 | | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 38 | 31 | 26 | 37 | 30 | 25 | | 36 | 30 | 25 | | 36 | 30 | 25 | 23 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 6166 | 6166 | 6166 |
| 5° | 6169 | 6137 | 6169 |
| 10° | 6135 | 6114 | 6155 |
| 15° | 6073 | 6070 | 6130 |
| 20° | 5982 | 6018 | 6104 |
| 25° | 5878 | 5944 | 6075 |
| 30° | 5735 | 5875 | 6031 |
| 35° | 5606 | 5799 | 6007 |
| 40° | 5452 | 5704 | 5983 |
| 45° | 5267 | 5646 | 6001 |
| 50° | 5108 | 5583 | 6018 |
| 55° | 4920 | 5543 | 6086 |
| 60° | 4716 | 5517 | 6197 |
| 65° | 4495 | 5497 | 6357 |
| 70° | 4231 | 5554 | 6650 |
| 75° | 3720 | 5669 | 6916 |
| 80° | 3104 | 5711 | 6673 |
| 85° | 2215 | 4895 | 4962 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 433.2 | 3.3 |
| 10°-20° | 1233.9 | 9.3 |
| 20°-30° | 1851.1 | 14.0 |
| 30°-40° | 2210.0 | 16.7 |
| 40°-50° | 2289.2 | 17.3 |
| 50°-60° | 2107.4 | 15.9 |
| 60°-70° | 1699.9 | 12.8 |
| 70°-80° | 1110.7 | 8.4 |
| 80°-90° | 325.6 | 2.5 |
| 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° | 3518.2 | 26.5 |
| 0°-40° | 5728.2 | 43.2 |
| 0°-60° | 10124.7 | 76.3 |
| 0°-90° | 13261.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 13261.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4582 | 4582 | 4582 | 4582 | 4582 | |
| 5° | 4568 | 4563 | 4544 | 4570 | 4568 | 433 |
| 15° | 4360 | 4360 | 4358 | 4400 | 4400 | 1228 |
| 25° | 3959 | 3968 | 4004 | 4077 | 4092 | 1820 |
| 35° | 3413 | 3443 | 3531 | 3627 | 3657 | 2132 |
| 45° | 2768 | 2836 | 2967 | 3100 | 3154 | 2140 |
| 55° | 2097 | 2187 | 2363 | 2537 | 2594 | 1877 |
| 65° | 1412 | 1508 | 1727 | 1924 | 1997 | 1396 |
| 75° | 716 | 850 | 1090 | 1279 | 1330 | 764 |
| 85° | 144 | 248 | 317 | 336 | 321 | 178 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P473900

CATALOG NUMBER: 24CZ2-130VHE-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4582.5 | 4582.5 | 4582.5 | 4582.5 | 4582.5 |
| 2.5° | 4589.0 | 4582.5 | 4559.0 | 4586.8 | 4584.7 |
| 5° | 4567.5 | 4563.2 | 4544.0 | 4569.7 | 4567.5 |
| 7.5° | 4533.3 | 4531.1 | 4516.1 | 4544.0 | 4544.0 |
| 10° | 4490.4 | 4486.1 | 4475.4 | 4507.5 | 4505.4 |
| 12.5° | 4430.4 | 4428.3 | 4421.9 | 4460.4 | 4458.3 |
| 15° | 4359.7 | 4359.7 | 4357.6 | 4400.4 | 4400.4 |
| 17.5° | 4274.0 | 4276.2 | 4284.7 | 4334.0 | 4336.2 |
| 20° | 4177.6 | 4186.2 | 4203.3 | 4259.0 | 4263.3 |
| 22.5° | 4068.4 | 4085.5 | 4109.1 | 4171.2 | 4177.6 |
| 25° | 3959.1 | 3967.7 | 4004.1 | 4076.9 | 4091.9 |
| 27.5° | 3826.3 | 3847.7 | 3894.8 | 3969.8 | 3984.8 |
| 30° | 3691.3 | 3721.3 | 3781.3 | 3858.4 | 3882.0 |
| 32.5° | 3558.5 | 3584.2 | 3654.9 | 3742.7 | 3770.6 |
| 35° | 3412.8 | 3442.8 | 3530.6 | 3627.0 | 3657.0 |
| 37.5° | 3252.1 | 3299.2 | 3391.4 | 3502.8 | 3534.9 |
| 40° | 3104.3 | 3147.1 | 3247.8 | 3372.1 | 3406.4 |
| 42.5° | 2935.0 | 2988.6 | 3110.7 | 3237.1 | 3280.0 |
| 45° | 2767.9 | 2836.5 | 2967.2 | 3100.0 | 3153.6 |
| 47.5° | 2611.5 | 2667.2 | 2821.5 | 2971.5 | 3018.6 |
| 50° | 2440.2 | 2504.4 | 2667.2 | 2825.8 | 2875.1 |
| 52.5° | 2270.9 | 2348.0 | 2513.0 | 2680.1 | 2733.7 |
| 55° | 2097.4 | 2187.4 | 2363.0 | 2536.6 | 2594.4 |
| 57.5° | 1930.3 | 2020.3 | 2202.4 | 2386.6 | 2446.6 |
| 60° | 1752.5 | 1848.9 | 2050.2 | 2228.1 | 2303.0 |
| 62.5° | 1581.1 | 1677.5 | 1889.6 | 2082.4 | 2153.1 |
| 65° | 1411.8 | 1508.2 | 1726.7 | 1923.8 | 1996.7 |
| 67.5° | 1236.1 | 1341.1 | 1574.6 | 1765.3 | 1836.0 |
| 70° | 1075.5 | 1176.2 | 1411.8 | 1615.3 | 1690.3 |
| 72.5° | 891.2 | 1011.2 | 1251.1 | 1452.5 | 1523.2 |
| 75° | 715.6 | 850.5 | 1090.5 | 1279.0 | 1330.4 |
| 77.5° | 552.7 | 687.7 | 927.6 | 1069.0 | 1101.2 |
| 80° | 400.6 | 537.7 | 737.0 | 835.5 | 861.2 |
| 82.5° | 259.2 | 400.6 | 533.4 | 599.9 | 608.4 |
| 85° | 143.5 | 248.5 | 317.1 | 336.4 | 321.4 |
| 87.5° | 51.4 | 94.3 | 92.1 | 75.0 | 60.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)