

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: P474091

Luminaire Tested: **24CZ2-85VHE-S-UNV-L840-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474091
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-85VHE-S-UNV-L840-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8826.5 lumens
Efficiency: N/A
Efficacy: 147.8 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

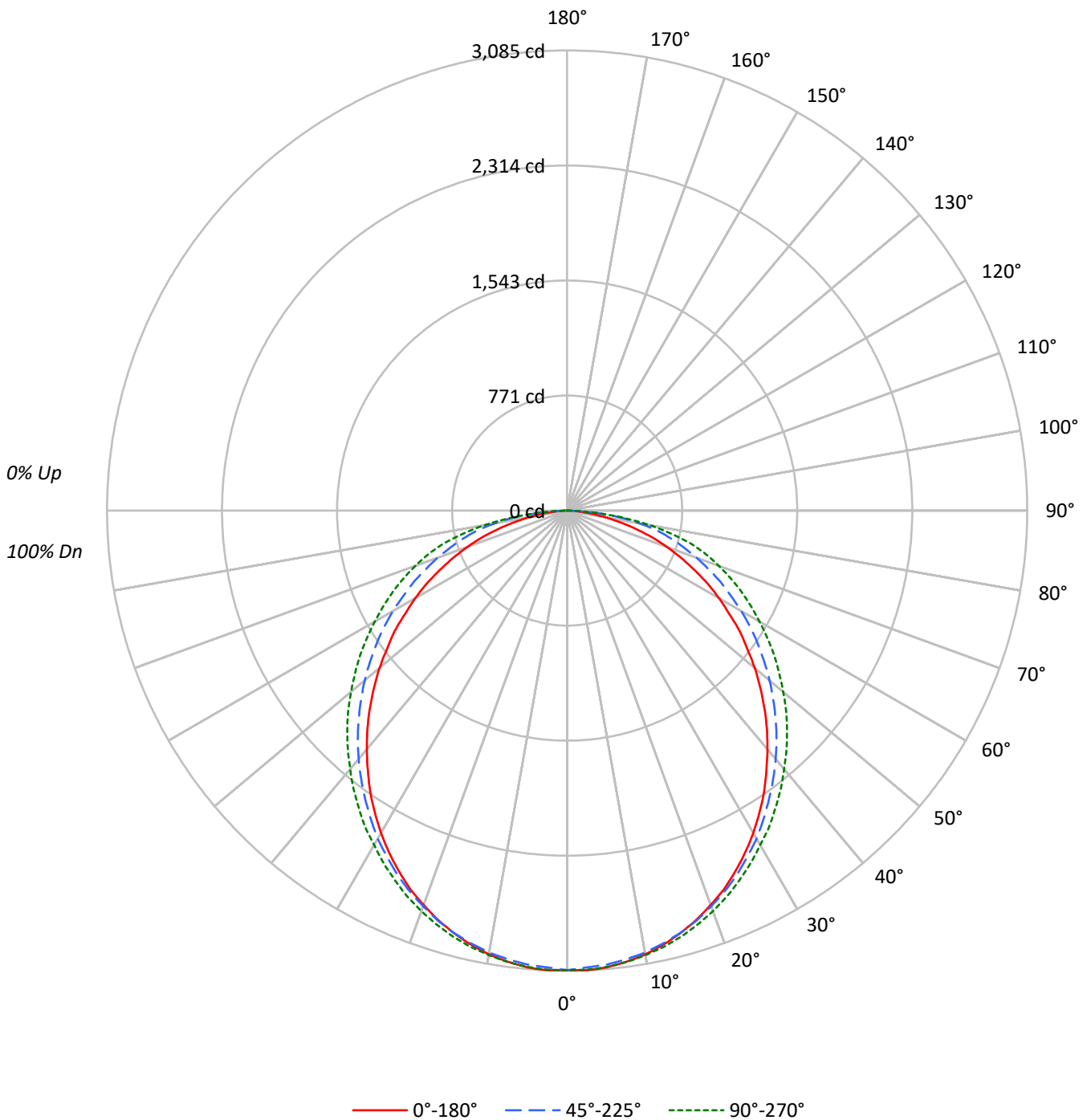
Input Watts (W): 59.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P474091

CATALOG NUMBER: 24CZ2-85VHE-S-UNV-L840-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P474091

CATALOG NUMBER: 24CZ2-85VHE-S-UNV-L840-CD1-U

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 | 90 | 83 | 77 | 95 | 88 | 81 | 76 | 84 | 79 | 74 | 81 | 76 | 72 | 78 | 74 | 71 | 68 |
| 3 | 89 | 78 | 70 | 63 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | 71 | 65 | 61 | 68 | 64 | 59 | 57 |
| 4 | 82 | 69 | 60 | 54 | 79 | 68 | 60 | 53 | 66 | 58 | 52 | 63 | 57 | 52 | 61 | 55 | 51 | 49 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 59 | 51 | 45 | 57 | 50 | 45 | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 47 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 40 | 51 | 44 | 39 | 50 | 44 | 39 | 37 |
| 7 | 64 | 51 | 42 | 35 | 63 | 50 | 41 | 35 | 48 | 41 | 35 | 47 | 40 | 35 | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 38 | 32 | 58 | 45 | 37 | 31 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 41 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 39 | 31 | 26 | 38 | 30 | 26 | 37 | 30 | 25 | 36 | 30 | 25 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 4145 | 4145 | 4145 |
| 5° | 4151 | 4126 | 4147 |
| 10° | 4128 | 4110 | 4134 |
| 15° | 4086 | 4083 | 4118 |
| 20° | 4029 | 4042 | 4092 |
| 25° | 3963 | 3997 | 4059 |
| 30° | 3879 | 3946 | 4021 |
| 35° | 3782 | 3877 | 3998 |
| 40° | 3669 | 3820 | 3975 |
| 45° | 3559 | 3760 | 3967 |
| 50° | 3438 | 3709 | 3957 |
| 55° | 3316 | 3663 | 3979 |
| 60° | 3164 | 3628 | 4007 |
| 65° | 2996 | 3614 | 4103 |
| 70° | 2795 | 3633 | 4249 |
| 75° | 2487 | 3738 | 4477 |
| 80° | 2033 | 3819 | 4370 |
| 85° | 1433 | 3335 | 3402 |



TEST NUMBER: P474091

CATALOG NUMBER: 24CZ2-85VHE-S-UNV-L840-CD1-U

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 291.3 | 3.3 |
| 10°-20° | 829.6 | 9.4 |
| 20°-30° | 1243.5 | 14.1 |
| 30°-40° | 1481.0 | 16.8 |
| 40°-50° | 1527.1 | 17.3 |
| 50°-60° | 1393.5 | 15.8 |
| 60°-70° | 1114.3 | 12.6 |
| 70°-80° | 727.8 | 8.2 |
| 80°-90° | 218.5 | 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° | 2364.3 | 26.8 |
| 0°-40° | 3845.3 | 43.6 |
| 0°-60° | 6765.9 | 76.7 |
| 0°-90° | 8826.5 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8826.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3081 | 3081 | 3081 | 3081 | 3081 | |
| 5° | 3074 | 3068 | 3055 | 3074 | 3071 | 292 |
| 15° | 2933 | 2934 | 2932 | 2956 | 2956 | 827 |
| 25° | 2669 | 2673 | 2692 | 2731 | 2734 | 1229 |
| 35° | 2302 | 2318 | 2360 | 2420 | 2434 | 1438 |
| 45° | 1870 | 1904 | 1976 | 2059 | 2085 | 1442 |
| 55° | 1414 | 1454 | 1561 | 1664 | 1696 | 1259 |
| 65° | 941 | 1005 | 1135 | 1247 | 1289 | 933 |
| 75° | 478 | 558 | 719 | 835 | 861 | 508 |
| 85° | 93 | 167 | 216 | 220 | 220 | 118 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474091

CATALOG NUMBER: 24CZ2-85VHE-S-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3080.8 | 3080.8 | 3080.8 | 3080.8 | 3080.8 |
| 2.5° | 3085.2 | 3080.8 | 3064.9 | 3083.7 | 3080.8 |
| 5° | 3073.6 | 3067.8 | 3054.7 | 3073.6 | 3070.7 |
| 7.5° | 3050.4 | 3047.5 | 3034.4 | 3056.2 | 3053.3 |
| 10° | 3021.4 | 3018.5 | 3008.3 | 3030.1 | 3025.7 |
| 12.5° | 2980.8 | 2979.3 | 2972.1 | 2998.2 | 2995.3 |
| 15° | 2933.0 | 2934.4 | 2931.5 | 2956.2 | 2956.2 |
| 17.5° | 2877.9 | 2876.4 | 2882.2 | 2912.7 | 2909.8 |
| 20° | 2814.1 | 2815.5 | 2822.8 | 2857.6 | 2857.6 |
| 22.5° | 2747.4 | 2745.9 | 2761.9 | 2796.7 | 2799.6 |
| 25° | 2669.1 | 2673.4 | 2692.3 | 2731.4 | 2734.3 |
| 27.5° | 2585.0 | 2592.3 | 2615.4 | 2660.4 | 2664.7 |
| 30° | 2496.6 | 2505.3 | 2540.1 | 2582.1 | 2587.9 |
| 32.5° | 2399.4 | 2418.3 | 2450.2 | 2503.8 | 2518.3 |
| 35° | 2302.3 | 2318.2 | 2360.3 | 2419.7 | 2434.2 |
| 37.5° | 2195.0 | 2221.1 | 2268.9 | 2334.2 | 2353.0 |
| 40° | 2089.2 | 2115.3 | 2174.7 | 2242.8 | 2263.1 |
| 42.5° | 1981.9 | 2009.4 | 2077.6 | 2154.4 | 2176.2 |
| 45° | 1870.2 | 1903.6 | 1976.1 | 2058.7 | 2084.8 |
| 47.5° | 1755.7 | 1794.9 | 1873.1 | 1963.0 | 1992.0 |
| 50° | 1642.6 | 1681.8 | 1771.7 | 1864.4 | 1890.5 |
| 52.5° | 1520.8 | 1570.1 | 1665.8 | 1765.9 | 1792.0 |
| 55° | 1413.6 | 1454.2 | 1561.4 | 1664.4 | 1696.3 |
| 57.5° | 1287.4 | 1342.5 | 1457.1 | 1561.4 | 1591.9 |
| 60° | 1175.8 | 1226.5 | 1348.3 | 1454.2 | 1489.0 |
| 62.5° | 1062.7 | 1114.9 | 1236.7 | 1357.0 | 1388.9 |
| 65° | 940.9 | 1004.7 | 1135.2 | 1246.8 | 1288.9 |
| 67.5° | 824.9 | 891.6 | 1025.0 | 1143.9 | 1187.4 |
| 70° | 710.4 | 778.5 | 923.5 | 1045.3 | 1080.1 |
| 72.5° | 597.3 | 668.4 | 819.1 | 938.0 | 978.6 |
| 75° | 478.4 | 558.2 | 719.1 | 835.1 | 861.2 |
| 77.5° | 366.8 | 455.2 | 617.6 | 695.9 | 714.8 |
| 80° | 262.4 | 359.6 | 492.9 | 549.5 | 564.0 |
| 82.5° | 172.5 | 266.8 | 368.3 | 398.7 | 394.3 |
| 85° | 92.8 | 166.7 | 216.0 | 220.4 | 220.4 |
| 87.5° | 36.2 | 66.7 | 68.1 | 52.2 | 49.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)