

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: P474301

Luminaire Tested: **24CZ2-135VHE-RDP-UNV-L840-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474301
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-135VHE-RDP-UNV-L840-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS W/ RDP
INSERT
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9271.6 lumens
Efficiency: N/A
Efficacy: 95.8 lumens/watt
Spacing Criteria (0/90/45): 1.26 / 1.3 / 1.41
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

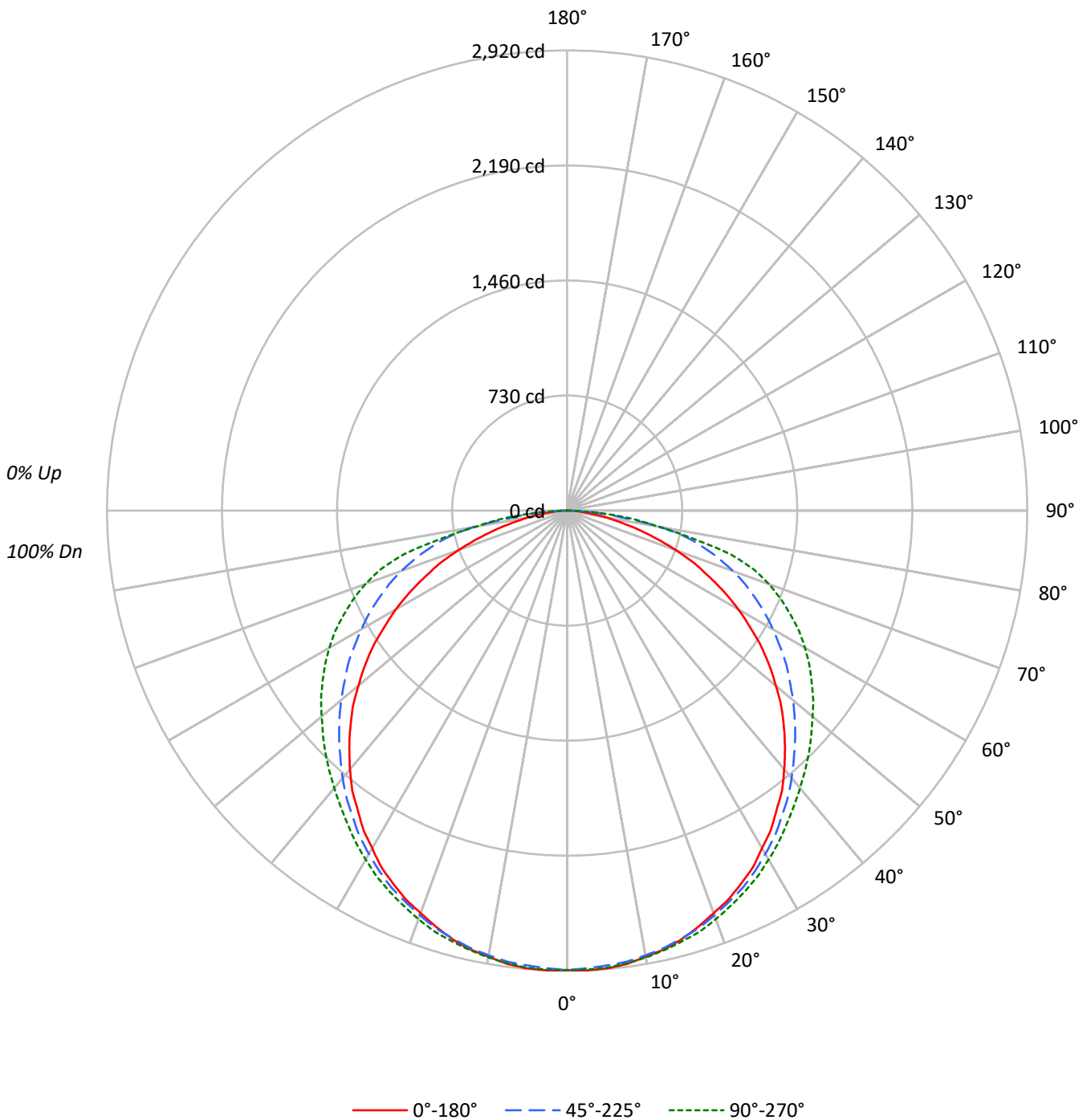
Input Watts (W): 96.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P474301

CATALOG NUMBER: 24CZ2-135VHE-RDP-UNV-L840-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P474301

CATALOG NUMBER: 24CZ2-135VHE-RDP-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 | 98 | 94 | 105 | 100 | 96 | 92 | 96 | 93 | 89 | 92 | 89 | 87 | 88 | 86 | 84 | 82 |
| 2 | 97 | 89 | 81 | 75 | 95 | 87 | 80 | 74 | 83 | 77 | 72 | 80 | 75 | 71 | 77 | 73 | 69 | 67 |
| 3 | 88 | 77 | 68 | 62 | 86 | 76 | 67 | 61 | 72 | 66 | 60 | 70 | 64 | 59 | 67 | 62 | 58 | 56 |
| 4 | 81 | 68 | 59 | 52 | 78 | 67 | 58 | 51 | 64 | 57 | 51 | 62 | 55 | 50 | 59 | 54 | 49 | 47 |
| 5 | 74 | 60 | 51 | 44 | 72 | 59 | 51 | 44 | 57 | 49 | 43 | 55 | 48 | 43 | 53 | 47 | 42 | 40 |
| 6 | 68 | 54 | 45 | 38 | 66 | 53 | 45 | 38 | 51 | 44 | 38 | 50 | 43 | 37 | 48 | 42 | 37 | 35 |
| 7 | 63 | 49 | 40 | 34 | 61 | 48 | 40 | 34 | 47 | 39 | 33 | 45 | 38 | 33 | 44 | 38 | 33 | 31 |
| 8 | 59 | 45 | 36 | 30 | 57 | 44 | 36 | 30 | 43 | 35 | 30 | 41 | 34 | 29 | 40 | 34 | 29 | 27 |
| 9 | 55 | 41 | 33 | 27 | 53 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 26 | 37 | 31 | 26 | 24 |
| 10 | 51 | 38 | 30 | 24 | 50 | 37 | 29 | 24 | 36 | 29 | 24 | 35 | 29 | 24 | 34 | 28 | 24 | 22 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3923 | 3923 | 3923 |
| 5° | 3938 | 3913 | 3932 |
| 10° | 3927 | 3915 | 3933 |
| 15° | 3921 | 3914 | 3940 |
| 20° | 3892 | 3911 | 3951 |
| 25° | 3878 | 3919 | 3960 |
| 30° | 3844 | 3908 | 3972 |
| 35° | 3807 | 3898 | 3988 |
| 40° | 3765 | 3893 | 4038 |
| 45° | 3702 | 3894 | 4130 |
| 50° | 3619 | 3918 | 4255 |
| 55° | 3527 | 3981 | 4445 |
| 60° | 3379 | 4059 | 4690 |
| 65° | 3163 | 4201 | 4978 |
| 70° | 2876 | 4397 | 5354 |
| 75° | 2438 | 4638 | 5595 |
| 80° | 1925 | 4667 | 4524 |
| 85° | 1420 | 3552 | 3978 |



TEST NUMBER: P474301

CATALOG NUMBER: 24CZ2-135VHE-RDP-UNV-L840-CD1-U

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 276.6 | 3.0 |
| 10°-20° | 796.0 | 8.6 |
| 20°-30° | 1217.2 | 13.1 |
| 30°-40° | 1488.0 | 16.0 |
| 40°-50° | 1586.0 | 17.1 |
| 50°-60° | 1516.4 | 16.4 |
| 60°-70° | 1284.5 | 13.9 |
| 70°-80° | 863.3 | 9.3 |
| 80°-90° | 243.6 | 2.6 |
| 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° | 2289.8 | 24.7 |
| 0°-40° | 3777.8 | 40.7 |
| 0°-60° | 6880.1 | 74.2 |
| 0°-90° | 9271.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 9271.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2916 | 2916 | 2916 | 2916 | 2916 | |
| 5° | 2916 | 2911 | 2897 | 2911 | 2911 | 277 |
| 15° | 2815 | 2815 | 2810 | 2833 | 2828 | 794 |
| 25° | 2612 | 2621 | 2640 | 2663 | 2667 | 1204 |
| 35° | 2318 | 2336 | 2373 | 2419 | 2428 | 1452 |
| 45° | 1945 | 1978 | 2047 | 2134 | 2170 | 1500 |
| 55° | 1504 | 1559 | 1697 | 1830 | 1895 | 1339 |
| 65° | 993 | 1095 | 1320 | 1494 | 1564 | 986 |
| 75° | 469 | 639 | 892 | 1044 | 1076 | 502 |
| 85° | 92 | 189 | 230 | 248 | 258 | 114 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474301

CATALOG NUMBER: 24CZ2-135VHE-RDP-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2915.8 | 2915.8 | 2915.8 | 2915.8 | 2915.8 |
| 2.5° | 2920.4 | 2920.4 | 2906.6 | 2915.8 | 2915.8 |
| 5° | 2915.8 | 2911.2 | 2897.4 | 2911.2 | 2911.2 |
| 7.5° | 2902.0 | 2897.4 | 2888.2 | 2902.0 | 2897.4 |
| 10° | 2874.4 | 2874.4 | 2865.2 | 2879.0 | 2879.0 |
| 12.5° | 2851.4 | 2846.8 | 2842.2 | 2860.6 | 2856.0 |
| 15° | 2814.6 | 2814.6 | 2810.0 | 2833.0 | 2828.4 |
| 17.5° | 2768.6 | 2773.2 | 2777.8 | 2796.2 | 2800.8 |
| 20° | 2717.9 | 2727.1 | 2731.7 | 2759.4 | 2759.4 |
| 22.5° | 2671.9 | 2676.5 | 2685.7 | 2713.3 | 2713.3 |
| 25° | 2612.1 | 2621.3 | 2639.7 | 2662.7 | 2667.3 |
| 27.5° | 2552.3 | 2556.9 | 2579.9 | 2612.1 | 2616.7 |
| 30° | 2474.1 | 2487.9 | 2515.5 | 2552.3 | 2556.9 |
| 32.5° | 2405.1 | 2418.9 | 2451.1 | 2487.9 | 2497.1 |
| 35° | 2317.6 | 2336.0 | 2372.9 | 2418.9 | 2428.1 |
| 37.5° | 2239.4 | 2253.2 | 2299.2 | 2349.8 | 2363.7 |
| 40° | 2143.3 | 2170.4 | 2216.4 | 2276.2 | 2299.2 |
| 42.5° | 2046.6 | 2074.2 | 2129.4 | 2207.2 | 2234.8 |
| 45° | 1945.4 | 1977.6 | 2046.6 | 2134.0 | 2170.4 |
| 47.5° | 1844.2 | 1881.0 | 1959.2 | 2060.4 | 2101.8 |
| 50° | 1729.1 | 1775.2 | 1871.8 | 1986.8 | 2032.8 |
| 52.5° | 1618.7 | 1673.9 | 1779.8 | 1908.6 | 1968.4 |
| 55° | 1503.7 | 1558.9 | 1696.9 | 1830.4 | 1894.8 |
| 57.5° | 1374.8 | 1448.5 | 1600.3 | 1752.1 | 1821.2 |
| 60° | 1255.7 | 1324.2 | 1508.3 | 1673.9 | 1742.9 |
| 62.5° | 1126.8 | 1218.9 | 1416.3 | 1591.1 | 1660.1 |
| 65° | 993.4 | 1094.6 | 1319.6 | 1494.5 | 1563.5 |
| 67.5° | 873.8 | 984.2 | 1223.5 | 1397.9 | 1466.9 |
| 70° | 731.1 | 869.2 | 1117.6 | 1292.0 | 1361.0 |
| 72.5° | 597.7 | 749.5 | 1007.2 | 1177.5 | 1241.9 |
| 75° | 468.9 | 639.1 | 892.2 | 1044.0 | 1076.2 |
| 77.5° | 349.7 | 528.7 | 772.5 | 837.0 | 814.0 |
| 80° | 248.5 | 423.3 | 602.3 | 570.1 | 583.9 |
| 82.5° | 161.0 | 322.1 | 372.7 | 423.3 | 436.7 |
| 85° | 92.0 | 188.7 | 230.1 | 248.5 | 257.7 |
| 87.5° | 41.4 | 69.0 | 92.0 | 92.0 | 87.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)