

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: P685611

Luminaire Tested: **4CZL-9-UNV-FUL-L840-CD-U**

Issue Date: 05/10/2023



Test Information

Test Method: LM-79-08
Report Number: P685611
Test Lab: INNOVATION CENTER(G3)
Issue Date: 05/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4CZL-9-UNV-FUL-L840-CD-U
Description: METALUX CRUZE LINEAR 4FT FROSTED LENS MODEL WITH UPLIGHT @80 CRI and 4000K
Light Source: (588) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

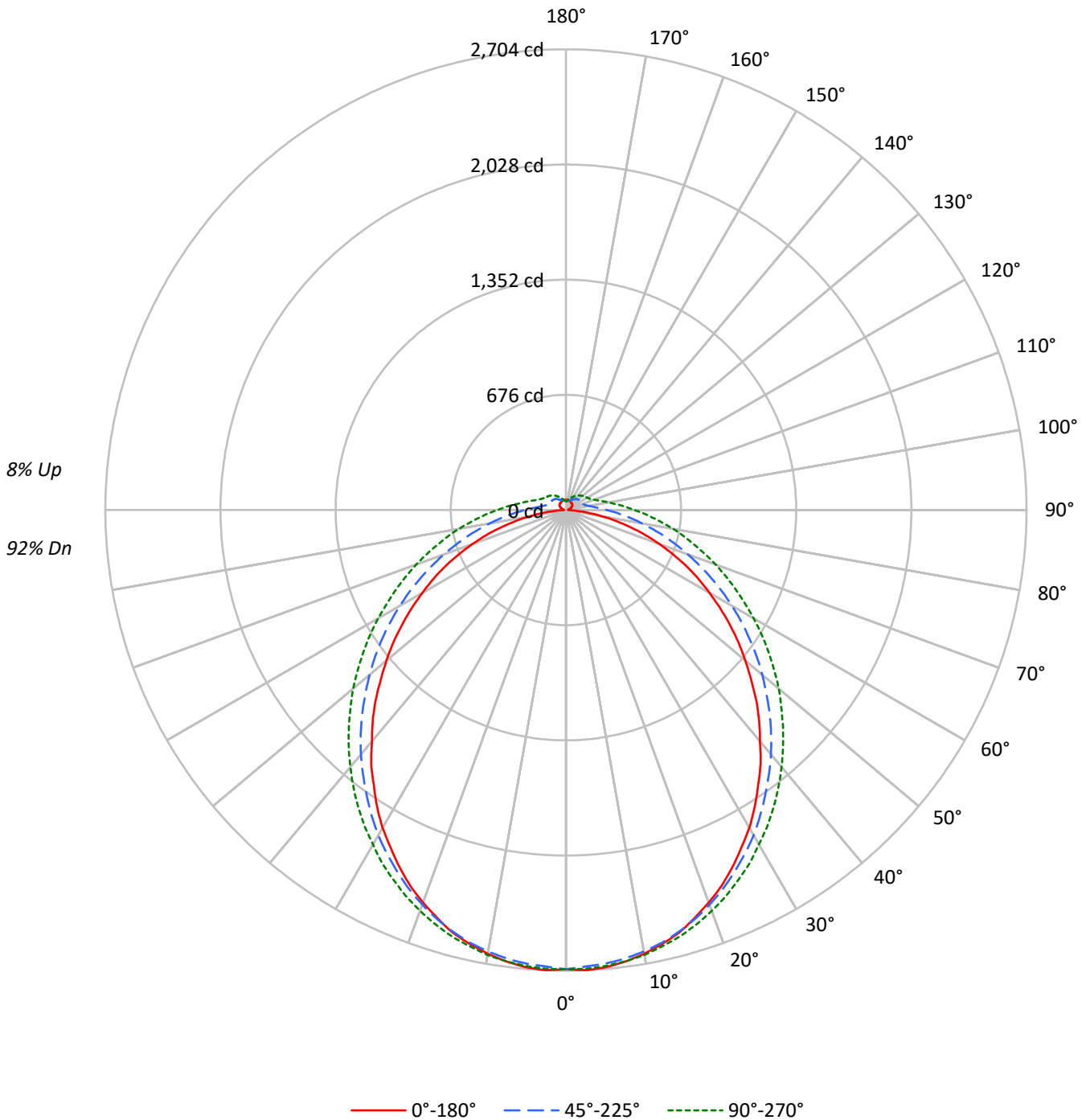
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8408.1 lumens
Efficiency: N/A
Efficacy: 155.7 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.34
Luminous Opening: Rectangular w/ Sides (W: 0.83' x L: 4' x H: 0.17')
CIE Type: Direct

Input Watts (W): 54
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 | | | | 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 | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | | |
| 0 | 117 | 117 | 117 | 117 | 113 | 113 | 113 | 113 | 107 | 107 | 107 | 100 | 100 | 100 | 95 | 95 | 95 | 95 | 95 | 95 | 92 |
| 1 | 106 | 101 | 96 | 92 | 102 | 98 | 93 | 90 | 92 | 88 | 85 | 87 | 84 | 81 | 82 | 79 | 77 | 77 | 77 | 77 | 75 |
| 2 | 96 | 87 | 80 | 74 | 93 | 85 | 78 | 73 | 80 | 74 | 70 | 75 | 71 | 67 | 71 | 68 | 64 | 64 | 64 | 64 | 62 |
| 3 | 87 | 77 | 68 | 61 | 84 | 74 | 67 | 60 | 70 | 64 | 58 | 66 | 61 | 56 | 63 | 58 | 54 | 54 | 54 | 54 | 52 |
| 4 | 80 | 68 | 59 | 52 | 77 | 66 | 58 | 51 | 62 | 55 | 50 | 59 | 53 | 48 | 56 | 51 | 47 | 47 | 47 | 47 | 44 |
| 5 | 74 | 61 | 51 | 45 | 71 | 59 | 50 | 44 | 56 | 49 | 43 | 53 | 47 | 42 | 50 | 45 | 41 | 41 | 41 | 41 | 38 |
| 6 | 68 | 54 | 45 | 39 | 65 | 53 | 45 | 38 | 50 | 43 | 38 | 48 | 42 | 37 | 46 | 40 | 36 | 36 | 36 | 36 | 33 |
| 7 | 63 | 49 | 41 | 34 | 61 | 48 | 40 | 34 | 46 | 39 | 33 | 44 | 37 | 32 | 42 | 36 | 32 | 32 | 32 | 32 | 30 |
| 8 | 59 | 45 | 37 | 31 | 57 | 44 | 36 | 30 | 42 | 35 | 30 | 40 | 34 | 29 | 38 | 33 | 28 | 28 | 28 | 28 | 26 |
| 9 | 55 | 41 | 33 | 28 | 53 | 40 | 33 | 27 | 39 | 32 | 27 | 37 | 31 | 26 | 35 | 30 | 26 | 26 | 26 | 26 | 24 |
| 10 | 51 | 38 | 30 | 25 | 50 | 37 | 30 | 25 | 36 | 29 | 24 | 34 | 28 | 24 | 33 | 27 | 23 | 23 | 23 | 23 | 22 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 8703 | 8703 | 8703 |
| 5° | 8700 | 8535 | 8559 |
| 10° | 8608 | 8374 | 8400 |
| 15° | 8493 | 8193 | 8219 |
| 20° | 8299 | 7976 | 8021 |
| 25° | 8083 | 7730 | 7806 |
| 30° | 7842 | 7480 | 7575 |
| 35° | 7537 | 7185 | 7352 |
| 40° | 7218 | 6904 | 7107 |
| 45° | 6928 | 6596 | 6857 |
| 50° | 6580 | 6280 | 6617 |
| 55° | 6240 | 5953 | 6352 |
| 60° | 5860 | 5607 | 6105 |
| 65° | 5482 | 5250 | 5873 |
| 70° | 4940 | 4900 | 5697 |
| 75° | 4272 | 4570 | 5540 |
| 80° | 3324 | 4307 | 5580 |
| 85° | 1940 | 4184 | 5746 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 254.9 | 3.0 |
| 10°-20° | 725.4 | 8.6 |
| 20°-30° | 1083.1 | 12.9 |
| 30°-40° | 1280.4 | 15.2 |
| 40°-50° | 1304.8 | 15.5 |
| 50°-60° | 1176.5 | 14.0 |
| 60°-70° | 930.9 | 11.1 |
| 70°-80° | 629.1 | 7.5 |
| 80°-90° | 351.9 | 4.2 |
| 90°-100° | 191.5 | 2.3 |
| 100°-110° | 125.6 | 1.5 |
| 110°-120° | 99.6 | 1.2 |
| 120°-130° | 84.7 | 1.0 |
| 130°-140° | 67.8 | 0.8 |
| 140°-150° | 48.5 | 0.6 |
| 150°-160° | 31.3 | 0.4 |
| 160°-170° | 16.9 | 0.2 |
| 170°-180° | 5.3 | 0.1 |
| 0°-30° | 2063.5 | 24.5 |
| 0°-40° | 3343.9 | 39.8 |
| 0°-60° | 5825.2 | 69.3 |
| 0°-90° | 7737.1 | 92.0 |
| 90°-120° | 416.6 | 5.0 |
| 90°-150° | 617.7 | 7.3 |
| 90°-180° | 671.0 | 8.0 |
| 0°-180° | 8408.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 2695 | 2695 | 2695 | 2695 | 2695 | |
| 5° | 2694 | 2689 | 2672 | 2688 | 2687 | 256 |
| 15° | 2569 | 2566 | 2563 | 2585 | 2590 | 723 |
| 25° | 2313 | 2323 | 2342 | 2386 | 2395 | 1064 |
| 35° | 1968 | 1995 | 2041 | 2106 | 2126 | 1232 |
| 45° | 1580 | 1612 | 1691 | 1770 | 1802 | 1217 |
| 55° | 1174 | 1218 | 1316 | 1415 | 1451 | 1051 |
| 65° | 782 | 821 | 939 | 1054 | 1098 | 772 |
| 75° | 396 | 450 | 600 | 733 | 776 | 420 |
| 85° | 77 | 174 | 334 | 463 | 510 | 95 |
| 90° | 12 | 96 | 240 | 358 | 403 | 9 |
| 95° | 13 | 63 | 176 | 282 | 321 | 11 |
| 105° | 22 | 56 | 115 | 182 | 209 | 23 |
| 115° | 35 | 60 | 103 | 140 | 156 | 34 |
| 125° | 46 | 62 | 98 | 126 | 137 | 41 |
| 135° | 51 | 61 | 91 | 113 | 120 | 39 |
| 145° | 53 | 58 | 76 | 96 | 102 | 33 |
| 155° | 57 | 57 | 63 | 79 | 82 | 26 |
| 165° | 59 | 58 | 57 | 59 | 64 | 17 |
| 175° | 59 | 58 | 56 | 49 | 50 | 6 |
| 180° | 55 | 55 | 55 | 55 | 55 | |



TEST NUMBER: P685611

CATALOG NUMBER: 4CZL-9-UNV-FUL-L840-CD-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 2695.2 | 2695.2 | 2695.2 | 2695.2 | 2695.2 |
| 2.5° | 2703.9 | 2699.6 | 2681.7 | 2695.8 | 2695.2 |
| 5° | 2693.6 | 2689.3 | 2672.5 | 2687.7 | 2686.6 |
| 7.5° | 2673.6 | 2670.9 | 2655.2 | 2672.0 | 2671.4 |
| 10° | 2644.4 | 2644.4 | 2630.9 | 2650.4 | 2652.0 |
| 12.5° | 2609.3 | 2608.8 | 2601.7 | 2621.7 | 2621.7 |
| 15° | 2568.8 | 2565.5 | 2562.8 | 2585.0 | 2590.4 |
| 17.5° | 2510.9 | 2513.1 | 2518.0 | 2544.4 | 2549.8 |
| 20° | 2451.5 | 2456.3 | 2465.5 | 2496.9 | 2503.9 |
| 22.5° | 2387.7 | 2393.1 | 2407.7 | 2441.8 | 2453.1 |
| 25° | 2312.6 | 2323.4 | 2342.3 | 2386.1 | 2395.3 |
| 27.5° | 2231.5 | 2250.4 | 2274.8 | 2321.2 | 2336.9 |
| 30° | 2153.7 | 2168.8 | 2204.0 | 2252.6 | 2266.1 |
| 32.5° | 2064.0 | 2082.4 | 2123.4 | 2181.8 | 2200.2 |
| 35° | 1967.8 | 1994.8 | 2040.7 | 2105.6 | 2126.1 |
| 37.5° | 1878.1 | 1899.7 | 1956.4 | 2025.6 | 2049.9 |
| 40° | 1772.1 | 1807.3 | 1872.7 | 1940.8 | 1968.9 |
| 42.5° | 1679.2 | 1709.4 | 1782.9 | 1858.1 | 1887.3 |
| 45° | 1580.3 | 1611.6 | 1691.1 | 1770.0 | 1801.9 |
| 47.5° | 1474.4 | 1511.6 | 1596.5 | 1684.6 | 1714.3 |
| 50° | 1374.9 | 1413.8 | 1504.6 | 1593.8 | 1631.1 |
| 52.5° | 1277.1 | 1317.6 | 1411.7 | 1505.7 | 1540.3 |
| 55° | 1174.4 | 1218.2 | 1315.5 | 1414.9 | 1450.6 |
| 57.5° | 1073.9 | 1117.7 | 1221.4 | 1324.1 | 1362.5 |
| 60° | 972.8 | 1013.9 | 1125.2 | 1230.6 | 1272.8 |
| 62.5° | 878.2 | 918.2 | 1032.8 | 1146.3 | 1183.0 |
| 65° | 781.5 | 820.9 | 938.8 | 1054.4 | 1098.2 |
| 67.5° | 681.5 | 729.1 | 847.4 | 968.5 | 1015.0 |
| 70° | 583.1 | 631.8 | 762.6 | 888.5 | 935.0 |
| 72.5° | 490.2 | 545.3 | 677.2 | 805.8 | 853.4 |
| 75° | 395.6 | 450.2 | 599.9 | 732.9 | 775.5 |
| 77.5° | 306.4 | 370.2 | 524.2 | 658.3 | 708.5 |
| 80° | 221.0 | 293.5 | 456.1 | 587.5 | 640.4 |
| 82.5° | 145.4 | 228.1 | 392.9 | 523.2 | 570.7 |
| 85° | 77.3 | 173.5 | 333.5 | 463.2 | 509.6 |
| 87.5° | 30.3 | 128.6 | 283.7 | 408.6 | 455.1 |
| 90° | 11.9 | 95.7 | 240.0 | 358.3 | 402.6 |
| 92.5° | 11.9 | 74.6 | 204.3 | 317.8 | 359.4 |
| 95° | 13.0 | 62.7 | 176.2 | 281.6 | 321.0 |
| 97.5° | 14.1 | 56.7 | 154.0 | 249.7 | 284.8 |
| 100° | 16.2 | 54.6 | 137.3 | 223.7 | 255.6 |
| 102.5° | 18.9 | 54.6 | 123.8 | 200.0 | 230.2 |
| 105° | 22.2 | 55.7 | 115.1 | 181.6 | 208.6 |
| 107.5° | 24.9 | 56.7 | 109.2 | 166.5 | 190.8 |
| 110° | 28.1 | 58.4 | 105.9 | 155.1 | 176.2 |



TEST NUMBER: P685611

CATALOG NUMBER: 4CZL-9-UNV-FUL-L840-CD-U

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|-------|-------|-------|
| 112.5° | 31.3 | 59.4 | 103.8 | 147.0 | 165.4 |
| 115° | 34.6 | 60.0 | 102.7 | 140.5 | 156.2 |
| 117.5° | 37.8 | 61.1 | 101.6 | 136.2 | 149.7 |
| 120° | 41.1 | 61.6 | 100.5 | 133.0 | 144.8 |
| 122.5° | 43.8 | 61.6 | 99.4 | 129.7 | 140.5 |
| 125° | 45.9 | 62.2 | 97.8 | 126.5 | 136.7 |
| 127.5° | 47.6 | 62.7 | 96.7 | 123.2 | 132.4 |
| 130° | 49.2 | 62.2 | 95.1 | 120.0 | 128.6 |
| 132.5° | 50.3 | 61.6 | 93.0 | 116.7 | 124.8 |
| 135° | 50.8 | 61.1 | 90.8 | 113.0 | 120.5 |
| 137.5° | 51.3 | 60.5 | 87.6 | 109.2 | 116.2 |
| 140° | 51.3 | 60.0 | 83.8 | 104.8 | 111.3 |
| 142.5° | 51.9 | 58.9 | 80.0 | 100.5 | 106.5 |
| 145° | 53.0 | 58.4 | 76.2 | 96.2 | 101.6 |
| 147.5° | 54.0 | 57.3 | 73.0 | 91.3 | 96.2 |
| 150° | 55.1 | 57.3 | 69.7 | 87.0 | 91.3 |
| 152.5° | 55.7 | 57.3 | 66.5 | 83.2 | 86.5 |
| 155° | 56.7 | 57.3 | 63.2 | 79.4 | 81.6 |
| 157.5° | 57.3 | 57.3 | 61.1 | 74.6 | 76.7 |
| 160° | 57.8 | 57.8 | 58.9 | 69.2 | 72.4 |
| 162.5° | 58.9 | 57.8 | 57.8 | 63.8 | 68.1 |
| 165° | 58.9 | 57.8 | 56.7 | 59.4 | 64.3 |
| 167.5° | 59.4 | 58.4 | 56.2 | 56.2 | 61.1 |
| 170° | 59.4 | 58.4 | 56.2 | 53.5 | 56.2 |
| 172.5° | 59.4 | 58.4 | 56.2 | 51.3 | 52.4 |
| 175° | 59.4 | 58.4 | 56.2 | 49.2 | 49.7 |
| 177.5° | 59.4 | 58.4 | 55.7 | 47.6 | 49.7 |
| 180° | 55.1 | 55.1 | 55.1 | 55.1 | 55.1 |

(END OF REPORT)