

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P562161

Luminaire Tested: FSR-24-4-LD4-1LO-40-UNV-80-84-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562161
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-5)
Test Lab: INNOVATION CENTER
Issue Date: 7/20/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-24-4-LD4-1LO-40-UNV-80-84-EDD
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .125 CLEAR PC ENVIRONM
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

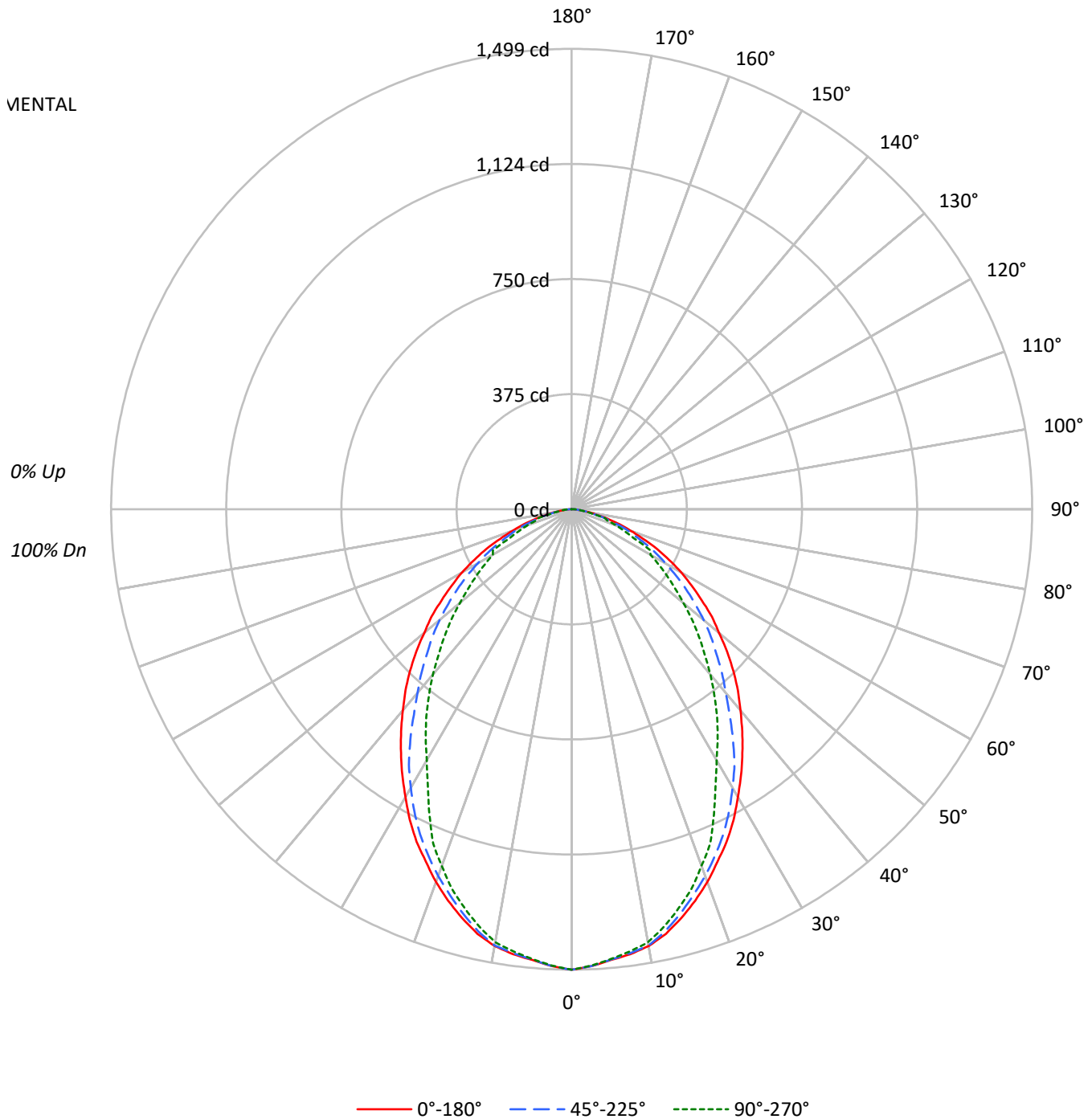
Lumens per Lamp: N/A
Luminaire Lumens: 2943.0 lumens
Efficiency: N/A
Efficacy: 125.8 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 23.4
Input Voltage (V):
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: 24 FT



TEST NUMBER: P562161
CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-80-84-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P562161

CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-80-84-EDD

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 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2017 | 2017 | 2017 |
| 5° | 1990 | 1987 | 1985 |
| 10° | 1972 | 1970 | 1956 |
| 15° | 1919 | 1900 | 1873 |
| 20° | 1849 | 1819 | 1769 |
| 25° | 1773 | 1734 | 1626 |
| 30° | 1680 | 1626 | 1465 |
| 35° | 1591 | 1503 | 1355 |
| 40° | 1501 | 1370 | 1233 |
| 45° | 1415 | 1266 | 1115 |
| 50° | 1310 | 1175 | 994 |
| 55° | 1212 | 1065 | 890 |
| 60° | 1110 | 952 | 798 |
| 65° | 977 | 833 | 706 |
| 70° | 804 | 729 | 600 |
| 75° | 639 | 559 | 586 |
| 80° | 430 | 403 | 376 |
| 85° | 267 | 321 | 375 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1415 cd/sqm



TEST NUMBER: P562161

CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-80-84-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 139.5 | 4.7 |
| 10°-20° | 383.0 | 13.0 |
| 20°-30° | 530.2 | 18.0 |
| 30°-40° | 565.4 | 19.2 |
| 40°-50° | 515.8 | 17.5 |
| 50°-60° | 404.1 | 13.7 |
| 60°-70° | 263.3 | 8.9 |
| 70°-80° | 116.7 | 4.0 |
| 80°-90° | 25.0 | 0.9 |
| 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° | 1052.7 | 35.8 |
| 0°-40° | 1618.1 | 55.0 |
| 0°-60° | 2537.9 | 86.2 |
| 0°-90° | 2943.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2943.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1499 | 1499 | 1499 | 1499 | 1499 | |
| 5° | 1473 | 1471 | 1471 | 1470 | 1470 | 140 |
| 15° | 1378 | 1378 | 1364 | 1350 | 1345 | 387 |
| 25° | 1194 | 1187 | 1168 | 1126 | 1095 | 548 |
| 35° | 969 | 962 | 915 | 846 | 825 | 606 |
| 45° | 744 | 728 | 666 | 610 | 586 | 573 |
| 55° | 516 | 501 | 454 | 400 | 380 | 463 |
| 65° | 307 | 289 | 262 | 267 | 222 | 302 |
| 75° | 123 | 114 | 108 | 102 | 113 | 132 |
| 85° | 17 | 19 | 21 | 22 | 24 | 24 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562161

CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-80-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1499.1 | 1499.1 | 1499.1 | 1499.1 | 1499.1 |
| 2.5° | 1488.7 | 1488.7 | 1488.7 | 1487.0 | 1487.0 |
| 5° | 1473.1 | 1471.4 | 1471.4 | 1469.7 | 1469.7 |
| 7.5° | 1461.0 | 1459.3 | 1457.5 | 1455.8 | 1452.3 |
| 10° | 1443.7 | 1443.7 | 1441.9 | 1433.3 | 1431.5 |
| 12.5° | 1415.9 | 1414.2 | 1407.3 | 1395.1 | 1391.7 |
| 15° | 1377.8 | 1377.8 | 1363.9 | 1350.1 | 1344.9 |
| 17.5° | 1336.2 | 1334.5 | 1317.2 | 1303.3 | 1296.4 |
| 20° | 1291.2 | 1287.7 | 1270.4 | 1247.8 | 1235.7 |
| 22.5° | 1240.9 | 1240.9 | 1220.1 | 1190.6 | 1178.5 |
| 25° | 1194.1 | 1187.2 | 1168.1 | 1126.5 | 1095.3 |
| 27.5° | 1140.4 | 1130.0 | 1109.2 | 1050.3 | 1013.9 |
| 30° | 1081.4 | 1076.3 | 1046.8 | 970.5 | 942.8 |
| 32.5° | 1026.0 | 1017.3 | 986.1 | 906.4 | 883.9 |
| 35° | 968.8 | 961.9 | 915.1 | 845.7 | 825.0 |
| 37.5° | 911.6 | 902.9 | 844.0 | 788.6 | 762.6 |
| 40° | 854.4 | 844.0 | 779.9 | 729.6 | 701.9 |
| 42.5° | 800.7 | 786.8 | 724.4 | 670.7 | 639.5 |
| 45° | 743.5 | 727.9 | 665.5 | 610.0 | 585.8 |
| 47.5° | 686.3 | 672.4 | 615.2 | 558.1 | 530.3 |
| 50° | 625.6 | 613.5 | 561.5 | 504.3 | 474.9 |
| 52.5° | 575.4 | 556.3 | 506.1 | 448.9 | 424.6 |
| 55° | 516.5 | 500.9 | 454.1 | 400.3 | 379.5 |
| 57.5° | 462.7 | 447.1 | 403.8 | 353.6 | 336.2 |
| 60° | 412.5 | 389.9 | 353.6 | 310.2 | 296.4 |
| 62.5° | 357.0 | 339.7 | 308.5 | 272.1 | 289.4 |
| 65° | 306.8 | 289.4 | 261.7 | 266.9 | 221.8 |
| 67.5° | 251.3 | 242.6 | 218.4 | 194.1 | 187.2 |
| 70° | 204.5 | 194.1 | 185.4 | 159.4 | 152.5 |
| 72.5° | 162.9 | 152.5 | 140.4 | 126.5 | 121.3 |
| 75° | 123.0 | 114.4 | 107.5 | 102.3 | 112.7 |
| 77.5° | 84.9 | 81.5 | 76.3 | 71.1 | 69.3 |
| 80° | 55.5 | 53.7 | 52.0 | 50.3 | 48.5 |
| 82.5° | 32.9 | 32.9 | 32.9 | 32.9 | 32.9 |
| 85° | 17.3 | 19.1 | 20.8 | 22.5 | 24.3 |
| 87.5° | 10.4 | 10.4 | 12.1 | 13.9 | 15.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)