

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: P590357

Luminaire Tested: FSR-24-2-LD4-2STD-40-UNV-80-84-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590357
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/8/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-24-2-LD4-2STD-40-UNV-80-84-EDD
Description: 2X2 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: 3941.0 lumens
Efficiency: N/A
Efficacy: 118.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

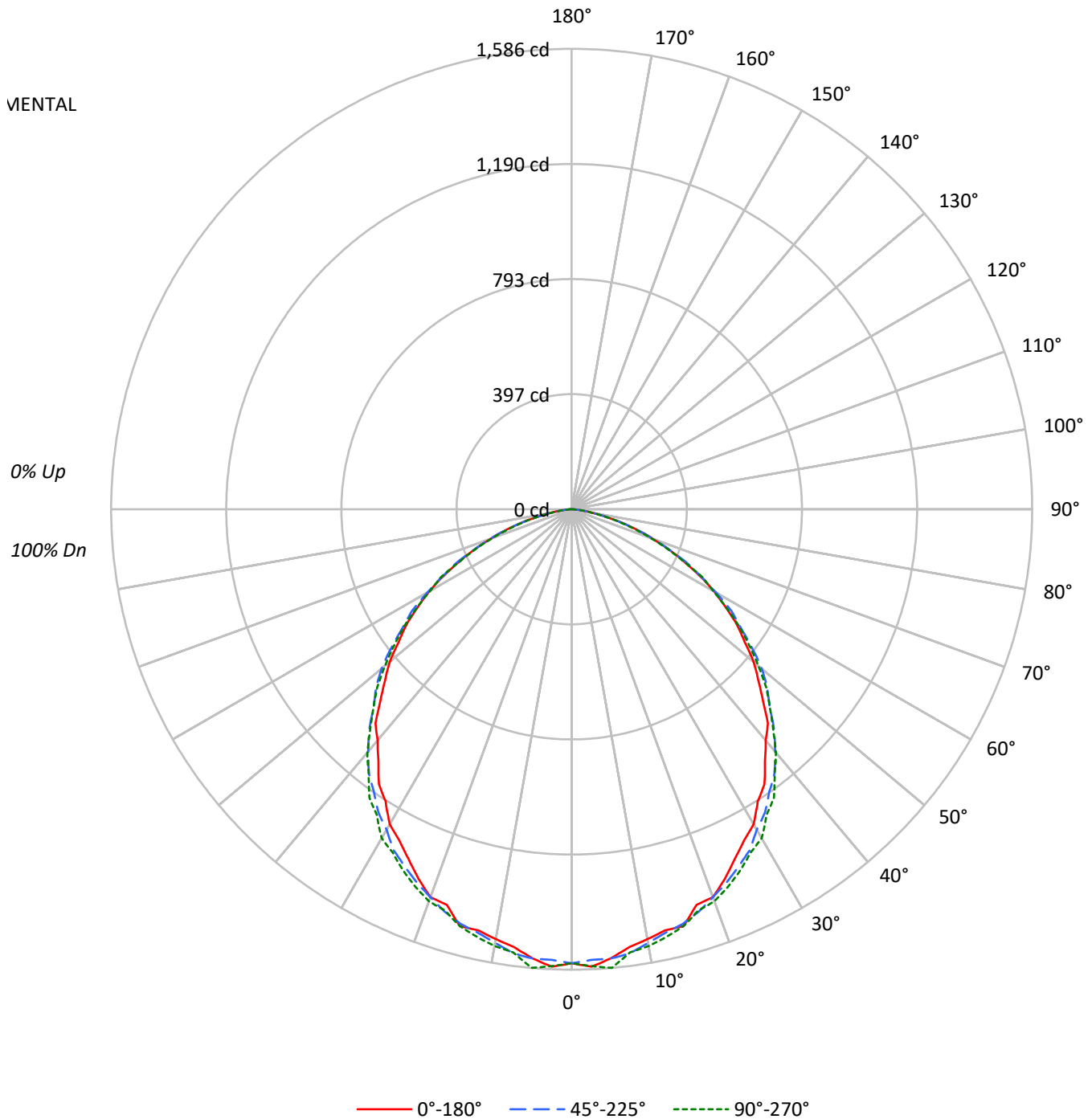
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 110 | 105 | 101 | 98 | 107 | 103 | 100 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 90 | 88 | 86 |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | 73 |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | 36 |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | 32 |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 4208 | 4208 | 4208 |
| 5° | 4194 | 4196 | 4284 |
| 10° | 4109 | 4145 | 4174 |
| 15° | 4142 | 4119 | 4142 |
| 20° | 4072 | 4072 | 4115 |
| 25° | 3946 | 4033 | 4077 |
| 30° | 3892 | 3961 | 4066 |
| 35° | 3801 | 3900 | 3987 |
| 40° | 3653 | 3828 | 3845 |
| 45° | 3542 | 3668 | 3674 |
| 50° | 3426 | 3580 | 3512 |
| 55° | 3264 | 3328 | 3304 |
| 60° | 3052 | 3083 | 3027 |
| 65° | 2721 | 2791 | 2702 |
| 70° | 2335 | 2343 | 2278 |
| 75° | 1850 | 1845 | 1774 |
| 80° | 1240 | 1204 | 1158 |
| 85° | 673 | 667 | 624 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 3763 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 147.1 | 3.7 |
| 10°-20° | 416.9 | 10.6 |
| 20°-30° | 624.6 | 15.8 |
| 30°-40° | 740.2 | 18.8 |
| 40°-50° | 741.6 | 18.8 |
| 50°-60° | 629.5 | 16.0 |
| 60°-70° | 424.4 | 10.8 |
| 70°-80° | 186.5 | 4.7 |
| 80°-90° | 30.3 | 0.8 |
| 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° | 1188.5 | 30.2 |
| 0°-40° | 1928.7 | 48.9 |
| 0°-60° | 3299.8 | 83.7 |
| 0°-90° | 3941.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3941.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1564 | 1564 | 1564 | 1564 | 1564 | |
| 5° | 1553 | 1549 | 1553 | 1548 | 1586 | 146 |
| 15° | 1487 | 1469 | 1478 | 1486 | 1487 | 414 |
| 25° | 1329 | 1336 | 1358 | 1376 | 1373 | 614 |
| 35° | 1157 | 1160 | 1187 | 1215 | 1214 | 718 |
| 45° | 931 | 948 | 964 | 989 | 965 | 720 |
| 55° | 696 | 691 | 709 | 704 | 704 | 619 |
| 65° | 427 | 422 | 438 | 422 | 424 | 425 |
| 75° | 178 | 174 | 178 | 165 | 171 | 191 |
| 85° | 22 | 21 | 22 | 21 | 20 | 32 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590357

CATALOG NUMBER: FSR-24-2-LD4-2STD-40-UNV-80-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1563.7 | 1563.7 | 1563.7 | 1563.7 | 1563.7 |
| 2.5° | 1577.2 | 1565.3 | 1554.2 | 1567.1 | 1575.0 |
| 5° | 1552.6 | 1549.0 | 1553.2 | 1548.5 | 1585.9 |
| 7.5° | 1520.7 | 1534.6 | 1542.7 | 1537.6 | 1539.9 |
| 10° | 1503.7 | 1498.9 | 1516.8 | 1529.4 | 1527.5 |
| 12.5° | 1485.6 | 1492.8 | 1493.8 | 1507.4 | 1508.6 |
| 15° | 1486.6 | 1469.4 | 1478.5 | 1486.2 | 1486.8 |
| 17.5° | 1428.8 | 1447.4 | 1453.7 | 1471.2 | 1449.4 |
| 20° | 1421.8 | 1408.2 | 1421.8 | 1439.7 | 1436.9 |
| 22.5° | 1378.3 | 1363.2 | 1392.3 | 1408.2 | 1407.2 |
| 25° | 1329.1 | 1336.4 | 1358.2 | 1375.9 | 1373.1 |
| 27.5° | 1285.9 | 1294.4 | 1325.5 | 1349.9 | 1334.1 |
| 30° | 1252.6 | 1248.3 | 1274.6 | 1296.4 | 1308.5 |
| 32.5° | 1193.0 | 1208.4 | 1239.0 | 1260.6 | 1249.1 |
| 35° | 1156.9 | 1160.3 | 1187.2 | 1214.6 | 1213.8 |
| 37.5° | 1093.7 | 1109.6 | 1147.4 | 1155.1 | 1148.0 |
| 40° | 1039.8 | 1055.7 | 1089.8 | 1098.1 | 1094.7 |
| 42.5° | 1000.0 | 1002.8 | 1032.1 | 1041.6 | 1026.4 |
| 45° | 930.7 | 948.1 | 963.9 | 988.7 | 965.3 |
| 47.5° | 871.8 | 879.9 | 913.8 | 920.4 | 908.1 |
| 50° | 818.3 | 821.1 | 855.2 | 847.0 | 838.9 |
| 52.5° | 751.1 | 763.0 | 782.1 | 780.5 | 771.0 |
| 55° | 695.7 | 691.1 | 709.3 | 704.4 | 704.2 |
| 57.5° | 629.3 | 637.4 | 652.3 | 644.7 | 632.3 |
| 60° | 567.1 | 567.3 | 572.8 | 564.1 | 562.5 |
| 62.5° | 497.9 | 500.3 | 501.5 | 490.8 | 508.2 |
| 65° | 427.4 | 421.8 | 438.3 | 421.6 | 424.4 |
| 67.5° | 362.6 | 365.4 | 363.8 | 353.3 | 357.4 |
| 70° | 296.8 | 300.4 | 297.8 | 285.9 | 289.5 |
| 72.5° | 236.6 | 232.2 | 235.0 | 220.1 | 226.9 |
| 75° | 177.9 | 174.2 | 177.5 | 164.9 | 170.6 |
| 77.5° | 121.1 | 124.0 | 121.9 | 115.3 | 119.1 |
| 80° | 80.0 | 77.7 | 77.7 | 73.9 | 74.7 |
| 82.5° | 46.6 | 44.4 | 43.8 | 42.6 | 44.4 |
| 85° | 21.8 | 21.2 | 21.6 | 21.0 | 20.2 |
| 87.5° | 7.9 | 8.1 | 8.1 | 7.7 | 7.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)