

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: P590390

Luminaire Tested: FSR-24-2-LD4-2STD-50-UNV-80-85-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590390
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-50-UNV-80-85-EDD
Description: 2X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR PC ENVIRON
SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3929.0 lumens
Efficiency: N/A
Efficacy: 118.0 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

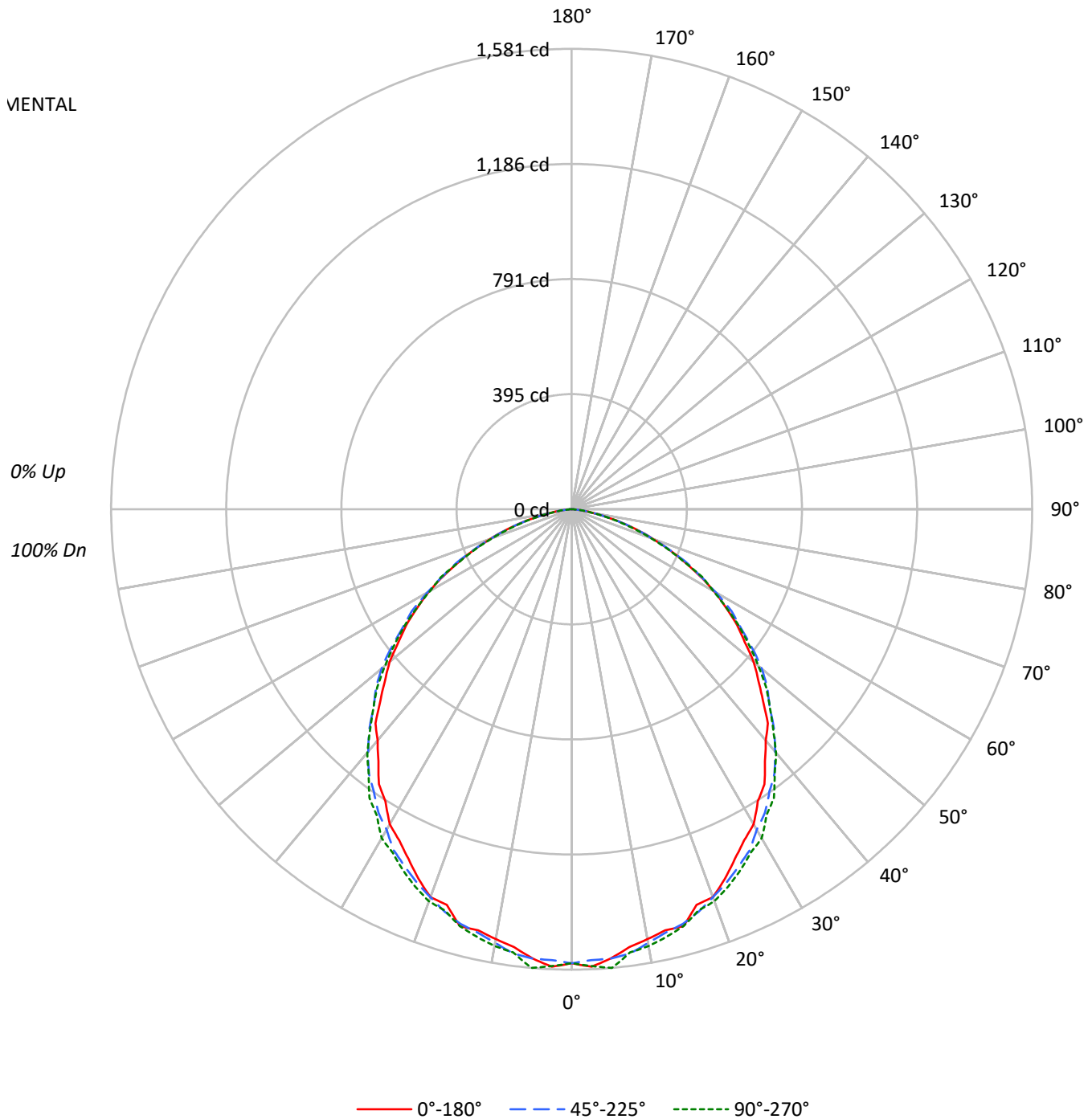
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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° | 4195 | 4195 | 4195 |
| 5° | 4181 | 4183 | 4271 |
| 10° | 4096 | 4132 | 4161 |
| 15° | 4129 | 4106 | 4129 |
| 20° | 4059 | 4059 | 4102 |
| 25° | 3934 | 4020 | 4064 |
| 30° | 3880 | 3948 | 4053 |
| 35° | 3789 | 3888 | 3975 |
| 40° | 3641 | 3817 | 3834 |
| 45° | 3531 | 3657 | 3662 |
| 50° | 3415 | 3569 | 3501 |
| 55° | 3254 | 3317 | 3294 |
| 60° | 3043 | 3073 | 3018 |
| 65° | 2713 | 2783 | 2694 |
| 70° | 2328 | 2336 | 2271 |
| 75° | 1843 | 1839 | 1769 |
| 80° | 1235 | 1201 | 1155 |
| 85° | 670 | 664 | 621 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°

Vertical Angle: 45°

Luminance: 3751 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 146.6 | 3.7 |
| 10°-20° | 415.6 | 10.6 |
| 20°-30° | 622.6 | 15.8 |
| 30°-40° | 738.0 | 18.8 |
| 40°-50° | 739.3 | 18.8 |
| 50°-60° | 627.6 | 16.0 |
| 60°-70° | 423.1 | 10.8 |
| 70°-80° | 185.9 | 4.7 |
| 80°-90° | 30.2 | 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° | 1184.9 | 30.2 |
| 0°-40° | 1922.8 | 48.9 |
| 0°-60° | 3289.7 | 83.7 |
| 0°-90° | 3929.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3929.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1559 | 1559 | 1559 | 1559 | 1559 | |
| 5° | 1548 | 1544 | 1548 | 1544 | 1581 | 146 |
| 15° | 1482 | 1465 | 1474 | 1482 | 1482 | 413 |
| 25° | 1325 | 1332 | 1354 | 1372 | 1369 | 613 |
| 35° | 1153 | 1157 | 1184 | 1211 | 1210 | 716 |
| 45° | 928 | 945 | 961 | 986 | 962 | 718 |
| 55° | 694 | 689 | 707 | 702 | 702 | 617 |
| 65° | 426 | 420 | 437 | 420 | 423 | 424 |
| 75° | 177 | 174 | 177 | 164 | 170 | 190 |
| 85° | 22 | 21 | 22 | 21 | 20 | 31 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590390

CATALOG NUMBER: FSR-24-2-LD4-2STD-50-UNV-80-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1558.9 | 1558.9 | 1558.9 | 1558.9 | 1558.9 |
| 2.5° | 1572.4 | 1560.5 | 1549.5 | 1562.3 | 1570.2 |
| 5° | 1547.9 | 1544.2 | 1548.5 | 1543.8 | 1581.1 |
| 7.5° | 1516.1 | 1529.9 | 1538.0 | 1533.0 | 1535.2 |
| 10° | 1499.1 | 1494.3 | 1512.2 | 1524.7 | 1522.9 |
| 12.5° | 1481.0 | 1488.3 | 1489.3 | 1502.8 | 1504.0 |
| 15° | 1482.0 | 1464.9 | 1474.0 | 1481.6 | 1482.2 |
| 17.5° | 1424.5 | 1443.0 | 1449.2 | 1466.7 | 1445.0 |
| 20° | 1417.4 | 1403.9 | 1417.4 | 1435.3 | 1432.5 |
| 22.5° | 1374.2 | 1359.1 | 1388.0 | 1403.9 | 1402.9 |
| 25° | 1325.0 | 1332.3 | 1354.0 | 1371.7 | 1368.9 |
| 27.5° | 1282.0 | 1290.4 | 1321.4 | 1345.8 | 1330.1 |
| 30° | 1248.8 | 1244.5 | 1270.7 | 1292.4 | 1304.5 |
| 32.5° | 1189.4 | 1204.7 | 1235.3 | 1256.8 | 1245.3 |
| 35° | 1153.3 | 1156.8 | 1183.5 | 1210.9 | 1210.1 |
| 37.5° | 1090.3 | 1106.2 | 1143.9 | 1151.5 | 1144.5 |
| 40° | 1036.6 | 1052.5 | 1086.5 | 1094.8 | 1091.4 |
| 42.5° | 996.9 | 999.8 | 1029.0 | 1038.4 | 1023.3 |
| 45° | 927.9 | 945.2 | 960.9 | 985.7 | 962.3 |
| 47.5° | 869.1 | 877.2 | 911.0 | 917.6 | 905.4 |
| 50° | 815.8 | 818.6 | 852.6 | 844.4 | 836.3 |
| 52.5° | 748.8 | 760.6 | 779.8 | 778.2 | 768.7 |
| 55° | 693.6 | 689.0 | 707.1 | 702.3 | 702.1 |
| 57.5° | 627.4 | 635.4 | 650.3 | 642.7 | 630.4 |
| 60° | 565.4 | 565.6 | 571.0 | 562.4 | 560.8 |
| 62.5° | 496.4 | 498.8 | 500.0 | 489.3 | 506.6 |
| 65° | 426.1 | 420.5 | 437.0 | 420.3 | 423.1 |
| 67.5° | 361.5 | 364.3 | 362.7 | 352.2 | 356.3 |
| 70° | 295.9 | 299.5 | 296.9 | 285.0 | 288.6 |
| 72.5° | 235.9 | 231.5 | 234.3 | 219.4 | 226.2 |
| 75° | 177.3 | 173.7 | 176.9 | 164.4 | 170.1 |
| 77.5° | 120.8 | 123.6 | 121.6 | 114.9 | 118.8 |
| 80° | 79.7 | 77.5 | 77.5 | 73.7 | 74.5 |
| 82.5° | 46.5 | 44.3 | 43.7 | 42.5 | 44.3 |
| 85° | 21.7 | 21.1 | 21.5 | 20.9 | 20.1 |
| 87.5° | 7.8 | 8.1 | 8.1 | 7.6 | 7.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)