

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: P590418

Luminaire Tested: FSR-24-2-LD4-2STD-50-UNV-93-94-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590418
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-93-94-EDD
Description: 2X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4026.0 lumens
Efficiency: N/A
Efficacy: 120.9 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

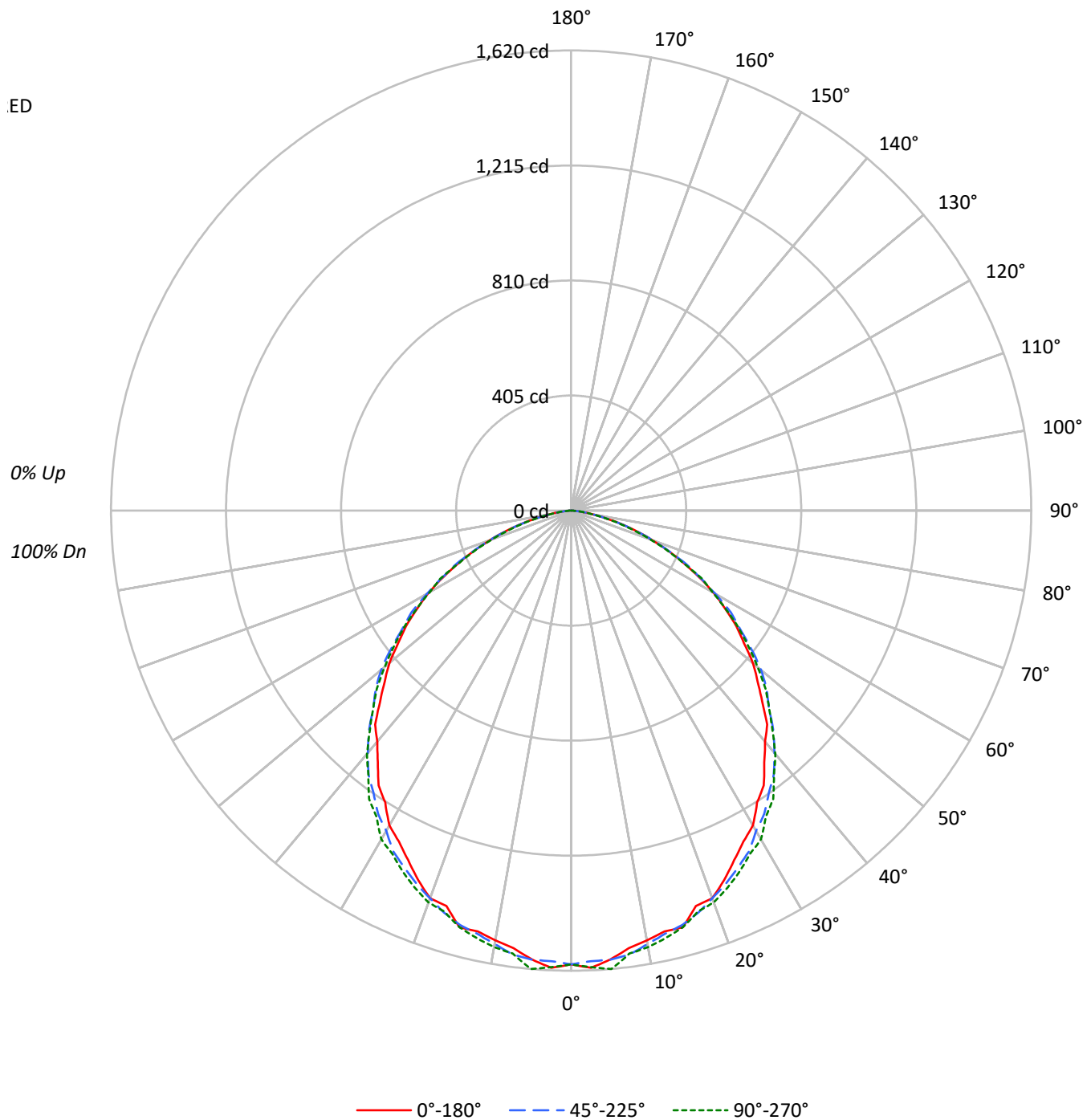
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P590418

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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 | 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 | | | | | 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° | 4299 | 4299 | 4299 |
| 5° | 4284 | 4286 | 4376 |
| 10° | 4198 | 4234 | 4264 |
| 15° | 4231 | 4208 | 4231 |
| 20° | 4159 | 4159 | 4204 |
| 25° | 4032 | 4120 | 4165 |
| 30° | 3976 | 4046 | 4153 |
| 35° | 3882 | 3984 | 4073 |
| 40° | 3731 | 3911 | 3928 |
| 45° | 3618 | 3747 | 3753 |
| 50° | 3499 | 3658 | 3588 |
| 55° | 3334 | 3400 | 3375 |
| 60° | 3118 | 3149 | 3092 |
| 65° | 2780 | 2851 | 2760 |
| 70° | 2386 | 2393 | 2327 |
| 75° | 1889 | 1885 | 1812 |
| 80° | 1266 | 1230 | 1182 |
| 85° | 689 | 682 | 636 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 3844 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 150.3 | 3.7 |
| 10°-20° | 425.9 | 10.6 |
| 20°-30° | 638.0 | 15.8 |
| 30°-40° | 756.2 | 18.8 |
| 40°-50° | 757.6 | 18.8 |
| 50°-60° | 643.1 | 16.0 |
| 60°-70° | 433.6 | 10.8 |
| 70°-80° | 190.5 | 4.7 |
| 80°-90° | 31.0 | 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° | 1214.1 | 30.2 |
| 0°-40° | 1970.3 | 48.9 |
| 0°-60° | 3371.0 | 83.7 |
| 0°-90° | 4026.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4026.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1597 | 1597 | 1597 | 1597 | 1597 | |
| 5° | 1586 | 1582 | 1587 | 1582 | 1620 | 150 |
| 15° | 1519 | 1501 | 1510 | 1518 | 1519 | 423 |
| 25° | 1358 | 1365 | 1388 | 1406 | 1403 | 628 |
| 35° | 1182 | 1185 | 1213 | 1241 | 1240 | 734 |
| 45° | 951 | 969 | 985 | 1010 | 986 | 736 |
| 55° | 711 | 706 | 725 | 720 | 719 | 632 |
| 65° | 437 | 431 | 448 | 431 | 434 | 434 |
| 75° | 182 | 178 | 181 | 168 | 174 | 195 |
| 85° | 22 | 22 | 22 | 22 | 21 | 32 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590418

CATALOG NUMBER: FSR-24-2-LD4-2STD-50-UNV-93-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1597.4 | 1597.4 | 1597.4 | 1597.4 | 1597.4 |
| 2.5° | 1611.2 | 1599.1 | 1587.7 | 1600.9 | 1609.0 |
| 5° | 1586.1 | 1582.4 | 1586.7 | 1581.9 | 1620.1 |
| 7.5° | 1553.5 | 1567.7 | 1576.0 | 1570.8 | 1573.1 |
| 10° | 1536.2 | 1531.2 | 1549.6 | 1562.4 | 1560.5 |
| 12.5° | 1517.6 | 1525.0 | 1526.1 | 1539.9 | 1541.1 |
| 15° | 1518.6 | 1501.1 | 1510.4 | 1518.2 | 1518.8 |
| 17.5° | 1459.6 | 1478.6 | 1485.0 | 1503.0 | 1480.7 |
| 20° | 1452.4 | 1438.6 | 1452.4 | 1470.8 | 1467.9 |
| 22.5° | 1408.1 | 1392.6 | 1422.3 | 1438.6 | 1437.6 |
| 25° | 1357.8 | 1365.2 | 1387.5 | 1405.6 | 1402.7 |
| 27.5° | 1313.6 | 1322.3 | 1354.0 | 1379.0 | 1362.9 |
| 30° | 1279.6 | 1275.3 | 1302.1 | 1324.3 | 1336.7 |
| 32.5° | 1218.7 | 1234.4 | 1265.8 | 1287.8 | 1276.1 |
| 35° | 1181.8 | 1185.3 | 1212.8 | 1240.8 | 1240.0 |
| 37.5° | 1117.3 | 1133.6 | 1172.1 | 1180.0 | 1172.7 |
| 40° | 1062.2 | 1078.5 | 1113.3 | 1121.8 | 1118.3 |
| 42.5° | 1021.6 | 1024.4 | 1054.4 | 1064.0 | 1048.6 |
| 45° | 950.8 | 968.6 | 984.6 | 1010.0 | 986.1 |
| 47.5° | 890.6 | 898.8 | 933.5 | 940.3 | 927.7 |
| 50° | 835.9 | 838.8 | 873.7 | 865.2 | 857.0 |
| 52.5° | 767.3 | 779.4 | 799.0 | 797.4 | 787.7 |
| 55° | 710.7 | 706.0 | 724.6 | 719.6 | 719.4 |
| 57.5° | 642.9 | 651.1 | 666.4 | 658.6 | 646.0 |
| 60° | 579.4 | 579.6 | 585.1 | 576.3 | 574.6 |
| 62.5° | 508.6 | 511.1 | 512.3 | 501.4 | 519.1 |
| 65° | 436.6 | 430.9 | 447.8 | 430.7 | 433.5 |
| 67.5° | 370.4 | 373.3 | 371.7 | 360.9 | 365.1 |
| 70° | 303.2 | 306.9 | 304.2 | 292.1 | 295.8 |
| 72.5° | 241.7 | 237.2 | 240.1 | 224.8 | 231.8 |
| 75° | 181.7 | 178.0 | 181.3 | 168.5 | 174.3 |
| 77.5° | 123.8 | 126.6 | 124.6 | 117.8 | 121.7 |
| 80° | 81.7 | 79.4 | 79.4 | 75.5 | 76.3 |
| 82.5° | 47.6 | 45.4 | 44.8 | 43.5 | 45.4 |
| 85° | 22.3 | 21.7 | 22.1 | 21.5 | 20.6 |
| 87.5° | 8.0 | 8.3 | 8.3 | 7.8 | 7.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)