

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: P561205

Luminaire Tested: FSR-12-4-LD4-1STD-40-UNV-80-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561205
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-12-4-LD4-1STD-40-UNV-80-86-EDD
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR PC ENVIRON
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3251.0 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

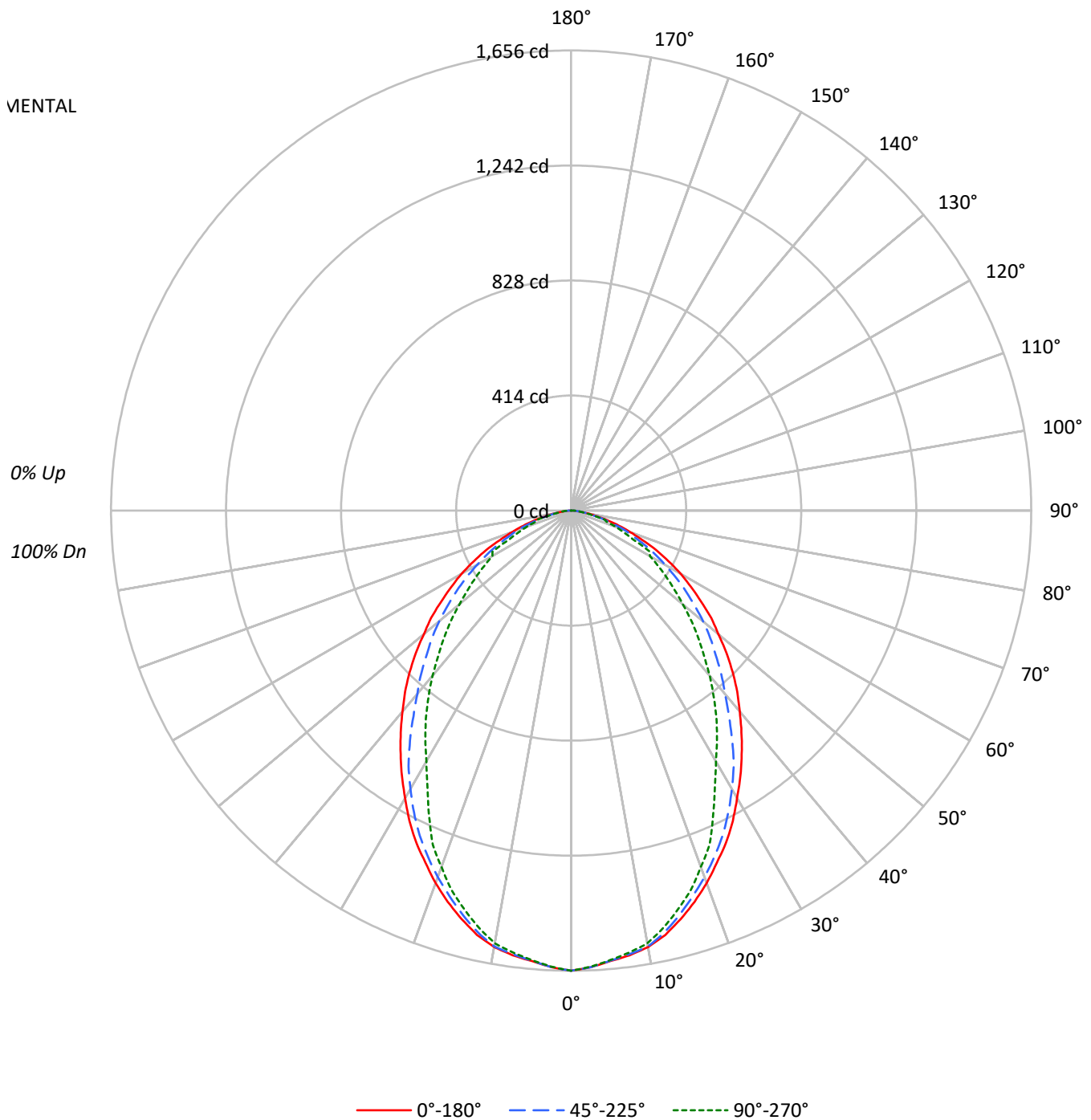
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 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° | 4456 | 4456 | 4456 |
| 5° | 4396 | 4391 | 4385 |
| 10° | 4358 | 4352 | 4321 |
| 15° | 4240 | 4198 | 4139 |
| 20° | 4084 | 4019 | 3909 |
| 25° | 3917 | 3831 | 3592 |
| 30° | 3712 | 3593 | 3236 |
| 35° | 3516 | 3321 | 2994 |
| 40° | 3315 | 3026 | 2724 |
| 45° | 3126 | 2798 | 2463 |
| 50° | 2893 | 2597 | 2196 |
| 55° | 2677 | 2353 | 1967 |
| 60° | 2452 | 2102 | 1762 |
| 65° | 2158 | 1841 | 1561 |
| 70° | 1777 | 1611 | 1326 |
| 75° | 1413 | 1234 | 1293 |
| 80° | 950 | 890 | 831 |
| 85° | 590 | 710 | 827 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3126 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 154.2 | 4.7 |
| 10°-20° | 423.1 | 13.0 |
| 20°-30° | 585.7 | 18.0 |
| 30°-40° | 624.5 | 19.2 |
| 40°-50° | 569.7 | 17.5 |
| 50°-60° | 446.3 | 13.7 |
| 60°-70° | 290.9 | 8.9 |
| 70°-80° | 128.9 | 4.0 |
| 80°-90° | 27.7 | 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° | 1162.9 | 35.8 |
| 0°-40° | 1787.4 | 55.0 |
| 0°-60° | 2803.5 | 86.2 |
| 0°-90° | 3251.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3251.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1656 | 1656 | 1656 | 1656 | 1656 | |
| 5° | 1627 | 1625 | 1625 | 1624 | 1624 | 154 |
| 15° | 1522 | 1522 | 1507 | 1491 | 1486 | 428 |
| 25° | 1319 | 1311 | 1290 | 1244 | 1210 | 606 |
| 35° | 1070 | 1062 | 1011 | 934 | 911 | 669 |
| 45° | 821 | 804 | 735 | 674 | 647 | 633 |
| 55° | 570 | 553 | 502 | 442 | 419 | 512 |
| 65° | 339 | 320 | 289 | 295 | 245 | 334 |
| 75° | 136 | 126 | 119 | 113 | 124 | 146 |
| 85° | 19 | 21 | 23 | 25 | 27 | 27 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561205

CATALOG NUMBER: FSR-12-4-LD4-1STD-40-UNV-80-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1656.0 | 1656.0 | 1656.0 | 1656.0 | 1656.0 |
| 2.5° | 1644.5 | 1644.5 | 1644.5 | 1642.6 | 1642.6 |
| 5° | 1627.3 | 1625.4 | 1625.4 | 1623.5 | 1623.5 |
| 7.5° | 1613.9 | 1612.0 | 1610.1 | 1608.2 | 1604.3 |
| 10° | 1594.8 | 1594.8 | 1592.8 | 1583.3 | 1581.4 |
| 12.5° | 1564.1 | 1562.2 | 1554.5 | 1541.1 | 1537.3 |
| 15° | 1522.0 | 1522.0 | 1506.7 | 1491.4 | 1485.6 |
| 17.5° | 1476.1 | 1474.1 | 1455.0 | 1439.7 | 1432.0 |
| 20° | 1426.3 | 1422.5 | 1403.3 | 1378.4 | 1365.0 |
| 22.5° | 1370.8 | 1370.8 | 1347.8 | 1315.2 | 1301.8 |
| 25° | 1319.1 | 1311.4 | 1290.4 | 1244.4 | 1209.9 |
| 27.5° | 1259.7 | 1248.2 | 1225.3 | 1160.2 | 1120.0 |
| 30° | 1194.6 | 1188.9 | 1156.3 | 1072.1 | 1041.5 |
| 32.5° | 1133.4 | 1123.8 | 1089.3 | 1001.3 | 976.4 |
| 35° | 1070.2 | 1062.5 | 1010.8 | 934.3 | 911.3 |
| 37.5° | 1007.0 | 997.4 | 932.3 | 871.1 | 842.4 |
| 40° | 943.8 | 932.3 | 861.5 | 806.0 | 775.4 |
| 42.5° | 884.5 | 869.2 | 800.2 | 740.9 | 706.4 |
| 45° | 821.3 | 804.1 | 735.2 | 673.9 | 647.1 |
| 47.5° | 758.1 | 742.8 | 679.6 | 616.5 | 585.8 |
| 50° | 691.1 | 677.7 | 620.3 | 557.1 | 524.6 |
| 52.5° | 635.6 | 614.5 | 559.0 | 495.8 | 469.0 |
| 55° | 570.5 | 553.3 | 501.6 | 442.2 | 419.3 |
| 57.5° | 511.2 | 493.9 | 446.1 | 390.6 | 371.4 |
| 60° | 455.6 | 430.8 | 390.6 | 342.7 | 327.4 |
| 62.5° | 394.4 | 375.2 | 340.8 | 300.6 | 319.7 |
| 65° | 338.9 | 319.7 | 289.1 | 294.8 | 245.1 |
| 67.5° | 277.6 | 268.0 | 241.2 | 214.4 | 206.8 |
| 70° | 225.9 | 214.4 | 204.8 | 176.1 | 168.5 |
| 72.5° | 180.0 | 168.5 | 155.1 | 139.8 | 134.0 |
| 75° | 135.9 | 126.4 | 118.7 | 113.0 | 124.4 |
| 77.5° | 93.8 | 90.0 | 84.2 | 78.5 | 76.6 |
| 80° | 61.3 | 59.3 | 57.4 | 55.5 | 53.6 |
| 82.5° | 36.4 | 36.4 | 36.4 | 36.4 | 36.4 |
| 85° | 19.1 | 21.1 | 23.0 | 24.9 | 26.8 |
| 87.5° | 11.5 | 11.5 | 13.4 | 15.3 | 17.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)