

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: P563514

Luminaire Tested: FSR-24-4-LD4-3STD-40-UNV-80-94-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563514  
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-LD4-3STD-40-UNV-80-94-EDD-90  
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

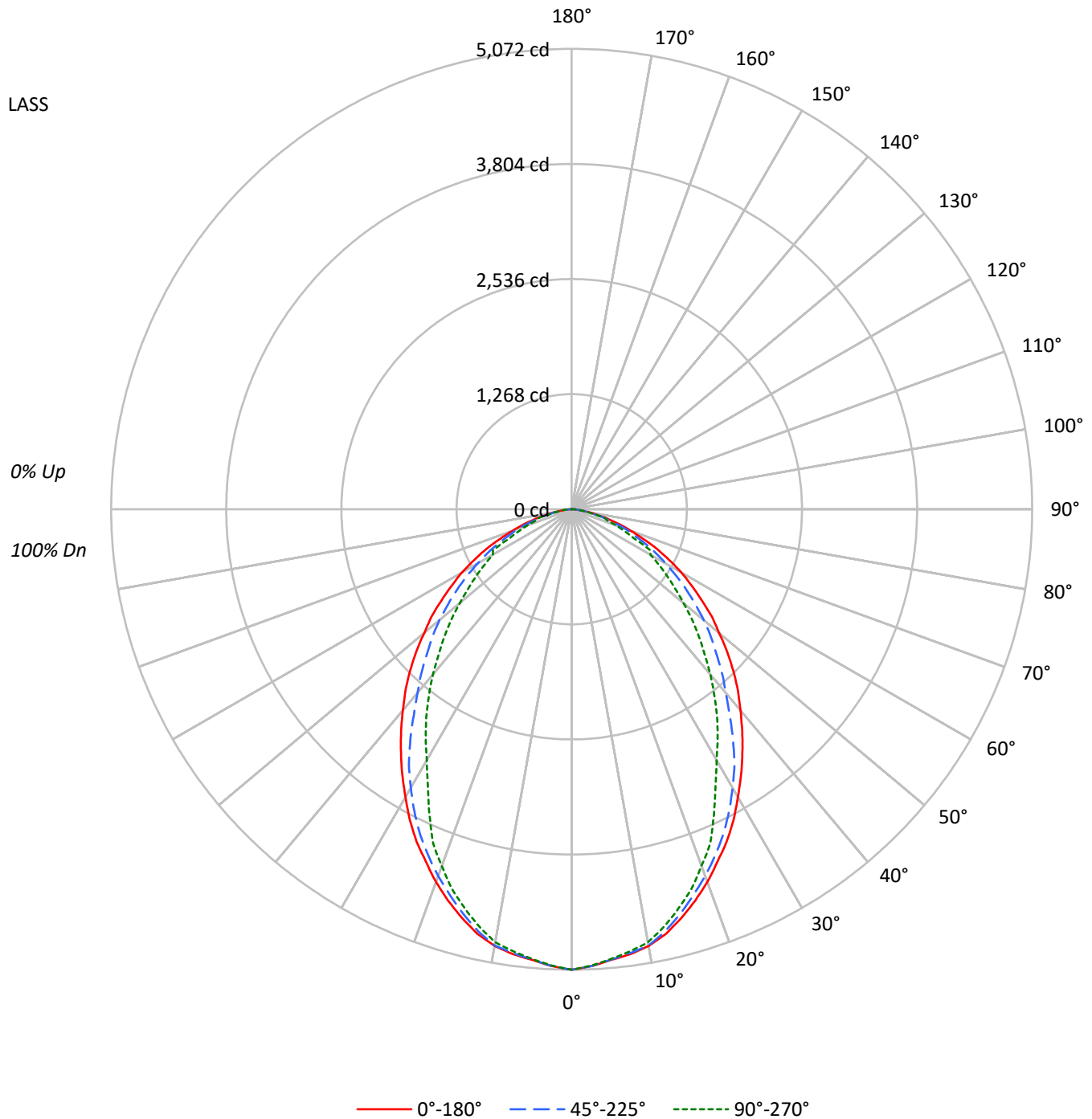
Lumens per Lamp: N/A  
Luminaire Lumens: 9958.0 lumens  
Efficiency: N/A  
Efficacy: 99.7 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 99.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: P563514

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

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 6825 | 6825 | 6825 |
| 5°  | 6732 | 6724 | 6716 |
| 10° | 6674 | 6666 | 6618 |
| 15° | 6494 | 6429 | 6339 |
| 20° | 6255 | 6155 | 5987 |
| 25° | 5998 | 5868 | 5502 |
| 30° | 5685 | 5503 | 4956 |
| 35° | 5384 | 5086 | 4585 |
| 40° | 5078 | 4635 | 4171 |
| 45° | 4787 | 4285 | 3772 |
| 50° | 4431 | 3977 | 3363 |
| 55° | 4099 | 3604 | 3012 |
| 60° | 3756 | 3219 | 2699 |
| 65° | 3305 | 2819 | 2390 |
| 70° | 2722 | 2469 | 2030 |
| 75° | 2165 | 1890 | 1982 |
| 80° | 1454 | 1363 | 1272 |
| 85° | 905  | 1087 | 1267 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4787 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 472.2  | 4.7       |
| 10°-20°   | 1295.9 | 13.0      |
| 20°-30°   | 1794.0 | 18.0      |
| 30°-40°   | 1912.9 | 19.2      |
| 40°-50°   | 1745.2 | 17.5      |
| 50°-60°   | 1367.2 | 13.7      |
| 60°-70°   | 891.1  | 8.9       |
| 70°-80°   | 394.8  | 4.0       |
| 80°-90°   | 84.8   | 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°    | 3562.1 | 35.8      |
| 0°-40°    | 5475.0 | 55.0      |
| 0°-60°    | 8587.4 | 86.2      |
| 0°-90°    | 9958.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 9958.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 5072 | 5072  | 5072 | 5072  | 5072 |      |
| 5°  | 4984 | 4979  | 4979 | 4973  | 4973 | 473  |
| 15° | 4662 | 4662  | 4615 | 4568  | 4551 | 1311 |
| 25° | 4040 | 4017  | 3952 | 3812  | 3706 | 1855 |
| 35° | 3278 | 3255  | 3096 | 2862  | 2791 | 2049 |
| 45° | 2516 | 2463  | 2252 | 2064  | 1982 | 1938 |
| 55° | 1748 | 1695  | 1536 | 1355  | 1284 | 1567 |
| 65° | 1038 | 979   | 886  | 903   | 751  | 1023 |
| 75° | 416  | 387   | 364  | 346   | 381  | 446  |
| 85° | 59   | 64    | 70   | 76    | 82   | 81   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 5072.5 | 5072.5 | 5072.5 | 5072.5 | 5072.5 |
| 2.5°  | 5037.3 | 5037.3 | 5037.3 | 5031.4 | 5031.4 |
| 5°    | 4984.5 | 4978.6 | 4978.6 | 4972.8 | 4972.8 |
| 7.5°  | 4943.5 | 4937.6 | 4931.7 | 4925.9 | 4914.1 |
| 10°   | 4884.8 | 4884.8 | 4879.0 | 4849.6 | 4843.8 |
| 12.5° | 4791.0 | 4785.1 | 4761.7 | 4720.6 | 4708.9 |
| 15°   | 4662.0 | 4662.0 | 4615.1 | 4568.2 | 4550.6 |
| 17.5° | 4521.2 | 4515.4 | 4456.7 | 4409.8 | 4386.4 |
| 20°   | 4368.8 | 4357.0 | 4298.4 | 4222.2 | 4181.1 |
| 22.5° | 4198.7 | 4198.7 | 4128.3 | 4028.7 | 3987.6 |
| 25°   | 4040.4 | 4016.9 | 3952.4 | 3811.7 | 3706.1 |
| 27.5° | 3858.6 | 3823.4 | 3753.0 | 3553.7 | 3430.5 |
| 30°   | 3659.2 | 3641.6 | 3541.9 | 3283.9 | 3190.1 |
| 32.5° | 3471.6 | 3442.2 | 3336.7 | 3066.9 | 2990.7 |
| 35°   | 3278.0 | 3254.6 | 3096.3 | 2861.7 | 2791.3 |
| 37.5° | 3084.5 | 3055.2 | 2855.8 | 2668.2 | 2580.2 |
| 40°   | 2891.0 | 2855.8 | 2638.9 | 2468.8 | 2375.0 |
| 42.5° | 2709.2 | 2662.3 | 2451.2 | 2269.4 | 2163.9 |
| 45°   | 2515.7 | 2462.9 | 2251.8 | 2064.2 | 1982.1 |
| 47.5° | 2322.2 | 2275.3 | 2081.8 | 1888.2 | 1794.4 |
| 50°   | 2117.0 | 2075.9 | 1900.0 | 1706.5 | 1606.8 |
| 52.5° | 1946.9 | 1882.4 | 1712.3 | 1518.8 | 1436.7 |
| 55°   | 1747.5 | 1694.7 | 1536.4 | 1354.6 | 1284.2 |
| 57.5° | 1565.7 | 1512.9 | 1366.3 | 1196.3 | 1137.6 |
| 60°   | 1395.7 | 1319.4 | 1196.3 | 1049.7 | 1002.8 |
| 62.5° | 1208.0 | 1149.4 | 1043.8 | 920.7  | 979.3  |
| 65°   | 1038.0 | 979.3  | 885.5  | 903.1  | 750.6  |
| 67.5° | 850.3  | 821.0  | 738.9  | 656.8  | 633.3  |
| 70°   | 692.0  | 656.8  | 627.5  | 539.5  | 516.0  |
| 72.5° | 551.2  | 516.0  | 475.0  | 428.1  | 410.5  |
| 75°   | 416.4  | 387.0  | 363.6  | 346.0  | 381.2  |
| 77.5° | 287.3  | 275.6  | 258.0  | 240.4  | 234.6  |
| 80°   | 187.7  | 181.8  | 175.9  | 170.1  | 164.2  |
| 82.5° | 111.4  | 111.4  | 111.4  | 111.4  | 111.4  |
| 85°   | 58.6   | 64.5   | 70.4   | 76.2   | 82.1   |
| 87.5° | 35.2   | 35.2   | 41.0   | 46.9   | 52.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)