

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: P558886

Luminaire Tested: FSR-12-1-LD4-1STD-35-UNV-93-87-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P558886  
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-12-1-LD4-1STD-35-UNV-93-87-EDD-90  
Description: 1X1 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

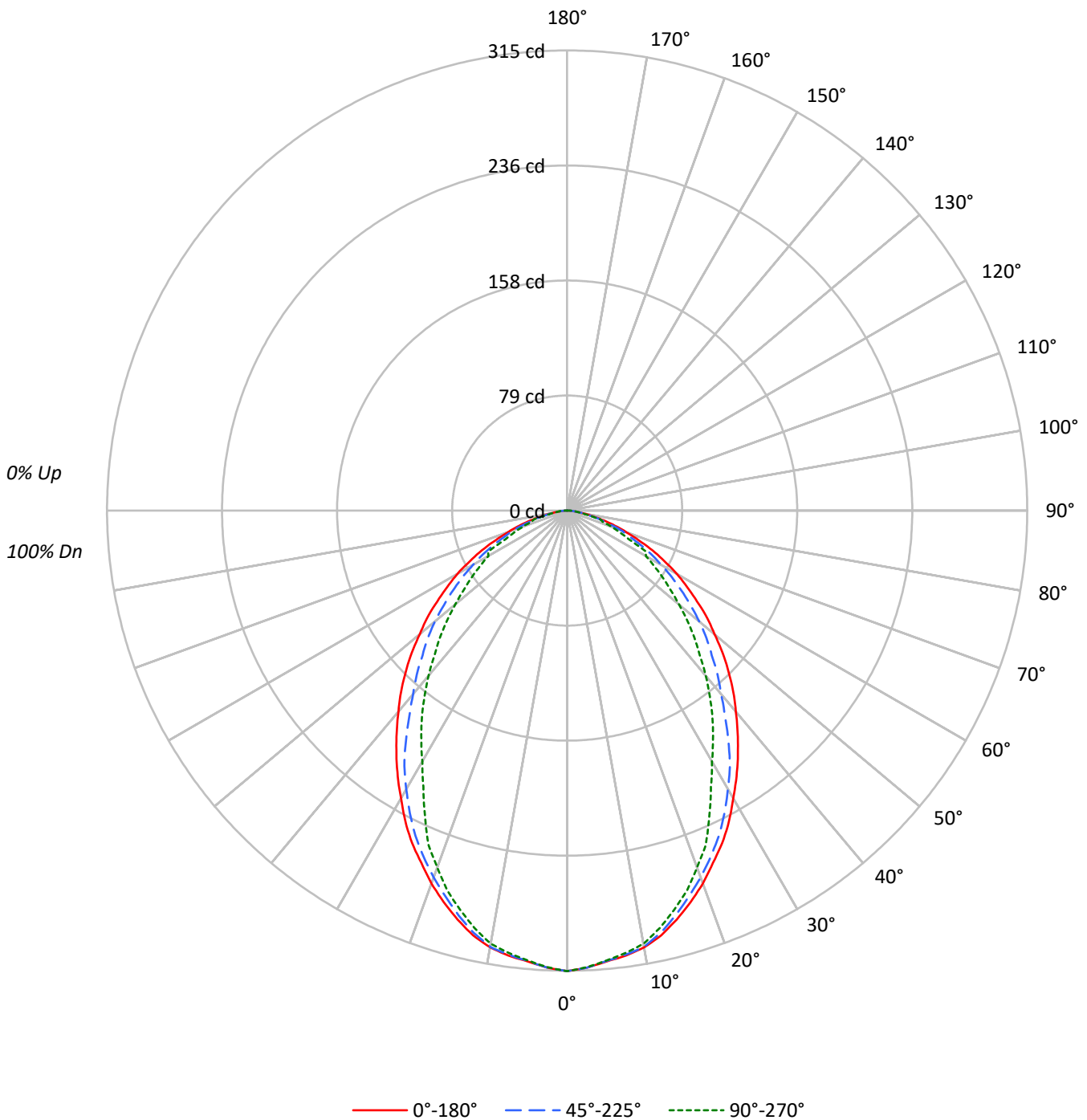
Lumens per Lamp: N/A  
Luminaire Lumens: 619.0 lumens  
Efficiency: N/A  
Efficacy: 74.6 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 8.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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  | 39  | 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°  | 3394 | 3394 | 3394 |
| 5°  | 3347 | 3344 | 3340 |
| 10° | 3318 | 3315 | 3291 |
| 15° | 3229 | 3197 | 3153 |
| 20° | 3111 | 3061 | 2977 |
| 25° | 2983 | 2918 | 2736 |
| 30° | 2828 | 2737 | 2465 |
| 35° | 2678 | 2530 | 2280 |
| 40° | 2525 | 2304 | 2074 |
| 45° | 2381 | 2131 | 1875 |
| 50° | 2204 | 1978 | 1673 |
| 55° | 2038 | 1792 | 1498 |
| 60° | 1869 | 1602 | 1341 |
| 65° | 1643 | 1401 | 1189 |
| 70° | 1353 | 1227 | 1010 |
| 75° | 1077 | 940  | 986  |
| 80° | 725  | 676  | 632  |
| 85° | 445  | 543  | 630  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2381 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 29.4   | 4.7       |
| 10°-20°   | 80.6   | 13.0      |
| 20°-30°   | 111.5  | 18.0      |
| 30°-40°   | 118.9  | 19.2      |
| 40°-50°   | 108.5  | 17.5      |
| 50°-60°   | 85.0   | 13.7      |
| 60°-70°   | 55.4   | 8.9       |
| 70°-80°   | 24.5   | 4.0       |
| 80°-90°   | 5.3    | 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°    | 221.4  | 35.8      |
| 0°-40°    | 340.3  | 55.0      |
| 0°-60°    | 533.8  | 86.2      |
| 0°-90°    | 619.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 619.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 315 | 315   | 315 | 315   | 315 |      |
| 5°  | 310 | 310   | 310 | 309   | 309 | 29   |
| 15° | 290 | 290   | 287 | 284   | 283 | 81   |
| 25° | 251 | 250   | 246 | 237   | 230 | 115  |
| 35° | 204 | 202   | 192 | 178   | 174 | 127  |
| 45° | 156 | 153   | 140 | 128   | 123 | 120  |
| 55° | 109 | 105   | 96  | 84    | 80  | 97   |
| 65° | 64  | 61    | 55  | 56    | 47  | 64   |
| 75° | 26  | 24    | 23  | 22    | 24  | 28   |
| 85° | 4   | 4     | 4   | 5     | 5   | 5    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°           | 22.5°        | 45°          | 67.5°        | 90°          |
|-------|--------------|--------------|--------------|--------------|--------------|
| 0°    | <i>315.3</i> | <i>315.3</i> | <i>315.3</i> | <i>315.3</i> | <i>315.3</i> |
| 2.5°  | <i>313.1</i> | 313.1        | 313.1        | 312.8        | 312.8        |
| 5°    | <i>309.8</i> | 309.5        | 309.5        | 309.1        | 309.1        |
| 7.5°  | <i>307.3</i> | 306.9        | 306.6        | 306.2        | 305.5        |
| 10°   | <i>303.6</i> | 303.6        | 303.3        | 301.5        | 301.1        |
| 12.5° | <i>297.8</i> | 297.4        | 296.0        | 293.4        | 292.7        |
| 15°   | <i>289.8</i> | 289.8        | 286.9        | 284.0        | 282.9        |
| 17.5° | <i>281.0</i> | 280.7        | 277.0        | 274.1        | 272.7        |
| 20°   | <i>271.6</i> | 270.8        | 267.2        | 262.5        | 259.9        |
| 22.5° | <i>261.0</i> | 261.0        | 256.6        | 250.4        | 247.9        |
| 25°   | <i>251.2</i> | 249.7        | 245.7        | 236.9        | 230.4        |
| 27.5° | <i>239.9</i> | 237.7        | 233.3        | 220.9        | 213.2        |
| 30°   | <i>227.5</i> | 226.4        | 220.2        | 204.1        | 198.3        |
| 32.5° | <i>215.8</i> | 214.0        | 207.4        | 190.6        | 185.9        |
| 35°   | <i>203.8</i> | 202.3        | 192.5        | 177.9        | 173.5        |
| 37.5° | <i>191.7</i> | 189.9        | 177.5        | 165.9        | 160.4        |
| 40°   | <i>179.7</i> | 177.5        | 164.0        | 153.5        | 147.6        |
| 42.5° | <i>168.4</i> | 165.5        | 152.4        | 141.1        | 134.5        |
| 45°   | <i>156.4</i> | 153.1        | 140.0        | 128.3        | 123.2        |
| 47.5° | <i>144.4</i> | 141.4        | 129.4        | 117.4        | 111.5        |
| 50°   | <i>131.6</i> | 129.0        | 118.1        | 106.1        | 99.9         |
| 52.5° | <i>121.0</i> | 117.0        | 106.4        | 94.4         | 89.3         |
| 55°   | <i>108.6</i> | 105.3        | 95.5         | 84.2         | 79.8         |
| 57.5° | <i>97.3</i>  | 94.0         | 84.9         | 74.4         | 70.7         |
| 60°   | <i>86.8</i>  | 82.0         | 74.4         | 65.2         | 62.3         |
| 62.5° | <i>75.1</i>  | 71.4         | 64.9         | 57.2         | 60.9         |
| 65°   | <i>64.5</i>  | 60.9         | 55.0         | 56.1         | 46.7         |
| 67.5° | <i>52.9</i>  | 51.0         | 45.9         | 40.8         | 39.4         |
| 70°   | <i>43.0</i>  | 40.8         | 39.0         | 33.5         | 32.1         |
| 72.5° | <i>34.3</i>  | 32.1         | 29.5         | 26.6         | 25.5         |
| 75°   | <i>25.9</i>  | 24.1         | 22.6         | 21.5         | 23.7         |
| 77.5° | <i>17.9</i>  | 17.1         | 16.0         | 14.9         | 14.6         |
| 80°   | <i>11.7</i>  | 11.3         | 10.9         | 10.6         | 10.2         |
| 82.5° | <i>6.9</i>   | 6.9          | 6.9          | 6.9          | 6.9          |
| 85°   | <i>3.6</i>   | 4.0          | 4.4          | 4.7          | 5.1          |
| 87.5° | <i>2.2</i>   | 2.2          | 2.6          | 2.9          | 3.3          |
| 90°   | <i>0.0</i>   | 0.0          | 0.0          | 0.0          | 0.0          |

(END OF REPORT)