

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: P517690

Luminaire Tested: HVL12-8-LD4-3HI-50-UNV-O-EDD

Issue Date: 4/27/2021

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

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**Test Information**

Test Method: LM-79-2019  
Report Number: P517690  
Test Lab: INNOVATION CENTER  
Issue Date: 4/27/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: HVL12-8-LD4-3HI-50-UNV-O-EDD  
Description: 8 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 80 CRI LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

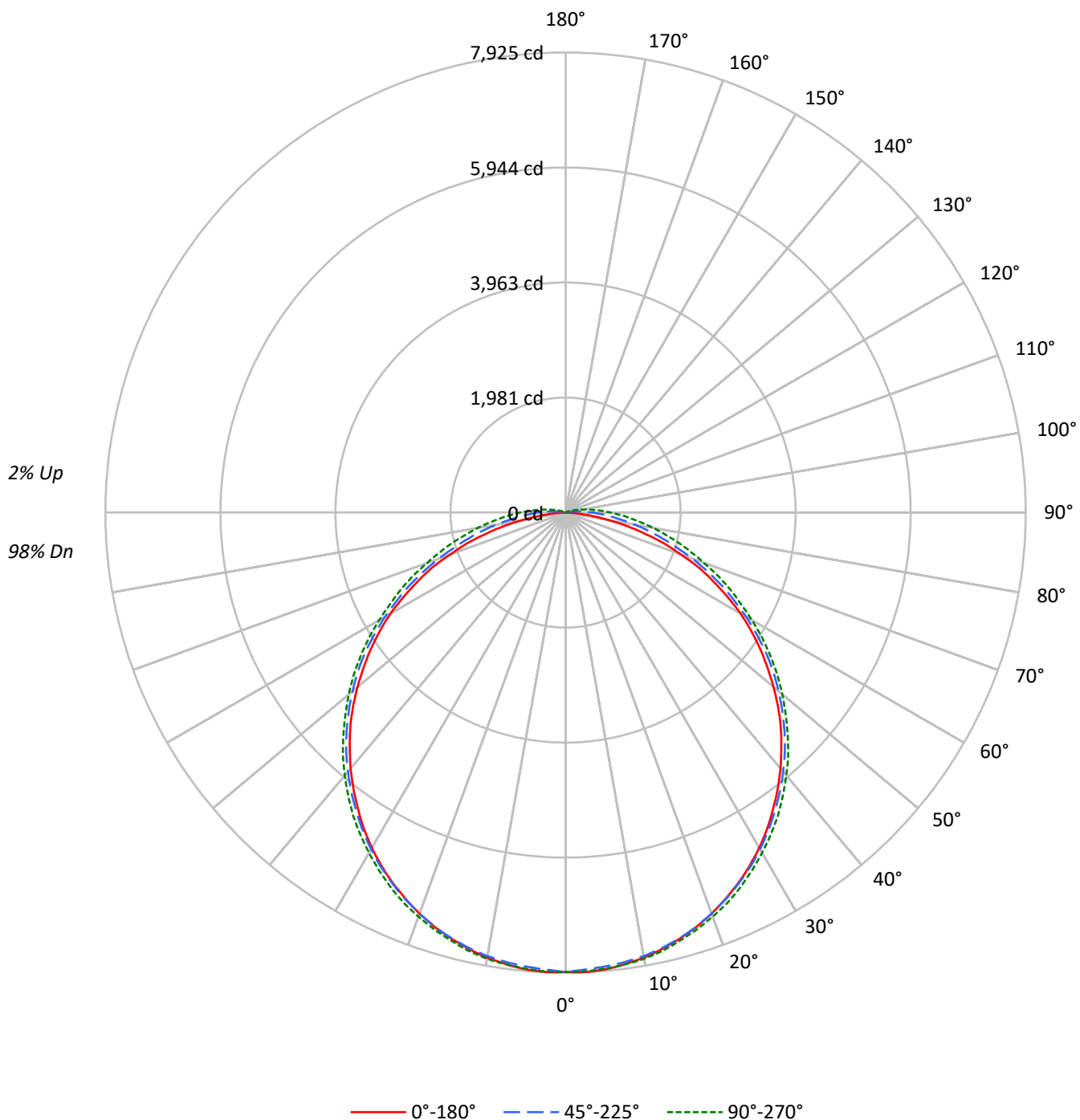
Lumens per Lamp: N/A  
Luminaire Lumens: 23933.0 lumens  
Efficiency: N/A  
Efficacy: 92.5 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38  
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 8' x H: 0.17')  
CIE Type: Direct  
  
Input Watts (W): 258.6  
Input Voltage (V): NR  
Input Current (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

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | P3                    | 10/30/2015       | 4/30/2016            |
| Power Meter                    | IN0214                | 1/12/2016        | 1/12/2017            |
| AC Power Source                | IN0062                | 1/12/2016        | 1/12/2017            |
| DC Power Supply                | --                    | --               | --                   |
| Room Thermometer               | IN0145                | 1/13/2016        | 1/13/2017            |

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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 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50 | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 | 105 | 105 | 105 | 101 | 101 | 101 |    |    | 98 |
| 1   | 108 | 102 | 98  | 94  | 105 | 100 | 96  | 92  | 95  | 92  | 89  | 91  | 88  | 86  | 87  | 85  | 83  |    |    | 81 |
| 2   | 98  | 89  | 82  | 76  | 95  | 87  | 80  | 75  | 83  | 77  | 73  | 79  | 75  | 71  | 76  | 72  | 69  |    |    | 67 |
| 3   | 89  | 78  | 69  | 63  | 86  | 76  | 68  | 62  | 73  | 66  | 61  | 70  | 64  | 59  | 67  | 62  | 58  |    |    | 56 |
| 4   | 81  | 69  | 60  | 53  | 79  | 67  | 59  | 52  | 65  | 57  | 52  | 62  | 56  | 51  | 60  | 54  | 50  |    |    | 47 |
| 5   | 75  | 61  | 52  | 45  | 72  | 60  | 52  | 45  | 58  | 50  | 44  | 56  | 49  | 44  | 54  | 48  | 43  |    |    | 41 |
| 6   | 69  | 55  | 46  | 40  | 67  | 54  | 46  | 39  | 52  | 45  | 39  | 50  | 44  | 38  | 49  | 43  | 38  |    |    | 36 |
| 7   | 64  | 50  | 41  | 35  | 62  | 49  | 41  | 35  | 47  | 40  | 34  | 46  | 39  | 34  | 44  | 38  | 34  |    |    | 32 |
| 8   | 59  | 46  | 37  | 31  | 58  | 45  | 37  | 31  | 43  | 36  | 31  | 42  | 35  | 30  | 41  | 35  | 30  |    |    | 28 |
| 9   | 55  | 42  | 34  | 28  | 54  | 41  | 33  | 28  | 40  | 33  | 28  | 39  | 32  | 27  | 38  | 32  | 27  |    |    | 25 |
| 10  | 52  | 39  | 31  | 25  | 51  | 38  | 30  | 25  | 37  | 30  | 25  | 36  | 29  | 25  | 35  | 29  | 25  |    |    | 23 |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 10650 | 10650 | 10650 |
| 5°  | 10649 | 10479 | 10498 |
| 10° | 10597 | 10356 | 10360 |
| 15° | 10525 | 10211 | 10176 |
| 20° | 10448 | 10040 | 9998  |
| 25° | 10351 | 9862  | 9814  |
| 30° | 10238 | 9668  | 9595  |
| 35° | 10090 | 9449  | 9378  |
| 40° | 9937  | 9217  | 9115  |
| 45° | 9774  | 8960  | 8826  |
| 50° | 9555  | 8655  | 8511  |
| 55° | 9322  | 8317  | 8160  |
| 60° | 9044  | 7857  | 7738  |
| 65° | 8570  | 7336  | 7330  |
| 70° | 7873  | 6709  | 6847  |
| 75° | 6868  | 6022  | 6447  |
| 80° | 5327  | 5380  | 6146  |
| 85° | 3071  | 4798  | 5979  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 9774 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 749.1   | 3.1       |
| 10°-20°   | 2148.6  | 9.0       |
| 20°-30°   | 3260.2  | 13.6      |
| 30°-40°   | 3942.1  | 16.5      |
| 40°-50°   | 4113.3  | 17.2      |
| 50°-60°   | 3760.8  | 15.7      |
| 60°-70°   | 2931.7  | 12.2      |
| 70°-80°   | 1833.9  | 7.7       |
| 80°-90°   | 833.0   | 3.5       |
| 90°-100°  | 279.2   | 1.2       |
| 100°-110° | 70.1    | 0.3       |
| 110°-120° | 11.0    | 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°    | 6157.9  | 25.7      |
| 0°-40°    | 10100.0 | 42.2      |
| 0°-60°    | 17974.1 | 75.1      |
| 0°-90°    | 23572.7 | 98.5      |
| 90°-120°  | 360.3   | 1.5       |
| 90°-150°  | 360.3   | 1.5       |
| 90°-180°  | 360.0   | 1.5       |
| 0°-180°   | 23933.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 7916 | 7916  | 7916 | 7916  | 7916 |      |
| 5°   | 7899 | 7884  | 7848 | 7886  | 7886 | 750  |
| 15°  | 7598 | 7611  | 7591 | 7634  | 7632 | 2145 |
| 25°  | 7040 | 7046  | 7054 | 7113  | 7124 | 3244 |
| 35°  | 6232 | 6260  | 6287 | 6350  | 6376 | 3901 |
| 45°  | 5244 | 5290  | 5333 | 5385  | 5411 | 4040 |
| 55°  | 4092 | 4141  | 4217 | 4279  | 4307 | 3656 |
| 65°  | 2812 | 2861  | 2960 | 3077  | 3126 | 2782 |
| 75°  | 1424 | 1512  | 1732 | 1939  | 2012 | 1518 |
| 85°  | 246  | 455   | 782  | 1034  | 1125 | 312  |
| 90°  | 2    | 170   | 461  | 692   | 776  | 10   |
| 95°  | 2    | 45    | 239  | 433   | 500  | 2    |
| 105° | 4    | 6     | 39   | 116   | 155  | 4    |
| 115° | 6    | 6     | 8    | 20    | 30   | 4    |
| 125° | 0    | 0     | 0    | 0     | 0    | 0    |
| 135° | 0    | 0     | 0    | 0     | 0    | 0    |
| 145° | 0    | 0     | 0    | 0     | 0    | 0    |
| 155° | 0    | 0     | 0    | 0     | 0    | 0    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    | 0    |

TEST NUMBER: P517690

CATALOG NUMBER: HVL12-8-LD4-3HI-50-UNV-O-EDD

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 7915.6 | 7915.6 | 7915.6 | 7915.6 | 7915.6 |
| 2.5°   | 7924.9 | 7913.7 | 7878.3 | 7913.7 | 7911.9 |
| 5°     | 7898.8 | 7883.9 | 7848.4 | 7885.7 | 7885.7 |
| 7.5°   | 7846.5 | 7841.0 | 7809.2 | 7852.1 | 7852.1 |
| 10°    | 7785.0 | 7783.1 | 7757.0 | 7803.6 | 7805.5 |
| 12.5°  | 7699.1 | 7706.6 | 7682.3 | 7727.1 | 7732.7 |
| 15°    | 7598.4 | 7611.4 | 7590.9 | 7633.8 | 7632.0 |
| 17.5°  | 7488.3 | 7495.7 | 7480.8 | 7529.3 | 7527.5 |
| 20°    | 7352.1 | 7361.4 | 7350.2 | 7400.6 | 7406.2 |
| 22.5°  | 7200.9 | 7214.0 | 7212.1 | 7264.4 | 7279.3 |
| 25°    | 7040.4 | 7046.0 | 7053.5 | 7113.2 | 7124.4 |
| 27.5°  | 6863.2 | 6872.5 | 6885.6 | 6939.7 | 6950.9 |
| 30°    | 6669.1 | 6684.0 | 6699.0 | 6754.9 | 6769.9 |
| 32.5°  | 6463.8 | 6478.8 | 6497.4 | 6570.2 | 6577.7 |
| 35°    | 6232.5 | 6260.4 | 6286.6 | 6350.0 | 6376.1 |
| 37.5°  | 6001.1 | 6036.5 | 6060.8 | 6128.0 | 6148.5 |
| 40°    | 5756.6 | 5792.1 | 5831.3 | 5902.2 | 5915.2 |
| 42.5°  | 5501.0 | 5542.0 | 5588.7 | 5652.1 | 5674.5 |
| 45°    | 5243.5 | 5290.1 | 5333.0 | 5385.3 | 5411.4 |
| 47.5°  | 4965.4 | 5012.1 | 5064.3 | 5124.0 | 5140.8 |
| 50°    | 4678.1 | 4732.2 | 4788.2 | 4844.1 | 4874.0 |
| 52.5°  | 4383.2 | 4448.6 | 4512.0 | 4571.7 | 4599.7 |
| 55°    | 4092.1 | 4140.7 | 4217.2 | 4278.7 | 4306.7 |
| 57.5°  | 3789.9 | 3830.9 | 3899.9 | 4000.7 | 4015.6 |
| 60°    | 3482.0 | 3519.3 | 3590.2 | 3672.3 | 3705.9 |
| 62.5°  | 3142.4 | 3192.7 | 3267.4 | 3371.9 | 3401.7 |
| 65°    | 2812.1 | 2860.6 | 2959.5 | 3077.0 | 3125.6 |
| 67.5°  | 2493.0 | 2509.8 | 2636.7 | 2759.8 | 2838.2 |
| 70°    | 2116.0 | 2179.5 | 2326.9 | 2478.1 | 2537.8 |
| 72.5°  | 1791.4 | 1854.8 | 2017.2 | 2194.4 | 2269.1 |
| 75°    | 1423.8 | 1511.5 | 1731.7 | 1938.8 | 2011.6 |
| 77.5°  | 1100.9 | 1198.0 | 1470.4 | 1679.4 | 1763.4 |
| 80°    | 768.8  | 919.9  | 1216.6 | 1451.8 | 1543.2 |
| 82.5°  | 483.3  | 669.9  | 987.1  | 1233.4 | 1313.7 |
| 85°    | 246.3  | 455.3  | 781.9  | 1033.8 | 1125.2 |
| 87.5°  | 65.3   | 294.8  | 608.3  | 849.0  | 942.3  |
| 90°    | 1.9    | 169.8  | 460.9  | 692.3  | 776.3  |
| 92.5°  | 1.9    | 95.2   | 343.3  | 550.5  | 636.3  |
| 95°    | 1.9    | 44.8   | 238.8  | 432.9  | 500.1  |
| 97.5°  | 1.9    | 18.7   | 164.2  | 326.6  | 393.7  |
| 100°   | 1.9    | 9.3    | 104.5  | 237.0  | 294.8  |
| 102.5° | 3.7    | 5.6    | 65.3   | 169.8  | 216.5  |
| 105°   | 3.7    | 5.6    | 39.2   | 115.7  | 154.9  |
| 107.5° | 3.7    | 5.6    | 22.4   | 78.4   | 106.4  |
| 110°   | 5.6    | 5.6    | 13.1   | 48.5   | 70.9   |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45° | 67.5° | 90°  |
|--------|-----|-------|-----|-------|------|
| 112.5° | 5.6 | 5.6   | 7.5 | 31.7  | 46.7 |
| 115°   | 5.6 | 5.6   | 7.5 | 20.5  | 29.9 |
| 117.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 120°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 122.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 125°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 127.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 130°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 132.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 135°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 137.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 140°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 142.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 145°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 147.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 150°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 152.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 155°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 157.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 160°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 162.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 165°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 167.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 170°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 172.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 175°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 177.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |
| 180°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0  |

(END OF REPORT)