

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: HALO

Report Number: P626439

Luminaire Tested: HLBC4LS9FSD2W1EMWR-3500K-900lm

Issue Date: 11/17/2022

**Test Information**

Test Method: LM-79-2019  
Report Number: P626439  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2209627A001)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 11/17/2022  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: HLBC4LS9FSD2W1EMWR-3500K-900lm  
Description: 4IN CANLESS LED DOWNLIGHT WITH SELECTABLE CCT AND SELECTABLE LUMEN OUTPUT  
Light Source: (1) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

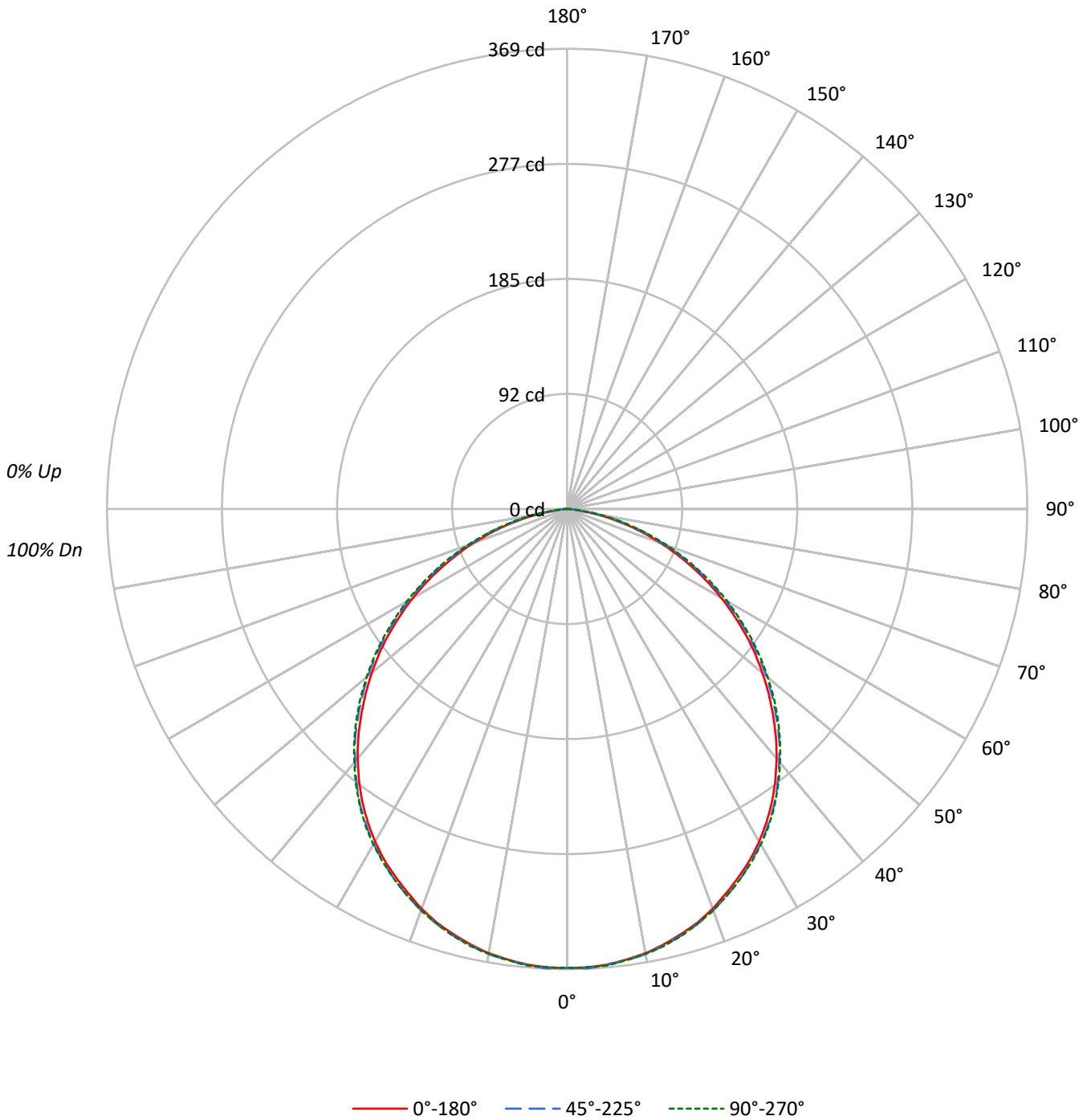
Lumens per Lamp: N/A  
Luminaire Lumens: 985.0 lumens  
Efficiency: N/A  
Efficacy: 74.6 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.25 / 1.35  
Luminous Opening: Circular (Dia: 0.33m x H: 0m)  
CIE Type: Direct

Input Watts (W): 13.2  
Input Voltage (V): 120  
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: 25 FT



TEST NUMBER: P626439  
CATALOG NUMBER: HLBC4LS9FSD2W1EMWR-3500K-900lm

### Luminous Intensity Polar Plot





TEST NUMBER: P626439

CATALOG NUMBER: HLBC4LS9FSD2W1EMWR-3500K-900lm

**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   | 109 | 105 | 101 | 97  | 107 | 103 | 99  | 96  | 98  | 95  | 93  | 95  | 92  | 90  | 91  | 89  | 87  |     |    |    |    | 85 |     |   |  |   |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 86  | 81  | 77  | 83  | 79  | 75  | 80  | 77  | 74  |     |    |    |    | 71 |     |   |  |   |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  | 74  | 68  | 64  | 71  | 67  | 63  |     |    |    |    | 61 |     |   |  |   |
| 4   | 84  | 72  | 63  | 57  | 81  | 71  | 62  | 56  | 68  | 61  | 56  | 66  | 60  | 55  | 64  | 58  | 54  |     |    |    |    | 52 |     |   |  |   |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  | 59  | 53  | 48  | 57  | 52  | 47  |     |    |    |    | 45 |     |   |  |   |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 49  | 43  | 55  | 48  | 42  | 54  | 47  | 42  | 52  | 46  | 41  |     |    |    |    | 39 |     |   |  |   |
| 7   | 66  | 53  | 44  | 38  | 64  | 52  | 44  | 38  | 50  | 43  | 37  | 49  | 42  | 37  | 47  | 41  | 37  |     |    |    |    | 35 |     |   |  |   |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  | 45  | 38  | 33  | 44  | 38  | 33  |     |    |    |    | 31 |     |   |  |   |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 36  | 30  | 42  | 35  | 30  | 41  | 35  | 30  | 40  | 34  | 30  |     |    |    |    | 28 |     |   |  |   |
| 10  | 54  | 41  | 33  | 28  | 52  | 40  | 33  | 28  | 39  | 32  | 27  | 38  | 32  | 27  | 37  | 31  | 27  |     |    |    |    | 25 |     |   |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4227 | 4227 | 4227 |
| 5°  | 4227 | 4231 | 4236 |
| 10° | 4218 | 4226 | 4224 |
| 15° | 4195 | 4209 | 4212 |
| 20° | 4169 | 4186 | 4185 |
| 25° | 4125 | 4153 | 4152 |
| 30° | 4084 | 4111 | 4119 |
| 35° | 4016 | 4058 | 4065 |
| 40° | 3917 | 3965 | 3980 |
| 45° | 3790 | 3855 | 3881 |
| 50° | 3651 | 3724 | 3749 |
| 55° | 3485 | 3561 | 3597 |
| 60° | 3279 | 3360 | 3410 |
| 65° | 3018 | 3119 | 3168 |
| 70° | 2672 | 2793 | 2857 |
| 75° | 2205 | 2369 | 2427 |
| 80° | 1481 | 1719 | 1799 |
| 85° | 646  | 725  | 883  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 3881 cd/sqm



TEST NUMBER: P626439

CATALOG NUMBER: HLBC4LS9FSD2W1EMWR-3500K-900lm

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 34.9   | 3.5       |
| 10°-20°   | 99.8   | 10.1      |
| 20°-30°   | 150.7  | 15.3      |
| 30°-40°   | 180.3  | 18.3      |
| 40°-50°   | 182.5  | 18.5      |
| 50°-60°   | 158.4  | 16.1      |
| 60°-70°   | 113.0  | 11.5      |
| 70°-80°   | 56.0   | 5.7       |
| 80°-90°   | 9.3    | 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°    | 285.3  | 29.0      |
| 0°-40°    | 465.6  | 47.3      |
| 0°-60°    | 806.6  | 81.9      |
| 0°-90°    | 985.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 985.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 368 | 368   | 368 | 368   | 368 |      |
| 5°  | 367 | 367   | 367 | 367   | 368 | 35   |
| 15° | 353 | 353   | 354 | 353   | 354 | 100  |
| 25° | 326 | 326   | 328 | 327   | 328 | 150  |
| 35° | 286 | 288   | 290 | 289   | 290 | 179  |
| 45° | 233 | 236   | 237 | 238   | 239 | 180  |
| 55° | 174 | 176   | 178 | 178   | 180 | 156  |
| 65° | 111 | 113   | 115 | 115   | 117 | 110  |
| 75° | 50  | 52    | 53  | 53    | 55  | 53   |
| 85° | 5   | 5     | 6   | 6     | 7   | 8    |
| 90° | 0   | 0     | 0   | 0     | 1   |      |



TEST NUMBER: P626439

CATALOG NUMBER: HLBC4LS9FSD2W1EMWR-3500K-900lm

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 368.1 | 368.1 | 368.1 | 368.1 | 368.1 |
| 2.5°  | 368.0 | 367.5 | 368.8 | 368.1 | 367.8 |
| 5°    | 366.7 | 366.6 | 367.1 | 366.6 | 367.5 |
| 7.5°  | 364.4 | 364.5 | 364.9 | 365.6 | 364.9 |
| 10°   | 361.8 | 361.5 | 362.5 | 362.2 | 362.3 |
| 12.5° | 357.6 | 357.6 | 358.6 | 358.0 | 358.9 |
| 15°   | 352.9 | 353.3 | 354.1 | 353.2 | 354.3 |
| 17.5° | 347.7 | 347.5 | 348.7 | 348.4 | 348.5 |
| 20°   | 341.2 | 341.4 | 342.6 | 342.7 | 342.5 |
| 22.5° | 333.3 | 334.6 | 335.4 | 334.7 | 335.3 |
| 25°   | 325.6 | 326.5 | 327.8 | 326.9 | 327.7 |
| 27.5° | 317.4 | 318.2 | 319.1 | 318.8 | 319.6 |
| 30°   | 308.0 | 309.1 | 310.1 | 309.5 | 310.7 |
| 32.5° | 297.6 | 298.9 | 300.2 | 299.9 | 301.0 |
| 35°   | 286.5 | 287.9 | 289.5 | 288.7 | 290.0 |
| 37.5° | 274.2 | 275.9 | 277.3 | 277.3 | 278.2 |
| 40°   | 261.3 | 263.0 | 264.5 | 264.7 | 265.5 |
| 42.5° | 247.9 | 249.7 | 251.8 | 251.4 | 252.7 |
| 45°   | 233.4 | 235.8 | 237.4 | 237.6 | 239.0 |
| 47.5° | 219.1 | 221.2 | 223.2 | 223.7 | 224.8 |
| 50°   | 204.4 | 206.3 | 208.5 | 208.7 | 209.9 |
| 52.5° | 189.7 | 191.4 | 193.4 | 194.1 | 195.1 |
| 55°   | 174.1 | 176.1 | 177.9 | 178.5 | 179.7 |
| 57.5° | 158.5 | 160.5 | 162.2 | 163.1 | 164.0 |
| 60°   | 142.8 | 144.9 | 146.3 | 147.3 | 148.5 |
| 62.5° | 127.1 | 129.1 | 130.7 | 131.2 | 132.6 |
| 65°   | 111.1 | 113.1 | 114.8 | 115.3 | 116.6 |
| 67.5° | 95.3  | 97.2  | 99.0  | 99.2  | 100.8 |
| 70°   | 79.6  | 81.6  | 83.2  | 83.4  | 85.1  |
| 72.5° | 64.4  | 66.5  | 68.0  | 68.1  | 69.6  |
| 75°   | 49.7  | 51.8  | 53.4  | 53.3  | 54.7  |
| 77.5° | 35.6  | 37.7  | 39.3  | 39.2  | 40.5  |
| 80°   | 22.4  | 24.4  | 26.0  | 26.2  | 27.2  |
| 82.5° | 10.6  | 12.3  | 13.7  | 14.2  | 15.1  |
| 85°   | 4.9   | 5.2   | 5.5   | 5.5   | 6.7   |
| 87.5° | 2.1   | 2.5   | 2.9   | 3.0   | 3.2   |
| 90°   | 0.1   | 0.1   | 0.3   | 0.5   | 0.8   |

(END OF REPORT)