

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: P626450

Luminaire Tested: HLBC4LS9FSD2WE010MWR-4000K-600lm

Issue Date: 11/17/2022

Test Information

Test Method: LM-79-2019
Report Number: P626450
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2209543A001)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 11/17/2022
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: HLBC4LS9FSD2WE010MWR-4000K-600lm
Description: 4IN CANLESS LED DOWNLIGHT WITH SELECTABLE CCT AND SELECTABLE LUMEN OUTPUT
Light Source: (1) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

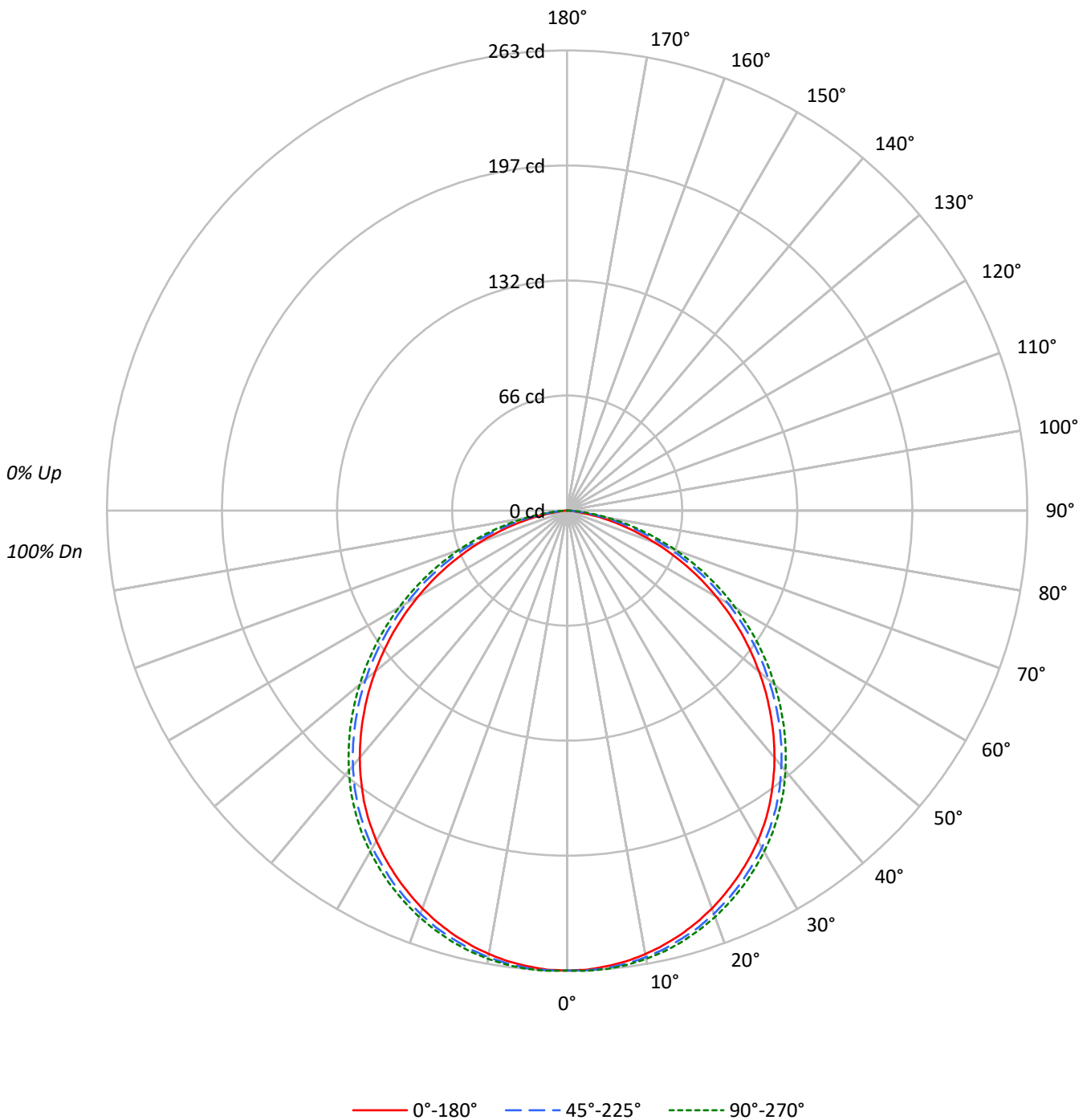
Lumens per Lamp: N/A
Luminaire Lumens: 710.0 lumens
Efficiency: N/A
Efficacy: 79.8 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.27 / 1.36
Luminous Opening: Circular (Dia: 0.33m x H: 0m)
CIE Type: Direct

Input Watts (W): 8.9
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



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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 | 109 | 105 | 101 | 97 | 107 | 103 | 99 | 95 | 98 | 95 | 92 | | 94 | 92 | 90 | | 91 | 89 | 87 | 85 |
| 2 | 100 | 92 | 85 | 80 | 97 | 90 | 84 | 79 | 86 | 81 | 77 | | 83 | 79 | 75 | | 80 | 77 | 73 | 71 |
| 3 | 91 | 81 | 73 | 66 | 89 | 79 | 72 | 66 | 76 | 70 | 65 | | 73 | 68 | 64 | | 71 | 66 | 63 | 60 |
| 4 | 83 | 72 | 63 | 57 | 81 | 70 | 62 | 56 | 68 | 61 | 55 | | 66 | 59 | 55 | | 63 | 58 | 54 | 52 |
| 5 | 77 | 64 | 55 | 49 | 75 | 63 | 55 | 48 | 61 | 54 | 48 | | 59 | 52 | 47 | | 57 | 51 | 47 | 45 |
| 6 | 71 | 58 | 49 | 43 | 69 | 57 | 49 | 42 | 55 | 48 | 42 | | 53 | 47 | 42 | | 52 | 46 | 41 | 39 |
| 7 | 66 | 52 | 44 | 38 | 64 | 52 | 43 | 38 | 50 | 43 | 37 | | 49 | 42 | 37 | | 47 | 41 | 37 | 35 |
| 8 | 61 | 48 | 39 | 34 | 60 | 47 | 39 | 34 | 46 | 39 | 33 | | 45 | 38 | 33 | | 43 | 37 | 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 | 27 | 52 | 40 | 33 | 27 | 39 | 32 | 27 | | 38 | 32 | 27 | | 37 | 31 | 27 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3019 | 3019 | 3019 |
| 5° | 3013 | 3026 | 3030 |
| 10° | 3001 | 3022 | 3034 |
| 15° | 2982 | 3011 | 3030 |
| 20° | 2957 | 2996 | 3021 |
| 25° | 2925 | 2976 | 3005 |
| 30° | 2890 | 2951 | 2984 |
| 35° | 2838 | 2914 | 2956 |
| 40° | 2764 | 2855 | 2909 |
| 45° | 2670 | 2780 | 2847 |
| 50° | 2558 | 2685 | 2765 |
| 55° | 2426 | 2576 | 2670 |
| 60° | 2264 | 2441 | 2554 |
| 65° | 2057 | 2266 | 2404 |
| 70° | 1783 | 2038 | 2209 |
| 75° | 1415 | 1735 | 1943 |
| 80° | 886 | 1296 | 1554 |
| 85° | 395 | 593 | 962 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 2847 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 24.9 | 3.5 |
| 10°-20° | 71.4 | 10.1 |
| 20°-30° | 108.0 | 15.2 |
| 30°-40° | 129.5 | 18.2 |
| 40°-50° | 131.4 | 18.5 |
| 50°-60° | 114.3 | 16.1 |
| 60°-70° | 81.9 | 11.5 |
| 70°-80° | 41.0 | 5.8 |
| 80°-90° | 7.4 | 1.0 |
| 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° | 204.4 | 28.8 |
| 0°-40° | 333.9 | 47.0 |
| 0°-60° | 579.7 | 81.6 |
| 0°-90° | 710.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 710.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 263 | 263 | 263 | 263 | 263 | |
| 5° | 261 | 262 | 262 | 262 | 263 | 25 |
| 15° | 251 | 252 | 253 | 254 | 255 | 71 |
| 25° | 231 | 233 | 235 | 236 | 237 | 106 |
| 35° | 202 | 205 | 208 | 209 | 211 | 126 |
| 45° | 164 | 168 | 171 | 173 | 175 | 127 |
| 55° | 121 | 125 | 129 | 131 | 133 | 108 |
| 65° | 76 | 80 | 83 | 86 | 88 | 75 |
| 75° | 32 | 36 | 39 | 41 | 44 | 34 |
| 85° | 3 | 4 | 4 | 5 | 7 | 5 |
| 90° | 0 | 0 | 0 | 1 | 1 | |



TEST NUMBER: P626450

CATALOG NUMBER: HLBC4LS9FSD2WE010MWR-4000K-600lm

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 262.9 | 262.9 | 262.9 | 262.9 | 262.9 |
| 2.5° | 262.6 | 262.7 | 263.0 | 263.0 | 263.3 |
| 5° | 261.4 | 261.9 | 262.5 | 262.5 | 262.9 |
| 7.5° | 259.8 | 260.4 | 261.1 | 261.5 | 261.9 |
| 10° | 257.4 | 258.2 | 259.2 | 259.5 | 260.2 |
| 12.5° | 254.4 | 255.5 | 256.6 | 257.2 | 257.9 |
| 15° | 250.9 | 252.1 | 253.3 | 254.1 | 254.9 |
| 17.5° | 246.7 | 248.2 | 249.7 | 250.3 | 251.3 |
| 20° | 242.0 | 243.7 | 245.2 | 246.2 | 247.2 |
| 22.5° | 236.7 | 238.6 | 240.3 | 241.2 | 242.4 |
| 25° | 230.9 | 232.9 | 234.9 | 235.9 | 237.2 |
| 27.5° | 224.7 | 226.9 | 228.8 | 230.1 | 231.4 |
| 30° | 218.0 | 220.3 | 222.6 | 223.6 | 225.1 |
| 32.5° | 210.6 | 213.3 | 215.5 | 216.9 | 218.4 |
| 35° | 202.5 | 205.3 | 207.9 | 209.3 | 210.9 |
| 37.5° | 193.6 | 196.7 | 199.5 | 201.0 | 202.9 |
| 40° | 184.4 | 187.6 | 190.5 | 192.2 | 194.1 |
| 42.5° | 174.6 | 177.9 | 181.1 | 182.9 | 184.9 |
| 45° | 164.4 | 168.0 | 171.2 | 173.1 | 175.3 |
| 47.5° | 154.0 | 157.6 | 161.0 | 163.0 | 165.2 |
| 50° | 143.2 | 147.0 | 150.3 | 152.6 | 154.8 |
| 52.5° | 132.3 | 136.2 | 139.7 | 142.0 | 144.2 |
| 55° | 121.2 | 125.0 | 128.7 | 131.0 | 133.4 |
| 57.5° | 109.9 | 113.7 | 117.5 | 119.9 | 122.4 |
| 60° | 98.6 | 102.4 | 106.3 | 108.7 | 111.2 |
| 62.5° | 87.1 | 91.0 | 94.8 | 97.4 | 99.9 |
| 65° | 75.7 | 79.6 | 83.4 | 86.0 | 88.5 |
| 67.5° | 64.2 | 68.2 | 72.0 | 74.5 | 77.1 |
| 70° | 53.1 | 57.0 | 60.7 | 63.2 | 65.8 |
| 72.5° | 42.3 | 46.1 | 49.7 | 52.2 | 54.7 |
| 75° | 31.9 | 35.6 | 39.1 | 41.4 | 43.8 |
| 77.5° | 22.3 | 25.7 | 28.9 | 31.2 | 33.4 |
| 80° | 13.4 | 16.5 | 19.6 | 21.6 | 23.5 |
| 82.5° | 5.9 | 8.4 | 11.0 | 12.7 | 14.4 |
| 85° | 3.0 | 3.7 | 4.5 | 5.4 | 7.3 |
| 87.5° | 1.1 | 1.8 | 2.5 | 2.9 | 3.3 |
| 90° | 0.0 | 0.1 | 0.5 | 0.9 | 1.3 |

(END OF REPORT)