

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P20169

Luminaire Tested: **ML712840TUNVD010-493BBS06**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P20169
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML712840TUNVD010-493BBS06
Description: HALO 6" RECESSED LED DOWNLIGHT WITH BLACK BAFFLED DESIGN
LOWER TRIM REFLECTOR, SPECULAR UPPER TRIM REFLECTOR AND
SOLITE GLASS LENS WITH MODULE ML712840TUNVD010
Light Source: (1)SURFACE MOUNT LED ON HEAT SINK MODULE
24 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 1130 (1 lamp)
Luminaire Lumens: 1131.6 lumens
Efficiency: 100.1%
Efficacy: 42.7 lumens/watt
Spacing Criteria (0/90/45): 0.78 / 0.78 / 0.97
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

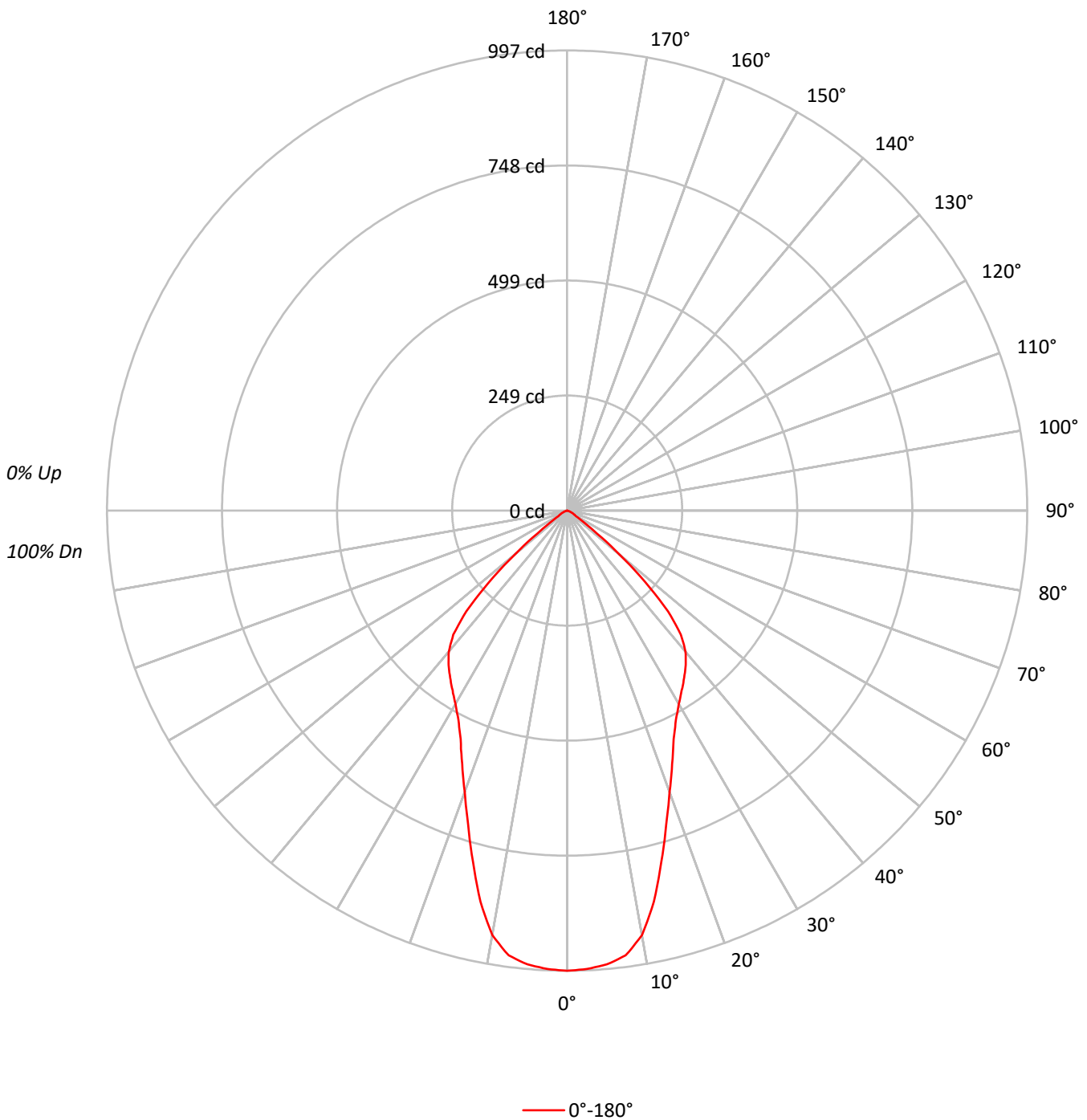
Input Watts (W): 26.5
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | | 107 | 107 | 107 | | 102 | 102 | 102 | 100 |
| 1 | 113 | 110 | 107 | 104 | 110 | 107 | 105 | 103 | 103 | 101 | 99 | | 100 | 98 | 97 | | 96 | 95 | 94 | 92 |
| 2 | 106 | 100 | 96 | 92 | 104 | 99 | 94 | 91 | 95 | 92 | 89 | | 92 | 89 | 87 | | 90 | 87 | 85 | 83 |
| 3 | 100 | 92 | 86 | 82 | 97 | 91 | 85 | 81 | 88 | 83 | 80 | | 85 | 82 | 78 | | 83 | 80 | 77 | 76 |
| 4 | 93 | 85 | 78 | 73 | 91 | 83 | 77 | 73 | 81 | 76 | 72 | | 79 | 75 | 71 | | 77 | 73 | 70 | 69 |
| 5 | 88 | 78 | 71 | 66 | 86 | 77 | 71 | 66 | 75 | 69 | 65 | | 73 | 68 | 65 | | 72 | 67 | 64 | 62 |
| 6 | 82 | 72 | 65 | 60 | 81 | 71 | 65 | 60 | 70 | 64 | 59 | | 68 | 63 | 59 | | 67 | 62 | 59 | 57 |
| 7 | 77 | 67 | 60 | 55 | 76 | 66 | 59 | 55 | 65 | 59 | 54 | | 63 | 58 | 54 | | 62 | 57 | 54 | 52 |
| 8 | 73 | 62 | 55 | 50 | 72 | 61 | 55 | 50 | 60 | 54 | 50 | | 59 | 54 | 50 | | 58 | 53 | 50 | 48 |
| 9 | 69 | 58 | 51 | 46 | 68 | 57 | 51 | 46 | 56 | 50 | 46 | | 55 | 50 | 46 | | 54 | 49 | 46 | 44 |
| 10 | 65 | 54 | 47 | 43 | 64 | 54 | 47 | 43 | 53 | 47 | 43 | | 52 | 46 | 43 | | 51 | 46 | 43 | 41 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|-------|
| | 0° |
| 0° | 54656 |
| 5° | 54314 |
| 10° | 51992 |
| 15° | 44722 |
| 20° | 37862 |
| 25° | 33026 |
| 30° | 30638 |
| 35° | 29580 |
| 40° | 28553 |
| 45° | 23956 |
| 50° | 12622 |
| 55° | 3919 |
| 60° | 1974 |
| 65° | 1557 |
| 70° | 801 |
| 75° | 212 |
| 80° | 0 |
| 85° | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 92.7 | 8.2 | 8.2 |
| 10°-20° | 219.7 | 19.4 | 19.4 |
| 20°-30° | 254.2 | 22.5 | 22.5 |
| 30°-40° | 276.6 | 24.4 | 24.5 |
| 40°-50° | 225.3 | 19.9 | 19.9 |
| 50°-60° | 50.3 | 4.4 | 4.4 |
| 60°-70° | 11.5 | 1.0 | 1.0 |
| 70°-80° | 1.4 | 0.1 | 0.1 |
| 80°-90° | 0.0 | 0.0 | 0.0 |
| 90°-100° | 0.0 | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 | 0.0 |
| 0°-30° | 566.6 | 50.1 | 50.1 |
| 0°-40° | 843.2 | 74.5 | 74.6 |
| 0°-60° | 1118.7 | 98.9 | 99.0 |
| 0°-90° | 1131.6 | 100.0 | 100.1 |
| 90°-120° | 0.0 | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 | 0.0 |
| 0°-180° | 1131.6 | 100.0 | 100.1 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|-----|-----|------|
| 0° | 997 | |
| 5° | 987 | 93 |
| 15° | 788 | 220 |
| 25° | 546 | 254 |
| 35° | 442 | 277 |
| 45° | 309 | 225 |
| 55° | 41 | 50 |
| 65° | 12 | 11 |
| 75° | 1 | 1 |
| 85° | 0 | 0 |
| 90° | 0 | |



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CANDELA DISTRIBUTION (FULL):

| 0° | |
|-------|-----|
| 0° | 997 |
| 2.5° | 994 |
| 5° | 987 |
| 7.5° | 972 |
| 10° | 934 |
| 12.5° | 868 |
| 15° | 788 |
| 17.5° | 713 |
| 20° | 649 |
| 22.5° | 594 |
| 25° | 546 |
| 27.5° | 510 |
| 30° | 484 |
| 32.5° | 462 |
| 35° | 442 |
| 37.5° | 422 |
| 40° | 399 |
| 42.5° | 365 |
| 45° | 309 |
| 47.5° | 230 |
| 50° | 148 |
| 52.5° | 82 |
| 55° | 41 |
| 57.5° | 23 |
| 60° | 18 |
| 62.5° | 15 |
| 65° | 12 |
| 67.5° | 8 |
| 70° | 5 |
| 72.5° | 2 |
| 75° | 1 |
| 77.5° | 0 |
| 80° | 0 |
| 82.5° | 0 |
| 85° | 0 |
| 87.5° | 0 |
| 90° | 0 |

(END OF REPORT)