

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: P358785

Luminaire Tested: **HL36AR13FLD2WED010TL3RMW-TILTED 30D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P358785  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-462-18)  
Test Lab: INNOVATION CENTER (G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL36AR13FLD2WED010TL3RMW-TILTED 30D  
Description: HL3 13W Round tilted 30D, Flood optic with conical trim, No Lens, Matte White  
Light Source: (1) 3100K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1040.0 lumens  
Efficiency: N/A  
Efficacy: 72.2 lumens/watt  
Spacing Criteria (0/90/45): 2.38 / 0.57 / 1.25  
Luminous Opening: Rectangular (W 0.27' x L: 0.27' x H: 0')  
CIE Type: Direct

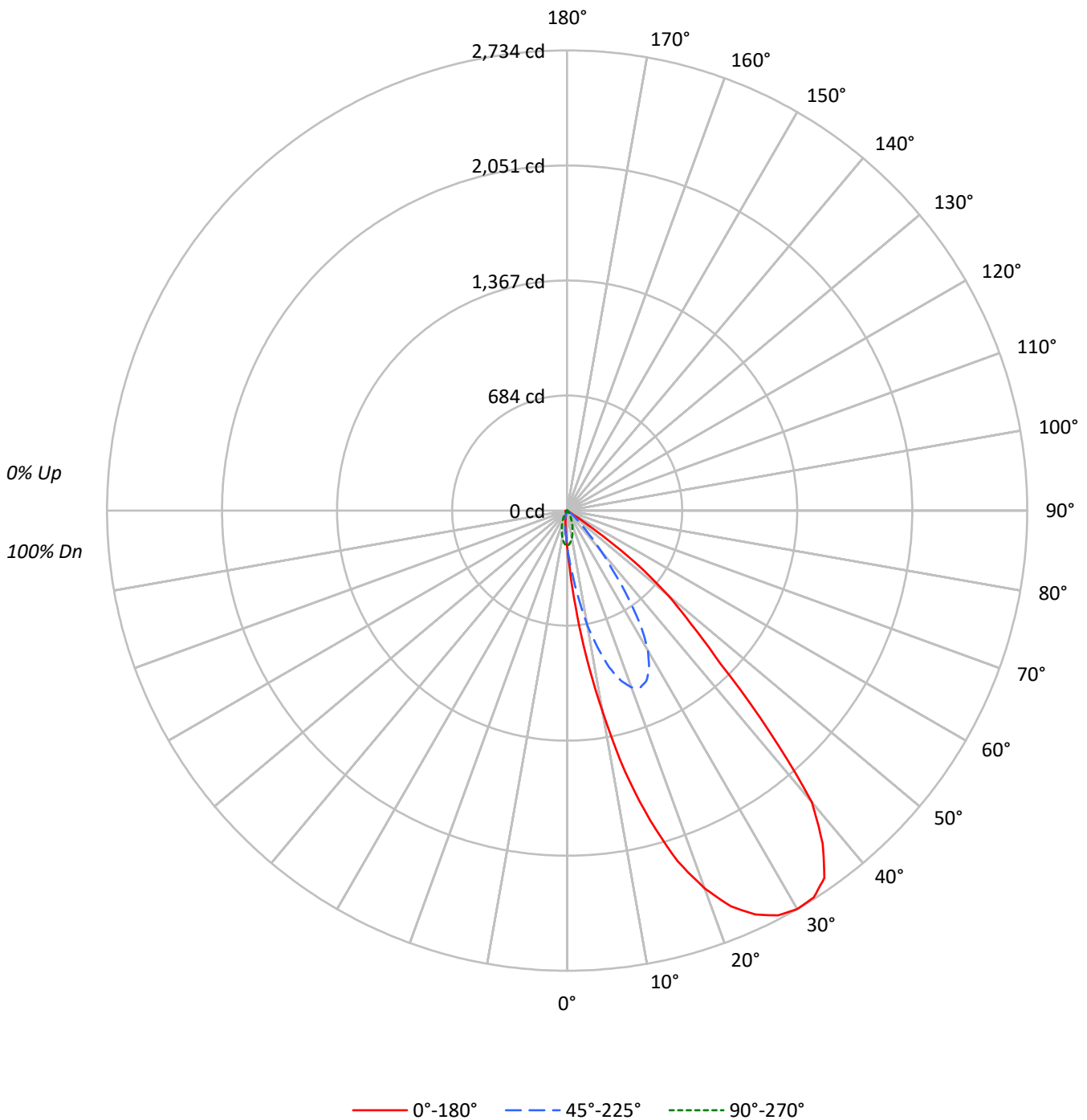
Input Watts (W): 14.4  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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  | 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   | 112 | 109 | 106 | 104 | 110 | 107 | 104 | 102 | 103 | 101 | 99  | 99  | 97  | 96  | 96  | 94  | 93  | 91  |    |    |    |    | 91  |   |  |   |
| 2   | 105 | 100 | 95  | 91  | 103 | 98  | 93  | 90  | 94  | 91  | 88  | 91  | 88  | 86  | 89  | 86  | 84  | 82  |    |    |    |    | 82  |   |  |   |
| 3   | 99  | 91  | 85  | 80  | 96  | 89  | 84  | 79  | 87  | 82  | 78  | 84  | 80  | 77  | 82  | 78  | 76  | 74  |    |    |    |    | 74  |   |  |   |
| 4   | 92  | 83  | 76  | 71  | 90  | 82  | 75  | 71  | 79  | 74  | 70  | 77  | 73  | 69  | 75  | 71  | 68  | 66  |    |    |    |    | 66  |   |  |   |
| 5   | 86  | 76  | 69  | 64  | 84  | 75  | 68  | 63  | 73  | 67  | 63  | 71  | 66  | 62  | 69  | 65  | 61  | 60  |    |    |    |    | 60  |   |  |   |
| 6   | 80  | 69  | 62  | 57  | 79  | 69  | 62  | 57  | 67  | 61  | 56  | 65  | 60  | 56  | 64  | 59  | 56  | 54  |    |    |    |    | 54  |   |  |   |
| 7   | 75  | 64  | 57  | 51  | 73  | 63  | 56  | 51  | 62  | 55  | 51  | 60  | 55  | 51  | 59  | 54  | 50  | 49  |    |    |    |    | 49  |   |  |   |
| 8   | 70  | 59  | 51  | 47  | 69  | 58  | 51  | 46  | 57  | 51  | 46  | 56  | 50  | 46  | 55  | 50  | 46  | 44  |    |    |    |    | 44  |   |  |   |
| 9   | 66  | 54  | 47  | 42  | 64  | 54  | 47  | 42  | 53  | 46  | 42  | 52  | 46  | 42  | 51  | 45  | 42  | 40  |    |    |    |    | 40  |   |  |   |
| 10  | 62  | 50  | 43  | 39  | 61  | 50  | 43  | 38  | 49  | 43  | 38  | 48  | 42  | 38  | 47  | 42  | 38  | 37  |    |    |    |    | 37  |   |  |   |

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

|     | 0°     | 90°   | 180°  |
|-----|--------|-------|-------|
| 0°  | 30846  | 30846 | 30846 |
| 5°  | 83759  | 28651 | 14466 |
| 10° | 180362 | 24423 | 7585  |
| 15° | 289550 | 18854 | 4087  |
| 20° | 372826 | 13883 | 2452  |
| 25° | 428707 | 9440  | 1652  |
| 30° | 463237 | 5965  | 1101  |
| 35° | 477294 | 3153  | 1003  |
| 40° | 433394 | 1590  | 1073  |
| 45° | 267154 | 581   | 1349  |
| 50° | 178026 | 434   | 1689  |
| 55° | 50478  | 486   | 2124  |
| 60° | 264    | 822   | 2729  |
| 65° | 313    | 972   | 3542  |
| 70° | 386    | 1201  | 4376  |
| 75° | 510    | 1588  | 5273  |
| 80° | 0      | 1606  | 5493  |
| 85° | 0      | 3199  | 4714  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 29.2   | 2.8       |
| 10°-20°   | 149.5  | 14.4      |
| 20°-30°   | 290.5  | 27.9      |
| 30°-40°   | 334.1  | 32.1      |
| 40°-50°   | 189.7  | 18.2      |
| 50°-60°   | 37.5   | 3.6       |
| 60°-70°   | 4.1    | 0.4       |
| 70°-80°   | 3.9    | 0.4       |
| 80°-90°   | 1.6    | 0.2       |
| 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°    | 469.2  | 45.1      |
| 0°-40°    | 803.3  | 77.2      |
| 0°-60°    | 1030.4 | 99.1      |
| 0°-90°    | 1040.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1040.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90° | 135° | 180° | Flux |
|-----|------|------|-----|------|------|------|
| 0°  | 210  | 210  | 210 | 210  | 210  |      |
| 5°  | 569  | 393  | 194 | 120  | 98   | 75   |
| 15° | 1906 | 964  | 124 | 40   | 27   | 547  |
| 25° | 2648 | 1116 | 58  | 15   | 10   | 1216 |
| 35° | 2664 | 633  | 18  | 6    | 6    | 1625 |
| 45° | 1287 | 127  | 3   | 5    | 6    | 1065 |
| 55° | 197  | 13   | 2   | 6    | 8    | 246  |
| 65° | 1    | 1    | 3   | 7    | 10   | 1    |
| 75° | 1    | 1    | 3   | 6    | 9    | 1    |
| 85° | 0    | 1    | 2   | 2    | 3    | 0    |
| 90° | 0    | 0    | 0   | 0    | 0    |      |



TEST NUMBER: P358785

CATALOG NUMBER: HL36AR13FLD2WED010TL3RMW-TILTED 30D

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 10°    | 15°    | 20°    | 22.5°  | 45°    | 67.5° | 90°   | 112.5° | 135°  |
|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|-------|
| 0°    | 210.2  | 210.2  | 210.2  | 210.2  | 210.2  | 210.2  | 210.2  | 210.2 | 210.2 | 210.2  | 210.2 |
| 2.5°  | 329.7  | 330.6  | 334.3  | 336.2  | 328.8  | 326.9  | 288.9  | 243.6 | 204.7 | 175.0  | 154.7 |
| 5°    | 568.6  | 560.3  | 544.5  | 537.1  | 523.2  | 517.7  | 392.7  | 275.0 | 194.5 | 146.3  | 120.4 |
| 7.5°  | 880.7  | 852.9  | 843.7  | 830.7  | 786.2  | 783.5  | 530.6  | 302.8 | 179.7 | 122.2  | 91.7  |
| 10°   | 1210.4 | 1225.2 | 1205.8 | 1165.0 | 1106.7 | 1059.4 | 690.9  | 322.3 | 163.9 | 100.9  | 69.5  |
| 12.5° | 1588.2 | 1564.1 | 1553.0 | 1481.7 | 1416.0 | 1361.3 | 830.7  | 326.9 | 144.5 | 80.6   | 52.8  |
| 15°   | 1905.9 | 1908.6 | 1854.0 | 1796.6 | 1707.7 | 1648.4 | 964.0  | 319.5 | 124.1 | 64.8   | 39.8  |
| 17.5° | 2184.6 | 2186.5 | 2127.2 | 2059.6 | 1954.0 | 1890.1 | 1058.5 | 298.2 | 105.6 | 52.8   | 30.6  |
| 20°   | 2387.4 | 2375.4 | 2331.9 | 2256.9 | 2139.2 | 2071.6 | 1117.8 | 267.6 | 88.9  | 41.7   | 23.2  |
| 22.5° | 2544.9 | 2522.6 | 2465.2 | 2381.0 | 2267.0 | 2195.7 | 1137.2 | 234.3 | 72.2  | 34.3   | 18.5  |
| 25°   | 2647.7 | 2629.1 | 2568.9 | 2477.3 | 2355.0 | 2277.2 | 1115.9 | 197.3 | 58.3  | 26.9   | 14.8  |
| 27.5° | 2711.6 | 2691.2 | 2636.5 | 2543.0 | 2407.8 | 2327.2 | 1054.8 | 161.1 | 46.3  | 21.3   | 11.1  |
| 30°   | 2733.8 | 2717.1 | 2663.4 | 2570.8 | 2431.9 | 2344.8 | 959.4  | 124.1 | 35.2  | 15.7   | 9.3   |
| 32.5° | 2725.5 | 2707.9 | 2650.4 | 2551.3 | 2405.0 | 2312.4 | 816.8  | 93.5  | 25.9  | 12.0   | 7.4   |
| 35°   | 2664.3 | 2652.3 | 2585.6 | 2482.8 | 2327.2 | 2225.4 | 633.4  | 66.7  | 17.6  | 9.3    | 6.5   |
| 37.5° | 2493.0 | 2468.9 | 2404.1 | 2312.4 | 2167.0 | 2067.9 | 443.6  | 45.4  | 12.0  | 6.5    | 5.6   |
| 40°   | 2262.4 | 2218.9 | 2158.7 | 2076.3 | 1917.9 | 1789.2 | 307.5  | 29.6  | 8.3   | 4.6    | 4.6   |
| 42.5° | 1778.1 | 1742.0 | 1717.0 | 1654.9 | 1539.1 | 1463.2 | 200.0  | 20.4  | 4.6   | 4.6    | 4.6   |
| 45°   | 1287.3 | 1279.8 | 1215.9 | 1151.1 | 1078.9 | 1013.1 | 126.9  | 11.1  | 2.8   | 3.7    | 4.6   |
| 47.5° | 999.2  | 988.1  | 929.8  | 844.6  | 727.9  | 656.6  | 81.5   | 4.6   | 1.9   | 3.7    | 5.6   |
| 50°   | 779.8  | 760.3  | 713.1  | 627.0  | 490.8  | 430.6  | 53.7   | 0.9   | 1.9   | 3.7    | 5.6   |
| 52.5° | 526.9  | 508.4  | 457.5  | 384.3  | 288.9  | 234.3  | 30.6   | 0.9   | 1.9   | 4.6    | 6.5   |
| 55°   | 197.3  | 195.4  | 183.4  | 138.0  | 104.6  | 85.2   | 13.0   | 0.9   | 1.9   | 4.6    | 6.5   |
| 57.5° | 15.7   | 11.1   | 13.0   | 13.0   | 13.9   | 16.7   | 1.9    | 0.9   | 1.9   | 4.6    | 6.5   |
| 60°   | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 1.9    | 0.9    | 0.9   | 2.8   | 4.6    | 7.4   |
| 62.5° | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9   | 2.8   | 5.6    | 7.4   |
| 65°   | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9   | 2.8   | 5.6    | 7.4   |
| 67.5° | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 1.9   | 2.8   | 5.6    | 7.4   |
| 70°   | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 1.9   | 2.8   | 4.6    | 7.4   |
| 72.5° | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 1.9   | 2.8   | 4.6    | 6.5   |
| 75°   | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 1.9   | 2.8   | 3.7    | 6.5   |
| 77.5° | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 1.9   | 1.9   | 3.7    | 5.6   |
| 80°   | 0.0    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 0.9    | 1.9   | 1.9   | 2.8    | 4.6   |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.9    | 0.9    | 0.9    | 1.9   | 1.9   | 1.9    | 2.8   |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.9    | 0.9    | 0.9    | 0.9   | 1.9   | 1.9    | 1.9   |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.9    | 0.9    | 0.9   | 1.9   | 0.9    | 0.9   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0   | 0.0   | 0.0    | 0.0   |



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**CANDELA DISTRIBUTION (continued):**

|       | 157.5° | 180°  |
|-------|--------|-------|
| 0°    | 210.2  | 210.2 |
| 2.5°  | 144.5  | 138.9 |
| 5°    | 105.6  | 98.2  |
| 7.5°  | 76.9   | 73.2  |
| 10°   | 54.6   | 50.9  |
| 12.5° | 39.8   | 36.1  |
| 15°   | 29.6   | 26.9  |
| 17.5° | 22.2   | 20.4  |
| 20°   | 16.7   | 15.7  |
| 22.5° | 13.0   | 12.0  |
| 25°   | 11.1   | 10.2  |
| 27.5° | 9.3    | 8.3   |
| 30°   | 7.4    | 6.5   |
| 32.5° | 5.6    | 5.6   |
| 35°   | 5.6    | 5.6   |
| 37.5° | 5.6    | 5.6   |
| 40°   | 5.6    | 5.6   |
| 42.5° | 5.6    | 5.6   |
| 45°   | 6.5    | 6.5   |
| 47.5° | 6.5    | 6.5   |
| 50°   | 6.5    | 7.4   |
| 52.5° | 7.4    | 8.3   |
| 55°   | 7.4    | 8.3   |
| 57.5° | 8.3    | 9.3   |
| 60°   | 8.3    | 9.3   |
| 62.5° | 9.3    | 9.3   |
| 65°   | 9.3    | 10.2  |
| 67.5° | 9.3    | 10.2  |
| 70°   | 9.3    | 10.2  |
| 72.5° | 9.3    | 10.2  |
| 75°   | 8.3    | 9.3   |
| 77.5° | 7.4    | 7.4   |
| 80°   | 5.6    | 6.5   |
| 82.5° | 4.6    | 4.6   |
| 85°   | 2.8    | 2.8   |
| 87.5° | 0.9    | 0.9   |
| 90°   | 0.0    | 0.0   |

(END OF REPORT)