

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: io LED

Report Number: P397397

Luminaire Tested: **VRVT4LED-LD5-24-PC-UNV-LA59-CD2-WL-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P397397  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1710-367-13)  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: VRVT4LED-LD5-24-PC-UNV-LA59-CD2-WL-U  
Description:  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

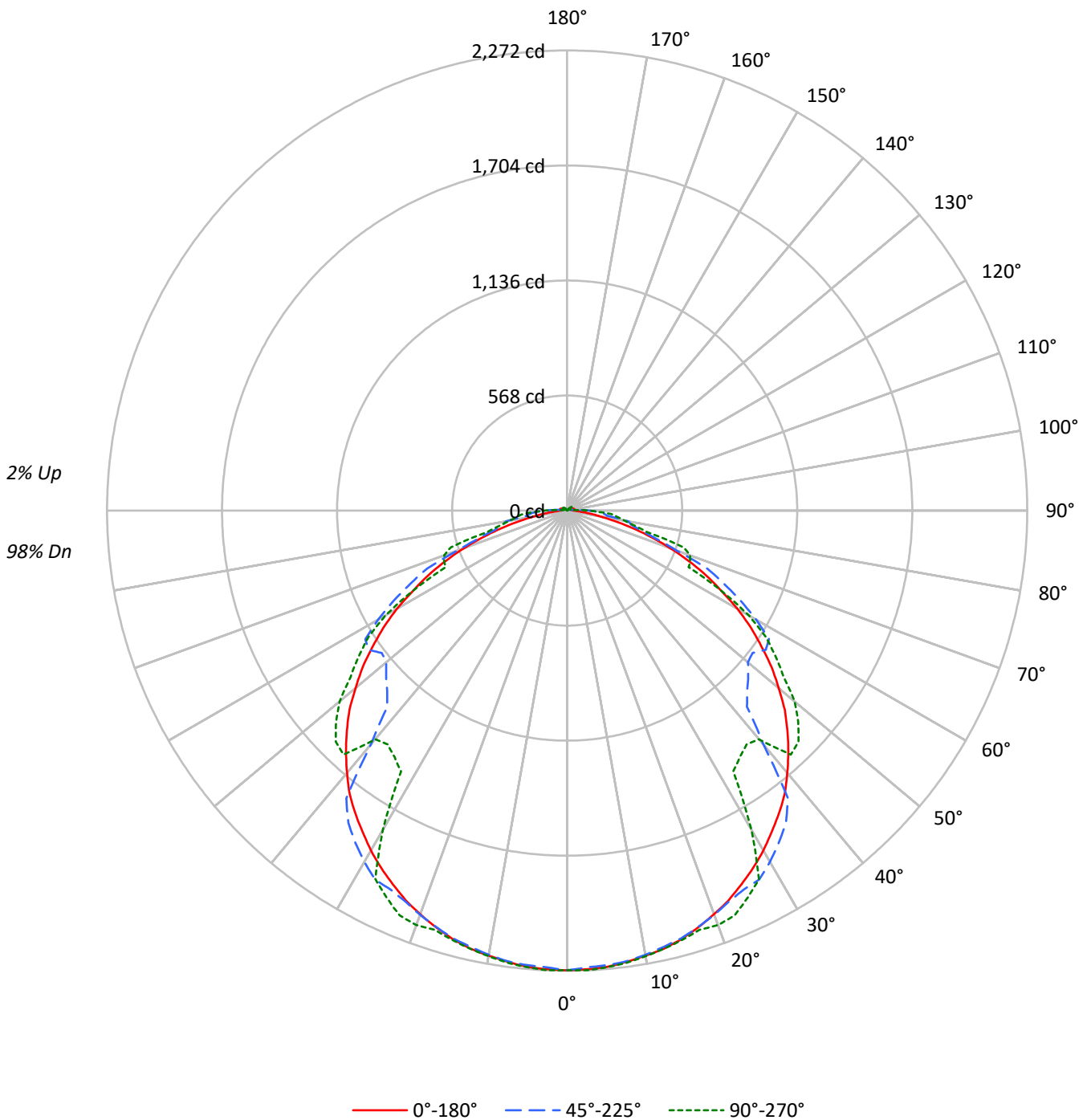
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6533.6 lumens  
Efficiency: N/A  
Efficacy: 23.9 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.17 / 1.27  
Luminous Opening: Rectangular w/ Sides (W: 1.04' x L: 4.12' x H: 0.25')  
CIE Type: Direct  
  
Input Watts (W): 273.6  
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: 25 FT

TEST NUMBER: P397397

CATALOG NUMBER: VRVT4LED-LD5-24-PC-UNV-LA59-CD2-WL-U

### Luminous Intensity Polar Plot





TEST NUMBER: P397397

CATALOG NUMBER: VRVT4LED-LD5-24-PC-UNV-LA59-CD2-WL-U

**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 | 110 | 110 | 110 | 105 | 105 | 105 | 101 | 101 | 101 | 98 |
| 1   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  | 96  | 93  | 90  | 92  | 89  | 87  | 88  | 86  | 84  | 82 |
| 2   | 98  | 90  | 83  | 77  | 96  | 88  | 82  | 76  | 84  | 79  | 74  | 81  | 76  | 72  | 77  | 74  | 70  | 68 |
| 3   | 90  | 79  | 71  | 64  | 87  | 77  | 70  | 64  | 74  | 68  | 62  | 71  | 66  | 61  | 68  | 64  | 60  | 57 |
| 4   | 82  | 70  | 61  | 54  | 80  | 69  | 60  | 54  | 66  | 59  | 53  | 63  | 57  | 52  | 61  | 56  | 51  | 49 |
| 5   | 75  | 63  | 54  | 47  | 73  | 61  | 53  | 47  | 59  | 52  | 46  | 57  | 50  | 45  | 55  | 49  | 45  | 42 |
| 6   | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 41  | 53  | 46  | 40  | 51  | 45  | 40  | 50  | 44  | 39  | 37 |
| 7   | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 48  | 41  | 36  | 47  | 40  | 35  | 45  | 39  | 35  | 33 |
| 8   | 60  | 47  | 38  | 32  | 58  | 46  | 38  | 32  | 44  | 37  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 29 |
| 9   | 56  | 43  | 35  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 28  | 38  | 33  | 28  | 26 |
| 10  | 53  | 39  | 32  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 26  | 24 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5686 | 5686 | 5686 |
| 5°  | 5658 | 5562 | 5573 |
| 10° | 5617 | 5460 | 5451 |
| 15° | 5586 | 5362 | 5346 |
| 20° | 5532 | 5255 | 5339 |
| 25° | 5474 | 5191 | 5242 |
| 30° | 5417 | 5159 | 4626 |
| 35° | 5352 | 5012 | 3890 |
| 40° | 5262 | 4180 | 4012 |
| 45° | 5137 | 3673 | 4615 |
| 50° | 4955 | 3623 | 4444 |
| 55° | 4712 | 4013 | 4089 |
| 60° | 4404 | 3944 | 3666 |
| 65° | 3979 | 3471 | 2590 |
| 70° | 3375 | 2653 | 2851 |
| 75° | 2655 | 1999 | 2077 |
| 80° | 1752 | 2007 | 1757 |
| 85° | 1183 | 1544 | 1758 |



TEST NUMBER: P397397

CATALOG NUMBER: VRVT4LED-LD5-24-PC-UNV-LA59-CD2-WL-U

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 214.7  | 3.3       |
| 10°-20°   | 618.3  | 9.5       |
| 20°-30°   | 953.8  | 14.6      |
| 30°-40°   | 1084.5 | 16.6      |
| 40°-50°   | 1138.5 | 17.4      |
| 50°-60°   | 1070.7 | 16.4      |
| 60°-70°   | 743.7  | 11.4      |
| 70°-80°   | 418.0  | 6.4       |
| 80°-90°   | 183.0  | 2.8       |
| 90°-100°  | 47.4   | 0.7       |
| 100°-110° | 21.9   | 0.3       |
| 110°-120° | 15.4   | 0.2       |
| 120°-130° | 13.8   | 0.2       |
| 130°-140° | 7.0    | 0.1       |
| 140°-150° | 1.7    | 0.0       |
| 150°-160° | 0.6    | 0.0       |
| 160°-170° | 0.4    | 0.0       |
| 170°-180° | 0.2    | 0.0       |
| 0°-30°    | 1786.8 | 27.3      |
| 0°-40°    | 2871.3 | 43.9      |
| 0°-60°    | 5080.5 | 77.8      |
| 0°-90°    | 6425.1 | 98.3      |
| 90°-120°  | 84.7   | 1.3       |
| 90°-150°  | 107.2  | 1.6       |
| 90°-180°  | 108.0  | 1.7       |
| 0°-180°   | 6533.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2270 | 2270  | 2270 | 2270  | 2270 |      |
| 5°   | 2262 | 2256  | 2253 | 2262  | 2263 | 215  |
| 15°  | 2189 | 2190  | 2185 | 2191  | 2194 | 618  |
| 25°  | 2036 | 2044  | 2064 | 2106  | 2109 | 939  |
| 35°  | 1824 | 1838  | 1883 | 1479  | 1486 | 1141 |
| 45°  | 1538 | 1584  | 1257 | 1532  | 1615 | 1185 |
| 55°  | 1172 | 1202  | 1198 | 1261  | 1257 | 1048 |
| 65°  | 758  | 638   | 853  | 734   | 662  | 746  |
| 75°  | 336  | 329   | 370  | 448   | 407  | 359  |
| 85°  | 70   | 115   | 184  | 237   | 229  | 77   |
| 90°  | 30   | 76    | 110  | 111   | 110  | 18   |
| 95°  | 30   | 38    | 36   | 32    | 30   | 27   |
| 105° | 32   | 25    | 18   | 16    | 15   | 33   |
| 115° | 16   | 17    | 16   | 10    | 11   | 17   |
| 125° | 8    | 7     | 20   | 18    | 20   | 8    |
| 135° | 4    | 3     | 8    | 11    | 8    | 3    |
| 145° | 2    | 2     | 1    | 2     | 3    | 1    |
| 155° | 2    | 2     | 2    | 1     | 0    | 1    |
| 165° | 2    | 2     | 2    | 1     | 1    | 1    |
| 175° | 2    | 2     | 2    | 2     | 1    | 0    |
| 180° | 2    | 2     | 2    | 2     | 2    |      |



TEST NUMBER: P397397

CATALOG NUMBER: VRVT4LED-LD5-24-PC-UNV-LA59-CD2-WL-U

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2269.7 | 2269.7 | 2269.7 | 2269.7 | 2269.7 |
| 2.5°   | 2266.6 | 2264.1 | 2257.1 | 2264.6 | 2271.6 |
| 5°     | 2261.8 | 2256.2 | 2253.1 | 2261.8 | 2262.9 |
| 7.5°   | 2247.0 | 2248.4 | 2244.7 | 2247.3 | 2251.7 |
| 10°    | 2231.6 | 2234.9 | 2227.1 | 2233.0 | 2233.8 |
| 12.5°  | 2214.8 | 2214.8 | 2205.8 | 2212.3 | 2215.3 |
| 15°    | 2189.0 | 2189.9 | 2185.1 | 2191.3 | 2194.1 |
| 17.5°  | 2156.8 | 2157.4 | 2154.3 | 2163.0 | 2170.8 |
| 20°    | 2121.0 | 2122.4 | 2123.8 | 2147.9 | 2177.5 |
| 22.5°  | 2082.6 | 2083.5 | 2088.5 | 2155.7 | 2162.7 |
| 25°    | 2036.4 | 2044.0 | 2064.1 | 2106.4 | 2108.7 |
| 27.5°  | 1988.8 | 1996.9 | 2054.1 | 2060.8 | 2051.0 |
| 30°    | 1938.1 | 1944.3 | 2002.3 | 1994.1 | 1820.8 |
| 32.5°  | 1879.6 | 1893.9 | 1945.4 | 1684.5 | 1526.8 |
| 35°    | 1824.5 | 1838.5 | 1882.7 | 1478.9 | 1485.9 |
| 37.5°  | 1764.3 | 1787.5 | 1791.1 | 1437.5 | 1455.4 |
| 40°    | 1690.9 | 1741.0 | 1506.1 | 1401.7 | 1473.9 |
| 42.5°  | 1616.4 | 1667.9 | 1313.7 | 1409.2 | 1634.1 |
| 45°    | 1538.0 | 1584.5 | 1257.2 | 1531.6 | 1615.3 |
| 47.5°  | 1457.9 | 1501.3 | 1212.4 | 1535.5 | 1547.5 |
| 50°    | 1363.3 | 1409.5 | 1165.1 | 1459.1 | 1466.6 |
| 52.5°  | 1273.4 | 1313.2 | 1153.9 | 1369.7 | 1347.6 |
| 55°    | 1172.3 | 1202.0 | 1197.8 | 1261.4 | 1257.2 |
| 57.5°  | 1075.7 | 971.3  | 1181.3 | 1166.2 | 1162.8 |
| 60°    | 971.3  | 791.0  | 1076.9 | 1059.8 | 1036.0 |
| 62.5°  | 857.6  | 710.9  | 965.4  | 939.7  | 861.6  |
| 65°    | 758.5  | 638.1  | 852.6  | 734.2  | 661.9  |
| 67.5°  | 648.2  | 553.6  | 749.0  | 596.1  | 656.6  |
| 70°    | 537.6  | 461.4  | 573.7  | 582.7  | 646.0  |
| 72.5°  | 434.8  | 387.8  | 459.8  | 576.5  | 602.3  |
| 75°    | 336.3  | 329.0  | 370.4  | 447.7  | 406.8  |
| 77.5°  | 240.8  | 299.3  | 324.8  | 344.1  | 336.8  |
| 80°    | 163.2  | 210.0  | 306.9  | 291.2  | 287.6  |
| 82.5°  | 110.0  | 156.8  | 199.1  | 249.5  | 252.3  |
| 85°    | 69.7   | 115.4  | 184.2  | 236.6  | 229.0  |
| 87.5°  | 45.9   | 89.9   | 155.1  | 165.8  | 161.3  |
| 90°    | 30.0   | 76.2   | 109.5  | 111.4  | 110.0  |
| 92.5°  | 25.2   | 55.2   | 68.0   | 61.9   | 56.6   |
| 95°    | 30.5   | 38.1   | 35.6   | 32.5   | 30.0   |
| 97.5°  | 36.1   | 25.5   | 23.8   | 23.8   | 24.6   |
| 100°   | 37.2   | 24.4   | 19.3   | 17.4   | 16.5   |
| 102.5° | 35.6   | 25.8   | 18.2   | 17.1   | 16.2   |
| 105°   | 32.2   | 24.9   | 18.5   | 16.0   | 15.4   |
| 107.5° | 28.0   | 23.0   | 18.8   | 16.0   | 14.3   |
| 110°   | 23.8   | 21.0   | 16.5   | 17.9   | 17.6   |



TEST NUMBER: P397397

CATALOG NUMBER: VRVT4LED-LD5-24-PC-UNV-LA59-CD2-WL-U

**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 112.5° | 19.9 | 19.0  | 14.6 | 13.4  | 14.8 |
| 115°   | 16.5 | 16.8  | 16.2 | 10.4  | 10.6 |
| 117.5° | 14.0 | 14.6  | 21.3 | 10.4  | 9.2  |
| 120°   | 11.8 | 11.5  | 18.5 | 21.0  | 12.0 |
| 122.5° | 9.8  | 9.0   | 22.1 | 23.0  | 24.9 |
| 125°   | 8.1  | 6.7   | 19.6 | 18.2  | 19.9 |
| 127.5° | 6.7  | 5.3   | 11.2 | 28.3  | 18.5 |
| 130°   | 5.6  | 4.2   | 10.4 | 21.3  | 28.6 |
| 132.5° | 4.5  | 3.6   | 14.8 | 11.2  | 17.6 |
| 135°   | 3.6  | 2.8   | 8.1  | 10.9  | 8.4  |
| 137.5° | 3.1  | 2.5   | 3.9  | 19.9  | 15.1 |
| 140°   | 2.5  | 2.0   | 2.2  | 11.2  | 17.1 |
| 142.5° | 2.2  | 1.7   | 1.7  | 4.2   | 9.0  |
| 145°   | 2.0  | 1.7   | 1.4  | 2.2   | 2.8  |
| 147.5° | 1.7  | 1.4   | 1.4  | 1.7   | 1.4  |
| 150°   | 1.7  | 1.4   | 1.4  | 1.1   | 0.8  |
| 152.5° | 1.7  | 1.7   | 1.4  | 0.8   | 0.6  |
| 155°   | 1.7  | 1.7   | 1.7  | 1.1   | 0.3  |
| 157.5° | 1.7  | 1.7   | 1.7  | 1.1   | 0.6  |
| 160°   | 1.7  | 1.7   | 1.7  | 1.1   | 0.6  |
| 162.5° | 1.7  | 1.7   | 1.7  | 1.1   | 0.6  |
| 165°   | 2.0  | 2.0   | 2.0  | 1.4   | 0.8  |
| 167.5° | 2.0  | 2.0   | 2.0  | 1.4   | 0.8  |
| 170°   | 2.0  | 2.0   | 2.0  | 1.4   | 0.8  |
| 172.5° | 2.0  | 2.0   | 2.0  | 1.7   | 1.1  |
| 175°   | 2.0  | 2.0   | 2.0  | 1.7   | 1.1  |
| 177.5° | 2.0  | 2.0   | 2.0  | 1.7   | 1.1  |
| 180°   | 2.0  | 2.0   | 2.0  | 2.0   | 2.0  |

(END OF REPORT)