

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: P397391

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

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P397391  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1710-367-11)  
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-DR-UNV-LA59-CD2-WL-U  
Description:  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

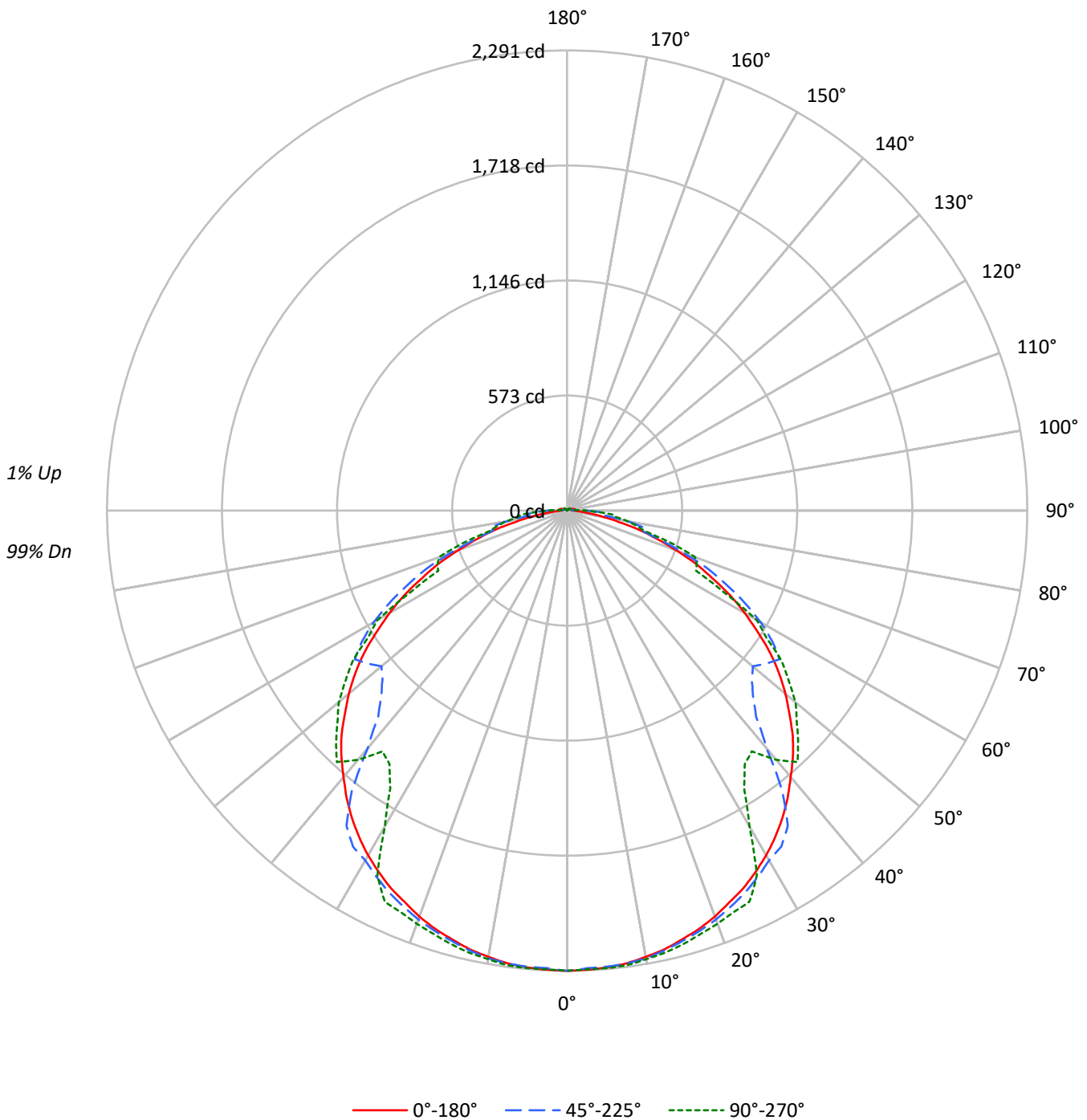
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6723.9 lumens  
Efficiency: N/A  
Efficacy: 24.5 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.17 / 1.28  
Luminous Opening: Rectangular w/ Sides (W: 1.04' x L: 4.12' x H: 0.25')  
CIE Type: Direct  
  
Input Watts (W): 274.3  
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

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

### 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	110	110	110	105	105	105	101	101	101	99
1	108	103	99	95	105	101	97	93	96	93	90	92	89	87	88	86	84	82
2	98	90	83	77	95	88	81	76	84	79	74	80	76	72	77	74	70	68
3	89	79	71	64	87	77	69	63	74	67	62	71	65	61	68	63	59	57
4	82	70	61	54	79	68	60	54	66	58	53	63	57	52	61	55	51	49
5	75	62	53	47	73	61	53	46	59	51	46	57	50	45	55	49	44	42
6	69	56	47	41	67	55	47	40	53	45	40	51	44	39	49	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	45	39	35	32
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	41	35	31	29
9	56	43	34	29	54	42	34	29	41	33	28	39	33	28	38	32	28	26
10	52	39	31	26	51	39	31	26	38	31	26	36	30	26	36	30	25	24

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

	0°	45°	90°
0°	5740	5740	5740
5°	5712	5626	5632
10°	5679	5550	5536
15°	5640	5444	5445
20°	5610	5361	5365
25°	5579	5275	5341
30°	5538	5181	4612
35°	5482	5099	4035
40°	5388	4289	4408
45°	5309	3822	4646
50°	5157	3753	4497
55°	4958	4324	4240
60°	4630	4076	3863
65°	4189	3574	2772
70°	3620	2852	2992
75°	2933	2055	2057
80°	2032	1958	1880
85°	1260	1601	1761



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	217.3	3.2
10°-20°	627.9	9.3
20°-30°	965.3	14.4
30°-40°	1107.4	16.5
40°-50°	1178.3	17.5
50°-60°	1101.4	16.4
60°-70°	799.7	11.9
70°-80°	447.8	6.7
80°-90°	179.0	2.7
90°-100°	42.6	0.6
100°-110°	23.1	0.3
110°-120°	14.8	0.2
120°-130°	10.7	0.2
130°-140°	5.7	0.1
140°-150°	1.8	0.0
150°-160°	0.6	0.0
160°-170°	0.4	0.0
170°-180°	0.2	0.0
0°-30°	1810.5	26.9
0°-40°	2917.8	43.4
0°-60°	5197.5	77.3
0°-90°	6624.0	98.5
90°-120°	80.6	1.2
90°-150°	98.7	1.5
90°-180°	100.0	1.5
0°-180°	6723.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2291	2291	2291	2291	2291	
5°	2283	2280	2279	2286	2287	217
15°	2210	2223	2219	2231	2234	625
25°	2075	2083	2098	2124	2148	956
35°	1869	1872	1916	1564	1541	1168
45°	1589	1607	1308	1623	1626	1222
55°	1233	1198	1290	1303	1304	1097
65°	799	685	878	776	708	794
75°	372	404	381	477	403	392
85°	74	112	191	225	229	85
90°	25	66	92	102	96	16
95°	31	33	28	28	28	28
105°	32	26	20	19	18	34
115°	15	16	14	13	14	16
125°	7	6	18	18	17	6
135°	3	2	10	7	12	3
145°	2	1	1	2	3	1
155°	1	1	1	1	1	1
165°	2	2	2	1	1	0
175°	2	2	2	2	1	0
180°	2	2	2	2	2	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3
2.5°	2288.2	2287.1	2287.1	2287.3	2285.4	2284.3	2284.3	2279.2	2276.7	2278.4	2280.9
5°	2283.4	2285.4	2284.3	2284.0	2280.6	2279.8	2278.7	2273.9	2271.4	2275.0	2278.9
7.5°	2273.6	2273.6	2273.3	2273.3	2271.9	2271.1	2272.2	2270.0	2268.3	2270.8	2275.0
10°	2256.3	2258.2	2257.4	2258.8	2256.8	2257.7	2257.1	2255.4	2257.7	2260.7	2263.8
12.5°	2237.5	2237.5	2237.5	2241.7	2242.3	2243.7	2245.1	2241.4	2239.2	2238.6	2242.5
15°	2210.1	2209.8	2216.5	2220.7	2221.5	2222.7	2220.1	2216.5	2215.9	2217.9	2218.7
17.5°	2184.0	2183.7	2186.5	2189.6	2193.0	2191.0	2188.2	2188.5	2188.5	2188.8	2194.1
20°	2150.7	2148.5	2158.5	2158.8	2154.9	2154.3	2155.5	2157.1	2157.1	2161.3	2166.4
22.5°	2110.4	2114.6	2119.9	2120.7	2119.9	2119.9	2117.4	2123.8	2123.5	2125.8	2132.8
25°	2075.4	2076.2	2074.3	2075.9	2079.0	2082.7	2077.6	2082.9	2086.3	2089.9	2097.5
27.5°	2030.0	2030.0	2027.5	2033.4	2034.5	2036.2	2034.8	2040.9	2044.9	2048.2	2055.5
30°	1981.6	1980.2	1979.9	1987.5	1984.7	1991.7	1988.6	1990.5	1998.1	1999.5	2011.0
32.5°	1928.1	1924.2	1926.1	1932.6	1933.1	1935.9	1930.9	1935.9	1944.6	1956.9	1983.5
35°	1868.7	1867.1	1868.7	1870.1	1874.1	1872.4	1872.1	1881.9	1892.0	1924.2	1915.5
37.5°	1803.2	1801.3	1807.7	1808.5	1813.3	1809.4	1812.2	1823.9	1854.5	1853.9	1760.9
40°	1731.3	1743.3	1738.5	1741.3	1744.1	1746.4	1750.0	1772.4	1792.3	1703.0	1545.6
42.5°	1663.8	1664.1	1669.1	1673.0	1676.1	1678.3	1685.1	1711.4	1660.7	1496.9	1392.7
45°	1589.3	1588.7	1591.5	1592.7	1600.8	1606.9	1629.6	1616.5	1471.4	1342.6	1308.2
47.5°	1501.4	1503.3	1513.4	1518.5	1520.7	1544.2	1548.1	1468.9	1297.3	1243.2	1247.1
50°	1418.8	1427.2	1426.3	1432.5	1454.6	1466.9	1444.8	1266.7	1172.7	1180.5	1206.8
52.5°	1330.0	1334.8	1331.1	1343.2	1366.1	1355.2	1288.6	1124.8	1102.7	1122.8	1250.2
55°	1233.4	1227.8	1242.4	1253.3	1254.4	1198.4	1099.0	1027.6	1034.6	1103.2	1290.5
57.5°	1124.2	1131.2	1137.9	1158.1	1120.0	1024.3	959.0	950.3	966.0	1175.2	1211.0
60°	1021.2	1025.1	1038.0	1053.1	943.9	877.3	856.8	865.5	963.2	1137.9	1113.0
62.5°	915.9	924.0	932.4	925.4	784.6	775.0	777.0	794.9	994.6	1017.0	999.3
65°	798.6	810.6	824.3	777.0	682.9	684.6	686.8	769.4	902.7	889.6	877.8
67.5°	695.8	699.7	707.8	621.9	592.2	594.4	602.0	779.2	793.8	781.5	759.9
70°	576.5	588.6	587.7	500.4	505.1	506.0	537.0	688.5	670.3	656.9	616.8
72.5°	468.2	478.5	449.1	413.0	414.7	431.2	539.3	557.5	535.6	504.3	486.6
75°	371.6	370.7	329.8	321.2	332.6	403.5	458.4	415.0	399.6	401.0	380.8
77.5°	264.0	276.6	242.2	243.9	282.0	336.8	323.4	305.5	320.3	305.8	392.3
80°	189.3	189.6	172.8	177.8	231.6	227.4	227.1	234.4	233.5	296.5	299.3
82.5°	121.5	118.7	117.6	117.9	163.2	161.6	163.0	168.6	220.9	210.0	189.8
85°	74.2	73.9	71.7	93.2	106.7	112.0	115.4	164.4	142.2	164.9	191.0
87.5°	45.9	47.6	46.5	68.0	78.4	97.2	110.6	105.6	136.9	127.1	158.5
90°	24.6	26.0	31.6	47.0	69.4	65.8	75.3	85.4	105.8	104.7	92.4
92.5°	22.4	23.5	30.2	41.4	48.7	52.1	56.3	56.8	56.0	58.0	56.8
95°	31.4	30.8	31.6	33.9	33.6	32.8	33.6	32.5	30.5	28.8	27.7
97.5°	39.5	37.5	33.9	28.3	24.4	24.1	24.1	23.5	21.6	20.7	20.2
100°	39.2	38.1	34.4	30.8	25.8	23.5	22.1	20.7	20.2	19.6	19.3
102.5°	36.7	35.6	33.0	30.5	28.8	26.9	24.4	21.3	20.2	19.9	19.6
105°	31.9	31.4	29.7	27.7	26.6	26.3	25.5	23.2	20.7	19.9	19.6
107.5°	27.4	26.9	25.8	24.4	23.8	23.5	23.2	22.7	21.0	19.3	18.8
110°	22.7	22.1	21.3	20.4	20.7	20.2	20.2	19.9	19.3	18.5	17.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	18.8	18.2	17.4	17.4	17.6	17.9	17.6	17.4	17.1	16.2	16.0
115°	15.1	14.8	14.3	14.3	14.8	16.0	16.8	17.4	16.0	14.6	14.0
117.5°	12.3	12.3	11.8	11.5	12.6	13.7	14.3	15.7	17.1	16.5	14.3
120°	10.1	10.1	9.8	9.2	9.8	10.9	12.3	15.1	14.6	16.0	17.6
122.5°	8.4	8.4	7.8	7.6	7.6	8.4	8.7	11.5	16.8	15.1	14.8
125°	7.0	6.7	6.7	6.2	6.2	6.4	7.3	7.8	9.8	16.8	18.2
127.5°	5.6	5.6	5.3	5.0	4.8	4.8	5.3	7.8	7.6	8.1	13.2
130°	4.8	4.8	4.5	4.2	3.9	3.6	3.6	5.6	9.5	8.4	7.6
132.5°	3.9	3.6	3.6	3.4	3.1	3.1	2.8	3.1	5.6	10.1	9.8
135°	3.1	3.1	2.8	2.8	2.5	2.5	2.2	2.2	2.8	4.8	9.8
137.5°	2.5	2.5	2.5	2.2	2.2	2.2	2.0	2.0	2.0	2.5	3.9
140°	2.2	2.2	2.2	2.0	2.0	1.7	1.7	1.7	1.4	1.7	2.2
142.5°	2.0	2.0	2.0	1.7	1.7	1.7	1.7	1.4	1.4	1.4	1.7
145°	1.7	1.7	1.7	1.7	1.7	1.4	1.4	1.4	1.1	1.1	1.4
147.5°	1.7	1.7	1.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
150°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
152.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
155°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
157.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
160°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.4	1.7
162.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
165°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
167.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
170°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.0
172.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.0
175°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.7	2.0
177.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.7	2.0
180°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3	2291.3
2.5°	2279.2	2281.2	2279.5	2284.3	2285.4	2285.7	2287.9	2288.2	2287.1	2285.7
5°	2278.1	2282.6	2280.3	2285.4	2285.7	2286.5	2288.7	2289.3	2288.2	2286.8
7.5°	2275.0	2279.2	2278.7	2282.0	2284.0	2281.7	2284.8	2286.5	2284.8	2282.9
10°	2260.5	2262.7	2261.6	2266.3	2267.2	2266.6	2270.3	2271.4	2271.1	2268.3
12.5°	2242.5	2246.2	2247.3	2249.3	2249.3	2249.5	2252.9	2254.3	2256.3	2254.6
15°	2220.7	2222.4	2226.3	2230.2	2230.8	2232.5	2232.2	2238.1	2234.4	2234.4
17.5°	2196.6	2198.9	2200.5	2204.7	2208.1	2207.8	2208.1	2211.7	2213.1	2210.9
20°	2168.3	2169.5	2174.2	2179.0	2180.4	2182.6	2186.0	2188.5	2189.9	2188.5
22.5°	2139.8	2143.7	2145.1	2150.7	2152.1	2155.5	2160.8	2165.5	2168.3	2163.9
25°	2103.1	2103.9	2113.5	2117.9	2123.8	2127.5	2140.3	2151.8	2154.6	2148.5
27.5°	2063.6	2069.5	2093.9	2099.5	2094.1	2093.3	2085.7	2077.6	2035.1	2046.8
30°	2033.9	2041.5	2025.0	1976.8	1969.5	1932.3	1892.0	1833.5	1818.3	1815.3
32.5°	1983.8	1932.3	1849.7	1759.0	1732.4	1699.1	1672.2	1650.3	1636.3	1638.3
35°	1838.5	1725.4	1623.7	1578.9	1563.5	1553.2	1537.8	1539.2	1543.9	1541.1
37.5°	1635.5	1533.9	1502.5	1489.1	1486.0	1488.8	1491.6	1498.3	1507.0	1510.6
40°	1459.7	1427.7	1433.6	1440.9	1452.7	1470.6	1505.3	1550.1	1596.6	1619.3
42.5°	1366.4	1374.0	1400.9	1466.1	1528.5	1584.8	1638.3	1679.7	1695.4	1698.2
45°	1311.0	1352.7	1478.7	1594.6	1622.6	1633.5	1651.2	1646.7	1639.1	1626.3
47.5°	1287.2	1449.0	1545.1	1571.1	1556.0	1547.0	1550.1	1541.4	1552.9	1550.1
50°	1380.1	1477.0	1473.7	1463.6	1475.6	1483.5	1496.6	1488.5	1490.7	1484.0
52.5°	1391.6	1390.5	1390.8	1414.3	1406.2	1396.1	1396.9	1408.1	1410.9	1390.2
55°	1306.8	1319.1	1312.1	1309.9	1303.4	1286.9	1269.5	1277.1	1298.9	1303.7
57.5°	1221.1	1203.2	1207.9	1183.3	1207.4	1232.9	1194.5	1178.0	1169.0	1174.1
60°	1110.5	1085.9	1124.8	1087.8	1080.8	1090.9	1121.1	1138.2	1101.5	1091.5
62.5°	982.5	1012.2	991.2	1003.5	970.8	922.6	856.8	856.8	871.7	876.4
65°	884.3	881.5	787.4	759.9	776.2	791.3	787.4	731.4	719.9	708.4
67.5°	740.0	647.4	681.8	641.8	632.0	624.7	637.0	663.9	695.8	698.3
70°	563.9	579.3	543.8	604.8	649.9	695.2	715.4	711.2	693.6	677.9
72.5°	465.4	505.4	615.2	598.4	583.8	586.6	574.6	568.1	558.9	553.3
75°	480.5	490.3	481.9	474.0	476.6	471.8	453.6	430.4	410.2	402.9
77.5°	373.5	390.3	364.0	326.2	324.5	336.3	345.0	358.7	364.8	358.1
80°	263.5	247.5	280.8	306.9	315.8	326.5	310.5	304.4	304.4	307.7
82.5°	224.8	254.2	243.6	228.5	228.8	232.1	232.1	239.4	252.6	244.7
85°	170.2	189.3	227.1	229.6	224.8	229.9	237.2	236.9	232.1	229.3
87.5°	165.8	165.5	161.3	141.7	140.0	144.8	144.8	142.2	141.7	140.0
90°	95.5	95.2	94.9	99.4	102.5	99.1	96.6	94.9	95.5	96.3
92.5°	55.4	56.3	56.3	57.7	55.7	53.2	51.8	49.8	49.0	47.0
95°	27.4	28.0	28.6	28.0	28.3	28.3	28.0	28.3	27.7	28.0
97.5°	20.4	20.7	21.0	21.6	22.1	22.1	22.7	22.7	22.7	23.0
100°	19.0	19.0	19.0	19.0	19.3	19.3	19.6	19.6	19.9	19.9
102.5°	19.6	19.3	19.0	18.8	18.8	18.8	18.8	18.8	18.8	18.8
105°	19.6	19.3	19.3	19.0	19.0	18.8	18.5	18.2	18.2	17.9
107.5°	18.8	19.3	19.6	19.6	19.6	19.3	19.0	18.8	18.5	18.8
110°	16.8	16.8	17.4	17.4	17.6	17.9	18.2	18.2	18.2	18.2





TEST NUMBER: P397391

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

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	15.7	15.1	15.1	15.4	15.7	15.7	16.0	16.0	16.0	16.0
115°	13.7	13.2	13.2	13.2	13.4	13.7	13.7	14.0	14.0	14.0
117.5°	12.6	11.8	11.5	11.5	11.5	11.5	11.8	11.8	11.8	12.0
120°	17.1	14.0	11.5	10.4	10.1	10.1	10.1	10.1	10.1	10.1
122.5°	16.2	18.2	18.2	15.1	14.8	13.4	12.3	11.5	10.4	10.4
125°	14.3	14.8	15.1	16.8	18.2	18.5	19.9	18.8	17.9	17.4
127.5°	18.5	20.7	14.3	14.0	14.0	14.3	14.8	14.8	15.4	16.5
130°	9.2	14.8	18.2	18.5	19.9	22.1	16.2	13.4	13.2	13.4
132.5°	7.6	7.0	8.7	13.4	15.4	16.2	17.6	18.8	17.9	18.2
135°	12.6	10.1	7.6	6.7	6.7	6.7	8.1	9.0	10.6	12.0
137.5°	7.3	11.8	13.7	11.5	10.6	9.2	7.8	6.7	6.4	6.4
140°	3.1	4.8	7.6	11.5	12.9	13.4	14.3	13.4	12.9	11.8
142.5°	2.2	2.8	3.1	3.9	4.8	5.6	6.7	9.2	10.1	10.4
145°	1.7	2.2	2.2	2.5	2.5	2.8	2.8	2.8	2.8	2.8
147.5°	1.4	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
150°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
152.5°	1.4	1.4	1.1	1.1	1.1	1.1	0.8	0.8	0.8	0.6
155°	1.4	1.4	1.4	1.1	1.1	1.1	0.8	0.6	0.6	0.6
157.5°	1.4	1.4	1.4	1.1	1.1	1.1	0.8	0.6	0.6	0.6
160°	1.7	1.7	1.4	1.1	1.1	1.1	0.8	0.6	0.6	0.6
162.5°	1.7	1.7	1.4	1.4	1.1	1.1	0.8	0.8	0.6	0.6
165°	1.7	1.7	1.7	1.4	1.4	1.1	1.1	0.8	0.8	0.6
167.5°	2.0	1.7	1.7	1.4	1.4	1.4	1.1	0.8	0.8	0.8
170°	2.0	2.0	1.7	1.7	1.4	1.4	1.1	1.1	0.8	0.8
172.5°	2.0	2.0	1.7	1.7	1.4	1.4	1.4	1.1	1.1	1.1
175°	2.0	2.0	1.7	1.7	1.7	1.7	1.4	1.1	1.1	1.1
177.5°	2.0	2.0	1.7	1.7	1.7	1.7	1.4	1.1	1.1	1.1
180°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

(END OF REPORT)