

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: io LED

Report Number: P251971

Luminaire Tested: **LD4B50D010TE EU4B30509730 4LBDW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251971  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-15)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LD4B50D010TE EU4B30509730 4LBDW1H  
Description: PORTFOLIO 4 INCH DOUBLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 97CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3351.0 lumens  
Efficiency: N/A  
Efficacy: 57.0 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.18 / 1.19  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

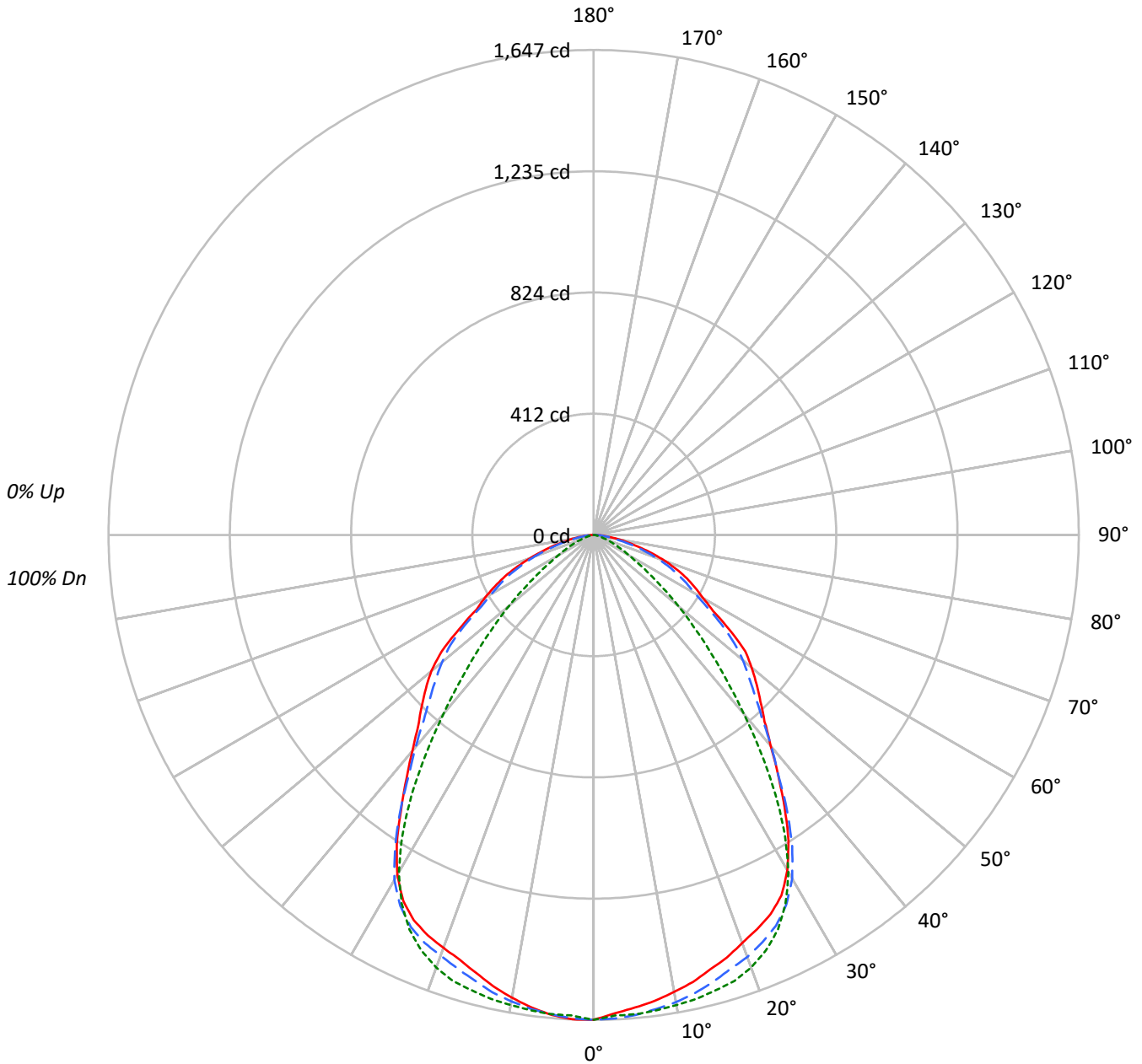
Input Watts (W): 58.77  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### 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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	89	88								
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76								
3	94	85	78	72	92	84	77	72	81	75	70	78	73	69	76	72	68	66								
4	87	77	69	63	85	75	68	62	73	67	62	71	65	61	69	64	60	58								
5	81	69	61	55	79	68	61	55	66	60	54	64	58	54	63	57	53	51								
6	75	63	55	49	73	62	55	49	60	54	49	59	53	48	57	52	48	46								
7	70	58	50	44	68	57	49	44	56	49	44	54	48	43	53	47	43	41								
8	66	53	45	40	64	52	45	40	51	44	40	50	44	39	49	43	39	37								
9	62	49	41	36	60	49	41	36	47	41	36	46	40	36	45	40	36	34								
10	58	46	38	33	57	45	38	33	44	38	33	43	37	33	42	37	33	31								

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

	0°	90°	180°
0°	160474	160474	160474
5°	157614	159845	160090
10°	155924	160436	157933
15°	154119	161535	155400
20°	152904	162103	154739
25°	152815	159084	155267
30°	147950	148805	149941
35°	134417	128088	135619
40°	118915	100875	121816
45°	110330	76811	113817
50°	106011	56842	109074
55°	95984	39165	94693
60°	83444	26665	82956
65°	80620	19279	76515
70°	72890	12994	64968
75°	60097	8585	51512
80°	48323	5669	38389
85°	39696	2796	25495



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	155.4	4.6
10°-20°	444.4	13.3
20°-30°	671.4	20.0
30°-40°	702.7	21.0
40°-50°	569.1	17.0
50°-60°	413.9	12.4
60°-70°	255.3	7.6
70°-80°	115.4	3.4
80°-90°	23.4	0.7
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°	1271.3	37.9
0°-40°	1973.9	58.9
0°-60°	2956.9	88.2
0°-90°	3351.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3351.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1647	1647	1647	1647	1647	
5°	1611	1636	1634	1634	1636	153
15°	1528	1571	1601	1566	1540	432
25°	1421	1464	1479	1469	1444	651
35°	1130	1145	1077	1145	1140	704
45°	800	775	557	785	826	622
55°	565	529	230	534	557	504
65°	350	314	84	309	332	342
75°	160	137	23	119	137	173
85°	36	28	2	20	23	41
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6
2.5°	1626.3	1626.3	1641.5	1659.2	1644.0	1628.8	1639.0	1633.9	1651.6	1651.6	1644.0
5°	1611.1	1616.2	1628.8	1644.0	1631.4	1616.2	1628.8	1623.8	1641.5	1641.5	1636.4
7.5°	1595.9	1598.4	1613.6	1631.4	1618.7	1603.5	1613.6	1611.1	1626.3	1628.8	1623.8
10°	1575.6	1578.2	1593.4	1611.1	1598.4	1585.8	1595.9	1593.4	1613.6	1613.6	1611.1
12.5°	1555.4	1557.9	1573.1	1588.3	1575.6	1563.0	1573.1	1573.1	1593.4	1595.9	1593.4
15°	1527.5	1532.6	1545.2	1560.4	1552.8	1537.6	1547.8	1547.8	1565.5	1570.6	1570.6
17.5°	1504.7	1507.2	1519.9	1535.1	1525.0	1512.3	1522.4	1522.4	1540.2	1545.2	1545.2
20°	1474.3	1479.4	1492.0	1507.2	1499.6	1489.5	1497.1	1497.1	1517.4	1522.4	1525.0
22.5°	1449.0	1454.0	1464.2	1484.4	1471.8	1464.2	1474.3	1471.8	1494.6	1497.1	1497.1
25°	1421.1	1426.2	1438.8	1451.5	1443.9	1436.3	1443.9	1443.9	1461.6	1464.2	1464.2
27.5°	1380.6	1383.1	1395.8	1408.4	1400.8	1390.7	1400.8	1398.3	1416.0	1418.6	1416.0
30°	1314.7	1319.8	1324.8	1342.6	1335.0	1327.4	1337.5	1332.4	1350.2	1350.2	1347.6
32.5°	1231.1	1231.1	1241.2	1253.9	1243.8	1238.7	1246.3	1248.8	1261.5	1261.5	1253.9
35°	1129.8	1134.9	1142.5	1150.1	1142.5	1137.4	1145.0	1142.5	1157.7	1152.6	1145.0
37.5°	1028.5	1031.0	1038.6	1048.7	1038.6	1031.0	1033.5	1031.0	1043.7	1043.7	1031.0
40°	934.7	939.8	944.9	955.0	944.9	939.8	942.3	934.7	949.9	944.9	937.3
42.5°	858.7	861.3	868.9	873.9	863.8	861.3	863.8	858.7	866.3	861.3	846.1
45°	800.5	800.5	803.0	810.6	800.5	797.9	797.9	792.9	800.5	790.3	775.1
47.5°	749.8	752.3	754.9	759.9	752.3	744.7	747.3	737.1	742.2	734.6	714.3
50°	699.2	704.2	706.8	711.8	704.2	699.2	701.7	691.6	691.6	678.9	661.2
52.5°	648.5	651.0	648.5	653.6	648.5	640.9	643.4	633.3	633.3	618.1	600.4
55°	564.9	567.4	570.0	575.0	570.0	562.4	567.4	559.8	559.8	549.7	529.4
57.5°	481.3	483.8	486.4	488.9	488.9	483.8	486.4	481.3	478.8	471.2	456.0
60°	428.1	428.1	428.1	430.6	428.1	425.6	425.6	420.5	420.5	410.4	395.2
62.5°	387.6	390.1	390.1	392.6	390.1	387.6	385.0	380.0	377.4	367.3	354.6
65°	349.6	349.6	347.0	352.1	349.6	347.0	347.0	342.0	336.9	326.8	314.1
67.5°	304.0	306.5	304.0	306.5	306.5	304.0	301.4	296.4	293.8	286.2	271.0
70°	255.8	255.8	255.8	258.4	255.8	255.8	258.4	250.8	248.2	238.1	225.5
72.5°	207.7	210.3	210.3	207.7	210.3	205.2	205.2	205.2	202.7	192.5	179.9
75°	159.6	162.1	162.1	164.7	162.1	159.6	159.6	157.1	154.5	146.9	136.8
77.5°	119.1	119.1	121.6	121.6	121.6	119.1	119.1	114.0	114.0	108.9	98.8
80°	86.1	86.1	83.6	86.1	86.1	83.6	83.6	81.1	81.1	76.0	68.4
82.5°	55.7	58.3	58.3	58.3	58.3	55.7	55.7	55.7	53.2	50.7	45.6
85°	35.5	35.5	35.5	35.5	38.0	35.5	38.0	35.5	35.5	30.4	27.9
87.5°	15.2	15.2	15.2	17.7	17.7	15.2	15.2	15.2	15.2	15.2	12.7
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6
2.5°	1644.0	1646.6	1639.0	1649.1	1641.5	1644.0	1646.6	1644.0	1633.9	1633.9	1661.7
5°	1633.9	1639.0	1631.4	1644.0	1639.0	1639.0	1644.0	1641.5	1631.4	1633.9	1659.2
7.5°	1623.8	1631.4	1626.3	1639.0	1631.4	1631.4	1636.4	1636.4	1626.3	1628.8	1651.6
10°	1608.6	1618.7	1616.2	1628.8	1621.2	1621.2	1628.8	1628.8	1618.7	1621.2	1644.0
12.5°	1595.9	1606.0	1603.5	1616.2	1611.1	1613.6	1616.2	1621.2	1608.6	1613.6	1633.9
15°	1575.6	1585.8	1585.8	1598.4	1593.4	1598.4	1603.5	1611.1	1601.0	1601.0	1621.2
17.5°	1552.8	1565.5	1565.5	1575.6	1575.6	1578.2	1588.3	1595.9	1585.8	1588.3	1606.0
20°	1527.5	1542.7	1542.7	1555.4	1552.8	1557.9	1565.5	1573.1	1563.0	1563.0	1583.2
22.5°	1502.2	1514.8	1517.4	1525.0	1525.0	1527.5	1535.1	1540.2	1527.5	1527.5	1547.8
25°	1466.7	1479.4	1481.9	1487.0	1481.9	1481.9	1487.0	1492.0	1479.4	1479.4	1497.1
27.5°	1418.6	1431.2	1431.2	1428.7	1423.6	1426.2	1423.6	1426.2	1413.5	1411.0	1428.7
30°	1347.6	1355.2	1355.2	1352.7	1345.1	1345.1	1337.5	1340.0	1322.3	1322.3	1337.5
32.5°	1251.4	1259.0	1253.9	1248.8	1238.7	1233.6	1228.6	1226.0	1208.3	1208.3	1226.0
35°	1137.4	1142.5	1134.9	1124.7	1112.1	1104.5	1096.9	1086.7	1074.1	1076.6	1086.7
37.5°	1020.9	1020.9	1010.7	990.5	980.3	967.7	955.0	955.0	934.7	932.2	939.8
40°	922.1	911.9	894.2	866.3	848.6	835.9	818.2	808.1	792.9	792.9	805.5
42.5°	833.4	813.1	790.3	752.3	734.6	719.4	696.6	686.5	668.8	666.2	673.8
45°	754.9	734.6	701.7	661.2	638.4	620.6	587.7	575.0	559.8	557.3	562.4
47.5°	691.6	668.8	628.2	575.0	552.2	529.4	496.5	478.8	466.1	458.5	466.1
50°	635.8	605.4	562.4	506.6	476.2	456.0	415.4	397.7	380.0	374.9	377.4
52.5°	575.0	544.6	499.0	440.8	412.9	382.5	344.5	319.2	304.0	296.4	304.0
55°	509.2	478.8	433.2	374.9	344.5	316.6	276.1	255.8	238.1	230.5	238.1
57.5°	438.2	410.4	369.8	311.6	283.7	258.4	220.4	200.1	182.4	177.3	182.4
60°	377.4	354.6	314.1	258.4	235.6	207.7	174.8	154.5	139.3	136.8	139.3
62.5°	336.9	311.6	273.6	220.4	197.6	174.8	144.4	124.1	111.5	108.9	111.5
65°	296.4	268.5	233.1	187.5	164.7	146.9	116.5	98.8	86.1	83.6	86.1
67.5°	250.8	225.5	195.1	154.5	136.8	119.1	93.7	76.0	65.9	63.3	65.9
70°	207.7	184.9	154.5	124.1	106.4	93.7	70.9	58.3	48.1	45.6	48.1
72.5°	164.7	144.4	119.1	93.7	83.6	70.9	55.7	43.1	35.5	32.9	35.5
75°	126.7	111.5	91.2	68.4	60.8	53.2	38.0	30.4	25.3	22.8	25.3
77.5°	88.7	78.5	63.3	50.7	43.1	38.0	27.9	20.3	17.7	15.2	17.7
80°	60.8	53.2	43.1	32.9	27.9	22.8	17.7	12.7	10.1	10.1	10.1
82.5°	40.5	32.9	25.3	20.3	17.7	15.2	10.1	7.6	7.6	5.1	5.1
85°	22.8	20.3	15.2	12.7	10.1	7.6	5.1	5.1	2.5	2.5	2.5
87.5°	10.1	7.6	5.1	5.1	2.5	2.5	2.5	2.5	0.0	0.0	0.0
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6
2.5°	1654.1	1646.6	1656.7	1646.6	1641.5	1646.6	1641.5	1656.7	1644.0	1633.9	1644.0
5°	1651.6	1641.5	1651.6	1644.0	1636.4	1639.0	1633.9	1649.1	1633.9	1626.3	1631.4
7.5°	1646.6	1639.0	1644.0	1636.4	1628.8	1631.4	1626.3	1639.0	1623.8	1616.2	1621.2
10°	1639.0	1631.4	1633.9	1628.8	1621.2	1621.2	1616.2	1626.3	1608.6	1598.4	1603.5
12.5°	1628.8	1618.7	1623.8	1616.2	1606.0	1606.0	1601.0	1608.6	1590.8	1580.7	1583.2
15°	1616.2	1606.0	1606.0	1598.4	1588.3	1588.3	1578.2	1585.8	1565.5	1555.4	1555.4
17.5°	1601.0	1588.3	1588.3	1580.7	1568.0	1565.5	1557.9	1565.5	1542.7	1532.6	1532.6
20°	1578.2	1568.0	1565.5	1560.4	1547.8	1545.2	1535.1	1537.6	1519.9	1512.3	1509.8
22.5°	1547.8	1537.6	1540.2	1532.6	1522.4	1519.9	1509.8	1517.4	1499.6	1492.0	1494.6
25°	1494.6	1489.5	1494.6	1492.0	1484.4	1484.4	1479.4	1484.4	1469.2	1464.2	1466.7
27.5°	1433.8	1431.2	1433.8	1433.8	1428.7	1428.7	1428.7	1436.3	1421.1	1418.6	1418.6
30°	1345.1	1345.1	1347.6	1350.2	1350.2	1355.2	1352.7	1362.8	1352.7	1347.6	1352.7
32.5°	1228.6	1238.7	1246.3	1246.3	1246.3	1251.4	1256.4	1264.0	1253.9	1256.4	1256.4
35°	1096.9	1104.5	1109.5	1122.2	1114.6	1132.3	1137.4	1147.5	1145.0	1150.1	1147.5
37.5°	949.9	960.1	970.2	987.9	985.4	1005.7	1015.8	1036.1	1031.0	1041.1	1046.2
40°	813.1	828.3	843.5	856.2	866.3	886.6	906.9	932.2	939.8	947.4	949.9
42.5°	681.4	696.6	721.9	739.7	754.9	787.8	815.7	846.1	853.7	868.9	873.9
45°	575.0	587.7	618.1	640.9	653.6	701.7	734.6	772.6	785.3	803.0	810.6
47.5°	476.2	499.0	529.4	557.3	575.0	625.7	668.8	709.3	727.0	747.3	757.4
50°	390.1	415.4	456.0	481.3	506.6	562.4	610.5	653.6	671.3	694.1	704.2
52.5°	319.2	347.0	385.0	412.9	440.8	499.0	549.7	590.2	613.0	628.2	643.4
55°	250.8	281.2	319.2	349.6	372.4	435.7	478.8	519.3	534.5	547.2	554.8
57.5°	195.1	217.9	255.8	281.2	309.0	364.8	407.8	438.2	450.9	466.1	471.2
60°	152.0	174.8	210.3	235.6	260.9	314.1	357.2	387.6	400.2	412.9	420.5
62.5°	121.6	144.4	177.3	200.1	222.9	271.0	309.0	339.4	354.6	367.3	374.9
65°	96.3	116.5	144.4	167.2	184.9	228.0	266.0	293.8	309.0	321.7	329.3
67.5°	76.0	93.7	119.1	134.3	152.0	187.5	220.4	245.7	258.4	273.6	281.2
70°	58.3	70.9	93.7	106.4	119.1	149.5	174.8	200.1	212.8	222.9	228.0
72.5°	43.1	53.2	70.9	81.1	88.7	114.0	134.3	152.0	162.1	172.3	177.3
75°	30.4	38.0	50.7	58.3	63.3	81.1	98.8	111.5	119.1	126.7	134.3
77.5°	20.3	25.3	32.9	38.0	43.1	55.7	65.9	76.0	83.6	91.2	93.7
80°	12.7	17.7	22.8	25.3	27.9	35.5	45.6	50.7	55.7	60.8	63.3
82.5°	7.6	10.1	12.7	15.2	17.7	22.8	27.9	32.9	35.5	40.5	43.1
85°	2.5	5.1	5.1	7.6	7.6	12.7	15.2	17.7	20.3	22.8	25.3
87.5°	0.0	0.0	2.5	2.5	2.5	2.5	5.1	5.1	5.1	5.1	5.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P251971

CATALOG NUMBER: LD4B50D010TE EU4B30509730 4LBDW1H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6	1646.6
2.5°	1654.1	1646.6	1641.5	1639.0	1656.7	1633.9	1644.0	1646.6
5°	1644.0	1636.4	1631.4	1628.8	1644.0	1623.8	1631.4	1636.4
7.5°	1628.8	1623.8	1616.2	1613.6	1628.8	1606.0	1616.2	1618.7
10°	1611.1	1603.5	1598.4	1595.9	1608.6	1585.8	1595.9	1595.9
12.5°	1588.3	1583.2	1573.1	1573.1	1583.2	1563.0	1570.6	1570.6
15°	1557.9	1552.8	1542.7	1542.7	1552.8	1532.6	1540.2	1540.2
17.5°	1532.6	1527.5	1519.9	1517.4	1527.5	1507.2	1514.8	1512.3
20°	1512.3	1507.2	1497.1	1497.1	1504.7	1484.4	1492.0	1492.0
22.5°	1494.6	1492.0	1481.9	1481.9	1492.0	1471.8	1476.8	1471.8
25°	1466.7	1464.2	1454.0	1456.6	1461.6	1441.4	1449.0	1443.9
27.5°	1421.1	1421.1	1411.0	1408.4	1416.0	1398.3	1403.4	1400.8
30°	1350.2	1352.7	1340.0	1340.0	1342.6	1327.4	1335.0	1332.4
32.5°	1253.9	1256.4	1246.3	1243.8	1251.4	1238.7	1243.8	1243.8
35°	1147.5	1150.1	1142.5	1142.5	1150.1	1142.5	1142.5	1139.9
37.5°	1041.1	1046.2	1041.1	1043.7	1048.7	1041.1	1046.2	1043.7
40°	955.0	960.1	952.5	957.5	962.6	955.0	962.6	957.5
42.5°	876.5	884.1	879.0	884.1	889.1	884.1	889.1	881.5
45°	818.2	823.3	820.7	823.3	828.3	825.8	828.3	825.8
47.5°	762.5	772.6	767.5	772.6	780.2	775.1	780.2	772.6
50°	711.8	719.4	716.9	721.9	724.5	721.9	727.0	719.4
52.5°	646.0	653.6	651.0	651.0	656.1	651.0	656.1	651.0
55°	559.8	562.4	562.4	564.9	562.4	559.8	562.4	557.3
57.5°	476.2	481.3	473.7	481.3	478.8	476.2	476.2	471.2
60°	423.0	430.6	425.6	430.6	428.1	428.1	428.1	425.6
62.5°	380.0	385.0	380.0	382.5	382.5	382.5	380.0	377.4
65°	331.8	339.4	334.4	336.9	334.4	331.8	334.4	331.8
67.5°	283.7	286.2	286.2	283.7	283.7	283.7	283.7	278.6
70°	230.5	233.1	230.5	235.6	233.1	230.5	233.1	228.0
72.5°	179.9	182.4	179.9	182.4	179.9	179.9	179.9	179.9
75°	134.3	136.8	136.8	136.8	136.8	136.8	131.7	136.8
77.5°	96.3	96.3	96.3	98.8	96.3	96.3	96.3	96.3
80°	65.9	65.9	65.9	68.4	65.9	68.4	65.9	68.4
82.5°	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1
85°	22.8	25.3	25.3	22.8	22.8	22.8	22.8	22.8
87.5°	5.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180°    - - 45°-225°    - - - - 90°-270°















(END OF REPORT)