

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: P170838

Luminaire Tested: **LDA4A18830D010TE LAR25NF 4LLWW1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170838  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26102)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A18830D010TE LAR25NF 4LLWW1  
Description: PORTFOLIO 4" Lensed Wall Wash, Self-flanged, 25° Narrow Flood Optic,  
at 30° tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1462.0 lumens  
Efficiency: N/A  
Efficacy: 50.2 lumens/watt  
Spacing Criteria (0/90/45): 2.11 / 1.09 / 1.54  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

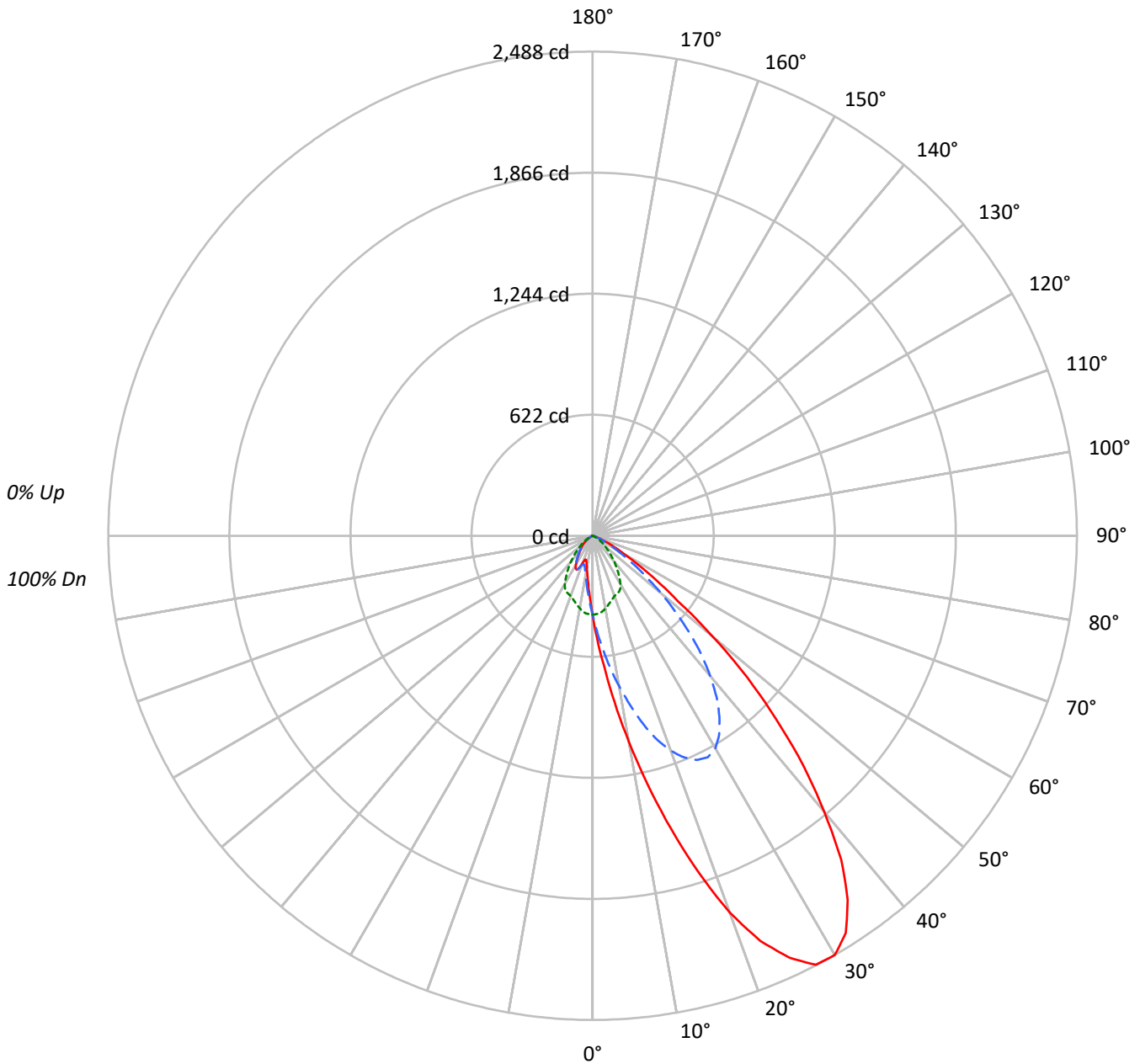
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170838

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LLWW1

### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									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	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90																			
2	104	98	93	88	102	96	91	87	93	89	85	90	86	84	87	84	82	80																			
3	97	89	82	77	95	87	81	76	84	79	75	82	77	74	79	76	73	71																			
4	90	80	73	67	88	79	72	67	77	71	66	74	69	65	72	68	65	63																			
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56																			
6	78	66	58	53	76	65	58	53	64	57	52	62	56	52	61	55	52	50																			
7	72	60	53	47	71	60	52	47	58	52	47	57	51	47	56	50	46	45																			
8	67	55	48	43	66	55	47	42	53	47	42	52	46	42	51	46	42	40																			
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38	36																			
10	59	47	40	35	58	46	39	35	45	39	35	45	39	34	44	38	34	33																			

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

	0°	90°	180°
0°	49992	49992	49992
5°	83168	49601	31214
10°	134667	47432	21092
15°	199143	44949	16396
20°	270517	43211	19361
25°	325666	43374	26280
30°	354373	40649	24526
35°	343994	34241	19635
40°	297977	27582	16086
45°	232368	21246	13781
50°	154089	15889	10592
55°	85933	11656	6344
60°	45293	7746	2590
65°	24429	3882	292
70°	11685	1370	361
75°	4099	905	477
80°	1350	1350	0
85°	4104	2689	0



TEST NUMBER: P170838

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LLWW1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	43.2	3.0
10°-20°	170.6	11.7
20°-30°	350.9	24.0
30°-40°	419.2	28.7
40°-50°	309.5	21.2
50°-60°	130.3	8.9
60°-70°	32.0	2.2
70°-80°	4.4	0.3
80°-90°	1.8	0.1
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°	564.8	38.6
0°-40°	984.0	67.3
0°-60°	1423.8	97.4
0°-90°	1462.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1462.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	405	405	405	405	405	
5°	672	578	401	287	252	77
15°	1560	1001	352	160	128	458
25°	2393	1271	319	192	193	1094
35°	2284	1136	227	136	130	1401
45°	1332	700	122	80	79	1023
55°	400	260	54	34	30	381
65°	84	57	13	3	1	91
75°	9	5	2	1	1	12
85°	3	3	2	1	0	3
90°	0	0	0	0	0	



TEST NUMBER: P170838

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LLWW1

**CANDELA DISTRIBUTION (FULL):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3
2.5°	527.1	520.5	520.5	522.4	528.1	523.3	519.5	515.7	519.5	510.9	513.8
5°	671.7	670.8	670.8	663.2	669.8	670.8	663.2	656.5	658.4	646.0	646.0
7.5°	862.0	856.3	854.4	844.0	851.6	850.6	838.2	826.8	826.8	806.8	802.1
10°	1075.2	1067.6	1063.7	1050.4	1057.1	1053.3	1035.2	1018.1	1013.3	984.8	974.3
12.5°	1310.2	1305.4	1299.7	1282.6	1288.3	1280.7	1255.0	1230.3	1219.8	1181.7	1163.6
15°	1559.5	1567.1	1557.6	1537.6	1541.4	1528.1	1494.8	1460.5	1444.3	1393.0	1366.3
17.5°	1816.4	1825.9	1815.4	1792.6	1791.6	1773.5	1727.9	1686.0	1662.2	1596.6	1561.4
20°	2060.9	2063.7	2050.4	2025.7	2020.0	1995.2	1940.0	1881.1	1858.2	1777.3	1732.6
22.5°	2253.1	2263.5	2247.4	2229.3	2211.2	2179.8	2115.1	2050.4	2018.1	1925.8	1871.5
25°	2392.9	2416.7	2397.7	2376.8	2356.8	2319.7	2247.4	2177.9	2138.0	2035.2	1973.4
27.5°	2485.2	2508.1	2487.1	2463.4	2442.4	2399.6	2320.6	2254.0	2205.5	2093.2	2026.6
30°	2488.1	2515.7	2493.8	2468.1	2448.1	2405.3	2324.4	2255.9	2201.7	2089.4	2020.0
32.5°	2419.6	2441.5	2419.6	2397.7	2374.9	2334.0	2253.1	2187.4	2130.3	2022.8	1953.4
35°	2284.5	2303.5	2281.6	2255.9	2239.8	2203.6	2126.5	2063.7	2006.7	1907.7	1846.8
37.5°	2098.0	2115.1	2095.1	2080.9	2057.1	2024.7	1954.3	1898.2	1844.0	1754.5	1700.3
40°	1850.6	1886.8	1867.7	1858.2	1836.3	1808.7	1746.9	1697.4	1647.9	1569.9	1525.2
42.5°	1603.2	1637.5	1620.4	1613.7	1594.7	1570.9	1519.5	1477.6	1432.0	1367.3	1329.2
45°	1332.1	1368.2	1352.0	1349.2	1333.0	1314.9	1259.7	1237.9	1197.9	1137.0	1118.9
47.5°	1077.1	1083.7	1068.5	1069.5	1058.0	1045.7	1000.9	987.6	967.6	921.0	900.1
50°	803.0	807.8	795.4	799.2	791.6	784.0	753.6	746.9	734.5	703.1	690.8
52.5°	552.8	574.7	566.1	569.9	566.1	563.3	550.9	539.5	533.8	513.8	508.1
55°	399.6	401.5	394.9	398.7	395.8	394.9	387.2	380.6	377.7	365.4	363.5
57.5°	276.9	278.8	278.8	276.9	275.9	274.0	269.3	265.5	263.6	260.7	255.0
60°	183.6	191.2	188.4	190.3	189.3	189.3	185.5	182.7	181.7	176.0	176.0
62.5°	125.6	130.4	128.4	129.4	128.4	128.4	125.6	123.7	123.7	122.7	119.9
65°	83.7	86.6	84.7	85.6	85.6	85.6	83.7	81.8	81.8	80.9	79.0
67.5°	53.3	55.2	54.2	55.2	54.2	55.2	53.3	52.3	51.4	51.4	50.4
70°	32.4	33.3	32.4	33.3	32.4	32.4	31.4	31.4	30.4	29.5	29.5
72.5°	17.1	18.1	18.1	18.1	18.1	18.1	17.1	16.2	16.2	16.2	15.2
75°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	7.6	7.6	7.6
77.5°	3.8	3.8	3.8	3.8	4.8	3.8	3.8	3.8	3.8	3.8	3.8
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	2.9
87.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.8	4.8	3.8	3.8
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: P170838

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LLWW1

**CANDELA DISTRIBUTION (continued):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	47.5°	50°	52.5°
0°	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3
2.5°	506.2	501.4	499.5	495.7	491.0	488.1	485.3	486.2	479.5	474.8	468.1
5°	633.7	623.2	617.5	608.9	598.5	589.9	582.3	578.5	566.1	557.6	539.5
7.5°	784.0	765.9	754.5	739.3	721.2	706.0	690.8	680.3	661.3	645.1	617.5
10°	948.6	921.0	901.0	878.2	850.6	825.9	803.0	784.0	755.5	730.7	694.6
12.5°	1128.4	1089.4	1060.9	1027.6	988.6	954.3	913.4	891.5	852.5	818.3	771.6
15°	1319.7	1268.3	1228.3	1182.7	1131.3	1085.6	1033.3	1000.9	949.6	905.8	847.8
17.5°	1503.3	1438.6	1386.3	1328.3	1264.5	1205.5	1143.7	1098.0	1035.2	981.0	911.5
20°	1663.2	1586.1	1522.4	1451.9	1376.8	1304.5	1236.9	1176.0	1102.8	1039.0	960.0
22.5°	1793.5	1704.1	1630.8	1549.0	1462.4	1380.6	1303.5	1234.1	1150.3	1079.9	993.3
25°	1887.7	1789.7	1707.9	1617.5	1522.4	1429.1	1347.3	1271.2	1179.8	1104.7	1012.4
27.5°	1937.2	1833.5	1746.9	1649.9	1549.0	1451.9	1363.5	1282.6	1186.5	1107.5	1012.4
30°	1928.6	1823.0	1733.6	1633.7	1531.9	1434.8	1342.5	1261.7	1162.7	1082.8	987.6
32.5°	1863.0	1759.3	1671.7	1574.7	1474.8	1380.6	1288.3	1210.3	1111.3	1033.3	941.0
35°	1754.5	1656.5	1573.7	1481.4	1387.2	1298.8	1215.0	1136.1	1040.9	966.7	880.1
37.5°	1613.7	1524.3	1449.1	1363.5	1276.9	1197.0	1114.2	1046.6	961.9	892.5	807.8
40°	1445.3	1366.3	1299.7	1223.6	1145.6	1076.1	1006.7	941.0	858.2	796.4	724.1
42.5°	1259.7	1192.2	1135.1	1068.5	1000.9	942.0	882.0	824.9	756.4	700.3	632.7
45°	1059.9	1002.9	956.2	902.9	846.8	791.6	747.9	700.3	636.5	594.7	537.6
47.5°	853.5	809.7	774.5	733.6	688.9	654.6	612.7	574.7	528.1	489.1	442.4
50°	657.5	627.0	602.3	573.7	541.4	510.0	485.3	455.8	420.6	389.2	352.0
52.5°	486.2	466.2	451.0	432.0	410.1	393.9	371.1	349.2	322.5	298.8	270.2
55°	348.2	336.8	327.3	315.9	300.7	286.4	275.0	259.8	240.7	222.6	201.7
57.5°	250.2	237.9	236.9	224.5	218.8	208.4	197.9	186.5	173.2	160.8	145.6
60°	173.2	164.6	160.8	156.0	149.4	142.7	138.0	130.4	120.8	112.3	100.9
62.5°	117.0	111.3	109.4	107.5	101.8	99.0	93.2	88.5	81.8	75.2	67.6
65°	77.1	73.3	71.4	68.5	65.7	63.7	60.9	57.1	51.4	47.6	42.8
67.5°	48.5	45.7	43.8	42.8	40.0	39.0	36.2	34.3	30.4	28.5	25.7
70°	27.6	26.6	24.7	24.7	22.8	20.9	20.0	18.1	17.1	15.2	14.3
72.5°	14.3	14.3	13.3	12.4	11.4	11.4	10.5	9.5	8.6	7.6	7.6
75°	6.7	6.7	6.7	5.7	5.7	5.7	4.8	4.8	4.8	3.8	3.8
77.5°	3.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
85°	2.9	1.9	1.9	1.9	1.9	2.9	2.9	2.9	2.9	2.9	2.9
87.5°	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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: P170838

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LLWW1

**CANDELA DISTRIBUTION (continued):**

	55°	57.5°	60°	62.5°	65°	67.5°	70°	72.5°	75°	77.5°	80°
0°	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3
2.5°	463.4	461.5	456.7	455.8	445.3	443.4	437.7	429.1	422.5	420.6	422.5
5°	532.8	524.3	510.0	507.1	490.0	484.3	471.9	458.6	447.2	440.5	437.7
7.5°	604.2	589.9	569.0	558.5	533.8	521.4	503.3	484.3	466.2	453.9	446.2
10°	672.7	649.9	611.8	603.2	572.8	552.8	528.1	502.4	479.5	462.4	450.0
12.5°	737.4	709.8	670.8	647.0	607.0	581.3	550.0	518.6	490.0	467.2	450.0
15°	804.0	767.8	719.3	686.0	640.3	606.1	568.0	531.9	498.6	470.0	449.1
17.5°	859.2	814.5	757.4	717.4	664.1	623.2	579.4	537.6	501.4	469.1	445.3
20°	900.1	847.8	783.1	736.4	677.4	631.8	584.2	538.5	498.6	463.4	437.7
22.5°	927.7	867.7	797.3	746.0	684.1	634.6	583.3	535.7	494.8	458.6	431.0
25°	941.0	876.3	803.0	747.9	683.2	631.8	578.5	530.0	488.1	451.0	424.4
27.5°	939.1	870.6	795.4	737.4	671.7	618.5	564.2	515.7	474.8	437.7	410.1
30°	911.5	844.0	767.8	708.8	644.1	590.9	536.6	489.1	449.1	411.0	385.3
32.5°	868.7	799.2	725.0	659.4	604.2	551.9	500.5	451.9	413.9	376.8	352.0
35°	810.7	744.1	672.7	616.6	556.6	506.2	456.7	411.0	374.9	338.7	315.9
37.5°	743.1	679.4	613.7	555.7	503.3	456.7	410.1	369.2	333.0	300.7	278.8
40°	665.1	606.1	546.1	496.7	445.3	402.5	359.7	319.7	290.2	260.7	241.7
42.5°	580.4	528.1	473.8	431.0	384.4	346.3	305.4	276.9	248.3	221.7	206.5
45°	491.9	446.2	400.6	361.6	323.5	290.2	255.0	228.4	206.5	184.6	171.3
47.5°	404.4	365.4	328.3	296.9	263.6	236.0	211.2	187.4	166.5	148.4	138.0
50°	315.9	290.2	260.7	235.0	208.4	185.5	162.7	145.6	129.4	116.1	109.4
52.5°	246.4	222.6	198.9	177.9	158.9	139.9	124.6	110.4	99.0	90.4	85.6
55°	183.6	164.6	146.5	130.4	115.1	102.8	92.3	83.7	76.1	69.5	67.6
57.5°	131.3	117.0	104.7	92.3	82.8	75.2	68.5	62.8	58.0	53.3	52.3
60°	91.3	80.9	73.3	65.7	59.9	54.2	50.4	46.6	42.8	40.0	39.0
62.5°	60.9	55.2	49.5	45.7	42.8	38.1	36.2	33.3	31.4	28.5	27.6
65°	39.0	35.2	32.4	29.5	27.6	25.7	23.8	21.9	20.0	18.1	18.1
67.5°	23.8	20.9	20.0	18.1	16.2	15.2	14.3	12.4	11.4	11.4	10.5
70°	13.3	11.4	10.5	9.5	8.6	8.6	7.6	6.7	6.7	5.7	5.7
72.5°	6.7	6.7	5.7	5.7	4.8	4.8	3.8	3.8	3.8	2.9	2.9
75°	3.8	3.8	2.9	2.9	2.9	2.9	2.9	2.9	1.9	1.9	1.9
77.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	2.9	2.9	2.9	2.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	2.9	2.9	2.9	2.9	2.9	1.9	1.9	1.9	1.9	1.9	1.9
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: P170838

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LLWW1

**CANDELA DISTRIBUTION (continued):**

	82.5°	85°	87.5°	90°	112.5°	135°	157.5°	180°
0°	405.3	405.3	405.3	405.3	405.3	405.3	405.3	405.3
2.5°	414.8	405.3	403.4	403.4	363.5	339.7	321.6	316.8
5°	424.4	411.0	404.4	400.6	329.2	287.3	259.8	252.1
7.5°	429.1	410.1	399.6	391.1	295.9	241.7	212.2	203.6
10°	427.2	404.4	390.1	378.7	265.5	206.5	176.0	168.4
12.5°	423.4	397.7	379.6	365.4	239.8	178.9	151.3	143.7
15°	419.6	390.1	369.2	352.0	218.8	159.8	135.1	128.4
17.5°	412.0	381.5	357.8	339.7	205.5	152.2	131.3	127.5
20°	403.4	372.0	347.3	329.2	201.7	159.8	147.5	147.5
22.5°	397.7	365.4	341.6	323.5	208.4	177.9	173.2	176.0
25°	390.1	359.7	335.9	318.7	215.0	192.2	189.3	193.1
27.5°	377.7	347.3	324.5	307.3	211.2	190.3	187.4	189.3
30°	353.0	323.5	303.5	285.4	196.0	176.0	171.3	172.2
32.5°	321.6	293.1	274.0	256.9	174.1	155.1	150.3	150.3
35°	287.3	260.7	242.6	227.4	153.2	136.1	131.3	130.4
37.5°	253.1	228.4	213.1	198.9	134.2	118.9	114.2	113.2
40°	218.8	197.0	182.7	171.3	118.0	105.6	100.9	99.9
42.5°	186.5	167.5	155.1	145.6	102.8	93.2	89.4	88.5
45°	154.1	138.9	129.4	121.8	89.4	79.9	79.0	79.0
47.5°	124.6	112.3	105.6	100.9	76.1	68.5	67.6	68.5
50°	99.9	91.3	86.6	82.8	64.7	58.0	55.2	55.2
52.5°	79.0	73.3	70.4	67.6	53.3	46.6	42.8	41.9
55°	62.8	58.0	56.1	54.2	41.9	34.3	30.4	29.5
57.5°	49.5	45.7	43.8	41.9	31.4	23.8	20.0	19.0
60°	37.1	34.3	32.4	31.4	21.9	14.3	11.4	10.5
62.5°	26.6	24.7	22.8	21.9	13.3	7.6	4.8	3.8
65°	16.2	16.2	14.3	13.3	6.7	2.9	1.9	1.0
67.5°	9.5	8.6	7.6	7.6	2.9	1.9	1.0	1.0
70°	4.8	4.8	3.8	3.8	1.9	1.0	1.0	1.0
72.5°	2.9	2.9	2.9	1.9	1.9	1.0	1.0	1.0
75°	1.9	1.9	1.9	1.9	1.9	1.0	1.0	1.0
77.5°	1.9	1.9	1.9	1.9	1.9	1.0	1.0	0.0
80°	1.9	1.9	1.9	1.9	1.9	1.0	1.0	0.0
82.5°	1.9	1.9	1.9	1.9	1.9	1.0	1.0	1.0
85°	1.9	1.9	1.9	1.9	1.9	1.0	1.0	0.0
87.5°	1.9	1.9	1.9	1.9	1.9	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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















(END OF REPORT)