

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: PORTFOLIO

Report Number: P859268

Luminaire Tested: **LX4C60D010 EX4C609050 4LBSWNH**

Issue Date: 2/18/2022

Test Information

Test Method: LM-79-08
Report Number: P859268
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P251634)
Test Lab: INNOVATION CENTER
Issue Date: 2/18/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: PORTFOLIO
Catalog Number: LX4C60D010 EX4C609050 4LBSWNH
Description: 4 INCH 6000 LUMEN PORTFOLIO LED DOWNLIGHT WITH, 5000K, 90CRI LEDS
AND 4LCSW TRIM WITH H FINISH
Light Source: -
Ballast/Driver: -

Summary

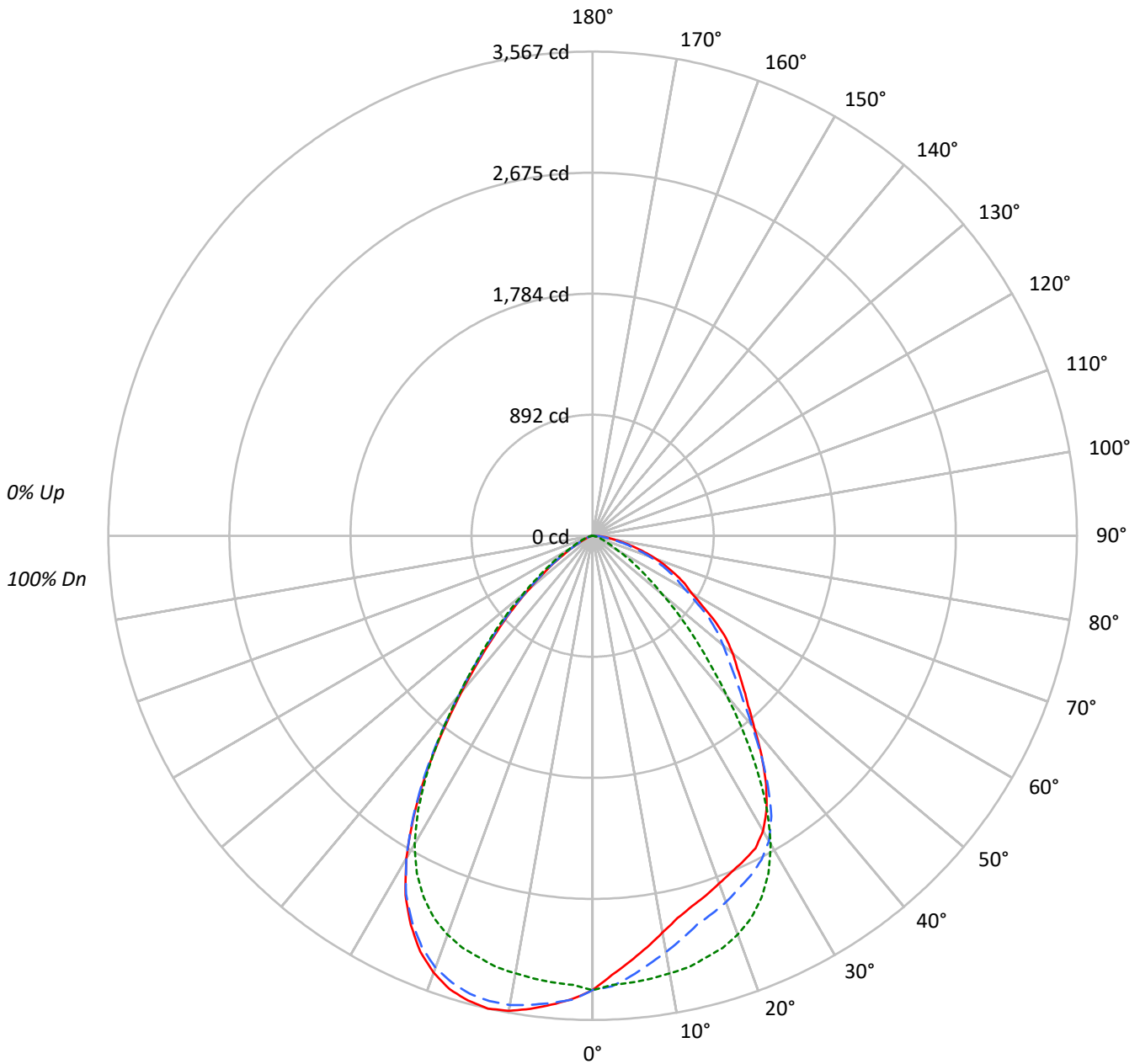
Lumens per Lamp: N/A
Luminaire Lumens: 5867.0 lumens
Efficiency: N/A
Efficacy: 81.5 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 1.17 / 1.15
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 72
Input Voltage (V):
Input Current (A_{in}): 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: P859268

CATALOG NUMBER: LX4C60D010 EX4C609050 4LBSWNH

Luminous Intensity Polar Plot





TEST NUMBER: P859268

CATALOG NUMBER: LX4C60D010 EX4C609050 4LBSWNH

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	100	100	100
1	111	108	104	101	109	106	103	100	101	99	97	98	96	94	94	93	91	89	89	89	89
2	104	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	81	79	79	79	79
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	72	70	70	70	70
4	90	80	72	67	88	78	72	66	76	70	66	74	69	65	72	68	64	62	62	62	62
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56	56	56	56
6	78	67	59	53	76	66	59	53	64	58	53	62	57	52	61	56	52	50	50	50	50
7	73	61	54	48	71	61	53	48	59	53	48	58	52	48	56	51	47	46	46	46	46
8	68	57	49	44	67	56	49	44	55	48	44	54	48	43	52	47	43	42	42	42	42
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38	38	38	38
10	61	49	42	37	59	48	42	37	47	41	37	47	41	37	46	40	37	35	35	35	35

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	411191	411191	411191
5°	388282	407446	427659
10°	370192	408390	443357
15°	359317	409251	450930
20°	356379	408831	447725
25°	357808	398745	429136
30°	356109	372011	389133
35°	333787	317635	320845
40°	297429	246270	240737
45°	272009	183592	172351
50°	257198	128609	116243
55°	236507	86832	72974
60°	206640	50837	40247
65°	195609	32587	22558
70°	178199	23276	13973
75°	147432	16376	10253
80°	115886	9197	6084
85°	103464	6202	0



TEST NUMBER: P859268

CATALOG NUMBER: LX4C60D010 EX4C609050 4LBSWNH

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	316.2	5.4
10°-20°	907.2	15.5
20°-30°	1344.9	22.9
30°-40°	1346.7	23.0
40°-50°	941.2	16.0
50°-60°	560.1	9.5
60°-70°	292.3	5.0
70°-80°	130.0	2.2
80°-90°	28.4	0.5
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°	2568.4	43.8
0°-40°	3915.1	66.7
0°-60°	5416.4	92.3
0°-90°	5867.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5867.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3347	3347	3347	3347	3347	
5°	3148	3256	3304	3455	3468	295
15°	2825	2968	3218	3494	3545	800
25°	2640	2760	2942	3144	3166	1216
35°	2226	2251	2118	2157	2139	1380
45°	1566	1488	1057	1022	992	1216
55°	1104	1035	405	354	341	980
65°	673	617	112	82	78	666
75°	311	272	34	22	22	336
85°	73	56	4	4	0	82
90°	0	0	0	0	0	



TEST NUMBER: P859268

CATALOG NUMBER: LX4C60D010 EX4C609050 4LBSWNH

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0
2.5°	3239.2	3278.1	3239.2	3252.2	3303.9	3256.4	3282.3	3282.3	3269.4	3299.5	3321.2
5°	3148.5	3187.4	3148.5	3165.8	3221.9	3174.4	3204.7	3196.1	3200.4	3226.3	3256.4
7.5°	3058.1	3088.2	3053.7	3075.3	3127.1	3088.2	3114.0	3114.0	3118.4	3157.2	3183.2
10°	2967.5	2993.3	2967.5	2984.7	3040.8	3006.3	3023.6	3027.8	3040.8	3075.3	3114.0
12.5°	2885.5	2907.1	2881.2	2907.1	2954.4	2919.9	2941.6	2945.8	2958.8	2997.7	3040.8
15°	2825.1	2846.7	2820.9	2842.3	2885.5	2859.6	2876.8	2885.5	2894.1	2928.6	2967.5
17.5°	2777.8	2795.0	2773.4	2799.2	2833.7	2803.6	2829.5	2829.5	2842.3	2876.8	2919.9
20°	2725.9	2743.1	2725.9	2747.5	2786.4	2760.5	2782.0	2782.0	2795.0	2833.7	2872.6
22.5°	2678.5	2687.1	2678.5	2695.8	2734.5	2713.0	2725.9	2730.2	2743.1	2777.8	2812.2
25°	2639.6	2656.9	2648.2	2665.5	2691.4	2669.9	2682.7	2687.1	2700.0	2730.2	2760.5
27.5°	2596.5	2605.1	2596.5	2618.1	2639.6	2622.4	2635.4	2631.0	2639.6	2665.5	2691.4
30°	2510.3	2518.9	2518.9	2531.8	2549.2	2540.5	2553.4	2540.5	2549.2	2570.6	2596.5
32.5°	2385.2	2389.6	2393.8	2406.8	2419.7	2406.8	2415.4	2415.4	2415.4	2432.7	2449.9
35°	2225.6	2234.2	2229.9	2238.6	2251.4	2247.2	2247.2	2242.8	2234.2	2242.8	2251.4
37.5°	2044.5	2031.5	2031.5	2044.5	2053.1	2035.8	2044.5	2035.8	2035.8	2040.1	2040.1
40°	1854.6	1841.7	1854.6	1859.0	1863.2	1854.6	1850.4	1841.7	1828.7	1833.1	1824.5
42.5°	1695.2	1686.4	1690.8	1690.8	1695.2	1686.4	1690.8	1673.5	1660.5	1651.9	1639.0
45°	1565.6	1552.8	1565.6	1557.0	1557.0	1552.8	1548.4	1539.8	1522.5	1509.7	1488.0
47.5°	1444.9	1444.9	1449.2	1449.2	1449.2	1440.5	1440.5	1423.3	1406.0	1388.8	1358.7
50°	1345.7	1337.1	1354.3	1354.3	1341.5	1337.1	1341.5	1319.8	1307.0	1285.3	1255.1
52.5°	1237.8	1237.8	1242.2	1242.2	1237.8	1229.2	1233.6	1216.3	1203.3	1181.8	1151.6
55°	1104.2	1095.6	1108.5	1108.5	1104.2	1099.8	1104.2	1091.2	1078.4	1061.1	1035.1
57.5°	953.3	948.9	957.5	961.9	953.3	953.3	957.5	944.6	940.2	923.0	897.1
60°	841.0	836.8	845.4	849.8	841.0	841.0	841.0	823.7	815.1	797.9	780.6
62.5°	763.4	759.2	767.8	763.4	759.2	754.8	759.2	741.9	733.3	716.0	698.8
65°	672.9	677.2	681.5	681.5	677.2	672.9	672.9	664.3	655.7	638.4	616.8
67.5°	586.5	586.5	590.9	595.1	590.9	590.9	590.9	577.9	569.3	556.4	530.6
70°	496.1	491.7	504.7	504.7	496.1	500.3	496.1	491.7	483.1	465.8	444.3
72.5°	401.0	401.0	405.4	405.4	401.0	401.0	401.0	396.8	383.8	375.2	353.7
75°	310.6	310.6	314.8	319.2	310.6	310.6	314.8	306.2	297.6	284.7	271.7
77.5°	233.0	228.6	233.0	233.0	228.6	228.6	228.6	224.4	220.0	206.9	194.1
80°	163.8	159.6	163.8	163.8	163.8	159.6	159.6	155.2	155.2	146.6	133.7
82.5°	112.1	107.9	112.1	112.1	112.1	107.9	107.9	107.9	103.5	99.2	90.6
85°	73.4	69.0	69.0	73.4	69.0	69.0	69.0	69.0	64.8	60.4	56.1
87.5°	34.5	34.5	34.5	34.5	34.5	34.5	34.5	30.3	30.3	30.3	25.9
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: P859268

CATALOG NUMBER: LX4C60D010 EX4C609050 4LBSWNH

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0
2.5°	3303.9	3295.3	3321.2	3312.5	3316.8	3295.3	3329.8	3312.5	3334.0	3312.5	3355.7
5°	3247.8	3239.2	3278.1	3273.7	3278.1	3260.8	3299.5	3295.3	3321.2	3303.9	3351.3
7.5°	3187.4	3178.8	3221.9	3226.3	3234.9	3217.7	3269.4	3269.4	3295.3	3290.9	3342.6
10°	3118.4	3122.7	3165.8	3174.4	3191.8	3183.2	3230.5	3243.6	3278.1	3273.7	3338.4
12.5°	3053.7	3053.7	3109.8	3127.1	3139.9	3135.7	3191.8	3209.1	3247.8	3256.4	3316.8
15°	2989.1	2993.3	3045.1	3070.9	3088.2	3084.0	3144.3	3165.8	3213.3	3217.7	3290.9
17.5°	2937.2	2933.0	2989.1	3010.6	3036.4	3032.2	3096.8	3122.7	3170.2	3183.2	3252.2
20°	2894.1	2889.9	2941.6	2967.5	2984.7	2980.5	3045.1	3075.3	3118.4	3127.1	3196.1
22.5°	2842.3	2833.7	2885.5	2907.1	2924.3	2919.9	2976.1	2997.7	3040.8	3049.5	3114.0
25°	2782.0	2773.4	2820.9	2833.7	2846.7	2838.1	2885.5	2898.5	2933.0	2941.6	3006.3
27.5°	2713.0	2691.4	2730.2	2730.2	2738.9	2725.9	2760.5	2773.4	2803.6	2803.6	2864.0
30°	2605.1	2575.0	2596.5	2592.3	2596.5	2579.3	2600.9	2605.1	2626.8	2622.4	2665.5
32.5°	2454.1	2411.0	2424.0	2411.0	2398.2	2372.3	2398.2	2389.6	2406.8	2389.6	2428.3
35°	2247.2	2204.1	2199.7	2182.4	2169.6	2147.9	2147.9	2126.5	2130.7	2117.9	2143.7
37.5°	2022.8	1966.9	1958.2	1923.8	1902.1	1876.2	1876.2	1859.0	1837.4	1828.7	1850.4
40°	1802.9	1742.5	1721.0	1664.9	1643.3	1617.4	1600.1	1578.7	1570.0	1535.6	1552.8
42.5°	1613.2	1548.4	1501.1	1440.5	1419.1	1380.2	1354.3	1328.4	1315.6	1276.7	1293.9
45°	1453.6	1375.9	1324.2	1246.4	1216.3	1173.2	1134.3	1104.2	1074.0	1056.7	1048.1
47.5°	1319.8	1237.8	1168.8	1082.6	1035.1	996.4	944.6	914.4	875.6	854.0	841.0
50°	1207.7	1117.1	1039.5	940.2	892.9	849.8	789.2	741.9	707.4	672.9	664.3
52.5°	1108.5	1013.6	927.4	815.1	759.2	707.4	642.7	590.9	560.7	521.9	517.5
55°	992.0	910.1	815.1	698.8	642.7	590.9	521.9	470.2	431.3	405.4	396.8
57.5°	867.0	789.2	698.8	582.3	526.2	470.2	405.4	357.9	323.4	302.0	297.6
60°	750.5	677.2	590.9	474.4	418.3	371.0	302.0	254.5	224.4	206.9	198.3
62.5°	664.3	595.1	513.3	405.4	353.7	306.2	241.6	198.3	172.5	155.2	146.6
65°	582.3	513.3	439.9	340.7	297.6	254.5	194.1	155.2	129.3	112.1	103.5
67.5°	496.1	435.7	366.6	284.7	241.6	206.9	155.2	120.7	99.2	86.2	77.6
70°	409.7	353.7	297.6	228.6	198.3	163.8	120.7	94.9	73.4	64.8	56.1
72.5°	323.4	280.3	233.0	176.9	151.0	129.3	94.9	69.0	56.1	47.5	38.9
75°	241.6	211.3	172.5	133.7	112.1	94.9	69.0	51.7	43.1	34.5	30.3
77.5°	172.5	146.6	120.7	90.6	82.0	69.0	47.5	38.9	30.3	21.6	17.2
80°	116.5	103.5	82.0	64.8	51.7	47.5	34.5	25.9	17.2	13.0	13.0
82.5°	77.6	64.8	51.7	38.9	34.5	30.3	21.6	17.2	13.0	8.6	8.6
85°	47.5	38.9	30.3	21.6	21.6	17.2	13.0	8.6	4.4	4.4	4.4
87.5°	21.6	17.2	13.0	8.6	8.6	4.4	4.4	4.4	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



TEST NUMBER: P859268

CATALOG NUMBER: LX4C60D010 EX4C609050 4LBSWNH

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0
2.5°	3390.2	3364.3	3347.0	3368.5	3377.1	3364.3	3377.1	3398.8	3420.4	3424.6	3364.3
5°	3394.5	3368.5	3359.9	3385.8	3390.2	3385.8	3398.8	3429.0	3454.9	3463.5	3403.2
7.5°	3394.5	3377.1	3372.9	3403.2	3407.4	3403.2	3424.6	3459.1	3485.0	3502.2	3441.9
10°	3385.8	3377.1	3381.5	3407.4	3416.0	3416.0	3446.3	3485.0	3510.9	3528.1	3467.8
12.5°	3372.9	3372.9	3372.9	3403.2	3411.8	3416.0	3441.9	3493.6	3510.9	3536.7	3476.4
15°	3351.3	3351.3	3351.3	3381.5	3394.5	3394.5	3424.6	3472.2	3493.6	3519.5	3459.1
17.5°	3312.5	3312.5	3316.8	3342.6	3355.7	3355.7	3385.8	3437.7	3450.5	3480.8	3420.4
20°	3256.4	3256.4	3260.8	3286.7	3299.5	3290.9	3329.8	3372.9	3385.8	3411.8	3351.3
22.5°	3174.4	3174.4	3174.4	3200.4	3209.1	3204.7	3243.6	3282.3	3282.3	3316.8	3252.2
25°	3053.7	3062.3	3053.7	3079.6	3088.2	3084.0	3118.4	3152.9	3144.3	3183.2	3118.4
27.5°	2907.1	2902.7	2902.7	2924.3	2924.3	2919.9	2945.8	2984.7	2976.1	3002.0	2941.6
30°	2704.4	2717.2	2695.8	2725.9	2713.0	2704.4	2721.6	2756.1	2743.1	2764.7	2717.2
32.5°	2471.4	2454.1	2454.1	2454.1	2462.8	2441.3	2458.5	2475.8	2462.8	2484.4	2432.7
35°	2165.2	2169.6	2156.6	2161.0	2165.2	2139.3	2156.6	2173.8	2156.6	2169.6	2122.1
37.5°	1859.0	1863.2	1833.1	1850.4	1833.1	1824.5	1841.7	1850.4	1833.1	1846.0	1794.2
40°	1552.8	1544.2	1539.8	1539.8	1544.2	1522.5	1535.6	1548.4	1535.6	1544.2	1496.7
42.5°	1285.3	1281.1	1272.5	1276.7	1263.7	1259.5	1263.7	1276.7	1263.7	1272.5	1237.8
45°	1052.3	1043.7	1030.9	1035.1	1035.1	1013.6	1026.5	1035.1	1022.2	1026.5	996.4
47.5°	836.8	823.7	823.7	819.5	819.5	810.9	823.7	819.5	806.5	815.1	785.0
50°	651.3	642.7	642.7	642.7	642.7	629.6	634.0	642.7	629.6	629.6	612.4
52.5°	508.9	496.1	487.4	487.4	487.4	483.1	483.1	487.4	474.4	474.4	470.2
55°	383.8	379.6	366.6	366.6	366.6	353.7	357.9	357.9	353.7	353.7	340.7
57.5°	284.7	271.7	263.1	263.1	254.5	254.5	250.2	254.5	245.8	245.8	237.2
60°	189.7	181.1	176.9	172.5	172.5	168.2	172.5	168.2	168.2	163.8	159.6
62.5°	138.0	129.3	120.7	120.7	120.7	116.5	116.5	116.5	116.5	116.5	112.1
65°	99.2	90.6	90.6	86.2	86.2	82.0	82.0	82.0	82.0	82.0	77.6
67.5°	69.0	64.8	60.4	60.4	60.4	60.4	60.4	60.4	56.1	56.1	56.1
70°	51.7	47.5	43.1	43.1	43.1	43.1	43.1	38.9	43.1	43.1	38.9
72.5°	34.5	34.5	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3
75°	25.9	25.9	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
77.5°	17.2	17.2	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
80°	13.0	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
82.5°	8.6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
85°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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



TEST NUMBER: P859268

CATALOG NUMBER: LX4C60D010 EX4C609050 4LBSWNH

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0	3347.0
2.5°	3429.0	3424.6	3416.0	3429.0	3394.5	3381.5	3377.1	3416.0
5°	3476.4	3467.8	3467.8	3480.8	3441.9	3433.3	3424.6	3467.8
7.5°	3519.5	3510.9	3510.9	3523.9	3489.4	3480.8	3472.2	3515.3
10°	3545.4	3545.4	3545.4	3554.0	3523.9	3515.3	3510.9	3554.0
12.5°	3558.4	3558.4	3554.0	3571.2	3532.5	3532.5	3523.9	3567.0
15°	3541.1	3541.1	3541.1	3554.0	3519.5	3510.9	3510.9	3545.4
17.5°	3498.0	3498.0	3493.6	3506.6	3467.8	3467.8	3463.5	3502.2
20°	3433.3	3433.3	3424.6	3441.9	3403.2	3390.2	3385.8	3424.6
22.5°	3329.8	3325.4	3321.2	3329.8	3295.3	3286.7	3282.3	3316.8
25°	3196.1	3191.8	3183.2	3191.8	3152.9	3139.9	3139.9	3165.8
27.5°	3006.3	3006.3	2993.3	3006.3	2963.1	2958.8	2954.4	2984.7
30°	2773.4	2756.1	2747.5	2764.7	2721.6	2721.6	2713.0	2743.1
32.5°	2484.4	2467.2	2462.8	2471.4	2432.7	2419.7	2436.9	2454.1
35°	2152.3	2156.6	2139.3	2139.3	2104.8	2109.1	2113.5	2139.3
37.5°	1833.1	1824.5	1820.1	1824.5	1798.6	1790.0	1781.4	1807.3
40°	1535.6	1513.9	1509.7	1509.7	1488.0	1483.8	1488.0	1501.1
42.5°	1255.1	1250.8	1233.6	1242.2	1220.6	1229.2	1225.0	1225.0
45°	1013.6	1017.8	1000.6	1013.6	996.4	983.3	983.3	992.0
47.5°	802.3	802.3	797.9	797.9	785.0	789.2	780.6	793.6
50°	621.0	621.0	612.4	616.8	608.2	608.2	603.8	608.2
52.5°	474.4	470.2	470.2	465.8	457.2	461.6	465.8	457.2
55°	345.1	349.3	340.7	345.1	336.5	340.7	336.5	340.7
57.5°	237.2	241.6	233.0	241.6	233.0	237.2	233.0	233.0
60°	163.8	163.8	159.6	163.8	159.6	159.6	155.2	163.8
62.5°	112.1	112.1	112.1	112.1	112.1	107.9	112.1	112.1
65°	82.0	77.6	77.6	77.6	77.6	77.6	77.6	77.6
67.5°	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
70°	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9
72.5°	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3
75°	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
77.5°	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
80°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
82.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
85°	4.4	4.4	4.4	0.0	4.4	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By 670246072 / DESKTOP-50001EG





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













(END OF REPORT)