

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: FAIL-SAFE

Report Number: P646333

Luminaire Tested: **FLDSQ4C60D010 FEU4C609030 F4LC-SQLWW-LI-D2W**

Issue Date: 12/13/2022

Test Information

Test Method: LM-79-08
Report Number: P646333
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P219529)
Test Lab: INNOVATION CENTER
Issue Date: 12/13/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FLDSQ4C60D010 FEU4C609030 F4LC-SQLWW-LI-D2W
Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH, DIM TO WARM
Light Source: -
Ballast/Driver: -

Summary

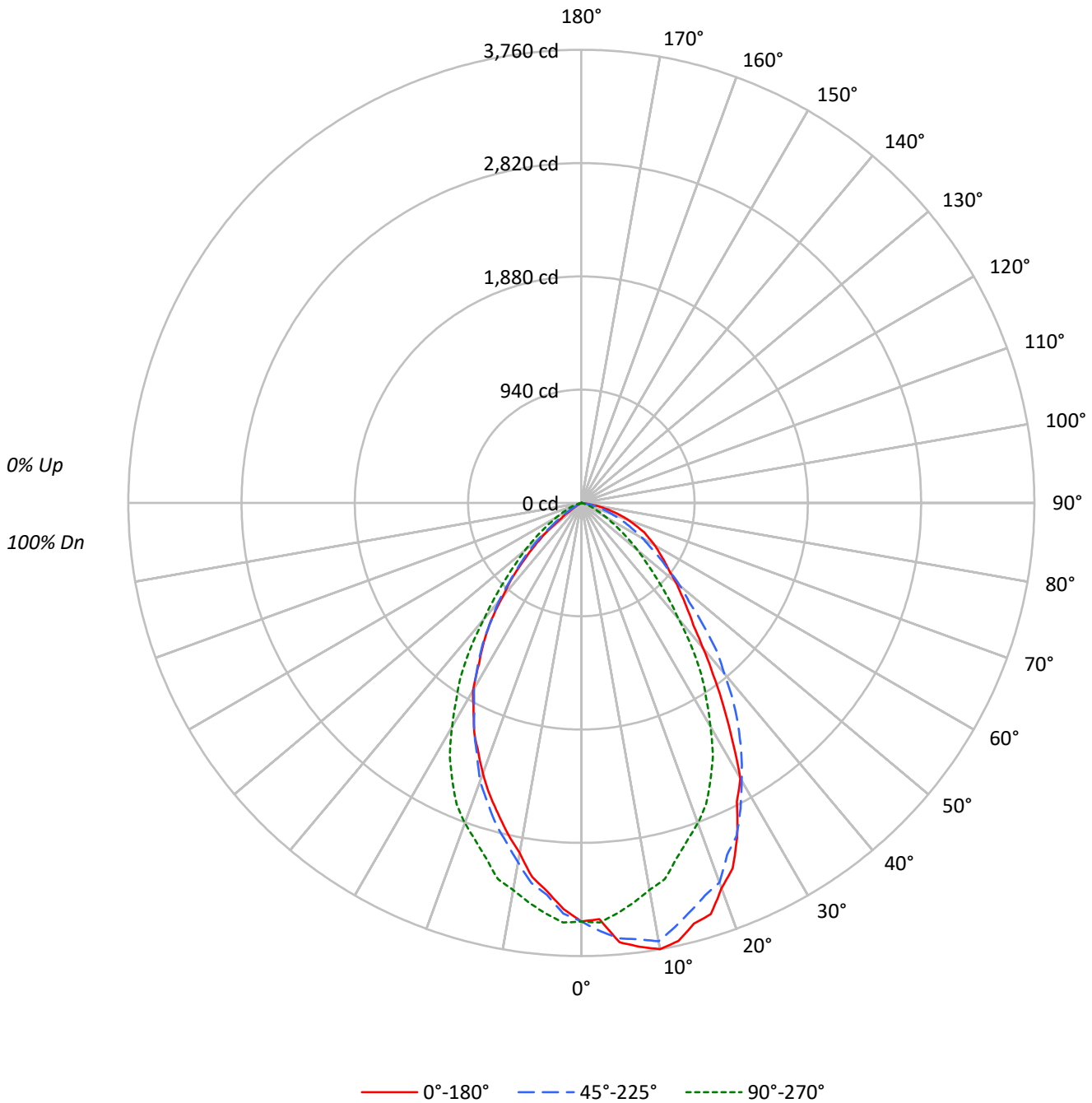
Lumens per Lamp: N/A
Luminaire Lumens: 4977.0 lumens
Efficiency: N/A
Efficacy: 69.1 lumens/watt
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 72
Input Voltage (V):
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	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	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	335019	335019	335019
5°	354450	331069	313324
10°	368346	319396	288788
15°	360972	304832	266574
20°	349260	290260	245378
25°	325790	269917	223840
30°	294093	238875	200392
35°	242249	204497	166250
40°	197703	157850	127947
45°	169860	119877	92026
50°	153743	91252	58123
55°	141476	65826	21011
60°	135779	44983	3203
65°	131165	30434	959
70°	117444	21130	1185
75°	96258	10886	0
80°	60178	4612	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	325.3	6.5
10°-20°	876.4	17.6
20°-30°	1170.3	23.5
30°-40°	1111.0	22.3
40°-50°	768.0	15.4
50°-60°	424.3	8.5
60°-70°	210.7	4.2
70°-80°	83.0	1.7
80°-90°	7.9	0.2
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°	2372.1	47.7
0°-40°	3483.1	70.0
0°-60°	4675.4	93.9
0°-90°	4977.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4977.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3472	3472	3472	3472	3472	
5°	3660	3626	3418	3264	3235	350
15°	3614	3506	3052	2752	2669	1022
25°	3060	3048	2535	2102	2102	1395
35°	2057	2273	1736	1428	1411	1288
45°	1245	1428	878	720	674	971
55°	841	791	391	200	125	757
65°	574	416	133	4	4	558
75°	258	158	29	0	0	275
85°	0	4	0	0	0	24
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°	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1
2.5°	3455.4	3551.2	3559.5	3551.2	3563.7	3559.5	3580.4	3559.5	3584.6	3547.1	3555.4
5°	3659.5	3622.0	3701.1	3659.5	3659.5	3655.4	3642.8	3638.6	3655.4	3601.3	3626.2
7.5°	3713.6	3767.8	3838.6	3751.1	3755.2	3755.2	3730.3	3721.9	3721.9	3622.0	3651.2
10°	3759.5	3726.0	3763.5	3730.3	3759.5	3755.2	3771.9	3717.7	3755.2	3697.0	3692.8
12.5°	3721.9	3709.4	3759.5	3705.3	3688.7	3692.8	3672.0	3659.5	3672.0	3605.3	3601.3
15°	3613.6	3626.2	3701.1	3642.8	3634.5	3626.2	3601.3	3559.5	3592.9	3501.3	3505.5
17.5°	3576.3	3555.4	3568.0	3517.9	3530.5	3522.1	3517.9	3480.6	3472.1	3413.8	3413.8
20°	3401.4	3447.1	3447.1	3413.8	3413.8	3409.8	3355.6	3388.9	3351.4	3334.7	3351.4
22.5°	3280.6	3284.8	3284.8	3255.6	3259.9	3243.2	3214.0	3193.2	3214.0	3193.2	3159.9
25°	3060.1	3068.4	3118.3	3064.1	3055.8	3072.5	3047.5	3034.9	3030.9	2981.0	3047.5
27.5°	2793.5	2876.7	2872.6	2851.8	2876.7	2843.5	2831.1	2835.1	2847.7	2843.5	2860.1
30°	2639.6	2652.0	2664.5	2647.9	2652.0	2639.6	2639.6	2643.6	2676.9	2664.5	2660.3
32.5°	2327.2	2368.8	2402.2	2402.2	2406.3	2418.9	2414.6	2502.1	2522.9	2481.4	2473.0
35°	2056.6	2085.8	2114.9	2119.1	2173.2	2177.3	2181.6	2206.5	2264.7	2277.3	2273.1
37.5°	1798.6	1827.6	1835.9	1873.5	1902.6	1931.7	1965.1	1998.4	2048.3	2089.9	2069.2
40°	1569.6	1582.0	1602.9	1619.5	1677.7	1677.7	1694.4	1761.1	1815.2	1848.5	1844.3
42.5°	1378.1	1382.2	1398.8	1428.0	1482.2	1469.6	1482.2	1528.0	1606.9	1611.2	1657.0
45°	1244.8	1240.6	1253.2	1257.2	1290.7	1307.3	1315.6	1348.9	1415.4	1423.8	1428.0
47.5°	1124.1	1119.9	1140.8	1149.1	1161.5	1178.1	1178.1	1182.4	1207.3	1228.2	1211.6
50°	1024.2	1024.2	1024.2	1032.5	1053.3	1049.1	1053.3	1070.0	1082.4	1074.1	1070.0
52.5°	915.8	932.5	945.0	949.3	953.4	953.4	957.6	949.3	945.0	932.5	907.5
55°	841.0	857.6	857.6	857.6	857.6	874.3	853.5	857.6	857.6	824.3	791.1
57.5°	766.1	782.8	795.1	778.5	795.1	778.5	770.2	766.1	757.6	724.4	674.4
60°	703.6	712.0	707.7	703.6	712.0	699.4	691.1	674.4	666.1	620.3	587.0
62.5°	632.9	636.9	641.2	632.9	624.5	620.3	603.7	578.7	562.1	524.6	495.4
65°	574.5	562.1	557.8	553.7	545.4	532.9	520.5	491.3	478.7	445.4	416.3
67.5°	487.0	483.0	491.3	478.7	458.0	458.0	445.4	420.5	391.3	370.6	341.4
70°	416.3	412.2	403.9	391.3	387.2	370.6	370.6	341.4	333.1	295.6	270.6
72.5°	341.4	341.4	328.8	316.4	303.9	295.6	291.5	270.6	258.2	237.3	216.4
75°	258.2	258.2	254.0	241.4	233.1	224.8	220.7	204.0	191.5	170.8	158.2
77.5°	183.2	183.2	166.5	158.2	162.3	154.0	145.7	141.6	137.3	124.9	108.3
80°	108.3	104.1	91.7	95.7	91.7	91.7	87.4	83.2	74.9	66.5	58.2
82.5°	29.2	33.3	33.3	33.3	37.5	29.2	29.2	29.2	33.3	33.3	20.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	4.2	4.2
87.5°	4.2	8.3	16.6	16.6	16.6	16.6	16.6	12.6	12.6	12.6	8.3
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°	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1
2.5°	3513.8	3509.6	3513.8	3484.6	3551.2	3501.3	3492.9	3484.6	3513.8	3484.6	3443.0
5°	3588.7	3547.1	3534.5	3522.1	3559.5	3501.3	3488.9	3492.9	3472.1	3418.1	3422.2
7.5°	3613.6	3576.3	3538.8	3459.7	3492.9	3480.6	3447.1	3422.2	3388.9	3343.1	3334.7
10°	3622.0	3580.4	3526.2	3501.3	3451.4	3434.7	3422.2	3380.6	3339.0	3259.9	3239.0
12.5°	3597.0	3547.1	3480.6	3459.7	3422.2	3368.0	3339.0	3297.2	3259.9	3197.4	3151.6
15°	3488.9	3447.1	3426.4	3355.6	3339.0	3305.5	3247.3	3189.1	3134.9	3051.6	3026.6
17.5°	3363.9	3347.3	3326.4	3272.3	3268.2	3234.9	3180.8	3130.7	3060.1	2930.9	2889.3
20°	3234.9	3234.9	3168.2	3147.5	3189.1	3122.4	3080.8	3034.9	2889.3	2826.8	2751.9
22.5°	3139.2	3093.3	3055.8	3022.5	3026.6	2985.0	2926.8	2835.1	2781.0	2706.1	2618.7
25°	2951.8	2968.4	2885.2	2872.6	2885.2	2789.3	2760.3	2685.2	2606.1	2535.3	2468.8
27.5°	2835.1	2789.3	2735.3	2689.5	2689.5	2652.0	2568.8	2552.1	2431.3	2364.7	2281.4
30°	2660.3	2627.0	2581.2	2514.6	2506.3	2477.1	2410.6	2368.8	2244.0	2144.0	2098.2
32.5°	2439.6	2427.2	2389.7	2314.8	2289.9	2256.4	2173.2	2102.5	2044.2	1931.7	1877.7
35°	2281.4	2235.7	2156.6	2094.1	2073.3	2015.0	1948.3	1898.4	1835.9	1736.1	1665.3
37.5°	2044.2	1998.4	1923.4	1848.5	1848.5	1790.3	1698.6	1648.7	1561.3	1502.9	1444.6
40°	1835.9	1777.7	1702.8	1615.4	1602.9	1519.5	1482.2	1398.8	1344.7	1253.2	1244.8
42.5°	1602.9	1548.7	1482.2	1415.4	1365.5	1323.9	1228.2	1165.7	1107.5	1061.7	1049.1
45°	1390.5	1319.7	1261.5	1178.1	1128.2	1078.3	1015.8	974.2	928.4	878.5	849.3
47.5°	1207.3	1149.1	1065.7	990.9	941.0	915.8	845.1	799.4	761.9	728.6	707.7
50°	1020.1	949.3	903.5	820.1	811.8	753.6	695.3	657.8	636.9	607.9	578.7
52.5°	878.5	811.8	749.3	687.0	653.6	632.9	578.7	541.2	512.2	491.3	474.6
55°	741.0	682.8	632.9	570.4	549.5	520.5	458.0	449.7	420.5	391.3	370.6
57.5°	636.9	582.8	524.6	483.0	445.4	424.7	374.7	341.4	324.7	299.8	278.9
60°	541.2	483.0	437.1	387.2	370.6	341.4	303.9	274.8	254.0	233.1	212.4
62.5°	453.8	403.9	353.9	312.2	287.2	270.6	241.4	216.4	195.7	179.1	162.3
65°	374.7	328.8	287.2	245.6	233.1	212.4	191.5	170.8	154.0	133.3	116.6
67.5°	308.1	266.5	224.8	195.7	183.2	174.9	149.9	129.0	116.6	104.1	87.4
70°	241.4	212.4	179.1	154.0	141.6	129.0	112.4	100.0	83.2	74.9	62.5
72.5°	187.4	162.3	133.3	112.4	104.1	95.7	79.1	66.5	58.2	49.9	41.6
75°	133.3	112.4	95.7	74.9	70.8	66.5	54.2	45.8	37.5	29.2	25.0
77.5°	91.7	74.9	58.2	49.9	45.8	37.5	33.3	25.0	20.9	16.6	12.6
80°	49.9	37.5	29.2	25.0	20.9	16.6	16.6	12.6	8.3	8.3	4.2
82.5°	16.6	12.6	8.3	4.2	4.2	4.2	4.2	4.2	4.2	0.0	4.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	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°	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1
2.5°	3468.0	3422.2	3434.7	3434.7	3426.4	3426.4	3418.1	3405.5	3409.8	3384.6	3330.7
5°	3430.5	3372.2	3363.9	3372.2	3339.0	3330.7	3314.0	3339.0	3263.9	3293.1	3259.9
7.5°	3322.3	3268.2	3255.6	3284.8	3243.2	3218.1	3214.0	3247.3	3180.8	3147.5	3110.0
10°	3201.5	3180.8	3143.2	3122.4	3110.0	3114.0	3080.8	3039.2	3026.6	3018.3	2985.0
12.5°	3093.3	3047.5	3014.2	2989.3	2981.0	2981.0	2926.8	2918.5	2881.0	2872.6	2822.7
15°	2964.2	2910.2	2889.3	2856.0	2826.8	2843.5	2781.0	2764.3	2751.9	2697.8	2706.1
17.5°	2851.8	2793.5	2743.6	2722.8	2697.8	2672.8	2614.4	2627.0	2597.8	2597.8	2522.9
20°	2706.1	2643.6	2606.1	2564.5	2564.5	2531.3	2489.7	2493.8	2456.2	2418.9	2352.2
22.5°	2552.1	2485.4	2439.6	2423.0	2381.4	2373.1	2323.1	2310.6	2260.7	2264.7	2206.5
25°	2389.7	2323.1	2260.7	2264.7	2227.4	2210.8	2181.6	2123.3	2102.5	2077.5	2060.9
27.5°	2198.2	2152.4	2098.2	2094.1	2023.3	2027.4	1990.1	1973.4	1923.4	1935.9	1898.4
30°	2023.3	1956.8	1906.7	1894.3	1865.1	1856.8	1798.6	1773.5	1781.9	1748.5	1727.8
32.5°	1844.3	1744.4	1723.6	1698.6	1682.0	1661.1	1619.5	1636.1	1598.6	1606.9	1573.7
35°	1606.9	1565.3	1511.2	1511.2	1494.6	1477.9	1448.9	1465.5	1428.0	1411.4	1378.1
37.5°	1407.1	1369.8	1315.6	1332.3	1303.1	1278.1	1253.2	1257.2	1224.0	1219.9	1186.4
40°	1190.7	1169.8	1132.5	1132.5	1111.6	1111.6	1099.0	1086.6	1065.7	1040.8	1003.3
42.5°	986.6	970.0	953.4	957.6	928.4	953.4	920.1	941.0	874.3	870.2	845.1
45°	836.7	799.4	803.5	786.8	770.2	778.5	749.3	757.6	720.3	712.0	687.0
47.5°	678.7	666.1	641.2	632.9	632.9	620.3	607.9	603.7	587.0	566.1	532.9
50°	557.8	512.2	503.7	491.3	483.0	483.0	466.3	441.4	445.4	424.7	391.3
52.5°	437.1	399.6	383.0	378.9	362.3	353.9	333.1	316.4	303.9	295.6	274.8
55°	337.1	303.9	283.2	283.2	258.2	258.2	229.0	216.4	199.8	183.2	170.8
57.5°	254.0	237.3	216.4	199.8	191.5	170.8	154.0	133.3	120.7	95.7	79.1
60°	191.5	174.9	154.0	141.6	133.3	112.4	91.7	74.9	45.8	37.5	33.3
62.5°	141.6	124.9	104.1	95.7	87.4	70.8	49.9	25.0	12.6	12.6	12.6
65°	104.1	83.2	66.5	58.2	49.9	37.5	16.6	8.3	4.2	4.2	4.2
67.5°	70.8	54.2	37.5	33.3	25.0	12.6	4.2	4.2	4.2	4.2	4.2
70°	45.8	33.3	16.6	12.6	8.3	4.2	4.2	4.2	4.2	4.2	4.2
72.5°	29.2	16.6	8.3	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	16.6	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	8.3	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	4.2	4.2
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: P646333
 CATALOG NUMBER: FLDSQ4C60D010 FEU4C609030 F4LC-SQLWW-LI-D2W

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1	3472.1
2.5°	3388.9	3359.7	3376.3	3339.0	3355.6	3384.6	3363.9	3372.2
5°	3272.3	3255.6	3234.9	3180.8	3222.4	3255.6	3239.0	3234.9
7.5°	3147.5	3089.1	3118.3	3101.7	3093.3	3126.6	3089.1	3130.7
10°	3018.3	2976.7	2972.6	2943.4	2943.4	2968.4	2972.6	2947.5
12.5°	2826.8	2806.1	2806.1	2801.9	2797.6	2822.7	2826.8	2814.4
15°	2689.5	2681.2	2660.3	2656.2	2631.2	2668.6	2672.8	2668.6
17.5°	2522.9	2527.0	2506.3	2506.3	2522.9	2535.3	2502.1	2535.3
20°	2410.6	2389.7	2381.4	2343.9	2364.7	2385.6	2385.6	2389.7
22.5°	2248.1	2214.8	2227.4	2206.5	2194.0	2223.2	2223.2	2235.7
25°	2064.9	2064.9	2073.3	2060.9	2069.2	2085.8	2073.3	2102.5
27.5°	1890.1	1906.7	1906.7	1890.1	1898.4	1948.3	1969.2	1935.9
30°	1727.8	1731.9	1744.4	1736.1	1761.1	1777.7	1773.5	1798.6
32.5°	1544.6	1565.3	1573.7	1561.3	1569.6	1606.9	1586.2	1582.0
35°	1403.1	1365.5	1361.5	1365.5	1382.2	1390.5	1382.2	1411.4
37.5°	1199.0	1186.4	1169.8	1174.0	1186.4	1203.2	1211.6	1232.3
40°	1003.3	986.6	986.6	982.6	970.0	1015.8	1015.8	1015.8
42.5°	832.7	828.4	807.7	807.7	824.3	836.7	828.4	857.6
45°	682.8	666.1	653.6	653.6	666.1	666.1	678.7	674.4
47.5°	537.1	520.5	524.6	512.2	524.6	541.2	520.5	524.6
50°	403.9	403.9	395.5	403.9	399.6	403.9	395.5	387.2
52.5°	274.8	312.2	316.4	299.8	262.3	229.0	208.1	224.8
55°	158.2	141.6	141.6	137.3	129.0	124.9	112.4	124.9
57.5°	79.1	70.8	70.8	70.8	66.5	62.5	54.2	54.2
60°	33.3	29.2	29.2	25.0	20.9	16.6	12.6	16.6
62.5°	12.6	8.3	8.3	8.3	8.3	8.3	8.3	8.3
65°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
67.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
70°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	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

(END OF REPORT)