

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: P#

Luminaire Tested: **FLDSQ4C50D010 FEU4C509040 F4LC-SQLWW-LI**

Issue Date: 12/13/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P#  
 Test Lab: INNOVATION CENTER  
 Issue Date: 12/13/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: FAIL-SAFE  
 Catalog Number: FLDSQ4C50D010 FEU4C509040 F4LC-SQLWW-LI  
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

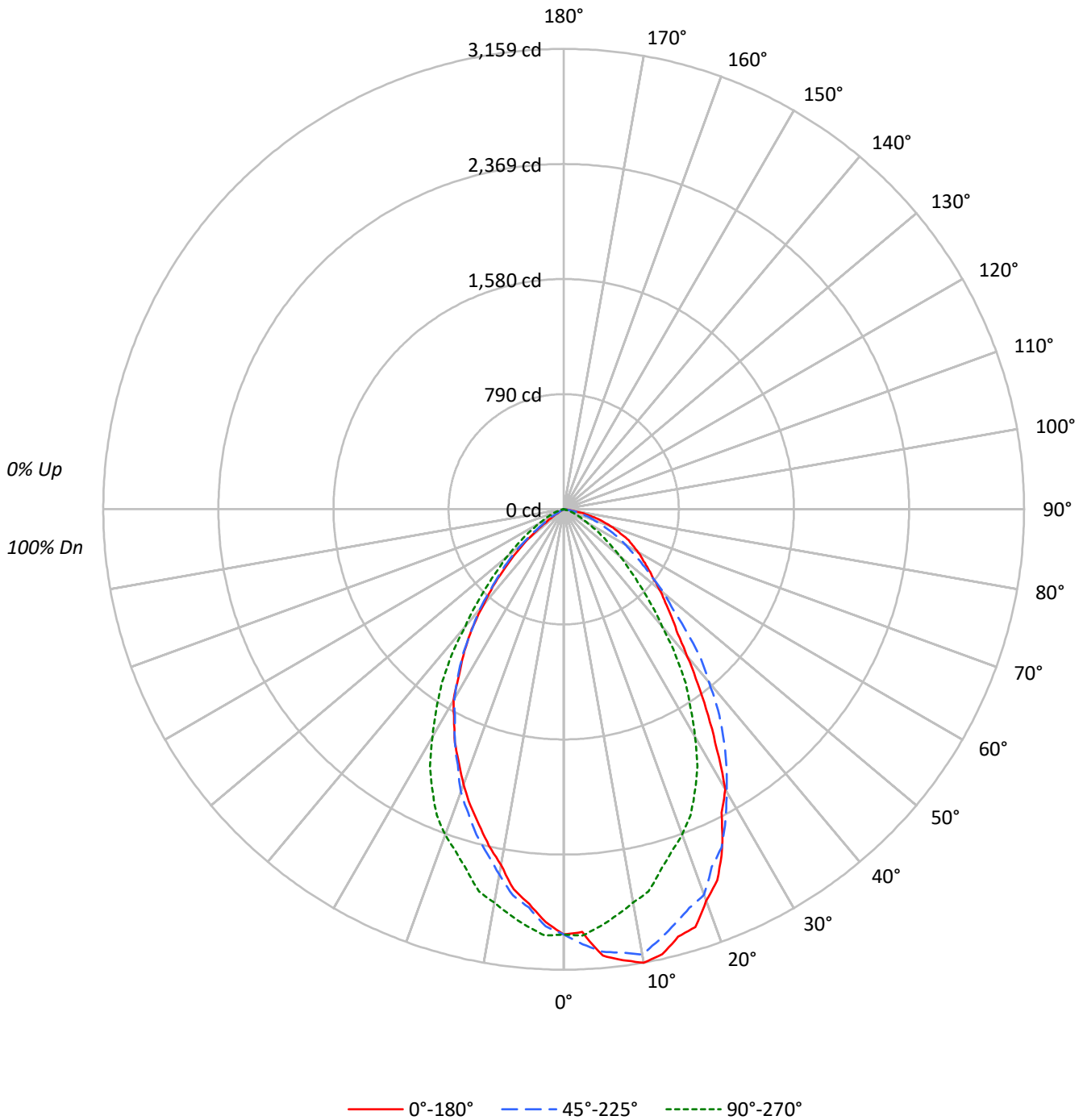
Lumens per Lamp: N/A  
 Luminaire Lumens: 4182.0 lumens  
 Efficiency: N/A  
 Efficacy: 71.6 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 58.4  
 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

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C50D010 FEU4C509040 F4LC-SQLWW-LI

**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	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°	281506	281506	281506
5°	297827	278184	263278
10°	309501	268380	242661
15°	303314	256135	223989
20°	293474	243899	206184
25°	273750	226810	188079
30°	247109	200727	168383
35°	203555	171834	139689
40°	166125	132633	107517
45°	142733	100732	77330
50°	129185	76676	48846
55°	118867	55312	17663
60°	114088	37785	2702
65°	110206	25571	822
70°	98684	17745	1016
75°	80899	9134	0
80°	50565	3890	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	273.3	6.5
10°-20°	736.4	17.6
20°-30°	983.4	23.5
30°-40°	933.5	22.3
40°-50°	645.3	15.4
50°-60°	356.5	8.5
60°-70°	177.1	4.2
70°-80°	69.8	1.7
80°-90°	6.6	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°	1993.2	47.7
0°-40°	2926.7	70.0
0°-60°	3928.6	93.9
0°-90°	4182.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4182.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2918	2918	2918	2918	2918	
5°	3075	3047	2872	2743	2718	294
15°	3036	2946	2564	2312	2242	859
25°	2571	2561	2130	1767	1767	1172
35°	1728	1910	1459	1200	1186	1083
45°	1046	1200	738	605	567	816
55°	707	665	329	168	105	636
65°	483	350	112	4	4	469
75°	217	133	24	0	0	231
85°	0	4	0	0	0	20
90°	0	0	0	0	0	

TEST NUMBER: P#  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5
2.5°	2903.5	2983.9	2990.9	2983.9	2994.5	2990.9	3008.5	2990.9	3012.0	2980.5	2987.5
5°	3074.9	3043.4	3109.9	3074.9	3074.9	3071.5	3061.0	3057.4	3071.5	3026.0	3047.0
7.5°	3120.4	3165.9	3225.4	3152.0	3155.4	3155.4	3134.4	3127.4	3127.4	3043.4	3067.9
10°	3158.9	3130.9	3162.4	3134.4	3158.9	3155.4	3169.4	3123.9	3155.4	3106.5	3102.9
12.5°	3127.4	3116.9	3158.9	3113.4	3099.5	3102.9	3085.5	3074.9	3085.5	3029.4	3026.0
15°	3036.4	3047.0	3109.9	3061.0	3054.0	3047.0	3026.0	2990.9	3019.0	2942.0	2945.6
17.5°	3005.0	2987.5	2998.0	2956.0	2966.5	2959.5	2956.0	2924.6	2917.5	2868.5	2868.5
20°	2858.1	2896.5	2896.5	2868.5	2868.5	2865.1	2819.6	2847.6	2816.0	2802.1	2816.0
22.5°	2756.6	2760.1	2760.1	2735.6	2739.2	2725.2	2700.6	2683.1	2700.6	2683.1	2655.1
25°	2571.3	2578.3	2620.2	2574.7	2567.7	2581.7	2560.7	2550.2	2546.7	2504.8	2560.7
27.5°	2347.3	2417.2	2413.8	2396.2	2417.2	2389.3	2378.8	2382.3	2392.8	2389.3	2403.2
30°	2217.9	2228.4	2238.9	2224.9	2228.4	2217.9	2217.9	2221.4	2249.3	2238.9	2235.3
32.5°	1955.5	1990.4	2018.5	2018.5	2022.0	2032.5	2028.9	2102.4	2119.9	2085.0	2078.0
35°	1728.1	1752.6	1777.0	1780.6	1826.1	1829.5	1833.1	1854.1	1903.0	1913.5	1910.0
37.5°	1511.3	1535.7	1542.7	1574.2	1598.7	1623.1	1651.2	1679.2	1721.1	1756.1	1738.7
40°	1318.9	1329.3	1346.8	1360.8	1409.7	1409.7	1423.7	1479.8	1525.3	1553.2	1549.7
42.5°	1158.0	1161.4	1175.4	1199.9	1245.4	1234.9	1245.4	1283.9	1350.3	1353.8	1392.3
45°	1046.0	1042.4	1053.0	1056.4	1084.5	1098.5	1105.5	1133.4	1189.4	1196.3	1199.9
47.5°	944.6	941.0	958.6	965.5	976.0	989.9	989.9	993.5	1014.5	1032.0	1018.0
50°	860.6	860.6	860.6	867.5	885.1	881.5	885.1	899.1	909.5	902.5	899.1
52.5°	769.6	783.5	794.1	797.7	801.1	801.1	804.6	797.7	794.1	783.5	762.6
55°	706.6	720.6	720.6	720.6	720.6	734.6	717.2	720.6	720.6	692.7	664.7
57.5°	643.7	657.7	668.1	654.2	668.1	654.2	647.2	643.7	636.6	608.7	566.7
60°	591.2	598.2	594.7	591.2	598.2	587.7	580.7	566.7	559.7	521.2	493.3
62.5°	531.8	535.2	538.8	531.8	524.8	521.2	507.2	486.3	472.3	440.8	416.2
65°	482.7	472.3	468.7	465.3	458.3	447.8	437.3	412.8	402.3	374.3	349.8
67.5°	409.2	405.8	412.8	402.3	384.8	384.8	374.3	353.3	328.8	311.4	286.9
70°	349.8	346.3	339.3	328.8	325.4	311.4	311.4	286.9	279.9	248.3	227.4
72.5°	286.9	286.9	276.3	265.9	255.3	248.3	244.9	227.4	217.0	199.4	181.9
75°	217.0	217.0	213.4	202.8	195.8	188.9	185.4	171.5	160.9	143.5	132.9
77.5°	153.9	153.9	139.9	132.9	136.4	129.4	122.4	119.0	115.4	105.0	91.0
80°	91.0	87.4	77.0	80.5	77.0	77.0	73.5	69.9	62.9	55.9	48.9
82.5°	24.5	28.0	28.0	28.0	31.5	24.5	24.5	24.5	28.0	28.0	17.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.6	3.6
87.5°	3.6	7.0	14.0	14.0	14.0	14.0	14.0	10.6	10.6	10.6	7.0
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5
2.5°	2952.5	2949.0	2952.5	2928.0	2983.9	2942.0	2935.0	2928.0	2952.5	2928.0	2893.1
5°	3015.5	2980.5	2970.0	2959.5	2990.9	2942.0	2931.6	2935.0	2917.5	2872.1	2875.5
7.5°	3036.4	3005.0	2973.5	2907.0	2935.0	2924.6	2896.5	2875.5	2847.6	2809.0	2802.1
10°	3043.4	3008.5	2963.0	2942.0	2900.1	2886.1	2875.5	2840.6	2805.6	2739.2	2721.6
12.5°	3022.4	2980.5	2924.6	2907.0	2875.5	2830.0	2805.6	2770.5	2739.2	2686.7	2648.1
15°	2931.6	2896.5	2879.1	2819.6	2805.6	2777.5	2728.6	2679.7	2634.2	2564.1	2543.2
17.5°	2826.6	2812.6	2795.1	2749.6	2746.1	2718.2	2672.7	2630.6	2571.3	2462.7	2427.8
20°	2718.2	2718.2	2662.1	2644.7	2679.7	2623.6	2588.7	2550.2	2427.8	2375.3	2312.4
22.5°	2637.7	2599.2	2567.7	2539.7	2543.2	2508.2	2459.3	2382.3	2336.8	2273.9	2200.4
25°	2480.3	2494.2	2424.3	2413.8	2424.3	2343.8	2319.4	2256.3	2189.8	2130.4	2074.4
27.5°	2382.3	2343.8	2298.4	2259.9	2259.9	2228.4	2158.5	2144.5	2042.9	1987.0	1917.0
30°	2235.3	2207.4	2168.9	2113.0	2106.0	2081.4	2025.5	1990.4	1885.6	1801.6	1763.1
32.5°	2049.9	2039.5	2008.0	1945.1	1924.1	1896.0	1826.1	1766.6	1717.7	1623.1	1577.8
35°	1917.0	1878.6	1812.1	1759.6	1742.1	1693.2	1637.1	1595.2	1542.7	1458.8	1399.3
37.5°	1717.7	1679.2	1616.1	1553.2	1553.2	1504.3	1427.3	1385.3	1311.9	1262.8	1213.9
40°	1542.7	1493.7	1430.8	1357.4	1346.8	1276.8	1245.4	1175.4	1129.9	1053.0	1046.0
42.5°	1346.8	1301.3	1245.4	1189.4	1147.4	1112.5	1032.0	979.5	930.6	892.1	881.5
45°	1168.4	1108.9	1060.0	989.9	948.0	906.1	853.6	818.6	780.1	738.2	713.6
47.5°	1014.5	965.5	895.5	832.6	790.7	769.6	710.1	671.7	640.2	612.2	594.7
50°	857.1	797.7	759.1	689.1	682.1	633.2	584.3	552.7	535.2	510.8	486.3
52.5°	738.2	682.1	629.6	577.3	549.2	531.8	486.3	454.7	430.3	412.8	398.8
55°	622.6	573.7	531.8	479.3	461.7	437.3	384.8	377.9	353.3	328.8	311.4
57.5°	535.2	489.7	440.8	405.8	374.3	356.9	314.8	286.9	272.9	251.9	234.4
60°	454.7	405.8	367.3	325.4	311.4	286.9	255.3	230.9	213.4	195.8	178.4
62.5°	381.3	339.3	297.4	262.3	241.4	227.4	202.8	181.9	164.5	150.5	136.4
65°	314.8	276.3	241.4	206.4	195.8	178.4	160.9	143.5	129.4	112.0	98.0
67.5°	258.9	223.9	188.9	164.5	153.9	146.9	126.0	108.4	98.0	87.4	73.5
70°	202.8	178.4	150.5	129.4	119.0	108.4	94.4	84.0	69.9	62.9	52.5
72.5°	157.5	136.4	112.0	94.4	87.4	80.5	66.5	55.9	48.9	41.9	34.9
75°	112.0	94.4	80.5	62.9	59.5	55.9	45.5	38.5	31.5	24.5	21.0
77.5°	77.0	62.9	48.9	41.9	38.5	31.5	28.0	21.0	17.5	14.0	10.6
80°	41.9	31.5	24.5	21.0	17.5	14.0	14.0	10.6	7.0	7.0	3.6
82.5°	14.0	10.6	7.0	3.6	3.6	3.6	3.6	3.6	3.6	0.0	3.6
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°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	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°	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5
2.5°	2914.0	2875.5	2886.1	2886.1	2879.1	2879.1	2872.1	2861.5	2865.1	2844.0	2798.6
5°	2882.5	2833.6	2826.6	2833.6	2805.6	2798.6	2784.7	2805.6	2742.6	2767.1	2739.2
7.5°	2791.6	2746.1	2735.6	2760.1	2725.2	2704.1	2700.6	2728.6	2672.7	2644.7	2613.2
10°	2690.1	2672.7	2641.2	2623.6	2613.2	2616.6	2588.7	2553.7	2543.2	2536.2	2508.2
12.5°	2599.2	2560.7	2532.7	2511.8	2504.8	2504.8	2459.3	2452.3	2420.8	2413.8	2371.8
15°	2490.7	2445.3	2427.8	2399.8	2375.3	2389.3	2336.8	2322.8	2312.4	2266.9	2273.9
17.5°	2396.2	2347.3	2305.4	2287.8	2266.9	2245.9	2196.8	2207.4	2182.9	2182.9	2119.9
20°	2273.9	2221.4	2189.8	2154.9	2154.9	2126.9	2092.0	2095.4	2063.9	2032.5	1976.4
22.5°	2144.5	2088.4	2049.9	2035.9	2001.0	1994.0	1952.1	1941.5	1899.6	1903.0	1854.1
25°	2008.0	1952.1	1899.6	1903.0	1871.6	1857.6	1833.1	1784.2	1766.6	1745.7	1731.7
27.5°	1847.1	1808.6	1763.1	1759.6	1700.1	1703.6	1672.2	1658.2	1616.1	1626.7	1595.2
30°	1700.1	1644.2	1602.2	1591.7	1567.2	1560.2	1511.3	1490.2	1497.3	1469.2	1451.8
32.5°	1549.7	1465.8	1448.2	1427.3	1413.3	1395.8	1360.8	1374.8	1343.3	1350.3	1322.3
35°	1350.3	1315.3	1269.8	1269.8	1255.8	1241.8	1217.4	1231.4	1199.9	1185.9	1158.0
37.5°	1182.4	1151.0	1105.5	1119.5	1094.9	1074.0	1053.0	1056.4	1028.4	1025.0	996.9
40°	1000.5	982.9	951.6	951.6	934.0	934.0	923.5	913.1	895.5	874.5	843.0
42.5°	829.0	815.1	801.1	804.6	780.1	801.1	773.1	790.7	734.6	731.2	710.1
45°	703.1	671.7	675.1	661.1	647.2	654.2	629.6	636.6	605.2	598.2	577.3
47.5°	570.3	559.7	538.8	531.8	531.8	521.2	510.8	507.2	493.3	475.7	447.8
50°	468.7	430.3	423.2	412.8	405.8	405.8	391.8	370.9	374.3	356.9	328.8
52.5°	367.3	335.8	321.8	318.4	304.4	297.4	279.9	265.9	255.3	248.3	230.9
55°	283.3	255.3	237.9	237.9	217.0	217.0	192.4	181.9	167.9	153.9	143.5
57.5°	213.4	199.4	181.9	167.9	160.9	143.5	129.4	112.0	101.4	80.5	66.5
60°	160.9	146.9	129.4	119.0	112.0	94.4	77.0	62.9	38.5	31.5	28.0
62.5°	119.0	105.0	87.4	80.5	73.5	59.5	41.9	21.0	10.6	10.6	10.6
65°	87.4	69.9	55.9	48.9	41.9	31.5	14.0	7.0	3.6	3.6	3.6
67.5°	59.5	45.5	31.5	28.0	21.0	10.6	3.6	3.6	3.6	3.6	3.6
70°	38.5	28.0	14.0	10.6	7.0	3.6	3.6	3.6	3.6	3.6	3.6
72.5°	24.5	14.0	7.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	14.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	7.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	3.6	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	3.6	3.6	3.6
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: P#  
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509040 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5	2917.5
2.5°	2847.6	2823.0	2837.0	2805.6	2819.6	2844.0	2826.6	2833.6
5°	2749.6	2735.6	2718.2	2672.7	2707.6	2735.6	2721.6	2718.2
7.5°	2644.7	2595.7	2620.2	2606.2	2599.2	2627.2	2595.7	2630.6
10°	2536.2	2501.2	2497.8	2473.3	2473.3	2494.2	2497.8	2476.7
12.5°	2375.3	2357.9	2357.9	2354.3	2350.7	2371.8	2375.3	2364.9
15°	2259.9	2252.9	2235.3	2231.9	2210.9	2242.3	2245.9	2242.3
17.5°	2119.9	2123.4	2106.0	2106.0	2119.9	2130.4	2102.4	2130.4
20°	2025.5	2008.0	2001.0	1969.5	1987.0	2004.5	2004.5	2008.0
22.5°	1889.0	1861.1	1871.6	1854.1	1843.5	1868.0	1868.0	1878.6
25°	1735.1	1735.1	1742.1	1731.7	1738.7	1752.6	1742.1	1766.6
27.5°	1588.2	1602.2	1602.2	1588.2	1595.2	1637.1	1654.6	1626.7
30°	1451.8	1455.2	1465.8	1458.8	1479.8	1493.7	1490.2	1511.3
32.5°	1297.9	1315.3	1322.3	1311.9	1318.9	1350.3	1332.8	1329.3
35°	1178.9	1147.4	1144.0	1147.4	1161.4	1168.4	1161.4	1185.9
37.5°	1007.5	996.9	982.9	986.5	996.9	1011.0	1018.0	1035.4
40°	843.0	829.0	829.0	825.6	815.1	853.6	853.6	853.6
42.5°	699.7	696.1	678.7	678.7	692.7	703.1	696.1	720.6
45°	573.7	559.7	549.2	549.2	559.7	559.7	570.3	566.7
47.5°	451.3	437.3	440.8	430.3	440.8	454.7	437.3	440.8
50°	339.3	339.3	332.4	339.3	335.8	339.3	332.4	325.4
52.5°	230.9	262.3	265.9	251.9	220.4	192.4	174.9	188.9
55°	132.9	119.0	119.0	115.4	108.4	105.0	94.4	105.0
57.5°	66.5	59.5	59.5	59.5	55.9	52.5	45.5	45.5
60°	28.0	24.5	24.5	21.0	17.5	14.0	10.6	14.0
62.5°	10.6	7.0	7.0	7.0	7.0	7.0	7.0	7.0
65°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
67.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
70°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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)