

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: **FLDSQ4C70D010 FEU4C709027 F4LC-SQLWW-H**

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: FLDSQ4C70D010 FEU4C709027 F4LC-SQLWW-H
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

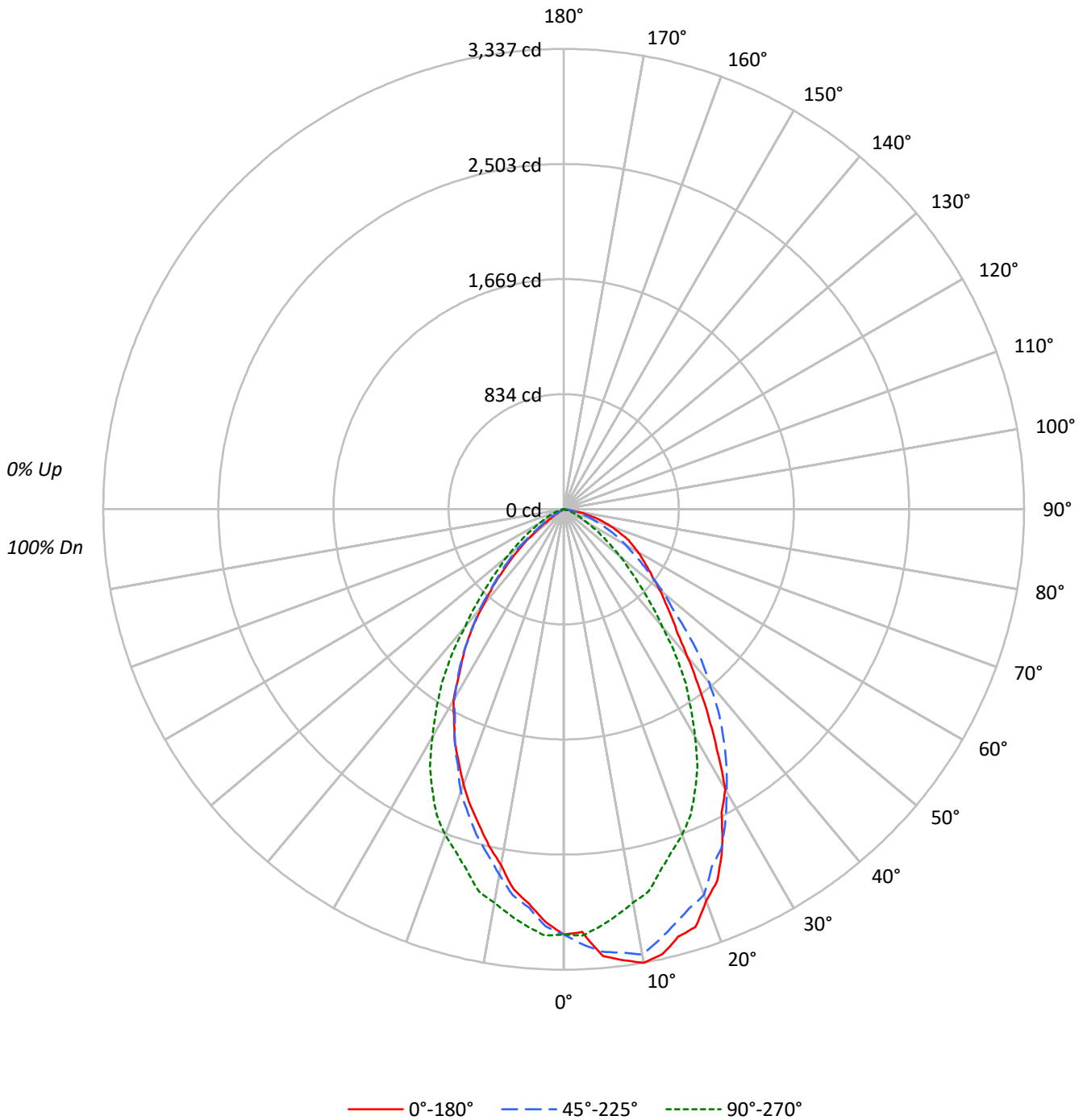
Lumens per Lamp: N/A
 Luminaire Lumens: 4418.0 lumens
 Efficiency: N/A
 Efficacy: 56.6 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 78
 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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CATALOG NUMBER: FLDSQ4C70D010 FEU4C709027 F4LC-SQLWW-H

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				100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90				90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80				80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72				72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64				64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58				58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53				53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48				48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44				44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38				38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	297388	297388	297388
5°	314641	293885	278136
10°	326970	283517	256358
15°	320436	270589	236636
20°	310036	257658	217818
25°	289198	239607	198693
30°	261058	212047	177886
35°	215040	181528	147569
40°	175496	140115	113576
45°	150784	106408	81696
50°	136465	80999	51593
55°	125579	58424	18656
60°	120534	39927	2856
65°	116416	27009	868
70°	104241	18761	1072
75°	85447	9656	0
80°	53399	4112	0
85°	0	0	0

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 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709027 F4LC-SQLWW-H

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	288.8	6.5
10°-20°	778.0	17.6
20°-30°	1038.9	23.5
30°-40°	986.2	22.3
40°-50°	681.7	15.4
50°-60°	376.7	8.5
60°-70°	187.1	4.2
70°-80°	73.7	1.7
80°-90°	7.0	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°	2105.7	47.7
0°-40°	3091.9	70.0
0°-60°	4150.2	93.9
0°-90°	4418.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4418.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3082	3082	3082	3082	3082	
5°	3248	3219	3034	2897	2872	311
15°	3208	3112	2709	2443	2369	907
25°	2716	2705	2251	1866	1866	1238
35°	1826	2018	1541	1268	1253	1144
45°	1105	1268	780	639	599	862
55°	746	702	347	177	111	672
65°	510	370	118	4	4	495
75°	229	140	26	0	0	244
85°	0	4	0	0	0	21
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°	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1
2.5°	3067.3	3152.3	3159.7	3152.3	3163.5	3159.7	3178.2	3159.7	3182.0	3148.7	3156.1
5°	3248.5	3215.2	3285.4	3248.5	3248.5	3244.8	3233.7	3229.9	3244.8	3196.8	3218.9
7.5°	3296.5	3344.6	3407.4	3329.8	3333.4	3333.4	3311.3	3303.9	3303.9	3215.2	3241.1
10°	3337.2	3307.5	3340.8	3311.3	3337.2	3333.4	3348.2	3300.1	3333.4	3281.8	3278.0
12.5°	3303.9	3292.8	3337.2	3289.1	3274.4	3278.0	3259.6	3248.5	3259.6	3200.4	3196.8
15°	3207.8	3218.9	3285.4	3233.7	3226.3	3218.9	3196.8	3159.7	3189.4	3108.0	3111.8
17.5°	3174.6	3156.1	3167.2	3122.8	3133.9	3126.5	3122.8	3089.6	3082.1	3030.4	3030.4
20°	3019.4	3059.9	3059.9	3030.4	3030.4	3026.8	2978.7	3008.3	2975.0	2960.2	2975.0
22.5°	2912.1	2915.9	2915.9	2890.0	2893.7	2879.0	2853.0	2834.5	2853.0	2834.5	2805.0
25°	2716.4	2723.7	2768.1	2720.0	2712.6	2727.4	2705.2	2694.1	2690.4	2646.1	2705.2
27.5°	2479.8	2553.6	2550.0	2531.5	2553.6	2524.1	2513.1	2516.7	2527.9	2524.1	2538.9
30°	2343.1	2354.1	2365.3	2350.5	2354.1	2343.1	2343.1	2346.7	2376.3	2365.3	2361.5
32.5°	2065.8	2102.8	2132.4	2132.4	2136.1	2147.2	2143.4	2221.0	2239.6	2202.7	2195.3
35°	1825.6	1851.5	1877.3	1881.1	1929.2	1932.8	1936.5	1958.7	2010.4	2021.5	2017.8
37.5°	1596.6	1622.3	1629.7	1663.0	1688.9	1714.7	1744.4	1773.9	1818.2	1855.2	1836.8
40°	1393.3	1404.3	1422.8	1437.6	1489.3	1489.3	1504.1	1563.3	1611.3	1640.9	1637.1
42.5°	1223.3	1226.9	1241.7	1267.6	1315.7	1304.5	1315.7	1356.4	1426.4	1430.2	1470.9
45°	1105.0	1101.3	1112.4	1116.0	1145.7	1160.5	1167.9	1197.4	1256.5	1263.9	1267.6
47.5°	997.9	994.1	1012.6	1020.0	1031.0	1045.8	1045.8	1049.6	1071.7	1090.3	1075.5
50°	909.1	909.1	909.1	916.5	935.0	931.3	935.0	949.8	960.8	953.4	949.8
52.5°	813.0	827.8	838.9	842.7	846.3	846.3	850.0	842.7	838.9	827.8	805.6
55°	746.5	761.3	761.3	761.3	761.3	776.1	757.7	761.3	761.3	731.8	702.2
57.5°	680.1	694.8	705.8	691.1	705.8	691.1	683.7	680.1	672.5	643.0	598.7
60°	624.6	632.0	628.2	624.6	632.0	620.9	613.5	598.7	591.3	550.6	521.1
62.5°	561.8	565.4	569.2	561.8	554.4	550.6	535.9	513.7	498.9	465.6	439.7
65°	509.9	498.9	495.2	491.6	484.2	473.0	462.0	436.1	425.0	395.4	369.5
67.5°	432.3	428.7	436.1	425.0	406.6	406.6	395.4	373.3	347.3	329.0	303.0
70°	369.5	365.9	358.5	347.3	343.7	329.0	329.0	303.0	295.7	262.4	240.2
72.5°	303.0	303.0	291.9	280.9	269.7	262.4	258.7	240.2	229.2	210.7	192.1
75°	229.2	229.2	225.4	214.3	206.9	199.5	195.9	181.1	170.0	151.6	140.4
77.5°	162.6	162.6	147.8	140.4	144.1	136.7	129.3	125.7	121.9	110.9	96.1
80°	96.1	92.4	81.4	85.0	81.4	81.4	77.6	73.8	66.5	59.1	51.7
82.5°	25.9	29.5	29.5	29.5	33.3	25.9	25.9	25.9	29.5	29.5	18.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8	3.8
87.5°	3.8	7.4	14.8	14.8	14.8	14.8	14.8	11.1	11.1	11.1	7.4
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: FLDSQ4C70D010 FEU4C709027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1
2.5°	3119.2	3115.4	3119.2	3093.2	3152.3	3108.0	3100.6	3093.2	3119.2	3093.2	3056.3
5°	3185.6	3148.7	3137.6	3126.5	3159.7	3108.0	3097.0	3100.6	3082.1	3034.2	3037.8
7.5°	3207.8	3174.6	3141.3	3071.1	3100.6	3089.6	3059.9	3037.8	3008.3	2967.6	2960.2
10°	3215.2	3178.2	3130.2	3108.0	3063.7	3048.9	3037.8	3000.9	2964.0	2893.7	2875.2
12.5°	3193.0	3148.7	3089.6	3071.1	3037.8	2989.7	2964.0	2926.9	2893.7	2838.3	2797.6
15°	3097.0	3059.9	3041.6	2978.7	2964.0	2934.3	2882.6	2830.9	2782.8	2708.8	2686.7
17.5°	2986.1	2971.3	2952.8	2904.7	2901.1	2871.6	2823.5	2779.1	2716.4	2601.7	2564.8
20°	2871.6	2871.6	2812.4	2794.0	2830.9	2771.7	2734.8	2694.1	2564.8	2509.3	2442.9
22.5°	2786.6	2745.9	2712.6	2683.1	2686.7	2649.8	2598.1	2516.7	2468.6	2402.2	2324.6
25°	2620.2	2635.0	2561.2	2550.0	2561.2	2476.0	2450.2	2383.6	2313.4	2250.6	2191.5
27.5°	2516.7	2476.0	2428.1	2387.4	2387.4	2354.1	2280.3	2265.5	2158.2	2099.1	2025.1
30°	2361.5	2332.0	2291.3	2232.2	2224.8	2198.9	2139.8	2102.8	1992.0	1903.2	1862.6
32.5°	2165.6	2154.6	2121.3	2054.8	2032.7	2003.0	1929.2	1866.3	1814.6	1714.7	1666.8
35°	2025.1	1984.6	1914.4	1858.9	1840.4	1788.7	1729.5	1685.2	1629.7	1541.1	1478.3
37.5°	1814.6	1773.9	1707.3	1640.9	1640.9	1589.2	1507.8	1463.5	1385.9	1334.1	1282.4
40°	1629.7	1578.0	1511.6	1434.0	1422.8	1348.8	1315.7	1241.7	1193.6	1112.4	1105.0
42.5°	1422.8	1374.8	1315.7	1256.5	1212.2	1175.2	1090.3	1034.8	983.1	942.4	931.3
45°	1234.3	1171.5	1119.8	1045.8	1001.5	957.2	901.7	864.8	824.1	779.8	753.9
47.5°	1071.7	1020.0	946.0	879.6	835.3	813.0	750.1	709.6	676.3	646.8	628.2
50°	905.5	842.7	802.0	728.0	720.6	668.9	617.2	583.9	565.4	539.6	513.7
52.5°	779.8	720.6	665.2	609.8	580.2	561.8	513.7	480.4	454.6	436.1	421.3
55°	657.8	606.1	561.8	506.3	487.8	462.0	406.6	399.2	373.3	347.3	329.0
57.5°	565.4	517.3	465.6	428.7	395.4	377.0	332.6	303.0	288.3	266.1	247.6
60°	480.4	428.7	388.0	343.7	329.0	303.0	269.7	244.0	225.4	206.9	188.5
62.5°	402.8	358.5	314.2	277.1	255.0	240.2	214.3	192.1	173.7	159.0	144.1
65°	332.6	291.9	255.0	218.1	206.9	188.5	170.0	151.6	136.7	118.3	103.5
67.5°	273.5	236.6	199.5	173.7	162.6	155.2	133.1	114.5	103.5	92.4	77.6
70°	214.3	188.5	159.0	136.7	125.7	114.5	99.8	88.8	73.8	66.5	55.5
72.5°	166.4	144.1	118.3	99.8	92.4	85.0	70.2	59.1	51.7	44.3	36.9
75°	118.3	99.8	85.0	66.5	62.8	59.1	48.1	40.7	33.3	25.9	22.2
77.5°	81.4	66.5	51.7	44.3	40.7	33.3	29.5	22.2	18.5	14.8	11.1
80°	44.3	33.3	25.9	22.2	18.5	14.8	14.8	11.1	7.4	7.4	3.8
82.5°	14.8	11.1	7.4	3.8	3.8	3.8	3.8	3.8	3.8	0.0	3.8
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°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	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: P#
 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1
2.5°	3078.5	3037.8	3048.9	3048.9	3041.6	3041.6	3034.2	3023.0	3026.8	3004.5	2956.6
5°	3045.2	2993.5	2986.1	2993.5	2964.0	2956.6	2941.8	2964.0	2897.3	2923.3	2893.7
7.5°	2949.2	2901.1	2890.0	2915.9	2879.0	2856.7	2853.0	2882.6	2823.5	2794.0	2760.7
10°	2841.9	2823.5	2790.2	2771.7	2760.7	2764.3	2734.8	2697.8	2686.7	2679.3	2649.8
12.5°	2745.9	2705.2	2675.7	2653.5	2646.1	2646.1	2598.1	2590.7	2557.4	2550.0	2505.7
15°	2631.2	2583.3	2564.8	2535.2	2509.3	2524.1	2468.6	2453.9	2442.9	2394.8	2402.2
17.5°	2531.5	2479.8	2435.5	2416.9	2394.8	2372.6	2320.8	2332.0	2306.0	2306.0	2239.6
20°	2402.2	2346.7	2313.4	2276.5	2276.5	2247.0	2210.0	2213.7	2180.4	2147.2	2088.0
22.5°	2265.5	2206.3	2165.6	2150.8	2113.9	2106.5	2062.2	2051.1	2006.8	2010.4	1958.7
25°	2121.3	2062.2	2006.8	2010.4	1977.2	1962.5	1936.5	1884.8	1866.3	1844.2	1829.4
27.5°	1951.3	1910.6	1862.6	1858.9	1796.1	1799.7	1766.6	1751.8	1707.3	1718.5	1685.2
30°	1796.1	1737.0	1692.6	1681.6	1655.6	1648.3	1596.6	1574.3	1581.8	1552.1	1533.7
32.5°	1637.1	1548.5	1530.0	1507.8	1493.1	1474.5	1437.6	1452.4	1419.1	1426.4	1396.9
35°	1426.4	1389.5	1341.5	1341.5	1326.7	1311.9	1286.2	1300.9	1267.6	1252.8	1223.3
37.5°	1249.1	1215.9	1167.9	1182.6	1156.7	1134.6	1112.4	1116.0	1086.5	1082.9	1053.2
40°	1057.0	1038.4	1005.3	1005.3	986.7	986.7	975.6	964.6	946.0	923.9	890.6
42.5°	875.8	861.1	846.3	850.0	824.1	846.3	816.7	835.3	776.1	772.4	750.1
45°	742.8	709.6	713.2	698.5	683.7	691.1	665.2	672.5	639.4	632.0	609.8
47.5°	602.5	591.3	569.2	561.8	561.8	550.6	539.6	535.9	521.1	502.6	473.0
50°	495.2	454.6	447.1	436.1	428.7	428.7	413.9	391.8	395.4	377.0	347.3
52.5°	388.0	354.7	340.0	336.3	321.6	314.2	295.7	280.9	269.7	262.4	244.0
55°	299.3	269.7	251.4	251.4	229.2	229.2	203.3	192.1	177.4	162.6	151.6
57.5°	225.4	210.7	192.1	177.4	170.0	151.6	136.7	118.3	107.1	85.0	70.2
60°	170.0	155.2	136.7	125.7	118.3	99.8	81.4	66.5	40.7	33.3	29.5
62.5°	125.7	110.9	92.4	85.0	77.6	62.8	44.3	22.2	11.1	11.1	11.1
65°	92.4	73.8	59.1	51.7	44.3	33.3	14.8	7.4	3.8	3.8	3.8
67.5°	62.8	48.1	33.3	29.5	22.2	11.1	3.8	3.8	3.8	3.8	3.8
70°	40.7	29.5	14.8	11.1	7.4	3.8	3.8	3.8	3.8	3.8	3.8
72.5°	25.9	14.8	7.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	14.8	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	7.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	3.8	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	3.8	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: P#
 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1	3082.1
2.5°	3008.3	2982.3	2997.1	2964.0	2978.7	3004.5	2986.1	2993.5
5°	2904.7	2890.0	2871.6	2823.5	2860.4	2890.0	2875.2	2871.6
7.5°	2794.0	2742.1	2768.1	2753.3	2745.9	2775.4	2742.1	2779.1
10°	2679.3	2642.4	2638.8	2612.8	2612.8	2635.0	2638.8	2616.5
12.5°	2509.3	2490.9	2490.9	2487.2	2483.4	2505.7	2509.3	2498.3
15°	2387.4	2380.0	2361.5	2357.9	2335.7	2368.9	2372.6	2368.9
17.5°	2239.6	2243.2	2224.8	2224.8	2239.6	2250.6	2221.0	2250.6
20°	2139.8	2121.3	2113.9	2080.6	2099.1	2117.7	2117.7	2121.3
22.5°	1995.6	1966.1	1977.2	1958.7	1947.5	1973.5	1973.5	1984.6
25°	1833.0	1833.0	1840.4	1829.4	1836.8	1851.5	1840.4	1866.3
27.5°	1677.8	1692.6	1692.6	1677.8	1685.2	1729.5	1748.0	1718.5
30°	1533.7	1537.4	1548.5	1541.1	1563.3	1578.0	1574.3	1596.6
32.5°	1371.1	1389.5	1396.9	1385.9	1393.3	1426.4	1408.1	1404.3
35°	1245.5	1212.2	1208.5	1212.2	1226.9	1234.3	1226.9	1252.8
37.5°	1064.3	1053.2	1038.4	1042.2	1053.2	1068.1	1075.5	1093.9
40°	890.6	875.8	875.8	872.2	861.1	901.7	901.7	901.7
42.5°	739.1	735.4	717.0	717.0	731.8	742.8	735.4	761.3
45°	606.1	591.3	580.2	580.2	591.3	591.3	602.5	598.7
47.5°	476.8	462.0	465.6	454.6	465.6	480.4	462.0	465.6
50°	358.5	358.5	351.1	358.5	354.7	358.5	351.1	343.7
52.5°	244.0	277.1	280.9	266.1	232.8	203.3	184.7	199.5
55°	140.4	125.7	125.7	121.9	114.5	110.9	99.8	110.9
57.5°	70.2	62.8	62.8	62.8	59.1	55.5	48.1	48.1
60°	29.5	25.9	25.9	22.2	18.5	14.8	11.1	14.8
62.5°	11.1	7.4	7.4	7.4	7.4	7.4	7.4	7.4
65°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
67.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
70°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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)