

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: **FLDSQ4C80D010 FEU4C809030 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: FLDSQ4C80D010 FEU4C809030 F4LC-SQLWW-H  
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

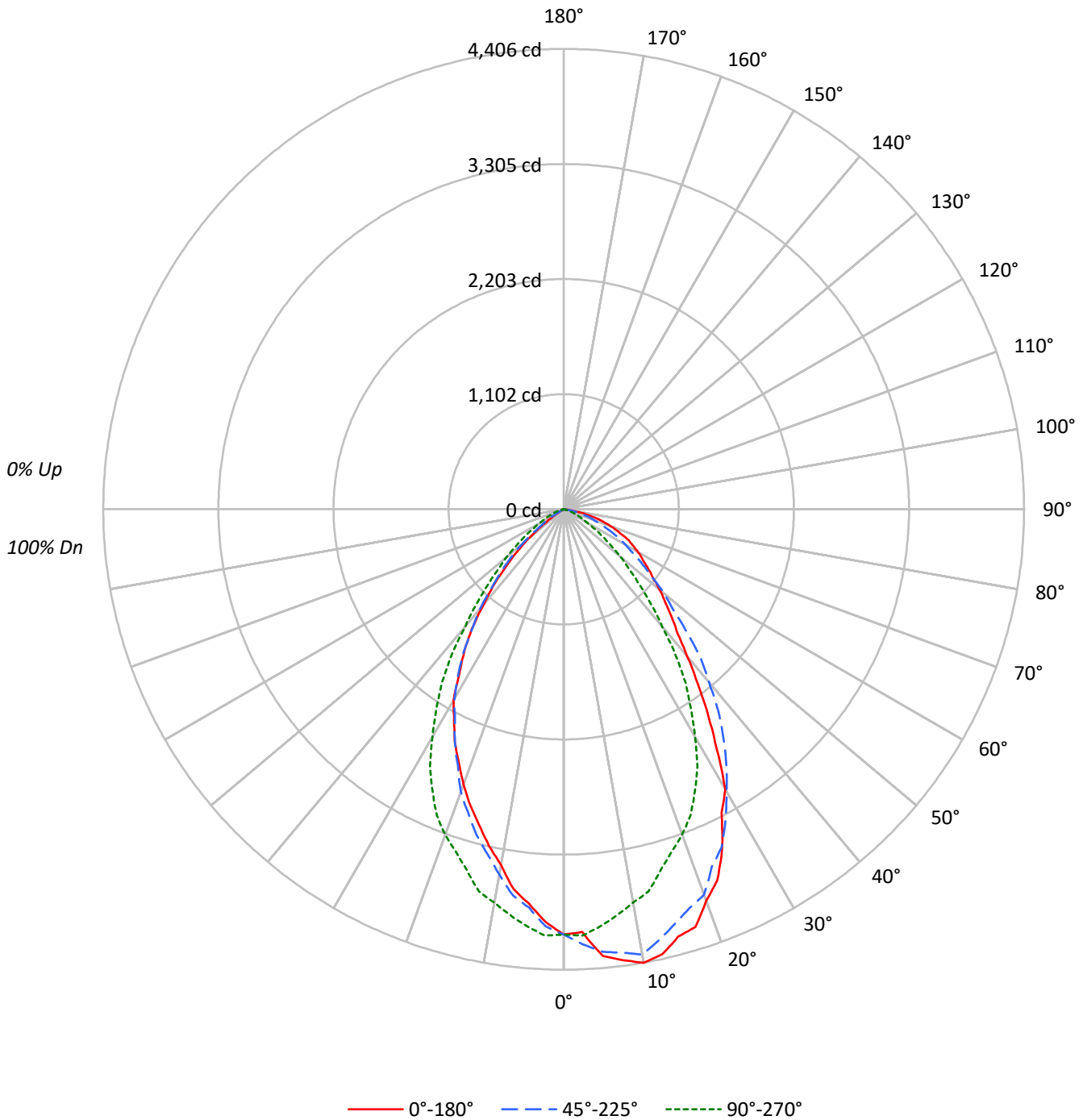
Lumens per Lamp: N/A  
 Luminaire Lumens: 5833.0 lumens  
 Efficiency: N/A  
 Efficacy: 65.2 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 89.5  
 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



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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°	392633	392633	392633
5°	415412	388011	367216
10°	431698	374323	338463
15°	423065	357256	312424
20°	409339	340183	287580
25°	381821	316346	262337
30°	344676	279966	234853
35°	283912	239670	194838
40°	231698	184993	149952
45°	199076	140495	107855
50°	180177	106953	68120
55°	165801	77147	24628
60°	159149	52722	3763
65°	153723	35662	1142
70°	137616	24741	1411
75°	112811	12750	0
80°	70513	5390	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	381.3	6.5
10°-20°	1027.2	17.6
20°-30°	1371.6	23.5
30°-40°	1302.1	22.3
40°-50°	900.0	15.4
50°-60°	497.3	8.5
60°-70°	247.0	4.2
70°-80°	97.3	1.7
80°-90°	9.3	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°	2780.1	47.7
0°-40°	4082.1	70.0
0°-60°	5479.5	93.9
0°-90°	5833.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5833.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	4069	4069	4069	4069	4069	
5°	4289	4250	4006	3825	3791	411
15°	4235	4108	3576	3225	3128	1198
25°	3586	3572	2971	2464	2464	1635
35°	2410	2664	2035	1674	1654	1510
45°	1459	1674	1030	844	790	1138
55°	986	927	459	234	146	887
65°	673	488	156	5	5	653
75°	303	185	34	0	0	323
85°	0	5	0	0	0	28
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°	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2
2.5°	4049.7	4161.9	4171.7	4161.9	4176.7	4171.7	4196.2	4171.7	4201.1	4157.2	4166.9
5°	4288.9	4244.9	4337.6	4288.9	4288.9	4284.1	4269.4	4264.4	4284.1	4220.6	4249.9
7.5°	4352.3	4415.8	4498.8	4396.3	4401.1	4401.1	4371.8	4362.1	4362.1	4244.9	4279.1
10°	4406.1	4366.9	4410.8	4371.8	4406.1	4401.1	4420.6	4357.1	4401.1	4332.8	4327.9
12.5°	4362.1	4347.4	4406.1	4342.6	4323.1	4327.9	4303.6	4288.9	4303.6	4225.4	4220.6
15°	4235.2	4249.9	4337.6	4269.4	4259.6	4249.9	4220.6	4171.7	4210.9	4103.5	4108.4
17.5°	4191.4	4166.9	4181.6	4123.0	4137.7	4127.9	4123.0	4079.2	4069.2	4001.0	4001.0
20°	3986.5	4040.0	4040.0	4001.0	4001.0	3996.2	3932.7	3971.7	3927.8	3908.3	3927.8
22.5°	3844.8	3849.8	3849.8	3815.6	3820.5	3801.0	3766.8	3742.3	3766.8	3742.3	3703.4
25°	3586.4	3596.1	3654.6	3591.1	3581.4	3600.9	3571.6	3556.9	3552.1	3493.6	3571.6
27.5°	3274.0	3371.5	3366.7	3342.3	3371.5	3332.5	3318.0	3322.8	3337.5	3332.5	3352.0
30°	3093.6	3108.1	3122.8	3103.3	3108.1	3093.6	3093.6	3098.3	3137.3	3122.8	3117.8
32.5°	2727.5	2776.2	2815.4	2815.4	2820.2	2834.9	2829.9	2932.4	2956.9	2908.1	2898.4
35°	2410.3	2444.6	2478.6	2483.6	2547.0	2551.8	2556.8	2586.0	2654.3	2669.0	2664.0
37.5°	2107.9	2142.0	2151.7	2195.7	2229.9	2263.9	2303.1	2342.1	2400.6	2449.3	2425.1
40°	1839.5	1854.1	1878.5	1898.0	1966.3	1966.3	1985.8	2064.0	2127.4	2166.4	2161.5
42.5°	1615.1	1619.9	1639.4	1673.6	1737.1	1722.4	1737.1	1790.8	1883.3	1888.3	1942.0
45°	1458.9	1454.0	1468.7	1473.5	1512.7	1532.2	1541.9	1580.9	1658.9	1668.6	1673.6
47.5°	1317.5	1312.5	1337.0	1346.7	1361.3	1380.8	1380.8	1385.7	1415.0	1439.4	1419.9
50°	1200.3	1200.3	1200.3	1210.0	1234.5	1229.5	1234.5	1254.0	1268.5	1258.8	1254.0
52.5°	1073.4	1092.9	1107.6	1112.6	1117.3	1117.3	1122.3	1112.6	1107.6	1092.9	1063.6
55°	985.6	1005.1	1005.1	1005.1	1005.1	1024.6	1000.3	1005.1	1005.1	966.1	927.1
57.5°	897.9	917.4	931.9	912.4	931.9	912.4	902.7	897.9	887.9	848.9	790.4
60°	824.7	834.4	829.4	824.7	834.4	819.7	809.9	790.4	780.7	727.0	688.0
62.5°	741.7	746.5	751.5	741.7	732.0	727.0	707.5	678.2	658.7	614.8	580.6
65°	673.3	658.7	653.8	649.0	639.2	624.5	610.0	575.8	561.1	522.1	487.8
67.5°	570.8	566.0	575.8	561.1	536.8	536.8	522.1	492.8	458.6	434.3	400.1
70°	487.8	483.1	473.3	458.6	453.8	434.3	434.3	400.1	390.3	346.4	317.1
72.5°	400.1	400.1	385.4	370.9	356.1	346.4	341.6	317.1	302.6	278.1	253.7
75°	302.6	302.6	297.6	282.9	273.2	263.4	258.6	239.1	224.4	200.1	185.4
77.5°	214.7	214.7	195.2	185.4	190.2	180.5	170.7	165.9	161.0	146.4	126.9
80°	126.9	122.0	107.4	112.2	107.4	107.4	102.5	97.5	87.7	78.0	68.2
82.5°	34.2	39.0	39.0	39.0	44.0	34.2	34.2	34.2	39.0	39.0	24.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.0
87.5°	5.0	9.7	19.5	19.5	19.5	19.5	19.5	14.7	14.7	14.7	9.7
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°	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2
2.5°	4118.2	4113.2	4118.2	4084.0	4161.9	4103.5	4093.7	4084.0	4118.2	4084.0	4035.2
5°	4205.9	4157.2	4142.4	4127.9	4171.7	4103.5	4088.9	4093.7	4069.2	4006.0	4010.7
7.5°	4235.2	4191.4	4147.4	4054.7	4093.7	4079.2	4040.0	4010.7	3971.7	3918.0	3908.3
10°	4244.9	4196.2	4132.7	4103.5	4045.0	4025.5	4010.7	3962.0	3913.2	3820.5	3796.1
12.5°	4215.7	4157.2	4079.2	4054.7	4010.7	3947.3	3913.2	3864.3	3820.5	3747.3	3693.6
15°	4088.9	4040.0	4015.7	3932.7	3913.2	3874.1	3805.8	3737.6	3674.1	3576.4	3547.2
17.5°	3942.5	3923.0	3898.5	3835.1	3830.3	3791.3	3727.8	3669.1	3586.4	3435.0	3386.2
20°	3791.3	3791.3	3713.1	3688.8	3737.6	3659.4	3610.6	3556.9	3386.2	3313.0	3225.3
22.5°	3679.1	3625.4	3581.4	3542.4	3547.2	3498.4	3430.2	3322.8	3259.3	3171.5	3069.1
25°	3459.4	3478.9	3381.4	3366.7	3381.4	3269.0	3235.0	3147.1	3054.4	2971.4	2893.4
27.5°	3322.8	3269.0	3205.8	3152.0	3152.0	3108.1	3010.6	2991.1	2849.4	2771.4	2673.8
30°	3117.8	3078.8	3025.1	2947.1	2937.4	2903.2	2825.2	2776.2	2630.0	2512.8	2459.1
32.5°	2859.2	2844.7	2800.7	2713.0	2683.7	2644.5	2547.0	2464.1	2395.8	2263.9	2200.6
35°	2673.8	2620.2	2527.5	2454.3	2429.8	2361.6	2283.4	2224.9	2151.7	2034.7	1951.7
37.5°	2395.8	2342.1	2254.2	2166.4	2166.4	2098.2	1990.7	1932.3	1829.8	1761.4	1693.1
40°	2151.7	2083.5	1995.7	1893.3	1878.5	1780.9	1737.1	1639.4	1575.9	1468.7	1458.9
42.5°	1878.5	1815.1	1737.1	1658.9	1600.4	1551.7	1439.4	1366.2	1298.0	1244.3	1229.5
45°	1629.6	1546.7	1478.4	1380.8	1322.3	1263.8	1190.5	1141.8	1088.1	1029.6	995.4
47.5°	1415.0	1346.7	1249.0	1161.3	1102.8	1073.4	990.4	936.9	892.9	853.9	829.4
50°	1195.5	1112.6	1058.8	961.2	951.4	883.2	814.9	771.0	746.5	712.5	678.2
52.5°	1029.6	951.4	878.2	805.2	766.0	741.7	678.2	634.3	600.2	575.8	556.3
55°	868.4	800.2	741.7	668.5	644.0	610.0	536.8	527.0	492.8	458.6	434.3
57.5°	746.5	683.0	614.8	566.0	522.1	497.8	439.1	400.1	380.6	351.4	326.9
60°	634.3	566.0	512.3	453.8	434.3	400.1	356.1	322.1	297.6	273.2	248.9
62.5°	531.8	473.3	414.8	365.9	336.6	317.1	282.9	253.7	229.4	209.9	190.2
65°	439.1	385.4	336.6	287.9	273.2	248.9	224.4	200.1	180.5	156.2	136.7
67.5°	361.1	312.4	263.4	229.4	214.7	204.9	175.7	151.2	136.7	122.0	102.5
70°	282.9	248.9	209.9	180.5	165.9	151.2	131.7	117.2	97.5	87.7	73.2
72.5°	219.6	190.2	156.2	131.7	122.0	112.2	92.7	78.0	68.2	58.5	48.7
75°	156.2	131.7	112.2	87.7	83.0	78.0	63.5	53.7	44.0	34.2	29.2
77.5°	107.4	87.7	68.2	58.5	53.7	44.0	39.0	29.2	24.5	19.5	14.7
80°	58.5	44.0	34.2	29.2	24.5	19.5	19.5	14.7	9.7	9.7	5.0
82.5°	19.5	14.7	9.7	5.0	5.0	5.0	5.0	5.0	5.0	0.0	5.0
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°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	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



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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2
2.5°	4064.5	4010.7	4025.5	4025.5	4015.7	4015.7	4006.0	3991.2	3996.2	3966.8	3903.5
5°	4020.5	3952.2	3942.5	3952.2	3913.2	3903.5	3884.0	3913.2	3825.3	3859.5	3820.5
7.5°	3893.7	3830.3	3815.6	3849.8	3801.0	3771.6	3766.8	3805.8	3727.8	3688.8	3644.9
10°	3752.1	3727.8	3683.9	3659.4	3644.9	3649.6	3610.6	3561.9	3547.2	3537.4	3498.4
12.5°	3625.4	3571.6	3532.6	3503.4	3493.6	3493.6	3430.2	3420.4	3376.5	3366.7	3308.2
15°	3474.0	3410.7	3386.2	3347.2	3313.0	3332.5	3259.3	3239.8	3225.3	3161.8	3171.5
17.5°	3342.3	3274.0	3215.5	3191.0	3161.8	3132.5	3064.1	3078.8	3044.6	3044.6	2956.9
20°	3171.5	3098.3	3054.4	3005.6	3005.6	2966.6	2917.9	2922.7	2878.7	2834.9	2756.7
22.5°	2991.1	2912.9	2859.2	2839.7	2790.9	2781.2	2722.7	2708.0	2649.5	2654.3	2586.0
25°	2800.7	2722.7	2649.5	2654.3	2610.5	2591.0	2556.8	2488.5	2464.1	2434.8	2415.3
27.5°	2576.3	2522.6	2459.1	2454.3	2371.3	2376.1	2332.3	2312.9	2254.2	2268.9	2224.9
30°	2371.3	2293.4	2234.7	2220.1	2185.9	2176.2	2107.9	2078.5	2088.4	2049.2	2025.0
32.5°	2161.5	2044.5	2020.0	1990.7	1971.2	1946.8	1898.0	1917.5	1873.6	1883.3	1844.3
35°	1883.3	1834.6	1771.1	1771.1	1751.6	1732.1	1698.1	1717.6	1673.6	1654.1	1615.1
37.5°	1649.1	1605.4	1541.9	1561.4	1527.2	1497.9	1468.7	1473.5	1434.5	1429.7	1390.5
40°	1395.5	1371.0	1327.2	1327.2	1302.8	1302.8	1288.0	1273.5	1249.0	1219.8	1175.8
42.5°	1156.3	1136.8	1117.3	1122.3	1088.1	1117.3	1078.3	1102.8	1024.6	1019.8	990.4
45°	980.7	936.9	941.7	922.2	902.7	912.4	878.2	887.9	844.2	834.4	805.2
47.5°	795.4	780.7	751.5	741.7	741.7	727.0	712.5	707.5	688.0	663.5	624.5
50°	653.8	600.2	590.3	575.8	566.0	566.0	546.5	517.3	522.1	497.8	458.6
52.5°	512.3	468.3	448.8	444.1	424.6	414.8	390.3	370.9	356.1	346.4	322.1
55°	395.1	356.1	331.9	331.9	302.6	302.6	268.4	253.7	234.2	214.7	200.1
57.5°	297.6	278.1	253.7	234.2	224.4	200.1	180.5	156.2	141.5	112.2	92.7
60°	224.4	204.9	180.5	165.9	156.2	131.7	107.4	87.7	53.7	44.0	39.0
62.5°	165.9	146.4	122.0	112.2	102.5	83.0	58.5	29.2	14.7	14.7	14.7
65°	122.0	97.5	78.0	68.2	58.5	44.0	19.5	9.7	5.0	5.0	5.0
67.5°	83.0	63.5	44.0	39.0	29.2	14.7	5.0	5.0	5.0	5.0	5.0
70°	53.7	39.0	19.5	14.7	9.7	5.0	5.0	5.0	5.0	5.0	5.0
72.5°	34.2	19.5	9.7	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	19.5	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	9.7	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.0	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	5.0	5.0	5.0
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: FLDSQ4C80D010 FEU4C809030 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2	4069.2
2.5°	3971.7	3937.5	3957.0	3913.2	3932.7	3966.8	3942.5	3952.2
5°	3835.1	3815.6	3791.3	3727.8	3776.6	3815.6	3796.1	3791.3
7.5°	3688.8	3620.4	3654.6	3635.1	3625.4	3664.4	3620.4	3669.1
10°	3537.4	3488.7	3483.9	3449.7	3449.7	3478.9	3483.9	3454.5
12.5°	3313.0	3288.7	3288.7	3283.8	3278.8	3308.2	3313.0	3298.5
15°	3152.0	3142.3	3117.8	3113.0	3083.8	3127.6	3132.5	3127.6
17.5°	2956.9	2961.7	2937.4	2937.4	2956.9	2971.4	2932.4	2971.4
20°	2825.2	2800.7	2790.9	2747.0	2771.4	2795.9	2795.9	2800.7
22.5°	2634.8	2595.8	2610.5	2586.0	2571.3	2605.5	2605.5	2620.2
25°	2420.1	2420.1	2429.8	2415.3	2425.1	2444.6	2429.8	2464.1
27.5°	2215.2	2234.7	2234.7	2215.2	2224.9	2283.4	2307.9	2268.9
30°	2025.0	2029.7	2044.5	2034.7	2064.0	2083.5	2078.5	2107.9
32.5°	1810.3	1834.6	1844.3	1829.8	1839.5	1883.3	1859.0	1854.1
35°	1644.4	1600.4	1595.6	1600.4	1619.9	1629.6	1619.9	1654.1
37.5°	1405.2	1390.5	1371.0	1376.0	1390.5	1410.2	1419.9	1444.2
40°	1175.8	1156.3	1156.3	1151.6	1136.8	1190.5	1190.5	1190.5
42.5°	975.9	970.9	946.6	946.6	966.1	980.7	970.9	1005.1
45°	800.2	780.7	766.0	766.0	780.7	780.7	795.4	790.4
47.5°	629.5	610.0	614.8	600.2	614.8	634.3	610.0	614.8
50°	473.3	473.3	463.6	473.3	468.3	473.3	463.6	453.8
52.5°	322.1	365.9	370.9	351.4	307.4	268.4	243.9	263.4
55°	185.4	165.9	165.9	161.0	151.2	146.4	131.7	146.4
57.5°	92.7	83.0	83.0	83.0	78.0	73.2	63.5	63.5
60°	39.0	34.2	34.2	29.2	24.5	19.5	14.7	19.5
62.5°	14.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
65°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
67.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
70°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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)