

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: **FLDSQ4C100D010 FEU4C1009035 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: FLDSQ4C100D010 FEU4C1009035 F4LC-SQLWW-H  
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS  
 AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

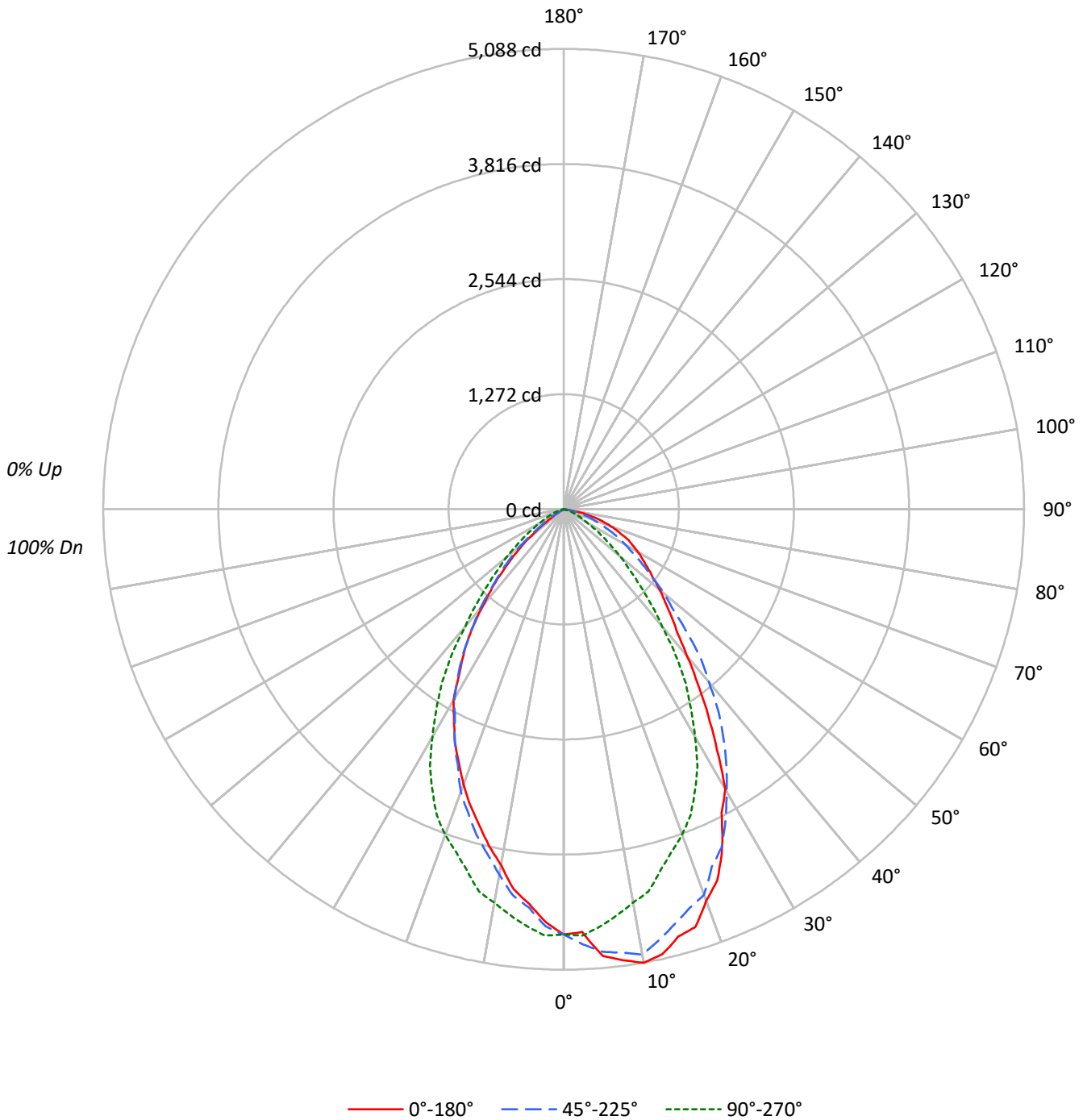
Lumens per Lamp: N/A  
 Luminaire Lumens: 6736.0 lumens  
 Efficiency: N/A  
 Efficacy: 58.9 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 114.4  
 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



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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°	453421	453421	453421
5°	479716	448072	424061
10°	498529	432276	390851
15°	488555	412567	360792
20°	472704	392849	332102
25°	440930	365320	302943
30°	398033	323306	271219
35°	327872	276774	225005
40°	267571	213636	173179
45°	229901	162246	124557
50°	208068	123496	78673
55°	191472	89091	28447
60°	183773	60884	4342
65°	177513	41188	1301
70°	158943	28578	1608
75°	130295	14726	0
80°	81459	6279	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	440.3	6.5
10°-20°	1186.2	17.6
20°-30°	1584.0	23.5
30°-40°	1503.6	22.3
40°-50°	1039.4	15.4
50°-60°	574.3	8.5
60°-70°	285.2	4.2
70°-80°	112.4	1.7
80°-90°	10.7	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°	3210.5	47.7
0°-40°	4714.1	70.0
0°-60°	6327.8	93.9
0°-90°	6736.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6736.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	4699	4699	4699	4699	4699	
5°	4953	4908	4626	4418	4378	474
15°	4891	4744	4130	3725	3612	1384
25°	4142	4125	3431	2846	2846	1888
35°	2784	3076	2350	1933	1910	1744
45°	1685	1933	1189	975	913	1314
55°	1138	1071	530	270	169	1024
65°	778	563	180	6	6	755
75°	350	214	40	0	0	372
85°	0	6	0	0	0	32
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°	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2
2.5°	4676.7	4806.3	4817.5	4806.3	4823.3	4817.5	4845.8	4817.5	4851.5	4800.7	4812.0
5°	4952.8	4902.1	5009.1	4952.8	4952.8	4947.3	4930.3	4924.6	4947.3	4874.0	4907.8
7.5°	5026.1	5099.4	5195.2	5076.9	5082.4	5082.4	5048.6	5037.4	5037.4	4902.1	4941.6
10°	5088.2	5042.9	5093.7	5048.6	5088.2	5082.4	5104.9	5031.6	5082.4	5003.6	4997.9
12.5°	5037.4	5020.4	5088.2	5014.9	4992.3	4997.9	4969.8	4952.8	4969.8	4879.5	4874.0
15°	4890.8	4907.8	5009.1	4930.3	4919.1	4907.8	4874.0	4817.5	4862.8	4738.7	4744.4
17.5°	4840.2	4812.0	4829.0	4761.2	4778.2	4767.0	4761.2	4710.7	4699.2	4620.4	4620.4
20°	4603.6	4665.4	4665.4	4620.4	4620.4	4614.9	4541.6	4586.6	4535.8	4513.3	4535.8
22.5°	4440.0	4445.8	4445.8	4406.2	4412.0	4389.5	4350.0	4321.7	4350.0	4321.7	4276.7
25°	4141.6	4152.8	4220.4	4147.1	4135.8	4158.3	4124.6	4107.6	4102.0	4034.5	4124.6
27.5°	3780.9	3893.4	3887.9	3859.7	3893.4	3848.4	3831.6	3837.1	3854.1	3848.4	3870.9
30°	3572.5	3589.2	3606.2	3583.7	3589.2	3572.5	3572.5	3578.0	3623.0	3606.2	3600.5
32.5°	3149.7	3206.0	3251.3	3251.3	3256.8	3273.8	3268.0	3386.4	3414.6	3358.3	3347.1
35°	2783.5	2823.0	2862.3	2868.0	2941.3	2946.8	2952.6	2986.4	3065.2	3082.2	3076.4
37.5°	2434.3	2473.5	2484.8	2535.6	2575.1	2614.4	2659.6	2704.7	2772.2	2828.5	2800.5
40°	2124.3	2141.1	2169.3	2191.9	2270.7	2270.7	2293.2	2383.5	2456.8	2501.8	2496.1
42.5°	1865.1	1870.7	1893.2	1932.7	2006.0	1989.0	2006.0	2068.0	2174.9	2180.6	2242.6
45°	1684.8	1679.1	1696.1	1701.6	1746.8	1769.3	1780.6	1825.6	1915.7	1927.0	1932.7
47.5°	1521.4	1515.7	1544.0	1555.2	1572.0	1594.5	1594.5	1600.2	1634.0	1662.3	1639.8
50°	1386.1	1386.1	1386.1	1397.4	1425.6	1419.9	1425.6	1448.1	1464.9	1453.7	1448.1
52.5°	1239.5	1262.0	1279.0	1284.8	1290.3	1290.3	1296.0	1284.8	1279.0	1262.0	1228.3
55°	1138.2	1160.7	1160.7	1160.7	1160.7	1183.2	1155.2	1160.7	1160.7	1115.7	1070.7
57.5°	1036.9	1059.4	1076.2	1053.7	1076.2	1053.7	1042.4	1036.9	1025.4	980.4	912.8
60°	952.3	963.6	957.9	952.3	963.6	946.6	935.3	912.8	901.6	839.5	794.5
62.5°	856.5	862.0	867.8	856.5	845.3	839.5	817.0	783.2	760.7	709.9	670.4
65°	777.5	760.7	755.0	749.5	738.2	721.2	704.4	664.9	647.9	602.9	563.4
67.5°	659.2	653.7	664.9	647.9	619.9	619.9	602.9	569.1	529.6	501.6	462.0
70°	563.4	557.8	546.6	529.6	524.1	501.6	501.6	462.0	450.8	400.0	366.2
72.5°	462.0	462.0	445.0	428.3	411.3	400.0	394.5	366.2	349.5	321.2	292.9
75°	349.5	349.5	343.7	326.7	315.5	304.2	298.7	276.2	259.2	231.1	214.1
77.5°	247.9	247.9	225.4	214.1	219.7	208.4	197.1	191.6	185.9	169.1	146.6
80°	146.6	140.8	124.1	129.6	124.1	124.1	118.3	112.6	101.3	90.1	78.8
82.5°	39.5	45.0	45.0	45.0	50.8	39.5	39.5	39.5	45.0	45.0	28.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	5.7	5.7
87.5°	5.7	11.3	22.5	22.5	22.5	22.5	22.5	17.0	17.0	17.0	11.3
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°	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2
2.5°	4755.7	4750.0	4755.7	4716.2	4806.3	4738.7	4727.4	4716.2	4755.7	4716.2	4659.9
5°	4857.0	4800.7	4783.7	4767.0	4817.5	4738.7	4721.9	4727.4	4699.2	4626.1	4631.6
7.5°	4890.8	4840.2	4789.5	4682.4	4727.4	4710.7	4665.4	4631.6	4586.6	4524.6	4513.3
10°	4902.1	4845.8	4772.5	4738.7	4671.2	4648.6	4631.6	4575.3	4519.1	4412.0	4383.7
12.5°	4868.3	4800.7	4710.7	4682.4	4631.6	4558.3	4519.1	4462.5	4412.0	4327.4	4265.4
15°	4721.9	4665.4	4637.4	4541.6	4519.1	4473.8	4395.0	4316.2	4242.9	4130.1	4096.3
17.5°	4552.8	4530.3	4502.1	4428.8	4423.2	4378.2	4304.9	4237.1	4141.6	3966.7	3910.4
20°	4378.2	4378.2	4287.9	4259.9	4316.2	4225.9	4169.6	4107.6	3910.4	3825.9	3724.6
22.5°	4248.6	4186.6	4135.8	4090.8	4096.3	4040.0	3961.2	3837.1	3763.9	3662.5	3544.2
25°	3995.0	4017.5	3904.9	3887.9	3904.9	3775.1	3735.8	3634.3	3527.2	3431.4	3341.3
27.5°	3837.1	3775.1	3702.0	3640.0	3640.0	3589.2	3476.7	3454.1	3290.6	3200.5	3087.7
30°	3600.5	3555.5	3493.4	3403.4	3392.1	3352.6	3262.5	3206.0	3037.1	2901.8	2839.8
32.5°	3301.8	3285.0	3234.3	3132.9	3099.2	3053.9	2941.3	2845.5	2766.7	2614.4	2541.3
35°	3087.7	3025.9	2918.8	2834.3	2806.0	2727.2	2636.9	2569.4	2484.8	2349.7	2253.9
37.5°	2766.7	2704.7	2603.1	2501.8	2501.8	2423.0	2298.9	2231.4	2113.1	2034.0	1955.2
40°	2484.8	2406.0	2304.7	2186.3	2169.3	2056.5	2006.0	1893.2	1819.9	1696.1	1684.8
42.5°	2169.3	2096.1	2006.0	1915.7	1848.2	1791.9	1662.3	1577.7	1498.9	1436.9	1419.9
45°	1881.9	1786.1	1707.3	1594.5	1527.0	1459.4	1374.9	1318.6	1256.5	1189.0	1149.5
47.5°	1634.0	1555.2	1442.4	1341.1	1273.5	1239.5	1143.7	1081.9	1031.1	986.1	957.9
50°	1380.6	1284.8	1222.8	1110.0	1098.7	1019.9	941.1	890.3	862.0	822.7	783.2
52.5°	1189.0	1098.7	1014.1	929.8	884.6	856.5	783.2	732.5	693.2	664.9	642.4
55°	1002.9	924.1	856.5	772.0	743.7	704.4	619.9	608.6	569.1	529.6	501.6
57.5°	862.0	788.8	709.9	653.7	602.9	574.8	507.1	462.0	439.5	405.7	377.5
60°	732.5	653.7	591.6	524.1	501.6	462.0	411.3	372.0	343.7	315.5	287.4
62.5°	614.1	546.6	479.0	422.5	388.7	366.2	326.7	292.9	264.9	242.4	219.7
65°	507.1	445.0	388.7	332.5	315.5	287.4	259.2	231.1	208.4	180.4	157.8
67.5°	417.0	360.7	304.2	264.9	247.9	236.6	202.9	174.6	157.8	140.8	118.3
70°	326.7	287.4	242.4	208.4	191.6	174.6	152.1	135.3	112.6	101.3	84.5
72.5°	253.6	219.7	180.4	152.1	140.8	129.6	107.1	90.1	78.8	67.6	56.3
75°	180.4	152.1	129.6	101.3	95.8	90.1	73.3	62.0	50.8	39.5	33.8
77.5°	124.1	101.3	78.8	67.6	62.0	50.8	45.0	33.8	28.3	22.5	17.0
80°	67.6	50.8	39.5	33.8	28.3	22.5	22.5	17.0	11.3	11.3	5.7
82.5°	22.5	17.0	11.3	5.7	5.7	5.7	5.7	5.7	5.7	0.0	5.7
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°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	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°	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2
2.5°	4693.7	4631.6	4648.6	4648.6	4637.4	4637.4	4626.1	4609.1	4614.9	4580.9	4507.8
5°	4642.9	4564.1	4552.8	4564.1	4519.1	4507.8	4485.3	4519.1	4417.5	4457.0	4412.0
7.5°	4496.5	4423.2	4406.2	4445.8	4389.5	4355.5	4350.0	4395.0	4304.9	4259.9	4209.1
10°	4333.0	4304.9	4254.1	4225.9	4209.1	4214.6	4169.6	4113.3	4096.3	4085.1	4040.0
12.5°	4186.6	4124.6	4079.5	4045.8	4034.5	4034.5	3961.2	3949.9	3899.2	3887.9	3820.4
15°	4011.8	3938.7	3910.4	3865.4	3825.9	3848.4	3763.9	3741.3	3724.6	3651.3	3662.5
17.5°	3859.7	3780.9	3713.3	3685.0	3651.3	3617.5	3538.5	3555.5	3515.9	3515.9	3414.6
20°	3662.5	3578.0	3527.2	3470.9	3470.9	3425.9	3369.6	3375.1	3324.3	3273.8	3183.5
22.5°	3454.1	3363.8	3301.8	3279.3	3223.0	3211.7	3144.2	3127.2	3059.6	3065.2	2986.4
25°	3234.3	3144.2	3059.6	3065.2	3014.6	2992.1	2952.6	2873.8	2845.5	2811.7	2789.2
27.5°	2975.1	2913.1	2839.8	2834.3	2738.5	2744.0	2693.4	2670.9	2603.1	2620.1	2569.4
30°	2738.5	2648.4	2580.6	2563.8	2524.3	2513.1	2434.3	2400.3	2411.7	2366.5	2338.4
32.5°	2496.1	2361.0	2332.7	2298.9	2276.4	2248.2	2191.9	2214.4	2163.6	2174.9	2129.8
35°	2174.9	2118.6	2045.3	2045.3	2022.8	2000.3	1961.0	1983.5	1932.7	1910.2	1865.1
37.5°	1904.4	1853.9	1780.6	1803.1	1763.6	1729.8	1696.1	1701.6	1656.5	1651.0	1605.8
40°	1611.5	1583.2	1532.7	1532.7	1504.4	1504.4	1487.4	1470.7	1442.4	1408.6	1357.9
42.5°	1335.3	1312.8	1290.3	1296.0	1256.5	1290.3	1245.3	1273.5	1183.2	1177.7	1143.7
45°	1132.5	1081.9	1087.4	1064.9	1042.4	1053.7	1014.1	1025.4	974.8	963.6	929.8
47.5°	918.6	901.6	867.8	856.5	856.5	839.5	822.7	817.0	794.5	766.2	721.2
50°	755.0	693.2	681.7	664.9	653.7	653.7	631.1	597.4	602.9	574.8	529.6
52.5°	591.6	540.8	518.3	512.8	490.3	479.0	450.8	428.3	411.3	400.0	372.0
55°	456.3	411.3	383.2	383.2	349.5	349.5	309.9	292.9	270.4	247.9	231.1
57.5°	343.7	321.2	292.9	270.4	259.2	231.1	208.4	180.4	163.4	129.6	107.1
60°	259.2	236.6	208.4	191.6	180.4	152.1	124.1	101.3	62.0	50.8	45.0
62.5°	191.6	169.1	140.8	129.6	118.3	95.8	67.6	33.8	17.0	17.0	17.0
65°	140.8	112.6	90.1	78.8	67.6	50.8	22.5	11.3	5.7	5.7	5.7
67.5°	95.8	73.3	50.8	45.0	33.8	17.0	5.7	5.7	5.7	5.7	5.7
70°	62.0	45.0	22.5	17.0	11.3	5.7	5.7	5.7	5.7	5.7	5.7
72.5°	39.5	22.5	11.3	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	22.5	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	11.3	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.7	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	5.7	5.7	5.7
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: FLDSQ4C100D010 FEU4C1009035 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2	4699.2
2.5°	4586.6	4547.1	4569.6	4519.1	4541.6	4580.9	4552.8	4564.1
5°	4428.8	4406.2	4378.2	4304.9	4361.2	4406.2	4383.7	4378.2
7.5°	4259.9	4180.9	4220.4	4197.9	4186.6	4231.6	4180.9	4237.1
10°	4085.1	4028.8	4023.2	3983.7	3983.7	4017.5	4023.2	3989.2
12.5°	3825.9	3797.8	3797.8	3792.1	3786.4	3820.4	3825.9	3809.1
15°	3640.0	3628.8	3600.5	3595.0	3561.2	3611.8	3617.5	3611.8
17.5°	3414.6	3420.1	3392.1	3392.1	3414.6	3431.4	3386.4	3431.4
20°	3262.5	3234.3	3223.0	3172.2	3200.5	3228.7	3228.7	3234.3
22.5°	3042.7	2997.6	3014.6	2986.4	2969.4	3008.9	3008.9	3025.9
25°	2794.7	2794.7	2806.0	2789.2	2800.5	2823.0	2806.0	2845.5
27.5°	2558.1	2580.6	2580.6	2558.1	2569.4	2636.9	2665.2	2620.1
30°	2338.4	2344.0	2361.0	2349.7	2383.5	2406.0	2400.3	2434.3
32.5°	2090.5	2118.6	2129.8	2113.1	2124.3	2174.9	2146.8	2141.1
35°	1898.9	1848.2	1842.6	1848.2	1870.7	1881.9	1870.7	1910.2
37.5°	1622.8	1605.8	1583.2	1589.0	1605.8	1628.5	1639.8	1667.8
40°	1357.9	1335.3	1335.3	1329.8	1312.8	1374.9	1374.9	1374.9
42.5°	1126.9	1121.2	1093.2	1093.2	1115.7	1132.5	1121.2	1160.7
45°	924.1	901.6	884.6	884.6	901.6	901.6	918.6	912.8
47.5°	726.9	704.4	709.9	693.2	709.9	732.5	704.4	709.9
50°	546.6	546.6	535.3	546.6	540.8	546.6	535.3	524.1
52.5°	372.0	422.5	428.3	405.7	355.0	309.9	281.7	304.2
55°	214.1	191.6	191.6	185.9	174.6	169.1	152.1	169.1
57.5°	107.1	95.8	95.8	95.8	90.1	84.5	73.3	73.3
60°	45.0	39.5	39.5	33.8	28.3	22.5	17.0	22.5
62.5°	17.0	11.3	11.3	11.3	11.3	11.3	11.3	11.3
65°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
67.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
70°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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)