

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 FEU4C1009050 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 FEU4C1009050 F4LC-SQLWW-H
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS
 AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

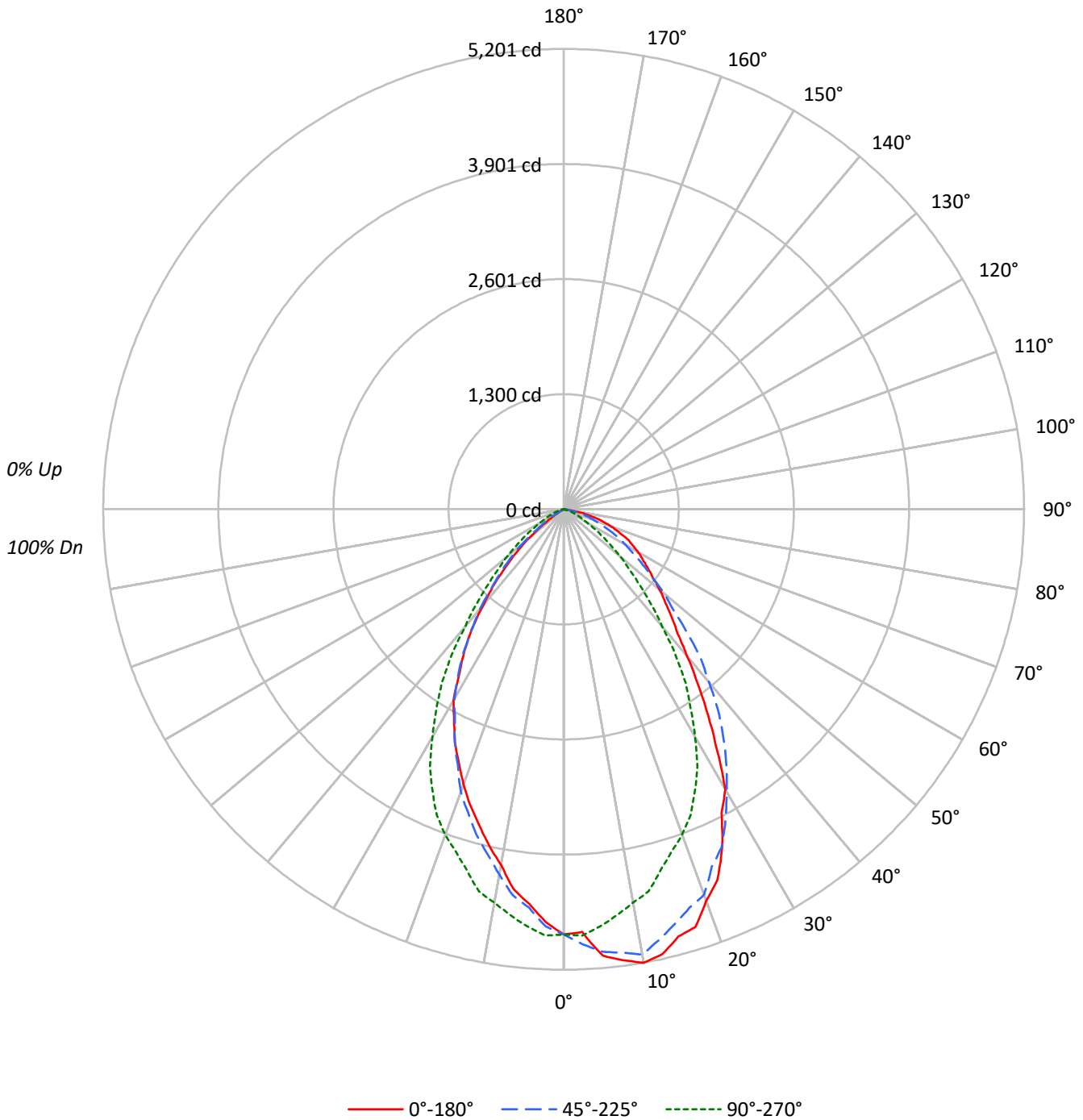
Lumens per Lamp: N/A
 Luminaire Lumens: 6885.0 lumens
 Efficiency: N/A
 Efficacy: 60.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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°	463446	463446	463446
5°	490331	457981	433447
10°	509551	441839	399503
15°	499363	421687	368764
20°	483157	401535	339444
25°	450682	373400	309650
30°	406835	330459	277214
35°	335128	282899	229976
40°	273491	218360	177008
45°	234991	165835	127313
50°	212676	126228	80414
55°	195711	91059	29069
60°	187845	62216	4438
65°	181440	42078	1347
70°	162442	29227	1664
75°	133166	15061	0
80°	83237	6390	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	450.0	6.5
10°-20°	1212.4	17.6
20°-30°	1619.0	23.5
30°-40°	1536.9	22.3
40°-50°	1062.4	15.4
50°-60°	587.0	8.5
60°-70°	291.5	4.2
70°-80°	114.8	1.7
80°-90°	10.9	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°	3281.5	47.7
0°-40°	4818.4	70.0
0°-60°	6467.7	93.9
0°-90°	6885.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6885.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4803	4803	4803	4803	4803	
5°	5062	5016	4728	4515	4475	485
15°	4999	4849	4221	3807	3692	1414
25°	4233	4216	3507	2908	2908	1930
35°	2845	3144	2402	1976	1952	1782
45°	1722	1976	1215	996	933	1343
55°	1163	1094	541	276	173	1047
65°	795	576	184	6	6	771
75°	357	219	40	0	0	381
85°	0	6	0	0	0	33
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°	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1
2.5°	4780.1	4912.6	4924.1	4912.6	4929.9	4924.1	4953.0	4924.1	4958.8	4906.9	4918.4
5°	5062.4	5010.5	5119.9	5062.4	5062.4	5056.7	5039.4	5033.5	5056.7	4981.8	5016.4
7.5°	5137.3	5212.2	5310.1	5189.2	5194.8	5194.8	5160.3	5148.8	5148.8	5010.5	5050.9
10°	5200.7	5154.5	5206.3	5160.3	5200.7	5194.8	5217.9	5142.9	5194.8	5114.3	5108.4
12.5°	5148.8	5131.4	5200.7	5125.8	5102.8	5108.4	5079.8	5062.4	5079.8	4987.5	4981.8
15°	4999.0	5016.4	5119.9	5039.4	5027.9	5016.4	4981.8	4924.1	4970.3	4843.5	4849.4
17.5°	4947.3	4918.4	4935.8	4866.5	4883.9	4872.4	4866.5	4814.9	4803.1	4722.6	4722.6
20°	4705.4	4768.6	4768.6	4722.6	4722.6	4716.9	4642.0	4688.1	4636.2	4613.1	4636.2
22.5°	4538.2	4544.1	4544.1	4503.7	4509.6	4486.6	4446.2	4417.3	4446.2	4417.3	4371.3
25°	4233.2	4244.7	4313.7	4238.8	4227.3	4250.3	4215.8	4198.4	4192.8	4123.7	4215.8
27.5°	3864.5	3979.6	3973.9	3945.0	3979.6	3933.5	3916.4	3922.0	3939.4	3933.5	3956.5
30°	3651.5	3668.6	3686.0	3663.0	3668.6	3651.5	3651.5	3657.1	3703.2	3686.0	3680.1
32.5°	3219.4	3276.9	3323.2	3323.2	3328.8	3346.2	3340.3	3461.3	3490.2	3432.6	3421.1
35°	2845.1	2885.4	2925.6	2931.5	3006.4	3012.0	3017.9	3052.4	3133.0	3150.3	3144.5
37.5°	2488.1	2528.3	2539.8	2591.7	2632.1	2672.2	2718.5	2764.5	2833.5	2891.1	2862.4
40°	2171.3	2188.5	2217.3	2240.3	2320.9	2320.9	2343.9	2436.2	2511.1	2557.1	2551.3
42.5°	1906.4	1912.0	1935.1	1975.5	2050.4	2033.0	2050.4	2113.8	2223.0	2228.8	2292.2
45°	1722.1	1716.2	1733.6	1739.2	1785.5	1808.5	1820.0	1866.0	1958.1	1969.6	1975.5
47.5°	1555.1	1549.2	1578.1	1589.6	1606.8	1629.8	1629.8	1635.6	1670.2	1699.0	1676.0
50°	1416.8	1416.8	1416.8	1428.3	1457.2	1451.3	1457.2	1480.2	1497.3	1485.8	1480.2
52.5°	1267.0	1290.0	1307.3	1313.2	1318.8	1318.8	1324.7	1313.2	1307.3	1290.0	1255.4
55°	1163.4	1186.4	1186.4	1186.4	1186.4	1209.4	1180.8	1186.4	1186.4	1140.4	1094.3
57.5°	1059.8	1082.8	1100.0	1077.0	1100.0	1077.0	1065.5	1059.8	1048.1	1002.1	933.0
60°	973.4	984.9	979.0	973.4	984.9	967.5	956.0	933.0	921.5	858.1	812.1
62.5°	875.5	881.1	887.0	875.5	864.0	858.1	835.1	800.6	777.5	725.6	685.3
65°	794.7	777.5	771.7	766.0	754.5	737.2	720.0	679.6	662.2	616.2	575.8
67.5°	673.8	668.1	679.6	662.2	633.6	633.6	616.2	581.7	541.3	512.6	472.3
70°	575.8	570.2	558.7	541.3	535.7	512.6	512.6	472.3	460.8	408.9	374.3
72.5°	472.3	472.3	454.9	437.7	420.4	408.9	403.2	374.3	357.2	328.3	299.4
75°	357.2	357.2	351.3	333.9	322.4	310.9	305.3	282.3	264.9	236.2	218.9
77.5°	253.4	253.4	230.4	218.9	224.5	213.0	201.5	195.9	190.0	172.8	149.8
80°	149.8	144.0	126.8	132.4	126.8	126.8	120.9	115.1	103.6	92.1	80.6
82.5°	40.4	46.0	46.0	46.0	51.9	40.4	40.4	40.4	46.0	46.0	28.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	5.9	5.9
87.5°	5.9	11.5	23.0	23.0	23.0	23.0	23.0	17.4	17.4	17.4	11.5
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°	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1
2.5°	4860.9	4855.0	4860.9	4820.5	4912.6	4843.5	4832.0	4820.5	4860.9	4820.5	4763.0
5°	4964.5	4906.9	4889.6	4872.4	4924.1	4843.5	4826.4	4832.0	4803.1	4728.4	4734.1
7.5°	4999.0	4947.3	4895.4	4786.0	4832.0	4814.9	4768.6	4734.1	4688.1	4624.7	4613.1
10°	5010.5	4953.0	4878.0	4843.5	4774.5	4751.5	4734.1	4676.6	4619.0	4509.6	4480.7
12.5°	4976.0	4906.9	4814.9	4786.0	4734.1	4659.2	4619.0	4561.3	4509.6	4423.2	4359.8
15°	4826.4	4768.6	4740.0	4642.0	4619.0	4572.8	4492.2	4411.7	4336.7	4221.4	4186.9
17.5°	4653.5	4630.5	4601.6	4526.7	4521.1	4475.1	4400.1	4330.9	4233.2	4054.5	3996.9
20°	4475.1	4475.1	4382.8	4354.1	4411.7	4319.4	4261.8	4198.4	3996.9	3910.5	3806.9
22.5°	4342.6	4279.2	4227.3	4181.3	4186.9	4129.4	4048.8	3922.0	3847.1	3743.5	3622.6
25°	4083.4	4106.4	3991.3	3973.9	3991.3	3858.6	3818.5	3714.7	3605.2	3507.3	3415.2
27.5°	3922.0	3858.6	3783.9	3720.5	3720.5	3668.6	3553.6	3530.5	3363.3	3271.3	3156.0
30°	3680.1	3634.1	3570.7	3478.6	3467.1	3426.7	3334.7	3276.9	3104.3	2966.0	2902.6
32.5°	3374.9	3357.7	3305.8	3202.2	3167.7	3121.5	3006.4	2908.5	2827.9	2672.2	2597.5
35°	3156.0	3092.8	2983.4	2897.0	2868.1	2787.5	2695.2	2626.2	2539.8	2401.7	2303.8
37.5°	2827.9	2764.5	2660.7	2557.1	2557.1	2476.6	2349.8	2280.7	2159.8	2079.0	1998.5
40°	2539.8	2459.2	2355.6	2234.7	2217.3	2102.0	2050.4	1935.1	1860.2	1733.6	1722.1
42.5°	2217.3	2142.4	2050.4	1958.1	1889.0	1831.5	1699.0	1612.6	1532.1	1468.7	1451.3
45°	1923.6	1825.6	1745.1	1629.8	1560.7	1491.7	1405.3	1347.7	1284.3	1215.3	1174.9
47.5°	1670.2	1589.6	1474.3	1370.7	1301.7	1267.0	1169.0	1105.8	1054.0	1007.9	979.0
50°	1411.1	1313.2	1249.8	1134.5	1123.0	1042.4	961.9	910.0	881.1	840.9	800.6
52.5°	1215.3	1123.0	1036.6	950.4	904.1	875.5	800.6	748.7	708.5	679.6	656.6
55°	1025.1	944.5	875.5	789.1	760.2	720.0	633.6	622.1	581.7	541.3	512.6
57.5°	881.1	806.2	725.6	668.1	616.2	587.6	518.3	472.3	449.2	414.7	385.8
60°	748.7	668.1	604.7	535.7	512.6	472.3	420.4	380.2	351.3	322.4	293.8
62.5°	627.7	558.7	489.6	431.9	397.3	374.3	333.9	299.4	270.8	247.7	224.5
65°	518.3	454.9	397.3	339.8	322.4	293.8	264.9	236.2	213.0	184.3	161.3
67.5°	426.2	368.7	310.9	270.8	253.4	241.9	207.4	178.5	161.3	144.0	120.9
70°	333.9	293.8	247.7	213.0	195.9	178.5	155.5	138.3	115.1	103.6	86.4
72.5°	259.3	224.5	184.3	155.5	144.0	132.4	109.4	92.1	80.6	69.0	57.5
75°	184.3	155.5	132.4	103.6	97.9	92.1	74.9	63.4	51.9	40.4	34.5
77.5°	126.8	103.6	80.6	69.0	63.4	51.9	46.0	34.5	28.9	23.0	17.4
80°	69.0	51.9	40.4	34.5	28.9	23.0	23.0	17.4	11.5	11.5	5.9
82.5°	23.0	17.4	11.5	5.9	5.9	5.9	5.9	5.9	5.9	0.0	5.9
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°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	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°	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1
2.5°	4797.5	4734.1	4751.5	4751.5	4740.0	4740.0	4728.4	4711.1	4716.9	4682.2	4607.5
5°	4745.6	4665.0	4653.5	4665.0	4619.0	4607.5	4584.5	4619.0	4515.2	4555.6	4509.6
7.5°	4596.0	4521.1	4503.7	4544.1	4486.6	4451.8	4446.2	4492.2	4400.1	4354.1	4302.2
10°	4428.8	4400.1	4348.2	4319.4	4302.2	4307.9	4261.8	4204.3	4186.9	4175.4	4129.4
12.5°	4279.2	4215.8	4169.8	4135.2	4123.7	4123.7	4048.8	4037.3	3985.4	3973.9	3904.9
15°	4100.5	4025.8	3996.9	3950.9	3910.5	3933.5	3847.1	3824.1	3806.9	3732.0	3743.5
17.5°	3945.0	3864.5	3795.4	3766.6	3732.0	3697.5	3616.7	3634.1	3593.7	3593.7	3490.2
20°	3743.5	3657.1	3605.2	3547.7	3547.7	3501.7	3444.1	3449.8	3397.9	3346.2	3253.9
22.5°	3530.5	3438.3	3374.9	3351.8	3294.3	3282.8	3213.7	3196.4	3127.3	3133.0	3052.4
25°	3305.8	3213.7	3127.3	3133.0	3081.3	3058.3	3017.9	2937.3	2908.5	2873.9	2850.9
27.5°	3040.9	2977.5	2902.6	2897.0	2799.0	2804.7	2753.0	2730.0	2660.7	2678.1	2626.2
30°	2799.0	2707.0	2637.7	2620.5	2580.2	2568.7	2488.1	2453.4	2465.1	2418.8	2390.2
32.5°	2551.3	2413.2	2384.3	2349.8	2326.8	2297.9	2240.3	2263.4	2211.5	2223.0	2176.9
35°	2223.0	2165.4	2090.5	2090.5	2067.5	2044.5	2004.3	2027.3	1975.5	1952.4	1906.4
37.5°	1946.6	1894.9	1820.0	1843.0	1802.6	1768.1	1733.6	1739.2	1693.2	1687.5	1641.3
40°	1647.1	1618.3	1566.6	1566.6	1537.7	1537.7	1520.3	1503.2	1474.3	1439.8	1387.9
42.5°	1364.9	1341.9	1318.8	1324.7	1284.3	1318.8	1272.8	1301.7	1209.4	1203.8	1169.0
45°	1157.5	1105.8	1111.5	1088.5	1065.5	1077.0	1036.6	1048.1	996.4	984.9	950.4
47.5°	938.9	921.5	887.0	875.5	875.5	858.1	840.9	835.1	812.1	783.2	737.2
50°	771.7	708.5	696.8	679.6	668.1	668.1	645.1	610.6	616.2	587.6	541.3
52.5°	604.7	552.8	529.8	524.2	501.1	489.6	460.8	437.7	420.4	408.9	380.2
55°	466.4	420.4	391.7	391.7	357.2	357.2	316.8	299.4	276.4	253.4	236.2
57.5°	351.3	328.3	299.4	276.4	264.9	236.2	213.0	184.3	167.0	132.4	109.4
60°	264.9	241.9	213.0	195.9	184.3	155.5	126.8	103.6	63.4	51.9	46.0
62.5°	195.9	172.8	144.0	132.4	120.9	97.9	69.0	34.5	17.4	17.4	17.4
65°	144.0	115.1	92.1	80.6	69.0	51.9	23.0	11.5	5.9	5.9	5.9
67.5°	97.9	74.9	51.9	46.0	34.5	17.4	5.9	5.9	5.9	5.9	5.9
70°	63.4	46.0	23.0	17.4	11.5	5.9	5.9	5.9	5.9	5.9	5.9
72.5°	40.4	23.0	11.5	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	23.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	11.5	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.9	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	5.9	5.9	5.9
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 FEU4C1009050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1	4803.1
2.5°	4688.1	4647.7	4670.7	4619.0	4642.0	4682.2	4653.5	4665.0
5°	4526.7	4503.7	4475.1	4400.1	4457.7	4503.7	4480.7	4475.1
7.5°	4354.1	4273.3	4313.7	4290.7	4279.2	4325.2	4273.3	4330.9
10°	4175.4	4117.9	4112.2	4071.8	4071.8	4106.4	4112.2	4077.5
12.5°	3910.5	3881.9	3881.9	3876.0	3870.1	3904.9	3910.5	3893.4
15°	3720.5	3709.0	3680.1	3674.5	3640.0	3691.6	3697.5	3691.6
17.5°	3490.2	3495.8	3467.1	3467.1	3490.2	3507.3	3461.3	3507.3
20°	3334.7	3305.8	3294.3	3242.4	3271.3	3300.2	3300.2	3305.8
22.5°	3110.0	3063.9	3081.3	3052.4	3035.0	3075.4	3075.4	3092.8
25°	2856.6	2856.6	2868.1	2850.9	2862.4	2885.4	2868.1	2908.5
27.5°	2614.7	2637.7	2637.7	2614.7	2626.2	2695.2	2724.1	2678.1
30°	2390.2	2395.8	2413.2	2401.7	2436.2	2459.2	2453.4	2488.1
32.5°	2136.8	2165.4	2176.9	2159.8	2171.3	2223.0	2194.3	2188.5
35°	1940.9	1889.0	1883.4	1889.0	1912.0	1923.6	1912.0	1952.4
37.5°	1658.7	1641.3	1618.3	1624.1	1641.3	1664.5	1676.0	1704.7
40°	1387.9	1364.9	1364.9	1359.2	1341.9	1405.3	1405.3	1405.3
42.5°	1151.9	1146.0	1117.4	1117.4	1140.4	1157.5	1146.0	1186.4
45°	944.5	921.5	904.1	904.1	921.5	921.5	938.9	933.0
47.5°	743.0	720.0	725.6	708.5	725.6	748.7	720.0	725.6
50°	558.7	558.7	547.2	558.7	552.8	558.7	547.2	535.7
52.5°	380.2	431.9	437.7	414.7	362.8	316.8	287.9	310.9
55°	218.9	195.9	195.9	190.0	178.5	172.8	155.5	172.8
57.5°	109.4	97.9	97.9	97.9	92.1	86.4	74.9	74.9
60°	46.0	40.4	40.4	34.5	28.9	23.0	17.4	23.0
62.5°	17.4	11.5	11.5	11.5	11.5	11.5	11.5	11.5
65°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
67.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
70°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
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)