

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: **FLDSQ4C90D010 FEU4C909030 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: FLDSQ4C90D010 FEU4C909030 F4LC-SQLWW-H
 Description: 4 INCH 9000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

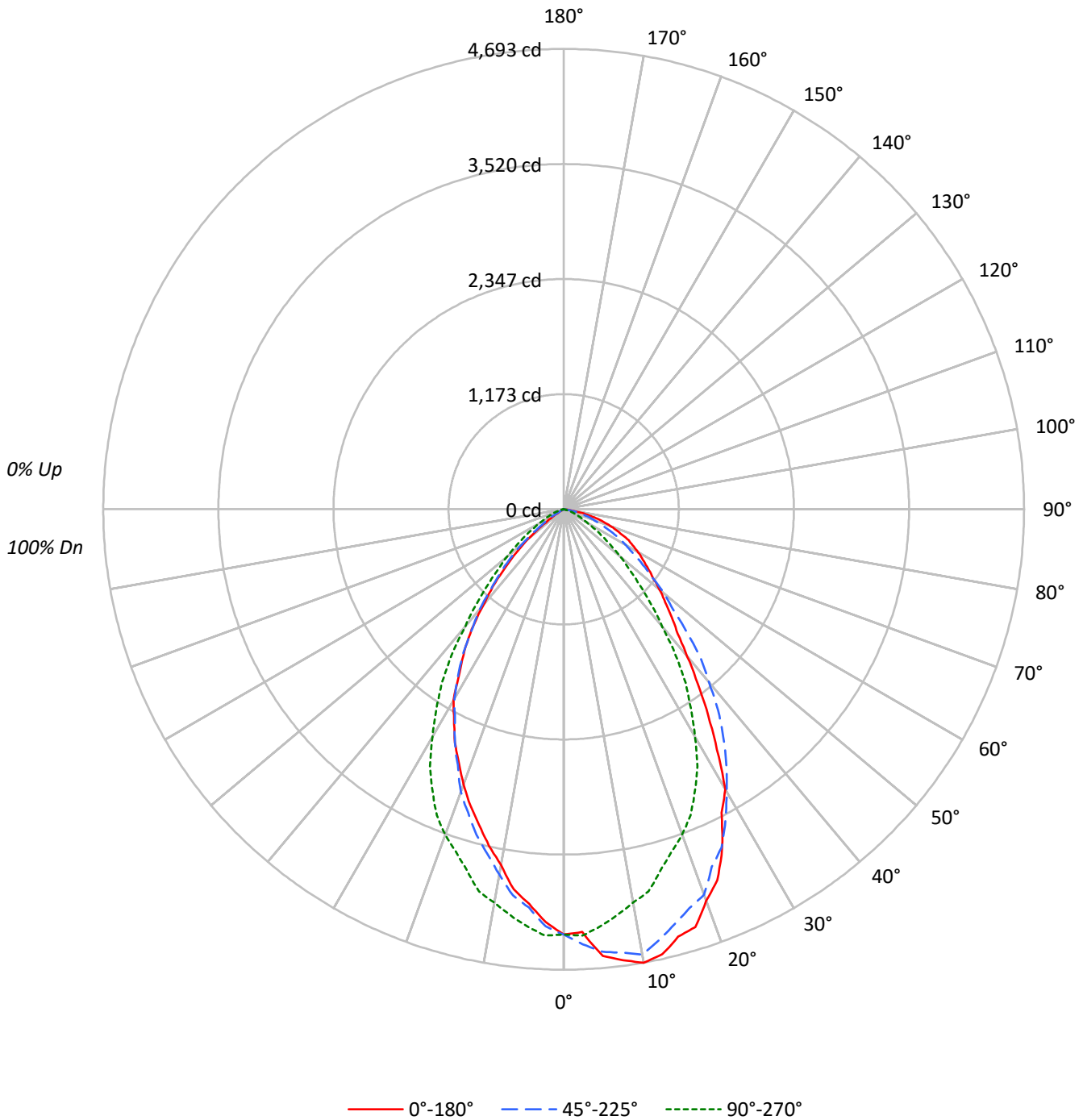
Lumens per Lamp: N/A
 Luminaire Lumens: 6213.0 lumens
 Efficiency: N/A
 Efficacy: 64.0 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 97.1
 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: FLDSQ4C90D010 FEU4C909030 F4LC-SQLWW-H

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°	418212	418212	418212
5°	442474	413281	391140
10°	459818	398709	360508
15°	450626	380531	332772
20°	436005	362342	306309
25°	406691	336958	279425
30°	367126	298204	250162
35°	302417	255289	207536
40°	246801	197048	159726
45°	212052	149651	114882
50°	191916	113919	72563
55°	176601	82177	26243
60°	169512	56157	4014
65°	163723	37991	1210
70°	146587	26378	1495
75°	120155	13570	0
80°	75125	5779	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.1	6.5
10°-20°	1094.1	17.6
20°-30°	1461.0	23.5
30°-40°	1386.9	22.3
40°-50°	958.7	15.4
50°-60°	529.7	8.5
60°-70°	263.0	4.2
70°-80°	103.6	1.7
80°-90°	9.9	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°	2961.2	47.7
0°-40°	4348.1	70.0
0°-60°	5836.5	93.9
0°-90°	6213.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6213.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4334	4334	4334	4334	4334	
5°	4568	4527	4267	4074	4038	437
15°	4511	4376	3809	3435	3331	1276
25°	3820	3804	3165	2625	2625	1741
35°	2567	2838	2167	1783	1762	1608
45°	1554	1783	1097	899	842	1212
55°	1050	988	488	249	156	945
65°	717	520	166	5	5	696
75°	322	198	36	0	0	344
85°	0	5	0	0	0	30
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°	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3
2.5°	4313.6	4433.1	4443.5	4433.1	4448.8	4443.5	4469.5	4443.5	4474.8	4428.0	4438.4
5°	4568.3	4521.5	4620.2	4568.3	4568.3	4563.2	4547.5	4542.2	4563.2	4495.6	4526.7
7.5°	4635.9	4703.5	4791.9	4682.7	4687.8	4687.8	4656.7	4646.3	4646.3	4521.5	4557.9
10°	4693.1	4651.4	4698.2	4656.7	4693.1	4687.8	4708.6	4641.0	4687.8	4615.1	4609.8
12.5°	4646.3	4630.6	4693.1	4625.5	4604.7	4609.8	4584.0	4568.3	4584.0	4500.7	4495.6
15°	4511.1	4526.7	4620.2	4547.5	4537.1	4526.7	4495.6	4443.5	4485.2	4370.8	4376.1
17.5°	4464.4	4438.4	4454.1	4391.5	4407.2	4396.8	4391.5	4344.9	4334.3	4261.6	4261.6
20°	4246.2	4303.2	4303.2	4261.6	4261.6	4256.6	4189.0	4230.5	4183.7	4162.9	4183.7
22.5°	4095.3	4100.6	4100.6	4064.1	4069.4	4048.7	4012.2	3986.2	4012.2	3986.2	3944.6
25°	3820.0	3830.4	3892.7	3825.1	3814.7	3835.5	3804.3	3788.6	3783.6	3721.2	3804.3
27.5°	3487.3	3591.1	3586.0	3560.0	3591.1	3549.6	3534.1	3539.2	3554.9	3549.6	3570.4
30°	3295.1	3310.6	3326.2	3305.5	3310.6	3295.1	3295.1	3300.2	3341.7	3326.2	3320.9
32.5°	2905.2	2957.1	2998.8	2998.8	3003.9	3019.6	3014.3	3123.4	3149.5	3097.6	3087.2
35°	2567.4	2603.8	2640.1	2645.4	2713.0	2718.0	2723.3	2754.5	2827.2	2842.9	2837.6
37.5°	2245.3	2281.5	2291.9	2338.7	2375.2	2411.4	2453.1	2494.7	2557.0	2608.9	2583.0
40°	1959.4	1974.9	2000.9	2021.7	2094.4	2094.4	2115.1	2198.4	2266.0	2307.6	2302.3
42.5°	1720.3	1725.4	1746.2	1782.6	1850.2	1834.6	1850.2	1907.5	2006.0	2011.3	2068.5
45°	1554.0	1548.7	1564.4	1569.5	1611.2	1632.0	1642.4	1683.9	1767.0	1777.3	1782.6
47.5°	1403.3	1398.0	1424.1	1434.5	1449.9	1470.7	1470.7	1476.0	1507.2	1533.2	1512.4
50°	1278.5	1278.5	1278.5	1288.9	1314.9	1309.6	1314.9	1335.7	1351.2	1340.8	1335.7
52.5°	1143.3	1164.1	1179.7	1185.0	1190.1	1190.1	1195.4	1185.0	1179.7	1164.1	1132.9
55°	1049.8	1070.6	1070.6	1070.6	1070.6	1091.4	1065.5	1070.6	1070.6	1029.1	987.5
57.5°	956.4	977.1	992.6	971.8	992.6	971.8	961.5	956.4	945.8	904.2	841.9
60°	878.4	888.8	883.5	878.4	888.8	873.1	862.7	841.9	831.6	774.3	732.8
62.5°	790.0	795.1	800.4	790.0	779.6	774.3	753.6	722.4	701.7	654.8	618.4
65°	717.1	701.7	696.4	691.3	680.9	665.2	649.7	613.3	597.6	556.1	519.6
67.5°	608.0	602.9	613.3	597.6	571.7	571.7	556.1	524.9	488.5	462.6	426.2
70°	519.6	514.5	504.1	488.5	483.4	462.6	462.6	426.2	415.8	368.9	337.8
72.5°	426.2	426.2	410.5	395.0	379.3	368.9	363.9	337.8	322.3	296.3	270.2
75°	322.3	322.3	317.0	301.3	291.0	280.6	275.5	254.7	239.0	213.2	197.5
77.5°	228.7	228.7	207.9	197.5	202.6	192.2	181.8	176.7	171.4	156.0	135.2
80°	135.2	129.9	114.4	119.5	114.4	114.4	109.1	103.8	93.5	83.1	72.7
82.5°	36.4	41.5	41.5	41.5	46.8	36.4	36.4	36.4	41.5	41.5	26.1
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	5.3	5.3
87.5°	5.3	10.4	20.8	20.8	20.8	20.8	20.8	15.7	15.7	15.7	10.4
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°	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3
2.5°	4386.5	4381.2	4386.5	4350.0	4433.1	4370.8	4360.4	4350.0	4386.5	4350.0	4298.1
5°	4479.9	4428.0	4412.3	4396.8	4443.5	4370.8	4355.3	4360.4	4334.3	4266.9	4272.0
7.5°	4511.1	4464.4	4417.6	4318.9	4360.4	4344.9	4303.2	4272.0	4230.5	4173.3	4162.9
10°	4521.5	4469.5	4401.9	4370.8	4308.5	4287.7	4272.0	4220.1	4168.2	4069.4	4043.4
12.5°	4490.3	4428.0	4344.9	4318.9	4272.0	4204.4	4168.2	4116.1	4069.4	3991.4	3934.2
15°	4355.3	4303.2	4277.3	4189.0	4168.2	4126.4	4053.8	3981.1	3913.5	3809.4	3778.3
17.5°	4199.3	4178.6	4152.5	4084.9	4079.8	4038.3	3970.7	3908.2	3820.0	3658.7	3606.8
20°	4038.3	4038.3	3955.0	3929.1	3981.1	3897.8	3845.9	3788.6	3606.8	3528.8	3435.4
22.5°	3918.8	3861.5	3814.7	3773.2	3778.3	3726.3	3653.6	3539.2	3471.6	3378.2	3269.0
25°	3684.8	3705.6	3601.7	3586.0	3601.7	3482.0	3445.8	3352.1	3253.3	3165.0	3081.9
27.5°	3539.2	3482.0	3414.6	3357.4	3357.4	3310.6	3206.7	3185.9	3035.1	2952.0	2847.9
30°	3320.9	3279.4	3222.2	3139.1	3128.7	3092.3	3009.2	2957.1	2801.3	2676.5	2619.3
32.5°	3045.5	3030.0	2983.1	2889.7	2858.5	2816.8	2713.0	2624.6	2551.9	2411.4	2344.0
35°	2847.9	2790.9	2692.2	2614.2	2588.1	2515.4	2432.2	2369.9	2291.9	2167.3	2078.9
37.5°	2551.9	2494.7	2401.0	2307.6	2307.6	2234.9	2120.4	2058.1	1949.0	1876.1	1803.4
40°	2291.9	2219.2	2125.7	2016.6	2000.9	1896.9	1850.2	1746.2	1678.6	1564.4	1554.0
42.5°	2000.9	1933.3	1850.2	1767.0	1704.7	1652.7	1533.2	1455.2	1382.5	1325.3	1309.6
45°	1735.8	1647.4	1574.8	1470.7	1408.4	1346.1	1268.1	1216.2	1159.0	1096.7	1060.2
47.5°	1507.2	1434.5	1330.4	1237.0	1174.6	1143.3	1054.9	997.9	951.1	909.5	883.5
50°	1273.4	1185.0	1127.8	1023.8	1013.4	940.7	868.0	821.2	795.1	758.9	722.4
52.5°	1096.7	1013.4	935.4	857.6	815.9	790.0	722.4	675.6	639.3	613.3	592.5
55°	925.0	852.3	790.0	712.0	686.0	649.7	571.7	561.4	524.9	488.5	462.6
57.5°	795.1	727.5	654.8	602.9	556.1	530.2	467.7	426.2	405.4	374.2	348.2
60°	675.6	602.9	545.7	483.4	462.6	426.2	379.3	343.1	317.0	291.0	265.1
62.5°	566.5	504.1	441.8	389.7	358.6	337.8	301.3	270.2	244.3	223.6	202.6
65°	467.7	410.5	358.6	306.6	291.0	265.1	239.0	213.2	192.2	166.4	145.6
67.5°	384.6	332.7	280.6	244.3	228.7	218.3	187.1	161.1	145.6	129.9	109.1
70°	301.3	265.1	223.6	192.2	176.7	161.1	140.3	124.8	103.8	93.5	78.0
72.5°	234.0	202.6	166.4	140.3	129.9	119.5	98.8	83.1	72.7	62.3	51.9
75°	166.4	140.3	119.5	93.5	88.4	83.1	67.6	57.2	46.8	36.4	31.2
77.5°	114.4	93.5	72.7	62.3	57.2	46.8	41.5	31.2	26.1	20.8	15.7
80°	62.3	46.8	36.4	31.2	26.1	20.8	20.8	15.7	10.4	10.4	5.3
82.5°	20.8	15.7	10.4	5.3	5.3	5.3	5.3	5.3	5.3	0.0	5.3
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°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	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°	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3
2.5°	4329.2	4272.0	4287.7	4287.7	4277.3	4277.3	4266.9	4251.3	4256.6	4225.2	4157.8
5°	4282.4	4209.7	4199.3	4209.7	4168.2	4157.8	4137.0	4168.2	4074.5	4111.0	4069.4
7.5°	4147.4	4079.8	4064.1	4100.6	4048.7	4017.3	4012.2	4053.8	3970.7	3929.1	3882.3
10°	3996.5	3970.7	3923.8	3897.8	3882.3	3887.4	3845.9	3793.9	3778.3	3767.9	3726.3
12.5°	3861.5	3804.3	3762.8	3731.6	3721.2	3721.2	3653.6	3643.3	3596.4	3586.0	3523.7
15°	3700.3	3632.9	3606.8	3565.3	3528.8	3549.6	3471.6	3450.8	3435.4	3367.8	3378.2
17.5°	3560.0	3487.3	3425.0	3398.9	3367.8	3336.6	3263.7	3279.4	3243.0	3243.0	3149.5
20°	3378.2	3300.2	3253.3	3201.4	3201.4	3159.9	3108.0	3113.1	3066.2	3019.6	2936.3
22.5°	3185.9	3102.7	3045.5	3024.7	2972.8	2962.4	2900.1	2884.4	2822.1	2827.2	2754.5
25°	2983.1	2900.1	2822.1	2827.2	2780.6	2759.8	2723.3	2650.6	2624.6	2593.4	2572.7
27.5°	2744.1	2686.9	2619.3	2614.2	2525.8	2530.9	2484.3	2463.5	2401.0	2416.7	2369.9
30°	2525.8	2442.8	2380.2	2364.8	2328.3	2317.9	2245.3	2213.9	2224.5	2182.7	2156.9
32.5°	2302.3	2177.7	2151.6	2120.4	2099.7	2073.6	2021.7	2042.5	1995.6	2006.0	1964.5
35°	2006.0	1954.1	1886.5	1886.5	1865.7	1844.9	1808.7	1829.5	1782.6	1761.9	1720.3
37.5°	1756.6	1710.0	1642.4	1663.1	1626.7	1595.5	1564.4	1569.5	1527.9	1522.8	1481.1
40°	1486.4	1460.3	1413.7	1413.7	1387.6	1387.6	1372.0	1356.5	1330.4	1299.3	1252.4
42.5°	1231.7	1210.9	1190.1	1195.4	1159.0	1190.1	1148.6	1174.6	1091.4	1086.3	1054.9
45°	1044.5	997.9	1003.0	982.2	961.5	971.8	935.4	945.8	899.2	888.8	857.6
47.5°	847.2	831.6	800.4	790.0	790.0	774.3	758.9	753.6	732.8	706.7	665.2
50°	696.4	639.3	628.8	613.3	602.9	602.9	582.1	551.0	556.1	530.2	488.5
52.5°	545.7	498.9	478.1	473.0	452.2	441.8	415.8	395.0	379.3	368.9	343.1
55°	420.9	379.3	353.5	353.5	322.3	322.3	285.9	270.2	249.4	228.7	213.2
57.5°	317.0	296.3	270.2	249.4	239.0	213.2	192.2	166.4	150.7	119.5	98.8
60°	239.0	218.3	192.2	176.7	166.4	140.3	114.4	93.5	57.2	46.8	41.5
62.5°	176.7	156.0	129.9	119.5	109.1	88.4	62.3	31.2	15.7	15.7	15.7
65°	129.9	103.8	83.1	72.7	62.3	46.8	20.8	10.4	5.3	5.3	5.3
67.5°	88.4	67.6	46.8	41.5	31.2	15.7	5.3	5.3	5.3	5.3	5.3
70°	57.2	41.5	20.8	15.7	10.4	5.3	5.3	5.3	5.3	5.3	5.3
72.5°	36.4	20.8	10.4	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	20.8	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	10.4	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.3	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	5.3	5.3	5.3
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: FLDSQ4C90D010 FEU4C909030 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3	4334.3
2.5°	4230.5	4194.0	4214.8	4168.2	4189.0	4225.2	4199.3	4209.7
5°	4084.9	4064.1	4038.3	3970.7	4022.6	4064.1	4043.4	4038.3
7.5°	3929.1	3856.2	3892.7	3871.9	3861.5	3903.1	3856.2	3908.2
10°	3767.9	3716.0	3710.9	3674.4	3674.4	3705.6	3710.9	3679.5
12.5°	3528.8	3503.0	3503.0	3497.7	3492.4	3523.7	3528.8	3513.4
15°	3357.4	3347.0	3320.9	3315.9	3284.7	3331.3	3336.6	3331.3
17.5°	3149.5	3154.6	3128.7	3128.7	3149.5	3165.0	3123.4	3165.0
20°	3009.2	2983.1	2972.8	2925.9	2952.0	2978.1	2978.1	2983.1
22.5°	2806.4	2764.9	2780.6	2754.5	2738.8	2775.3	2775.3	2790.9
25°	2577.8	2577.8	2588.1	2572.7	2583.0	2603.8	2588.1	2624.6
27.5°	2359.5	2380.2	2380.2	2359.5	2369.9	2432.2	2458.2	2416.7
30°	2156.9	2162.0	2177.7	2167.3	2198.4	2219.2	2213.9	2245.3
32.5°	1928.2	1954.1	1964.5	1949.0	1959.4	2006.0	1980.1	1974.9
35°	1751.5	1704.7	1699.6	1704.7	1725.4	1735.8	1725.4	1761.9
37.5°	1496.8	1481.1	1460.3	1465.6	1481.1	1502.1	1512.4	1538.3
40°	1252.4	1231.7	1231.7	1226.6	1210.9	1268.1	1268.1	1268.1
42.5°	1039.4	1034.2	1008.3	1008.3	1029.1	1044.5	1034.2	1070.6
45°	852.3	831.6	815.9	815.9	831.6	831.6	847.2	841.9
47.5°	670.5	649.7	654.8	639.3	654.8	675.6	649.7	654.8
50°	504.1	504.1	493.8	504.1	498.9	504.1	493.8	483.4
52.5°	343.1	389.7	395.0	374.2	327.4	285.9	259.8	280.6
55°	197.5	176.7	176.7	171.4	161.1	156.0	140.3	156.0
57.5°	98.8	88.4	88.4	88.4	83.1	78.0	67.6	67.6
60°	41.5	36.4	36.4	31.2	26.1	20.8	15.7	20.8
62.5°	15.7	10.4	10.4	10.4	10.4	10.4	10.4	10.4
65°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
67.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
70°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
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)