

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 FEU4C1009040 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 FEU4C1009040 F4LC-SQLWW-H
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

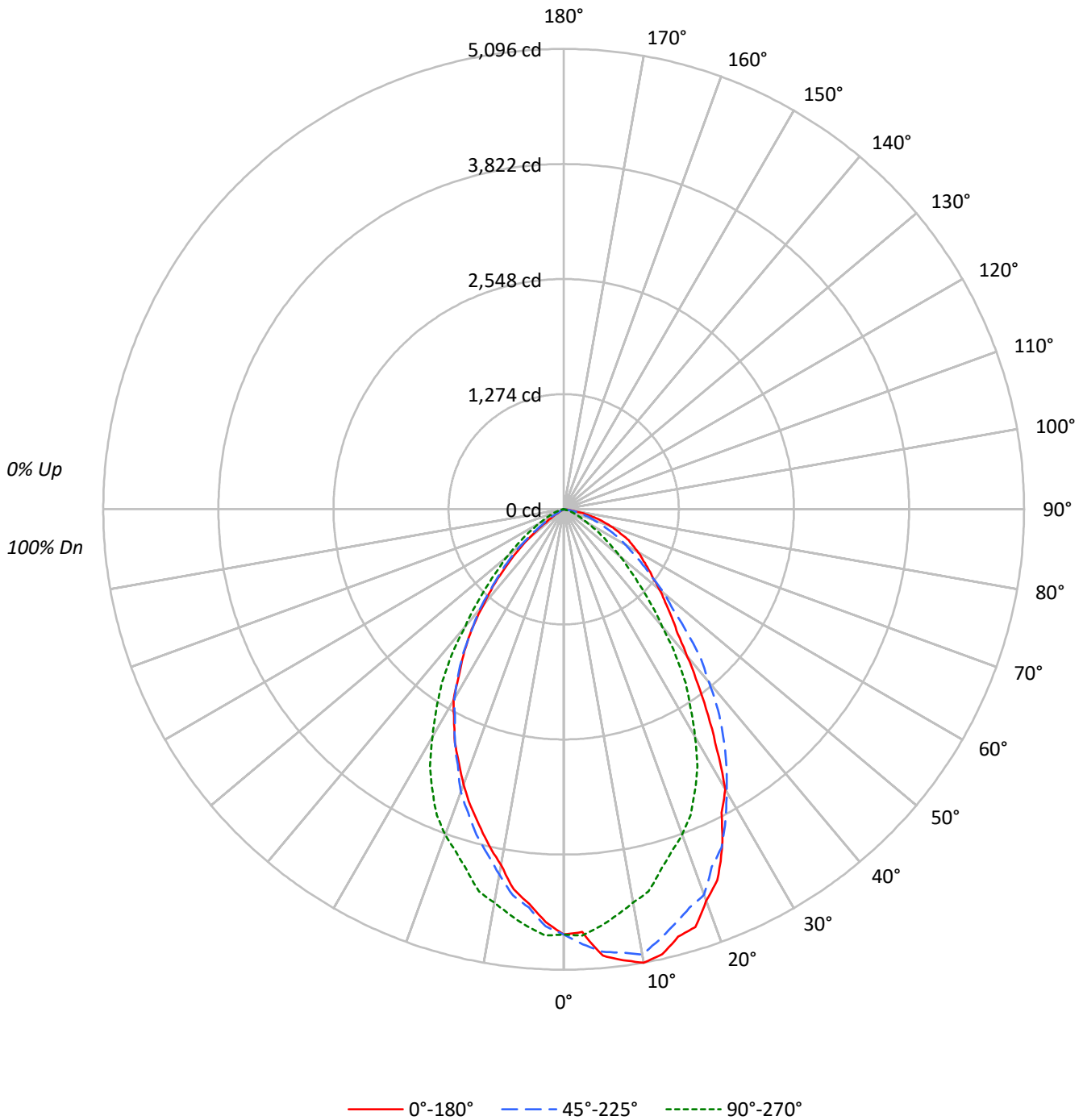
Lumens per Lamp: N/A
 Luminaire Lumens: 6746.0 lumens
 Efficiency: N/A
 Efficacy: 59.0 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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	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°	454096	454096	454096
5°	480432	448741	424691
10°	499263	432913	391439
15°	489284	413176	361322
20°	473402	393434	332595
25°	441580	365863	303390
30°	398623	323785	271621
35°	328355	277186	225335
40°	267974	213951	173431
45°	230242	162478	124748
50°	208383	123691	78778
55°	191758	89226	28480
60°	184043	60962	4361
65°	177764	41233	1301
70°	159169	28635	1608
75°	130482	14763	0
80°	81571	6279	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	440.9	6.5
10°-20°	1188.0	17.6
20°-30°	1586.3	23.5
30°-40°	1505.9	22.3
40°-50°	1040.9	15.4
50°-60°	575.1	8.5
60°-70°	285.6	4.2
70°-80°	112.5	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°	3215.2	47.7
0°-40°	4721.1	70.0
0°-60°	6337.1	93.9
0°-90°	6746.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6746.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4706	4706	4706	4706	4706	
5°	4960	4915	4633	4424	4385	475
15°	4898	4752	4136	3730	3617	1386
25°	4148	4131	3436	2850	2850	1891
35°	2788	3081	2353	1936	1913	1746
45°	1687	1936	1191	976	914	1316
55°	1140	1072	530	271	169	1026
65°	779	564	181	6	6	756
75°	350	214	40	0	0	373
85°	0	6	0	0	0	32
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°	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2
2.5°	4683.6	4813.4	4824.7	4813.4	4830.4	4824.7	4853.0	4824.7	4858.7	4807.9	4819.1
5°	4960.2	4909.3	5016.6	4960.2	4960.2	4954.7	4937.6	4931.9	4954.7	4881.3	4915.1
7.5°	5033.6	5107.0	5202.9	5084.4	5090.0	5090.0	5056.1	5044.9	5044.9	4909.3	4948.9
10°	5095.7	5050.4	5101.2	5056.1	5095.7	5090.0	5112.5	5039.1	5090.0	5011.0	5005.3
12.5°	5044.9	5027.8	5095.7	5022.3	4999.8	5005.3	4977.2	4960.2	4977.2	4886.8	4881.3
15°	4898.1	4915.1	5016.6	4937.6	4926.4	4915.1	4881.3	4824.7	4870.0	4745.7	4751.5
17.5°	4847.4	4819.1	4836.2	4768.3	4785.3	4774.0	4768.3	4717.7	4706.2	4627.2	4627.2
20°	4610.4	4672.3	4672.3	4627.2	4627.2	4621.7	4548.3	4593.4	4542.6	4520.0	4542.6
22.5°	4446.6	4452.4	4452.4	4412.8	4418.5	4396.0	4356.4	4328.1	4356.4	4328.1	4283.0
25°	4147.7	4159.0	4226.6	4153.2	4142.0	4164.5	4130.7	4113.7	4108.1	4040.5	4130.7
27.5°	3786.5	3899.2	3893.7	3865.4	3899.2	3854.1	3837.3	3842.8	3859.9	3854.1	3876.7
30°	3577.8	3594.6	3611.6	3589.0	3594.6	3577.8	3577.8	3583.3	3628.4	3611.6	3605.8
32.5°	3154.4	3210.8	3256.1	3256.1	3261.6	3278.6	3272.9	3391.4	3419.7	3363.3	3352.0
35°	2787.6	2827.2	2866.5	2872.3	2945.7	2951.2	2957.0	2990.8	3069.7	3086.7	3081.0
37.5°	2437.9	2477.2	2488.5	2539.3	2578.9	2618.3	2663.6	2708.7	2776.3	2832.7	2804.6
40°	2127.5	2144.3	2172.6	2195.1	2274.0	2274.0	2296.6	2387.0	2460.4	2505.5	2499.8
42.5°	1867.9	1873.4	1896.0	1935.6	2009.0	1991.9	2009.0	2071.1	2178.1	2183.8	2246.0
45°	1687.3	1681.5	1698.6	1704.1	1749.4	1772.0	1783.2	1828.3	1918.5	1929.8	1935.6
47.5°	1523.7	1517.9	1546.2	1557.5	1574.3	1596.9	1596.9	1602.6	1636.4	1664.7	1642.2
50°	1388.2	1388.2	1388.2	1399.4	1427.7	1422.0	1427.7	1450.3	1467.1	1455.8	1450.3
52.5°	1241.4	1263.9	1280.9	1286.7	1292.2	1292.2	1298.0	1286.7	1280.9	1263.9	1230.1
55°	1139.9	1162.4	1162.4	1162.4	1162.4	1185.0	1156.9	1162.4	1162.4	1117.3	1072.2
57.5°	1038.4	1061.0	1077.8	1055.2	1077.8	1055.2	1043.9	1038.4	1026.9	981.8	914.2
60°	953.7	965.0	959.3	953.7	965.0	948.0	936.7	914.2	902.9	840.8	795.7
62.5°	857.8	863.3	869.1	857.8	846.5	840.8	818.2	784.4	761.8	711.0	671.4
65°	778.6	761.8	756.1	750.6	739.3	722.3	705.5	665.9	648.9	603.8	564.2
67.5°	660.1	654.6	665.9	648.9	620.8	620.8	603.8	569.9	530.4	502.3	462.7
70°	564.2	558.7	547.4	530.4	524.8	502.3	502.3	462.7	451.4	400.6	366.8
72.5°	462.7	462.7	445.7	428.9	411.9	400.6	395.1	366.8	350.0	321.7	293.4
75°	350.0	350.0	344.2	327.2	315.9	304.7	299.1	276.6	259.5	231.5	214.4
77.5°	248.3	248.3	225.7	214.4	220.0	208.7	197.4	191.9	186.2	169.3	146.8
80°	146.8	141.1	124.2	129.8	124.2	124.2	118.5	112.8	101.5	90.2	78.9
82.5°	39.6	45.1	45.1	45.1	50.8	39.6	39.6	39.6	45.1	45.1	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	22.6	22.6	22.6	22.6	22.6	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°	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2
2.5°	4762.8	4757.0	4762.8	4723.2	4813.4	4745.7	4734.5	4723.2	4762.8	4723.2	4666.8
5°	4864.2	4807.9	4790.8	4774.0	4824.7	4745.7	4728.9	4734.5	4706.2	4633.0	4638.5
7.5°	4898.1	4847.4	4796.6	4689.4	4734.5	4717.7	4672.3	4638.5	4593.4	4531.3	4520.0
10°	4909.3	4853.0	4779.6	4745.7	4678.1	4655.5	4638.5	4582.1	4525.8	4418.5	4390.2
12.5°	4875.5	4807.9	4717.7	4689.4	4638.5	4565.1	4525.8	4469.2	4418.5	4333.9	4271.7
15°	4728.9	4672.3	4644.3	4548.3	4525.8	4480.4	4401.5	4322.6	4249.2	4136.2	4102.4
17.5°	4559.6	4537.0	4508.7	4435.3	4429.8	4384.7	4311.3	4243.4	4147.7	3972.6	3916.2
20°	4384.7	4384.7	4294.3	4266.2	4322.6	4232.2	4175.8	4113.7	3916.2	3831.6	3730.1
22.5°	4254.9	4192.8	4142.0	4096.9	4102.4	4046.0	3967.1	3842.8	3769.4	3668.0	3549.5
25°	4000.9	4023.5	3910.7	3893.7	3910.7	3780.7	3741.4	3639.7	3532.4	3436.5	3346.3
27.5°	3842.8	3780.7	3707.5	3645.4	3645.4	3594.6	3481.8	3459.3	3295.4	3205.2	3092.3
30°	3605.8	3560.7	3498.6	3408.4	3397.1	3357.6	3267.4	3210.8	3041.6	2906.1	2844.0
32.5°	3306.7	3289.9	3239.1	3137.6	3103.8	3058.4	2945.7	2849.7	2770.8	2618.3	2545.1
35°	3092.3	3030.4	2923.1	2838.5	2810.2	2731.2	2640.8	2573.2	2488.5	2353.2	2257.2
37.5°	2770.8	2708.7	2607.0	2505.5	2505.5	2426.6	2302.3	2234.7	2116.2	2037.0	1958.1
40°	2488.5	2409.6	2308.1	2189.6	2172.6	2059.6	2009.0	1896.0	1822.6	1698.6	1687.3
42.5°	2172.6	2099.2	2009.0	1918.5	1850.9	1794.5	1664.7	1580.1	1501.1	1439.0	1422.0
45°	1884.7	1788.8	1709.8	1596.9	1529.2	1461.6	1376.9	1320.5	1258.4	1190.7	1151.2
47.5°	1636.4	1557.5	1444.5	1343.1	1275.4	1241.4	1145.4	1083.5	1032.7	987.6	959.3
50°	1382.6	1286.7	1224.6	1111.6	1100.3	1021.4	942.5	891.6	863.3	824.0	784.4
52.5°	1190.7	1100.3	1015.6	931.2	885.9	857.8	784.4	733.5	694.2	665.9	643.3
55°	1004.4	925.4	857.8	773.1	744.8	705.5	620.8	609.5	569.9	530.4	502.3
57.5°	863.3	789.9	711.0	654.6	603.8	575.7	507.8	462.7	440.2	406.3	378.0
60°	733.5	654.6	592.5	524.8	502.3	462.7	411.9	372.5	344.2	315.9	287.8
62.5°	615.0	547.4	479.7	423.2	389.3	366.8	327.2	293.4	265.3	242.7	220.0
65°	507.8	445.7	389.3	332.9	315.9	287.8	259.5	231.5	208.7	180.6	158.1
67.5°	417.6	361.2	304.7	265.3	248.3	237.0	203.2	174.9	158.1	141.1	118.5
70°	327.2	287.8	242.7	208.7	191.9	174.9	152.3	135.5	112.8	101.5	84.7
72.5°	254.0	220.0	180.6	152.3	141.1	129.8	107.2	90.2	78.9	67.7	56.4
75°	180.6	152.3	129.8	101.5	95.9	90.2	73.4	62.1	50.8	39.6	33.8
77.5°	124.2	101.5	78.9	67.7	62.1	50.8	45.1	33.8	28.3	22.6	17.0
80°	67.7	50.8	39.6	33.8	28.3	22.6	22.6	17.0	11.3	11.3	5.7
82.5°	22.6	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°	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2
2.5°	4700.6	4638.5	4655.5	4655.5	4644.3	4644.3	4633.0	4616.0	4621.7	4587.7	4514.5
5°	4649.8	4570.9	4559.6	4570.9	4525.8	4514.5	4491.9	4525.8	4424.1	4463.6	4418.5
7.5°	4503.2	4429.8	4412.8	4452.4	4396.0	4361.9	4356.4	4401.5	4311.3	4266.2	4215.4
10°	4339.4	4311.3	4260.5	4232.2	4215.4	4220.9	4175.8	4119.4	4102.4	4091.1	4046.0
12.5°	4192.8	4130.7	4085.6	4051.8	4040.5	4040.5	3967.1	3955.8	3905.0	3893.7	3826.0
15°	4017.7	3944.5	3916.2	3871.1	3831.6	3854.1	3769.4	3746.9	3730.1	3656.7	3668.0
17.5°	3865.4	3786.5	3718.8	3690.5	3656.7	3622.9	3543.7	3560.7	3521.2	3521.2	3419.7
20°	3668.0	3583.3	3532.4	3476.1	3476.1	3431.0	3374.6	3380.1	3329.3	3278.6	3188.2
22.5°	3459.3	3368.8	3306.7	3284.2	3227.8	3216.5	3148.9	3131.8	3064.2	3069.7	2990.8
25°	3239.1	3148.9	3064.2	3069.7	3019.1	2996.5	2957.0	2878.0	2849.7	2815.9	2793.4
27.5°	2979.5	2917.4	2844.0	2838.5	2742.5	2748.0	2697.4	2674.9	2607.0	2624.0	2573.2
30°	2742.5	2652.3	2584.4	2567.6	2528.1	2516.8	2437.9	2403.8	2415.3	2370.0	2341.9
32.5°	2499.8	2364.5	2336.2	2302.3	2279.8	2251.5	2195.1	2217.7	2166.8	2178.1	2133.0
35°	2178.1	2121.7	2048.3	2048.3	2025.8	2003.2	1963.9	1986.4	1935.6	1913.0	1867.9
37.5°	1907.3	1856.6	1783.2	1805.8	1766.2	1732.4	1698.6	1704.1	1659.0	1653.5	1608.1
40°	1613.9	1585.6	1535.0	1535.0	1506.7	1506.7	1489.6	1472.8	1444.5	1410.7	1359.9
42.5°	1337.3	1314.8	1292.2	1298.0	1258.4	1292.2	1247.1	1275.4	1185.0	1179.5	1145.4
45°	1134.1	1083.5	1089.0	1066.5	1043.9	1055.2	1015.6	1026.9	976.3	965.0	931.2
47.5°	919.9	902.9	869.1	857.8	857.8	840.8	824.0	818.2	795.7	767.4	722.3
50°	756.1	694.2	682.7	665.9	654.6	654.6	632.1	598.2	603.8	575.7	530.4
52.5°	592.5	541.6	519.1	513.6	491.0	479.7	451.4	428.9	411.9	400.6	372.5
55°	457.0	411.9	383.8	383.8	350.0	350.0	310.4	293.4	270.8	248.3	231.5
57.5°	344.2	321.7	293.4	270.8	259.5	231.5	208.7	180.6	163.6	129.8	107.2
60°	259.5	237.0	208.7	191.9	180.6	152.3	124.2	101.5	62.1	50.8	45.1
62.5°	191.9	169.3	141.1	129.8	118.5	95.9	67.7	33.8	17.0	17.0	17.0
65°	141.1	112.8	90.2	78.9	67.7	50.8	22.6	11.3	5.7	5.7	5.7
67.5°	95.9	73.4	50.8	45.1	33.8	17.0	5.7	5.7	5.7	5.7	5.7
70°	62.1	45.1	22.6	17.0	11.3	5.7	5.7	5.7	5.7	5.7	5.7
72.5°	39.6	22.6	11.3	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	22.6	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 FEU4C1009040 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2	4706.2
2.5°	4593.4	4553.8	4576.4	4525.8	4548.3	4587.7	4559.6	4570.9
5°	4435.3	4412.8	4384.7	4311.3	4367.7	4412.8	4390.2	4384.7
7.5°	4266.2	4187.1	4226.6	4204.1	4192.8	4237.9	4187.1	4243.4
10°	4091.1	4034.7	4029.2	3989.6	3989.6	4023.5	4029.2	3995.2
12.5°	3831.6	3803.5	3803.5	3797.7	3792.0	3826.0	3831.6	3814.8
15°	3645.4	3634.1	3605.8	3600.3	3566.5	3617.1	3622.9	3617.1
17.5°	3419.7	3425.2	3397.1	3397.1	3419.7	3436.5	3391.4	3436.5
20°	3267.4	3239.1	3227.8	3176.9	3205.2	3233.5	3233.5	3239.1
22.5°	3047.2	3002.1	3019.1	2990.8	2973.8	3013.3	3013.3	3030.4
25°	2798.9	2798.9	2810.2	2793.4	2804.6	2827.2	2810.2	2849.7
27.5°	2561.9	2584.4	2584.4	2561.9	2573.2	2640.8	2669.1	2624.0
30°	2341.9	2347.4	2364.5	2353.2	2387.0	2409.6	2403.8	2437.9
32.5°	2093.6	2121.7	2133.0	2116.2	2127.5	2178.1	2150.0	2144.3
35°	1901.7	1850.9	1845.4	1850.9	1873.4	1884.7	1873.4	1913.0
37.5°	1625.2	1608.1	1585.6	1591.3	1608.1	1630.9	1642.2	1670.3
40°	1359.9	1337.3	1337.3	1331.8	1314.8	1376.9	1376.9	1376.9
42.5°	1128.6	1122.9	1094.8	1094.8	1117.3	1134.1	1122.9	1162.4
45°	925.4	902.9	885.9	885.9	902.9	902.9	919.9	914.2
47.5°	728.0	705.5	711.0	694.2	711.0	733.5	705.5	711.0
50°	547.4	547.4	536.1	547.4	541.6	547.4	536.1	524.8
52.5°	372.5	423.2	428.9	406.3	355.5	310.4	282.1	304.7
55°	214.4	191.9	191.9	186.2	174.9	169.3	152.3	169.3
57.5°	107.2	95.9	95.9	95.9	90.2	84.7	73.4	73.4
60°	45.1	39.6	39.6	33.8	28.3	22.6	17.0	22.6
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)