

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 FEU4C1009030 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 FEU4C1009030 F4LC-SQLWW-H
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS
 AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

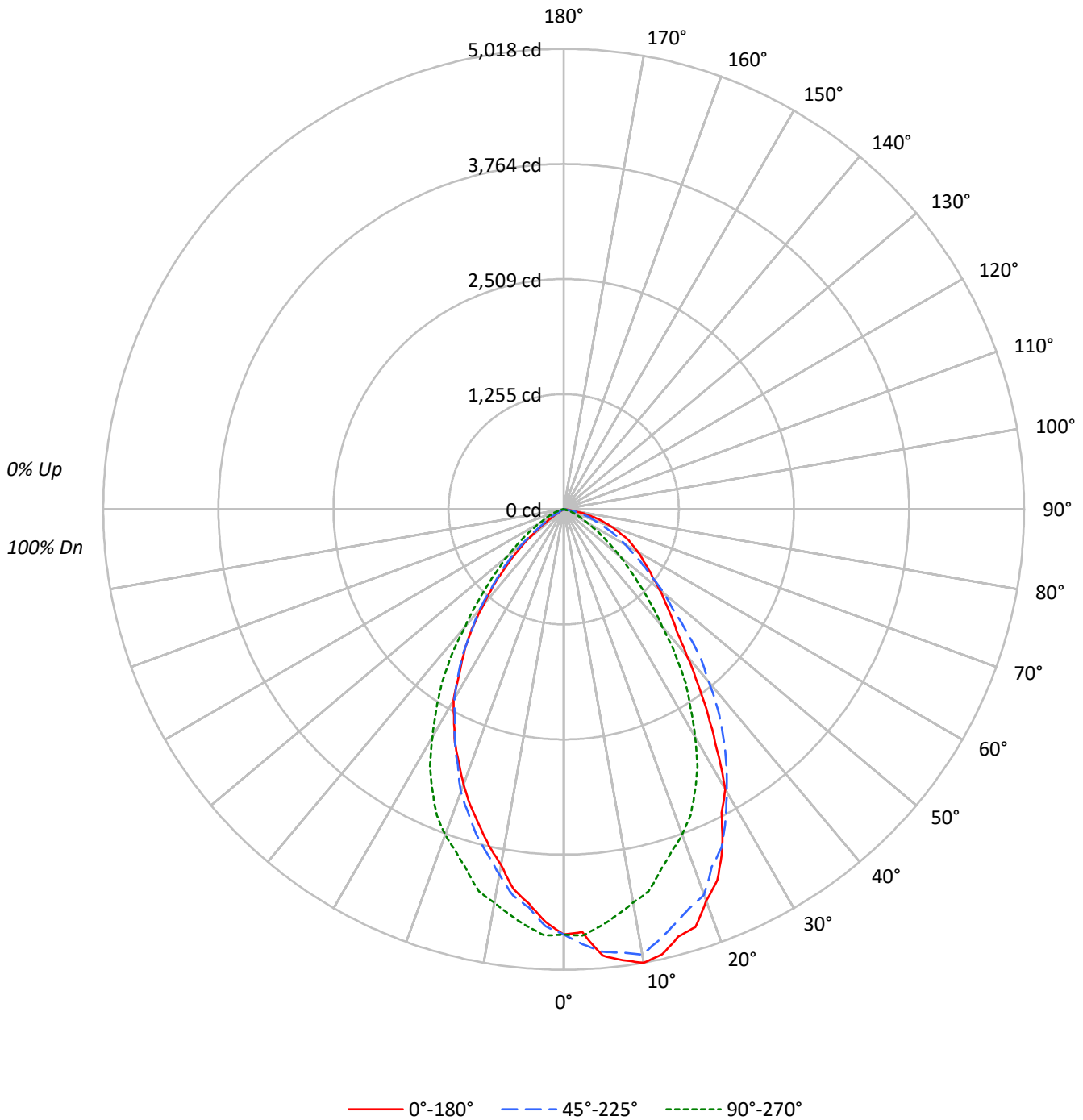
Lumens per Lamp: N/A
 Luminaire Lumens: 6643.0 lumens
 Efficiency: N/A
 Efficacy: 58.1 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	447158	447158	447158
5°	473100	441883	418211
10°	491641	426309	385463
15°	481812	406873	355808
20°	466173	387427	327512
25°	434840	360273	298758
30°	392529	318839	267465
35°	323349	272958	221895
40°	263881	210676	170786
45°	226721	160008	122838
50°	205200	121799	77577
55°	188831	87863	28060
60°	181245	60035	4284
65°	175070	40617	1301
70°	156743	28183	1608
75°	128468	14539	0
80°	80348	6168	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	434.2	6.5
10°-20°	1169.8	17.6
20°-30°	1562.1	23.5
30°-40°	1482.9	22.3
40°-50°	1025.0	15.4
50°-60°	566.4	8.5
60°-70°	281.3	4.2
70°-80°	110.8	1.7
80°-90°	10.6	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°	3166.1	47.7
0°-40°	4649.0	70.0
0°-60°	6240.4	93.9
0°-90°	6643.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6643.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4634	4634	4634	4634	4634	
5°	4884	4840	4562	4356	4318	468
15°	4823	4679	4073	3673	3562	1364
25°	4084	4068	3384	2806	2806	1862
35°	2745	3034	2317	1906	1884	1720
45°	1662	1906	1173	961	900	1296
55°	1122	1056	522	267	167	1010
65°	767	556	178	6	6	744
75°	345	211	39	0	0	367
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°	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3
2.5°	4612.1	4739.9	4751.0	4739.9	4756.7	4751.0	4778.9	4751.0	4784.5	4734.5	4745.6
5°	4884.5	4834.4	4940.0	4884.5	4884.5	4879.0	4862.2	4856.6	4879.0	4806.7	4840.0
7.5°	4956.7	5029.0	5123.5	5006.8	5012.2	5012.2	4978.9	4967.8	4967.8	4834.4	4873.4
10°	5017.9	4973.3	5023.3	4978.9	5017.9	5012.2	5034.5	4962.2	5012.2	4934.5	4928.9
12.5°	4967.8	4951.1	5017.9	4945.6	4923.4	4928.9	4901.2	4884.5	4901.2	4812.2	4806.7
15°	4823.3	4840.0	4940.0	4862.2	4851.1	4840.0	4806.7	4751.0	4795.6	4673.3	4678.9
17.5°	4773.4	4745.6	4762.3	4695.5	4712.2	4701.1	4695.5	4645.6	4634.3	4556.6	4556.6
20°	4540.0	4601.0	4601.0	4556.6	4556.6	4551.1	4478.9	4523.3	4473.2	4451.0	4473.2
22.5°	4378.7	4384.4	4384.4	4345.4	4351.1	4328.9	4289.9	4262.0	4289.9	4262.0	4217.6
25°	4084.4	4095.5	4162.1	4089.8	4078.7	4100.9	4067.6	4050.9	4045.4	3978.8	4067.6
27.5°	3728.7	3839.7	3834.2	3806.4	3839.7	3795.3	3778.7	3784.2	3800.9	3795.3	3817.5
30°	3523.1	3539.7	3556.4	3534.2	3539.7	3523.1	3523.1	3528.6	3573.0	3556.4	3550.8
32.5°	3106.2	3161.7	3206.4	3206.4	3211.8	3228.6	3222.9	3339.6	3367.5	3312.0	3300.9
35°	2745.1	2784.0	2822.8	2828.4	2900.7	2906.2	2911.8	2945.1	3022.8	3039.6	3034.0
37.5°	2400.6	2439.4	2450.5	2500.6	2539.5	2578.3	2622.9	2667.3	2734.0	2789.5	2761.8
40°	2095.0	2111.5	2139.4	2161.6	2239.3	2239.3	2261.5	2350.6	2422.9	2467.3	2461.6
42.5°	1839.4	1844.8	1867.0	1906.0	1978.3	1961.5	1978.3	2039.5	2144.8	2150.5	2211.7
45°	1661.5	1655.9	1672.6	1678.1	1722.7	1744.9	1756.0	1800.4	1889.3	1900.4	1906.0
47.5°	1500.4	1494.8	1522.6	1533.7	1550.3	1572.5	1572.5	1578.2	1611.5	1639.3	1617.1
50°	1367.0	1367.0	1367.0	1378.1	1405.9	1400.3	1405.9	1428.2	1444.7	1433.6	1428.2
52.5°	1222.4	1244.6	1261.4	1267.0	1272.5	1272.5	1278.2	1267.0	1261.4	1244.6	1211.3
55°	1122.5	1144.7	1144.7	1144.7	1144.7	1166.9	1139.3	1144.7	1144.7	1100.3	1055.9
57.5°	1022.6	1044.8	1061.3	1039.1	1061.3	1039.1	1028.0	1022.6	1011.2	966.8	900.2
60°	939.2	950.3	944.6	939.2	950.3	933.5	922.4	900.2	889.1	827.9	783.5
62.5°	844.7	850.1	855.8	844.7	833.6	827.9	805.7	772.4	750.2	700.1	661.2
65°	766.8	750.2	744.6	739.1	728.0	711.2	694.7	655.7	639.0	594.6	555.6
67.5°	650.1	644.6	655.7	639.0	611.3	611.3	594.6	561.2	522.3	494.6	455.7
70°	555.6	550.1	539.0	522.3	516.8	494.6	494.6	455.7	444.6	394.5	361.2
72.5°	455.7	455.7	438.9	422.3	405.6	394.5	389.0	361.2	344.6	316.8	288.9
75°	344.6	344.6	339.0	322.2	311.1	300.0	294.6	272.4	255.6	227.9	211.2
77.5°	244.5	244.5	222.3	211.2	216.6	205.5	194.4	189.0	183.3	166.8	144.6
80°	144.6	138.9	122.4	127.8	122.4	122.4	116.7	111.0	99.9	88.8	77.7
82.5°	39.0	44.4	44.4	44.4	50.1	39.0	39.0	39.0	44.4	44.4	27.9
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	11.1	22.2	22.2	22.2	22.2	22.2	16.8	16.8	16.8	11.1
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°	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3
2.5°	4690.0	4684.4	4690.0	4651.1	4739.9	4673.3	4662.2	4651.1	4690.0	4651.1	4595.6
5°	4790.0	4734.5	4717.7	4701.1	4751.0	4673.3	4656.7	4662.2	4634.3	4562.2	4567.7
7.5°	4823.3	4773.4	4723.4	4617.8	4662.2	4645.6	4601.0	4567.7	4523.3	4462.1	4451.0
10°	4834.4	4778.9	4706.6	4673.3	4606.7	4584.5	4567.7	4512.2	4456.7	4351.1	4323.2
12.5°	4801.1	4734.5	4645.6	4617.8	4567.7	4495.4	4456.7	4400.9	4351.1	4267.7	4206.5
15°	4656.7	4601.0	4573.4	4478.9	4456.7	4412.0	4334.3	4256.6	4184.3	4073.1	4039.8
17.5°	4490.0	4467.8	4439.9	4367.6	4362.2	4317.8	4245.5	4178.7	4084.4	3912.0	3856.4
20°	4317.8	4317.8	4228.7	4201.1	4256.6	4167.5	4112.0	4050.9	3856.4	3773.1	3673.1
22.5°	4190.0	4128.8	4078.7	4034.3	4039.8	3984.2	3906.5	3784.2	3711.9	3612.0	3495.3
25°	3939.8	3962.0	3851.0	3834.2	3851.0	3723.0	3684.2	3584.1	3478.5	3384.0	3295.2
27.5°	3784.2	3723.0	3650.9	3589.8	3589.8	3539.7	3428.7	3406.4	3245.1	3156.3	3045.1
30°	3550.8	3506.4	3445.2	3356.4	3345.3	3306.3	3217.5	3161.7	2995.2	2861.7	2800.6
32.5°	3256.2	3239.7	3189.6	3089.7	3056.4	3011.7	2900.7	2806.2	2728.5	2578.3	2506.2
35°	3045.1	2984.1	2878.5	2795.1	2767.3	2689.5	2600.5	2533.9	2450.5	2317.3	2222.8
37.5°	2728.5	2667.3	2567.2	2467.3	2467.3	2389.5	2267.2	2200.6	2083.9	2005.9	1928.2
40°	2450.5	2372.8	2272.9	2156.2	2139.4	2028.1	1978.3	1867.0	1794.8	1672.6	1661.5
42.5°	2139.4	2067.1	1978.3	1889.3	1822.6	1767.1	1639.3	1555.9	1478.2	1417.0	1400.3
45°	1855.9	1761.5	1683.7	1572.5	1505.9	1439.3	1355.9	1300.4	1239.2	1172.6	1133.6
47.5°	1611.5	1533.7	1422.5	1322.6	1255.9	1222.4	1127.9	1067.0	1016.9	972.5	944.6
50°	1361.5	1267.0	1205.9	1094.6	1083.5	1005.8	928.1	878.0	850.1	811.4	772.4
52.5°	1172.6	1083.5	1000.1	917.0	872.3	844.7	772.4	722.3	683.6	655.7	633.5
55°	989.0	911.3	844.7	761.3	733.5	694.7	611.3	600.2	561.2	522.3	494.6
57.5°	850.1	777.9	700.1	644.6	594.6	566.9	500.1	455.7	433.5	400.1	372.3
60°	722.3	644.6	583.5	516.8	494.6	455.7	405.6	366.8	339.0	311.1	283.5
62.5°	605.7	539.0	472.4	416.7	383.4	361.2	322.2	288.9	261.2	239.0	216.6
65°	500.1	438.9	383.4	327.9	311.1	283.5	255.6	227.9	205.5	177.9	155.7
67.5°	411.2	355.7	300.0	261.2	244.5	233.4	200.1	172.2	155.7	138.9	116.7
70°	322.2	283.5	239.0	205.5	189.0	172.2	150.0	133.5	111.0	99.9	83.4
72.5°	250.1	216.6	177.9	150.0	138.9	127.8	105.6	88.8	77.7	66.6	55.5
75°	177.9	150.0	127.8	99.9	94.5	88.8	72.3	61.2	50.1	39.0	33.3
77.5°	122.4	99.9	77.7	66.6	61.2	50.1	44.4	33.3	27.9	22.2	16.8
80°	66.6	50.1	39.0	33.3	27.9	22.2	22.2	16.8	11.1	11.1	5.7
82.5°	22.2	16.8	11.1	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°	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3
2.5°	4628.9	4567.7	4584.5	4584.5	4573.4	4573.4	4562.2	4545.5	4551.1	4517.6	4445.6
5°	4578.8	4501.1	4490.0	4501.1	4456.7	4445.6	4423.4	4456.7	4356.5	4395.5	4351.1
7.5°	4434.5	4362.2	4345.4	4384.4	4328.9	4295.3	4289.9	4334.3	4245.5	4201.1	4151.0
10°	4273.1	4245.5	4195.4	4167.5	4151.0	4156.4	4112.0	4056.5	4039.8	4028.7	3984.2
12.5°	4128.8	4067.6	4023.2	3989.9	3978.8	3978.8	3906.5	3895.4	3845.3	3834.2	3767.6
15°	3956.4	3884.3	3856.4	3812.0	3773.1	3795.3	3711.9	3689.7	3673.1	3600.9	3612.0
17.5°	3806.4	3728.7	3662.0	3634.2	3600.9	3567.5	3489.6	3506.4	3467.4	3467.4	3367.5
20°	3612.0	3528.6	3478.5	3423.0	3423.0	3378.6	3323.1	3328.5	3278.4	3228.6	3139.5
22.5°	3406.4	3317.4	3256.2	3234.0	3178.5	3167.4	3100.8	3084.0	3017.4	3022.8	2945.1
25°	3189.6	3100.8	3017.4	3022.8	2973.0	2950.8	2911.8	2834.1	2806.2	2772.9	2750.7
27.5°	2934.0	2872.8	2800.6	2795.1	2700.6	2706.1	2656.2	2634.0	2567.2	2584.0	2533.9
30°	2700.6	2611.8	2545.0	2528.4	2489.5	2478.4	2400.6	2367.1	2378.4	2333.8	2306.2
32.5°	2461.6	2328.4	2300.5	2267.2	2245.0	2217.1	2161.6	2183.8	2133.7	2144.8	2100.4
35°	2144.8	2089.3	2017.0	2017.0	1994.8	1972.6	1933.9	1956.1	1906.0	1883.8	1839.4
37.5°	1878.2	1828.3	1756.0	1778.2	1739.3	1705.9	1672.6	1678.1	1633.7	1628.2	1583.6
40°	1589.3	1561.4	1511.5	1511.5	1483.7	1483.7	1466.9	1450.4	1422.5	1389.2	1339.1
42.5°	1316.9	1294.7	1272.5	1278.2	1239.2	1272.5	1228.1	1255.9	1166.9	1161.5	1127.9
45°	1116.8	1067.0	1072.4	1050.2	1028.0	1039.1	1000.1	1011.2	961.4	950.3	917.0
47.5°	905.9	889.1	855.8	844.7	844.7	827.9	811.4	805.7	783.5	755.7	711.2
50°	744.6	683.6	672.3	655.7	644.6	644.6	622.4	589.1	594.6	566.9	522.3
52.5°	583.5	533.4	511.2	505.7	483.5	472.4	444.6	422.3	405.6	394.5	366.8
55°	450.0	405.6	377.9	377.9	344.6	344.6	305.7	288.9	266.7	244.5	227.9
57.5°	339.0	316.8	288.9	266.7	255.6	227.9	205.5	177.9	161.1	127.8	105.6
60°	255.6	233.4	205.5	189.0	177.9	150.0	122.4	99.9	61.2	50.1	44.4
62.5°	189.0	166.8	138.9	127.8	116.7	94.5	66.6	33.3	16.8	16.8	16.8
65°	138.9	111.0	88.8	77.7	66.6	50.1	22.2	11.1	5.7	5.7	5.7
67.5°	94.5	72.3	50.1	44.4	33.3	16.8	5.7	5.7	5.7	5.7	5.7
70°	61.2	44.4	22.2	16.8	11.1	5.7	5.7	5.7	5.7	5.7	5.7
72.5°	39.0	22.2	11.1	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	22.2	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	11.1	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 FEU4C1009030 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3	4634.3
2.5°	4523.3	4484.3	4506.5	4456.7	4478.9	4517.6	4490.0	4501.1
5°	4367.6	4345.4	4317.8	4245.5	4301.0	4345.4	4323.2	4317.8
7.5°	4201.1	4123.1	4162.1	4139.9	4128.8	4173.2	4123.1	4178.7
10°	4028.7	3973.1	3967.7	3928.7	3928.7	3962.0	3967.7	3934.2
12.5°	3773.1	3745.4	3745.4	3739.8	3734.1	3767.6	3773.1	3756.5
15°	3589.8	3578.7	3550.8	3545.3	3512.0	3561.9	3567.5	3561.9
17.5°	3367.5	3372.9	3345.3	3345.3	3367.5	3384.0	3339.6	3384.0
20°	3217.5	3189.6	3178.5	3128.4	3156.3	3184.2	3184.2	3189.6
22.5°	3000.6	2956.2	2973.0	2945.1	2928.4	2967.3	2967.3	2984.1
25°	2756.2	2756.2	2767.3	2750.7	2761.8	2784.0	2767.3	2806.2
27.5°	2522.8	2545.0	2545.0	2522.8	2533.9	2600.5	2628.4	2584.0
30°	2306.2	2311.6	2328.4	2317.3	2350.6	2372.8	2367.1	2400.6
32.5°	2061.7	2089.3	2100.4	2083.9	2095.0	2144.8	2117.2	2111.5
35°	1872.7	1822.6	1817.2	1822.6	1844.8	1855.9	1844.8	1883.8
37.5°	1600.4	1583.6	1561.4	1567.0	1583.6	1606.0	1617.1	1644.8
40°	1339.1	1316.9	1316.9	1311.5	1294.7	1355.9	1355.9	1355.9
42.5°	1111.4	1105.7	1078.1	1078.1	1100.3	1116.8	1105.7	1144.7
45°	911.3	889.1	872.3	872.3	889.1	889.1	905.9	900.2
47.5°	716.9	694.7	700.1	683.6	700.1	722.3	694.7	700.1
50°	539.0	539.0	527.9	539.0	533.4	539.0	527.9	516.8
52.5°	366.8	416.7	422.3	400.1	350.1	305.7	277.8	300.0
55°	211.2	189.0	189.0	183.3	172.2	166.8	150.0	166.8
57.5°	105.6	94.5	94.5	94.5	88.8	83.4	72.3	72.3
60°	44.4	39.0	39.0	33.3	27.9	22.2	16.8	22.2
62.5°	16.8	11.1	11.1	11.1	11.1	11.1	11.1	11.1
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)