

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-LI**

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

Summary

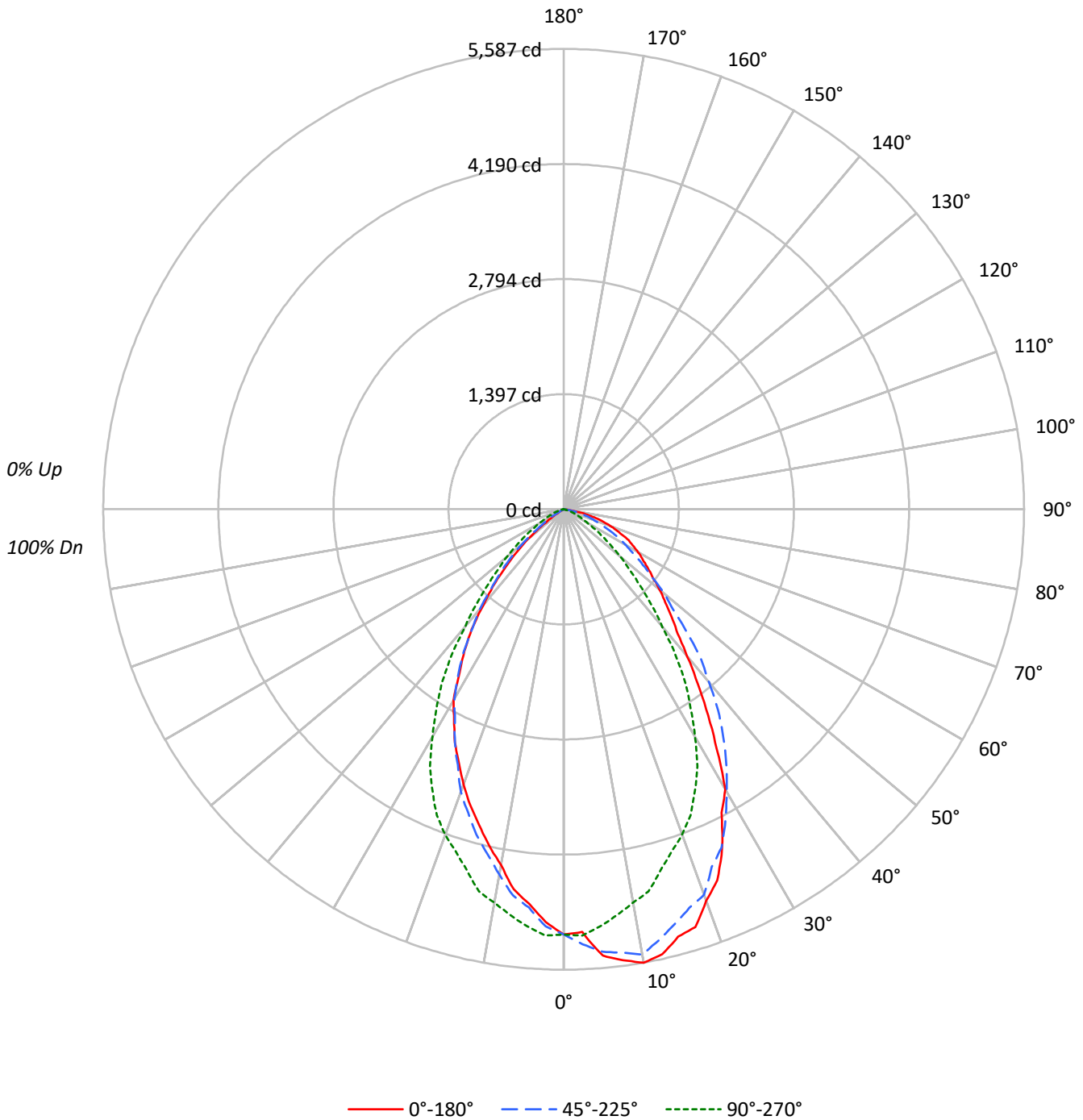
Lumens per Lamp: N/A
 Luminaire Lumens: 7396.0 lumens
 Efficiency: N/A
 Efficacy: 76.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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



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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°	497844	497844	497844
5°	526721	491978	465613
10°	547370	474632	429151
15°	536424	452993	396134
20°	519023	431333	364642
25°	484133	401113	332625
30°	437028	354982	297792
35°	359993	303889	247043
40°	293795	234558	190145
45°	252430	178143	136770
50°	228453	135609	86373
55°	210229	97822	31239
60°	201778	66848	4767
65°	194910	45206	1438
70°	174516	31399	1777
75°	143045	16180	0
80°	89405	6890	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	483.4	6.5
10°-20°	1302.4	17.6
20°-30°	1739.2	23.5
30°-40°	1651.0	22.3
40°-50°	1141.2	15.4
50°-60°	630.6	8.5
60°-70°	313.1	4.2
70°-80°	123.4	1.7
80°-90°	11.7	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°	3525.0	47.7
0°-40°	5176.0	70.0
0°-60°	6947.8	93.9
0°-90°	7396.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7396.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	5160	5160	5160	5160	5160	
5°	5438	5389	5079	4850	4807	521
15°	5370	5209	4535	4090	3966	1519
25°	4547	4529	3768	3124	3124	2073
35°	3056	3378	2580	2122	2097	1915
45°	1850	2122	1306	1070	1002	1443
55°	1250	1176	582	297	186	1125
65°	854	619	198	6	6	829
75°	384	235	43	0	0	409
85°	0	6	0	0	0	35
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°	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6
2.5°	5134.9	5277.2	5289.5	5277.2	5295.8	5289.5	5320.6	5289.5	5326.9	5271.1	5283.5
5°	5438.1	5382.4	5499.9	5438.1	5438.1	5432.1	5413.4	5407.1	5432.1	5351.6	5388.7
7.5°	5518.6	5599.1	5704.3	5574.3	5580.4	5580.4	5543.3	5531.0	5531.0	5382.4	5425.8
10°	5586.7	5537.0	5592.8	5543.3	5586.7	5580.4	5605.1	5524.6	5580.4	5493.9	5487.6
12.5°	5531.0	5512.3	5586.7	5506.2	5481.5	5487.6	5456.8	5438.1	5456.8	5357.6	5351.6
15°	5370.0	5388.7	5499.9	5413.4	5401.0	5388.7	5351.6	5289.5	5339.2	5203.0	5209.3
17.5°	5314.5	5283.5	5302.1	5227.7	5246.4	5234.0	5227.7	5172.2	5159.6	5073.1	5073.1
20°	5054.7	5122.5	5122.5	5073.1	5073.1	5067.0	4986.6	5036.0	4980.3	4955.5	4980.3
22.5°	4875.1	4881.4	4881.4	4838.0	4844.3	4819.6	4776.2	4745.1	4776.2	4745.1	4695.7
25°	4547.4	4559.7	4633.9	4553.4	4541.1	4565.8	4528.7	4510.0	4504.0	4429.8	4528.7
27.5°	4151.3	4274.9	4268.9	4237.8	4274.9	4225.5	4207.1	4213.1	4231.8	4225.5	4250.2
30°	3922.5	3940.9	3959.6	3934.9	3940.9	3922.5	3922.5	3928.6	3978.0	3959.6	3953.3
32.5°	3458.3	3520.1	3569.8	3569.8	3575.9	3594.5	3588.2	3718.2	3749.2	3687.4	3675.0
35°	3056.2	3099.6	3142.7	3149.0	3229.5	3235.6	3241.9	3279.0	3365.5	3384.2	3377.9
37.5°	2672.8	2715.9	2728.3	2784.0	2827.4	2870.5	2920.2	2969.7	3043.9	3105.7	3074.9
40°	2332.5	2350.9	2381.9	2406.6	2493.2	2493.2	2517.9	2617.0	2697.5	2746.9	2740.6
42.5°	2047.9	2054.0	2078.7	2122.1	2202.5	2183.9	2202.5	2270.6	2388.0	2394.3	2462.4
45°	1849.9	1843.6	1862.2	1868.3	1918.0	1942.7	1955.1	2004.5	2103.4	2115.8	2122.1
47.5°	1670.5	1664.2	1695.2	1707.6	1726.0	1750.7	1750.7	1757.0	1794.1	1825.1	1800.4
50°	1521.9	1521.9	1521.9	1534.3	1565.3	1559.0	1565.3	1590.0	1608.5	1596.1	1590.0
52.5°	1361.0	1385.7	1404.4	1410.7	1416.7	1416.7	1423.0	1410.7	1404.4	1385.7	1348.6
55°	1249.7	1274.5	1274.5	1274.5	1274.5	1299.2	1268.4	1274.5	1274.5	1225.0	1175.6
57.5°	1138.5	1163.2	1181.6	1156.9	1181.6	1156.9	1144.5	1138.5	1125.9	1076.4	1002.3
60°	1045.6	1058.0	1051.7	1045.6	1058.0	1039.3	1027.0	1002.3	989.9	921.8	872.3
62.5°	940.4	946.5	952.8	940.4	928.1	921.8	897.1	860.0	835.3	779.5	736.1
65°	853.7	835.3	829.0	822.9	810.5	791.9	773.4	730.1	711.4	661.9	618.6
67.5°	723.8	717.7	730.1	711.4	680.6	680.6	661.9	624.9	581.5	550.7	507.3
70°	618.6	612.5	600.1	581.5	575.4	550.7	550.7	507.3	494.9	439.2	402.1
72.5°	507.3	507.3	488.6	470.2	451.6	439.2	433.1	402.1	383.7	352.7	321.6
75°	383.7	383.7	377.4	358.7	346.4	334.0	327.9	303.2	284.6	253.8	235.1
77.5°	272.2	272.2	247.5	235.1	241.2	228.8	216.4	210.4	204.1	185.7	160.9
80°	160.9	154.6	136.2	142.3	136.2	136.2	129.9	123.6	111.3	98.9	86.5
82.5°	43.4	49.4	49.4	49.4	55.7	43.4	43.4	43.4	49.4	49.4	31.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	6.3	6.3
87.5°	6.3	12.4	24.7	24.7	24.7	24.7	24.7	18.7	18.7	18.7	12.4
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°	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6
2.5°	5221.7	5215.4	5221.7	5178.3	5277.2	5203.0	5190.6	5178.3	5221.7	5178.3	5116.5
5°	5332.9	5271.1	5252.5	5234.0	5289.5	5203.0	5184.6	5190.6	5159.6	5079.4	5085.4
7.5°	5370.0	5314.5	5258.8	5141.2	5190.6	5172.2	5122.5	5085.4	5036.0	4967.9	4955.5
10°	5382.4	5320.6	5240.1	5203.0	5128.8	5104.1	5085.4	5023.6	4961.8	4844.3	4813.3
12.5°	5345.3	5271.1	5172.2	5141.2	5085.4	5005.0	4961.8	4899.8	4844.3	4751.4	4683.3
15°	5184.6	5122.5	5091.8	4986.6	4961.8	4912.1	4825.6	4739.1	4658.6	4534.8	4497.7
17.5°	4998.9	4974.2	4943.2	4862.7	4856.6	4807.2	4726.7	4652.3	4547.4	4355.4	4293.6
20°	4807.2	4807.2	4708.1	4677.3	4739.1	4639.9	4578.1	4510.0	4293.6	4200.7	4089.5
22.5°	4664.9	4596.8	4541.1	4491.6	4497.7	4435.9	4349.3	4213.1	4132.6	4021.4	3891.5
25°	4386.4	4411.1	4287.5	4268.9	4287.5	4145.0	4101.9	3990.4	3872.8	3767.6	3668.7
27.5°	4213.1	4145.0	4064.8	3996.7	3996.7	3940.9	3817.3	3792.6	3613.0	3514.1	3390.2
30°	3953.3	3903.8	3835.7	3736.8	3724.5	3681.1	3582.2	3520.1	3334.7	3186.1	3118.0
32.5°	3625.3	3606.9	3551.2	3439.9	3402.8	3353.1	3229.5	3124.3	3037.8	2870.5	2790.3
35°	3390.2	3322.4	3204.8	3112.0	3080.9	2994.4	2895.3	2821.1	2728.3	2579.9	2474.7
37.5°	3037.8	2969.7	2858.2	2746.9	2746.9	2660.4	2524.2	2450.0	2320.1	2233.3	2146.8
40°	2728.3	2641.7	2530.5	2400.6	2381.9	2258.0	2202.5	2078.7	1998.2	1862.2	1849.9
42.5°	2381.9	2301.4	2202.5	2103.4	2029.2	1967.4	1825.1	1732.3	1645.8	1577.7	1559.0
45°	2066.3	1961.1	1874.6	1750.7	1676.6	1602.4	1509.6	1447.8	1379.6	1305.5	1262.1
47.5°	1794.1	1707.6	1583.7	1472.5	1398.3	1361.0	1255.8	1187.9	1132.2	1082.7	1051.7
50°	1515.9	1410.7	1342.6	1218.7	1206.3	1119.8	1033.3	977.5	946.5	903.4	860.0
52.5°	1305.5	1206.3	1113.5	1020.9	971.2	940.4	860.0	804.2	761.1	730.1	705.3
55°	1101.1	1014.6	940.4	847.6	816.6	773.4	680.6	668.3	624.9	581.5	550.7
57.5°	946.5	866.0	779.5	717.7	661.9	631.2	556.8	507.3	482.6	445.5	414.5
60°	804.2	717.7	649.6	575.4	550.7	507.3	451.6	408.4	377.4	346.4	315.6
62.5°	674.3	600.1	526.0	463.9	426.8	402.1	358.7	321.6	290.9	266.1	241.2
65°	556.8	488.6	426.8	365.0	346.4	315.6	284.6	253.8	228.8	198.0	173.3
67.5°	457.9	396.1	334.0	290.9	272.2	259.8	222.8	191.7	173.3	154.6	129.9
70°	358.7	315.6	266.1	228.8	210.4	191.7	167.0	148.6	123.6	111.3	92.8
72.5°	278.5	241.2	198.0	167.0	154.6	142.3	117.6	98.9	86.5	74.2	61.8
75°	198.0	167.0	142.3	111.3	105.2	98.9	80.5	68.1	55.7	43.4	37.1
77.5°	136.2	111.3	86.5	74.2	68.1	55.7	49.4	37.1	31.0	24.7	18.7
80°	74.2	55.7	43.4	37.1	31.0	24.7	24.7	18.7	12.4	12.4	6.3
82.5°	24.7	18.7	12.4	6.3	6.3	6.3	6.3	6.3	6.3	0.0	6.3
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°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	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°	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6
2.5°	5153.6	5085.4	5104.1	5104.1	5091.8	5091.8	5079.4	5060.7	5067.0	5029.7	4949.5
5°	5097.8	5011.3	4998.9	5011.3	4961.8	4949.5	4924.7	4961.8	4850.3	4893.7	4844.3
7.5°	4937.1	4856.6	4838.0	4881.4	4819.6	4782.2	4776.2	4825.6	4726.7	4677.3	4621.5
10°	4757.5	4726.7	4671.0	4639.9	4621.5	4627.6	4578.1	4516.3	4497.7	4485.3	4435.9
12.5°	4596.8	4528.7	4479.2	4442.2	4429.8	4429.8	4349.3	4337.0	4281.2	4268.9	4194.7
15°	4404.8	4324.6	4293.6	4244.1	4200.7	4225.5	4132.6	4107.9	4089.5	4009.0	4021.4
17.5°	4237.8	4151.3	4077.1	4046.1	4009.0	3971.9	3885.2	3903.8	3860.4	3860.4	3749.2
20°	4021.4	3928.6	3872.8	3811.0	3811.0	3761.6	3699.7	3705.8	3650.1	3594.5	3495.4
22.5°	3792.6	3693.4	3625.3	3600.6	3538.8	3526.4	3452.3	3433.6	3359.4	3365.5	3279.0
25°	3551.2	3452.3	3359.4	3365.5	3310.0	3285.3	3241.9	3155.3	3124.3	3087.2	3062.5
27.5°	3266.6	3198.5	3118.0	3112.0	3006.8	3012.8	2957.3	2932.6	2858.2	2876.9	2821.1
30°	3006.8	2907.9	2833.5	2815.0	2771.7	2759.3	2672.8	2635.4	2648.0	2598.4	2567.6
32.5°	2740.6	2592.3	2561.3	2524.2	2499.5	2468.4	2406.6	2431.3	2375.6	2388.0	2338.5
35°	2388.0	2326.2	2245.7	2245.7	2221.0	2196.2	2153.1	2177.8	2122.1	2097.3	2047.9
37.5°	2091.0	2035.5	1955.1	1979.8	1936.4	1899.3	1862.2	1868.3	1818.8	1812.8	1763.1
40°	1769.4	1738.4	1682.9	1682.9	1651.8	1651.8	1633.2	1614.8	1583.7	1546.6	1490.9
42.5°	1466.2	1441.5	1416.7	1423.0	1379.6	1416.7	1367.3	1398.3	1299.2	1293.1	1255.8
45°	1243.4	1187.9	1194.0	1169.3	1144.5	1156.9	1113.5	1125.9	1070.4	1058.0	1020.9
47.5°	1008.6	989.9	952.8	940.4	940.4	921.8	903.4	897.1	872.3	841.3	791.9
50°	829.0	761.1	748.5	730.1	717.7	717.7	693.0	655.9	661.9	631.2	581.5
52.5°	649.6	593.8	569.1	563.1	538.3	526.0	494.9	470.2	451.6	439.2	408.4
55°	501.0	451.6	420.8	420.8	383.7	383.7	340.3	321.6	296.9	272.2	253.8
57.5°	377.4	352.7	321.6	296.9	284.6	253.8	228.8	198.0	179.4	142.3	117.6
60°	284.6	259.8	228.8	210.4	198.0	167.0	136.2	111.3	68.1	55.7	49.4
62.5°	210.4	185.7	154.6	142.3	129.9	105.2	74.2	37.1	18.7	18.7	18.7
65°	154.6	123.6	98.9	86.5	74.2	55.7	24.7	12.4	6.3	6.3	6.3
67.5°	105.2	80.5	55.7	49.4	37.1	18.7	6.3	6.3	6.3	6.3	6.3
70°	68.1	49.4	24.7	18.7	12.4	6.3	6.3	6.3	6.3	6.3	6.3
72.5°	43.4	24.7	12.4	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	24.7	12.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	12.4	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	6.3	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	6.3	6.3	6.3
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-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6	5159.6
2.5°	5036.0	4992.6	5017.3	4961.8	4986.6	5029.7	4998.9	5011.3
5°	4862.7	4838.0	4807.2	4726.7	4788.5	4838.0	4813.3	4807.2
7.5°	4677.3	4590.5	4633.9	4609.2	4596.8	4646.3	4590.5	4652.3
10°	4485.3	4423.5	4417.4	4374.1	4374.1	4411.1	4417.4	4380.1
12.5°	4200.7	4170.0	4170.0	4163.7	4157.4	4194.7	4200.7	4182.3
15°	3996.7	3984.3	3953.3	3947.2	3910.1	3965.6	3971.9	3965.6
17.5°	3749.2	3755.2	3724.5	3724.5	3749.2	3767.6	3718.2	3767.6
20°	3582.2	3551.2	3538.8	3483.1	3514.1	3545.1	3545.1	3551.2
22.5°	3340.8	3291.3	3310.0	3279.0	3260.3	3303.7	3303.7	3322.4
25°	3068.6	3068.6	3080.9	3062.5	3074.9	3099.6	3080.9	3124.3
27.5°	2808.7	2833.5	2833.5	2808.7	2821.1	2895.3	2926.3	2876.9
30°	2567.6	2573.6	2592.3	2579.9	2617.0	2641.7	2635.4	2672.8
32.5°	2295.4	2326.2	2338.5	2320.1	2332.5	2388.0	2357.2	2350.9
35°	2085.0	2029.2	2023.2	2029.2	2054.0	2066.3	2054.0	2097.3
37.5°	1781.8	1763.1	1738.4	1744.7	1763.1	1788.1	1800.4	1831.2
40°	1490.9	1466.2	1466.2	1460.1	1441.5	1509.6	1509.6	1509.6
42.5°	1237.4	1231.1	1200.3	1200.3	1225.0	1243.4	1231.1	1274.5
45°	1014.6	989.9	971.2	971.2	989.9	989.9	1008.6	1002.3
47.5°	798.2	773.4	779.5	761.1	779.5	804.2	773.4	779.5
50°	600.1	600.1	587.8	600.1	593.8	600.1	587.8	575.4
52.5°	408.4	463.9	470.2	445.5	389.8	340.3	309.3	334.0
55°	235.1	210.4	210.4	204.1	191.7	185.7	167.0	185.7
57.5°	117.6	105.2	105.2	105.2	98.9	92.8	80.5	80.5
60°	49.4	43.4	43.4	37.1	31.0	24.7	18.7	24.7
62.5°	18.7	12.4	12.4	12.4	12.4	12.4	12.4	12.4
65°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
67.5°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
70°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
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)