

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-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: FLDSQ4C100D010 FEU4C1009040 F4LC-SQLWW-LI
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

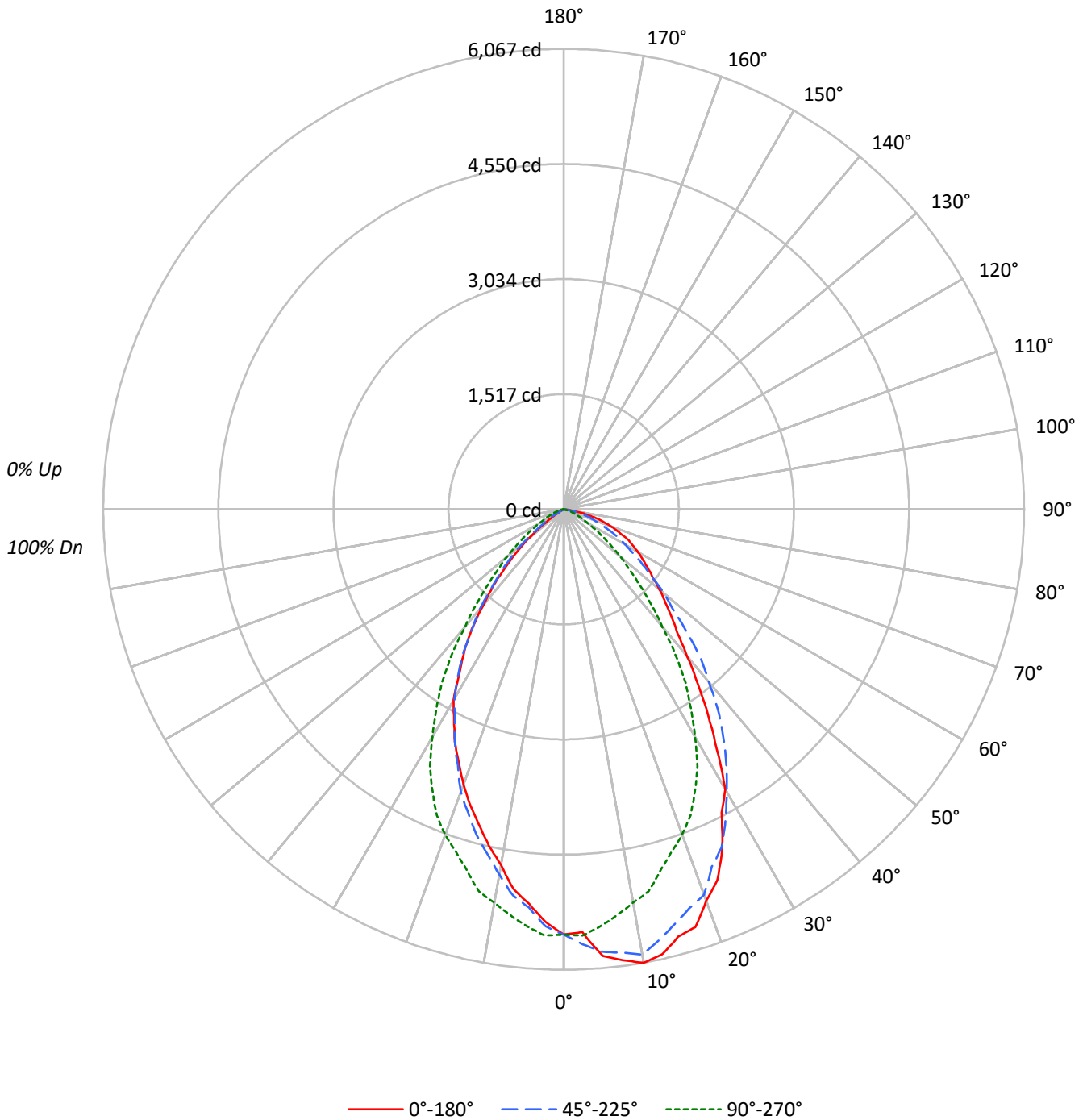
Lumens per Lamp: N/A
 Luminaire Lumens: 8032.0 lumens
 Efficiency: N/A
 Efficacy: 70.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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°	540656	540656	540656
5°	572021	534285	505654
10°	594439	515439	466059
15°	582554	491941	430208
20°	563649	468432	395991
25°	525760	435607	361231
30°	474609	385510	323395
35°	390949	330027	268293
40°	319050	254736	206494
45°	274126	193454	148519
50°	248102	147258	93804
55°	228313	106233	33914
60°	219146	72598	5172
65°	211668	49110	1553
70°	189525	34079	1918
75°	155348	17559	0
80°	97129	7446	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	525.0	6.5
10°-20°	1414.4	17.6
20°-30°	1888.7	23.5
30°-40°	1792.9	22.3
40°-50°	1239.3	15.4
50°-60°	684.8	8.5
60°-70°	340.0	4.2
70°-80°	134.0	1.7
80°-90°	12.7	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°	3828.1	47.7
0°-40°	5621.1	70.0
0°-60°	7545.2	93.9
0°-90°	8032.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8032.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	5603	5603	5603	5603	5603	
5°	5906	5852	5516	5267	5221	565
15°	5832	5657	4925	4441	4307	1650
25°	4938	4918	4092	3393	3393	2251
35°	3319	3668	2802	2304	2278	2079
45°	2009	2304	1418	1162	1088	1567
55°	1357	1277	632	322	202	1222
65°	927	672	215	7	7	900
75°	417	255	47	0	0	444
85°	0	7	0	0	0	38
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°	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3
2.5°	5576.5	5731.0	5744.4	5731.0	5751.2	5744.4	5778.1	5744.4	5784.9	5724.4	5737.8
5°	5905.8	5845.2	5972.9	5905.8	5905.8	5899.2	5878.9	5872.1	5899.2	5811.8	5852.1
7.5°	5993.1	6080.5	6194.8	6053.7	6060.3	6060.3	6020.0	6006.6	6006.6	5845.2	5892.3
10°	6067.1	6013.2	6073.7	6020.0	6067.1	6060.3	6087.1	5999.7	6060.3	5966.3	5959.5
12.5°	6006.6	5986.3	6067.1	5979.7	5952.9	5959.5	5926.0	5905.8	5926.0	5818.4	5811.8
15°	5831.8	5852.1	5972.9	5878.9	5865.5	5852.1	5811.8	5744.4	5798.4	5650.4	5657.3
17.5°	5771.5	5737.8	5758.1	5677.3	5697.5	5684.1	5677.3	5617.0	5603.3	5509.3	5509.3
20°	5489.3	5563.0	5563.0	5509.3	5509.3	5502.8	5415.4	5469.1	5408.5	5381.7	5408.5
22.5°	5294.3	5301.1	5301.1	5254.0	5260.8	5234.0	5186.9	5153.2	5186.9	5153.2	5099.5
25°	4938.4	4951.8	5032.4	4945.0	4931.6	4958.4	4918.1	4897.9	4891.3	4810.7	4918.1
27.5°	4508.3	4642.5	4635.9	4602.3	4642.5	4588.8	4568.8	4575.4	4595.7	4588.8	4615.7
30°	4259.8	4279.8	4300.1	4273.2	4279.8	4259.8	4259.8	4266.4	4320.1	4300.1	4293.2
32.5°	3755.7	3822.8	3876.8	3876.8	3883.4	3903.7	3896.8	4037.9	4071.6	4004.5	3991.0
35°	3319.0	3366.1	3413.0	3419.8	3507.2	3513.8	3520.7	3560.9	3654.9	3675.2	3668.3
37.5°	2902.6	2949.5	2962.9	3023.4	3070.5	3117.4	3171.4	3225.1	3305.6	3372.7	3339.3
40°	2533.0	2553.0	2586.7	2613.6	2707.5	2707.5	2734.4	2842.1	2929.5	2983.1	2976.3
42.5°	2224.0	2230.6	2257.4	2304.5	2391.9	2371.7	2391.9	2465.9	2593.3	2600.2	2674.1
45°	2008.9	2002.1	2022.4	2029.0	2082.9	2109.8	2123.2	2176.9	2284.3	2297.7	2304.5
47.5°	1814.2	1807.3	1841.0	1854.4	1874.4	1901.3	1901.3	1908.1	1948.4	1982.1	1955.2
50°	1652.8	1652.8	1652.8	1666.2	1699.9	1693.1	1699.9	1726.8	1746.8	1733.3	1726.8
52.5°	1478.0	1504.9	1525.1	1532.0	1538.6	1538.6	1545.4	1532.0	1525.1	1504.9	1464.6
55°	1357.2	1384.0	1384.0	1384.0	1384.0	1410.9	1377.5	1384.0	1384.0	1330.3	1276.6
57.5°	1236.4	1263.2	1283.2	1256.4	1283.2	1256.4	1243.0	1236.4	1222.7	1169.0	1088.4
60°	1135.6	1149.0	1142.1	1135.6	1149.0	1128.7	1115.3	1088.4	1075.0	1001.1	947.4
62.5°	1021.3	1027.9	1034.7	1021.3	1007.9	1001.1	974.2	933.9	907.1	846.5	799.4
65°	927.1	907.1	900.2	893.7	880.2	860.0	840.0	792.8	772.6	718.9	671.8
67.5°	786.0	779.4	792.8	772.6	739.1	739.1	718.9	678.6	631.5	598.1	550.9
70°	671.8	665.2	651.7	631.5	624.9	598.1	598.1	550.9	537.5	477.0	436.7
72.5°	550.9	550.9	530.7	510.7	490.4	477.0	470.4	436.7	416.7	383.0	349.3
75°	416.7	416.7	409.8	389.6	376.2	362.7	356.1	329.3	309.0	275.6	255.3
77.5°	295.6	295.6	268.8	255.3	261.9	248.5	235.1	228.5	221.6	201.6	174.8
80°	174.8	167.9	147.9	154.5	147.9	147.9	141.1	134.2	120.8	107.4	94.0
82.5°	47.1	53.7	53.7	53.7	60.5	47.1	47.1	47.1	53.7	53.7	33.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	6.8	6.8
87.5°	6.8	13.4	26.8	26.8	26.8	26.8	26.8	20.3	20.3	20.3	13.4
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°	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3
2.5°	5670.7	5663.8	5670.7	5623.6	5731.0	5650.4	5637.0	5623.6	5670.7	5623.6	5556.5
5°	5791.5	5724.4	5704.1	5684.1	5744.4	5650.4	5630.4	5637.0	5603.3	5516.2	5522.8
7.5°	5831.8	5771.5	5711.0	5583.3	5637.0	5617.0	5563.0	5522.8	5469.1	5395.1	5381.7
10°	5845.2	5778.1	5690.7	5650.4	5569.9	5543.0	5522.8	5455.6	5388.5	5260.8	5227.2
12.5°	5804.9	5724.4	5617.0	5583.3	5522.8	5435.4	5388.5	5321.1	5260.8	5160.0	5086.1
15°	5630.4	5563.0	5529.6	5415.4	5388.5	5334.6	5240.6	5146.6	5059.2	4924.7	4884.4
17.5°	5428.8	5401.9	5368.2	5280.9	5274.3	5220.6	5133.2	5052.4	4938.4	4729.9	4662.8
20°	5220.6	5220.6	5112.9	5079.5	5146.6	5038.9	4971.8	4897.9	4662.8	4562.0	4441.2
22.5°	5066.1	4992.1	4931.6	4877.9	4884.4	4817.3	4723.3	4575.4	4488.0	4367.2	4226.1
25°	4763.6	4790.5	4656.2	4635.9	4656.2	4501.4	4454.6	4333.5	4205.8	4091.6	3984.2
27.5°	4575.4	4501.4	4414.3	4340.3	4340.3	4279.8	4145.6	4118.7	3923.7	3816.3	3681.8
30°	4293.2	4239.5	4165.6	4058.2	4044.7	3997.6	3890.2	3822.8	3621.5	3460.1	3386.1
32.5°	3937.1	3917.1	3856.5	3735.7	3695.4	3641.5	3507.2	3393.0	3299.0	3117.4	3030.3
35°	3681.8	3608.0	3480.4	3379.6	3345.9	3251.9	3144.2	3063.7	2962.9	2801.8	2687.5
37.5°	3299.0	3225.1	3104.0	2983.1	2983.1	2889.2	2741.2	2660.7	2519.6	2425.4	2331.4
40°	2962.9	2868.9	2748.1	2607.0	2586.7	2452.2	2391.9	2257.4	2170.0	2022.4	2008.9
42.5°	2586.7	2499.3	2391.9	2284.3	2203.7	2136.6	1982.1	1881.3	1787.3	1713.3	1693.1
45°	2244.0	2129.8	2035.8	1901.3	1820.7	1740.2	1639.4	1572.3	1498.3	1417.7	1370.6
47.5°	1948.4	1854.4	1719.9	1599.1	1518.6	1478.0	1363.8	1290.1	1229.5	1175.8	1142.1
50°	1646.2	1532.0	1458.0	1323.5	1310.1	1216.1	1122.1	1061.6	1027.9	981.0	933.9
52.5°	1417.7	1310.1	1209.3	1108.7	1054.7	1021.3	933.9	873.4	826.5	792.8	766.0
55°	1195.8	1101.9	1021.3	920.5	886.8	840.0	739.1	725.7	678.6	631.5	598.1
57.5°	1027.9	940.5	846.5	779.4	718.9	685.4	604.6	550.9	524.1	483.8	450.1
60°	873.4	779.4	705.4	624.9	598.1	550.9	490.4	443.5	409.8	376.2	342.7
62.5°	732.3	651.7	571.2	503.8	463.5	436.7	389.6	349.3	315.9	289.0	261.9
65°	604.6	530.7	463.5	396.4	376.2	342.7	309.0	275.6	248.5	215.1	188.2
67.5°	497.2	430.1	362.7	315.9	295.6	282.2	241.9	208.2	188.2	167.9	141.1
70°	389.6	342.7	289.0	248.5	228.5	208.2	181.4	161.4	134.2	120.8	100.8
72.5°	302.4	261.9	215.1	181.4	167.9	154.5	127.7	107.4	94.0	80.5	67.1
75°	215.1	181.4	154.5	120.8	114.2	107.4	87.4	74.0	60.5	47.1	40.3
77.5°	147.9	120.8	94.0	80.5	74.0	60.5	53.7	40.3	33.7	26.8	20.3
80°	80.5	60.5	47.1	40.3	33.7	26.8	26.8	20.3	13.4	13.4	6.8
82.5°	26.8	20.3	13.4	6.8	6.8	6.8	6.8	6.8	6.8	0.0	6.8
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°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	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°	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3
2.5°	5596.7	5522.8	5543.0	5543.0	5529.6	5529.6	5516.2	5495.9	5502.8	5462.2	5375.1
5°	5536.2	5442.2	5428.8	5442.2	5388.5	5375.1	5348.2	5388.5	5267.4	5314.5	5260.8
7.5°	5361.7	5274.3	5254.0	5301.1	5234.0	5193.5	5186.9	5240.6	5133.2	5079.5	5018.9
10°	5166.6	5133.2	5072.6	5038.9	5018.9	5025.5	4971.8	4904.7	4884.4	4871.0	4817.3
12.5°	4992.1	4918.1	4864.4	4824.2	4810.7	4810.7	4723.3	4709.9	4649.4	4635.9	4555.4
15°	4783.6	4696.5	4662.8	4609.1	4562.0	4588.8	4488.0	4461.2	4441.2	4353.8	4367.2
17.5°	4602.3	4508.3	4427.7	4394.0	4353.8	4313.5	4219.3	4239.5	4192.4	4192.4	4071.6
20°	4367.2	4266.4	4205.8	4138.7	4138.7	4085.0	4017.9	4024.5	3963.9	3903.7	3796.0
22.5°	4118.7	4011.0	3937.1	3910.2	3843.1	3829.7	3749.1	3728.9	3648.3	3654.9	3560.9
25°	3856.5	3749.1	3648.3	3654.9	3594.6	3567.8	3520.7	3426.7	3393.0	3352.7	3325.9
27.5°	3547.5	3473.5	3386.1	3379.6	3265.3	3271.9	3211.6	3184.8	3104.0	3124.2	3063.7
30°	3265.3	3157.9	3077.1	3057.1	3010.0	2996.6	2902.6	2862.1	2875.8	2821.8	2788.4
32.5°	2976.3	2815.2	2781.5	2741.2	2714.4	2680.7	2613.6	2640.4	2579.9	2593.3	2539.6
35°	2593.3	2526.2	2438.8	2438.8	2411.9	2385.1	2338.2	2365.1	2304.5	2277.7	2224.0
37.5°	2270.9	2210.6	2123.2	2150.0	2102.9	2062.6	2022.4	2029.0	1975.3	1968.7	1914.7
40°	1921.6	1887.9	1827.6	1827.6	1793.9	1793.9	1773.6	1753.6	1719.9	1679.6	1619.1
42.5°	1592.3	1565.4	1538.6	1545.4	1498.3	1538.6	1484.9	1518.6	1410.9	1404.3	1363.8
45°	1350.4	1290.1	1296.7	1269.8	1243.0	1256.4	1209.3	1222.7	1162.4	1149.0	1108.7
47.5°	1095.3	1075.0	1034.7	1021.3	1021.3	1001.1	981.0	974.2	947.4	913.7	860.0
50°	900.2	826.5	812.8	792.8	779.4	779.4	752.6	712.3	718.9	685.4	631.5
52.5°	705.4	644.9	618.1	611.5	584.6	571.2	537.5	510.7	490.4	477.0	443.5
55°	544.1	490.4	457.0	457.0	416.7	416.7	369.6	349.3	322.5	295.6	275.6
57.5°	409.8	383.0	349.3	322.5	309.0	275.6	248.5	215.1	194.8	154.5	127.7
60°	309.0	282.2	248.5	228.5	215.1	181.4	147.9	120.8	74.0	60.5	53.7
62.5°	228.5	201.6	167.9	154.5	141.1	114.2	80.5	40.3	20.3	20.3	20.3
65°	167.9	134.2	107.4	94.0	80.5	60.5	26.8	13.4	6.8	6.8	6.8
67.5°	114.2	87.4	60.5	53.7	40.3	20.3	6.8	6.8	6.8	6.8	6.8
70°	74.0	53.7	26.8	20.3	13.4	6.8	6.8	6.8	6.8	6.8	6.8
72.5°	47.1	26.8	13.4	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	26.8	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	13.4	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	6.8	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	6.8	6.8	6.8
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-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3	5603.3
2.5°	5469.1	5421.9	5448.8	5388.5	5415.4	5462.2	5428.8	5442.2
5°	5280.9	5254.0	5220.6	5133.2	5200.3	5254.0	5227.2	5220.6
7.5°	5079.5	4985.3	5032.4	5005.5	4992.1	5045.8	4985.3	5052.4
10°	4871.0	4803.9	4797.3	4750.2	4750.2	4790.5	4797.3	4756.8
12.5°	4562.0	4528.6	4528.6	4521.7	4514.9	4555.4	4562.0	4542.0
15°	4340.3	4326.9	4293.2	4286.6	4246.4	4306.7	4313.5	4306.7
17.5°	4071.6	4078.2	4044.7	4044.7	4071.6	4091.6	4037.9	4091.6
20°	3890.2	3856.5	3843.1	3782.6	3816.3	3850.0	3850.0	3856.5
22.5°	3628.1	3574.4	3594.6	3560.9	3540.7	3587.8	3587.8	3608.0
25°	3332.5	3332.5	3345.9	3325.9	3339.3	3366.1	3345.9	3393.0
27.5°	3050.3	3077.1	3077.1	3050.3	3063.7	3144.2	3177.9	3124.2
30°	2788.4	2794.9	2815.2	2801.8	2842.1	2868.9	2862.1	2902.6
32.5°	2492.8	2526.2	2539.6	2519.6	2533.0	2593.3	2559.9	2553.0
35°	2264.3	2203.7	2197.2	2203.7	2230.6	2244.0	2230.6	2277.7
37.5°	1935.0	1914.7	1887.9	1894.7	1914.7	1941.8	1955.2	1988.7
40°	1619.1	1592.3	1592.3	1585.7	1565.4	1639.4	1639.4	1639.4
42.5°	1343.8	1336.9	1303.5	1303.5	1330.3	1350.4	1336.9	1384.0
45°	1101.9	1075.0	1054.7	1054.7	1075.0	1075.0	1095.3	1088.4
47.5°	866.8	840.0	846.5	826.5	846.5	873.4	840.0	846.5
50°	651.7	651.7	638.3	651.7	644.9	651.7	638.3	624.9
52.5°	443.5	503.8	510.7	483.8	423.3	369.6	335.9	362.7
55°	255.3	228.5	228.5	221.6	208.2	201.6	181.4	201.6
57.5°	127.7	114.2	114.2	114.2	107.4	100.8	87.4	87.4
60°	53.7	47.1	47.1	40.3	33.7	26.8	20.3	26.8
62.5°	20.3	13.4	13.4	13.4	13.4	13.4	13.4	13.4
65°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
67.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
70°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
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)