

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 FEU4C1009050 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 FEU4C1009050 F4LC-SQLWW-LI
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS
 AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

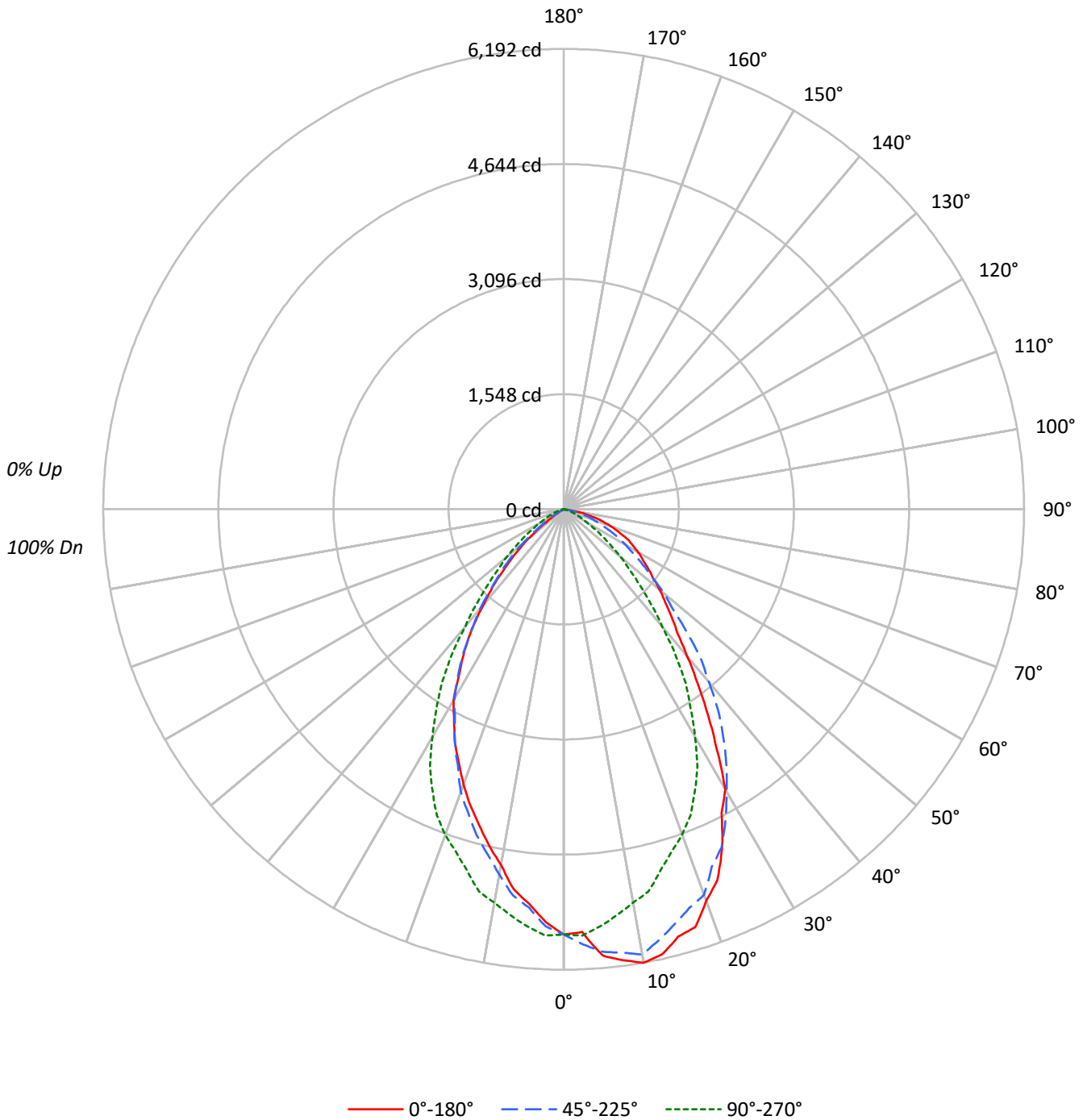
Lumens per Lamp: N/A
 Luminaire Lumens: 8197.0 lumens
 Efficiency: N/A
 Efficacy: 71.7 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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°	551762	551762	551762
5°	583770	545259	516037
10°	606647	526031	475631
15°	594521	502050	439038
20°	575231	478053	404133
25°	536556	444550	368652
30°	484358	393431	330036
35°	398982	336800	273806
40°	325612	259963	210739
45°	279762	197438	151575
50°	253206	150290	95725
55°	233006	108420	34620
60°	223642	74084	5288
65°	216006	50115	1598
70°	193418	34785	1975
75°	158516	17932	0
80°	99129	7613	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	535.8	6.5
10°-20°	1443.5	17.6
20°-30°	1927.5	23.5
30°-40°	1829.8	22.3
40°-50°	1264.8	15.4
50°-60°	698.9	8.5
60°-70°	347.0	4.2
70°-80°	136.7	1.7
80°-90°	13.0	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°	3906.8	47.7
0°-40°	5736.6	70.0
0°-60°	7700.2	93.9
0°-90°	8197.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8197.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	5718	5718	5718	5718	5718	
5°	6027	5972	5630	5376	5328	577
15°	5952	5774	5026	4532	4395	1684
25°	5040	5019	4176	3463	3463	2298
35°	3387	3744	2859	2352	2324	2122
45°	2050	2352	1447	1186	1111	1599
55°	1385	1303	644	329	206	1247
65°	946	686	220	7	7	918
75°	425	261	48	0	0	453
85°	0	7	0	0	0	39
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°	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4
2.5°	5691.0	5848.7	5862.4	5848.7	5869.4	5862.4	5896.8	5862.4	5903.8	5842.0	5855.7
5°	6027.1	5965.3	6095.6	6027.1	6027.1	6020.4	5999.7	5992.7	6020.4	5931.2	5972.3
7.5°	6116.3	6205.4	6322.0	6178.0	6184.8	6184.8	6143.7	6130.0	6130.0	5965.3	6013.4
10°	6191.7	6136.7	6198.5	6143.7	6191.7	6184.8	6212.2	6123.0	6184.8	6088.9	6081.9
12.5°	6130.0	6109.3	6191.7	6102.6	6075.2	6081.9	6047.8	6027.1	6047.8	5937.9	5931.2
15°	5951.6	5972.3	6095.6	5999.7	5986.0	5972.3	5931.2	5862.4	5917.5	5766.5	5773.5
17.5°	5890.1	5855.7	5876.4	5793.9	5814.6	5800.9	5793.9	5732.4	5718.4	5622.5	5622.5
20°	5602.1	5677.3	5677.3	5622.5	5622.5	5615.8	5526.6	5581.4	5519.6	5492.2	5519.6
22.5°	5403.0	5410.0	5410.0	5361.9	5368.9	5341.5	5293.4	5259.1	5293.4	5259.1	5204.2
25°	5039.8	5053.5	5135.7	5046.6	5032.9	5060.3	5019.2	4998.5	4991.8	4909.6	5019.2
27.5°	4600.9	4737.9	4731.2	4696.8	4737.9	4683.1	4662.7	4669.4	4690.1	4683.1	4710.5
30°	4347.3	4367.7	4388.4	4361.0	4367.7	4347.3	4347.3	4354.0	4408.8	4388.4	4381.4
32.5°	3832.9	3901.4	3956.4	3956.4	3963.2	3983.8	3976.9	4120.8	4155.2	4086.7	4073.0
35°	3387.2	3435.3	3483.1	3490.1	3579.3	3586.0	3593.0	3634.1	3730.0	3750.7	3743.7
37.5°	2962.2	3010.0	3023.7	3085.5	3133.6	3181.4	3236.5	3291.3	3373.5	3442.0	3407.9
40°	2585.1	2605.5	2639.9	2667.3	2763.2	2763.2	2790.6	2900.4	2989.6	3044.4	3037.4
42.5°	2269.7	2276.4	2303.8	2351.9	2441.1	2420.4	2441.1	2516.6	2646.6	2653.6	2729.1
45°	2050.2	2043.2	2063.9	2070.6	2125.7	2153.1	2166.8	2221.6	2331.2	2344.9	2351.9
47.5°	1851.4	1844.4	1878.8	1892.5	1912.9	1940.3	1940.3	1947.3	1988.4	2022.8	1995.4
50°	1686.8	1686.8	1686.8	1700.5	1734.8	1727.9	1734.8	1762.2	1782.7	1769.0	1762.2
52.5°	1508.4	1535.8	1556.5	1563.5	1570.2	1570.2	1577.2	1563.5	1556.5	1535.8	1494.7
55°	1385.1	1412.5	1412.5	1412.5	1412.5	1439.9	1405.8	1412.5	1412.5	1357.7	1302.9
57.5°	1261.8	1289.2	1309.6	1282.2	1309.6	1282.2	1268.5	1261.8	1247.8	1193.0	1110.8
60°	1158.9	1172.6	1165.6	1158.9	1172.6	1151.9	1138.2	1110.8	1097.1	1021.6	966.8
62.5°	1042.3	1049.0	1056.0	1042.3	1028.6	1021.6	994.2	953.1	925.7	863.9	815.8
65°	946.1	925.7	918.7	912.0	898.3	877.6	857.2	809.1	788.4	733.6	685.6
67.5°	802.1	795.4	809.1	788.4	754.3	754.3	733.6	692.5	644.5	610.3	562.3
70°	685.6	678.8	665.1	644.5	637.7	610.3	610.3	562.3	548.6	486.8	445.7
72.5°	562.3	562.3	541.6	521.2	500.5	486.8	480.0	445.7	425.2	390.9	356.5
75°	425.2	425.2	418.3	397.6	383.9	370.2	363.5	336.1	315.4	281.3	260.6
77.5°	301.7	301.7	274.3	260.6	267.3	253.6	239.9	233.2	226.2	205.8	178.4
80°	178.4	171.4	151.0	157.7	151.0	151.0	144.0	137.0	123.3	109.6	95.9
82.5°	48.1	54.8	54.8	54.8	61.8	48.1	48.1	48.1	54.8	54.8	34.4
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.0	7.0
87.5°	7.0	13.7	27.4	27.4	27.4	27.4	27.4	20.7	20.7	20.7	13.7
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°	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4
2.5°	5787.2	5780.2	5787.2	5739.1	5848.7	5766.5	5752.8	5739.1	5787.2	5739.1	5670.6
5°	5910.5	5842.0	5821.3	5800.9	5862.4	5766.5	5746.1	5752.8	5718.4	5629.5	5636.2
7.5°	5951.6	5890.1	5828.3	5698.0	5752.8	5732.4	5677.3	5636.2	5581.4	5505.9	5492.2
10°	5965.3	5896.8	5807.6	5766.5	5684.3	5656.9	5636.2	5567.7	5499.2	5368.9	5334.5
12.5°	5924.2	5842.0	5732.4	5698.0	5636.2	5547.0	5499.2	5430.4	5368.9	5266.0	5190.5
15°	5746.1	5677.3	5643.2	5526.6	5499.2	5444.1	5348.2	5252.3	5163.1	5025.9	4984.8
17.5°	5540.3	5512.9	5478.5	5389.3	5382.6	5327.8	5238.6	5156.2	5039.8	4827.1	4758.6
20°	5327.8	5327.8	5217.9	5183.8	5252.3	5142.5	5074.0	4998.5	4758.6	4655.7	4532.4
22.5°	5170.1	5094.6	5032.9	4978.1	4984.8	4916.3	4820.4	4669.4	4580.2	4456.9	4312.9
25°	4861.5	4888.9	4751.9	4731.2	4751.9	4593.9	4546.1	4422.5	4292.2	4175.6	4066.0
27.5°	4669.4	4593.9	4505.0	4429.5	4429.5	4367.7	4230.7	4203.3	4004.3	3894.7	3757.4
30°	4381.4	4326.6	4251.1	4141.5	4127.8	4079.7	3970.1	3901.4	3695.9	3531.2	3455.7
32.5°	4018.0	3997.5	3935.8	3812.5	3771.4	3716.3	3579.3	3462.7	3366.8	3181.4	3092.5
35°	3757.4	3682.2	3551.9	3449.0	3414.6	3318.7	3208.8	3126.6	3023.7	2859.3	2742.8
37.5°	3366.8	3291.3	3167.7	3044.4	3044.4	2948.5	2797.6	2715.4	2571.4	2475.2	2379.3
40°	3023.7	2927.8	2804.5	2660.6	2639.9	2502.6	2441.1	2303.8	2214.6	2063.9	2050.2
42.5°	2639.9	2550.7	2441.1	2331.2	2249.0	2180.5	2022.8	1919.9	1824.0	1748.5	1727.9
45°	2290.1	2173.5	2077.6	1940.3	1858.1	1775.9	1673.1	1604.6	1529.1	1446.9	1398.8
47.5°	1988.4	1892.5	1755.3	1632.0	1549.8	1508.4	1391.8	1316.6	1254.8	1200.0	1165.6
50°	1680.0	1563.5	1488.0	1350.7	1337.0	1241.1	1145.2	1083.4	1049.0	1001.2	953.1
52.5°	1446.9	1337.0	1234.1	1131.5	1076.4	1042.3	953.1	891.3	843.5	809.1	781.7
55°	1220.4	1124.5	1042.3	939.4	905.0	857.2	754.3	740.6	692.5	644.5	610.3
57.5°	1049.0	959.8	863.9	795.4	733.6	699.5	617.1	562.3	534.9	493.7	459.4
60°	891.3	795.4	719.9	637.7	610.3	562.3	500.5	452.6	418.3	383.9	349.8
62.5°	747.3	665.1	582.9	514.2	473.1	445.7	397.6	356.5	322.4	295.0	267.3
65°	617.1	541.6	473.1	404.6	383.9	349.8	315.4	281.3	253.6	219.5	192.1
67.5°	507.4	438.9	370.2	322.4	301.7	288.0	246.9	212.5	192.1	171.4	144.0
70°	397.6	349.8	295.0	253.6	233.2	212.5	185.1	164.7	137.0	123.3	102.9
72.5°	308.7	267.3	219.5	185.1	171.4	157.7	130.3	109.6	95.9	82.2	68.5
75°	219.5	185.1	157.7	123.3	116.6	109.6	89.2	75.5	61.8	48.1	41.1
77.5°	151.0	123.3	95.9	82.2	75.5	61.8	54.8	41.1	34.4	27.4	20.7
80°	82.2	61.8	48.1	41.1	34.4	27.4	27.4	20.7	13.7	13.7	7.0
82.5°	27.4	20.7	13.7	7.0	7.0	7.0	7.0	7.0	7.0	0.0	7.0
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°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	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°	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4
2.5°	5711.7	5636.2	5656.9	5656.9	5643.2	5643.2	5629.5	5608.8	5615.8	5574.4	5485.5
5°	5649.9	5554.0	5540.3	5554.0	5499.2	5485.5	5458.1	5499.2	5375.6	5423.7	5368.9
7.5°	5471.8	5382.6	5361.9	5410.0	5341.5	5300.2	5293.4	5348.2	5238.6	5183.8	5122.0
10°	5272.8	5238.6	5176.8	5142.5	5122.0	5128.8	5074.0	5005.5	4984.8	4971.1	4916.3
12.5°	5094.6	5019.2	4964.4	4923.3	4909.6	4909.6	4820.4	4806.7	4744.9	4731.2	4649.0
15°	4881.9	4793.0	4758.6	4703.8	4655.7	4683.1	4580.2	4552.8	4532.4	4443.2	4456.9
17.5°	4696.8	4600.9	4518.7	4484.3	4443.2	4402.1	4305.9	4326.6	4278.5	4278.5	4155.2
20°	4456.9	4354.0	4292.2	4223.7	4223.7	4168.9	4100.4	4107.1	4045.4	3983.8	3874.0
22.5°	4203.3	4093.4	4018.0	3990.6	3922.1	3908.4	3826.2	3805.5	3723.3	3730.0	3634.1
25°	3935.8	3826.2	3723.3	3730.0	3668.5	3641.1	3593.0	3497.1	3462.7	3421.6	3394.2
27.5°	3620.4	3544.9	3455.7	3449.0	3332.4	3339.1	3277.6	3250.2	3167.7	3188.4	3126.6
30°	3332.4	3222.8	3140.3	3119.9	3071.8	3058.1	2962.2	2920.9	2934.8	2879.8	2845.6
32.5°	3037.4	2873.0	2838.7	2797.6	2770.2	2735.8	2667.3	2694.7	2632.9	2646.6	2591.8
35°	2646.6	2578.1	2488.9	2488.9	2461.5	2434.1	2386.3	2413.7	2351.9	2324.5	2269.7
37.5°	2317.5	2256.0	2166.8	2194.2	2146.1	2105.0	2063.9	2070.6	2015.8	2009.1	1954.0
40°	1961.0	1926.6	1865.1	1865.1	1830.7	1830.7	1810.1	1789.6	1755.3	1714.2	1652.4
42.5°	1625.0	1597.6	1570.2	1577.2	1529.1	1570.2	1515.4	1549.8	1439.9	1433.2	1391.8
45°	1378.1	1316.6	1323.3	1295.9	1268.5	1282.2	1234.1	1247.8	1186.3	1172.6	1131.5
47.5°	1117.8	1097.1	1056.0	1042.3	1042.3	1021.6	1001.2	994.2	966.8	932.4	877.6
50°	918.7	843.5	829.5	809.1	795.4	795.4	768.0	726.9	733.6	699.5	644.5
52.5°	719.9	658.2	630.8	624.0	596.6	582.9	548.6	521.2	500.5	486.8	452.6
55°	555.3	500.5	466.3	466.3	425.2	425.2	377.2	356.5	329.1	301.7	281.3
57.5°	418.3	390.9	356.5	329.1	315.4	281.3	253.6	219.5	198.8	157.7	130.3
60°	315.4	288.0	253.6	233.2	219.5	185.1	151.0	123.3	75.5	61.8	54.8
62.5°	233.2	205.8	171.4	157.7	144.0	116.6	82.2	41.1	20.7	20.7	20.7
65°	171.4	137.0	109.6	95.9	82.2	61.8	27.4	13.7	7.0	7.0	7.0
67.5°	116.6	89.2	61.8	54.8	41.1	20.7	7.0	7.0	7.0	7.0	7.0
70°	75.5	54.8	27.4	20.7	13.7	7.0	7.0	7.0	7.0	7.0	7.0
72.5°	48.1	27.4	13.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	27.4	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	13.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	7.0	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	7.0	7.0	7.0
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 FEU4C1009050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4	5718.4
2.5°	5581.4	5533.3	5560.7	5499.2	5526.6	5574.4	5540.3	5554.0
5°	5389.3	5361.9	5327.8	5238.6	5307.1	5361.9	5334.5	5327.8
7.5°	5183.8	5087.7	5135.7	5108.3	5094.6	5149.4	5087.7	5156.2
10°	4971.1	4902.6	4895.9	4847.8	4847.8	4888.9	4895.9	4854.5
12.5°	4655.7	4621.6	4621.6	4614.6	4607.6	4649.0	4655.7	4635.3
15°	4429.5	4415.8	4381.4	4374.7	4333.6	4395.1	4402.1	4395.1
17.5°	4155.2	4161.9	4127.8	4127.8	4155.2	4175.6	4120.8	4175.6
20°	3970.1	3935.8	3922.1	3860.3	3894.7	3929.0	3929.0	3935.8
22.5°	3702.6	3647.8	3668.5	3634.1	3613.4	3661.5	3661.5	3682.2
25°	3400.9	3400.9	3414.6	3394.2	3407.9	3435.3	3414.6	3462.7
27.5°	3112.9	3140.3	3140.3	3112.9	3126.6	3208.8	3243.2	3188.4
30°	2845.6	2852.4	2873.0	2859.3	2900.4	2927.8	2920.9	2962.2
32.5°	2544.0	2578.1	2591.8	2571.4	2585.1	2646.6	2612.5	2605.5
35°	2310.8	2249.0	2242.3	2249.0	2276.4	2290.1	2276.4	2324.5
37.5°	1974.7	1954.0	1926.6	1933.6	1954.0	1981.7	1995.4	2029.5
40°	1652.4	1625.0	1625.0	1618.3	1597.6	1673.1	1673.1	1673.1
42.5°	1371.4	1364.4	1330.3	1330.3	1357.7	1378.1	1364.4	1412.5
45°	1124.5	1097.1	1076.4	1076.4	1097.1	1097.1	1117.8	1110.8
47.5°	884.6	857.2	863.9	843.5	863.9	891.3	857.2	863.9
50°	665.1	665.1	651.4	665.1	658.2	665.1	651.4	637.7
52.5°	452.6	514.2	521.2	493.7	432.0	377.2	342.8	370.2
55°	260.6	233.2	233.2	226.2	212.5	205.8	185.1	205.8
57.5°	130.3	116.6	116.6	116.6	109.6	102.9	89.2	89.2
60°	54.8	48.1	48.1	41.1	34.4	27.4	20.7	27.4
62.5°	20.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
65°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
67.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
70°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
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)