

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: **FLDSQ4C10D010 FEU4C109035 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: FLDSQ4C10D010 FEU4C109035 F4LC-SQLWW-LI
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

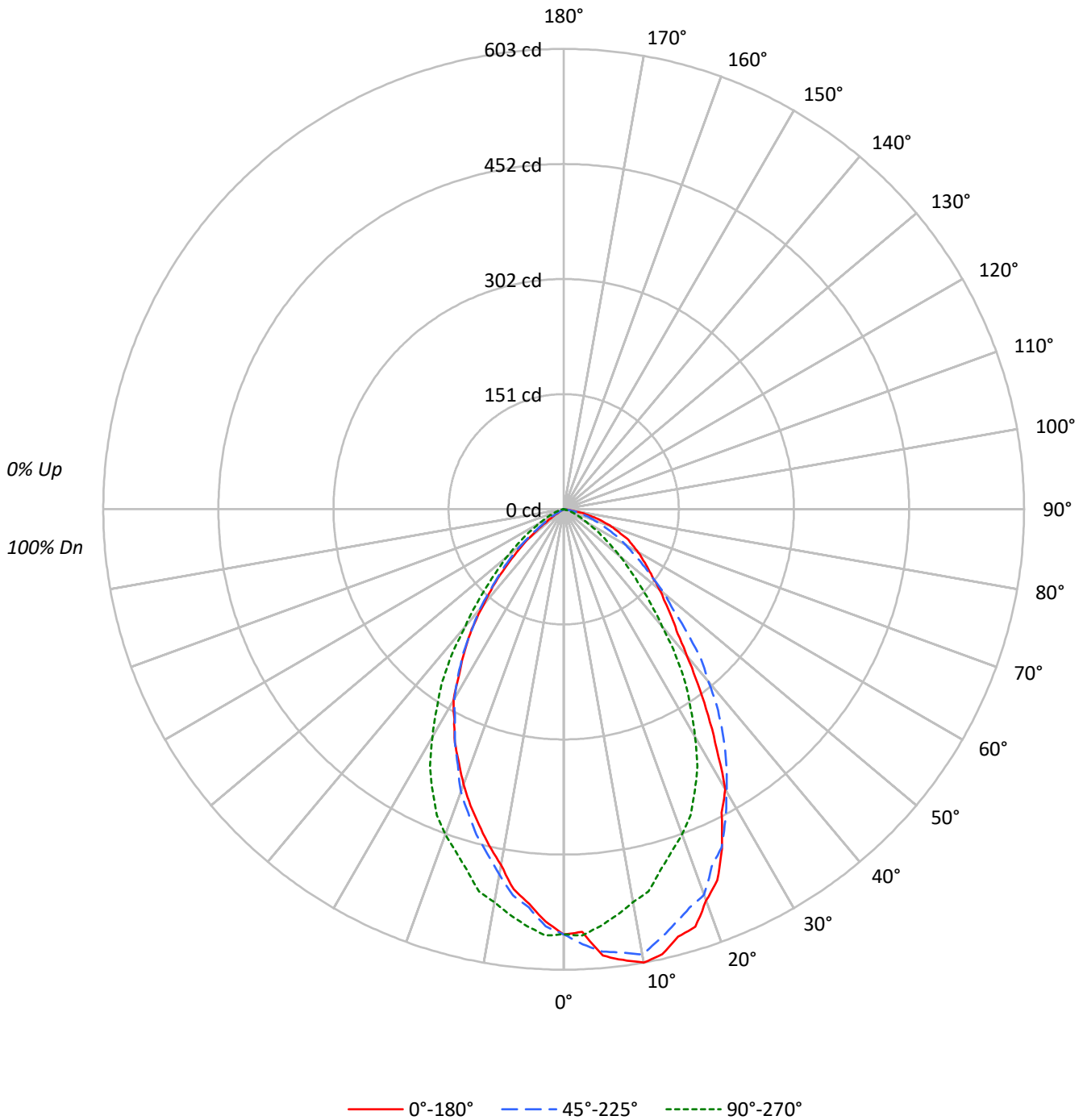
Lumens per Lamp: N/A
 Luminaire Lumens: 798.0 lumens
 Efficiency: N/A
 Efficacy: 81.4 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.8
 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



TEST NUMBER: P#
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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°	53715	53715	53715
5°	56836	53078	50240
10°	59061	51213	46304
15°	57878	48877	42744
20°	56002	46535	39347
25°	52231	43278	35889
30°	47151	38305	32132
35°	38848	32793	26656
40°	31703	25305	20518
45°	27237	19227	14751
50°	24648	14636	9322
55°	22676	10548	3364
60°	21768	7217	521
65°	21028	4886	160
70°	18817	3385	197
75°	15434	1752	0
80°	9668	722	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.2	6.5
10°-20°	140.5	17.6
20°-30°	187.7	23.5
30°-40°	178.1	22.3
40°-50°	123.1	15.4
50°-60°	68.0	8.5
60°-70°	33.8	4.2
70°-80°	13.3	1.7
80°-90°	1.3	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°	380.3	47.7
0°-40°	558.5	70.0
0°-60°	749.6	93.9
0°-90°	798.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	798.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	557	557	557	557	557	
5°	587	581	548	523	519	56
15°	579	562	489	441	428	164
25°	491	489	406	337	337	224
35°	330	364	278	229	226	207
45°	200	229	141	116	108	156
55°	135	127	63	32	20	121
65°	92	67	21	1	1	89
75°	41	25	5	0	0	44
85°	0	1	0	0	0	4
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°	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7
2.5°	554.0	569.4	570.7	569.4	571.4	570.7	574.1	570.7	574.7	568.7	570.1
5°	586.8	580.7	593.4	586.8	586.8	586.1	584.1	583.4	586.1	577.4	581.4
7.5°	595.4	604.1	615.5	601.4	602.1	602.1	598.1	596.8	596.8	580.7	585.4
10°	602.8	597.4	603.4	598.1	602.8	602.1	604.8	596.1	602.1	592.8	592.1
12.5°	596.8	594.8	602.8	594.1	591.4	592.1	588.8	586.8	588.8	578.1	577.4
15°	579.4	581.4	593.4	584.1	582.8	581.4	577.4	570.7	576.1	561.4	562.1
17.5°	573.4	570.1	572.1	564.1	566.1	564.7	564.1	558.1	556.7	547.4	547.4
20°	545.4	552.7	552.7	547.4	547.4	546.7	538.0	543.4	537.4	534.7	537.4
22.5°	526.0	526.7	526.7	522.0	522.7	520.0	515.3	512.0	515.3	512.0	506.6
25°	490.6	492.0	500.0	491.3	490.0	492.6	488.6	486.6	486.0	478.0	488.6
27.5°	447.9	461.2	460.6	457.2	461.2	455.9	453.9	454.6	456.6	455.9	458.6
30°	423.2	425.2	427.2	424.6	425.2	423.2	423.2	423.9	429.2	427.2	426.5
32.5°	373.1	379.8	385.2	385.2	385.8	387.8	387.2	401.2	404.5	397.9	396.5
35°	329.8	334.4	339.1	339.8	348.5	349.1	349.8	353.8	363.1	365.1	364.5
37.5°	288.4	293.0	294.4	300.4	305.1	309.7	315.1	320.4	328.4	335.1	331.8
40°	251.7	253.7	257.0	259.7	269.0	269.0	271.7	282.4	291.0	296.4	295.7
42.5°	221.0	221.6	224.3	229.0	237.6	235.6	237.6	245.0	257.7	258.3	265.7
45°	199.6	198.9	200.9	201.6	206.9	209.6	210.9	216.3	226.9	228.3	229.0
47.5°	180.2	179.6	182.9	184.2	186.2	188.9	188.9	189.6	193.6	196.9	194.3
50°	164.2	164.2	164.2	165.5	168.9	168.2	168.9	171.6	173.5	172.2	171.6
52.5°	146.8	149.5	151.5	152.2	152.9	152.9	153.5	152.2	151.5	149.5	145.5
55°	134.8	137.5	137.5	137.5	137.5	140.2	136.9	137.5	137.5	132.2	126.8
57.5°	122.8	125.5	127.5	124.8	127.5	124.8	123.5	122.8	121.5	116.1	108.1
60°	112.8	114.2	113.5	112.8	114.2	112.1	110.8	108.1	106.8	99.5	94.1
62.5°	101.5	102.1	102.8	101.5	100.1	99.5	96.8	92.8	90.1	84.1	79.4
65°	92.1	90.1	89.4	88.8	87.5	85.4	83.5	78.8	76.8	71.4	66.7
67.5°	78.1	77.4	78.8	76.8	73.4	73.4	71.4	67.4	62.7	59.4	54.7
70°	66.7	66.1	64.8	62.7	62.1	59.4	59.4	54.7	53.4	47.4	43.4
72.5°	54.7	54.7	52.7	50.7	48.7	47.4	46.7	43.4	41.4	38.1	34.7
75°	41.4	41.4	40.7	38.7	37.4	36.0	35.4	32.7	30.7	27.4	25.4
77.5°	29.4	29.4	26.7	25.4	26.0	24.7	23.4	22.7	22.0	20.0	17.4
80°	17.4	16.7	14.7	15.4	14.7	14.7	14.0	13.3	12.0	10.7	9.3
82.5°	4.7	5.3	5.3	5.3	6.0	4.7	4.7	4.7	5.3	5.3	3.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
87.5°	0.7	1.3	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	1.3
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°	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7
2.5°	563.4	562.7	563.4	558.7	569.4	561.4	560.1	558.7	563.4	558.7	552.0
5°	575.4	568.7	566.7	564.7	570.7	561.4	559.4	560.1	556.7	548.0	548.7
7.5°	579.4	573.4	567.4	554.7	560.1	558.1	552.7	548.7	543.4	536.0	534.7
10°	580.7	574.1	565.4	561.4	553.4	550.7	548.7	542.0	535.4	522.7	519.3
12.5°	576.7	568.7	558.1	554.7	548.7	540.0	535.4	528.7	522.7	512.7	505.3
15°	559.4	552.7	549.4	538.0	535.4	530.0	520.7	511.3	502.6	489.3	485.3
17.5°	539.4	536.7	533.3	524.7	524.0	518.7	510.0	502.0	490.6	469.9	463.3
20°	518.7	518.7	508.0	504.7	511.3	500.6	494.0	486.6	463.3	453.2	441.2
22.5°	503.3	496.0	490.0	484.6	485.3	478.6	469.3	454.6	445.9	433.9	419.9
25°	473.3	475.9	462.6	460.6	462.6	447.2	442.6	430.5	417.9	406.5	395.8
27.5°	454.6	447.2	438.6	431.2	431.2	425.2	411.9	409.2	389.8	379.2	365.8
30°	426.5	421.2	413.9	403.2	401.9	397.2	386.5	379.8	359.8	343.8	336.4
32.5°	391.2	389.2	383.2	371.2	367.2	361.8	348.5	337.1	327.8	309.7	301.1
35°	365.8	358.5	345.8	335.8	332.4	323.1	312.4	304.4	294.4	278.4	267.0
37.5°	327.8	320.4	308.4	296.4	296.4	287.0	272.3	264.3	250.3	241.0	231.6
40°	294.4	285.0	273.0	259.0	257.0	243.6	237.6	224.3	215.6	200.9	199.6
42.5°	257.0	248.3	237.6	226.9	218.9	212.3	196.9	186.9	177.6	170.2	168.2
45°	222.9	211.6	202.3	188.9	180.9	172.9	162.9	156.2	148.9	140.9	136.2
47.5°	193.6	184.2	170.9	158.9	150.9	146.8	135.5	128.2	122.2	116.8	113.5
50°	163.6	152.2	144.9	131.5	130.2	120.8	111.5	105.5	102.1	97.5	92.8
52.5°	140.9	130.2	120.1	110.2	104.8	101.5	92.8	86.8	82.1	78.8	76.1
55°	118.8	109.5	101.5	91.5	88.1	83.5	73.4	72.1	67.4	62.7	59.4
57.5°	102.1	93.4	84.1	77.4	71.4	68.1	60.1	54.7	52.1	48.1	44.7
60°	86.8	77.4	70.1	62.1	59.4	54.7	48.7	44.1	40.7	37.4	34.1
62.5°	72.8	64.8	56.8	50.1	46.1	43.4	38.7	34.7	31.4	28.7	26.0
65°	60.1	52.7	46.1	39.4	37.4	34.1	30.7	27.4	24.7	21.4	18.7
67.5°	49.4	42.7	36.0	31.4	29.4	28.0	24.0	20.7	18.7	16.7	14.0
70°	38.7	34.1	28.7	24.7	22.7	20.7	18.0	16.0	13.3	12.0	10.0
72.5°	30.0	26.0	21.4	18.0	16.7	15.4	12.7	10.7	9.3	8.0	6.7
75°	21.4	18.0	15.4	12.0	11.4	10.7	8.7	7.3	6.0	4.7	4.0
77.5°	14.7	12.0	9.3	8.0	7.3	6.0	5.3	4.0	3.3	2.7	2.0
80°	8.0	6.0	4.7	4.0	3.3	2.7	2.7	2.0	1.3	1.3	0.7
82.5°	2.7	2.0	1.3	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.7
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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	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°	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7
2.5°	556.0	548.7	550.7	550.7	549.4	549.4	548.0	546.0	546.7	542.7	534.0
5°	550.0	540.7	539.4	540.7	535.4	534.0	531.4	535.4	523.3	528.0	522.7
7.5°	532.7	524.0	522.0	526.7	520.0	516.0	515.3	520.7	510.0	504.7	498.6
10°	513.3	510.0	504.0	500.6	498.6	499.3	494.0	487.3	485.3	483.9	478.6
12.5°	496.0	488.6	483.3	479.3	478.0	478.0	469.3	467.9	461.9	460.6	452.6
15°	475.3	466.6	463.3	457.9	453.2	455.9	445.9	443.2	441.2	432.6	433.9
17.5°	457.2	447.9	439.9	436.6	432.6	428.6	419.2	421.2	416.5	416.5	404.5
20°	433.9	423.9	417.9	411.2	411.2	405.9	399.2	399.8	393.8	387.8	377.1
22.5°	409.2	398.5	391.2	388.5	381.8	380.5	372.5	370.5	362.5	363.1	353.8
25°	383.2	372.5	362.5	363.1	357.1	354.5	349.8	340.5	337.1	333.1	330.4
27.5°	352.5	345.1	336.4	335.8	324.4	325.1	319.1	316.4	308.4	310.4	304.4
30°	324.4	313.7	305.7	303.7	299.1	297.7	288.4	284.4	285.7	280.4	277.0
32.5°	295.7	279.7	276.4	272.3	269.7	266.3	259.7	262.3	256.3	257.7	252.3
35°	257.7	251.0	242.3	242.3	239.6	237.0	232.3	235.0	229.0	226.3	221.0
37.5°	225.6	219.6	210.9	213.6	208.9	204.9	200.9	201.6	196.2	195.6	190.2
40°	190.9	187.6	181.6	181.6	178.2	178.2	176.2	174.2	170.9	166.9	160.9
42.5°	158.2	155.5	152.9	153.5	148.9	152.9	147.5	150.9	140.2	139.5	135.5
45°	134.2	128.2	128.8	126.2	123.5	124.8	120.1	121.5	115.5	114.2	110.2
47.5°	108.8	106.8	102.8	101.5	101.5	99.5	97.5	96.8	94.1	90.8	85.4
50°	89.4	82.1	80.8	78.8	77.4	77.4	74.8	70.8	71.4	68.1	62.7
52.5°	70.1	64.1	61.4	60.8	58.1	56.8	53.4	50.7	48.7	47.4	44.1
55°	54.1	48.7	45.4	45.4	41.4	41.4	36.7	34.7	32.0	29.4	27.4
57.5°	40.7	38.1	34.7	32.0	30.7	27.4	24.7	21.4	19.4	15.4	12.7
60°	30.7	28.0	24.7	22.7	21.4	18.0	14.7	12.0	7.3	6.0	5.3
62.5°	22.7	20.0	16.7	15.4	14.0	11.4	8.0	4.0	2.0	2.0	2.0
65°	16.7	13.3	10.7	9.3	8.0	6.0	2.7	1.3	0.7	0.7	0.7
67.5°	11.4	8.7	6.0	5.3	4.0	2.0	0.7	0.7	0.7	0.7	0.7
70°	7.3	5.3	2.7	2.0	1.3	0.7	0.7	0.7	0.7	0.7	0.7
72.5°	4.7	2.7	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.7	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	0.7	0.7	0.7
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: FLDSQ4C10D010 FEU4C109035 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	556.7	556.7	556.7	556.7	556.7	556.7	556.7	556.7
2.5°	543.4	538.7	541.4	535.4	538.0	542.7	539.4	540.7
5°	524.7	522.0	518.7	510.0	516.7	522.0	519.3	518.7
7.5°	504.7	495.3	500.0	497.3	496.0	501.3	495.3	502.0
10°	483.9	477.3	476.6	471.9	471.9	475.9	476.6	472.6
12.5°	453.2	449.9	449.9	449.2	448.6	452.6	453.2	451.3
15°	431.2	429.9	426.5	425.9	421.9	427.9	428.6	427.9
17.5°	404.5	405.2	401.9	401.9	404.5	406.5	401.2	406.5
20°	386.5	383.2	381.8	375.8	379.2	382.5	382.5	383.2
22.5°	360.5	355.1	357.1	353.8	351.8	356.5	356.5	358.5
25°	331.1	331.1	332.4	330.4	331.8	334.4	332.4	337.1
27.5°	303.1	305.7	305.7	303.1	304.4	312.4	315.7	310.4
30°	277.0	277.7	279.7	278.4	282.4	285.0	284.4	288.4
32.5°	247.7	251.0	252.3	250.3	251.7	257.7	254.3	253.7
35°	225.0	218.9	218.3	218.9	221.6	222.9	221.6	226.3
37.5°	192.2	190.2	187.6	188.2	190.2	192.9	194.3	197.6
40°	160.9	158.2	158.2	157.5	155.5	162.9	162.9	162.9
42.5°	133.5	132.8	129.5	129.5	132.2	134.2	132.8	137.5
45°	109.5	106.8	104.8	104.8	106.8	106.8	108.8	108.1
47.5°	86.1	83.5	84.1	82.1	84.1	86.8	83.5	84.1
50°	64.8	64.8	63.4	64.8	64.1	64.8	63.4	62.1
52.5°	44.1	50.1	50.7	48.1	42.1	36.7	33.4	36.0
55°	25.4	22.7	22.7	22.0	20.7	20.0	18.0	20.0
57.5°	12.7	11.4	11.4	11.4	10.7	10.0	8.7	8.7
60°	5.3	4.7	4.7	4.0	3.3	2.7	2.0	2.7
62.5°	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
65°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
70°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)