

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 FEU4C109050 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 FEU4C109050 F4LC-SQLWW-LI
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

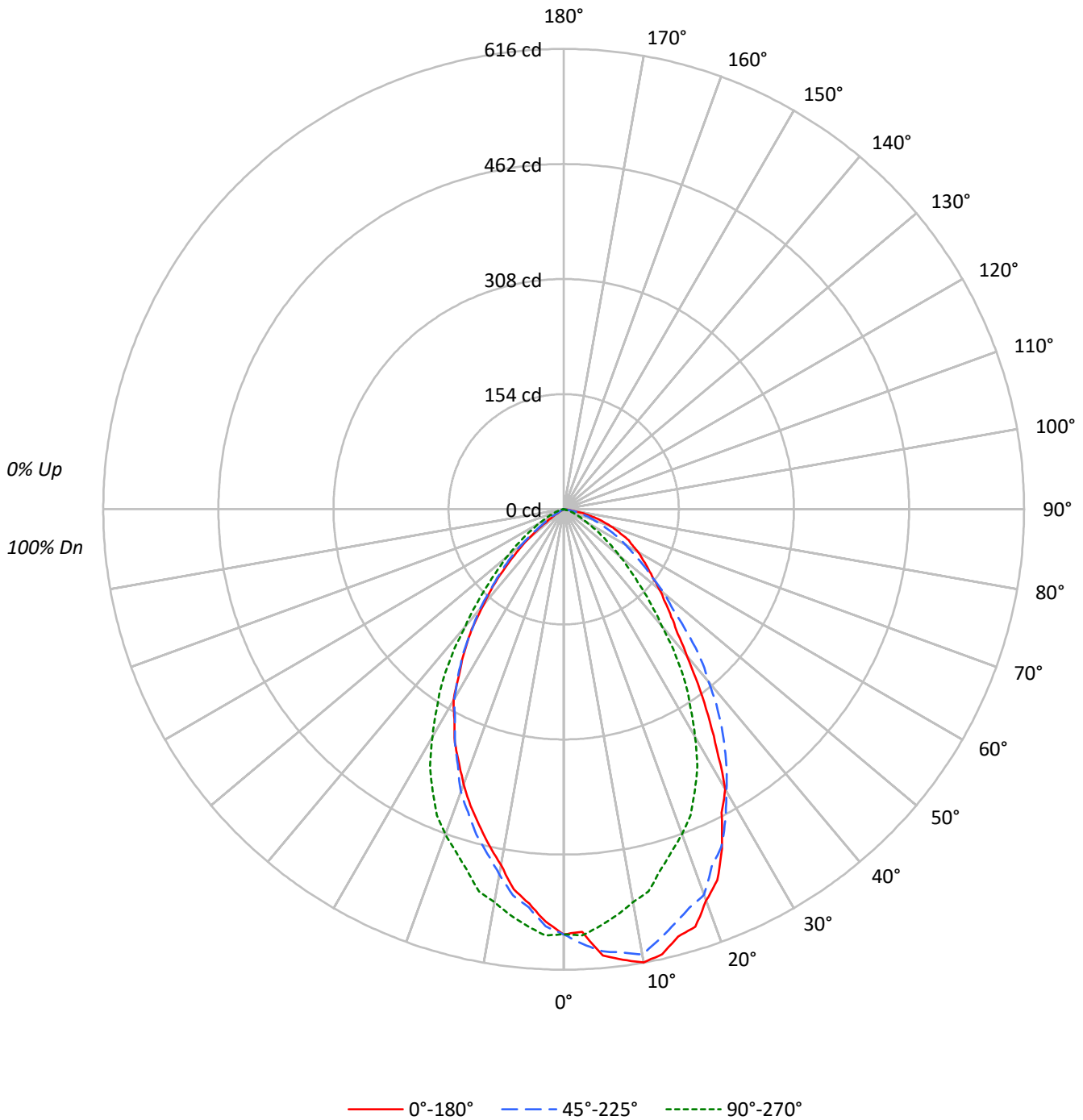
Lumens per Lamp: N/A
 Luminaire Lumens: 815.0 lumens
 Efficiency: N/A
 Efficacy: 83.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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





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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°	54864	54864	54864
5°	58047	54211	51305
10°	60315	52300	47294
15°	59106	49916	43653
20°	57194	47531	40179
25°	53349	44204	36655
30°	48154	39118	32812
35°	39672	33488	27222
40°	32371	25846	20947
45°	27810	19636	15065
50°	25173	14936	9517
55°	23164	10783	3449
60°	22231	7372	521
65°	21484	4977	160
70°	19240	3470	197
75°	15770	1789	0
80°	9835	778	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.3	6.5
10°-20°	143.5	17.6
20°-30°	191.6	23.5
30°-40°	181.9	22.3
40°-50°	125.8	15.4
50°-60°	69.5	8.5
60°-70°	34.5	4.2
70°-80°	13.6	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°	388.4	47.7
0°-40°	570.4	70.0
0°-60°	765.6	93.9
0°-90°	815.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	815.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	569	569	569	569	569	
5°	599	594	560	534	530	57
15°	592	574	500	451	437	167
25°	501	499	415	344	344	228
35°	337	372	284	234	231	211
45°	204	234	144	118	110	159
55°	138	130	64	33	20	124
65°	94	68	22	1	1	91
75°	42	26	5	0	0	45
85°	0	1	0	0	0	4
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°	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6
2.5°	565.8	581.5	582.9	581.5	583.6	582.9	586.3	582.9	587.0	580.8	582.2
5°	599.3	593.1	606.1	599.3	599.3	598.6	596.5	595.8	598.6	589.7	593.8
7.5°	608.1	617.0	628.6	614.3	614.9	614.9	610.8	609.5	609.5	593.1	597.9
10°	615.6	610.1	616.3	610.8	615.6	614.9	617.7	608.8	614.9	605.4	604.7
12.5°	609.5	607.4	615.6	606.8	604.0	604.7	601.3	599.3	601.3	590.4	589.7
15°	591.7	593.8	606.1	596.5	595.2	593.8	589.7	582.9	588.4	573.3	574.0
17.5°	585.6	582.2	584.3	576.1	578.1	576.8	576.1	570.0	568.6	559.0	559.0
20°	557.0	564.5	564.5	559.0	559.0	558.4	549.5	554.9	548.8	546.1	548.8
22.5°	537.2	537.9	537.9	533.1	533.8	531.1	526.3	522.9	526.3	522.9	517.4
25°	501.1	502.5	510.6	501.8	500.4	503.1	499.0	497.0	496.3	488.1	499.0
27.5°	457.5	471.1	470.4	467.0	471.1	465.6	463.6	464.3	466.3	465.6	468.3
30°	432.2	434.3	436.3	433.6	434.3	432.2	432.2	432.9	438.4	436.3	435.6
32.5°	381.1	387.9	393.4	393.4	394.0	396.1	395.4	409.7	413.1	406.3	405.0
35°	336.8	341.6	346.3	347.0	355.9	356.5	357.2	361.3	370.9	372.9	372.2
37.5°	294.5	299.3	300.6	306.8	311.6	316.3	321.8	327.2	335.4	342.2	338.8
40°	257.0	259.1	262.5	265.2	274.7	274.7	277.5	288.4	297.2	302.7	302.0
42.5°	225.7	226.3	229.1	233.8	242.7	240.7	242.7	250.2	263.1	263.8	271.3
45°	203.8	203.2	205.2	205.9	211.4	214.1	215.4	220.9	231.8	233.1	233.8
47.5°	184.1	183.4	186.8	188.2	190.2	192.9	192.9	193.6	197.7	201.1	198.4
50°	167.7	167.7	167.7	169.1	172.5	171.8	172.5	175.2	177.2	175.9	175.2
52.5°	150.0	152.7	154.8	155.4	156.1	156.1	156.8	155.4	154.8	152.7	148.6
55°	137.7	140.4	140.4	140.4	140.4	143.2	139.8	140.4	140.4	135.0	129.5
57.5°	125.5	128.2	130.2	127.5	130.2	127.5	126.1	125.5	124.1	118.6	110.4
60°	115.2	116.6	115.9	115.2	116.6	114.5	113.2	110.4	109.1	101.6	96.1
62.5°	103.6	104.3	105.0	103.6	102.3	101.6	98.9	94.8	92.0	85.9	81.1
65°	94.1	92.0	91.3	90.7	89.3	87.3	85.2	80.4	78.4	72.9	68.2
67.5°	79.8	79.1	80.4	78.4	75.0	75.0	72.9	68.9	64.1	60.7	55.9
70°	68.2	67.5	66.1	64.1	63.4	60.7	60.7	55.9	54.5	48.4	44.3
72.5°	55.9	55.9	53.8	51.8	49.8	48.4	47.7	44.3	42.3	38.9	35.4
75°	42.3	42.3	41.6	39.5	38.2	36.8	36.1	33.4	31.4	28.0	25.9
77.5°	30.0	30.0	27.3	25.9	26.6	25.2	23.9	23.2	22.5	20.5	17.7
80°	17.7	17.0	15.0	15.7	15.0	15.0	14.3	13.6	12.3	10.9	9.5
82.5°	4.8	5.4	5.4	5.4	6.1	4.8	4.8	4.8	5.4	5.4	3.4
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	1.4	2.7	2.7	2.7	2.7	2.7	2.1	2.1	2.1	1.4
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°	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6
2.5°	575.4	574.7	575.4	570.6	581.5	573.3	572.0	570.6	575.4	570.6	563.8
5°	587.7	580.8	578.8	576.8	582.9	573.3	571.3	572.0	568.6	559.7	560.4
7.5°	591.7	585.6	579.5	566.5	572.0	570.0	564.5	560.4	554.9	547.4	546.1
10°	593.1	586.3	577.4	573.3	565.2	562.4	560.4	553.6	546.8	533.8	530.4
12.5°	589.0	580.8	570.0	566.5	560.4	551.5	546.8	539.9	533.8	523.6	516.1
15°	571.3	564.5	561.1	549.5	546.8	541.3	531.8	522.2	513.4	499.7	495.6
17.5°	550.9	548.1	544.7	535.8	535.2	529.7	520.9	512.7	501.1	479.9	473.1
20°	529.7	529.7	518.8	515.4	522.2	511.3	504.5	497.0	473.1	462.9	450.6
22.5°	514.0	506.5	500.4	495.0	495.6	488.8	479.3	464.3	455.4	443.1	428.8
25°	483.4	486.1	472.5	470.4	472.5	456.8	452.0	439.7	426.8	415.2	404.3
27.5°	464.3	456.8	447.9	440.4	440.4	434.3	420.6	417.9	398.1	387.2	373.6
30°	435.6	430.2	422.7	411.8	410.4	405.6	394.7	387.9	367.5	351.1	343.6
32.5°	399.5	397.5	391.3	379.1	375.0	369.5	355.9	344.3	334.7	316.3	307.5
35°	373.6	366.1	353.2	342.9	339.5	330.0	319.0	310.9	300.6	284.3	272.7
37.5°	334.7	327.2	315.0	302.7	302.7	293.2	278.2	270.0	255.7	246.1	236.6
40°	300.6	291.1	278.8	264.5	262.5	248.8	242.7	229.1	220.2	205.2	203.8
42.5°	262.5	253.6	242.7	231.8	223.6	216.8	201.1	190.9	181.4	173.9	171.8
45°	227.7	216.1	206.6	192.9	184.7	176.6	166.3	159.5	152.0	143.9	139.1
47.5°	197.7	188.2	174.5	162.3	154.1	150.0	138.4	130.9	124.8	119.3	115.9
50°	167.0	155.4	147.9	134.3	132.9	123.4	113.9	107.7	104.3	99.5	94.8
52.5°	143.9	132.9	122.7	112.5	107.0	103.6	94.8	88.6	83.9	80.4	77.7
55°	121.3	111.8	103.6	93.4	90.0	85.2	75.0	73.6	68.9	64.1	60.7
57.5°	104.3	95.4	85.9	79.1	72.9	69.6	61.4	55.9	53.2	49.1	45.7
60°	88.6	79.1	71.6	63.4	60.7	55.9	49.8	45.0	41.6	38.2	34.8
62.5°	74.3	66.1	58.0	51.1	47.0	44.3	39.5	35.4	32.1	29.3	26.6
65°	61.4	53.8	47.0	40.2	38.2	34.8	31.4	28.0	25.2	21.8	19.1
67.5°	50.5	43.6	36.8	32.1	30.0	28.6	24.5	21.1	19.1	17.0	14.3
70°	39.5	34.8	29.3	25.2	23.2	21.1	18.4	16.4	13.6	12.3	10.2
72.5°	30.7	26.6	21.8	18.4	17.0	15.7	13.0	10.9	9.5	8.2	6.8
75°	21.8	18.4	15.7	12.3	11.6	10.9	8.9	7.5	6.1	4.8	4.1
77.5°	15.0	12.3	9.5	8.2	7.5	6.1	5.4	4.1	3.4	2.7	2.1
80°	8.2	6.1	4.8	4.1	3.4	2.7	2.7	2.1	1.4	1.4	0.7
82.5°	2.7	2.1	1.4	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°	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6
2.5°	567.9	560.4	562.4	562.4	561.1	561.1	559.7	557.7	558.4	554.2	545.4
5°	561.8	552.2	550.9	552.2	546.8	545.4	542.7	546.8	534.5	539.3	533.8
7.5°	544.0	535.2	533.1	537.9	531.1	527.0	526.3	531.8	520.9	515.4	509.3
10°	524.3	520.9	514.7	511.3	509.3	509.9	504.5	497.7	495.6	494.3	488.8
12.5°	506.5	499.0	493.6	489.5	488.1	488.1	479.3	477.9	471.8	470.4	462.2
15°	485.4	476.5	473.1	467.7	462.9	465.6	455.4	452.7	450.6	441.8	443.1
17.5°	467.0	457.5	449.3	445.9	441.8	437.7	428.1	430.2	425.4	425.4	413.1
20°	443.1	432.9	426.8	420.0	420.0	414.5	407.7	408.4	402.2	396.1	385.2
22.5°	417.9	407.0	399.5	396.8	390.0	388.6	380.4	378.4	370.2	370.9	361.3
25°	391.3	380.4	370.2	370.9	364.7	362.0	357.2	347.7	344.3	340.2	337.5
27.5°	360.0	352.5	343.6	342.9	331.3	332.0	325.9	323.2	315.0	317.0	310.9
30°	331.3	320.4	312.2	310.2	305.4	304.1	294.5	290.4	291.8	286.3	282.9
32.5°	302.0	285.7	282.2	278.2	275.4	272.0	265.2	267.9	261.8	263.1	257.7
35°	263.1	256.3	247.5	247.5	244.7	242.0	237.3	240.0	233.8	231.1	225.7
37.5°	230.4	224.3	215.4	218.2	213.4	209.3	205.2	205.9	200.4	199.8	194.3
40°	195.0	191.6	185.4	185.4	182.0	182.0	180.0	177.9	174.5	170.4	164.3
42.5°	161.6	158.8	156.1	156.8	152.0	156.1	150.7	154.1	143.2	142.5	138.4
45°	137.0	130.9	131.6	128.8	126.1	127.5	122.7	124.1	117.9	116.6	112.5
47.5°	111.1	109.1	105.0	103.6	103.6	101.6	99.5	98.9	96.1	92.7	87.3
50°	91.3	83.9	82.5	80.4	79.1	79.1	76.4	72.3	72.9	69.6	64.1
52.5°	71.6	65.4	62.7	62.0	59.3	58.0	54.5	51.8	49.8	48.4	45.0
55°	55.2	49.8	46.4	46.4	42.3	42.3	37.5	35.4	32.7	30.0	28.0
57.5°	41.6	38.9	35.4	32.7	31.4	28.0	25.2	21.8	19.8	15.7	13.0
60°	31.4	28.6	25.2	23.2	21.8	18.4	15.0	12.3	7.5	6.1	5.4
62.5°	23.2	20.5	17.0	15.7	14.3	11.6	8.2	4.1	2.1	2.1	2.1
65°	17.0	13.6	10.9	9.5	8.2	6.1	2.7	1.4	0.7	0.7	0.7
67.5°	11.6	8.9	6.1	5.4	4.1	2.1	0.7	0.7	0.7	0.7	0.7
70°	7.5	5.4	2.7	2.1	1.4	0.7	0.7	0.7	0.7	0.7	0.7
72.5°	4.8	2.7	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.4	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 FEU4C109050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	568.6	568.6	568.6	568.6	568.6	568.6	568.6	568.6
2.5°	554.9	550.2	552.9	546.8	549.5	554.2	550.9	552.2
5°	535.8	533.1	529.7	520.9	527.7	533.1	530.4	529.7
7.5°	515.4	505.8	510.6	507.9	506.5	512.0	505.8	512.7
10°	494.3	487.4	486.8	482.0	482.0	486.1	486.8	482.7
12.5°	462.9	459.5	459.5	458.8	458.1	462.2	462.9	460.9
15°	440.4	439.0	435.6	435.0	430.9	437.0	437.7	437.0
17.5°	413.1	413.8	410.4	410.4	413.1	415.2	409.7	415.2
20°	394.7	391.3	390.0	383.8	387.2	390.7	390.7	391.3
22.5°	368.1	362.7	364.7	361.3	359.3	364.0	364.0	366.1
25°	338.1	338.1	339.5	337.5	338.8	341.6	339.5	344.3
27.5°	309.5	312.2	312.2	309.5	310.9	319.0	322.5	317.0
30°	282.9	283.6	285.7	284.3	288.4	291.1	290.4	294.5
32.5°	252.9	256.3	257.7	255.7	257.0	263.1	259.7	259.1
35°	229.8	223.6	222.9	223.6	226.3	227.7	226.3	231.1
37.5°	196.3	194.3	191.6	192.3	194.3	197.0	198.4	201.8
40°	164.3	161.6	161.6	160.9	158.8	166.3	166.3	166.3
42.5°	136.4	135.7	132.3	132.3	135.0	137.0	135.7	140.4
45°	111.8	109.1	107.0	107.0	109.1	109.1	111.1	110.4
47.5°	88.0	85.2	85.9	83.9	85.9	88.6	85.2	85.9
50°	66.1	66.1	64.8	66.1	65.4	66.1	64.8	63.4
52.5°	45.0	51.1	51.8	49.1	42.9	37.5	34.1	36.8
55°	25.9	23.2	23.2	22.5	21.1	20.5	18.4	20.5
57.5°	13.0	11.6	11.6	11.6	10.9	10.2	8.9	8.9
60°	5.4	4.8	4.8	4.1	3.4	2.7	2.1	2.7
62.5°	2.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)