

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: **FLDSQ4C08D010 FEU4C089035 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: FLDSQ4C08D010 FEU4C089035 F4LC-SQLWW-LI
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

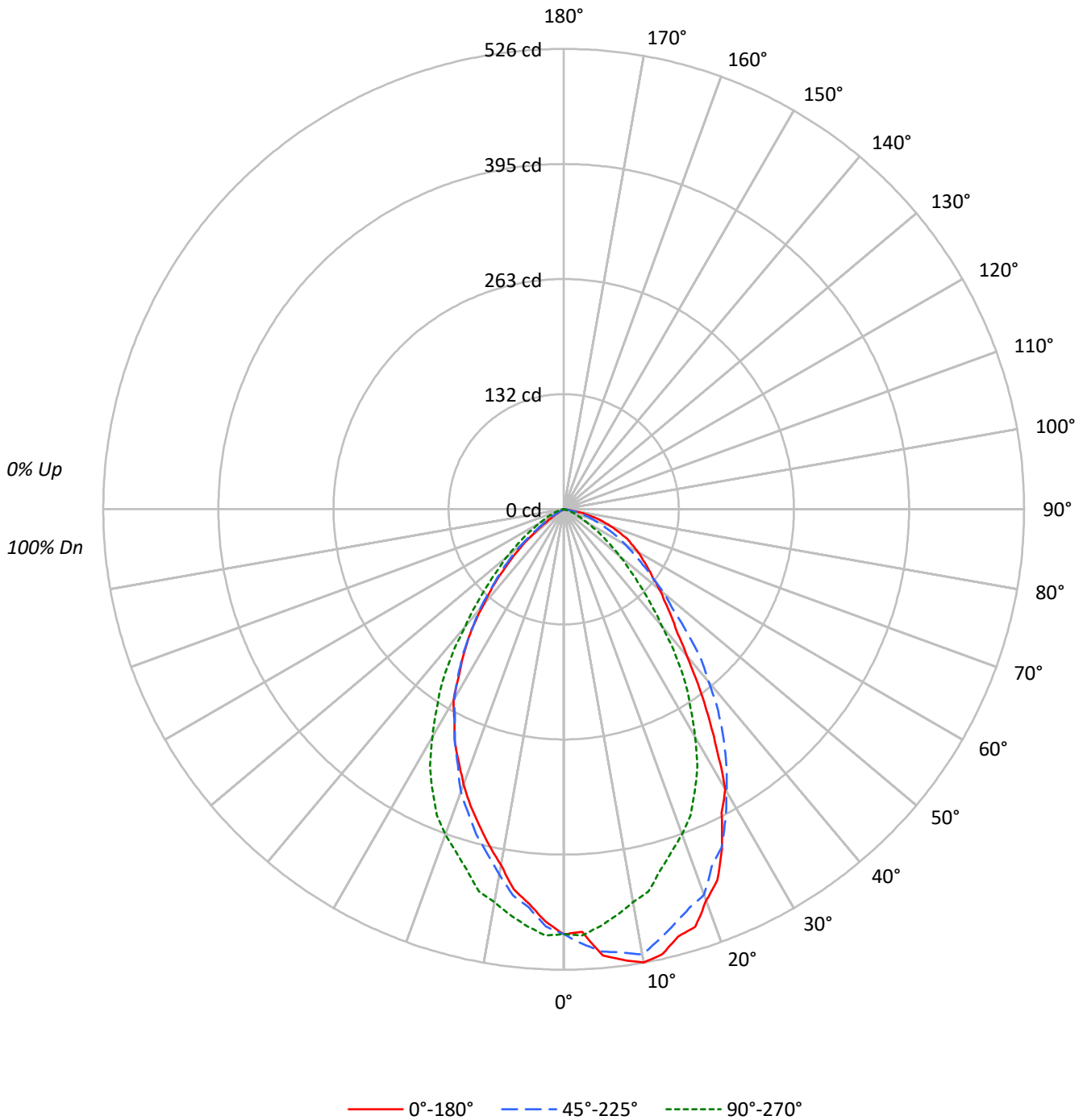
Lumens per Lamp: N/A
 Luminaire Lumens: 696.0 lumens
 Efficiency: N/A
 Efficacy: 70.3 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.9
 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#

CATALOG NUMBER: FLDSQ4C08D010 FEU4C089035 F4LC-SQLWW-LI

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				100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90				90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80				80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72				72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64				64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58				58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53				53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48				48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44				44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38				38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	46845	46845	46845
5°	49572	46298	43818
10°	51507	44668	40386
15°	50476	42624	37280
20°	48846	40590	34316
25°	45556	37752	31300
30°	41124	33402	28021
35°	33877	28600	23252
40°	27648	22068	17899
45°	23757	16770	12868
50°	21496	12759	8121
55°	19783	9202	2944
60°	18989	6291	444
65°	18333	4247	137
70°	16419	2962	169
75°	13458	1528	0
80°	8390	667	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.5	6.5
10°-20°	122.6	17.6
20°-30°	163.7	23.5
30°-40°	155.4	22.3
40°-50°	107.4	15.4
50°-60°	59.3	8.5
60°-70°	29.5	4.2
70°-80°	11.6	1.7
80°-90°	1.1	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°	331.7	47.7
0°-40°	487.1	70.0
0°-60°	653.8	93.9
0°-90°	696.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	696.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	486	486	486	486	486	
5°	512	507	478	456	452	49
15°	505	490	427	385	373	143
25°	428	426	355	294	294	195
35°	288	318	243	200	197	180
45°	174	200	123	101	94	136
55°	118	111	55	28	18	106
65°	80	58	19	1	1	78
75°	36	22	4	0	0	38
85°	0	1	0	0	0	3
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°	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5
2.5°	483.2	496.6	497.8	496.6	498.4	497.8	500.7	497.8	501.3	496.0	497.2
5°	511.8	506.5	517.6	511.8	511.8	511.2	509.4	508.8	511.2	503.6	507.1
7.5°	519.3	526.9	536.8	524.6	525.1	525.1	521.7	520.5	520.5	506.5	510.6
10°	525.7	521.1	526.3	521.7	525.7	525.1	527.5	519.9	525.1	517.0	516.4
12.5°	520.5	518.7	525.7	518.2	515.8	516.4	513.5	511.8	513.5	504.2	503.6
15°	505.3	507.1	517.6	509.4	508.3	507.1	503.6	497.8	502.4	489.6	490.2
17.5°	500.1	497.2	499.0	492.0	493.7	492.5	492.0	486.7	485.5	477.4	477.4
20°	475.7	482.1	482.1	477.4	477.4	476.8	469.3	473.9	468.7	466.3	468.7
22.5°	458.8	459.4	459.4	455.3	455.9	453.5	449.5	446.5	449.5	446.5	441.9
25°	427.9	429.1	436.1	428.5	427.3	429.7	426.2	424.4	423.8	416.9	426.2
27.5°	390.7	402.3	401.7	398.8	402.3	397.6	395.9	396.5	398.2	397.6	400.0
30°	369.1	370.9	372.6	370.3	370.9	369.1	369.1	369.7	374.3	372.6	372.0
32.5°	325.4	331.3	335.9	335.9	336.5	338.3	337.7	349.9	352.8	347.0	345.8
35°	287.6	291.7	295.7	296.3	303.9	304.5	305.1	308.6	316.7	318.5	317.9
37.5°	251.5	255.6	256.7	262.0	266.1	270.1	274.8	279.5	286.4	292.3	289.4
40°	219.5	221.2	224.1	226.5	234.6	234.6	236.9	246.3	253.8	258.5	257.9
42.5°	192.7	193.3	195.6	199.7	207.3	205.5	207.3	213.7	224.7	225.3	231.7
45°	174.1	173.5	175.2	175.8	180.5	182.8	184.0	188.6	197.9	199.1	199.7
47.5°	157.2	156.6	159.5	160.7	162.4	164.8	164.8	165.3	168.8	171.8	169.4
50°	143.2	143.2	143.2	144.4	147.3	146.7	147.3	149.6	151.4	150.2	149.6
52.5°	128.1	130.4	132.2	132.8	133.3	133.3	133.9	132.8	132.2	130.4	126.9
55°	117.6	119.9	119.9	119.9	119.9	122.3	119.4	119.9	119.9	115.3	110.6
57.5°	107.1	109.5	111.2	108.9	111.2	108.9	107.7	107.1	106.0	101.3	94.3
60°	98.4	99.6	99.0	98.4	99.6	97.8	96.6	94.3	93.2	86.7	82.1
62.5°	88.5	89.1	89.7	88.5	87.3	86.7	84.4	80.9	78.6	73.4	69.3
65°	80.3	78.6	78.0	77.4	76.3	74.5	72.8	68.7	66.9	62.3	58.2
67.5°	68.1	67.5	68.7	66.9	64.0	64.0	62.3	58.8	54.7	51.8	47.7
70°	58.2	57.6	56.5	54.7	54.1	51.8	51.8	47.7	46.6	41.3	37.8
72.5°	47.7	47.7	46.0	44.3	42.5	41.3	40.8	37.8	36.1	33.2	30.3
75°	36.1	36.1	35.5	33.8	32.6	31.4	30.9	28.5	26.8	23.9	22.1
77.5°	25.6	25.6	23.3	22.1	22.7	21.5	20.4	19.8	19.2	17.5	15.1
80°	15.1	14.6	12.8	13.4	12.8	12.8	12.2	11.6	10.5	9.3	8.1
82.5°	4.1	4.7	4.7	4.7	5.2	4.1	4.1	4.1	4.7	4.7	2.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6
87.5°	0.6	1.2	2.3	2.3	2.3	2.3	2.3	1.8	1.8	1.8	1.2
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°	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5
2.5°	491.4	490.8	491.4	487.3	496.6	489.6	488.5	487.3	491.4	487.3	481.5
5°	501.9	496.0	494.3	492.5	497.8	489.6	487.9	488.5	485.5	478.0	478.6
7.5°	505.3	500.1	494.9	483.8	488.5	486.7	482.1	478.6	473.9	467.5	466.3
10°	506.5	500.7	493.1	489.6	482.6	480.3	478.6	472.7	466.9	455.9	453.0
12.5°	503.0	496.0	486.7	483.8	478.6	471.0	466.9	461.1	455.9	447.1	440.7
15°	487.9	482.1	479.2	469.3	466.9	462.3	454.1	446.0	438.4	426.7	423.3
17.5°	470.4	468.1	465.2	457.6	457.0	452.4	444.8	437.8	427.9	409.9	404.0
20°	452.4	452.4	443.1	440.2	446.0	436.6	430.8	424.4	404.0	395.3	384.8
22.5°	439.0	432.6	427.3	422.7	423.3	417.4	409.3	396.5	388.9	378.4	366.2
25°	412.8	415.1	403.5	401.7	403.5	390.1	386.0	375.5	364.4	354.6	345.2
27.5°	396.5	390.1	382.5	376.1	376.1	370.9	359.2	356.9	340.0	330.7	319.0
30°	372.0	367.4	361.0	351.7	350.5	346.4	337.1	331.3	313.8	299.8	293.4
32.5°	341.2	339.4	334.2	323.7	320.2	315.5	303.9	294.0	285.9	270.1	262.6
35°	319.0	312.6	301.6	292.9	289.9	281.8	272.5	265.5	256.7	242.8	232.9
37.5°	285.9	279.5	269.0	258.5	258.5	250.4	237.5	230.6	218.3	210.2	202.0
40°	256.7	248.6	238.1	225.9	224.1	212.5	207.3	195.6	188.0	175.2	174.1
42.5°	224.1	216.6	207.3	197.9	191.0	185.1	171.8	163.0	154.9	148.5	146.7
45°	194.5	184.6	176.4	164.8	157.8	150.8	142.1	136.2	129.8	122.9	118.8
47.5°	168.8	160.7	149.0	138.6	131.6	128.1	118.2	111.8	106.5	101.9	99.0
50°	142.7	132.8	126.3	114.7	113.5	105.4	97.2	92.0	89.1	85.0	80.9
52.5°	122.9	113.5	104.8	96.1	91.4	88.5	80.9	75.7	71.6	68.7	66.4
55°	103.6	95.5	88.5	79.8	76.8	72.8	64.0	62.9	58.8	54.7	51.8
57.5°	89.1	81.5	73.4	67.5	62.3	59.4	52.4	47.7	45.4	41.9	39.0
60°	75.7	67.5	61.1	54.1	51.8	47.7	42.5	38.4	35.5	32.6	29.7
62.5°	63.5	56.5	49.5	43.7	40.2	37.8	33.8	30.3	27.4	25.0	22.7
65°	52.4	46.0	40.2	34.4	32.6	29.7	26.8	23.9	21.5	18.6	16.3
67.5°	43.1	37.3	31.4	27.4	25.6	24.5	21.0	18.0	16.3	14.6	12.2
70°	33.8	29.7	25.0	21.5	19.8	18.0	15.7	14.0	11.6	10.5	8.7
72.5°	26.2	22.7	18.6	15.7	14.6	13.4	11.1	9.3	8.1	7.0	5.8
75°	18.6	15.7	13.4	10.5	9.9	9.3	7.6	6.4	5.2	4.1	3.5
77.5°	12.8	10.5	8.1	7.0	6.4	5.2	4.7	3.5	2.9	2.3	1.8
80°	7.0	5.2	4.1	3.5	2.9	2.3	2.3	1.8	1.2	1.2	0.6
82.5°	2.3	1.8	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6
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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	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°	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5
2.5°	485.0	478.6	480.3	480.3	479.2	479.2	478.0	476.2	476.8	473.3	465.8
5°	479.7	471.6	470.4	471.6	466.9	465.8	463.4	466.9	456.4	460.5	455.9
7.5°	464.6	457.0	455.3	459.4	453.5	450.0	449.5	454.1	444.8	440.2	434.9
10°	447.7	444.8	439.6	436.6	434.9	435.5	430.8	425.0	423.3	422.1	417.4
12.5°	432.6	426.2	421.5	418.0	416.9	416.9	409.3	408.1	402.9	401.7	394.7
15°	414.5	407.0	404.0	399.4	395.3	397.6	388.9	386.6	384.8	377.3	378.4
17.5°	398.8	390.7	383.7	380.8	377.3	373.8	365.6	367.4	363.3	363.3	352.8
20°	378.4	369.7	364.4	358.6	358.6	354.0	348.2	348.7	343.5	338.3	328.9
22.5°	356.9	347.6	341.2	338.8	333.0	331.9	324.9	323.1	316.1	316.7	308.6
25°	334.2	324.9	316.1	316.7	311.5	309.2	305.1	296.9	294.0	290.5	288.2
27.5°	307.4	301.0	293.4	292.9	283.0	283.5	278.3	276.0	269.0	270.7	265.5
30°	283.0	273.6	266.6	264.9	260.8	259.7	251.5	248.0	249.2	244.5	241.6
32.5°	257.9	243.9	241.0	237.5	235.2	232.3	226.5	228.8	223.6	224.7	220.1
35°	224.7	218.9	211.3	211.3	209.0	206.7	202.6	204.9	199.7	197.4	192.7
37.5°	196.8	191.6	184.0	186.3	182.2	178.7	175.2	175.8	171.2	170.6	165.9
40°	166.5	163.6	158.4	158.4	155.4	155.4	153.7	152.0	149.0	145.5	140.3
42.5°	138.0	135.6	133.3	133.9	129.8	133.3	128.7	131.6	122.3	121.7	118.2
45°	117.0	111.8	112.4	110.0	107.7	108.9	104.8	106.0	100.7	99.6	96.1
47.5°	94.9	93.2	89.7	88.5	88.5	86.7	85.0	84.4	82.1	79.2	74.5
50°	78.0	71.6	70.4	68.7	67.5	67.5	65.2	61.7	62.3	59.4	54.7
52.5°	61.1	55.9	53.6	53.0	50.7	49.5	46.6	44.3	42.5	41.3	38.4
55°	47.1	42.5	39.6	39.6	36.1	36.1	32.0	30.3	27.9	25.6	23.9
57.5°	35.5	33.2	30.3	27.9	26.8	23.9	21.5	18.6	16.9	13.4	11.1
60°	26.8	24.5	21.5	19.8	18.6	15.7	12.8	10.5	6.4	5.2	4.7
62.5°	19.8	17.5	14.6	13.4	12.2	9.9	7.0	3.5	1.8	1.8	1.8
65°	14.6	11.6	9.3	8.1	7.0	5.2	2.3	1.2	0.6	0.6	0.6
67.5°	9.9	7.6	5.2	4.7	3.5	1.8	0.6	0.6	0.6	0.6	0.6
70°	6.4	4.7	2.3	1.8	1.2	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	4.1	2.3	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.6	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	0.6	0.6	0.6
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: FLDSQ4C08D010 FEU4C089035 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	485.5	485.5	485.5	485.5	485.5	485.5	485.5	485.5
2.5°	473.9	469.8	472.2	466.9	469.3	473.3	470.4	471.6
5°	457.6	455.3	452.4	444.8	450.6	455.3	453.0	452.4
7.5°	440.2	432.0	436.1	433.7	432.6	437.2	432.0	437.8
10°	422.1	416.3	415.7	411.6	411.6	415.1	415.7	412.2
12.5°	395.3	392.4	392.4	391.8	391.2	394.7	395.3	393.6
15°	376.1	374.9	372.0	371.5	368.0	373.2	373.8	373.2
17.5°	352.8	353.4	350.5	350.5	352.8	354.6	349.9	354.6
20°	337.1	334.2	333.0	327.8	330.7	333.6	333.6	334.2
22.5°	314.4	309.7	311.5	308.6	306.8	310.9	310.9	312.6
25°	288.8	288.8	289.9	288.2	289.4	291.7	289.9	294.0
27.5°	264.3	266.6	266.6	264.3	265.5	272.5	275.4	270.7
30°	241.6	242.2	243.9	242.8	246.3	248.6	248.0	251.5
32.5°	216.0	218.9	220.1	218.3	219.5	224.7	221.8	221.2
35°	196.2	191.0	190.4	191.0	193.3	194.5	193.3	197.4
37.5°	167.7	165.9	163.6	164.2	165.9	168.3	169.4	172.3
40°	140.3	138.0	138.0	137.4	135.6	142.1	142.1	142.1
42.5°	116.4	115.8	113.0	113.0	115.3	117.0	115.8	119.9
45°	95.5	93.2	91.4	91.4	93.2	93.2	94.9	94.3
47.5°	75.1	72.8	73.4	71.6	73.4	75.7	72.8	73.4
50°	56.5	56.5	55.3	56.5	55.9	56.5	55.3	54.1
52.5°	38.4	43.7	44.3	41.9	36.7	32.0	29.1	31.4
55°	22.1	19.8	19.8	19.2	18.0	17.5	15.7	17.5
57.5°	11.1	9.9	9.9	9.9	9.3	8.7	7.6	7.6
60°	4.7	4.1	4.1	3.5	2.9	2.3	1.8	2.3
62.5°	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2
65°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
70°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)