

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 FEU4C089030 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 FEU4C089030 F4LC-SQLWW-LI
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

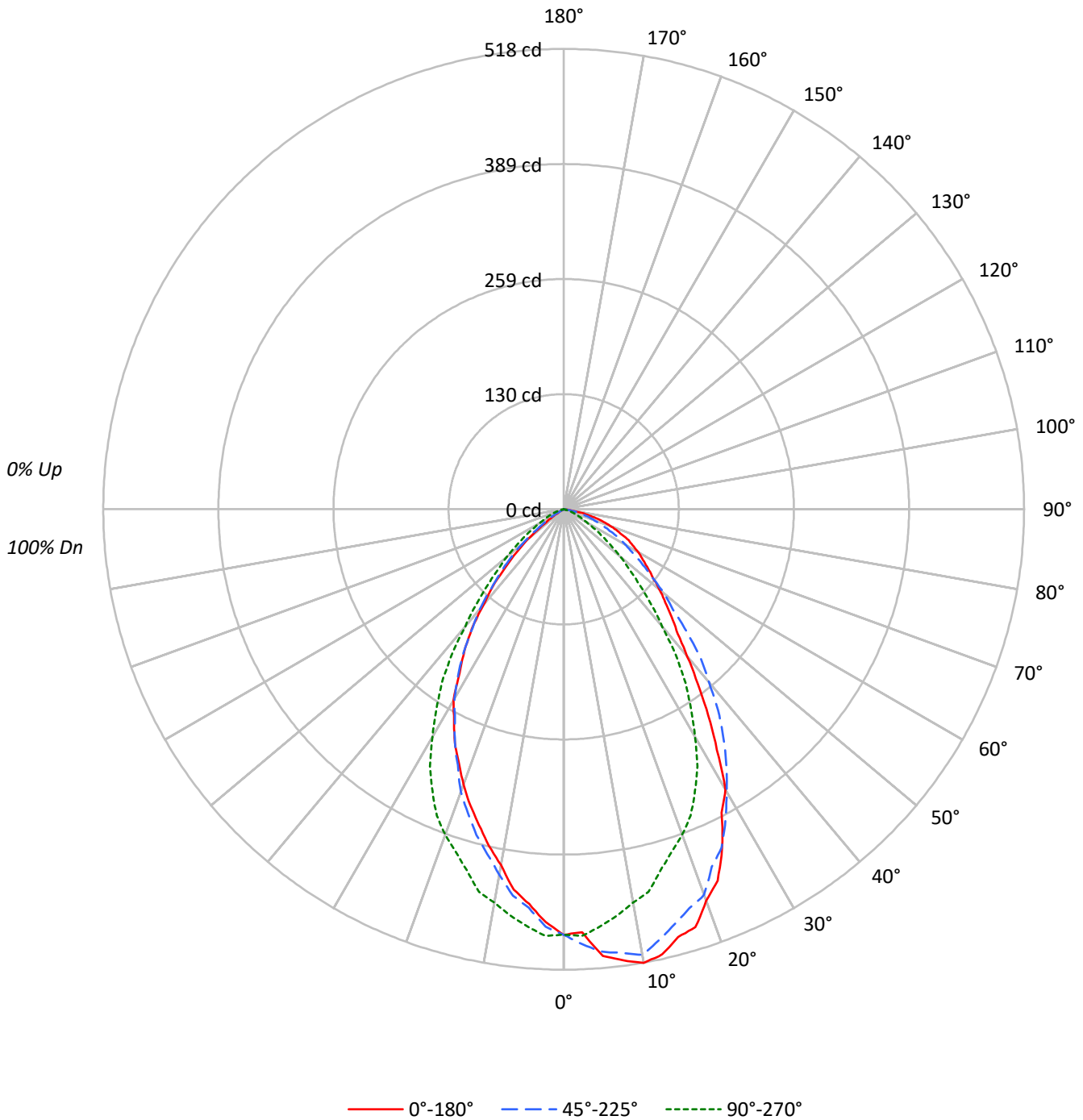
Lumens per Lamp: N/A
 Luminaire Lumens: 686.0 lumens
 Efficiency: N/A
 Efficacy: 69.3 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C089030 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				
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°	46180	46180	46180
5°	48855	45630	43189
10°	50772	44021	39808
15°	49757	42015	36741
20°	48137	40005	33823
25°	44906	37209	30853
30°	40533	32923	27620
35°	33394	28187	22910
40°	27245	21753	17634
45°	23416	16525	12690
50°	21196	12579	8016
55°	19497	9067	2893
60°	18719	6195	444
65°	18082	4201	137
70°	16193	2906	169
75°	13272	1491	0
80°	8279	611	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.8	6.5
10°-20°	120.8	17.6
20°-30°	161.3	23.5
30°-40°	153.1	22.3
40°-50°	105.8	15.4
50°-60°	58.5	8.5
60°-70°	29.0	4.2
70°-80°	11.4	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°	327.0	47.7
0°-40°	480.1	70.0
0°-60°	644.4	93.9
0°-90°	686.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	686.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	479	479	479	479	479	
5°	504	500	471	450	446	48
15°	498	483	421	379	368	141
25°	422	420	350	290	290	192
35°	284	313	239	197	194	178
45°	172	197	121	99	93	134
55°	116	109	54	28	17	104
65°	79	57	18	1	1	77
75°	36	22	4	0	0	38
85°	0	1	0	0	0	3
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°	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6
2.5°	476.3	489.5	490.6	489.5	491.2	490.6	493.5	490.6	494.1	488.9	490.1
5°	504.4	499.2	510.1	504.4	504.4	503.8	502.1	501.5	503.8	496.4	499.8
7.5°	511.9	519.3	529.1	517.0	517.6	517.6	514.2	513.0	513.0	499.2	503.3
10°	518.2	513.6	518.7	514.2	518.2	517.6	519.9	512.4	517.6	509.6	509.0
12.5°	513.0	511.3	518.2	510.7	508.4	509.0	506.1	504.4	506.1	496.9	496.4
15°	498.1	499.8	510.1	502.1	501.0	499.8	496.4	490.6	495.2	482.6	483.2
17.5°	492.9	490.1	491.8	484.9	486.6	485.5	484.9	479.7	478.6	470.5	470.5
20°	468.8	475.1	475.1	470.5	470.5	470.0	462.5	467.1	461.9	459.6	461.9
22.5°	452.2	452.8	452.8	448.7	449.3	447.0	443.0	440.1	443.0	440.1	435.5
25°	421.8	422.9	429.8	422.3	421.2	423.5	420.0	418.3	417.8	410.9	420.0
27.5°	385.0	396.5	395.9	393.1	396.5	391.9	390.2	390.8	392.5	391.9	394.2
30°	363.8	365.5	367.3	365.0	365.5	363.8	363.8	364.4	369.0	367.3	366.7
32.5°	320.8	326.5	331.1	331.1	331.7	333.4	332.8	344.9	347.7	342.0	340.9
35°	283.5	287.5	291.5	292.1	299.5	300.1	300.7	304.1	312.2	313.9	313.3
37.5°	247.9	251.9	253.1	258.2	262.2	266.3	270.9	275.4	282.3	288.1	285.2
40°	216.3	218.1	220.9	223.2	231.2	231.2	233.5	242.7	250.2	254.8	254.2
42.5°	189.9	190.5	192.8	196.8	204.3	202.6	204.3	210.6	221.5	222.1	228.4
45°	171.6	171.0	172.7	173.3	177.9	180.2	181.3	185.9	195.1	196.2	196.8
47.5°	154.9	154.4	157.2	158.4	160.1	162.4	162.4	163.0	166.4	169.3	167.0
50°	141.2	141.2	141.2	142.3	145.2	144.6	145.2	147.5	149.2	148.0	147.5
52.5°	126.2	128.5	130.3	130.8	131.4	131.4	132.0	130.8	130.3	128.5	125.1
55°	115.9	118.2	118.2	118.2	118.2	120.5	117.6	118.2	118.2	113.6	109.0
57.5°	105.6	107.9	109.6	107.3	109.6	107.3	106.2	105.6	104.4	99.8	93.0
60°	97.0	98.1	97.5	97.0	98.1	96.4	95.3	93.0	91.8	85.5	80.9
62.5°	87.2	87.8	88.4	87.2	86.1	85.5	83.2	79.8	77.5	72.3	68.3
65°	79.2	77.5	76.9	76.3	75.2	73.4	71.7	67.7	66.0	61.4	57.4
67.5°	67.1	66.6	67.7	66.0	63.1	63.1	61.4	58.0	53.9	51.1	47.1
70°	57.4	56.8	55.7	53.9	53.4	51.1	51.1	47.1	45.9	40.7	37.3
72.5°	47.1	47.1	45.3	43.6	41.9	40.7	40.2	37.3	35.6	32.7	29.8
75°	35.6	35.6	35.0	33.3	32.1	31.0	30.4	28.1	26.4	23.5	21.8
77.5°	25.2	25.2	23.0	21.8	22.4	21.2	20.1	19.5	18.9	17.2	14.9
80°	14.9	14.3	12.6	13.2	12.6	12.6	12.1	11.5	10.3	9.2	8.0
82.5°	4.0	4.6	4.6	4.6	5.2	4.0	4.0	4.0	4.6	4.6	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	1.1	2.3	2.3	2.3	2.3	2.3	1.7	1.7	1.7	1.1
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°	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6
2.5°	484.3	483.7	484.3	480.3	489.5	482.6	481.4	480.3	484.3	480.3	474.6
5°	494.6	488.9	487.2	485.5	490.6	482.6	480.9	481.4	478.6	471.1	471.7
7.5°	498.1	492.9	487.8	476.9	481.4	479.7	475.1	471.7	467.1	460.8	459.6
10°	499.2	493.5	486.0	482.6	475.7	473.4	471.7	466.0	460.2	449.3	446.4
12.5°	495.8	488.9	479.7	476.9	471.7	464.2	460.2	454.5	449.3	440.7	434.4
15°	480.9	475.1	472.3	462.5	460.2	455.6	447.6	439.6	432.1	420.6	417.2
17.5°	463.7	461.4	458.5	451.0	450.5	445.9	438.4	431.5	421.8	404.0	398.2
20°	445.9	445.9	436.7	433.8	439.6	430.4	424.6	418.3	398.2	389.6	379.3
22.5°	432.7	426.4	421.2	416.6	417.2	411.4	403.4	390.8	383.3	373.0	360.9
25°	406.9	409.1	397.7	395.9	397.7	384.5	380.5	370.1	359.2	349.5	340.3
27.5°	390.8	384.5	377.0	370.7	370.7	365.5	354.1	351.8	335.1	325.9	314.5
30°	366.7	362.1	355.8	346.6	345.5	341.4	332.3	326.5	309.3	295.5	289.2
32.5°	336.3	334.6	329.4	319.1	315.6	311.0	299.5	289.8	281.8	266.3	258.8
35°	314.5	308.2	297.3	288.6	285.8	277.7	268.5	261.7	253.1	239.3	229.5
37.5°	281.8	275.4	265.1	254.8	254.8	246.8	234.1	227.2	215.2	207.1	199.1
40°	253.1	245.0	234.7	222.7	220.9	209.4	204.3	192.8	185.3	172.7	171.6
42.5°	220.9	213.5	204.3	195.1	188.2	182.5	169.3	160.7	152.7	146.3	144.6
45°	191.7	181.9	173.9	162.4	155.5	148.6	140.0	134.3	128.0	121.1	117.1
47.5°	166.4	158.4	146.9	136.6	129.7	126.2	116.5	110.2	105.0	100.4	97.5
50°	140.6	130.8	124.5	113.0	111.9	103.9	95.8	90.7	87.8	83.8	79.8
52.5°	121.1	111.9	103.3	94.7	90.1	87.2	79.8	74.6	70.6	67.7	65.4
55°	102.1	94.1	87.2	78.6	75.7	71.7	63.1	62.0	58.0	53.9	51.1
57.5°	87.8	80.3	72.3	66.6	61.4	58.5	51.6	47.1	44.8	41.3	38.4
60°	74.6	66.6	60.3	53.4	51.1	47.1	41.9	37.9	35.0	32.1	29.3
62.5°	62.5	55.7	48.8	43.0	39.6	37.3	33.3	29.8	27.0	24.7	22.4
65°	51.6	45.3	39.6	33.9	32.1	29.3	26.4	23.5	21.2	18.4	16.1
67.5°	42.5	36.7	31.0	27.0	25.2	24.1	20.7	17.8	16.1	14.3	12.1
70°	33.3	29.3	24.7	21.2	19.5	17.8	15.5	13.8	11.5	10.3	8.6
72.5°	25.8	22.4	18.4	15.5	14.3	13.2	10.9	9.2	8.0	6.9	5.7
75°	18.4	15.5	13.2	10.3	9.8	9.2	7.5	6.3	5.2	4.0	3.4
77.5°	12.6	10.3	8.0	6.9	6.3	5.2	4.6	3.4	2.9	2.3	1.7
80°	6.9	5.2	4.0	3.4	2.9	2.3	2.3	1.7	1.1	1.1	0.6
82.5°	2.3	1.7	1.1	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°	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6
2.5°	478.0	471.7	473.4	473.4	472.3	472.3	471.1	469.4	470.0	466.5	459.1
5°	472.8	464.8	463.7	464.8	460.2	459.1	456.8	460.2	449.9	453.9	449.3
7.5°	457.9	450.5	448.7	452.8	447.0	443.6	443.0	447.6	438.4	433.8	428.7
10°	441.3	438.4	433.2	430.4	428.7	429.2	424.6	418.9	417.2	416.0	411.4
12.5°	426.4	420.0	415.5	412.0	410.9	410.9	403.4	402.3	397.1	395.9	389.1
15°	408.6	401.1	398.2	393.7	389.6	391.9	383.3	381.0	379.3	371.8	373.0
17.5°	393.1	385.0	378.2	375.3	371.8	368.4	360.4	362.1	358.1	358.1	347.7
20°	373.0	364.4	359.2	353.5	353.5	348.9	343.2	343.7	338.6	333.4	324.2
22.5°	351.8	342.6	336.3	334.0	328.2	327.1	320.2	318.5	311.6	312.2	304.1
25°	329.4	320.2	311.6	312.2	307.0	304.7	300.7	292.7	289.8	286.4	284.1
27.5°	303.0	296.7	289.2	288.6	278.9	279.4	274.3	272.0	265.1	266.8	261.7
30°	278.9	269.7	262.8	261.1	257.1	255.9	247.9	244.4	245.6	241.0	238.1
32.5°	254.2	240.4	237.6	234.1	231.8	229.0	223.2	225.5	220.3	221.5	216.9
35°	221.5	215.8	208.3	208.3	206.0	203.7	199.7	202.0	196.8	194.5	189.9
37.5°	194.0	188.8	181.3	183.6	179.6	176.2	172.7	173.3	168.7	168.1	163.5
40°	164.1	161.2	156.1	156.1	153.2	153.2	151.5	149.8	146.9	143.5	138.3
42.5°	136.0	133.7	131.4	132.0	128.0	131.4	126.8	129.7	120.5	119.9	116.5
45°	115.3	110.2	110.7	108.5	106.2	107.3	103.3	104.4	99.3	98.1	94.7
47.5°	93.5	91.8	88.4	87.2	87.2	85.5	83.8	83.2	80.9	78.0	73.4
50°	76.9	70.6	69.4	67.7	66.6	66.6	64.3	60.8	61.4	58.5	53.9
52.5°	60.3	55.1	52.8	52.2	49.9	48.8	45.9	43.6	41.9	40.7	37.9
55°	46.5	41.9	39.0	39.0	35.6	35.6	31.6	29.8	27.5	25.2	23.5
57.5°	35.0	32.7	29.8	27.5	26.4	23.5	21.2	18.4	16.6	13.2	10.9
60°	26.4	24.1	21.2	19.5	18.4	15.5	12.6	10.3	6.3	5.2	4.6
62.5°	19.5	17.2	14.3	13.2	12.1	9.8	6.9	3.4	1.7	1.7	1.7
65°	14.3	11.5	9.2	8.0	6.9	5.2	2.3	1.1	0.6	0.6	0.6
67.5°	9.8	7.5	5.2	4.6	3.4	1.7	0.6	0.6	0.6	0.6	0.6
70°	6.3	4.6	2.3	1.7	1.1	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	4.0	2.3	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.1	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 FEU4C089030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	478.6	478.6	478.6	478.6	478.6	478.6	478.6	478.6
2.5°	467.1	463.1	465.4	460.2	462.5	466.5	463.7	464.8
5°	451.0	448.7	445.9	438.4	444.1	448.7	446.4	445.9
7.5°	433.8	425.8	429.8	427.5	426.4	431.0	425.8	431.5
10°	416.0	410.3	409.7	405.7	405.7	409.1	409.7	406.3
12.5°	389.6	386.8	386.8	386.2	385.6	389.1	389.6	387.9
15°	370.7	369.6	366.7	366.1	362.7	367.8	368.4	367.8
17.5°	347.7	348.3	345.5	345.5	347.7	349.5	344.9	349.5
20°	332.3	329.4	328.2	323.1	325.9	328.8	328.8	329.4
22.5°	309.9	305.3	307.0	304.1	302.4	306.4	306.4	308.2
25°	284.6	284.6	285.8	284.1	285.2	287.5	285.8	289.8
27.5°	260.5	262.8	262.8	260.5	261.7	268.5	271.4	266.8
30°	238.1	238.7	240.4	239.3	242.7	245.0	244.4	247.9
32.5°	212.9	215.8	216.9	215.2	216.3	221.5	218.6	218.1
35°	193.4	188.2	187.7	188.2	190.5	191.7	190.5	194.5
37.5°	165.3	163.5	161.2	161.8	163.5	165.8	167.0	169.8
40°	138.3	136.0	136.0	135.4	133.7	140.0	140.0	140.0
42.5°	114.8	114.2	111.3	111.3	113.6	115.3	114.2	118.2
45°	94.1	91.8	90.1	90.1	91.8	91.8	93.5	93.0
47.5°	74.0	71.7	72.3	70.6	72.3	74.6	71.7	72.3
50°	55.7	55.7	54.5	55.7	55.1	55.7	54.5	53.4
52.5°	37.9	43.0	43.6	41.3	36.2	31.6	28.7	31.0
55°	21.8	19.5	19.5	18.9	17.8	17.2	15.5	17.2
57.5°	10.9	9.8	9.8	9.8	9.2	8.6	7.5	7.5
60°	4.6	4.0	4.0	3.4	2.9	2.3	1.7	2.3
62.5°	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)