

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 FEU4C089040 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 FEU4C089040 F4LC-SQLWW-LI
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

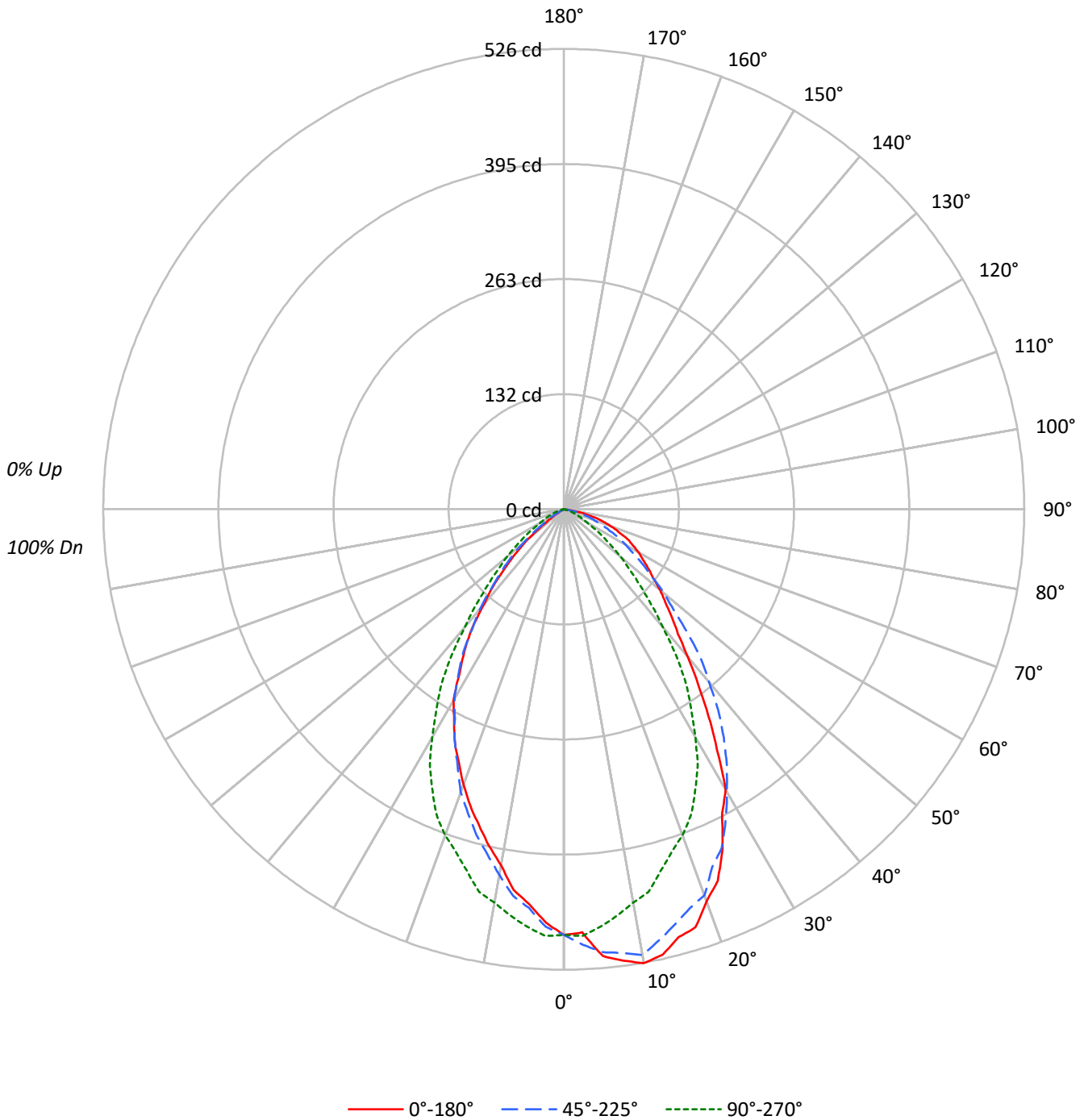
Lumens per Lamp: N/A
 Luminaire Lumens: 697.0 lumens
 Efficiency: N/A
 Efficacy: 70.4 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.9
 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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C08D010 FEU4C089040 F4LC-SQLWW-LI

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C08D010 FEU4C089040 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°	46913	46913	46913
5°	49639	46366	43876
10°	51585	44727	40445
15°	50556	42694	37330
20°	48917	40652	34367
25°	45620	37805	31343
30°	41190	33458	28066
35°	33924	28635	23287
40°	27685	22106	17924
45°	23784	16784	12895
50°	21526	12774	8136
55°	19817	9219	2944
60°	19008	6291	444
65°	18379	4269	137
70°	16447	2962	169
75°	13496	1528	0
80°	8446	667	0
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089040 F4LC-SQLWW-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.6	6.5
10°-20°	122.7	17.6
20°-30°	163.9	23.5
30°-40°	155.6	22.3
40°-50°	107.5	15.4
50°-60°	59.4	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°	332.2	47.7
0°-40°	487.8	70.0
0°-60°	654.8	93.9
0°-90°	697.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	697.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	486	486	486	486	486	
5°	512	508	479	457	453	49
15°	506	491	427	385	374	143
25°	428	427	355	294	294	195
35°	288	318	243	200	198	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	39
85°	0	1	0	0	0	3
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089040 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2
2.5°	483.9	497.3	498.5	497.3	499.1	498.5	501.4	498.5	502.0	496.8	497.9
5°	512.5	507.2	518.3	512.5	512.5	511.9	510.2	509.6	511.9	504.3	507.8
7.5°	520.1	527.7	537.6	525.3	525.9	525.9	522.4	521.2	521.2	507.2	511.3
10°	526.5	521.8	527.1	522.4	526.5	525.9	528.2	520.6	525.9	517.7	517.1
12.5°	521.2	519.5	526.5	518.9	516.6	517.1	514.2	512.5	514.2	504.9	504.3
15°	506.1	507.8	518.3	510.2	509.0	507.8	504.3	498.5	503.2	490.3	490.9
17.5°	500.8	497.9	499.7	492.7	494.4	493.3	492.7	487.4	486.2	478.1	478.1
20°	476.4	482.7	482.7	478.1	478.1	477.5	469.9	474.6	469.3	467.0	469.3
22.5°	459.4	460.0	460.0	455.9	456.5	454.2	450.1	447.2	450.1	447.2	442.5
25°	428.5	429.7	436.7	429.1	427.9	430.3	426.8	425.0	424.5	417.5	426.8
27.5°	391.2	402.9	402.3	399.4	402.9	398.2	396.5	397.0	398.8	398.2	400.5
30°	369.7	371.4	373.2	370.8	371.4	369.7	369.7	370.2	374.9	373.2	372.6
32.5°	325.9	331.7	336.4	336.4	337.0	338.8	338.2	350.4	353.3	347.5	346.3
35°	288.0	292.1	296.2	296.8	304.4	304.9	305.5	309.0	317.2	318.9	318.3
37.5°	251.9	255.9	257.1	262.4	266.5	270.5	275.2	279.9	286.9	292.7	289.8
40°	219.8	221.5	224.5	226.8	235.0	235.0	237.3	246.6	254.2	258.9	258.3
42.5°	193.0	193.6	195.9	200.0	207.6	205.8	207.6	214.0	225.0	225.6	232.1
45°	174.3	173.7	175.5	176.1	180.8	183.1	184.2	188.9	198.2	199.4	200.0
47.5°	157.4	156.8	159.8	160.9	162.7	165.0	165.0	165.6	169.1	172.0	169.7
50°	143.4	143.4	143.4	144.6	147.5	146.9	147.5	149.8	151.6	150.4	149.8
52.5°	128.3	130.6	132.3	132.9	133.5	133.5	134.1	132.9	132.3	130.6	127.1
55°	117.8	120.1	120.1	120.1	120.1	122.4	119.5	120.1	120.1	115.4	110.8
57.5°	107.3	109.6	111.4	109.0	111.4	109.0	107.9	107.3	106.1	101.4	94.5
60°	98.5	99.7	99.1	98.5	99.7	97.9	96.8	94.5	93.3	86.9	82.2
62.5°	88.6	89.2	89.8	88.6	87.5	86.9	84.5	81.0	78.7	73.5	69.4
65°	80.5	78.7	78.1	77.5	76.4	74.6	72.9	68.8	67.0	62.4	58.3
67.5°	68.2	67.6	68.8	67.0	64.1	64.1	62.4	58.9	54.8	51.9	47.8
70°	58.3	57.7	56.6	54.8	54.2	51.9	51.9	47.8	46.6	41.4	37.9
72.5°	47.8	47.8	46.0	44.3	42.6	41.4	40.8	37.9	36.2	33.2	30.3
75°	36.2	36.2	35.6	33.8	32.6	31.5	30.9	28.6	26.8	23.9	22.2
77.5°	25.7	25.7	23.3	22.2	22.7	21.6	20.4	19.8	19.2	17.5	15.2
80°	15.2	14.6	12.8	13.4	12.8	12.8	12.2	11.6	10.5	9.3	8.2
82.5°	4.1	4.7	4.7	4.7	5.3	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089040 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2
2.5°	492.1	491.5	492.1	488.0	497.3	490.3	489.2	488.0	492.1	488.0	482.2
5°	502.6	496.8	495.0	493.3	498.5	490.3	488.6	489.2	486.2	478.7	479.3
7.5°	506.1	500.8	495.6	484.5	489.2	487.4	482.7	479.3	474.6	468.2	467.0
10°	507.2	501.4	493.8	490.3	483.3	481.0	479.3	473.4	467.6	456.5	453.6
12.5°	503.7	496.8	487.4	484.5	479.3	471.7	467.6	461.8	456.5	447.8	441.4
15°	488.6	482.7	479.8	469.9	467.6	462.9	454.8	446.6	439.0	427.4	423.9
17.5°	471.1	468.8	465.8	458.3	457.7	453.0	445.4	438.4	428.5	410.5	404.6
20°	453.0	453.0	443.7	440.8	446.6	437.3	431.4	425.0	404.6	395.9	385.4
22.5°	439.6	433.2	427.9	423.3	423.9	418.0	409.9	397.0	389.5	379.0	366.7
25°	413.4	415.7	404.1	402.3	404.1	390.6	386.6	376.1	365.0	355.1	345.7
27.5°	397.0	390.6	383.1	376.6	376.6	371.4	359.7	357.4	340.5	331.2	319.5
30°	372.6	367.9	361.5	352.2	351.0	346.9	337.6	331.7	314.3	300.3	293.8
32.5°	341.7	339.9	334.7	324.2	320.7	316.0	304.4	294.4	286.3	270.5	263.0
35°	319.5	313.1	302.0	293.3	290.3	282.2	272.9	265.9	257.1	243.1	233.2
37.5°	286.3	279.9	269.4	258.9	258.9	250.7	237.9	230.9	218.6	210.5	202.3
40°	257.1	249.0	238.5	226.2	224.5	212.8	207.6	195.9	188.3	175.5	174.3
42.5°	224.5	216.9	207.6	198.2	191.2	185.4	172.0	163.3	155.1	148.7	146.9
45°	194.7	184.8	176.7	165.0	158.0	151.0	142.3	136.4	130.0	123.0	118.9
47.5°	169.1	160.9	149.3	138.8	131.8	128.3	118.3	111.9	106.7	102.0	99.1
50°	142.9	132.9	126.5	114.9	113.7	105.5	97.4	92.1	89.2	85.1	81.0
52.5°	123.0	113.7	104.9	96.2	91.5	88.6	81.0	75.8	71.7	68.8	66.5
55°	103.8	95.6	88.6	79.9	77.0	72.9	64.1	63.0	58.9	54.8	51.9
57.5°	89.2	81.6	73.5	67.6	62.4	59.5	52.5	47.8	45.5	42.0	39.1
60°	75.8	67.6	61.2	54.2	51.9	47.8	42.6	38.5	35.6	32.6	29.7
62.5°	63.5	56.6	49.6	43.7	40.2	37.9	33.8	30.3	27.4	25.1	22.7
65°	52.5	46.0	40.2	34.4	32.6	29.7	26.8	23.9	21.6	18.7	16.3
67.5°	43.1	37.3	31.5	27.4	25.7	24.5	21.0	18.1	16.3	14.6	12.2
70°	33.8	29.7	25.1	21.6	19.8	18.1	15.7	14.0	11.6	10.5	8.7
72.5°	26.2	22.7	18.7	15.7	14.6	13.4	11.1	9.3	8.2	7.0	5.8
75°	18.7	15.7	13.4	10.5	9.9	9.3	7.6	6.4	5.3	4.1	3.5
77.5°	12.8	10.5	8.2	7.0	6.4	5.3	4.7	3.5	2.9	2.3	1.8
80°	7.0	5.3	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089040 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2
2.5°	485.7	479.3	481.0	481.0	479.8	479.8	478.7	476.9	477.5	474.0	466.4
5°	480.4	472.3	471.1	472.3	467.6	466.4	464.1	467.6	457.1	461.2	456.5
7.5°	465.3	457.7	455.9	460.0	454.2	450.7	450.1	454.8	445.4	440.8	435.5
10°	448.3	445.4	440.2	437.3	435.5	436.1	431.4	425.6	423.9	422.7	418.0
12.5°	433.2	426.8	422.1	418.6	417.5	417.5	409.9	408.7	403.5	402.3	395.3
15°	415.1	407.6	404.6	400.0	395.9	398.2	389.5	387.1	385.4	377.8	379.0
17.5°	399.4	391.2	384.2	381.3	377.8	374.3	366.1	367.9	363.8	363.8	353.3
20°	379.0	370.2	365.0	359.1	359.1	354.5	348.7	349.2	344.0	338.8	329.4
22.5°	357.4	348.1	341.7	339.3	333.5	332.3	325.3	323.6	316.6	317.2	309.0
25°	334.7	325.3	316.6	317.2	311.9	309.6	305.5	297.4	294.4	290.9	288.6
27.5°	307.8	301.4	293.8	293.3	283.4	283.9	278.7	276.4	269.4	271.1	265.9
30°	283.4	274.0	267.0	265.3	261.2	260.0	251.9	248.4	249.6	244.9	242.0
32.5°	258.3	244.3	241.4	237.9	235.5	232.6	226.8	229.1	223.9	225.0	220.4
35°	225.0	219.2	211.6	211.6	209.3	207.0	202.9	205.2	200.0	197.7	193.0
37.5°	197.1	191.8	184.2	186.6	182.5	179.0	175.5	176.1	171.4	170.8	166.2
40°	166.7	163.8	158.6	158.6	155.7	155.7	153.9	152.2	149.3	145.8	140.5
42.5°	138.2	135.8	133.5	134.1	130.0	133.5	128.9	131.8	122.4	121.9	118.3
45°	117.2	111.9	112.5	110.2	107.9	109.0	104.9	106.1	100.9	99.7	96.2
47.5°	95.0	93.3	89.8	88.6	88.6	86.9	85.1	84.5	82.2	79.3	74.6
50°	78.1	71.7	70.5	68.8	67.6	67.6	65.3	61.8	62.4	59.5	54.8
52.5°	61.2	56.0	53.6	53.1	50.7	49.6	46.6	44.3	42.6	41.4	38.5
55°	47.2	42.6	39.7	39.7	36.2	36.2	32.1	30.3	28.0	25.7	23.9
57.5°	35.6	33.2	30.3	28.0	26.8	23.9	21.6	18.7	16.9	13.4	11.1
60°	26.8	24.5	21.6	19.8	18.7	15.7	12.8	10.5	6.4	5.3	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	8.2	7.0	5.3	2.3	1.2	0.6	0.6	0.6
67.5°	9.9	7.6	5.3	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 FEU4C089040 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	486.2	486.2	486.2	486.2	486.2	486.2	486.2	486.2
2.5°	474.6	470.5	472.8	467.6	469.9	474.0	471.1	472.3
5°	458.3	455.9	453.0	445.4	451.3	455.9	453.6	453.0
7.5°	440.8	432.6	436.7	434.4	433.2	437.9	432.6	438.4
10°	422.7	416.9	416.3	412.2	412.2	415.7	416.3	412.8
12.5°	395.9	393.0	393.0	392.4	391.8	395.3	395.9	394.1
15°	376.6	375.5	372.6	372.0	368.5	373.7	374.3	373.7
17.5°	353.3	353.9	351.0	351.0	353.3	355.1	350.4	355.1
20°	337.6	334.7	333.5	328.2	331.2	334.1	334.1	334.7
22.5°	314.8	310.2	311.9	309.0	307.3	311.3	311.3	313.1
25°	289.2	289.2	290.3	288.6	289.8	292.1	290.3	294.4
27.5°	264.7	267.0	267.0	264.7	265.9	272.9	275.8	271.1
30°	242.0	242.5	244.3	243.1	246.6	249.0	248.4	251.9
32.5°	216.3	219.2	220.4	218.6	219.8	225.0	222.1	221.5
35°	196.5	191.2	190.7	191.2	193.6	194.7	193.6	197.7
37.5°	167.9	166.2	163.8	164.4	166.2	168.5	169.7	172.6
40°	140.5	138.2	138.2	137.6	135.8	142.3	142.3	142.3
42.5°	116.6	116.0	113.1	113.1	115.4	117.2	116.0	120.1
45°	95.6	93.3	91.5	91.5	93.3	93.3	95.0	94.5
47.5°	75.2	72.9	73.5	71.7	73.5	75.8	72.9	73.5
50°	56.6	56.6	55.4	56.6	56.0	56.6	55.4	54.2
52.5°	38.5	43.7	44.3	42.0	36.7	32.1	29.1	31.5
55°	22.2	19.8	19.8	19.2	18.1	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)