

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 FEU4C089050 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 FEU4C089050 F4LC-SQLWW-LI
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

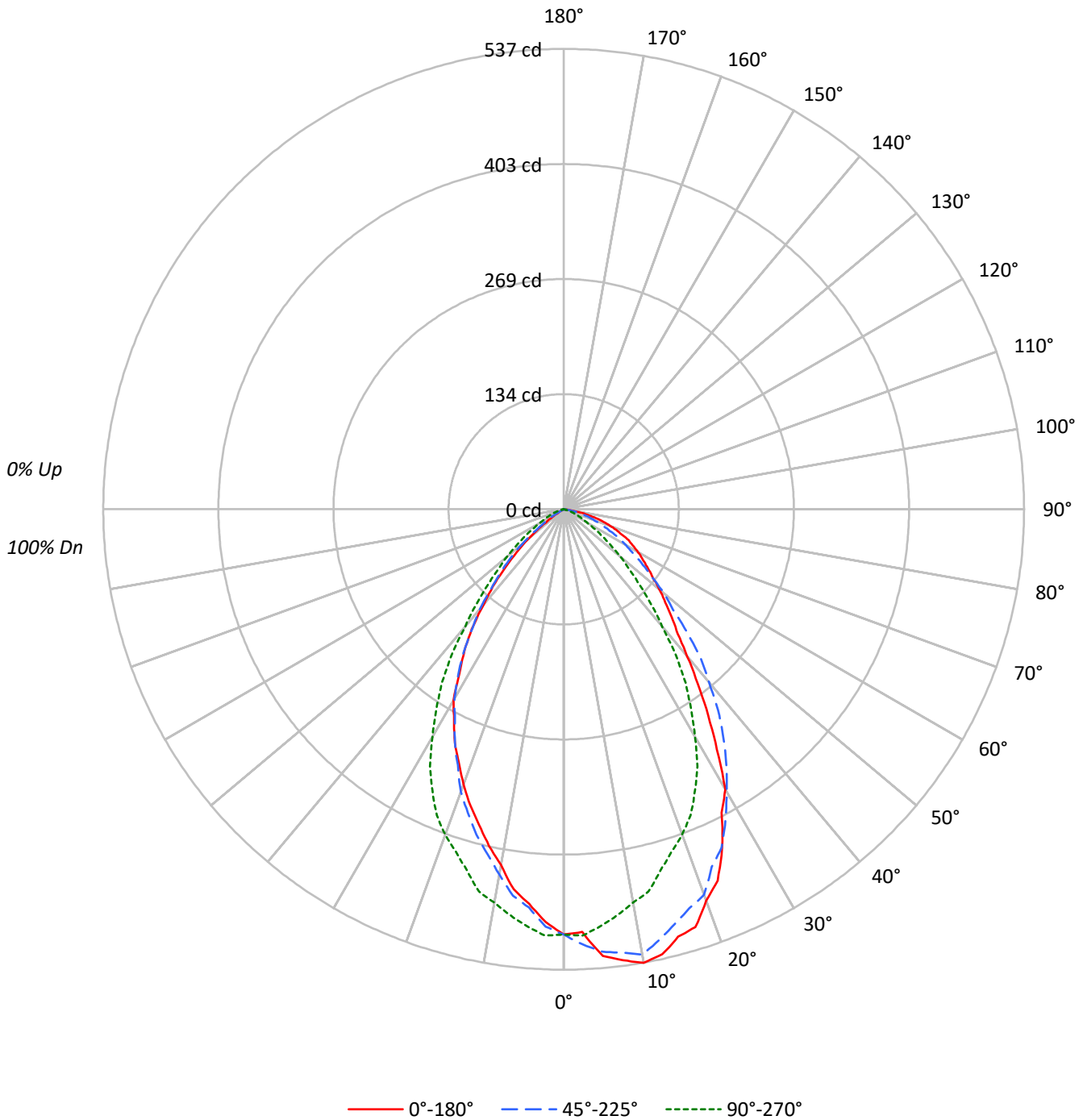
Lumens per Lamp: N/A
 Luminaire Lumens: 711.0 lumens
 Efficiency: N/A
 Efficacy: 71.8 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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#
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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	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°	47858	47858	47858
5°	50637	47296	44758
10°	52624	45628	41258
15°	51565	43543	38079
20°	49893	41463	35055
25°	46546	38561	31982
30°	42015	34127	28623
35°	34607	29212	23747
40°	28240	22546	18276
45°	24262	17125	13141
50°	21961	13030	8301
55°	20204	9404	2994
60°	19394	6426	463
65°	18744	4338	137
70°	16786	3019	169
75°	13756	1566	0
80°	8613	667	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.5	6.5
10°-20°	125.2	17.6
20°-30°	167.2	23.5
30°-40°	158.7	22.3
40°-50°	109.7	15.4
50°-60°	60.6	8.5
60°-70°	30.1	4.2
70°-80°	11.9	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°	338.9	47.7
0°-40°	497.6	70.0
0°-60°	667.9	93.9
0°-90°	711.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	711.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	496	496	496	496	496	
5°	523	518	488	466	462	50
15°	516	501	436	393	381	146
25°	437	435	362	300	300	199
35°	294	325	248	204	202	184
45°	178	204	126	103	96	139
55°	120	113	56	28	18	108
65°	82	60	19	1	1	80
75°	37	23	4	0	0	39
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°	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0
2.5°	493.6	507.3	508.5	507.3	509.1	508.5	511.5	508.5	512.1	506.7	507.9
5°	522.8	517.4	528.7	522.8	522.8	522.2	520.4	519.8	522.2	514.5	518.0
7.5°	530.5	538.3	548.4	535.9	536.5	536.5	532.9	531.7	531.7	517.4	521.6
10°	537.1	532.3	537.6	532.9	537.1	536.5	538.8	531.1	536.5	528.1	527.5
12.5°	531.7	529.9	537.1	529.3	527.0	527.5	524.6	522.8	524.6	515.0	514.5
15°	516.2	518.0	528.7	520.4	519.2	518.0	514.5	508.5	513.3	500.2	500.8
17.5°	510.9	507.9	509.7	502.6	504.4	503.2	502.6	497.2	496.0	487.7	487.7
20°	485.9	492.4	492.4	487.7	487.7	487.1	479.4	484.1	478.8	476.4	478.8
22.5°	468.7	469.3	469.3	465.1	465.7	463.3	459.1	456.2	459.1	456.2	451.4
25°	437.2	438.3	445.5	437.7	436.5	438.9	435.4	433.6	433.0	425.9	435.4
27.5°	399.1	411.0	410.4	407.4	411.0	406.2	404.4	405.0	406.8	406.2	408.6
30°	377.1	378.9	380.6	378.3	378.9	377.1	377.1	377.7	382.4	380.6	380.0
32.5°	332.5	338.4	343.2	343.2	343.8	345.6	344.9	357.4	360.4	354.5	353.3
35°	293.8	298.0	302.1	302.7	310.5	311.0	311.7	315.2	323.5	325.3	324.7
37.5°	256.9	261.1	262.3	267.6	271.8	276.0	280.7	285.5	292.6	298.6	295.6
40°	224.2	226.0	229.0	231.4	239.7	239.7	242.1	251.6	259.3	264.1	263.5
42.5°	196.9	197.5	199.8	204.0	211.7	209.9	211.7	218.3	229.6	230.2	236.7
45°	177.8	177.2	179.0	179.6	184.4	186.8	187.9	192.7	202.2	203.4	204.0
47.5°	160.6	160.0	163.0	164.2	165.9	168.3	168.3	168.9	172.5	175.5	173.1
50°	146.3	146.3	146.3	147.5	150.5	149.9	150.5	152.9	154.6	153.4	152.9
52.5°	130.8	133.2	135.0	135.6	136.2	136.2	136.8	135.6	135.0	133.2	129.6
55°	120.1	122.5	122.5	122.5	122.5	124.9	121.9	122.5	122.5	117.8	113.0
57.5°	109.4	111.8	113.6	111.2	113.6	111.2	110.0	109.4	108.2	103.5	96.3
60°	100.5	101.7	101.1	100.5	101.7	99.9	98.7	96.3	95.2	88.6	83.9
62.5°	90.4	91.0	91.6	90.4	89.2	88.6	86.2	82.7	80.3	74.9	70.8
65°	82.1	80.3	79.7	79.1	77.9	76.1	74.4	70.2	68.4	63.6	59.5
67.5°	69.6	69.0	70.2	68.4	65.4	65.4	63.6	60.1	55.9	52.9	48.8
70°	59.5	58.9	57.7	55.9	55.3	52.9	52.9	48.8	47.6	42.2	38.7
72.5°	48.8	48.8	47.0	45.2	43.4	42.2	41.6	38.7	36.9	33.9	30.9
75°	36.9	36.9	36.3	34.5	33.3	32.1	31.5	29.1	27.4	24.4	22.6
77.5°	26.2	26.2	23.8	22.6	23.2	22.0	20.8	20.2	19.6	17.8	15.5
80°	15.5	14.9	13.1	13.7	13.1	13.1	12.5	11.9	10.7	9.5	8.3
82.5°	4.2	4.8	4.8	4.8	5.4	4.2	4.2	4.2	4.8	4.8	3.0
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	2.4	2.4	2.4	2.4	2.4	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°	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0
2.5°	502.0	501.4	502.0	497.8	507.3	500.2	499.0	497.8	502.0	497.8	491.9
5°	512.7	506.7	504.9	503.2	508.5	500.2	498.4	499.0	496.0	488.3	488.9
7.5°	516.2	510.9	505.5	494.2	499.0	497.2	492.4	488.9	484.1	477.6	476.4
10°	517.4	511.5	503.7	500.2	493.1	490.7	488.9	482.9	477.0	465.7	462.7
12.5°	513.9	506.7	497.2	494.2	488.9	481.1	477.0	471.0	465.7	456.8	450.2
15°	498.4	492.4	489.5	479.4	477.0	472.2	463.9	455.6	447.8	435.9	432.4
17.5°	480.6	478.2	475.2	467.5	466.9	462.1	454.4	447.2	437.2	418.7	412.8
20°	462.1	462.1	452.6	449.6	455.6	446.1	440.1	433.6	412.8	403.8	393.1
22.5°	448.5	441.9	436.5	431.8	432.4	426.4	418.1	405.0	397.3	386.6	374.1
25°	421.7	424.1	412.2	410.4	412.2	398.5	394.3	383.6	372.3	362.2	352.7
27.5°	405.0	398.5	390.8	384.2	384.2	378.9	367.0	364.6	347.3	337.8	325.9
30°	380.0	375.3	368.7	359.2	358.0	353.9	344.4	338.4	320.6	306.3	299.7
32.5°	348.5	346.7	341.4	330.7	327.1	322.3	310.5	300.4	292.0	276.0	268.2
35°	325.9	319.4	308.1	299.2	296.2	287.9	278.3	271.2	262.3	248.0	237.9
37.5°	292.0	285.5	274.8	264.1	264.1	255.8	242.7	235.5	223.0	214.7	206.4
40°	262.3	254.0	243.3	230.8	229.0	217.1	211.7	199.8	192.1	179.0	177.8
42.5°	229.0	221.2	211.7	202.2	195.1	189.1	175.5	166.5	158.2	151.7	149.9
45°	198.6	188.5	180.2	168.3	161.2	154.0	145.1	139.2	132.6	125.5	121.3
47.5°	172.5	164.2	152.2	141.6	134.4	130.8	120.7	114.2	108.8	104.1	101.1
50°	145.7	135.6	129.1	117.2	116.0	107.7	99.3	94.0	91.0	86.8	82.7
52.5°	125.5	116.0	107.0	98.1	93.4	90.4	82.7	77.3	73.2	70.2	67.8
55°	105.9	97.5	90.4	81.5	78.5	74.4	65.4	64.2	60.1	55.9	52.9
57.5°	91.0	83.3	74.9	69.0	63.6	60.7	53.5	48.8	46.4	42.8	39.8
60°	77.3	69.0	62.4	55.3	52.9	48.8	43.4	39.3	36.3	33.3	30.3
62.5°	64.8	57.7	50.6	44.6	41.0	38.7	34.5	30.9	28.0	25.6	23.2
65°	53.5	47.0	41.0	35.1	33.3	30.3	27.4	24.4	22.0	19.0	16.7
67.5°	44.0	38.1	32.1	28.0	26.2	25.0	21.4	18.4	16.7	14.9	12.5
70°	34.5	30.3	25.6	22.0	20.2	18.4	16.1	14.3	11.9	10.7	8.9
72.5°	26.8	23.2	19.0	16.1	14.9	13.7	11.3	9.5	8.3	7.1	5.9
75°	19.0	16.1	13.7	10.7	10.1	9.5	7.7	6.5	5.4	4.2	3.6
77.5°	13.1	10.7	8.3	7.1	6.5	5.4	4.8	3.6	3.0	2.4	1.8
80°	7.1	5.4	4.2	3.6	3.0	2.4	2.4	1.8	1.2	1.2	0.6
82.5°	2.4	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°	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0
2.5°	495.4	488.9	490.7	490.7	489.5	489.5	488.3	486.5	487.1	483.5	475.8
5°	490.1	481.7	480.6	481.7	477.0	475.8	473.4	477.0	466.3	470.4	465.7
7.5°	474.6	466.9	465.1	469.3	463.3	459.7	459.1	463.9	454.4	449.6	444.3
10°	457.4	454.4	449.0	446.1	444.3	444.9	440.1	434.2	432.4	431.2	426.4
12.5°	441.9	435.4	430.6	427.0	425.9	425.9	418.1	416.9	411.6	410.4	403.2
15°	423.5	415.7	412.8	408.0	403.8	406.2	397.3	394.9	393.1	385.4	386.6
17.5°	407.4	399.1	391.9	389.0	385.4	381.8	373.5	375.3	371.1	371.1	360.4
20°	386.6	377.7	372.3	366.4	366.4	361.6	355.7	356.3	350.9	345.6	336.0
22.5°	364.6	355.1	348.5	346.1	340.2	339.0	331.9	330.1	323.0	323.5	315.2
25°	341.4	331.9	323.0	323.5	318.2	315.8	311.7	303.3	300.4	296.8	294.4
27.5°	314.0	307.5	299.7	299.2	289.0	289.6	284.3	281.9	274.8	276.6	271.2
30°	289.0	279.5	272.4	270.6	266.4	265.3	256.9	253.4	254.6	249.8	246.8
32.5°	263.5	249.2	246.2	242.7	240.3	237.3	231.4	233.7	228.4	229.6	224.8
35°	229.6	223.6	215.9	215.9	213.5	211.1	207.0	209.4	204.0	201.6	196.9
37.5°	201.0	195.7	187.9	190.3	186.2	182.6	179.0	179.6	174.9	174.3	169.5
40°	170.1	167.1	161.8	161.8	158.8	158.8	157.0	155.2	152.2	148.7	143.3
42.5°	140.9	138.6	136.2	136.8	132.6	136.2	131.4	134.4	124.9	124.3	120.7
45°	119.5	114.2	114.8	112.4	110.0	111.2	107.0	108.2	102.9	101.7	98.1
47.5°	97.0	95.2	91.6	90.4	90.4	88.6	86.8	86.2	83.9	80.9	76.1
50°	79.7	73.2	72.0	70.2	69.0	69.0	66.6	63.1	63.6	60.7	55.9
52.5°	62.4	57.1	54.7	54.1	51.8	50.6	47.6	45.2	43.4	42.2	39.3
55°	48.2	43.4	40.5	40.5	36.9	36.9	32.7	30.9	28.5	26.2	24.4
57.5°	36.3	33.9	30.9	28.5	27.4	24.4	22.0	19.0	17.2	13.7	11.3
60°	27.4	25.0	22.0	20.2	19.0	16.1	13.1	10.7	6.5	5.4	4.8
62.5°	20.2	17.8	14.9	13.7	12.5	10.1	7.1	3.6	1.8	1.8	1.8
65°	14.9	11.9	9.5	8.3	7.1	5.4	2.4	1.2	0.6	0.6	0.6
67.5°	10.1	7.7	5.4	4.8	3.6	1.8	0.6	0.6	0.6	0.6	0.6
70°	6.5	4.8	2.4	1.8	1.2	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	4.2	2.4	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.4	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 FEU4C089050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	496.0	496.0	496.0	496.0	496.0	496.0	496.0	496.0
2.5°	484.1	480.0	482.3	477.0	479.4	483.5	480.6	481.7
5°	467.5	465.1	462.1	454.4	460.3	465.1	462.7	462.1
7.5°	449.6	441.3	445.5	443.1	441.9	446.7	441.3	447.2
10°	431.2	425.2	424.7	420.5	420.5	424.1	424.7	421.1
12.5°	403.8	400.9	400.9	400.3	399.7	403.2	403.8	402.1
15°	384.2	383.0	380.0	379.5	375.9	381.2	381.8	381.2
17.5°	360.4	361.0	358.0	358.0	360.4	362.2	357.4	362.2
20°	344.4	341.4	340.2	334.8	337.8	340.8	340.8	341.4
22.5°	321.2	316.4	318.2	315.2	313.4	317.6	317.6	319.4
25°	295.0	295.0	296.2	294.4	295.6	298.0	296.2	300.4
27.5°	270.0	272.4	272.4	270.0	271.2	278.3	281.3	276.6
30°	246.8	247.4	249.2	248.0	251.6	254.0	253.4	256.9
32.5°	220.7	223.6	224.8	223.0	224.2	229.6	226.6	226.0
35°	200.4	195.1	194.5	195.1	197.5	198.6	197.5	201.6
37.5°	171.3	169.5	167.1	167.7	169.5	171.9	173.1	176.0
40°	143.3	140.9	140.9	140.4	138.6	145.1	145.1	145.1
42.5°	119.0	118.3	115.4	115.4	117.8	119.5	118.3	122.5
45°	97.5	95.2	93.4	93.4	95.2	95.2	97.0	96.3
47.5°	76.7	74.4	74.9	73.2	74.9	77.3	74.4	74.9
50°	57.7	57.7	56.5	57.7	57.1	57.7	56.5	55.3
52.5°	39.3	44.6	45.2	42.8	37.5	32.7	29.7	32.1
55°	22.6	20.2	20.2	19.6	18.4	17.8	16.1	17.8
57.5°	11.3	10.1	10.1	10.1	9.5	8.9	7.7	7.7
60°	4.8	4.2	4.2	3.6	3.0	2.4	1.8	2.4
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)