

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 FEU4C089027 F4LC-SQLWW-H**

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 FEU4C089027 F4LC-SQLWW-H  
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

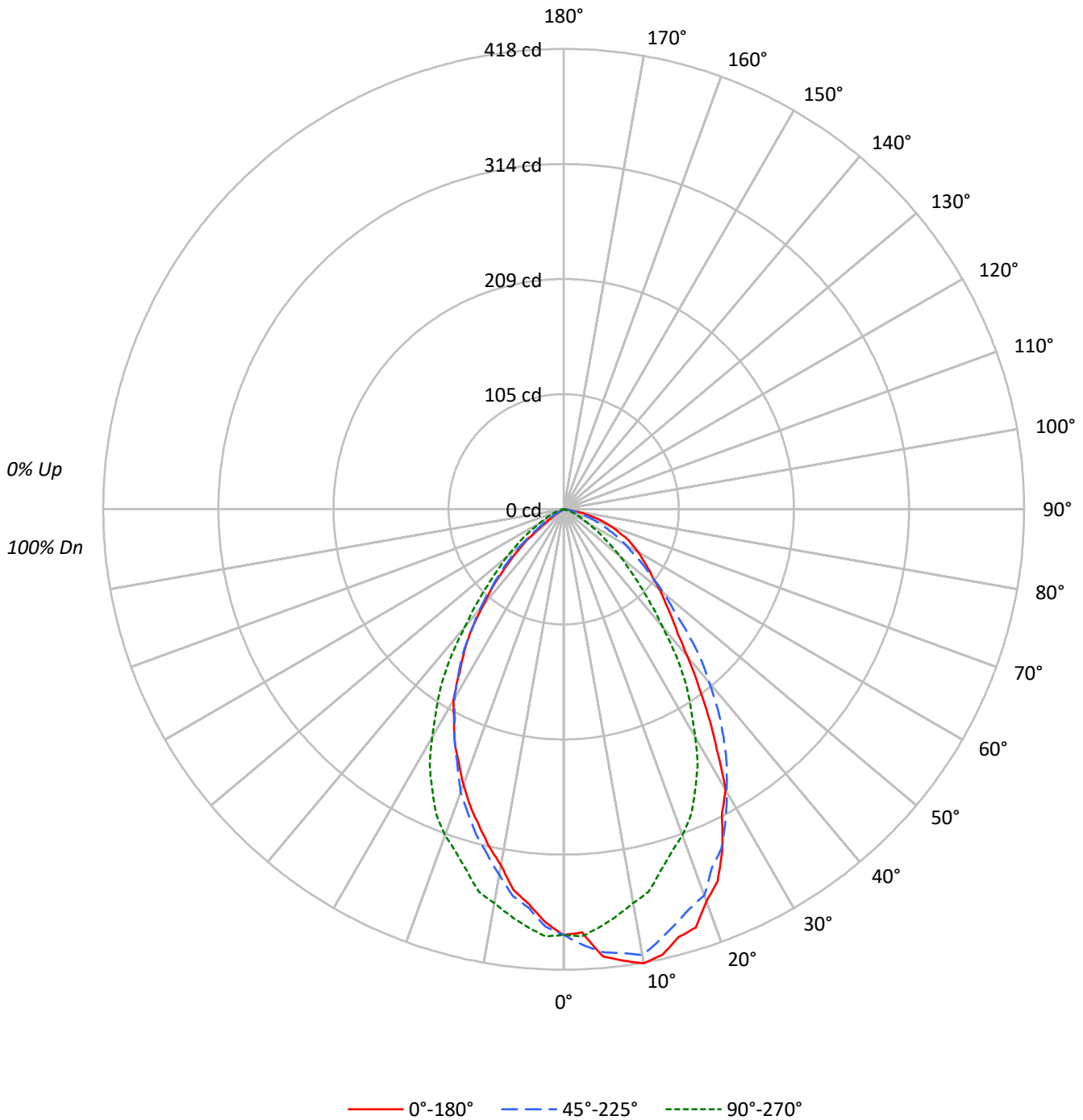
Lumens per Lamp: N/A  
 Luminaire Lumens: 554.0 lumens  
 Efficiency: N/A  
 Efficacy: 56.0 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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	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°	37293	37293	37293
5°	39450	36854	34878
10°	41004	35556	32146
15°	40177	33934	29668
20°	38875	32314	27313
25°	36262	30044	24913
30°	32734	26595	22305
35°	26962	22769	18505
40°	22005	17571	14246
45°	18913	13345	10248
50°	17113	10162	6470
55°	15746	7335	2338
60°	15110	4998	367
65°	14589	3379	114
70°	13062	2342	141
75°	10699	1193	0
80°	6723	500	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	36.2	6.5
10°-20°	97.6	17.6
20°-30°	130.3	23.5
30°-40°	123.7	22.3
40°-50°	85.5	15.4
50°-60°	47.2	8.5
60°-70°	23.5	4.2
70°-80°	9.2	1.7
80°-90°	0.9	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°	264.0	47.7
0°-40°	387.7	70.0
0°-60°	520.4	93.9
0°-90°	554.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	554.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	386	386	386	386	386	
5°	407	404	380	363	360	39
15°	402	390	340	306	297	114
25°	341	339	282	234	234	155
35°	229	253	193	159	157	143
45°	139	159	98	80	75	108
55°	94	88	44	22	14	84
65°	64	46	15	0	0	62
75°	29	18	3	0	0	31
85°	0	0	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°	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5
2.5°	384.6	395.3	396.2	395.3	396.7	396.2	398.5	396.2	399.0	394.8	395.8
5°	407.3	403.2	412.0	407.3	407.3	406.9	405.5	405.0	406.9	400.9	403.6
7.5°	413.4	419.4	427.3	417.5	418.0	418.0	415.2	414.3	414.3	403.2	406.4
10°	418.5	414.8	418.9	415.2	418.5	418.0	419.9	413.8	418.0	411.5	411.0
12.5°	414.3	412.9	418.5	412.4	410.6	411.0	408.7	407.3	408.7	401.3	400.9
15°	402.2	403.6	412.0	405.5	404.6	403.6	400.9	396.2	399.9	389.7	390.2
17.5°	398.1	395.8	397.2	391.6	393.0	392.1	391.6	387.4	386.5	380.0	380.0
20°	378.6	383.7	383.7	380.0	380.0	379.5	373.5	377.2	373.0	371.2	373.0
22.5°	365.2	365.6	365.6	362.4	362.9	361.0	357.8	355.4	357.8	355.4	351.7
25°	340.6	341.5	347.1	341.1	340.1	342.0	339.2	337.8	337.4	331.8	339.2
27.5°	311.0	320.2	319.8	317.4	320.2	316.5	315.1	315.6	317.0	316.5	318.4
30°	293.8	295.2	296.6	294.7	295.2	293.8	293.8	294.3	298.0	296.6	296.1
32.5°	259.0	263.7	267.4	267.4	267.9	269.3	268.8	278.5	280.8	276.2	275.3
35°	228.9	232.2	235.4	235.9	241.9	242.4	242.8	245.6	252.1	253.5	253.0
37.5°	200.2	203.4	204.4	208.5	211.8	215.0	218.7	222.4	228.0	232.6	230.3
40°	174.7	176.1	178.4	180.3	186.8	186.8	188.6	196.0	202.1	205.8	205.3
42.5°	153.4	153.9	155.7	159.0	165.0	163.6	165.0	170.1	178.9	179.3	184.4
45°	138.6	138.1	139.5	139.9	143.7	145.5	146.4	150.1	157.6	158.5	159.0
47.5°	125.1	124.7	127.0	127.9	129.3	131.1	131.1	131.6	134.4	136.7	134.9
50°	114.0	114.0	114.0	114.9	117.3	116.8	117.3	119.1	120.5	119.6	119.1
52.5°	101.9	103.8	105.2	105.7	106.1	106.1	106.6	105.7	105.2	103.8	101.0
55°	93.6	95.5	95.5	95.5	95.5	97.3	95.0	95.5	95.5	91.8	88.1
57.5°	85.3	87.1	88.5	86.7	88.5	86.7	85.7	85.3	84.3	80.6	75.1
60°	78.3	79.3	78.8	78.3	79.3	77.9	76.9	75.1	74.1	69.0	65.3
62.5°	70.4	70.9	71.4	70.4	69.5	69.0	67.2	64.4	62.6	58.4	55.1
65°	63.9	62.6	62.1	61.6	60.7	59.3	57.9	54.7	53.3	49.6	46.3
67.5°	54.2	53.8	54.7	53.3	51.0	51.0	49.6	46.8	43.6	41.3	38.0
70°	46.3	45.9	45.0	43.6	43.1	41.3	41.3	38.0	37.1	32.9	30.1
72.5°	38.0	38.0	36.6	35.2	33.8	32.9	32.4	30.1	28.7	26.4	24.1
75°	28.7	28.7	28.3	26.9	25.9	25.0	24.6	22.7	21.3	19.0	17.6
77.5°	20.4	20.4	18.5	17.6	18.1	17.1	16.2	15.8	15.3	13.9	12.1
80°	12.1	11.6	10.2	10.7	10.2	10.2	9.7	9.3	8.3	7.4	6.5
82.5°	3.2	3.7	3.7	3.7	4.2	3.2	3.2	3.2	3.7	3.7	2.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5
87.5°	0.5	0.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	0.9
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°	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5
2.5°	391.1	390.7	391.1	387.9	395.3	389.7	388.8	387.9	391.1	387.9	383.3
5°	399.5	394.8	393.4	392.1	396.2	389.7	388.4	388.8	386.5	380.5	380.9
7.5°	402.2	398.1	393.9	385.1	388.8	387.4	383.7	380.9	377.2	372.1	371.2
10°	403.2	398.5	392.5	389.7	384.2	382.3	380.9	376.3	371.7	362.9	360.5
12.5°	400.4	394.8	387.4	385.1	380.9	374.9	371.7	367.0	362.9	355.9	350.8
15°	388.4	383.7	381.4	373.5	371.7	367.9	361.5	355.0	349.0	339.7	336.9
17.5°	374.4	372.6	370.3	364.2	363.8	360.1	354.1	348.5	340.6	326.2	321.6
20°	360.1	360.1	352.7	350.4	355.0	347.6	342.9	337.8	321.6	314.7	306.3
22.5°	349.4	344.3	340.1	336.4	336.9	332.3	325.8	315.6	309.6	301.2	291.5
25°	328.6	330.4	321.2	319.8	321.2	310.5	307.3	298.9	290.1	282.2	274.8
27.5°	315.6	310.5	304.5	299.4	299.4	295.2	285.9	284.1	270.6	263.2	253.9
30°	296.1	292.4	287.3	279.9	279.0	275.7	268.3	263.7	249.8	238.7	233.6
32.5°	271.6	270.2	266.0	257.7	254.9	251.2	241.9	234.0	227.5	215.0	209.0
35°	253.9	248.9	240.1	233.1	230.8	224.3	216.9	211.3	204.4	193.3	185.4
37.5°	227.5	222.4	214.1	205.8	205.8	199.3	189.1	183.5	173.8	167.3	160.8
40°	204.4	197.9	189.5	179.8	178.4	169.1	165.0	155.7	149.7	139.5	138.6
42.5°	178.4	172.4	165.0	157.6	152.0	147.4	136.7	129.8	123.3	118.2	116.8
45°	154.8	146.9	140.4	131.1	125.6	120.0	113.1	108.4	103.3	97.8	94.5
47.5°	134.4	127.9	118.6	110.3	104.7	101.9	94.1	89.0	84.8	81.1	78.8
50°	113.5	105.7	100.6	91.3	90.4	83.9	77.4	73.2	70.9	67.7	64.4
52.5°	97.8	90.4	83.4	76.5	72.8	70.4	64.4	60.2	57.0	54.7	52.8
55°	82.5	76.0	70.4	63.5	61.2	57.9	51.0	50.1	46.8	43.6	41.3
57.5°	70.9	64.9	58.4	53.8	49.6	47.3	41.7	38.0	36.1	33.4	31.0
60°	60.2	53.8	48.7	43.1	41.3	38.0	33.8	30.6	28.3	25.9	23.6
62.5°	50.5	45.0	39.4	34.8	32.0	30.1	26.9	24.1	21.8	19.9	18.1
65°	41.7	36.6	32.0	27.3	25.9	23.6	21.3	19.0	17.1	14.8	13.0
67.5°	34.3	29.7	25.0	21.8	20.4	19.5	16.7	14.4	13.0	11.6	9.7
70°	26.9	23.6	19.9	17.1	15.8	14.4	12.5	11.1	9.3	8.3	7.0
72.5°	20.9	18.1	14.8	12.5	11.6	10.7	8.8	7.4	6.5	5.6	4.6
75°	14.8	12.5	10.7	8.3	7.9	7.4	6.0	5.1	4.2	3.2	2.8
77.5°	10.2	8.3	6.5	5.6	5.1	4.2	3.7	2.8	2.3	1.9	1.4
80°	5.6	4.2	3.2	2.8	2.3	1.9	1.9	1.4	0.9	0.9	0.5
82.5°	1.9	1.4	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5
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°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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°	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5
2.5°	386.0	380.9	382.3	382.3	381.4	381.4	380.5	379.1	379.5	376.8	370.7
5°	381.9	375.4	374.4	375.4	371.7	370.7	368.9	371.7	363.3	366.6	362.9
7.5°	369.8	363.8	362.4	365.6	361.0	358.2	357.8	361.5	354.1	350.4	346.2
10°	356.4	354.1	349.9	347.6	346.2	346.6	342.9	338.3	336.9	336.0	332.3
12.5°	344.3	339.2	335.5	332.7	331.8	331.8	325.8	324.9	320.7	319.8	314.2
15°	329.9	323.9	321.6	317.9	314.7	316.5	309.6	307.7	306.3	300.3	301.2
17.5°	317.4	311.0	305.4	303.1	300.3	297.5	291.0	292.4	289.2	289.2	280.8
20°	301.2	294.3	290.1	285.5	285.5	281.8	277.1	277.6	273.4	269.3	261.8
22.5°	284.1	276.7	271.6	269.7	265.1	264.1	258.6	257.2	251.6	252.1	245.6
25°	266.0	258.6	251.6	252.1	247.9	246.1	242.8	236.4	234.0	231.3	229.4
27.5°	244.7	239.6	233.6	233.1	225.2	225.7	221.5	219.7	214.1	215.5	211.3
30°	225.2	217.8	212.2	210.9	207.6	206.7	200.2	197.4	198.4	194.6	192.3
32.5°	205.3	194.2	191.9	189.1	187.2	184.9	180.3	182.1	177.9	178.9	175.2
35°	178.9	174.2	168.2	168.2	166.4	164.5	161.3	163.1	159.0	157.1	153.4
37.5°	156.6	152.5	146.4	148.3	145.0	142.3	139.5	139.9	136.2	135.8	132.1
40°	132.5	130.2	126.1	126.1	123.7	123.7	122.3	121.0	118.6	115.9	111.7
42.5°	109.8	108.0	106.1	106.6	103.3	106.1	102.4	104.7	97.3	96.9	94.1
45°	93.1	89.0	89.4	87.6	85.7	86.7	83.4	84.3	80.2	79.3	76.5
47.5°	75.5	74.1	71.4	70.4	70.4	69.0	67.7	67.2	65.3	63.0	59.3
50°	62.1	57.0	56.1	54.7	53.8	53.8	51.9	49.1	49.6	47.3	43.6
52.5°	48.7	44.5	42.6	42.2	40.3	39.4	37.1	35.2	33.8	32.9	30.6
55°	37.5	33.8	31.5	31.5	28.7	28.7	25.5	24.1	22.2	20.4	19.0
57.5°	28.3	26.4	24.1	22.2	21.3	19.0	17.1	14.8	13.4	10.7	8.8
60°	21.3	19.5	17.1	15.8	14.8	12.5	10.2	8.3	5.1	4.2	3.7
62.5°	15.8	13.9	11.6	10.7	9.7	7.9	5.6	2.8	1.4	1.4	1.4
65°	11.6	9.3	7.4	6.5	5.6	4.2	1.9	0.9	0.5	0.5	0.5
67.5°	7.9	6.0	4.2	3.7	2.8	1.4	0.5	0.5	0.5	0.5	0.5
70°	5.1	3.7	1.9	1.4	0.9	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	3.2	1.9	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.5	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	0.5	0.5	0.5
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 FEU4C089027 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	386.5	386.5	386.5	386.5	386.5	386.5	386.5	386.5
2.5°	377.2	374.0	375.8	371.7	373.5	376.8	374.4	375.4
5°	364.2	362.4	360.1	354.1	358.7	362.4	360.5	360.1
7.5°	350.4	343.9	347.1	345.3	344.3	348.0	343.9	348.5
10°	336.0	331.3	330.9	327.6	327.6	330.4	330.9	328.1
12.5°	314.7	312.4	312.4	311.9	311.4	314.2	314.7	313.3
15°	299.4	298.4	296.1	295.7	292.9	297.0	297.5	297.0
17.5°	280.8	281.3	279.0	279.0	280.8	282.2	278.5	282.2
20°	268.3	266.0	265.1	260.9	263.2	265.5	265.5	266.0
22.5°	250.2	246.5	247.9	245.6	244.2	247.5	247.5	248.9
25°	229.9	229.9	230.8	229.4	230.3	232.2	230.8	234.0
27.5°	210.4	212.2	212.2	210.4	211.3	216.9	219.2	215.5
30°	192.3	192.8	194.2	193.3	196.0	197.9	197.4	200.2
32.5°	171.9	174.2	175.2	173.8	174.7	178.9	176.6	176.1
35°	156.2	152.0	151.5	152.0	153.9	154.8	153.9	157.1
37.5°	133.5	132.1	130.2	130.7	132.1	133.9	134.9	137.2
40°	111.7	109.8	109.8	109.4	108.0	113.1	113.1	113.1
42.5°	92.7	92.2	89.9	89.9	91.8	93.1	92.2	95.5
45°	76.0	74.1	72.8	72.8	74.1	74.1	75.5	75.1
47.5°	59.8	57.9	58.4	57.0	58.4	60.2	57.9	58.4
50°	45.0	45.0	44.0	45.0	44.5	45.0	44.0	43.1
52.5°	30.6	34.8	35.2	33.4	29.2	25.5	23.2	25.0
55°	17.6	15.8	15.8	15.3	14.4	13.9	12.5	13.9
57.5°	8.8	7.9	7.9	7.9	7.4	7.0	6.0	6.0
60°	3.7	3.2	3.2	2.8	2.3	1.9	1.4	1.9
62.5°	1.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9
65°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
67.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
70°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)