

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

**Summary**

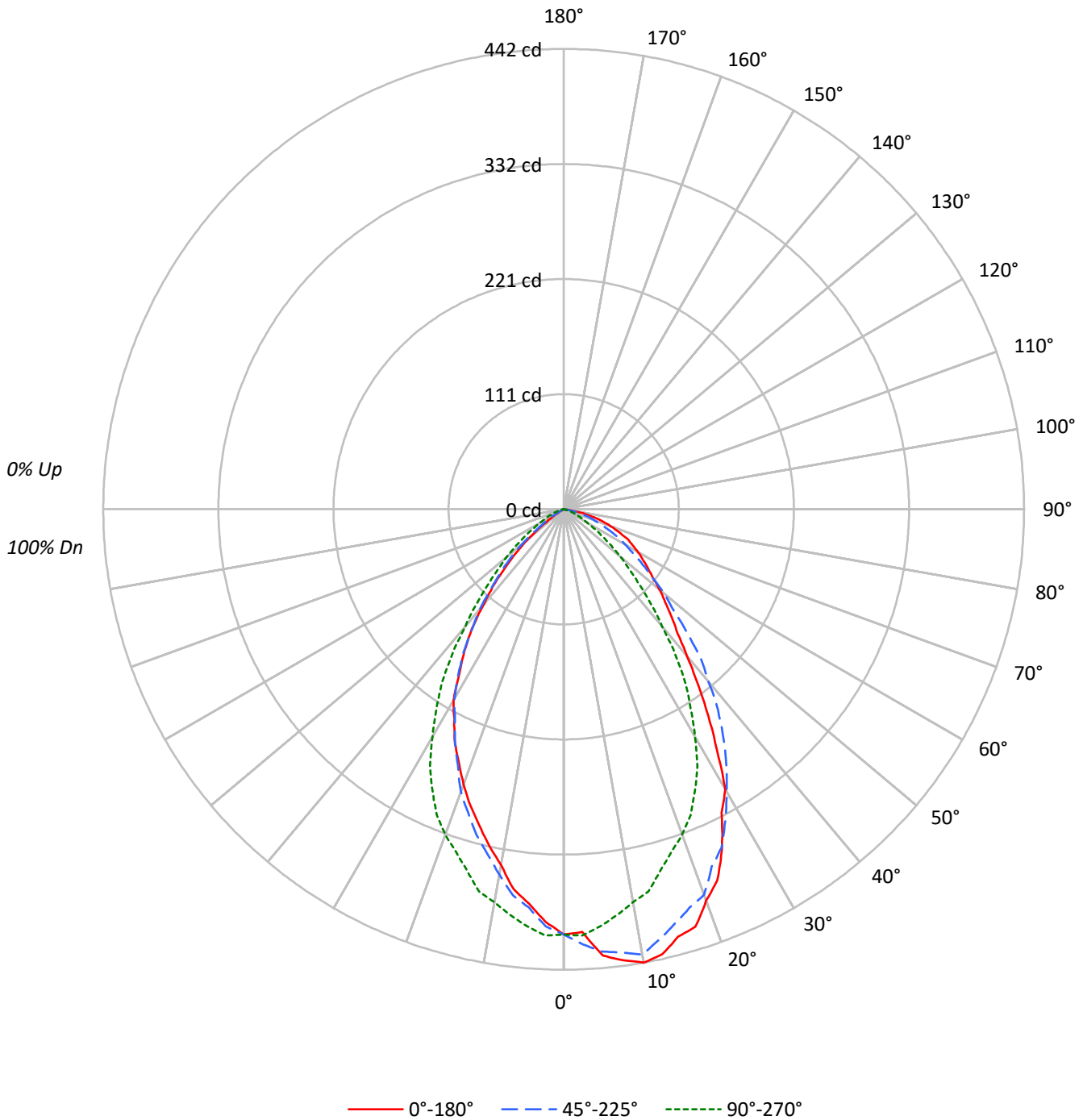
Lumens per Lamp: N/A  
 Luminaire Lumens: 585.0 lumens  
 Efficiency: N/A  
 Efficacy: 59.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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-H

**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°	39377	39377	39377
5°	41658	38917	36825
10°	43296	37545	33949
15°	42434	35831	31336
20°	41052	34121	28843
25°	38295	31726	26307
30°	34572	28077	23553
35°	28470	24041	19542
40°	23239	18554	15039
45°	19963	14096	10821
50°	18073	10733	6830
55°	16620	7738	2473
60°	15959	5288	386
65°	15411	3585	114
70°	13795	2483	141
75°	11296	1268	0
80°	7057	556	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.2	6.5
10°-20°	103.0	17.6
20°-30°	137.6	23.5
30°-40°	130.6	22.3
40°-50°	90.3	15.4
50°-60°	49.9	8.5
60°-70°	24.8	4.2
70°-80°	9.8	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°	278.8	47.7
0°-40°	409.4	70.0
0°-60°	549.6	93.9
0°-90°	585.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	585.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	408	408	408	408	408	
5°	430	426	402	384	380	41
15°	425	412	359	324	314	120
25°	360	358	298	247	247	164
35°	242	267	204	168	166	151
45°	146	168	103	85	79	114
55°	99	93	46	24	15	89
65°	68	49	16	0	0	66
75°	30	19	3	0	0	32
85°	0	0	0	0	0	3
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089035 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1
2.5°	406.2	417.4	418.4	417.4	418.9	418.4	420.8	418.4	421.3	416.9	417.9
5°	430.1	425.7	435.0	430.1	430.1	429.7	428.2	427.7	429.7	423.3	426.2
7.5°	436.5	442.9	451.2	440.9	441.4	441.4	438.5	437.5	437.5	425.7	429.2
10°	441.9	438.0	442.4	438.5	441.9	441.4	443.3	437.0	441.4	434.5	434.0
12.5°	437.5	436.0	441.9	435.5	433.6	434.0	431.6	430.1	431.6	423.8	423.3
15°	424.8	426.2	435.0	428.2	427.2	426.2	423.3	418.4	422.3	411.5	412.0
17.5°	420.4	417.9	419.4	413.5	415.0	414.0	413.5	409.1	408.1	401.3	401.3
20°	399.8	405.2	405.2	401.3	401.3	400.8	394.4	398.3	393.9	392.0	393.9
22.5°	385.6	386.1	386.1	382.7	383.2	381.2	377.8	375.3	377.8	375.3	371.4
25°	359.7	360.7	366.5	360.2	359.2	361.1	358.2	356.7	356.2	350.4	358.2
27.5°	328.4	338.1	337.7	335.2	338.1	334.2	332.8	333.2	334.7	334.2	336.2
30°	310.3	311.7	313.2	311.2	311.7	310.3	310.3	310.7	314.6	313.2	312.7
32.5°	273.5	278.4	282.4	282.4	282.8	284.3	283.8	294.1	296.5	291.7	290.7
35°	241.7	245.2	248.6	249.1	255.4	255.9	256.4	259.4	266.2	267.7	267.2
37.5°	211.4	214.8	215.8	220.2	223.6	227.1	231.0	234.9	240.8	245.6	243.2
40°	184.5	185.9	188.4	190.4	197.2	197.2	199.2	207.0	213.4	217.3	216.8
42.5°	162.0	162.5	164.4	167.8	174.2	172.7	174.2	179.6	188.9	189.4	194.8
45°	146.3	145.8	147.3	147.8	151.7	153.7	154.6	158.6	166.4	167.4	167.8
47.5°	132.1	131.6	134.1	135.1	136.5	138.5	138.5	139.0	141.9	144.4	142.4
50°	120.4	120.4	120.4	121.4	123.8	123.3	123.8	125.8	127.2	126.2	125.8
52.5°	107.6	109.6	111.1	111.6	112.1	112.1	112.6	111.6	111.1	109.6	106.7
55°	98.8	100.8	100.8	100.8	100.8	102.8	100.3	100.8	100.8	96.9	93.0
57.5°	90.0	92.0	93.5	91.5	93.5	91.5	90.5	90.0	89.1	85.1	79.3
60°	82.7	83.7	83.2	82.7	83.7	82.2	81.2	79.3	78.3	72.9	69.0
62.5°	74.4	74.9	75.4	74.4	73.4	72.9	71.0	68.0	66.1	61.7	58.2
65°	67.5	66.1	65.6	65.1	64.1	62.6	61.2	57.7	56.3	52.4	48.9
67.5°	57.2	56.8	57.7	56.3	53.8	53.8	52.4	49.4	46.0	43.6	40.1
70°	48.9	48.4	47.5	46.0	45.5	43.6	43.6	40.1	39.1	34.7	31.8
72.5°	40.1	40.1	38.7	37.2	35.7	34.7	34.3	31.8	30.3	27.9	25.4
75°	30.3	30.3	29.9	28.4	27.4	26.4	25.9	24.0	22.5	20.1	18.6
77.5°	21.5	21.5	19.6	18.6	19.1	18.1	17.1	16.6	16.1	14.7	12.7
80°	12.7	12.2	10.8	11.3	10.8	10.8	10.3	9.8	8.8	7.8	6.8
82.5°	3.4	3.9	3.9	3.9	4.4	3.4	3.4	3.4	3.9	3.9	2.5
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	1.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.0
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1
2.5°	413.0	412.5	413.0	409.6	417.4	411.5	410.6	409.6	413.0	409.6	404.7
5°	421.8	416.9	415.5	414.0	418.4	411.5	410.1	410.6	408.1	401.8	402.2
7.5°	424.8	420.4	416.0	406.7	410.6	409.1	405.2	402.2	398.3	392.9	392.0
10°	425.7	420.8	414.5	411.5	405.7	403.7	402.2	397.4	392.5	383.2	380.7
12.5°	422.8	416.9	409.1	406.7	402.2	395.9	392.5	387.6	383.2	375.8	370.4
15°	410.1	405.2	402.7	394.4	392.5	388.5	381.7	374.8	368.5	358.7	355.8
17.5°	395.4	393.4	391.0	384.6	384.1	380.2	373.9	368.0	359.7	344.5	339.6
20°	380.2	380.2	372.4	370.0	374.8	367.0	362.1	356.7	339.6	332.3	323.5
22.5°	369.0	363.6	359.2	355.3	355.8	350.9	344.0	333.2	326.9	318.1	307.8
25°	347.0	348.9	339.1	337.7	339.1	327.9	324.4	315.6	306.3	298.0	290.2
27.5°	333.2	327.9	321.5	316.1	316.1	311.7	301.9	300.0	285.8	278.0	268.2
30°	312.7	308.8	303.4	295.6	294.6	291.2	283.3	278.4	263.8	252.0	246.6
32.5°	286.8	285.3	280.9	272.1	269.2	265.2	255.4	247.1	240.3	227.1	220.7
35°	268.2	262.8	253.5	246.1	243.7	236.8	229.0	223.1	215.8	204.1	195.7
37.5°	240.3	234.9	226.1	217.3	217.3	210.4	199.7	193.8	183.5	176.6	169.8
40°	215.8	209.0	200.2	189.9	188.4	178.6	174.2	164.4	158.1	147.3	146.3
42.5°	188.4	182.0	174.2	166.4	160.5	155.6	144.4	137.0	130.2	124.8	123.3
45°	163.4	155.1	148.3	138.5	132.6	126.7	119.4	114.5	109.1	103.3	99.8
47.5°	141.9	135.1	125.3	116.5	110.6	107.6	99.3	94.0	89.6	85.6	83.2
50°	119.9	111.6	106.2	96.4	95.4	88.6	81.7	77.3	74.9	71.5	68.0
52.5°	103.3	95.4	88.1	80.8	76.8	74.4	68.0	63.6	60.2	57.7	55.8
55°	87.1	80.3	74.4	67.0	64.6	61.2	53.8	52.9	49.4	46.0	43.6
57.5°	74.9	68.5	61.7	56.8	52.4	49.9	44.0	40.1	38.2	35.2	32.8
60°	63.6	56.8	51.4	45.5	43.6	40.1	35.7	32.3	29.9	27.4	25.0
62.5°	53.3	47.5	41.6	36.7	33.8	31.8	28.4	25.4	23.0	21.1	19.1
65°	44.0	38.7	33.8	28.9	27.4	25.0	22.5	20.1	18.1	15.7	13.7
67.5°	36.2	31.3	26.4	23.0	21.5	20.6	17.6	15.2	13.7	12.2	10.3
70°	28.4	25.0	21.1	18.1	16.6	15.2	13.2	11.8	9.8	8.8	7.3
72.5°	22.0	19.1	15.7	13.2	12.2	11.3	9.3	7.8	6.8	5.9	4.9
75°	15.7	13.2	11.3	8.8	8.3	7.8	6.4	5.4	4.4	3.4	2.9
77.5°	10.8	8.8	6.8	5.9	5.4	4.4	3.9	2.9	2.5	2.0	1.5
80°	5.9	4.4	3.4	2.9	2.5	2.0	2.0	1.5	1.0	1.0	0.5
82.5°	2.0	1.5	1.0	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°	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1
2.5°	407.6	402.2	403.7	403.7	402.7	402.7	401.8	400.3	400.8	397.8	391.5
5°	403.2	396.4	395.4	396.4	392.5	391.5	389.5	392.5	383.6	387.1	383.2
7.5°	390.5	384.1	382.7	386.1	381.2	378.3	377.8	381.7	373.9	370.0	365.5
10°	376.3	373.9	369.5	367.0	365.5	366.0	362.1	357.2	355.8	354.8	350.9
12.5°	363.6	358.2	354.3	351.4	350.4	350.4	344.0	343.0	338.6	337.7	331.8
15°	348.4	342.1	339.6	335.7	332.3	334.2	326.9	324.9	323.5	317.1	318.1
17.5°	335.2	328.4	322.5	320.0	317.1	314.2	307.3	308.8	305.3	305.3	296.5
20°	318.1	310.7	306.3	301.4	301.4	297.5	292.6	293.1	288.7	284.3	276.5
22.5°	300.0	292.1	286.8	284.8	279.9	278.9	273.1	271.6	265.7	266.2	259.4
25°	280.9	273.1	265.7	266.2	261.8	259.9	256.4	249.6	247.1	244.2	242.2
27.5°	258.4	253.0	246.6	246.1	237.8	238.3	233.9	232.0	226.1	227.5	223.1
30°	237.8	230.0	224.1	222.7	219.2	218.3	211.4	208.5	209.5	205.5	203.1
32.5°	216.8	205.0	202.6	199.7	197.7	195.2	190.4	192.3	187.9	188.9	185.0
35°	188.9	184.0	177.6	177.6	175.7	173.7	170.3	172.3	167.8	165.9	162.0
37.5°	165.4	161.0	154.6	156.6	153.2	150.2	147.3	147.8	143.9	143.4	139.5
40°	140.0	137.5	133.1	133.1	130.7	130.7	129.2	127.7	125.3	122.3	117.9
42.5°	116.0	114.0	112.1	112.6	109.1	112.1	108.1	110.6	102.8	102.3	99.3
45°	98.4	94.0	94.4	92.5	90.5	91.5	88.1	89.1	84.7	83.7	80.8
47.5°	79.8	78.3	75.4	74.4	74.4	72.9	71.5	71.0	69.0	66.5	62.6
50°	65.6	60.2	59.2	57.7	56.8	56.8	54.8	51.9	52.4	49.9	46.0
52.5°	51.4	47.0	45.0	44.5	42.6	41.6	39.1	37.2	35.7	34.7	32.3
55°	39.6	35.7	33.3	33.3	30.3	30.3	26.9	25.4	23.5	21.5	20.1
57.5°	29.9	27.9	25.4	23.5	22.5	20.1	18.1	15.7	14.2	11.3	9.3
60°	22.5	20.6	18.1	16.6	15.7	13.2	10.8	8.8	5.4	4.4	3.9
62.5°	16.6	14.7	12.2	11.3	10.3	8.3	5.9	2.9	1.5	1.5	1.5
65°	12.2	9.8	7.8	6.8	5.9	4.4	2.0	1.0	0.5	0.5	0.5
67.5°	8.3	6.4	4.4	3.9	2.9	1.5	0.5	0.5	0.5	0.5	0.5
70°	5.4	3.9	2.0	1.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	3.4	2.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.0	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 FEU4C089035 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1
2.5°	398.3	394.9	396.9	392.5	394.4	397.8	395.4	396.4
5°	384.6	382.7	380.2	373.9	378.8	382.7	380.7	380.2
7.5°	370.0	363.1	366.5	364.6	363.6	367.5	363.1	368.0
10°	354.8	349.9	349.4	346.0	346.0	348.9	349.4	346.5
12.5°	332.3	329.8	329.8	329.3	328.8	331.8	332.3	330.8
15°	316.1	315.1	312.7	312.2	309.3	313.7	314.2	313.7
17.5°	296.5	297.0	294.6	294.6	296.5	298.0	294.1	298.0
20°	283.3	280.9	279.9	275.5	278.0	280.4	280.4	280.9
22.5°	264.2	260.3	261.8	259.4	257.9	261.3	261.3	262.8
25°	242.7	242.7	243.7	242.2	243.2	245.2	243.7	247.1
27.5°	222.2	224.1	224.1	222.2	223.1	229.0	231.5	227.5
30°	203.1	203.6	205.0	204.1	207.0	209.0	208.5	211.4
32.5°	181.6	184.0	185.0	183.5	184.5	188.9	186.4	185.9
35°	164.9	160.5	160.0	160.5	162.5	163.4	162.5	165.9
37.5°	140.9	139.5	137.5	138.0	139.5	141.4	142.4	144.8
40°	117.9	116.0	116.0	115.5	114.0	119.4	119.4	119.4
42.5°	97.9	97.4	94.9	94.9	96.9	98.4	97.4	100.8
45°	80.3	78.3	76.8	76.8	78.3	78.3	79.8	79.3
47.5°	63.1	61.2	61.7	60.2	61.7	63.6	61.2	61.7
50°	47.5	47.5	46.5	47.5	47.0	47.5	46.5	45.5
52.5°	32.3	36.7	37.2	35.2	30.8	26.9	24.5	26.4
55°	18.6	16.6	16.6	16.1	15.2	14.7	13.2	14.7
57.5°	9.3	8.3	8.3	8.3	7.8	7.3	6.4	6.4
60°	3.9	3.4	3.4	2.9	2.5	2.0	1.5	2.0
62.5°	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)