

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

Summary

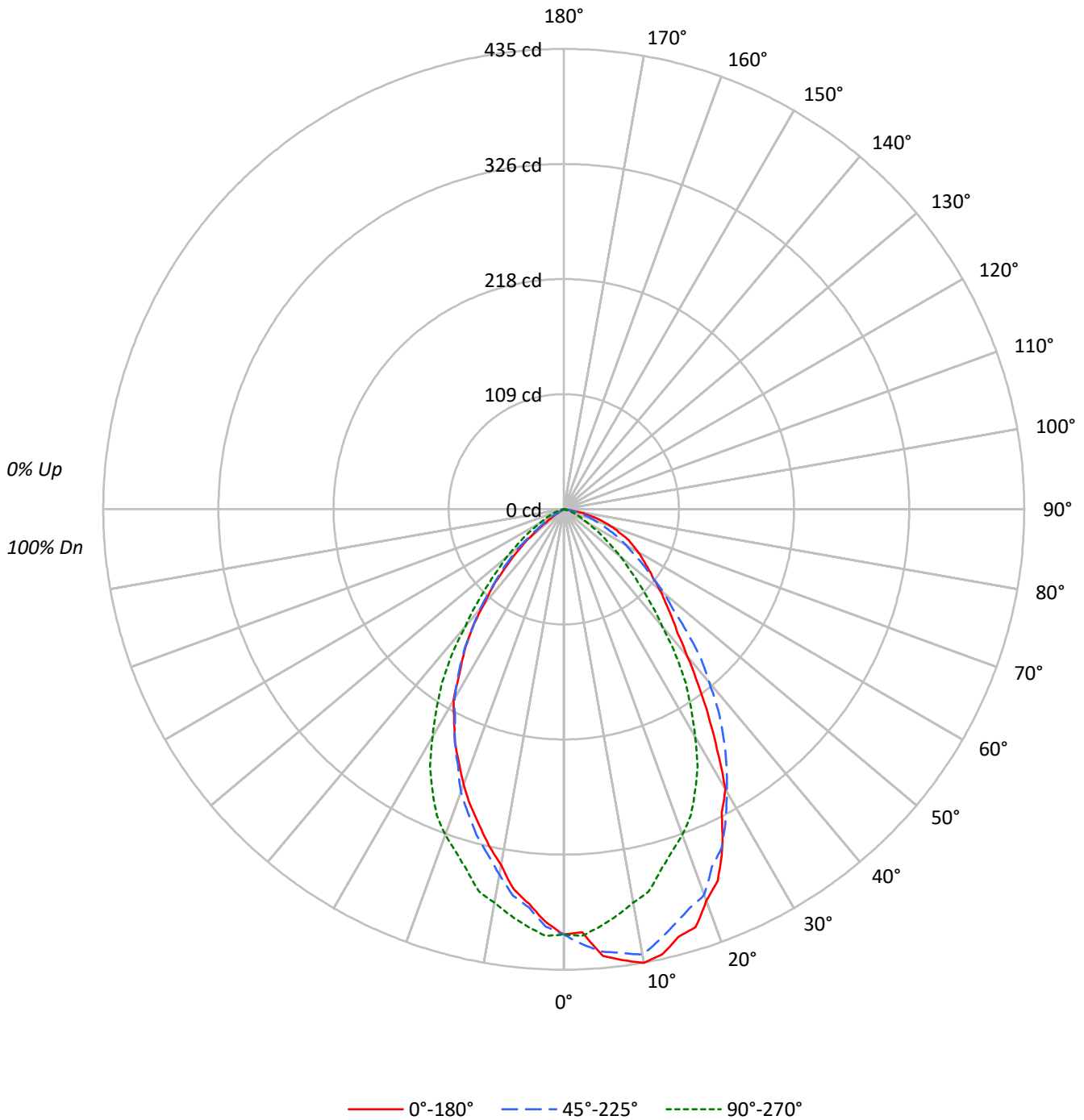
Lumens per Lamp: N/A
 Luminaire Lumens: 576.0 lumens
 Efficiency: N/A
 Efficacy: 58.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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-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°	38769	38769	38769
5°	41019	38317	36263
10°	42630	36967	33420
15°	41775	35282	30847
20°	40426	33597	28402
25°	37699	31236	25903
30°	34038	27642	23197
35°	28034	23664	19235
40°	22886	18264	14813
45°	19663	13878	10657
50°	17788	10568	6725
55°	16368	7621	2439
60°	15708	5210	367
65°	15183	3516	114
70°	13598	2454	141
75°	11147	1268	0
80°	6946	556	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	37.6	6.5
10°-20°	101.4	17.6
20°-30°	135.4	23.5
30°-40°	128.6	22.3
40°-50°	88.9	15.4
50°-60°	49.1	8.5
60°-70°	24.4	4.2
70°-80°	9.6	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°	274.5	47.7
0°-40°	403.1	70.0
0°-60°	541.1	93.9
0°-90°	576.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	576.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	402	402	402	402	402	
5°	424	420	396	378	374	41
15°	418	406	353	318	309	118
25°	354	353	293	243	243	161
35°	238	263	201	165	163	149
45°	144	165	102	83	78	112
55°	97	92	45	23	14	88
65°	66	48	15	0	0	65
75°	30	18	3	0	0	32
85°	0	0	0	0	0	3
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8
2.5°	399.9	411.0	411.9	411.0	412.4	411.9	414.4	411.9	414.9	410.5	411.5
5°	423.5	419.2	428.3	423.5	423.5	423.0	421.6	421.1	423.0	416.8	419.7
7.5°	429.8	436.1	444.2	434.1	434.6	434.6	431.7	430.8	430.8	419.2	422.6
10°	435.1	431.2	435.6	431.7	435.1	434.6	436.5	430.3	434.6	427.9	427.4
12.5°	430.8	429.3	435.1	428.8	426.9	427.4	425.0	423.5	425.0	417.3	416.8
15°	418.2	419.7	428.3	421.6	420.6	419.7	416.8	411.9	415.8	405.2	405.7
17.5°	413.9	411.5	412.9	407.1	408.6	407.6	407.1	402.8	401.8	395.1	395.1
20°	393.7	398.9	398.9	395.1	395.1	394.6	388.4	392.2	387.9	385.9	387.9
22.5°	379.7	380.2	380.2	376.8	377.3	375.3	372.0	369.6	372.0	369.6	365.7
25°	354.1	355.1	360.9	354.6	353.7	355.6	352.7	351.2	350.8	345.0	352.7
27.5°	323.3	332.9	332.5	330.0	332.9	329.1	327.6	328.1	329.6	329.1	331.0
30°	305.5	306.9	308.4	306.4	306.9	305.5	305.5	306.0	309.8	308.4	307.9
32.5°	269.3	274.1	278.0	278.0	278.5	279.9	279.5	289.6	292.0	287.2	286.2
35°	238.0	241.4	244.8	245.2	251.5	252.0	252.5	255.4	262.1	263.6	263.1
37.5°	208.2	211.5	212.5	216.8	220.2	223.6	227.4	231.3	237.1	241.9	239.5
40°	181.7	183.1	185.5	187.4	194.2	194.2	196.1	203.8	210.1	213.9	213.4
42.5°	159.5	160.0	161.9	165.3	171.5	170.1	171.5	176.8	186.0	186.5	191.8
45°	144.1	143.6	145.0	145.5	149.4	151.3	152.3	156.1	163.8	164.8	165.3
47.5°	130.1	129.6	132.0	133.0	134.4	136.3	136.3	136.8	139.7	142.1	140.2
50°	118.5	118.5	118.5	119.5	121.9	121.4	121.9	123.8	125.3	124.3	123.8
52.5°	106.0	107.9	109.4	109.9	110.3	110.3	110.8	109.9	109.4	107.9	105.0
55°	97.3	99.3	99.3	99.3	99.3	101.2	98.8	99.3	99.3	95.4	91.6
57.5°	88.7	90.6	92.0	90.1	92.0	90.1	89.1	88.7	87.7	83.8	78.1
60°	81.4	82.4	81.9	81.4	82.4	80.9	80.0	78.1	77.1	71.8	67.9
62.5°	73.2	73.7	74.2	73.2	72.3	71.8	69.9	67.0	65.0	60.7	57.3
65°	66.5	65.0	64.6	64.1	63.1	61.7	60.2	56.9	55.4	51.6	48.2
67.5°	56.4	55.9	56.9	55.4	53.0	53.0	51.6	48.7	45.3	42.9	39.5
70°	48.2	47.7	46.7	45.3	44.8	42.9	42.9	39.5	38.5	34.2	31.3
72.5°	39.5	39.5	38.1	36.6	35.2	34.2	33.7	31.3	29.9	27.5	25.0
75°	29.9	29.9	29.4	27.9	27.0	26.0	25.5	23.6	22.2	19.8	18.3
77.5°	21.2	21.2	19.3	18.3	18.8	17.8	16.9	16.4	15.9	14.5	12.5
80°	12.5	12.0	10.6	11.1	10.6	10.6	10.1	9.6	8.7	7.7	6.7
82.5°	3.4	3.9	3.9	3.9	4.3	3.4	3.4	3.4	3.9	3.9	2.4
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	1.9	1.9	1.9	1.9	1.9	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°	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8
2.5°	406.7	406.2	406.7	403.3	411.0	405.2	404.2	403.3	406.7	403.3	398.5
5°	415.3	410.5	409.1	407.6	411.9	405.2	403.8	404.2	401.8	395.6	396.1
7.5°	418.2	413.9	409.6	400.4	404.2	402.8	398.9	396.1	392.2	386.9	385.9
10°	419.2	414.4	408.1	405.2	399.4	397.5	396.1	391.2	386.4	377.3	374.9
12.5°	416.3	410.5	402.8	400.4	396.1	389.8	386.4	381.6	377.3	370.0	364.7
15°	403.8	398.9	396.5	388.4	386.4	382.6	375.8	369.1	362.8	353.2	350.3
17.5°	389.3	387.4	385.0	378.7	378.2	374.4	368.1	362.3	354.1	339.2	334.4
20°	374.4	374.4	366.7	364.3	369.1	361.4	356.5	351.2	334.4	327.2	318.5
22.5°	363.3	358.0	353.7	349.8	350.3	345.5	338.7	328.1	321.8	313.2	303.1
25°	341.6	343.5	333.9	332.5	333.9	322.8	319.5	310.8	301.6	293.4	285.7
27.5°	328.1	322.8	316.6	311.3	311.3	306.9	297.3	295.4	281.4	273.7	264.0
30°	307.9	304.0	298.7	291.0	290.1	286.7	279.0	274.1	259.7	248.1	242.8
32.5°	282.3	280.9	276.6	267.9	265.0	261.1	251.5	243.3	236.6	223.6	217.3
35°	264.0	258.7	249.6	242.4	239.9	233.2	225.5	219.7	212.5	200.9	192.7
37.5°	236.6	231.3	222.6	213.9	213.9	207.2	196.6	190.8	180.7	173.9	167.2
40°	212.5	205.7	197.1	187.0	185.5	175.9	171.5	161.9	155.6	145.0	144.1
42.5°	185.5	179.2	171.5	163.8	158.0	153.2	142.1	134.9	128.2	122.9	121.4
45°	160.9	152.7	146.0	136.3	130.6	124.8	117.6	112.8	107.4	101.7	98.3
47.5°	139.7	133.0	123.3	114.7	108.9	106.0	97.8	92.5	88.2	84.3	81.9
50°	118.1	109.9	104.6	94.9	93.9	87.2	80.5	76.1	73.7	70.4	67.0
52.5°	101.7	93.9	86.7	79.5	75.6	73.2	67.0	62.6	59.3	56.9	54.9
55°	85.8	79.0	73.2	66.0	63.6	60.2	53.0	52.0	48.7	45.3	42.9
57.5°	73.7	67.4	60.7	55.9	51.6	49.2	43.4	39.5	37.6	34.7	32.3
60°	62.6	55.9	50.6	44.8	42.9	39.5	35.2	31.8	29.4	27.0	24.6
62.5°	52.5	46.7	41.0	36.1	33.2	31.3	27.9	25.0	22.7	20.7	18.8
65°	43.4	38.1	33.2	28.4	27.0	24.6	22.2	19.8	17.8	15.4	13.5
67.5°	35.7	30.8	26.0	22.7	21.2	20.2	17.3	14.9	13.5	12.0	10.1
70°	27.9	24.6	20.7	17.8	16.4	14.9	13.0	11.6	9.6	8.7	7.2
72.5°	21.7	18.8	15.4	13.0	12.0	11.1	9.2	7.7	6.7	5.8	4.8
75°	15.4	13.0	11.1	8.7	8.2	7.7	6.3	5.3	4.3	3.4	2.9
77.5°	10.6	8.7	6.7	5.8	5.3	4.3	3.9	2.9	2.4	1.9	1.5
80°	5.8	4.3	3.4	2.9	2.4	1.9	1.9	1.5	1.0	1.0	0.5
82.5°	1.9	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°	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8
2.5°	401.4	396.1	397.5	397.5	396.5	396.5	395.6	394.1	394.6	391.7	385.5
5°	397.0	390.3	389.3	390.3	386.4	385.5	383.5	386.4	377.7	381.1	377.3
7.5°	384.5	378.2	376.8	380.2	375.3	372.4	372.0	375.8	368.1	364.3	359.9
10°	370.5	368.1	363.8	361.4	359.9	360.4	356.5	351.7	350.3	349.3	345.5
12.5°	358.0	352.7	348.8	346.0	345.0	345.0	338.7	337.8	333.4	332.5	326.7
15°	343.0	336.8	334.4	330.5	327.2	329.1	321.8	319.9	318.5	312.2	313.2
17.5°	330.0	323.3	317.5	315.1	312.2	309.3	302.6	304.0	300.7	300.7	292.0
20°	313.2	306.0	301.6	296.8	296.8	292.9	288.1	288.6	284.3	279.9	272.2
22.5°	295.4	287.6	282.3	280.4	275.6	274.6	268.9	267.4	261.6	262.1	255.4
25°	276.6	268.9	261.6	262.1	257.8	255.9	252.5	245.7	243.3	240.4	238.5
27.5°	254.4	249.1	242.8	242.4	234.2	234.6	230.3	228.4	222.6	224.0	219.7
30°	234.2	226.5	220.7	219.2	215.9	214.9	208.2	205.2	206.2	202.4	200.0
32.5°	213.4	201.9	199.5	196.6	194.7	192.2	187.4	189.4	185.0	186.0	182.1
35°	186.0	181.2	174.9	174.9	173.0	171.0	167.7	169.6	165.3	163.3	159.5
37.5°	162.9	158.5	152.3	154.2	150.8	147.9	145.0	145.5	141.7	141.2	137.3
40°	137.8	135.4	131.1	131.1	128.6	128.6	127.2	125.8	123.3	120.5	116.1
42.5°	114.2	112.3	110.3	110.8	107.4	110.3	106.5	108.9	101.2	100.7	97.8
45°	96.8	92.5	93.0	91.1	89.1	90.1	86.7	87.7	83.4	82.4	79.5
47.5°	78.5	77.1	74.2	73.2	73.2	71.8	70.4	69.9	67.9	65.5	61.7
50°	64.6	59.3	58.3	56.9	55.9	55.9	54.0	51.1	51.6	49.2	45.3
52.5°	50.6	46.2	44.3	43.9	41.9	41.0	38.5	36.6	35.2	34.2	31.8
55°	39.0	35.2	32.8	32.8	29.9	29.9	26.5	25.0	23.1	21.2	19.8
57.5°	29.4	27.5	25.0	23.1	22.2	19.8	17.8	15.4	14.0	11.1	9.2
60°	22.2	20.2	17.8	16.4	15.4	13.0	10.6	8.7	5.3	4.3	3.9
62.5°	16.4	14.5	12.0	11.1	10.1	8.2	5.8	2.9	1.5	1.5	1.5
65°	12.0	9.6	7.7	6.7	5.8	4.3	1.9	1.0	0.5	0.5	0.5
67.5°	8.2	6.3	4.3	3.9	2.9	1.5	0.5	0.5	0.5	0.5	0.5
70°	5.3	3.9	1.9	1.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	3.4	1.9	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.9	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 FEU4C089030 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8
2.5°	392.2	388.8	390.8	386.4	388.4	391.7	389.3	390.3
5°	378.7	376.8	374.4	368.1	372.9	376.8	374.9	374.4
7.5°	364.3	357.5	360.9	359.0	358.0	361.8	357.5	362.3
10°	349.3	344.5	344.0	340.7	340.7	343.5	344.0	341.1
12.5°	327.2	324.8	324.8	324.3	323.8	326.7	327.2	325.7
15°	311.3	310.3	307.9	307.4	304.5	308.8	309.3	308.8
17.5°	292.0	292.5	290.1	290.1	292.0	293.4	289.6	293.4
20°	279.0	276.6	275.6	271.3	273.7	276.1	276.1	276.6
22.5°	260.2	256.3	257.8	255.4	253.9	257.3	257.3	258.7
25°	239.0	239.0	239.9	238.5	239.5	241.4	239.9	243.3
27.5°	218.7	220.7	220.7	218.7	219.7	225.5	227.9	224.0
30°	200.0	200.4	201.9	200.9	203.8	205.7	205.2	208.2
32.5°	178.8	181.2	182.1	180.7	181.7	186.0	183.6	183.1
35°	162.4	158.0	157.6	158.0	160.0	160.9	160.0	163.3
37.5°	138.8	137.3	135.4	135.9	137.3	139.3	140.2	142.6
40°	116.1	114.2	114.2	113.7	112.3	117.6	117.6	117.6
42.5°	96.4	95.9	93.5	93.5	95.4	96.8	95.9	99.3
45°	79.0	77.1	75.6	75.6	77.1	77.1	78.5	78.1
47.5°	62.2	60.2	60.7	59.3	60.7	62.6	60.2	60.7
50°	46.7	46.7	45.8	46.7	46.2	46.7	45.8	44.8
52.5°	31.8	36.1	36.6	34.7	30.4	26.5	24.1	26.0
55°	18.3	16.4	16.4	15.9	14.9	14.5	13.0	14.5
57.5°	9.2	8.2	8.2	8.2	7.7	7.2	6.3	6.3
60°	3.9	3.4	3.4	2.9	2.4	1.9	1.5	1.9
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)