

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

Summary

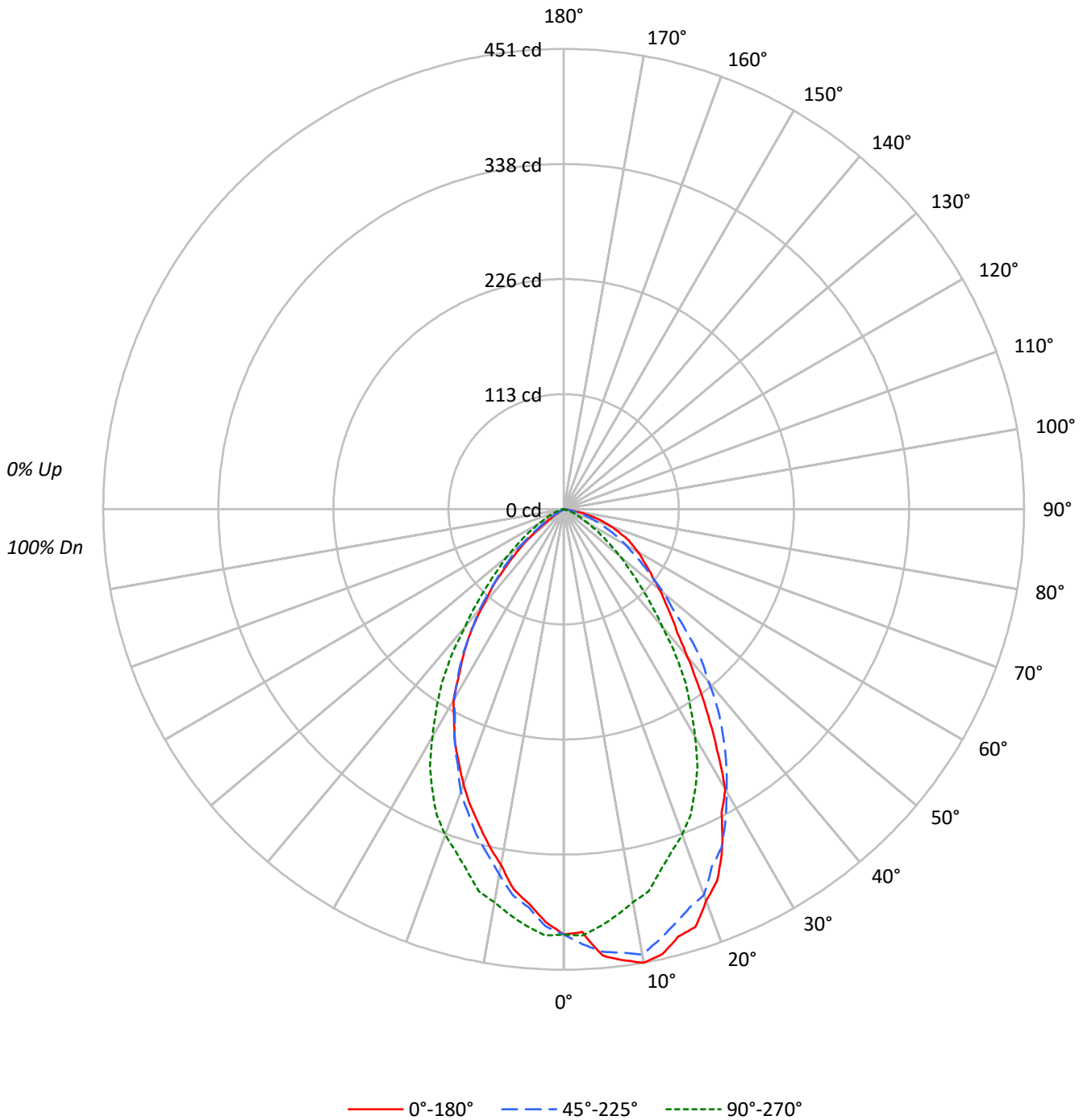
Lumens per Lamp: N/A
 Luminaire Lumens: 597.0 lumens
 Efficiency: N/A
 Efficacy: 60.3 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



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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°	40188	40188	40188
5°	42520	39712	37581
10°	44188	38309	34645
15°	43303	36561	31976
20°	41894	34819	29428
25°	39083	32376	26850
30°	35274	28656	24032
35°	29059	24536	19942
40°	23718	18931	15354
45°	20373	14382	11039
50°	18434	10943	6965
55°	16974	7890	2523
60°	16287	5403	386
65°	15731	3653	114
70°	14078	2539	141
75°	11557	1305	0
80°	7224	556	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.0	6.5
10°-20°	105.1	17.6
20°-30°	140.4	23.5
30°-40°	133.3	22.3
40°-50°	92.1	15.4
50°-60°	50.9	8.5
60°-70°	25.3	4.2
70°-80°	10.0	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°	284.5	47.7
0°-40°	417.8	70.0
0°-60°	560.8	93.9
0°-90°	597.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	597.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	416	416	416	416	416	
5°	439	435	410	392	388	42
15°	434	420	366	330	320	123
25°	367	366	304	252	252	167
35°	247	273	208	171	169	155
45°	149	171	105	86	81	116
55°	101	95	47	24	15	91
65°	69	50	16	0	0	67
75°	31	19	4	0	0	33
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°	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5
2.5°	414.5	426.0	427.0	426.0	427.5	427.0	429.5	427.0	430.0	425.5	426.5
5°	439.0	434.5	444.0	439.0	439.0	438.5	437.0	436.5	438.5	432.0	435.0
7.5°	445.5	452.0	460.4	450.0	450.4	450.4	447.5	446.5	446.5	434.5	438.0
10°	451.0	446.9	451.4	447.5	451.0	450.4	452.4	445.9	450.4	443.5	443.0
12.5°	446.5	444.9	451.0	444.5	442.5	443.0	440.5	439.0	440.5	432.5	432.0
15°	433.5	435.0	444.0	437.0	436.0	435.0	432.0	427.0	431.0	420.0	420.5
17.5°	429.0	426.5	428.0	422.0	423.5	422.5	422.0	417.5	416.5	409.5	409.5
20°	408.0	413.5	413.5	409.5	409.5	409.0	402.5	406.5	402.0	400.0	402.0
22.5°	393.5	394.0	394.0	390.5	391.0	389.0	385.5	383.0	385.5	383.0	379.0
25°	367.1	368.1	374.0	367.5	366.6	368.5	365.6	364.0	363.6	357.6	365.6
27.5°	335.1	345.1	344.6	342.1	345.1	341.1	339.6	340.1	341.6	341.1	343.1
30°	316.6	318.1	319.6	317.6	318.1	316.6	316.6	317.1	321.1	319.6	319.1
32.5°	279.2	284.1	288.2	288.2	288.6	290.1	289.6	300.1	302.6	297.6	296.6
35°	246.7	250.2	253.7	254.2	260.7	261.2	261.7	264.7	271.7	273.2	272.7
37.5°	215.7	219.2	220.2	224.7	228.2	231.7	235.7	239.7	245.7	250.7	248.2
40°	188.3	189.8	192.3	194.3	201.2	201.2	203.2	211.2	217.7	221.7	221.2
42.5°	165.3	165.8	167.8	171.3	177.8	176.3	177.8	183.3	192.8	193.3	198.8
45°	149.3	148.8	150.3	150.8	154.8	156.8	157.8	161.8	169.8	170.8	171.3
47.5°	134.8	134.3	136.8	137.8	139.3	141.3	141.3	141.8	144.8	147.3	145.3
50°	122.8	122.8	122.8	123.8	126.4	125.8	126.4	128.3	129.8	128.8	128.3
52.5°	109.9	111.9	113.4	113.9	114.4	114.4	114.9	113.9	113.4	111.9	108.9
55°	100.9	102.9	102.9	102.9	102.9	104.9	102.4	102.9	102.9	98.9	94.9
57.5°	91.9	93.9	95.4	93.4	95.4	93.4	92.4	91.9	90.9	86.9	80.9
60°	84.4	85.4	84.9	84.4	85.4	83.9	82.9	80.9	79.9	74.4	70.4
62.5°	75.9	76.4	76.9	75.9	74.9	74.4	72.4	69.4	67.4	62.9	59.4
65°	68.9	67.4	66.9	66.4	65.4	63.9	62.4	58.9	57.4	53.4	49.9
67.5°	58.4	57.9	58.9	57.4	54.9	54.9	53.4	50.4	46.9	44.5	40.9
70°	49.9	49.4	48.4	46.9	46.4	44.5	44.5	40.9	40.0	35.5	32.5
72.5°	40.9	40.9	39.4	38.0	36.4	35.5	35.0	32.5	31.0	28.5	26.0
75°	31.0	31.0	30.5	29.0	28.0	27.0	26.5	24.5	23.0	20.5	19.0
77.5°	22.0	22.0	20.0	19.0	19.5	18.5	17.5	17.0	16.5	15.0	13.0
80°	13.0	12.5	11.0	11.5	11.0	11.0	10.5	10.0	9.0	8.0	7.0
82.5°	3.5	4.0	4.0	4.0	4.5	3.5	3.5	3.5	4.0	4.0	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°	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5
2.5°	421.5	421.0	421.5	418.0	426.0	420.0	419.0	418.0	421.5	418.0	413.0
5°	430.5	425.5	424.0	422.5	427.0	420.0	418.5	419.0	416.5	410.0	410.5
7.5°	433.5	429.0	424.5	415.0	419.0	417.5	413.5	410.5	406.5	401.0	400.0
10°	434.5	429.5	423.0	420.0	414.0	412.0	410.5	405.5	400.5	391.0	388.5
12.5°	431.5	425.5	417.5	415.0	410.5	404.0	400.5	395.5	391.0	383.5	378.0
15°	418.5	413.5	411.0	402.5	400.5	396.5	389.5	382.5	376.0	366.0	363.0
17.5°	403.5	401.5	399.0	392.5	392.0	388.0	381.5	375.5	367.1	351.6	346.6
20°	388.0	388.0	380.0	377.5	382.5	374.5	369.5	364.0	346.6	339.1	330.1
22.5°	376.5	371.1	366.6	362.6	363.0	358.1	351.1	340.1	333.6	324.6	314.1
25°	354.1	356.1	346.1	344.6	346.1	334.6	331.1	322.1	312.6	304.1	296.1
27.5°	340.1	334.6	328.1	322.6	322.6	318.1	308.1	306.1	291.6	283.7	273.7
30°	319.1	315.1	309.6	301.6	300.6	297.1	289.2	284.1	269.2	257.2	251.7
32.5°	292.6	291.1	286.6	277.7	274.7	270.7	260.7	252.2	245.2	231.7	225.2
35°	273.7	268.2	258.7	251.2	248.7	241.7	233.7	227.7	220.2	208.3	199.8
37.5°	245.2	239.7	230.7	221.7	221.7	214.7	203.8	197.8	187.3	180.3	173.3
40°	220.2	213.2	204.3	193.8	192.3	182.3	177.8	167.8	161.3	150.3	149.3
42.5°	192.3	185.8	177.8	169.8	163.8	158.8	147.3	139.8	132.8	127.3	125.8
45°	166.8	158.3	151.3	141.3	135.3	129.3	121.9	116.9	111.4	105.4	101.9
47.5°	144.8	137.8	127.8	118.9	112.9	109.9	101.4	95.9	91.4	87.4	84.9
50°	122.4	113.9	108.4	98.4	97.4	90.4	83.4	78.9	76.4	72.9	69.4
52.5°	105.4	97.4	89.9	82.4	78.4	75.9	69.4	64.9	61.4	58.9	56.9
55°	88.9	81.9	75.9	68.4	65.9	62.4	54.9	53.9	50.4	46.9	44.5
57.5°	76.4	69.9	62.9	57.9	53.4	50.9	44.9	40.9	39.0	36.0	33.5
60°	64.9	57.9	52.4	46.4	44.5	40.9	36.4	33.0	30.5	28.0	25.5
62.5°	54.4	48.4	42.5	37.4	34.5	32.5	29.0	26.0	23.5	21.5	19.5
65°	44.9	39.4	34.5	29.5	28.0	25.5	23.0	20.5	18.5	16.0	14.0
67.5°	37.0	32.0	27.0	23.5	22.0	21.0	18.0	15.5	14.0	12.5	10.5
70°	29.0	25.5	21.5	18.5	17.0	15.5	13.5	12.0	10.0	9.0	7.5
72.5°	22.5	19.5	16.0	13.5	12.5	11.5	9.5	8.0	7.0	6.0	5.0
75°	16.0	13.5	11.5	9.0	8.5	8.0	6.5	5.5	4.5	3.5	3.0
77.5°	11.0	9.0	7.0	6.0	5.5	4.5	4.0	3.0	2.5	2.0	1.5
80°	6.0	4.5	3.5	3.0	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°	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5
2.5°	416.0	410.5	412.0	412.0	411.0	411.0	410.0	408.5	409.0	406.0	399.5
5°	411.5	404.5	403.5	404.5	400.5	399.5	397.5	400.5	391.5	395.0	391.0
7.5°	398.5	392.0	390.5	394.0	389.0	386.0	385.5	389.5	381.5	377.5	373.0
10°	384.0	381.5	377.0	374.5	373.0	373.5	369.5	364.6	363.0	362.1	358.1
12.5°	371.1	365.6	361.6	358.6	357.6	357.6	351.1	350.1	345.6	344.6	338.6
15°	355.6	349.1	346.6	342.6	339.1	341.1	333.6	331.6	330.1	323.6	324.6
17.5°	342.1	335.1	329.1	326.6	323.6	320.6	313.6	315.1	311.6	311.6	302.6
20°	324.6	317.1	312.6	307.6	307.6	303.6	298.6	299.1	294.6	290.1	282.1
22.5°	306.1	298.1	292.6	290.6	285.6	284.7	278.7	277.2	271.2	271.7	264.7
25°	286.6	278.7	271.2	271.7	267.2	265.2	261.7	254.7	252.2	249.2	247.2
27.5°	263.7	258.2	251.7	251.2	242.7	243.2	238.7	236.7	230.7	232.2	227.7
30°	242.7	234.7	228.7	227.2	223.7	222.7	215.7	212.7	213.7	209.7	207.3
32.5°	221.2	209.2	206.7	203.8	201.8	199.3	194.3	196.3	191.8	192.8	188.8
35°	192.8	187.8	181.3	181.3	179.3	177.3	173.8	175.8	171.3	169.3	165.3
37.5°	168.8	164.3	157.8	159.8	156.3	153.3	150.3	150.8	146.8	146.3	142.3
40°	142.8	140.3	135.8	135.8	133.3	133.3	131.8	130.3	127.8	124.8	120.3
42.5°	118.3	116.4	114.4	114.9	111.4	114.4	110.4	112.9	104.9	104.4	101.4
45°	100.4	95.9	96.4	94.4	92.4	93.4	89.9	90.9	86.4	85.4	82.4
47.5°	81.4	79.9	76.9	75.9	75.9	74.4	72.9	72.4	70.4	67.9	63.9
50°	66.9	61.4	60.4	58.9	57.9	57.9	55.9	52.9	53.4	50.9	46.9
52.5°	52.4	47.9	45.9	45.4	43.5	42.5	40.0	38.0	36.4	35.5	33.0
55°	40.4	36.4	34.0	34.0	31.0	31.0	27.5	26.0	24.0	22.0	20.5
57.5°	30.5	28.5	26.0	24.0	23.0	20.5	18.5	16.0	14.5	11.5	9.5
60°	23.0	21.0	18.5	17.0	16.0	13.5	11.0	9.0	5.5	4.5	4.0
62.5°	17.0	15.0	12.5	11.5	10.5	8.5	6.0	3.0	1.5	1.5	1.5
65°	12.5	10.0	8.0	7.0	6.0	4.5	2.0	1.0	0.5	0.5	0.5
67.5°	8.5	6.5	4.5	4.0	3.0	1.5	0.5	0.5	0.5	0.5	0.5
70°	5.5	4.0	2.0	1.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	3.5	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 FEU4C089050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	416.5	416.5	416.5	416.5	416.5	416.5	416.5	416.5
2.5°	406.5	403.0	405.0	400.5	402.5	406.0	403.5	404.5
5°	392.5	390.5	388.0	381.5	386.5	390.5	388.5	388.0
7.5°	377.5	370.5	374.0	372.0	371.1	375.0	370.5	375.5
10°	362.1	357.1	356.6	353.1	353.1	356.1	356.6	353.6
12.5°	339.1	336.6	336.6	336.1	335.6	338.6	339.1	337.6
15°	322.6	321.6	319.1	318.6	315.6	320.1	320.6	320.1
17.5°	302.6	303.1	300.6	300.6	302.6	304.1	300.1	304.1
20°	289.2	286.6	285.6	281.1	283.7	286.2	286.2	286.6
22.5°	269.7	265.7	267.2	264.7	263.2	266.7	266.7	268.2
25°	247.7	247.7	248.7	247.2	248.2	250.2	248.7	252.2
27.5°	226.7	228.7	228.7	226.7	227.7	233.7	236.2	232.2
30°	207.3	207.7	209.2	208.3	211.2	213.2	212.7	215.7
32.5°	185.3	187.8	188.8	187.3	188.3	192.8	190.3	189.8
35°	168.3	163.8	163.3	163.8	165.8	166.8	165.8	169.3
37.5°	143.8	142.3	140.3	140.8	142.3	144.3	145.3	147.8
40°	120.3	118.3	118.3	117.9	116.4	121.9	121.9	121.9
42.5°	99.9	99.4	96.9	96.9	98.9	100.4	99.4	102.9
45°	81.9	79.9	78.4	78.4	79.9	79.9	81.4	80.9
47.5°	64.4	62.4	62.9	61.4	62.9	64.9	62.4	62.9
50°	48.4	48.4	47.4	48.4	47.9	48.4	47.4	46.4
52.5°	33.0	37.4	38.0	36.0	31.5	27.5	25.0	27.0
55°	19.0	17.0	17.0	16.5	15.5	15.0	13.5	15.0
57.5°	9.5	8.5	8.5	8.5	8.0	7.5	6.5	6.5
60°	4.0	3.5	3.5	3.0	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)