

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: **FLDSQ4C10D010 FEU4C109040 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: FLDSQ4C10D010 FEU4C109040 F4LC-SQLWW-H
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

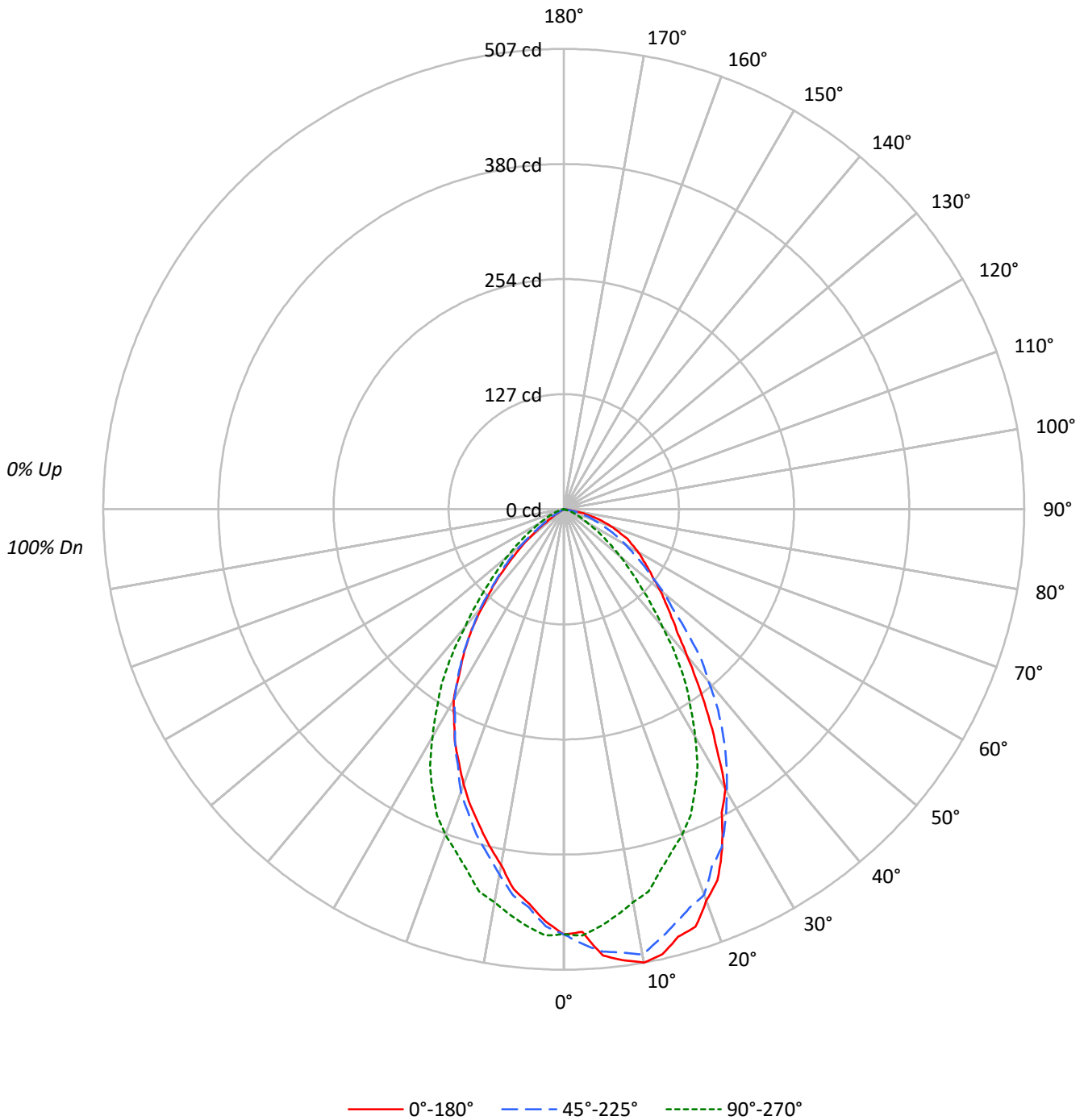
Lumens per Lamp: N/A
 Luminaire Lumens: 671.0 lumens
 Efficiency: N/A
 Efficacy: 68.5 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.8
 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: FLDSQ4C10D010 FEU4C109040 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°	45166	45166	45166
5°	47789	44632	42240
10°	49665	43061	38936
15°	48668	41096	35941
20°	47090	39132	33084
25°	43927	36389	30182
30°	39653	32210	27018
35°	32663	27575	22416
40°	26653	21287	17256
45°	22897	16156	12404
50°	20730	12309	7836
55°	19077	8882	2826
60°	18314	6060	425
65°	17671	4110	137
70°	15827	2849	169
75°	12974	1454	0
80°	8113	611	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.9	6.5
10°-20°	118.2	17.6
20°-30°	157.8	23.5
30°-40°	149.8	22.3
40°-50°	103.5	15.4
50°-60°	57.2	8.5
60°-70°	28.4	4.2
70°-80°	11.2	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°	319.8	47.7
0°-40°	469.6	70.0
0°-60°	630.3	93.9
0°-90°	671.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	671.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	468	468	468	468	468	
5°	493	489	461	440	436	47
15°	487	473	411	371	360	138
25°	413	411	342	284	284	188
35°	277	306	234	192	190	174
45°	168	192	118	97	91	131
55°	113	107	53	27	17	102
65°	77	56	18	1	1	75
75°	35	21	4	0	0	37
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°	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1
2.5°	465.9	478.8	479.9	478.8	480.5	479.9	482.7	479.9	483.3	478.2	479.3
5°	493.4	488.3	499.0	493.4	493.4	492.8	491.1	490.6	492.8	485.5	488.9
7.5°	500.7	508.0	517.5	505.7	506.3	506.3	502.9	501.8	501.8	488.3	492.3
10°	506.9	502.3	507.4	502.9	506.9	506.3	508.5	501.2	506.3	498.4	497.9
12.5°	501.8	500.1	506.9	499.6	497.3	497.9	495.1	493.4	495.1	486.1	485.5
15°	487.2	488.9	499.0	491.1	490.0	488.9	485.5	479.9	484.4	472.0	472.6
17.5°	482.2	479.3	481.0	474.3	476.0	474.9	474.3	469.2	468.1	460.3	460.3
20°	458.6	464.7	464.7	460.3	460.3	459.7	452.4	456.9	451.8	449.6	451.8
22.5°	442.3	442.9	442.9	438.9	439.5	437.3	433.3	430.5	433.3	430.5	426.0
25°	412.6	413.7	420.4	413.1	412.0	414.2	410.9	409.2	408.6	401.9	410.9
27.5°	376.6	387.8	387.3	384.5	387.8	383.4	381.7	382.2	383.9	383.4	385.6
30°	355.9	357.5	359.2	357.0	357.5	355.9	355.9	356.4	360.9	359.2	358.7
32.5°	313.8	319.4	323.9	323.9	324.4	326.1	325.5	337.3	340.1	334.5	333.4
35°	277.3	281.2	285.1	285.7	293.0	293.5	294.1	297.5	305.3	307.0	306.5
37.5°	242.5	246.4	247.5	252.6	256.5	260.4	264.9	269.4	276.2	281.8	279.0
40°	211.6	213.3	216.1	218.3	226.2	226.2	228.4	237.4	244.7	249.2	248.6
42.5°	185.8	186.3	188.6	192.5	199.8	198.1	199.8	206.0	216.6	217.2	223.4
45°	167.8	167.3	169.0	169.5	174.0	176.3	177.4	181.9	190.8	192.0	192.5
47.5°	151.6	151.0	153.8	154.9	156.6	158.8	158.8	159.4	162.8	165.6	163.3
50°	138.1	138.1	138.1	139.2	142.0	141.4	142.0	144.3	145.9	144.8	144.3
52.5°	123.5	125.7	127.4	128.0	128.5	128.5	129.1	128.0	127.4	125.7	122.4
55°	113.4	115.6	115.6	115.6	115.6	117.9	115.1	115.6	115.6	111.1	106.7
57.5°	103.3	105.5	107.2	105.0	107.2	105.0	103.8	103.3	102.1	97.7	90.9
60°	94.9	96.0	95.4	94.9	96.0	94.3	93.2	90.9	89.8	83.6	79.1
62.5°	85.3	85.9	86.4	85.3	84.2	83.6	81.4	78.0	75.8	70.7	66.8
65°	77.4	75.8	75.2	74.7	73.5	71.8	70.2	66.2	64.5	60.1	56.1
67.5°	65.7	65.1	66.2	64.5	61.7	61.7	60.1	56.7	52.8	50.0	46.0
70°	56.1	55.6	54.4	52.8	52.2	50.0	50.0	46.0	44.9	39.8	36.5
72.5°	46.0	46.0	44.3	42.7	41.0	39.8	39.3	36.5	34.8	32.0	29.2
75°	34.8	34.8	34.2	32.5	31.4	30.3	29.8	27.5	25.8	23.0	21.3
77.5°	24.7	24.7	22.5	21.3	21.9	20.8	19.6	19.1	18.5	16.8	14.6
80°	14.6	14.0	12.4	12.9	12.4	12.4	11.8	11.2	10.1	9.0	7.9
82.5°	3.9	4.5	4.5	4.5	5.1	3.9	3.9	3.9	4.5	4.5	2.8
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	1.1	2.2	2.2	2.2	2.2	2.2	1.7	1.7	1.7	1.1
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°	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1
2.5°	473.7	473.2	473.7	469.8	478.8	472.0	470.9	469.8	473.7	469.8	464.2
5°	483.8	478.2	476.5	474.9	479.9	472.0	470.4	470.9	468.1	460.8	461.4
7.5°	487.2	482.2	477.1	466.4	470.9	469.2	464.7	461.4	456.9	450.7	449.6
10°	488.3	482.7	475.4	472.0	465.3	463.1	461.4	455.8	450.2	439.5	436.7
12.5°	484.9	478.2	469.2	466.4	461.4	454.1	450.2	444.5	439.5	431.1	424.9
15°	470.4	464.7	461.9	452.4	450.2	445.7	437.8	430.0	422.7	411.4	408.0
17.5°	453.5	451.3	448.5	441.2	440.6	436.1	428.8	422.1	412.6	395.1	389.5
20°	436.1	436.1	427.1	424.3	430.0	421.0	415.4	409.2	389.5	381.1	371.0
22.5°	423.2	417.0	412.0	407.5	408.0	402.4	394.6	382.2	374.9	364.8	353.1
25°	398.0	400.2	389.0	387.3	389.0	376.1	372.1	362.0	351.4	341.8	332.8
27.5°	382.2	376.1	368.8	362.6	362.6	357.5	346.3	344.1	327.8	318.8	307.6
30°	358.7	354.2	348.0	339.0	337.9	334.0	325.0	319.4	302.5	289.1	282.9
32.5°	328.9	327.2	322.2	312.1	308.7	304.2	293.0	283.5	275.6	260.4	253.2
35°	307.6	301.4	290.8	282.3	279.5	271.7	262.7	255.9	247.5	234.1	224.5
37.5°	275.6	269.4	259.3	249.2	249.2	241.4	229.0	222.3	210.5	202.6	194.8
40°	247.5	239.7	229.6	217.8	216.1	204.9	199.8	188.6	181.3	169.0	167.8
42.5°	216.1	208.8	199.8	190.8	184.1	178.5	165.6	157.2	149.3	143.1	141.4
45°	187.5	177.9	170.1	158.8	152.1	145.4	137.0	131.3	125.2	118.4	114.5
47.5°	162.8	154.9	143.7	133.6	126.9	123.5	113.9	107.8	102.7	98.2	95.4
50°	137.5	128.0	121.8	110.6	109.4	101.6	93.7	88.7	85.9	82.0	78.0
52.5°	118.4	109.4	101.0	92.6	88.1	85.3	78.0	73.0	69.0	66.2	64.0
55°	99.9	92.1	85.3	76.9	74.1	70.2	61.7	60.6	56.7	52.8	50.0
57.5°	85.9	78.6	70.7	65.1	60.1	57.3	50.5	46.0	43.8	40.4	37.6
60°	73.0	65.1	58.9	52.2	50.0	46.0	41.0	37.1	34.2	31.4	28.6
62.5°	61.2	54.4	47.7	42.1	38.7	36.5	32.5	29.2	26.4	24.1	21.9
65°	50.5	44.3	38.7	33.1	31.4	28.6	25.8	23.0	20.8	18.0	15.7
67.5°	41.5	35.9	30.3	26.4	24.7	23.6	20.2	17.4	15.7	14.0	11.8
70°	32.5	28.6	24.1	20.8	19.1	17.4	15.2	13.5	11.2	10.1	8.4
72.5°	25.3	21.9	18.0	15.2	14.0	12.9	10.7	9.0	7.9	6.7	5.6
75°	18.0	15.2	12.9	10.1	9.5	9.0	7.3	6.2	5.1	3.9	3.4
77.5°	12.4	10.1	7.9	6.7	6.2	5.1	4.5	3.4	2.8	2.2	1.7
80°	6.7	5.1	3.9	3.4	2.8	2.2	2.2	1.7	1.1	1.1	0.6
82.5°	2.2	1.7	1.1	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°	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1
2.5°	467.6	461.4	463.1	463.1	461.9	461.9	460.8	459.1	459.7	456.3	449.0
5°	462.5	454.6	453.5	454.6	450.2	449.0	446.8	450.2	440.0	444.0	439.5
7.5°	447.9	440.6	438.9	442.9	437.3	433.9	433.3	437.8	428.8	424.3	419.3
10°	431.6	428.8	423.8	421.0	419.3	419.8	415.4	409.7	408.0	406.9	402.4
12.5°	417.0	410.9	406.4	403.0	401.9	401.9	394.6	393.5	388.4	387.3	380.6
15°	399.6	392.3	389.5	385.0	381.1	383.4	374.9	372.7	371.0	363.7	364.8
17.5°	384.5	376.6	369.9	367.1	363.7	360.4	352.5	354.2	350.2	350.2	340.1
20°	364.8	356.4	351.4	345.8	345.8	341.3	335.7	336.2	331.2	326.1	317.1
22.5°	344.1	335.1	328.9	326.7	321.1	319.9	313.2	311.5	304.8	305.3	297.5
25°	322.2	313.2	304.8	305.3	300.3	298.1	294.1	286.3	283.5	280.1	277.8
27.5°	296.4	290.2	282.9	282.3	272.8	273.3	268.3	266.1	259.3	261.0	255.9
30°	272.8	263.8	257.1	255.4	251.5	250.3	242.5	239.1	240.2	235.7	232.9
32.5°	248.6	235.2	232.4	229.0	226.8	223.9	218.3	220.6	215.5	216.6	212.2
35°	216.6	211.0	203.7	203.7	201.5	199.3	195.3	197.6	192.5	190.3	185.8
37.5°	189.7	184.7	177.4	179.6	175.7	172.3	169.0	169.5	165.0	164.5	160.0
40°	160.5	157.7	152.7	152.7	149.9	149.9	148.2	146.5	143.7	140.3	135.3
42.5°	133.0	130.8	128.5	129.1	125.2	128.5	124.0	126.9	117.9	117.3	113.9
45°	112.8	107.8	108.3	106.1	103.8	105.0	101.0	102.1	97.1	96.0	92.6
47.5°	91.5	89.8	86.4	85.3	85.3	83.6	82.0	81.4	79.1	76.3	71.8
50°	75.2	69.0	67.9	66.2	65.1	65.1	62.9	59.5	60.1	57.3	52.8
52.5°	58.9	53.9	51.6	51.1	48.8	47.7	44.9	42.7	41.0	39.8	37.1
55°	45.5	41.0	38.2	38.2	34.8	34.8	30.9	29.2	26.9	24.7	23.0
57.5°	34.2	32.0	29.2	26.9	25.8	23.0	20.8	18.0	16.3	12.9	10.7
60°	25.8	23.6	20.8	19.1	18.0	15.2	12.4	10.1	6.2	5.1	4.5
62.5°	19.1	16.8	14.0	12.9	11.8	9.5	6.7	3.4	1.7	1.7	1.7
65°	14.0	11.2	9.0	7.9	6.7	5.1	2.2	1.1	0.6	0.6	0.6
67.5°	9.5	7.3	5.1	4.5	3.4	1.7	0.6	0.6	0.6	0.6	0.6
70°	6.2	4.5	2.2	1.7	1.1	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	3.9	2.2	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.1	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: FLDSQ4C10D010 FEU4C109040 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	468.1	468.1	468.1	468.1	468.1	468.1	468.1	468.1
2.5°	456.9	453.0	455.2	450.2	452.4	456.3	453.5	454.6
5°	441.2	438.9	436.1	428.8	434.4	438.9	436.7	436.1
7.5°	424.3	416.5	420.4	418.2	417.0	421.5	416.5	422.1
10°	406.9	401.3	400.8	396.8	396.8	400.2	400.8	397.4
12.5°	381.1	378.3	378.3	377.7	377.2	380.6	381.1	379.4
15°	362.6	361.5	358.7	358.1	354.7	359.8	360.4	359.8
17.5°	340.1	340.7	337.9	337.9	340.1	341.8	337.3	341.8
20°	325.0	322.2	321.1	316.0	318.8	321.6	321.6	322.2
22.5°	303.1	298.6	300.3	297.5	295.8	299.7	299.7	301.4
25°	278.4	278.4	279.5	277.8	279.0	281.2	279.5	283.5
27.5°	254.8	257.1	257.1	254.8	255.9	262.7	265.5	261.0
30°	232.9	233.5	235.2	234.1	237.4	239.7	239.1	242.5
32.5°	208.2	211.0	212.2	210.5	211.6	216.6	213.9	213.3
35°	189.2	184.1	183.6	184.1	186.3	187.5	186.3	190.3
37.5°	161.6	160.0	157.7	158.3	160.0	162.2	163.3	166.1
40°	135.3	133.0	133.0	132.5	130.8	137.0	137.0	137.0
42.5°	112.3	111.7	108.9	108.9	111.1	112.8	111.7	115.6
45°	92.1	89.8	88.1	88.1	89.8	89.8	91.5	90.9
47.5°	72.4	70.2	70.7	69.0	70.7	73.0	70.2	70.7
50°	54.4	54.4	53.3	54.4	53.9	54.4	53.3	52.2
52.5°	37.1	42.1	42.7	40.4	35.4	30.9	28.1	30.3
55°	21.3	19.1	19.1	18.5	17.4	16.8	15.2	16.8
57.5°	10.7	9.5	9.5	9.5	9.0	8.4	7.3	7.3
60°	4.5	3.9	3.9	3.4	2.8	2.2	1.7	2.2
62.5°	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)