

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 FEU4C109050 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 FEU4C109050 F4LC-SQLWW-H
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

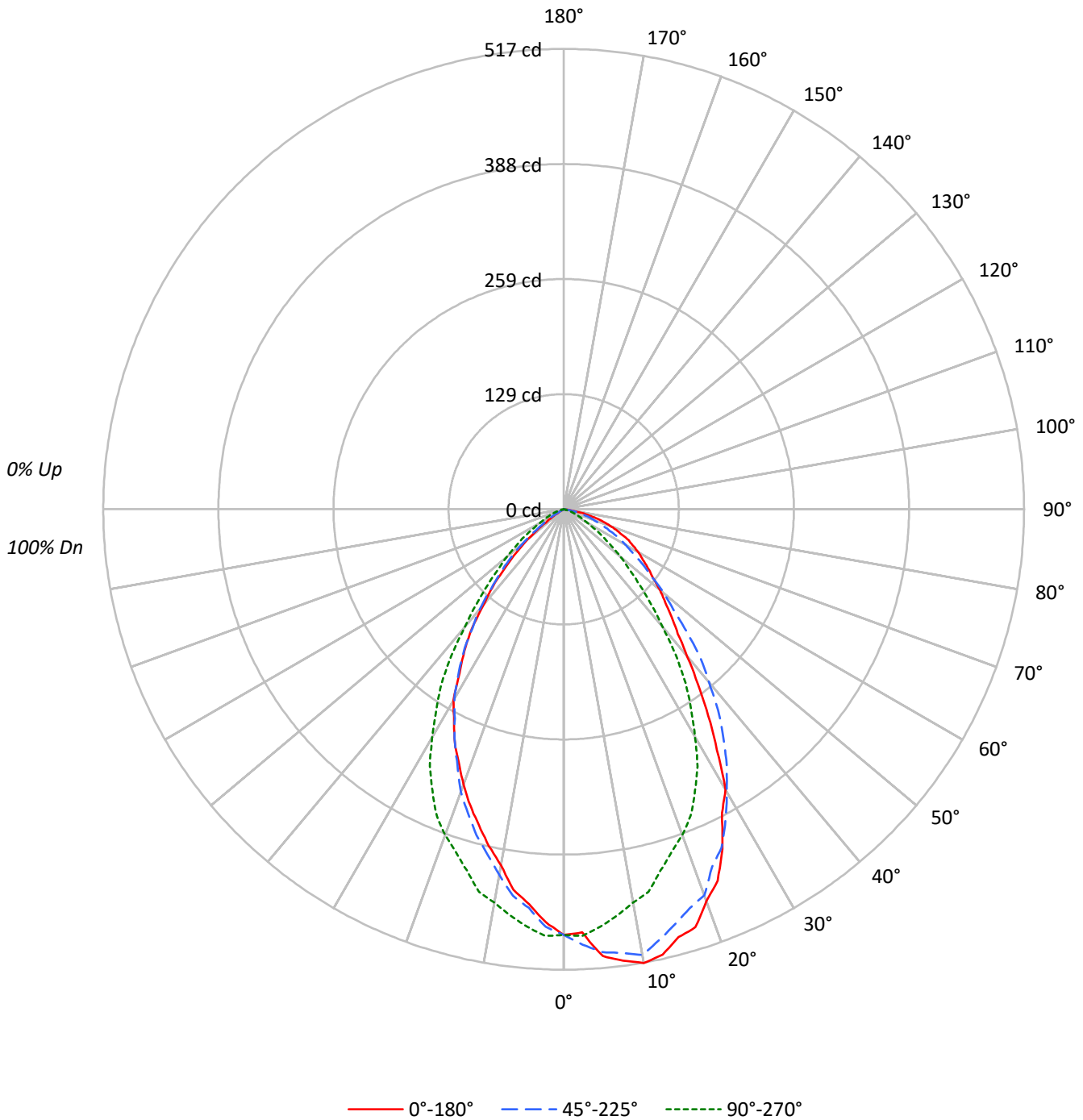
Lumens per Lamp: N/A
 Luminaire Lumens: 685.0 lumens
 Efficiency: N/A
 Efficacy: 69.9 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQLWW-H

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90				90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80				80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72				72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64				64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58				58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53				53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48				48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44				44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38				38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	46112	46112	46112
5°	48787	45562	43121
10°	50694	43962	39749
15°	49687	41955	36691
20°	48075	39953	33772
25°	44843	37145	30811
30°	40477	32879	27575
35°	33347	28140	22887
40°	27207	21728	17609
45°	23375	16498	12663
50°	21166	12564	8001
55°	19463	9067	2893
60°	18680	6195	444
65°	18059	4178	137
70°	16165	2906	169
75°	13235	1491	0
80°	8279	611	0
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQLWW-H

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.8	6.5
10°-20°	120.6	17.6
20°-30°	161.1	23.5
30°-40°	152.9	22.3
40°-50°	105.7	15.4
50°-60°	58.4	8.5
60°-70°	29.0	4.2
70°-80°	11.4	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°	326.5	47.7
0°-40°	479.4	70.0
0°-60°	643.5	93.9
0°-90°	685.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	685.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	478	478	478	478	478	
5°	504	499	470	449	445	48
15°	497	482	420	379	367	141
25°	421	419	349	289	289	192
35°	283	313	239	196	194	177
45°	171	196	121	99	93	134
55°	116	109	54	28	17	104
65°	79	57	18	1	1	77
75°	36	22	4	0	0	38
85°	0	1	0	0	0	3
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9
2.5°	475.6	488.8	489.9	488.8	490.5	489.9	492.8	489.9	493.4	488.2	489.3
5°	503.7	498.5	509.4	503.7	503.7	503.1	501.4	500.8	503.1	495.7	499.1
7.5°	511.1	518.6	528.3	516.3	516.8	516.8	513.4	512.3	512.3	498.5	502.5
10°	517.4	512.8	518.0	513.4	517.4	516.8	519.1	511.7	516.8	508.8	508.2
12.5°	512.3	510.5	517.4	510.0	507.7	508.2	505.4	503.7	505.4	496.2	495.7
15°	497.4	499.1	509.4	501.4	500.2	499.1	495.7	489.9	494.5	481.9	482.5
17.5°	492.2	489.3	491.1	484.2	485.9	484.8	484.2	479.0	477.9	469.9	469.9
20°	468.2	474.4	474.4	469.9	469.9	469.3	461.8	466.4	461.3	459.0	461.3
22.5°	451.5	452.1	452.1	448.1	448.7	446.4	442.4	439.5	442.4	439.5	434.9
25°	421.2	422.3	429.2	421.7	420.6	422.9	419.4	417.7	417.1	410.3	419.4
27.5°	384.5	395.9	395.4	392.5	395.9	391.4	389.6	390.2	391.9	391.4	393.6
30°	363.3	365.0	366.7	364.4	365.0	363.3	363.3	363.9	368.4	366.7	366.1
32.5°	320.3	326.0	330.6	330.6	331.2	332.9	332.3	344.4	347.2	341.5	340.4
35°	283.1	287.1	291.1	291.7	299.1	299.7	300.3	303.7	311.7	313.4	312.8
37.5°	247.5	251.5	252.7	257.8	261.9	265.9	270.5	275.0	281.9	287.6	284.8
40°	216.0	217.7	220.6	222.9	230.9	230.9	233.2	242.4	249.8	254.4	253.8
42.5°	189.7	190.2	192.5	196.5	204.0	202.3	204.0	210.3	221.2	221.8	228.1
45°	171.3	170.7	172.5	173.0	177.6	179.9	181.1	185.7	194.8	196.0	196.5
47.5°	154.7	154.1	157.0	158.2	159.9	162.1	162.1	162.7	166.2	169.0	166.8
50°	141.0	141.0	141.0	142.1	145.0	144.4	145.0	147.3	149.0	147.8	147.3
52.5°	126.1	128.3	130.1	130.7	131.2	131.2	131.8	130.7	130.1	128.3	124.9
55°	115.7	118.0	118.0	118.0	118.0	120.3	117.5	118.0	118.0	113.5	108.9
57.5°	105.4	107.7	109.4	107.1	109.4	107.1	106.0	105.4	104.3	99.7	92.8
60°	96.8	98.0	97.4	96.8	98.0	96.3	95.1	92.8	91.7	85.4	80.8
62.5°	87.1	87.7	88.2	87.1	86.0	85.4	83.1	79.6	77.4	72.2	68.2
65°	79.1	77.4	76.8	76.2	75.1	73.3	71.6	67.6	65.9	61.3	57.3
67.5°	67.0	66.5	67.6	65.9	63.0	63.0	61.3	57.9	53.9	51.0	47.0
70°	57.3	56.7	55.6	53.9	53.3	51.0	51.0	47.0	45.8	40.7	37.2
72.5°	47.0	47.0	45.3	43.6	41.8	40.7	40.1	37.2	35.5	32.7	29.8
75°	35.5	35.5	35.0	33.2	32.1	30.9	30.4	28.1	26.4	23.5	21.8
77.5°	25.2	25.2	22.9	21.8	22.3	21.2	20.0	19.5	18.9	17.2	14.9
80°	14.9	14.3	12.6	13.2	12.6	12.6	12.0	11.4	10.3	9.2	8.0
82.5°	4.0	4.6	4.6	4.6	5.2	4.0	4.0	4.0	4.6	4.6	2.9
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	2.3	2.3	2.3	2.3	2.3	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9
2.5°	483.6	483.0	483.6	479.6	488.8	481.9	480.7	479.6	483.6	479.6	473.9
5°	493.9	488.2	486.5	484.8	489.9	481.9	480.2	480.7	477.9	470.4	471.0
7.5°	497.4	492.2	487.1	476.2	480.7	479.0	474.4	471.0	466.4	460.1	459.0
10°	498.5	492.8	485.3	481.9	475.0	472.7	471.0	465.3	459.6	448.7	445.8
12.5°	495.1	488.2	479.0	476.2	471.0	463.5	459.6	453.8	448.7	440.1	433.8
15°	480.2	474.4	471.6	461.8	459.6	455.0	446.9	438.9	431.5	420.0	416.6
17.5°	463.0	460.7	457.8	450.4	449.8	445.2	437.8	430.9	421.2	403.4	397.7
20°	445.2	445.2	436.0	433.2	438.9	429.7	424.0	417.7	397.7	389.1	378.8
22.5°	432.1	425.7	420.6	416.0	416.6	410.8	402.8	390.2	382.8	372.5	360.4
25°	406.3	408.5	397.1	395.4	397.1	383.9	379.9	369.6	358.7	348.9	339.8
27.5°	390.2	383.9	376.5	370.2	370.2	365.0	353.5	351.3	334.6	325.5	314.0
30°	366.1	361.6	355.3	346.1	345.0	340.9	331.8	326.0	308.9	295.1	288.8
32.5°	335.8	334.1	328.9	318.6	315.2	310.6	299.1	289.4	281.4	265.9	258.4
35°	314.0	307.7	296.8	288.2	285.3	277.3	268.2	261.3	252.7	238.9	229.2
37.5°	281.4	275.0	264.7	254.4	254.4	246.4	233.8	226.9	214.9	206.8	198.8
40°	252.7	244.7	234.4	222.3	220.6	209.1	204.0	192.5	185.1	172.5	171.3
42.5°	220.6	213.2	204.0	194.8	187.9	182.2	169.0	160.4	152.4	146.1	144.4
45°	191.4	181.6	173.6	162.1	155.3	148.4	139.8	134.1	127.8	120.9	116.9
47.5°	166.2	158.2	146.7	136.4	129.5	126.1	116.3	110.0	104.9	100.3	97.4
50°	140.4	130.7	124.3	112.9	111.7	103.7	95.7	90.5	87.7	83.7	79.6
52.5°	120.9	111.7	103.1	94.6	90.0	87.1	79.6	74.5	70.5	67.6	65.3
55°	102.0	94.0	87.1	78.5	75.6	71.6	63.0	61.9	57.9	53.9	51.0
57.5°	87.7	80.2	72.2	66.5	61.3	58.5	51.6	47.0	44.7	41.3	38.4
60°	74.5	66.5	60.2	53.3	51.0	47.0	41.8	37.8	35.0	32.1	29.2
62.5°	62.5	55.6	48.7	43.0	39.5	37.2	33.2	29.8	26.9	24.6	22.3
65°	51.6	45.3	39.5	33.8	32.1	29.2	26.4	23.5	21.2	18.3	16.1
67.5°	42.4	36.7	30.9	26.9	25.2	24.1	20.6	17.8	16.1	14.3	12.0
70°	33.2	29.2	24.6	21.2	19.5	17.8	15.5	13.8	11.4	10.3	8.6
72.5°	25.8	22.3	18.3	15.5	14.3	13.2	10.9	9.2	8.0	6.9	5.7
75°	18.3	15.5	13.2	10.3	9.7	9.2	7.5	6.3	5.2	4.0	3.4
77.5°	12.6	10.3	8.0	6.9	6.3	5.2	4.6	3.4	2.9	2.3	1.7
80°	6.9	5.2	4.0	3.4	2.9	2.3	2.3	1.7	1.1	1.1	0.6
82.5°	2.3	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9
2.5°	477.3	471.0	472.7	472.7	471.6	471.6	470.4	468.7	469.3	465.8	458.4
5°	472.1	464.1	463.0	464.1	459.6	458.4	456.1	459.6	449.2	453.2	448.7
7.5°	457.3	449.8	448.1	452.1	446.4	442.9	442.4	446.9	437.8	433.2	428.0
10°	440.6	437.8	432.6	429.7	428.0	428.6	424.0	418.3	416.6	415.4	410.8
12.5°	425.7	419.4	414.9	411.4	410.3	410.3	402.8	401.7	396.5	395.4	388.5
15°	408.0	400.5	397.7	393.1	389.1	391.4	382.8	380.5	378.8	371.3	372.5
17.5°	392.5	384.5	377.6	374.7	371.3	367.9	359.8	361.6	357.5	357.5	347.2
20°	372.5	363.9	358.7	353.0	353.0	348.4	342.7	343.2	338.1	332.9	323.7
22.5°	351.3	342.1	335.8	333.5	327.8	326.6	319.7	318.0	311.1	311.7	303.7
25°	328.9	319.7	311.1	311.7	306.6	304.3	300.3	292.2	289.4	285.9	283.6
27.5°	302.5	296.2	288.8	288.2	278.5	279.0	273.9	271.6	264.7	266.4	261.3
30°	278.5	269.3	262.4	260.7	256.7	255.6	247.5	244.1	245.3	240.7	237.8
32.5°	253.8	240.1	237.2	233.8	231.5	228.6	222.9	225.2	220.0	221.2	216.6
35°	221.2	215.4	208.0	208.0	205.7	203.4	199.4	201.7	196.5	194.3	189.7
37.5°	193.7	188.5	181.1	183.4	179.3	175.9	172.5	173.0	168.5	167.9	163.3
40°	163.9	161.0	155.9	155.9	153.0	153.0	151.3	149.6	146.7	143.2	138.1
42.5°	135.8	133.5	131.2	131.8	127.8	131.2	126.6	129.5	120.3	119.8	116.3
45°	115.2	110.0	110.6	108.3	106.0	107.1	103.1	104.3	99.1	98.0	94.6
47.5°	93.4	91.7	88.2	87.1	87.1	85.4	83.7	83.1	80.8	77.9	73.3
50°	76.8	70.5	69.3	67.6	66.5	66.5	64.2	60.7	61.3	58.5	53.9
52.5°	60.2	55.0	52.7	52.1	49.9	48.7	45.8	43.6	41.8	40.7	37.8
55°	46.4	41.8	39.0	39.0	35.5	35.5	31.5	29.8	27.5	25.2	23.5
57.5°	35.0	32.7	29.8	27.5	26.4	23.5	21.2	18.3	16.6	13.2	10.9
60°	26.4	24.1	21.2	19.5	18.3	15.5	12.6	10.3	6.3	5.2	4.6
62.5°	19.5	17.2	14.3	13.2	12.0	9.7	6.9	3.4	1.7	1.7	1.7
65°	14.3	11.4	9.2	8.0	6.9	5.2	2.3	1.1	0.6	0.6	0.6
67.5°	9.7	7.5	5.2	4.6	3.4	1.7	0.6	0.6	0.6	0.6	0.6
70°	6.3	4.6	2.3	1.7	1.1	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	4.0	2.3	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.3	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 FEU4C109050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	477.9	477.9	477.9	477.9	477.9	477.9	477.9	477.9
2.5°	466.4	462.4	464.7	459.6	461.8	465.8	463.0	464.1
5°	450.4	448.1	445.2	437.8	443.5	448.1	445.8	445.2
7.5°	433.2	425.2	429.2	426.9	425.7	430.3	425.2	430.9
10°	415.4	409.7	409.1	405.1	405.1	408.5	409.1	405.7
12.5°	389.1	386.2	386.2	385.6	385.0	388.5	389.1	387.4
15°	370.2	369.0	366.1	365.6	362.1	367.3	367.9	367.3
17.5°	347.2	347.8	345.0	345.0	347.2	348.9	344.4	348.9
20°	331.8	328.9	327.8	322.6	325.5	328.3	328.3	328.9
22.5°	309.4	304.8	306.6	303.7	302.0	306.0	306.0	307.7
25°	284.2	284.2	285.3	283.6	284.8	287.1	285.3	289.4
27.5°	260.1	262.4	262.4	260.1	261.3	268.2	271.0	266.4
30°	237.8	238.4	240.1	238.9	242.4	244.7	244.1	247.5
32.5°	212.6	215.4	216.6	214.9	216.0	221.2	218.3	217.7
35°	193.1	187.9	187.4	187.9	190.2	191.4	190.2	194.3
37.5°	165.0	163.3	161.0	161.6	163.3	165.6	166.8	169.6
40°	138.1	135.8	135.8	135.2	133.5	139.8	139.8	139.8
42.5°	114.6	114.0	111.2	111.2	113.5	115.2	114.0	118.0
45°	94.0	91.7	90.0	90.0	91.7	91.7	93.4	92.8
47.5°	73.9	71.6	72.2	70.5	72.2	74.5	71.6	72.2
50°	55.6	55.6	54.4	55.6	55.0	55.6	54.4	53.3
52.5°	37.8	43.0	43.6	41.3	36.1	31.5	28.6	30.9
55°	21.8	19.5	19.5	18.9	17.8	17.2	15.5	17.2
57.5°	10.9	9.7	9.7	9.7	9.2	8.6	7.5	7.5
60°	4.6	4.0	4.0	3.4	2.9	2.3	1.7	2.3
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)