

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: **FLDSQ4C05D010 FEU4C059050 F4LC-SQLWW-LI**

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: FLDSQ4C05D010 FEU4C059050 F4LC-SQLWW-LI
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

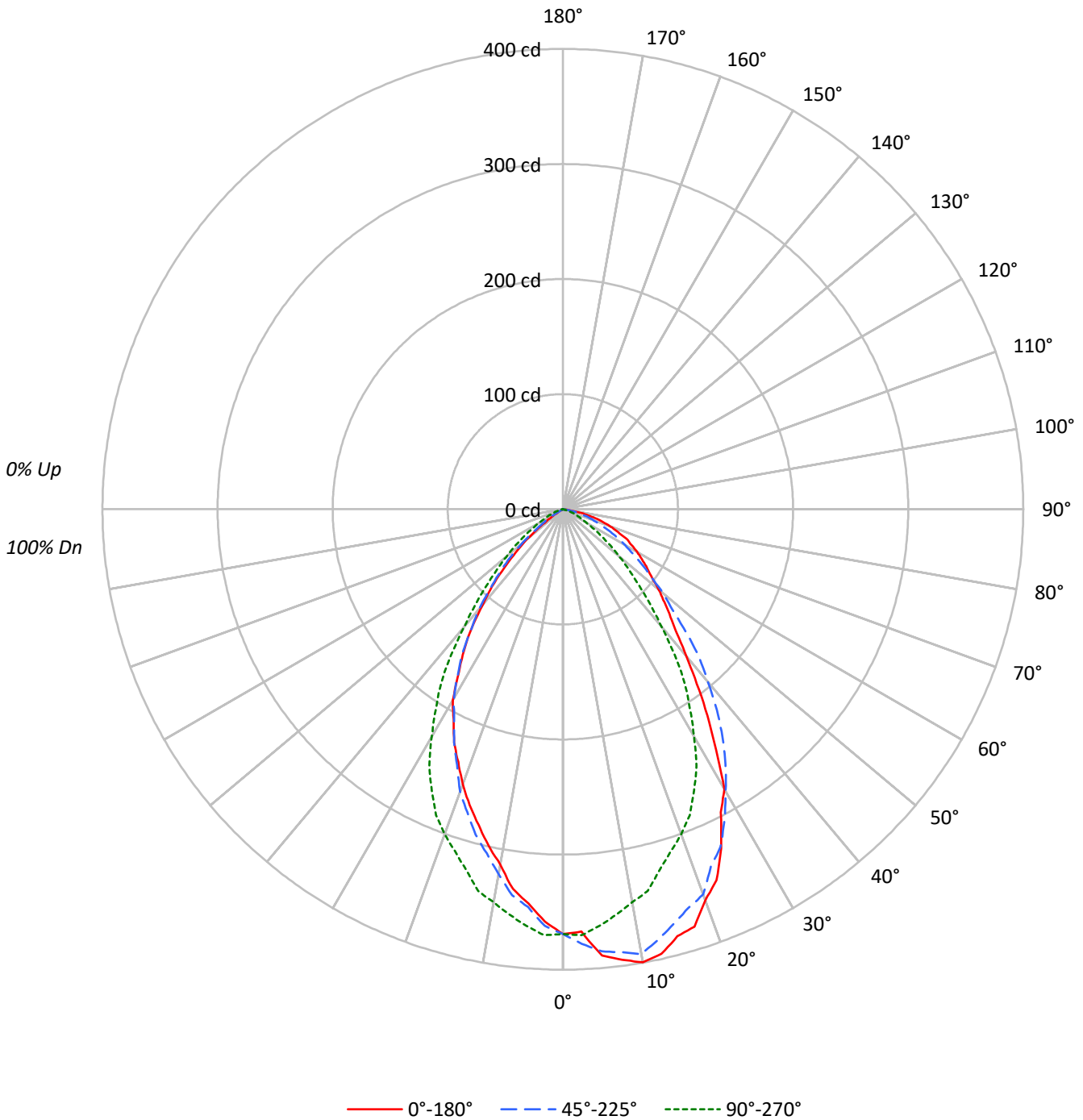
Lumens per Lamp: N/A
 Luminaire Lumens: 529.0 lumens
 Efficiency: N/A
 Efficacy: 73.5 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 7.2
 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	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°	35604	35604	35604
5°	37678	35188	33300
10°	39152	33949	30696
15°	38369	32395	28330
20°	37119	30856	26081
25°	34633	28692	23795
30°	31263	25392	21303
35°	25749	21732	17669
40°	21010	16778	13603
45°	18053	12745	9784
50°	16347	9697	6185
55°	15039	6998	2237
60°	14435	4786	347
65°	13950	3242	114
70°	12469	2257	141
75°	10215	1156	0
80°	6390	500	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	34.6	6.5
10°-20°	93.2	17.6
20°-30°	124.4	23.5
30°-40°	118.1	22.3
40°-50°	81.6	15.4
50°-60°	45.1	8.5
60°-70°	22.4	4.2
70°-80°	8.8	1.7
80°-90°	0.8	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°	252.1	47.7
0°-40°	370.2	70.0
0°-60°	496.9	93.9
0°-90°	529.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	529.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	369	369	369	369	369	
5°	389	385	363	347	344	37
15°	384	373	324	292	284	109
25°	325	324	270	224	224	148
35°	219	242	184	152	150	137
45°	132	152	93	77	72	103
55°	89	84	42	21	13	80
65°	61	44	14	0	0	59
75°	27	17	3	0	0	29
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°	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0
2.5°	367.3	377.5	378.3	377.5	378.8	378.3	380.6	378.3	381.0	377.0	377.9
5°	389.0	385.0	393.4	389.0	389.0	388.5	387.2	386.7	388.5	382.8	385.4
7.5°	394.7	400.5	408.0	398.7	399.1	399.1	396.5	395.6	395.6	385.0	388.1
10°	399.6	396.0	400.0	396.5	399.6	399.1	400.9	395.2	399.1	392.9	392.5
12.5°	395.6	394.3	399.6	393.8	392.1	392.5	390.3	389.0	390.3	383.2	382.8
15°	384.1	385.4	393.4	387.2	386.3	385.4	382.8	378.3	381.9	372.1	372.6
17.5°	380.1	377.9	379.2	373.9	375.2	374.4	373.9	369.9	369.0	362.9	362.9
20°	361.5	366.4	366.4	362.9	362.9	362.4	356.7	360.2	356.2	354.4	356.2
22.5°	348.7	349.1	349.1	346.0	346.5	344.7	341.6	339.4	341.6	339.4	335.9
25°	325.3	326.1	331.4	325.7	324.8	326.6	323.9	322.6	322.1	316.8	323.9
27.5°	296.9	305.8	305.3	303.1	305.8	302.2	300.9	301.3	302.7	302.2	304.0
30°	280.6	281.9	283.2	281.4	281.9	280.6	280.6	281.0	284.5	283.2	282.8
32.5°	247.4	251.8	255.3	255.3	255.8	257.1	256.6	265.9	268.2	263.7	262.9
35°	218.6	221.7	224.8	225.2	231.0	231.4	231.9	234.5	240.7	242.1	241.6
37.5°	191.2	194.3	195.1	199.1	202.2	205.3	208.9	212.4	217.7	222.1	219.9
40°	166.8	168.1	170.4	172.1	178.3	178.3	180.1	187.2	192.9	196.5	196.0
42.5°	146.5	146.9	148.7	151.8	157.5	156.2	157.5	162.4	170.8	171.3	176.1
45°	132.3	131.9	133.2	133.6	137.2	139.0	139.8	143.4	150.4	151.3	151.8
47.5°	119.5	119.0	121.3	122.1	123.5	125.2	125.2	125.7	128.3	130.5	128.8
50°	108.9	108.9	108.9	109.7	112.0	111.5	112.0	113.7	115.0	114.2	113.7
52.5°	97.3	99.1	100.4	100.9	101.3	101.3	101.8	100.9	100.4	99.1	96.5
55°	89.4	91.2	91.2	91.2	91.2	92.9	90.7	91.2	91.2	87.6	84.1
57.5°	81.4	83.2	84.5	82.7	84.5	82.7	81.9	81.4	80.5	77.0	71.7
60°	74.8	75.7	75.2	74.8	75.7	74.3	73.5	71.7	70.8	65.9	62.4
62.5°	67.3	67.7	68.1	67.3	66.4	65.9	64.2	61.5	59.7	55.8	52.7
65°	61.1	59.7	59.3	58.9	58.0	56.6	55.3	52.2	50.9	47.3	44.2
67.5°	51.8	51.3	52.2	50.9	48.7	48.7	47.3	44.7	41.6	39.4	36.3
70°	44.2	43.8	42.9	41.6	41.2	39.4	39.4	36.3	35.4	31.4	28.8
72.5°	36.3	36.3	35.0	33.6	32.3	31.4	31.0	28.8	27.4	25.2	23.0
75°	27.4	27.4	27.0	25.7	24.8	23.9	23.5	21.7	20.4	18.2	16.8
77.5°	19.5	19.5	17.7	16.8	17.2	16.4	15.5	15.0	14.6	13.3	11.5
80°	11.5	11.1	9.7	10.2	9.7	9.7	9.3	8.8	8.0	7.1	6.2
82.5°	3.1	3.5	3.5	3.5	4.0	3.1	3.1	3.1	3.5	3.5	2.2
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	0.9	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3	0.9
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°	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0
2.5°	373.5	373.0	373.5	370.4	377.5	372.1	371.3	370.4	373.5	370.4	366.0
5°	381.4	377.0	375.7	374.4	378.3	372.1	370.8	371.3	369.0	363.3	363.7
7.5°	384.1	380.1	376.1	367.7	371.3	369.9	366.4	363.7	360.2	355.3	354.4
10°	385.0	380.6	374.8	372.1	366.8	365.1	363.7	359.3	354.9	346.5	344.3
12.5°	382.3	377.0	369.9	367.7	363.7	358.0	354.9	350.5	346.5	339.8	335.0
15°	370.8	366.4	364.2	356.7	354.9	351.3	345.2	339.0	333.2	324.3	321.7
17.5°	357.5	355.8	353.6	347.8	347.4	343.8	338.1	332.8	325.3	311.5	307.1
20°	343.8	343.8	336.7	334.5	339.0	331.9	327.5	322.6	307.1	300.5	292.5
22.5°	333.7	328.8	324.8	321.3	321.7	317.3	311.1	301.3	295.6	287.6	278.3
25°	313.7	315.5	306.7	305.3	306.7	296.5	293.4	285.4	277.0	269.5	262.4
27.5°	301.3	296.5	290.7	285.9	285.9	281.9	273.0	271.3	258.4	251.3	242.5
30°	282.8	279.2	274.4	267.3	266.4	263.3	256.2	251.8	238.5	227.9	223.0
32.5°	259.3	258.0	254.0	246.0	243.4	239.8	231.0	223.5	217.3	205.3	199.6
35°	242.5	237.6	229.2	222.6	220.4	214.2	207.1	201.8	195.1	184.5	177.0
37.5°	217.3	212.4	204.4	196.5	196.5	190.3	180.5	175.2	165.9	159.7	153.5
40°	195.1	189.0	181.0	171.7	170.4	161.5	157.5	148.7	142.9	133.2	132.3
42.5°	170.4	164.6	157.5	150.4	145.1	140.7	130.5	123.9	117.7	112.8	111.5
45°	147.8	140.3	134.1	125.2	119.9	114.6	108.0	103.6	98.7	93.4	90.3
47.5°	128.3	122.1	113.3	105.3	100.0	97.3	89.8	85.0	81.0	77.4	75.2
50°	108.4	100.9	96.0	87.2	86.3	80.1	73.9	69.9	67.7	64.6	61.5
52.5°	93.4	86.3	79.6	73.0	69.5	67.3	61.5	57.5	54.4	52.2	50.4
55°	78.8	72.6	67.3	60.6	58.4	55.3	48.7	47.8	44.7	41.6	39.4
57.5°	67.7	61.9	55.8	51.3	47.3	45.1	39.8	36.3	34.5	31.9	29.6
60°	57.5	51.3	46.5	41.2	39.4	36.3	32.3	29.2	27.0	24.8	22.6
62.5°	48.2	42.9	37.6	33.2	30.5	28.8	25.7	23.0	20.8	19.0	17.2
65°	39.8	35.0	30.5	26.1	24.8	22.6	20.4	18.2	16.4	14.2	12.4
67.5°	32.7	28.3	23.9	20.8	19.5	18.6	15.9	13.7	12.4	11.1	9.3
70°	25.7	22.6	19.0	16.4	15.0	13.7	11.9	10.6	8.8	8.0	6.6
72.5°	19.9	17.2	14.2	11.9	11.1	10.2	8.4	7.1	6.2	5.3	4.4
75°	14.2	11.9	10.2	8.0	7.5	7.1	5.8	4.9	4.0	3.1	2.7
77.5°	9.7	8.0	6.2	5.3	4.9	4.0	3.5	2.7	2.2	1.8	1.3
80°	5.3	4.0	3.1	2.7	2.2	1.8	1.8	1.3	0.9	0.9	0.5
82.5°	1.8	1.3	0.9	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°	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0
2.5°	368.6	363.7	365.1	365.1	364.2	364.2	363.3	362.0	362.4	359.8	354.0
5°	364.6	358.4	357.5	358.4	354.9	354.0	352.2	354.9	346.9	350.0	346.5
7.5°	353.1	347.4	346.0	349.1	344.7	342.0	341.6	345.2	338.1	334.5	330.6
10°	340.3	338.1	334.1	331.9	330.6	331.0	327.5	323.0	321.7	320.8	317.3
12.5°	328.8	323.9	320.4	317.7	316.8	316.8	311.1	310.2	306.2	305.3	300.0
15°	315.1	309.3	307.1	303.6	300.5	302.2	295.6	293.8	292.5	286.7	287.6
17.5°	303.1	296.9	291.6	289.4	286.7	284.1	277.9	279.2	276.1	276.1	268.2
20°	287.6	281.0	277.0	272.6	272.6	269.0	264.6	265.1	261.1	257.1	250.0
22.5°	271.3	264.2	259.3	257.5	253.1	252.2	246.9	245.6	240.3	240.7	234.5
25°	254.0	246.9	240.3	240.7	236.7	235.0	231.9	225.7	223.5	220.8	219.0
27.5°	233.6	228.8	223.0	222.6	215.1	215.5	211.5	209.8	204.4	205.8	201.8
30°	215.1	208.0	202.7	201.3	198.2	197.4	191.2	188.5	189.4	185.8	183.6
32.5°	196.0	185.4	183.2	180.5	178.8	176.6	172.1	173.9	169.9	170.8	167.3
35°	170.8	166.4	160.6	160.6	158.9	157.1	154.0	155.8	151.8	150.0	146.5
37.5°	149.6	145.6	139.8	141.6	138.5	135.8	133.2	133.6	130.1	129.7	126.1
40°	126.6	124.3	120.4	120.4	118.1	118.1	116.8	115.5	113.3	110.6	106.6
42.5°	104.9	103.1	101.3	101.8	98.7	101.3	97.8	100.0	92.9	92.5	89.8
45°	88.9	85.0	85.4	83.6	81.9	82.7	79.6	80.5	76.6	75.7	73.0
47.5°	72.1	70.8	68.1	67.3	67.3	65.9	64.6	64.2	62.4	60.2	56.6
50°	59.3	54.4	53.5	52.2	51.3	51.3	49.6	46.9	47.3	45.1	41.6
52.5°	46.5	42.5	40.7	40.3	38.5	37.6	35.4	33.6	32.3	31.4	29.2
55°	35.8	32.3	30.1	30.1	27.4	27.4	24.3	23.0	21.2	19.5	18.2
57.5°	27.0	25.2	23.0	21.2	20.4	18.2	16.4	14.2	12.8	10.2	8.4
60°	20.4	18.6	16.4	15.0	14.2	11.9	9.7	8.0	4.9	4.0	3.5
62.5°	15.0	13.3	11.1	10.2	9.3	7.5	5.3	2.7	1.3	1.3	1.3
65°	11.1	8.8	7.1	6.2	5.3	4.0	1.8	0.9	0.5	0.5	0.5
67.5°	7.5	5.8	4.0	3.5	2.7	1.3	0.5	0.5	0.5	0.5	0.5
70°	4.9	3.5	1.8	1.3	0.9	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	3.1	1.8	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.9	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: FLDSQ4C05D010 FEU4C059050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	369.0	369.0	369.0	369.0	369.0	369.0	369.0	369.0
2.5°	360.2	357.1	358.9	354.9	356.7	359.8	357.5	358.4
5°	347.8	346.0	343.8	338.1	342.5	346.0	344.3	343.8
7.5°	334.5	328.3	331.4	329.7	328.8	332.3	328.3	332.8
10°	320.8	316.4	316.0	312.9	312.9	315.5	316.0	313.3
12.5°	300.5	298.3	298.3	297.8	297.4	300.0	300.5	299.1
15°	285.9	285.0	282.8	282.3	279.7	283.6	284.1	283.6
17.5°	268.2	268.6	266.4	266.4	268.2	269.5	265.9	269.5
20°	256.2	254.0	253.1	249.1	251.3	253.6	253.6	254.0
22.5°	238.9	235.4	236.7	234.5	233.2	236.3	236.3	237.6
25°	219.5	219.5	220.4	219.0	219.9	221.7	220.4	223.5
27.5°	200.9	202.7	202.7	200.9	201.8	207.1	209.3	205.8
30°	183.6	184.1	185.4	184.5	187.2	189.0	188.5	191.2
32.5°	164.2	166.4	167.3	165.9	166.8	170.8	168.6	168.1
35°	149.1	145.1	144.7	145.1	146.9	147.8	146.9	150.0
37.5°	127.4	126.1	124.3	124.8	126.1	127.9	128.8	131.0
40°	106.6	104.9	104.9	104.4	103.1	108.0	108.0	108.0
42.5°	88.5	88.1	85.9	85.9	87.6	88.9	88.1	91.2
45°	72.6	70.8	69.5	69.5	70.8	70.8	72.1	71.7
47.5°	57.1	55.3	55.8	54.4	55.8	57.5	55.3	55.8
50°	42.9	42.9	42.0	42.9	42.5	42.9	42.0	41.2
52.5°	29.2	33.2	33.6	31.9	27.9	24.3	22.1	23.9
55°	16.8	15.0	15.0	14.6	13.7	13.3	11.9	13.3
57.5°	8.4	7.5	7.5	7.5	7.1	6.6	5.8	5.8
60°	3.5	3.1	3.1	2.7	2.2	1.8	1.3	1.8
62.5°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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)