

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 FEU4C059030 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 FEU4C059030 F4LC-SQLWW-LI
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

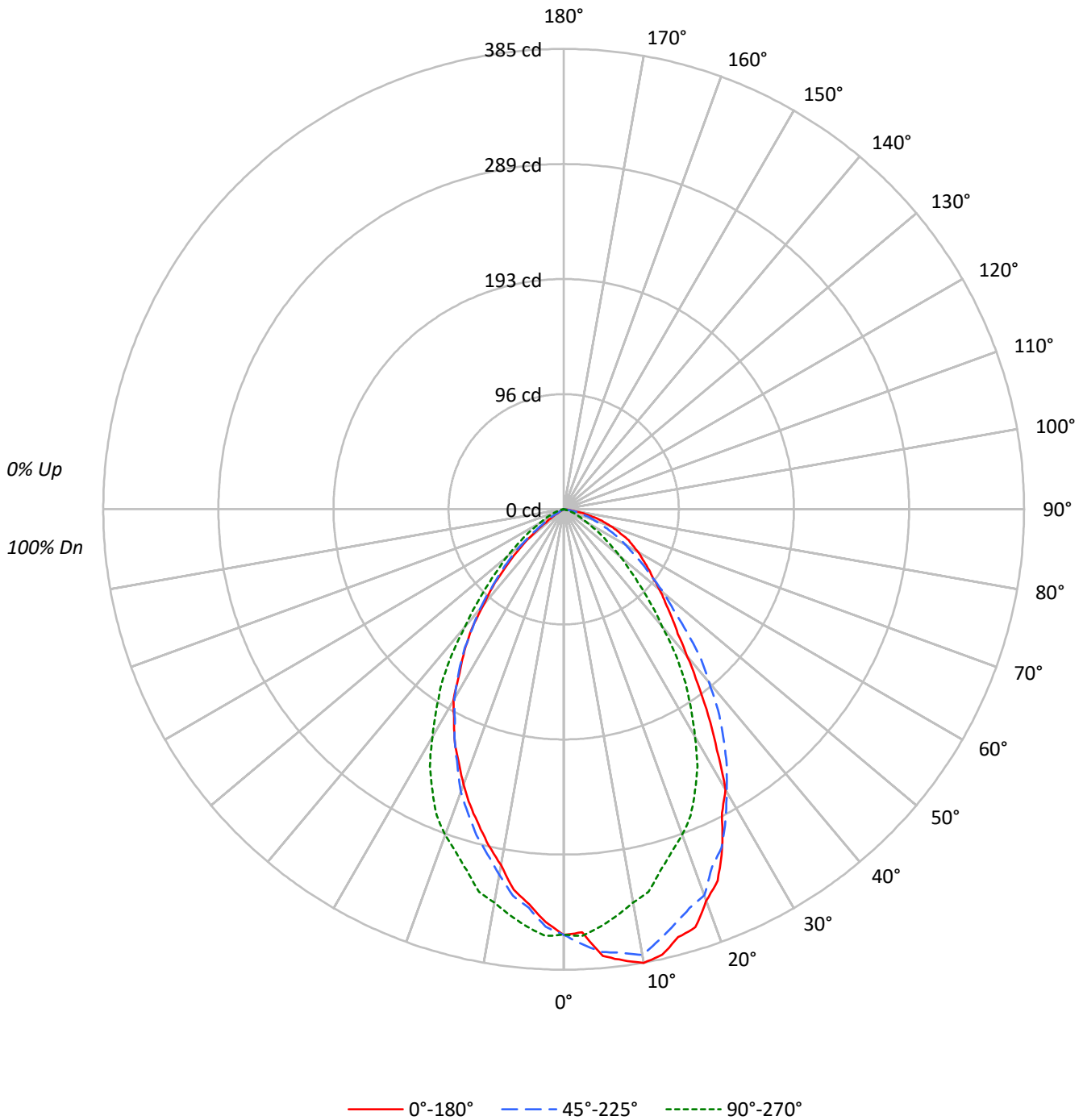
Lumens per Lamp: N/A
 Luminaire Lumens: 510.0 lumens
 Efficiency: N/A
 Efficacy: 70.8 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C05D010 FEU4C059030 F4LC-SQLWW-LI

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°	34331	34331	34331
5°	36322	33929	32108
10°	37741	32724	29589
15°	36990	31236	27321
20°	35795	29747	25147
25°	33387	27659	22932
30°	30138	24478	20534
35°	24819	20955	17033
40°	20254	16173	13112
45°	17412	12281	9429
50°	15747	9352	5959
55°	14501	6746	2153
60°	13914	4612	328
65°	13448	3128	91
70°	12046	2172	113
75°	9879	1118	0
80°	6168	500	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.3	6.5
10°-20°	89.8	17.6
20°-30°	119.9	23.5
30°-40°	113.8	22.3
40°-50°	78.7	15.4
50°-60°	43.5	8.5
60°-70°	21.6	4.2
70°-80°	8.5	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°	243.1	47.7
0°-40°	356.9	70.0
0°-60°	479.1	93.9
0°-90°	510.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	510.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	356	356	356	356	356	
5°	375	372	350	334	332	36
15°	370	359	313	282	274	105
25°	314	312	260	215	215	143
35°	211	233	178	146	145	132
45°	128	146	90	74	69	99
55°	86	81	40	20	13	78
65°	59	43	14	0	0	57
75°	26	16	3	0	0	28
85°	0	0	0	0	0	2
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°	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8
2.5°	354.1	363.9	364.7	363.9	365.2	364.7	366.9	364.7	367.3	363.5	364.3
5°	375.0	371.1	379.3	375.0	375.0	374.6	373.3	372.9	374.6	369.0	371.6
7.5°	380.5	386.1	393.3	384.4	384.8	384.8	382.2	381.4	381.4	371.1	374.1
10°	385.2	381.8	385.7	382.2	385.2	384.8	386.5	381.0	384.8	378.8	378.4
12.5°	381.4	380.1	385.2	379.7	378.0	378.4	376.3	375.0	376.3	369.4	369.0
15°	370.3	371.6	379.3	373.3	372.4	371.6	369.0	364.7	368.2	358.8	359.2
17.5°	366.5	364.3	365.6	360.5	361.8	360.9	360.5	356.7	355.8	349.8	349.8
20°	348.6	353.2	353.2	349.8	349.8	349.4	343.9	347.3	343.4	341.7	343.4
22.5°	336.2	336.6	336.6	333.6	334.0	332.3	329.3	327.2	329.3	327.2	323.8
25°	313.6	314.4	319.5	314.0	313.1	314.8	312.3	311.0	310.6	305.5	312.3
27.5°	286.3	294.8	294.4	292.2	294.8	291.4	290.1	290.5	291.8	291.4	293.1
30°	270.5	271.8	273.0	271.3	271.8	270.5	270.5	270.9	274.3	273.0	272.6
32.5°	238.5	242.7	246.2	246.2	246.6	247.9	247.4	256.4	258.5	254.3	253.4
35°	210.7	213.7	216.7	217.1	222.7	223.1	223.5	226.1	232.1	233.4	232.9
37.5°	184.3	187.3	188.1	192.0	195.0	197.9	201.4	204.8	209.9	214.2	212.0
40°	160.8	162.1	164.2	166.0	171.9	171.9	173.6	180.5	186.0	189.4	189.0
42.5°	141.2	141.6	143.3	146.3	151.9	150.6	151.9	156.6	164.7	165.1	169.8
45°	127.6	127.1	128.4	128.8	132.3	134.0	134.8	138.2	145.0	145.9	146.3
47.5°	115.2	114.8	116.9	117.7	119.0	120.7	120.7	121.2	123.7	125.9	124.2
50°	104.9	104.9	104.9	105.8	107.9	107.5	107.9	109.6	110.9	110.1	109.6
52.5°	93.8	95.6	96.8	97.3	97.7	97.7	98.1	97.3	96.8	95.6	93.0
55°	86.2	87.9	87.9	87.9	87.9	89.6	87.5	87.9	87.9	84.5	81.1
57.5°	78.5	80.2	81.5	79.8	81.5	79.8	78.9	78.5	77.6	74.2	69.1
60°	72.1	73.0	72.5	72.1	73.0	71.7	70.8	69.1	68.3	63.6	60.2
62.5°	64.8	65.3	65.7	64.8	64.0	63.6	61.9	59.3	57.6	53.8	50.8
65°	58.9	57.6	57.2	56.7	55.9	54.6	53.3	50.3	49.1	45.6	42.7
67.5°	49.9	49.5	50.3	49.1	46.9	46.9	45.6	43.1	40.1	38.0	35.0
70°	42.7	42.2	41.4	40.1	39.7	38.0	38.0	35.0	34.1	30.3	27.7
72.5°	35.0	35.0	33.7	32.4	31.1	30.3	29.9	27.7	26.5	24.3	22.2
75°	26.5	26.5	26.0	24.7	23.9	23.0	22.6	20.9	19.6	17.5	16.2
77.5°	18.8	18.8	17.1	16.2	16.6	15.8	14.9	14.5	14.1	12.8	11.1
80°	11.1	10.7	9.4	9.8	9.4	9.4	9.0	8.5	7.7	6.8	6.0
82.5°	3.0	3.4	3.4	3.4	3.8	3.0	3.0	3.0	3.4	3.4	2.1
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4
87.5°	0.4	0.9	1.7	1.7	1.7	1.7	1.7	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°	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8
2.5°	360.1	359.6	360.1	357.1	363.9	358.8	357.9	357.1	360.1	357.1	352.8
5°	367.7	363.5	362.2	360.9	364.7	358.8	357.5	357.9	355.8	350.3	350.7
7.5°	370.3	366.5	362.6	354.5	357.9	356.7	353.2	350.7	347.3	342.6	341.7
10°	371.1	366.9	361.3	358.8	353.7	352.0	350.7	346.4	342.1	334.0	331.9
12.5°	368.6	363.5	356.7	354.5	350.7	345.1	342.1	337.9	334.0	327.6	322.9
15°	357.5	353.2	351.1	343.9	342.1	338.7	332.8	326.8	321.2	312.7	310.1
17.5°	344.7	343.0	340.9	335.3	334.9	331.5	325.9	320.8	313.6	300.3	296.1
20°	331.5	331.5	324.6	322.5	326.8	320.0	315.7	311.0	296.1	289.7	282.0
22.5°	321.7	317.0	313.1	309.7	310.1	305.9	299.9	290.5	285.0	277.3	268.3
25°	302.5	304.2	295.7	294.4	295.7	285.8	282.8	275.2	267.1	259.8	253.0
27.5°	290.5	285.8	280.3	275.6	275.6	271.8	263.2	261.5	249.1	242.3	233.8
30°	272.6	269.2	264.5	257.7	256.8	253.8	247.0	242.7	229.9	219.7	215.0
32.5°	250.0	248.7	244.9	237.2	234.6	231.2	222.7	215.4	209.5	197.9	192.4
35°	233.8	229.1	221.0	214.6	212.4	206.5	199.6	194.5	188.1	177.9	170.6
37.5°	209.5	204.8	197.1	189.4	189.4	183.5	174.1	168.9	160.0	154.0	148.0
40°	188.1	182.2	174.5	165.5	164.2	155.7	151.9	143.3	137.8	128.4	127.6
42.5°	164.2	158.7	151.9	145.0	139.9	135.7	125.9	119.5	113.5	108.8	107.5
45°	142.5	135.2	129.3	120.7	115.6	110.5	104.1	99.8	95.1	90.0	87.0
47.5°	123.7	117.7	109.2	101.5	96.4	93.8	86.6	81.9	78.1	74.7	72.5
50°	104.5	97.3	92.6	84.0	83.2	77.2	71.3	67.4	65.3	62.3	59.3
52.5°	90.0	83.2	76.8	70.4	67.0	64.8	59.3	55.5	52.5	50.3	48.6
55°	75.9	70.0	64.8	58.4	56.3	53.3	46.9	46.1	43.1	40.1	38.0
57.5°	65.3	59.7	53.8	49.5	45.6	43.5	38.4	35.0	33.3	30.7	28.6
60°	55.5	49.5	44.8	39.7	38.0	35.0	31.1	28.2	26.0	23.9	21.8
62.5°	46.5	41.4	36.3	32.0	29.4	27.7	24.7	22.2	20.1	18.4	16.6
65°	38.4	33.7	29.4	25.2	23.9	21.8	19.6	17.5	15.8	13.7	12.0
67.5°	31.6	27.3	23.0	20.1	18.8	17.9	15.4	13.2	12.0	10.7	9.0
70°	24.7	21.8	18.4	15.8	14.5	13.2	11.5	10.2	8.5	7.7	6.4
72.5°	19.2	16.6	13.7	11.5	10.7	9.8	8.1	6.8	6.0	5.1	4.3
75°	13.7	11.5	9.8	7.7	7.3	6.8	5.5	4.7	3.8	3.0	2.6
77.5°	9.4	7.7	6.0	5.1	4.7	3.8	3.4	2.6	2.1	1.7	1.3
80°	5.1	3.8	3.0	2.6	2.1	1.7	1.7	1.3	0.9	0.9	0.4
82.5°	1.7	1.3	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.4
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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	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°	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8
2.5°	355.4	350.7	352.0	352.0	351.1	351.1	350.3	349.0	349.4	346.8	341.3
5°	351.5	345.6	344.7	345.6	342.1	341.3	339.6	342.1	334.5	337.5	334.0
7.5°	340.4	334.9	333.6	336.6	332.3	329.8	329.3	332.8	325.9	322.5	318.7
10°	328.1	325.9	322.1	320.0	318.7	319.1	315.7	311.4	310.1	309.3	305.9
12.5°	317.0	312.3	308.9	306.3	305.5	305.5	299.9	299.1	295.2	294.4	289.2
15°	303.7	298.2	296.1	292.7	289.7	291.4	285.0	283.3	282.0	276.4	277.3
17.5°	292.2	286.3	281.1	279.0	276.4	273.9	267.9	269.2	266.2	266.2	258.5
20°	277.3	270.9	267.1	262.8	262.8	259.4	255.1	255.5	251.7	247.9	241.0
22.5°	261.5	254.7	250.0	248.3	244.0	243.2	238.1	236.8	231.7	232.1	226.1
25°	244.9	238.1	231.7	232.1	228.2	226.5	223.5	217.6	215.4	212.9	211.2
27.5°	225.3	220.6	215.0	214.6	207.3	207.8	203.9	202.2	197.1	198.4	194.5
30°	207.3	200.5	195.4	194.1	191.1	190.3	184.3	181.7	182.6	179.2	177.0
32.5°	189.0	178.8	176.6	174.1	172.4	170.2	166.0	167.7	163.8	164.7	161.3
35°	164.7	160.4	154.9	154.9	153.1	151.4	148.5	150.2	146.3	144.6	141.2
37.5°	144.2	140.4	134.8	136.5	133.5	131.0	128.4	128.8	125.4	125.0	121.6
40°	122.0	119.9	116.0	116.0	113.9	113.9	112.6	111.3	109.2	106.7	102.8
42.5°	101.1	99.4	97.7	98.1	95.1	97.7	94.3	96.4	89.6	89.2	86.6
45°	85.7	81.9	82.3	80.6	78.9	79.8	76.8	77.6	73.8	73.0	70.4
47.5°	69.5	68.3	65.7	64.8	64.8	63.6	62.3	61.9	60.2	58.0	54.6
50°	57.2	52.5	51.6	50.3	49.5	49.5	47.8	45.2	45.6	43.5	40.1
52.5°	44.8	40.9	39.2	38.8	37.1	36.3	34.1	32.4	31.1	30.3	28.2
55°	34.5	31.1	29.0	29.0	26.5	26.5	23.5	22.2	20.5	18.8	17.5
57.5°	26.0	24.3	22.2	20.5	19.6	17.5	15.8	13.7	12.4	9.8	8.1
60°	19.6	17.9	15.8	14.5	13.7	11.5	9.4	7.7	4.7	3.8	3.4
62.5°	14.5	12.8	10.7	9.8	9.0	7.3	5.1	2.6	1.3	1.3	1.3
65°	10.7	8.5	6.8	6.0	5.1	3.8	1.7	0.9	0.4	0.4	0.4
67.5°	7.3	5.5	3.8	3.4	2.6	1.3	0.4	0.4	0.4	0.4	0.4
70°	4.7	3.4	1.7	1.3	0.9	0.4	0.4	0.4	0.4	0.4	0.4
72.5°	3.0	1.7	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.4	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	0.4	0.4	0.4
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 FEU4C059030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	355.8	355.8	355.8	355.8	355.8	355.8	355.8	355.8
2.5°	347.3	344.3	346.0	342.1	343.9	346.8	344.7	345.6
5°	335.3	333.6	331.5	325.9	330.2	333.6	331.9	331.5
7.5°	322.5	316.5	319.5	317.8	317.0	320.4	316.5	320.8
10°	309.3	305.0	304.6	301.6	301.6	304.2	304.6	302.0
12.5°	289.7	287.5	287.5	287.1	286.7	289.2	289.7	288.4
15°	275.6	274.7	272.6	272.2	269.6	273.5	273.9	273.5
17.5°	258.5	258.9	256.8	256.8	258.5	259.8	256.4	259.8
20°	247.0	244.9	244.0	240.2	242.3	244.5	244.5	244.9
22.5°	230.4	227.0	228.2	226.1	224.8	227.8	227.8	229.1
25°	211.6	211.6	212.4	211.2	212.0	213.7	212.4	215.4
27.5°	193.7	195.4	195.4	193.7	194.5	199.6	201.8	198.4
30°	177.0	177.5	178.8	177.9	180.5	182.2	181.7	184.3
32.5°	158.3	160.4	161.3	160.0	160.8	164.7	162.5	162.1
35°	143.8	139.9	139.5	139.9	141.6	142.5	141.6	144.6
37.5°	122.9	121.6	119.9	120.3	121.6	123.3	124.2	126.3
40°	102.8	101.1	101.1	100.7	99.4	104.1	104.1	104.1
42.5°	85.3	84.9	82.8	82.8	84.5	85.7	84.9	87.9
45°	70.0	68.3	67.0	67.0	68.3	68.3	69.5	69.1
47.5°	55.0	53.3	53.8	52.5	53.8	55.5	53.3	53.8
50°	41.4	41.4	40.5	41.4	40.9	41.4	40.5	39.7
52.5°	28.2	32.0	32.4	30.7	26.9	23.5	21.3	23.0
55°	16.2	14.5	14.5	14.1	13.2	12.8	11.5	12.8
57.5°	8.1	7.3	7.3	7.3	6.8	6.4	5.5	5.5
60°	3.4	3.0	3.0	2.6	2.1	1.7	1.3	1.7
62.5°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
65°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
67.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
70°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)