

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

Summary

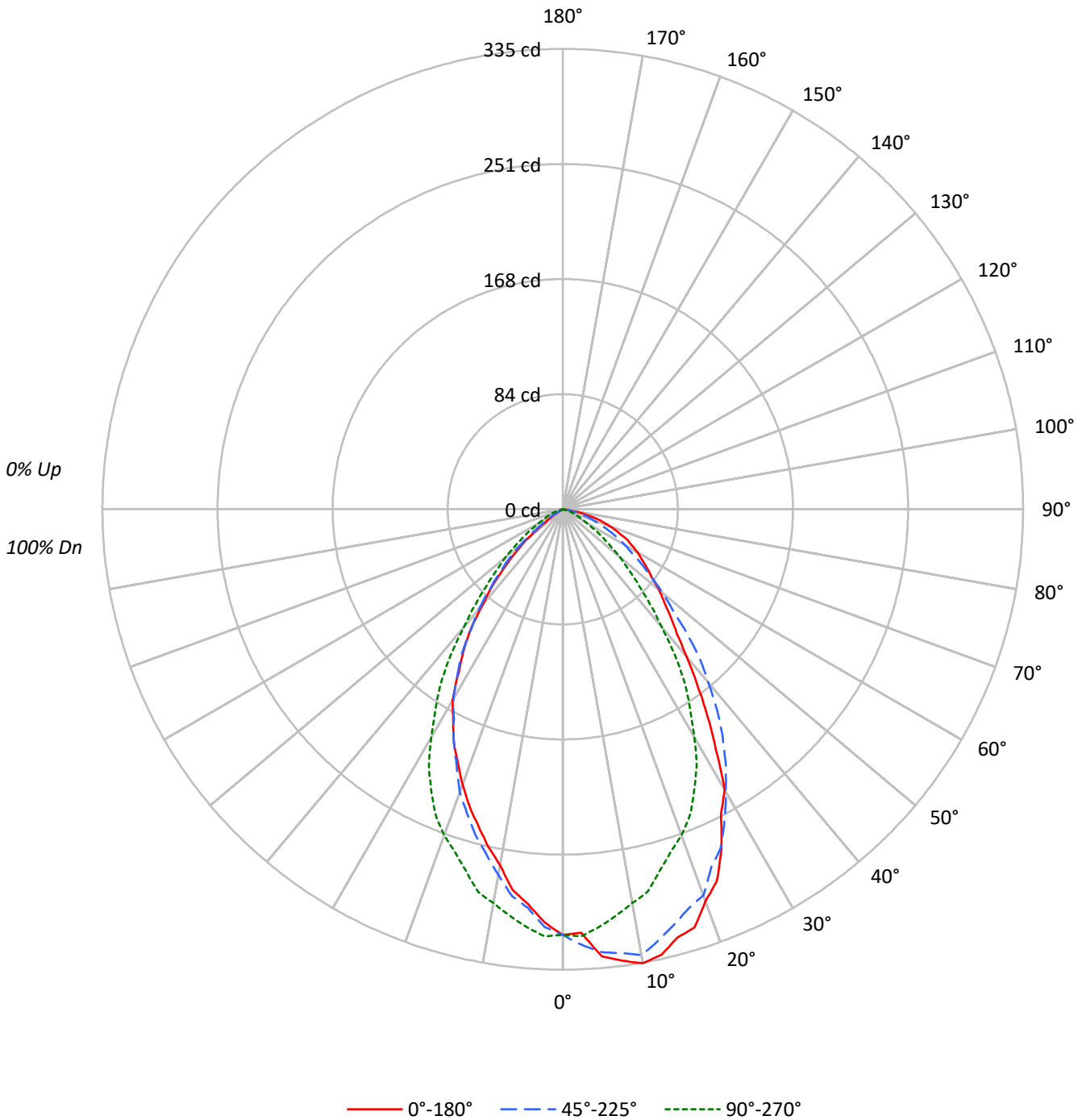
Lumens per Lamp: N/A
 Luminaire Lumens: 444.0 lumens
 Efficiency: N/A
 Efficacy: 61.7 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C059050 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°	29883	29883	29883
5°	31624	29532	27953
10°	32862	28492	25758
15°	32205	27191	23784
20°	31154	25896	21892
25°	29065	24082	19973
30°	26238	21314	17882
35°	21615	18246	14830
40°	17634	14082	11412
45°	15160	10698	8215
50°	13720	8136	5179
55°	12617	5871	1867
60°	12119	4014	289
65°	11690	2717	91
70°	10466	1890	113
75°	8575	969	0
80°	5390	389	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.0	6.5
10°-20°	78.2	17.6
20°-30°	104.4	23.5
30°-40°	99.1	22.3
40°-50°	68.5	15.4
50°-60°	37.9	8.5
60°-70°	18.8	4.2
70°-80°	7.4	1.7
80°-90°	0.7	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°	211.6	47.7
0°-40°	310.7	70.0
0°-60°	417.1	93.9
0°-90°	444.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	444.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	310	310	310	310	310	
5°	326	324	305	291	289	31
15°	322	313	272	246	238	91
25°	273	272	226	188	188	124
35°	184	203	155	127	126	115
45°	111	127	78	64	60	87
55°	75	71	35	18	11	68
65°	51	37	12	0	0	50
75°	23	14	3	0	0	25
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°	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7
2.5°	308.3	316.8	317.5	316.8	317.9	317.5	319.4	317.5	319.8	316.4	317.2
5°	326.5	323.1	330.2	326.5	326.5	326.1	325.0	324.6	326.1	321.3	323.5
7.5°	331.3	336.1	342.4	334.6	335.0	335.0	332.8	332.0	332.0	323.1	325.7
10°	335.4	332.4	335.7	332.8	335.4	335.0	336.5	331.7	335.0	329.8	329.4
12.5°	332.0	330.9	335.4	330.6	329.1	329.4	327.6	326.5	327.6	321.6	321.3
15°	322.4	323.5	330.2	325.0	324.2	323.5	321.3	317.5	320.5	312.3	312.7
17.5°	319.0	317.2	318.3	313.8	315.0	314.2	313.8	310.5	309.7	304.5	304.5
20°	303.4	307.5	307.5	304.5	304.5	304.2	299.4	302.3	299.0	297.5	299.0
22.5°	292.7	293.0	293.0	290.4	290.8	289.3	286.7	284.9	286.7	284.9	281.9
25°	273.0	273.7	278.2	273.4	272.6	274.1	271.9	270.7	270.4	265.9	271.9
27.5°	249.2	256.6	256.3	254.4	256.6	253.7	252.6	252.9	254.0	253.7	255.1
30°	235.5	236.6	237.7	236.2	236.6	235.5	235.5	235.8	238.8	237.7	237.3
32.5°	207.6	211.3	214.3	214.3	214.7	215.8	215.4	223.2	225.1	221.4	220.6
35°	183.5	186.1	188.7	189.0	193.9	194.2	194.6	196.8	202.0	203.2	202.8
37.5°	160.5	163.0	163.8	167.1	169.7	172.3	175.3	178.3	182.7	186.4	184.6
40°	140.0	141.1	143.0	144.5	149.7	149.7	151.2	157.1	161.9	164.9	164.5
42.5°	122.9	123.3	124.8	127.4	132.2	131.1	132.2	136.3	143.4	143.7	147.8
45°	111.1	110.7	111.8	112.2	115.1	116.6	117.4	120.3	126.3	127.0	127.4
47.5°	100.3	99.9	101.8	102.5	103.6	105.1	105.1	105.5	107.7	109.6	108.1
50°	91.4	91.4	91.4	92.1	94.0	93.6	94.0	95.5	96.6	95.8	95.5
52.5°	81.7	83.2	84.3	84.7	85.0	85.0	85.4	84.7	84.3	83.2	81.0
55°	75.0	76.5	76.5	76.5	76.5	78.0	76.1	76.5	76.5	73.5	70.6
57.5°	68.3	69.8	70.9	69.5	70.9	69.5	68.7	68.3	67.6	64.6	60.2
60°	62.8	63.5	63.1	62.8	63.5	62.4	61.7	60.2	59.4	55.3	52.4
62.5°	56.5	56.8	57.2	56.5	55.7	55.3	53.9	51.6	50.1	46.8	44.2
65°	51.2	50.1	49.8	49.4	48.7	47.5	46.4	43.8	42.7	39.7	37.1
67.5°	43.4	43.1	43.8	42.7	40.9	40.9	39.7	37.5	34.9	33.1	30.5
70°	37.1	36.8	36.0	34.9	34.5	33.1	33.1	30.5	29.7	26.4	24.1
72.5°	30.5	30.5	29.3	28.2	27.1	26.4	26.0	24.1	23.0	21.2	19.3
75°	23.0	23.0	22.7	21.5	20.8	20.1	19.7	18.2	17.1	15.2	14.1
77.5°	16.3	16.3	14.9	14.1	14.5	13.7	13.0	12.6	12.3	11.1	9.7
80°	9.7	9.3	8.2	8.5	8.2	8.2	7.8	7.4	6.7	5.9	5.2
82.5°	2.6	3.0	3.0	3.0	3.3	2.6	2.6	2.6	3.0	3.0	1.9
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	0.7	1.5	1.5	1.5	1.5	1.5	1.1	1.1	1.1	0.7
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°	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7
2.5°	313.5	313.1	313.5	310.9	316.8	312.3	311.6	310.9	313.5	310.9	307.2
5°	320.1	316.4	315.3	314.2	317.5	312.3	311.2	311.6	309.7	304.9	305.3
7.5°	322.4	319.0	315.7	308.6	311.6	310.5	307.5	305.3	302.3	298.2	297.5
10°	323.1	319.4	314.6	312.3	307.9	306.4	305.3	301.6	297.9	290.8	289.0
12.5°	320.9	316.4	310.5	308.6	305.3	300.5	297.9	294.1	290.8	285.2	281.2
15°	311.2	307.5	305.7	299.4	297.9	294.9	289.7	284.5	279.7	272.2	270.0
17.5°	300.1	298.6	296.8	291.9	291.6	288.6	283.8	279.3	273.0	261.5	257.8
20°	288.6	288.6	282.6	280.8	284.5	278.5	274.8	270.7	257.8	252.2	245.5
22.5°	280.0	276.0	272.6	269.6	270.0	266.3	261.1	252.9	248.1	241.4	233.6
25°	263.3	264.8	257.4	256.3	257.4	248.8	246.2	239.6	232.5	226.2	220.2
27.5°	252.9	248.8	244.0	239.9	239.9	236.6	229.2	227.7	216.9	211.0	203.5
30°	237.3	234.4	230.3	224.3	223.6	221.0	215.0	211.3	200.2	191.3	187.2
32.5°	217.6	216.5	213.2	206.5	204.3	201.3	193.9	187.6	182.4	172.3	167.5
35°	203.5	199.4	192.4	186.8	185.0	179.8	173.8	169.4	163.8	154.9	148.6
37.5°	182.4	178.3	171.6	164.9	164.9	159.7	151.5	147.1	139.3	134.1	128.9
40°	163.8	158.6	151.9	144.1	143.0	135.6	132.2	124.8	120.0	111.8	111.1
42.5°	143.0	138.2	132.2	126.3	121.8	118.1	109.6	104.0	98.8	94.7	93.6
45°	124.0	117.7	112.5	105.1	100.6	96.2	90.6	86.9	82.8	78.4	75.8
47.5°	107.7	102.5	95.1	88.4	83.9	81.7	75.4	71.3	68.0	65.0	63.1
50°	91.0	84.7	80.6	73.2	72.4	67.2	62.0	58.7	56.8	54.2	51.6
52.5°	78.4	72.4	66.8	61.3	58.3	56.5	51.6	48.3	45.7	43.8	42.3
55°	66.1	60.9	56.5	50.9	49.0	46.4	40.9	40.1	37.5	34.9	33.1
57.5°	56.8	52.0	46.8	43.1	39.7	37.9	33.4	30.5	29.0	26.7	24.9
60°	48.3	43.1	39.0	34.5	33.1	30.5	27.1	24.5	22.7	20.8	18.9
62.5°	40.5	36.0	31.6	27.9	25.6	24.1	21.5	19.3	17.5	16.0	14.5
65°	33.4	29.3	25.6	21.9	20.8	18.9	17.1	15.2	13.7	11.9	10.4
67.5°	27.5	23.8	20.1	17.5	16.3	15.6	13.4	11.5	10.4	9.3	7.8
70°	21.5	18.9	16.0	13.7	12.6	11.5	10.0	8.9	7.4	6.7	5.6
72.5°	16.7	14.5	11.9	10.0	9.3	8.5	7.1	5.9	5.2	4.5	3.7
75°	11.9	10.0	8.5	6.7	6.3	5.9	4.8	4.1	3.3	2.6	2.2
77.5°	8.2	6.7	5.2	4.5	4.1	3.3	3.0	2.2	1.9	1.5	1.1
80°	4.5	3.3	2.6	2.2	1.9	1.5	1.5	1.1	0.7	0.7	0.4
82.5°	1.5	1.1	0.7	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°	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7
2.5°	309.4	305.3	306.4	306.4	305.7	305.7	304.9	303.8	304.2	301.9	297.1
5°	306.0	300.8	300.1	300.8	297.9	297.1	295.6	297.9	291.2	293.8	290.8
7.5°	296.4	291.6	290.4	293.0	289.3	287.1	286.7	289.7	283.8	280.8	277.4
10°	285.6	283.8	280.4	278.5	277.4	277.8	274.8	271.1	270.0	269.3	266.3
12.5°	276.0	271.9	268.9	266.7	265.9	265.9	261.1	260.4	257.0	256.3	251.8
15°	264.4	259.6	257.8	254.8	252.2	253.7	248.1	246.6	245.5	240.7	241.4
17.5°	254.4	249.2	244.8	242.9	240.7	238.4	233.2	234.4	231.8	231.8	225.1
20°	241.4	235.8	232.5	228.8	228.8	225.8	222.1	222.5	219.1	215.8	209.8
22.5°	227.7	221.7	217.6	216.2	212.4	211.7	207.2	206.1	201.7	202.0	196.8
25°	213.2	207.2	201.7	202.0	198.7	197.2	194.6	189.4	187.6	185.3	183.9
27.5°	196.1	192.0	187.2	186.8	180.5	180.9	177.5	176.1	171.6	172.7	169.4
30°	180.5	174.6	170.1	169.0	166.4	165.6	160.5	158.2	159.0	156.0	154.1
32.5°	164.5	155.6	153.8	151.5	150.0	148.2	144.5	146.0	142.6	143.4	140.4
35°	143.4	139.6	134.8	134.8	133.3	131.8	129.3	130.7	127.4	125.9	122.9
37.5°	125.5	122.2	117.4	118.9	116.2	114.0	111.8	112.2	109.2	108.8	105.8
40°	106.2	104.4	101.0	101.0	99.2	99.2	98.0	96.9	95.1	92.8	89.5
42.5°	88.0	86.5	85.0	85.4	82.8	85.0	82.1	83.9	78.0	77.6	75.4
45°	74.6	71.3	71.7	70.2	68.7	69.5	66.8	67.6	64.3	63.5	61.3
47.5°	60.5	59.4	57.2	56.5	56.5	55.3	54.2	53.9	52.4	50.5	47.5
50°	49.8	45.7	44.9	43.8	43.1	43.1	41.6	39.4	39.7	37.9	34.9
52.5°	39.0	35.6	34.2	33.8	32.3	31.6	29.7	28.2	27.1	26.4	24.5
55°	30.1	27.1	25.3	25.3	23.0	23.0	20.4	19.3	17.8	16.3	15.2
57.5°	22.7	21.2	19.3	17.8	17.1	15.2	13.7	11.9	10.8	8.5	7.1
60°	17.1	15.6	13.7	12.6	11.9	10.0	8.2	6.7	4.1	3.3	3.0
62.5°	12.6	11.1	9.3	8.5	7.8	6.3	4.5	2.2	1.1	1.1	1.1
65°	9.3	7.4	5.9	5.2	4.5	3.3	1.5	0.7	0.4	0.4	0.4
67.5°	6.3	4.8	3.3	3.0	2.2	1.1	0.4	0.4	0.4	0.4	0.4
70°	4.1	3.0	1.5	1.1	0.7	0.4	0.4	0.4	0.4	0.4	0.4
72.5°	2.6	1.5	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.7	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 FEU4C059050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	309.7	309.7	309.7	309.7	309.7	309.7	309.7	309.7
2.5°	302.3	299.7	301.2	297.9	299.4	301.9	300.1	300.8
5°	291.9	290.4	288.6	283.8	287.5	290.4	289.0	288.6
7.5°	280.8	275.6	278.2	276.7	276.0	278.9	275.6	279.3
10°	269.3	265.6	265.2	262.6	262.6	264.8	265.2	262.9
12.5°	252.2	250.3	250.3	250.0	249.6	251.8	252.2	251.1
15°	239.9	239.2	237.3	237.0	234.7	238.1	238.4	238.1
17.5°	225.1	225.4	223.6	223.6	225.1	226.2	223.2	226.2
20°	215.0	213.2	212.4	209.1	211.0	212.8	212.8	213.2
22.5°	200.6	197.6	198.7	196.8	195.7	198.3	198.3	199.4
25°	184.2	184.2	185.0	183.9	184.6	186.1	185.0	187.6
27.5°	168.6	170.1	170.1	168.6	169.4	173.8	175.7	172.7
30°	154.1	154.5	155.6	154.9	157.1	158.6	158.2	160.5
32.5°	137.8	139.6	140.4	139.3	140.0	143.4	141.5	141.1
35°	125.2	121.8	121.5	121.8	123.3	124.0	123.3	125.9
37.5°	107.0	105.8	104.4	104.7	105.8	107.3	108.1	109.9
40°	89.5	88.0	88.0	87.7	86.5	90.6	90.6	90.6
42.5°	74.3	73.9	72.1	72.1	73.5	74.6	73.9	76.5
45°	60.9	59.4	58.3	58.3	59.4	59.4	60.5	60.2
47.5°	47.9	46.4	46.8	45.7	46.8	48.3	46.4	46.8
50°	36.0	36.0	35.3	36.0	35.6	36.0	35.3	34.5
52.5°	24.5	27.9	28.2	26.7	23.4	20.4	18.6	20.1
55°	14.1	12.6	12.6	12.3	11.5	11.1	10.0	11.1
57.5°	7.1	6.3	6.3	6.3	5.9	5.6	4.8	4.8
60°	3.0	2.6	2.6	2.2	1.9	1.5	1.1	1.5
62.5°	1.1	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)