

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 FEU4C059027 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 FEU4C059027 F4LC-SQLWW-H  
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

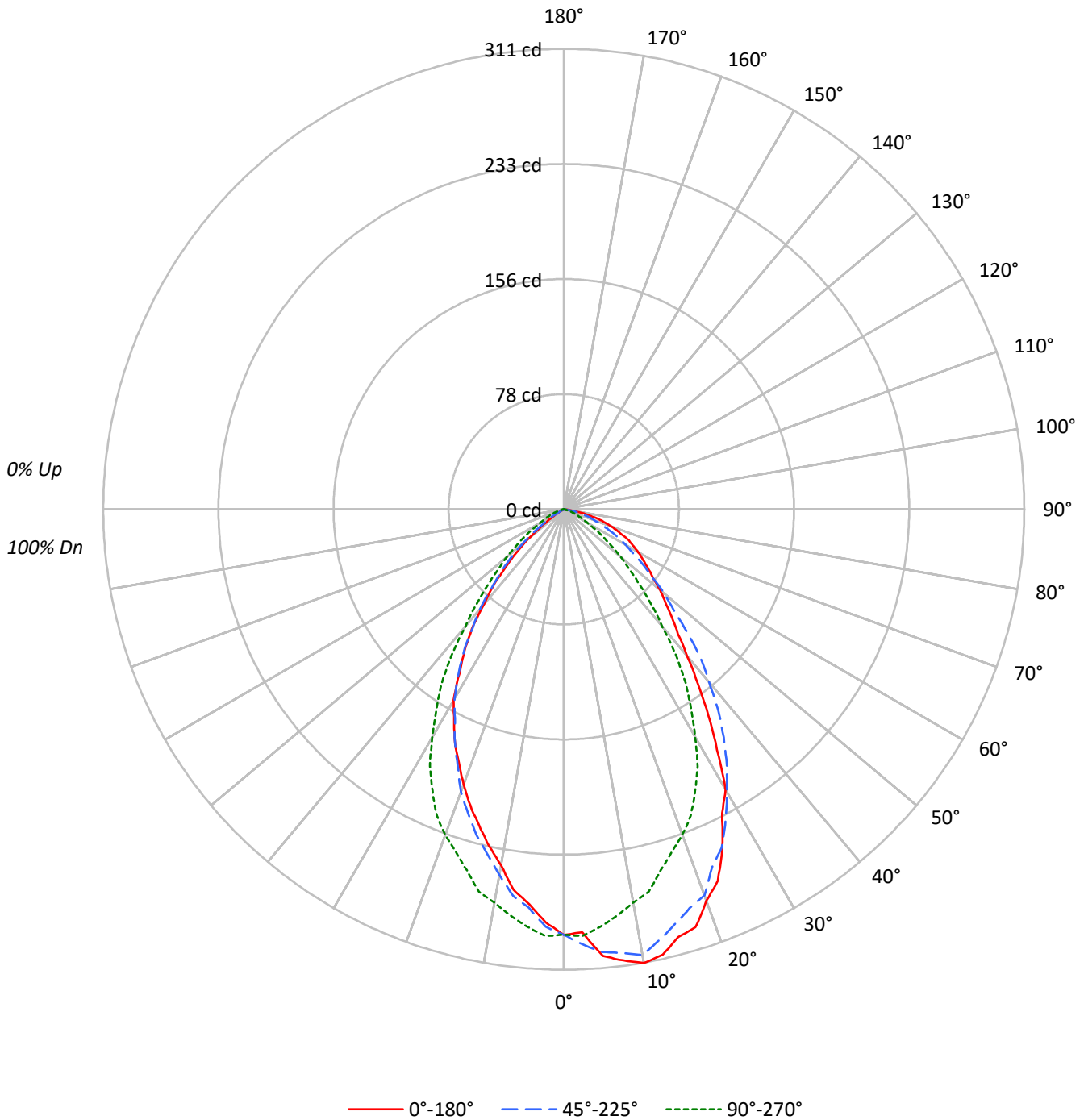
Lumens per Lamp: N/A  
 Luminaire Lumens: 412.0 lumens  
 Efficiency: N/A  
 Efficacy: 57.2 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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	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°	27731	27731	27731
5°	29338	27411	25938
10°	30491	26444	23906
15°	29878	25233	22066
20°	28915	24027	20310
25°	26967	22347	18525
30°	24344	19776	16590
35°	20048	16927	13758
40°	16362	13062	10593
45°	14055	9920	7614
50°	12729	7551	4819
55°	11708	5450	1733
60°	11231	3724	270
65°	10868	2511	91
70°	9733	1749	113
75°	7978	895	0
80°	5001	389	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	26.9	6.5
10°-20°	72.6	17.6
20°-30°	96.9	23.5
30°-40°	92.0	22.3
40°-50°	63.6	15.4
50°-60°	35.1	8.5
60°-70°	17.5	4.2
70°-80°	6.9	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°	196.4	47.7
0°-40°	288.3	70.0
0°-60°	387.0	93.9
0°-90°	412.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	412.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	287	287	287	287	287	
5°	303	300	283	270	268	29
15°	299	290	253	228	221	85
25°	253	252	210	174	174	115
35°	170	188	144	118	117	107
45°	103	118	73	60	56	80
55°	70	66	32	16	10	63
65°	48	34	11	0	0	46
75°	21	13	2	0	0	23
85°	0	0	0	0	0	2
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°	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4
2.5°	286.0	294.0	294.7	294.0	295.0	294.7	296.4	294.7	296.7	293.6	294.3
5°	302.9	299.8	306.4	302.9	302.9	302.6	301.6	301.2	302.6	298.1	300.2
7.5°	307.4	311.9	317.8	310.5	310.9	310.9	308.8	308.1	308.1	299.8	302.2
10°	311.2	308.4	311.5	308.8	311.2	310.9	312.2	307.8	310.9	306.0	305.7
12.5°	308.1	307.1	311.2	306.7	305.4	305.7	304.0	302.9	304.0	298.5	298.1
15°	299.1	300.2	306.4	301.6	300.9	300.2	298.1	294.7	297.4	289.8	290.2
17.5°	296.0	294.3	295.4	291.2	292.3	291.6	291.2	288.1	287.4	282.6	282.6
20°	281.6	285.4	285.4	282.6	282.6	282.3	277.8	280.5	277.4	276.1	277.4
22.5°	271.6	271.9	271.9	269.5	269.9	268.5	266.1	264.3	266.1	264.3	261.6
25°	253.3	254.0	258.1	253.7	253.0	254.3	252.3	251.2	250.9	246.8	252.3
27.5°	231.3	238.1	237.8	236.1	238.1	235.4	234.4	234.7	235.7	235.4	236.8
30°	218.5	219.5	220.6	219.2	219.5	218.5	218.5	218.8	221.6	220.6	220.2
32.5°	192.6	196.1	198.9	198.9	199.2	200.2	199.9	207.1	208.9	205.4	204.7
35°	170.2	172.7	175.1	175.4	179.9	180.2	180.6	182.7	187.5	188.5	188.2
37.5°	148.9	151.3	152.0	155.1	157.5	159.9	162.7	165.4	169.6	173.0	171.3
40°	129.9	131.0	132.7	134.1	138.9	138.9	140.3	145.8	150.3	153.0	152.7
42.5°	114.1	114.4	115.8	118.2	122.7	121.7	122.7	126.5	133.0	133.4	137.2
45°	103.0	102.7	103.7	104.1	106.8	108.2	108.9	111.7	117.2	117.9	118.2
47.5°	93.1	92.7	94.4	95.1	96.1	97.5	97.5	97.9	99.9	101.7	100.3
50°	84.8	84.8	84.8	85.5	87.2	86.8	87.2	88.6	89.6	88.9	88.6
52.5°	75.8	77.2	78.2	78.6	78.9	78.9	79.3	78.6	78.2	77.2	75.1
55°	69.6	71.0	71.0	71.0	71.0	72.4	70.7	71.0	71.0	68.2	65.5
57.5°	63.4	64.8	65.8	64.4	65.8	64.4	63.8	63.4	62.7	60.0	55.8
60°	58.2	58.9	58.6	58.2	58.9	57.9	57.2	55.8	55.1	51.3	48.6
62.5°	52.4	52.7	53.1	52.4	51.7	51.3	50.0	47.9	46.5	43.4	41.0
65°	47.6	46.5	46.2	45.8	45.2	44.1	43.1	40.7	39.6	36.9	34.5
67.5°	40.3	40.0	40.7	39.6	37.9	37.9	36.9	34.8	32.4	30.7	28.3
70°	34.5	34.1	33.4	32.4	32.1	30.7	30.7	28.3	27.6	24.5	22.4
72.5°	28.3	28.3	27.2	26.2	25.2	24.5	24.1	22.4	21.4	19.6	17.9
75°	21.4	21.4	21.0	20.0	19.3	18.6	18.3	16.9	15.9	14.1	13.1
77.5°	15.2	15.2	13.8	13.1	13.4	12.7	12.1	11.7	11.4	10.3	9.0
80°	9.0	8.6	7.6	7.9	7.6	7.6	7.2	6.9	6.2	5.5	4.8
82.5°	2.4	2.8	2.8	2.8	3.1	2.4	2.4	2.4	2.8	2.8	1.7
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	1.4	1.4	1.4	1.4	1.4	1.0	1.0	1.0	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°	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4
2.5°	290.9	290.5	290.9	288.5	294.0	289.8	289.1	288.5	290.9	288.5	285.0
5°	297.1	293.6	292.6	291.6	294.7	289.8	288.8	289.1	287.4	283.0	283.3
7.5°	299.1	296.0	292.9	286.4	289.1	288.1	285.4	283.3	280.5	276.7	276.1
10°	299.8	296.4	291.9	289.8	285.7	284.3	283.3	279.8	276.4	269.9	268.1
12.5°	297.8	293.6	288.1	286.4	283.3	278.8	276.4	272.9	269.9	264.7	260.9
15°	288.8	285.4	283.6	277.8	276.4	273.6	268.8	264.0	259.5	252.6	250.5
17.5°	278.5	277.1	275.4	270.9	270.5	267.8	263.3	259.2	253.3	242.6	239.2
20°	267.8	267.8	262.3	260.6	264.0	258.5	255.0	251.2	239.2	234.0	227.8
22.5°	259.9	256.1	253.0	250.2	250.5	247.1	242.3	234.7	230.2	224.0	216.8
25°	244.3	245.7	238.8	237.8	238.8	230.9	228.5	222.3	215.7	209.9	204.4
27.5°	234.7	230.9	226.4	222.6	222.6	219.5	212.6	211.3	201.3	195.8	188.9
30°	220.2	217.5	213.7	208.2	207.5	205.1	199.5	196.1	185.8	177.5	173.7
32.5°	202.0	200.9	197.8	191.6	189.6	186.8	179.9	174.0	169.2	159.9	155.4
35°	188.9	185.1	178.5	173.4	171.6	166.8	161.3	157.2	152.0	143.7	137.9
37.5°	169.2	165.4	159.2	153.0	153.0	148.2	140.6	136.5	129.2	124.4	119.6
40°	152.0	147.2	141.0	133.7	132.7	125.8	122.7	115.8	111.3	103.7	103.0
42.5°	132.7	128.2	122.7	117.2	113.0	109.6	101.7	96.5	91.7	87.9	86.8
45°	115.1	109.2	104.4	97.5	93.4	89.3	84.1	80.6	76.9	72.7	70.3
47.5°	99.9	95.1	88.2	82.0	77.9	75.8	70.0	66.2	63.1	60.3	58.6
50°	84.4	78.6	74.8	67.9	67.2	62.4	57.6	54.5	52.7	50.3	47.9
52.5°	72.7	67.2	62.0	56.9	54.1	52.4	47.9	44.8	42.4	40.7	39.3
55°	61.3	56.5	52.4	47.2	45.5	43.1	37.9	37.2	34.8	32.4	30.7
57.5°	52.7	48.2	43.4	40.0	36.9	35.2	31.0	28.3	26.9	24.8	23.1
60°	44.8	40.0	36.2	32.1	30.7	28.3	25.2	22.8	21.0	19.3	17.6
62.5°	37.6	33.4	29.3	25.8	23.8	22.4	20.0	17.9	16.2	14.8	13.4
65°	31.0	27.2	23.8	20.3	19.3	17.6	15.9	14.1	12.7	11.0	9.7
67.5°	25.5	22.1	18.6	16.2	15.2	14.5	12.4	10.7	9.7	8.6	7.2
70°	20.0	17.6	14.8	12.7	11.7	10.7	9.3	8.3	6.9	6.2	5.2
72.5°	15.5	13.4	11.0	9.3	8.6	7.9	6.5	5.5	4.8	4.1	3.4
75°	11.0	9.3	7.9	6.2	5.9	5.5	4.5	3.8	3.1	2.4	2.1
77.5°	7.6	6.2	4.8	4.1	3.8	3.1	2.8	2.1	1.7	1.4	1.0
80°	4.1	3.1	2.4	2.1	1.7	1.4	1.4	1.0	0.7	0.7	0.4
82.5°	1.4	1.0	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°	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4
2.5°	287.1	283.3	284.3	284.3	283.6	283.6	283.0	281.9	282.3	280.2	275.7
5°	284.0	279.2	278.5	279.2	276.4	275.7	274.3	276.4	270.2	272.6	269.9
7.5°	275.0	270.5	269.5	271.9	268.5	266.4	266.1	268.8	263.3	260.6	257.4
10°	265.0	263.3	260.2	258.5	257.4	257.8	255.0	251.6	250.5	249.9	247.1
12.5°	256.1	252.3	249.5	247.5	246.8	246.8	242.3	241.6	238.5	237.8	233.7
15°	245.4	240.9	239.2	236.4	234.0	235.4	230.2	228.8	227.8	223.3	224.0
17.5°	236.1	231.3	227.1	225.4	223.3	221.3	216.4	217.5	215.0	215.0	208.9
20°	224.0	218.8	215.7	212.3	212.3	209.5	206.1	206.4	203.3	200.2	194.7
22.5°	211.3	205.7	202.0	200.6	197.1	196.4	192.3	191.3	187.1	187.5	182.7
25°	197.8	192.3	187.1	187.5	184.4	183.0	180.6	175.8	174.0	172.0	170.6
27.5°	182.0	178.2	173.7	173.4	167.5	167.8	164.7	163.4	159.2	160.3	157.2
30°	167.5	162.0	157.8	156.8	154.4	153.7	148.9	146.8	147.5	144.7	143.0
32.5°	152.7	144.4	142.7	140.6	139.2	137.5	134.1	135.4	132.3	133.0	130.3
35°	133.0	129.6	125.1	125.1	123.7	122.3	119.9	121.3	118.2	116.8	114.1
37.5°	116.5	113.4	108.9	110.3	107.9	105.8	103.7	104.1	101.3	101.0	98.2
40°	98.6	96.8	93.7	93.7	92.0	92.0	91.0	90.0	88.2	86.2	83.1
42.5°	81.7	80.3	78.9	79.3	76.9	78.9	76.2	77.9	72.4	72.0	70.0
45°	69.3	66.2	66.5	65.1	63.8	64.4	62.0	62.7	59.6	58.9	56.9
47.5°	56.2	55.1	53.1	52.4	52.4	51.3	50.3	50.0	48.6	46.9	44.1
50°	46.2	42.4	41.7	40.7	40.0	40.0	38.6	36.5	36.9	35.2	32.4
52.5°	36.2	33.1	31.7	31.4	30.0	29.3	27.6	26.2	25.2	24.5	22.8
55°	27.9	25.2	23.4	23.4	21.4	21.4	19.0	17.9	16.5	15.2	14.1
57.5°	21.0	19.6	17.9	16.5	15.9	14.1	12.7	11.0	10.0	7.9	6.5
60°	15.9	14.5	12.7	11.7	11.0	9.3	7.6	6.2	3.8	3.1	2.8
62.5°	11.7	10.3	8.6	7.9	7.2	5.9	4.1	2.1	1.0	1.0	1.0
65°	8.6	6.9	5.5	4.8	4.1	3.1	1.4	0.7	0.4	0.4	0.4
67.5°	5.9	4.5	3.1	2.8	2.1	1.0	0.4	0.4	0.4	0.4	0.4
70°	3.8	2.8	1.4	1.0	0.7	0.4	0.4	0.4	0.4	0.4	0.4
72.5°	2.4	1.4	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.4	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 FEU4C059027 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	287.4	287.4	287.4	287.4	287.4	287.4	287.4	287.4
2.5°	280.5	278.1	279.5	276.4	277.8	280.2	278.5	279.2
5°	270.9	269.5	267.8	263.3	266.7	269.5	268.1	267.8
7.5°	260.6	255.7	258.1	256.8	256.1	258.8	255.7	259.2
10°	249.9	246.4	246.1	243.7	243.7	245.7	246.1	244.0
12.5°	234.0	232.3	232.3	231.9	231.6	233.7	234.0	233.0
15°	222.6	221.9	220.2	219.9	217.8	220.9	221.3	220.9
17.5°	208.9	209.2	207.5	207.5	208.9	209.9	207.1	209.9
20°	199.5	197.8	197.1	194.0	195.8	197.5	197.5	197.8
22.5°	186.1	183.3	184.4	182.7	181.6	184.0	184.0	185.1
25°	170.9	170.9	171.6	170.6	171.3	172.7	171.6	174.0
27.5°	156.5	157.8	157.8	156.5	157.2	161.3	163.0	160.3
30°	143.0	143.4	144.4	143.7	145.8	147.2	146.8	148.9
32.5°	127.9	129.6	130.3	129.2	129.9	133.0	131.3	131.0
35°	116.1	113.0	112.7	113.0	114.4	115.1	114.4	116.8
37.5°	99.3	98.2	96.8	97.2	98.2	99.6	100.3	102.0
40°	83.1	81.7	81.7	81.3	80.3	84.1	84.1	84.1
42.5°	68.9	68.6	66.9	66.9	68.2	69.3	68.6	71.0
45°	56.5	55.1	54.1	54.1	55.1	55.1	56.2	55.8
47.5°	44.5	43.1	43.4	42.4	43.4	44.8	43.1	43.4
50°	33.4	33.4	32.7	33.4	33.1	33.4	32.7	32.1
52.5°	22.8	25.8	26.2	24.8	21.7	19.0	17.2	18.6
55°	13.1	11.7	11.7	11.4	10.7	10.3	9.3	10.3
57.5°	6.5	5.9	5.9	5.9	5.5	5.2	4.5	4.5
60°	2.8	2.4	2.4	2.1	1.7	1.4	1.0	1.4
62.5°	1.0	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)