

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

Summary

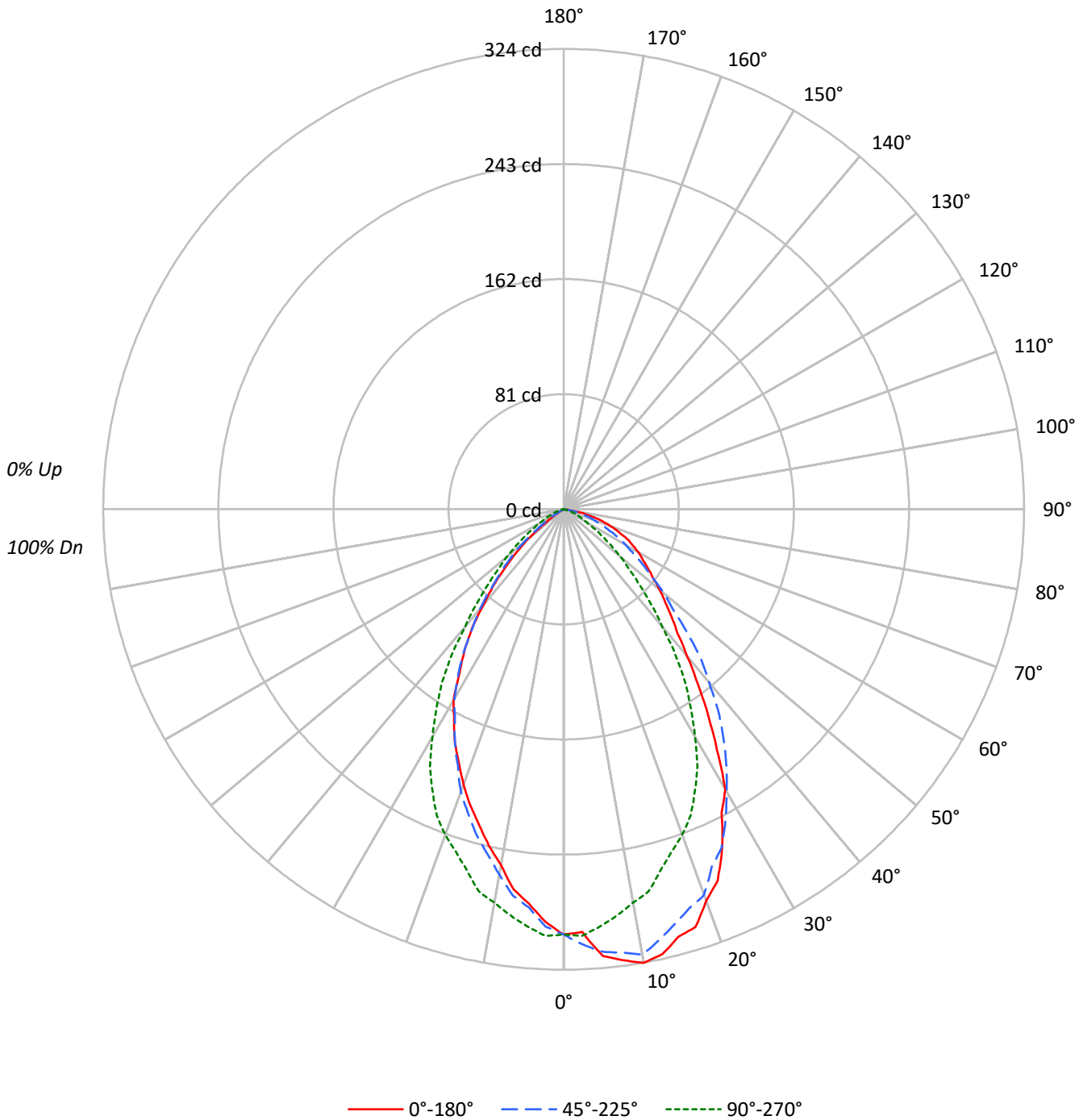
Lumens per Lamp: N/A
 Luminaire Lumens: 429.0 lumens
 Efficiency: N/A
 Efficacy: 59.6 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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-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				
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°	28879	28879	28879
5°	30549	28534	27004
10°	31754	27532	24896
15°	31117	26272	22975
20°	30106	25023	21152
25°	28085	23262	19291
30°	25347	20590	17269
35°	20884	17622	14335
40°	17042	13603	11034
45°	14642	10330	7928
50°	13255	7866	5014
55°	12196	5669	1817
60°	11714	3879	270
65°	11301	2626	91
70°	10128	1834	113
75°	8314	932	0
80°	5168	389	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.0	6.5
10°-20°	75.5	17.6
20°-30°	100.9	23.5
30°-40°	95.8	22.3
40°-50°	66.2	15.4
50°-60°	36.6	8.5
60°-70°	18.2	4.2
70°-80°	7.2	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°	204.5	47.7
0°-40°	300.2	70.0
0°-60°	403.0	93.9
0°-90°	429.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	429.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	299	299	299	299	299	
5°	315	313	295	281	279	30
15°	312	302	263	237	230	88
25°	264	263	218	181	181	120
35°	177	196	150	123	122	111
45°	107	123	76	62	58	84
55°	72	68	34	17	11	65
65°	50	36	12	0	0	48
75°	22	14	2	0	0	24
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°	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3
2.5°	297.8	306.1	306.8	306.1	307.2	306.8	308.6	306.8	309.0	305.7	306.5
5°	315.4	312.2	319.0	315.4	315.4	315.1	314.0	313.6	315.1	310.4	312.6
7.5°	320.1	324.8	330.9	323.3	323.7	323.7	321.5	320.8	320.8	312.2	314.7
10°	324.1	321.2	324.4	321.5	324.1	323.7	325.1	320.5	323.7	318.7	318.3
12.5°	320.8	319.7	324.1	319.4	318.0	318.3	316.5	315.4	316.5	310.8	310.4
15°	311.5	312.6	319.0	314.0	313.3	312.6	310.4	306.8	309.7	301.8	302.2
17.5°	308.3	306.5	307.5	303.2	304.3	303.6	303.2	300.0	299.3	294.3	294.3
20°	293.2	297.1	297.1	294.3	294.3	293.9	289.2	292.1	288.9	287.4	288.9
22.5°	282.8	283.1	283.1	280.6	281.0	279.6	277.0	275.2	277.0	275.2	272.4
25°	263.8	264.5	268.8	264.1	263.4	264.8	262.7	261.6	261.2	256.9	262.7
27.5°	240.8	248.0	247.6	245.8	248.0	245.1	244.0	244.4	245.5	245.1	246.5
30°	227.5	228.6	229.7	228.2	228.6	227.5	227.5	227.9	230.7	229.7	229.3
32.5°	200.6	204.2	207.1	207.1	207.4	208.5	208.1	215.7	217.5	213.9	213.2
35°	177.3	179.8	182.3	182.7	187.3	187.7	188.0	190.2	195.2	196.3	195.9
37.5°	155.0	157.5	158.3	161.5	164.0	166.5	169.4	172.3	176.6	180.1	178.4
40°	135.3	136.4	138.2	139.6	144.6	144.6	146.0	151.8	156.5	159.3	159.0
42.5°	118.8	119.1	120.6	123.1	127.8	126.7	127.8	131.7	138.5	138.9	142.8
45°	107.3	106.9	108.0	108.4	111.3	112.7	113.4	116.3	122.0	122.7	123.1
47.5°	96.9	96.5	98.3	99.0	100.1	101.6	101.6	101.9	104.1	105.9	104.4
50°	88.3	88.3	88.3	89.0	90.8	90.4	90.8	92.2	93.3	92.6	92.2
52.5°	78.9	80.4	81.5	81.8	82.2	82.2	82.5	81.8	81.5	80.4	78.2
55°	72.5	73.9	73.9	73.9	73.9	75.4	73.6	73.9	73.9	71.1	68.2
57.5°	66.0	67.5	68.5	67.1	68.5	67.1	66.4	66.0	65.3	62.4	58.1
60°	60.7	61.4	61.0	60.7	61.4	60.3	59.6	58.1	57.4	53.5	50.6
62.5°	54.6	54.9	55.3	54.6	53.8	53.5	52.0	49.9	48.4	45.2	42.7
65°	49.5	48.4	48.1	47.7	47.0	45.9	44.9	42.3	41.3	38.4	35.9
67.5°	42.0	41.6	42.3	41.3	39.5	39.5	38.4	36.2	33.7	31.9	29.4
70°	35.9	35.5	34.8	33.7	33.4	31.9	31.9	29.4	28.7	25.5	23.3
72.5°	29.4	29.4	28.3	27.3	26.2	25.5	25.1	23.3	22.3	20.5	18.7
75°	22.3	22.3	21.9	20.8	20.1	19.4	19.0	17.6	16.5	14.7	13.6
77.5°	15.8	15.8	14.4	13.6	14.0	13.3	12.6	12.2	11.8	10.8	9.3
80°	9.3	9.0	7.9	8.3	7.9	7.9	7.5	7.2	6.5	5.7	5.0
82.5°	2.5	2.9	2.9	2.9	3.2	2.5	2.5	2.5	2.9	2.9	1.8
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	1.1	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°	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3
2.5°	302.9	302.5	302.9	300.4	306.1	301.8	301.1	300.4	302.9	300.4	296.8
5°	309.3	305.7	304.7	303.6	306.8	301.8	300.7	301.1	299.3	294.6	295.0
7.5°	311.5	308.3	305.0	298.2	301.1	300.0	297.1	295.0	292.1	288.2	287.4
10°	312.2	308.6	303.9	301.8	297.5	296.1	295.0	291.4	287.8	281.0	279.2
12.5°	310.0	305.7	300.0	298.2	295.0	290.3	287.8	284.2	281.0	275.6	271.7
15°	300.7	297.1	295.3	289.2	287.8	284.9	279.9	274.9	270.2	263.0	260.9
17.5°	290.0	288.5	286.7	282.1	281.7	278.8	274.2	269.9	263.8	252.6	249.0
20°	278.8	278.8	273.1	271.3	274.9	269.1	265.6	261.6	249.0	243.7	237.2
22.5°	270.6	266.6	263.4	260.5	260.9	257.3	252.3	244.4	239.7	233.3	225.7
25°	254.4	255.9	248.7	247.6	248.7	240.4	237.9	231.5	224.6	218.5	212.8
27.5°	244.4	240.4	235.8	231.8	231.8	228.6	221.4	220.0	209.6	203.8	196.6
30°	229.3	226.4	222.5	216.8	216.0	213.5	207.8	204.2	193.4	184.8	180.9
32.5°	210.3	209.2	206.0	199.5	197.4	194.5	187.3	181.2	176.2	166.5	161.9
35°	196.6	192.7	185.9	180.5	178.7	173.7	167.9	163.6	158.3	149.6	143.5
37.5°	176.2	172.3	165.8	159.3	159.3	154.3	146.4	142.1	134.6	129.5	124.5
40°	158.3	153.2	146.8	139.2	138.2	131.0	127.8	120.6	115.9	108.0	107.3
42.5°	138.2	133.5	127.8	122.0	117.7	114.1	105.9	100.5	95.5	91.5	90.4
45°	119.9	113.8	108.7	101.6	97.2	92.9	87.6	84.0	80.0	75.7	73.2
47.5°	104.1	99.0	91.9	85.4	81.1	78.9	72.8	68.9	65.7	62.8	61.0
50°	87.9	81.8	77.9	70.7	70.0	65.0	59.9	56.7	54.9	52.4	49.9
52.5°	75.7	70.0	64.6	59.2	56.3	54.6	49.9	46.6	44.1	42.3	40.9
55°	63.9	58.9	54.6	49.2	47.4	44.9	39.5	38.8	36.2	33.7	31.9
57.5°	54.9	50.2	45.2	41.6	38.4	36.6	32.3	29.4	28.0	25.8	24.0
60°	46.6	41.6	37.7	33.4	31.9	29.4	26.2	23.7	21.9	20.1	18.3
62.5°	39.1	34.8	30.5	26.9	24.8	23.3	20.8	18.7	16.9	15.4	14.0
65°	32.3	28.3	24.8	21.2	20.1	18.3	16.5	14.7	13.3	11.5	10.1
67.5°	26.6	23.0	19.4	16.9	15.8	15.1	12.9	11.1	10.1	9.0	7.5
70°	20.8	18.3	15.4	13.3	12.2	11.1	9.7	8.6	7.2	6.5	5.4
72.5°	16.2	14.0	11.5	9.7	9.0	8.3	6.8	5.7	5.0	4.3	3.6
75°	11.5	9.7	8.3	6.5	6.1	5.7	4.7	4.0	3.2	2.5	2.2
77.5°	7.9	6.5	5.0	4.3	4.0	3.2	2.9	2.2	1.8	1.4	1.1
80°	4.3	3.2	2.5	2.2	1.8	1.4	1.4	1.1	0.7	0.7	0.4
82.5°	1.4	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°	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3
2.5°	298.9	295.0	296.1	296.1	295.3	295.3	294.6	293.5	293.9	291.7	287.1
5°	295.7	290.7	290.0	290.7	287.8	287.1	285.7	287.8	281.3	283.9	281.0
7.5°	286.4	281.7	280.6	283.1	279.6	277.4	277.0	279.9	274.2	271.3	268.1
10°	276.0	274.2	270.9	269.1	268.1	268.4	265.6	262.0	260.9	260.2	257.3
12.5°	266.6	262.7	259.8	257.7	256.9	256.9	252.3	251.6	248.3	247.6	243.3
15°	255.5	250.8	249.0	246.2	243.7	245.1	239.7	238.3	237.2	232.5	233.3
17.5°	245.8	240.8	236.5	234.7	232.5	230.4	225.4	226.4	223.9	223.9	217.5
20°	233.3	227.9	224.6	221.1	221.1	218.2	214.6	215.0	211.7	208.5	202.7
22.5°	220.0	214.2	210.3	208.9	205.3	204.5	200.2	199.2	194.9	195.2	190.2
25°	206.0	200.2	194.9	195.2	192.0	190.6	188.0	183.0	181.2	179.1	177.6
27.5°	189.5	185.5	180.9	180.5	174.4	174.8	171.5	170.1	165.8	166.9	163.6
30°	174.4	168.7	164.4	163.3	160.8	160.1	155.0	152.9	153.6	150.7	148.9
32.5°	159.0	150.4	148.6	146.4	145.0	143.2	139.6	141.0	137.8	138.5	135.6
35°	138.5	134.9	130.3	130.3	128.8	127.4	124.9	126.3	123.1	121.7	118.8
37.5°	121.3	118.1	113.4	114.8	112.3	110.2	108.0	108.4	105.5	105.1	102.3
40°	102.6	100.8	97.6	97.6	95.8	95.8	94.7	93.7	91.9	89.7	86.5
42.5°	85.0	83.6	82.2	82.5	80.0	82.2	79.3	81.1	75.4	75.0	72.8
45°	72.1	68.9	69.3	67.8	66.4	67.1	64.6	65.3	62.1	61.4	59.2
47.5°	58.5	57.4	55.3	54.6	54.6	53.5	52.4	52.0	50.6	48.8	45.9
50°	48.1	44.1	43.4	42.3	41.6	41.6	40.2	38.0	38.4	36.6	33.7
52.5°	37.7	34.4	33.0	32.7	31.2	30.5	28.7	27.3	26.2	25.5	23.7
55°	29.1	26.2	24.4	24.4	22.3	22.3	19.7	18.7	17.2	15.8	14.7
57.5°	21.9	20.5	18.7	17.2	16.5	14.7	13.3	11.5	10.4	8.3	6.8
60°	16.5	15.1	13.3	12.2	11.5	9.7	7.9	6.5	4.0	3.2	2.9
62.5°	12.2	10.8	9.0	8.3	7.5	6.1	4.3	2.2	1.1	1.1	1.1
65°	9.0	7.2	5.7	5.0	4.3	3.2	1.4	0.7	0.4	0.4	0.4
67.5°	6.1	4.7	3.2	2.9	2.2	1.1	0.4	0.4	0.4	0.4	0.4
70°	4.0	2.9	1.4	1.1	0.7	0.4	0.4	0.4	0.4	0.4	0.4
72.5°	2.5	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 FEU4C059030 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3
2.5°	292.1	289.6	291.0	287.8	289.2	291.7	290.0	290.7
5°	282.1	280.6	278.8	274.2	277.8	280.6	279.2	278.8
7.5°	271.3	266.3	268.8	267.4	266.6	269.5	266.3	269.9
10°	260.2	256.6	256.2	253.7	253.7	255.9	256.2	254.1
12.5°	243.7	241.9	241.9	241.5	241.1	243.3	243.7	242.6
15°	231.8	231.1	229.3	229.0	226.8	230.0	230.4	230.0
17.5°	217.5	217.8	216.0	216.0	217.5	218.5	215.7	218.5
20°	207.8	206.0	205.3	202.0	203.8	205.6	205.6	206.0
22.5°	193.8	190.9	192.0	190.2	189.1	191.6	191.6	192.7
25°	178.0	178.0	178.7	177.6	178.4	179.8	178.7	181.2
27.5°	162.9	164.4	164.4	162.9	163.6	167.9	169.7	166.9
30°	148.9	149.3	150.4	149.6	151.8	153.2	152.9	155.0
32.5°	133.1	134.9	135.6	134.6	135.3	138.5	136.7	136.4
35°	120.9	117.7	117.4	117.7	119.1	119.9	119.1	121.7
37.5°	103.3	102.3	100.8	101.2	102.3	103.7	104.4	106.2
40°	86.5	85.0	85.0	84.7	83.6	87.6	87.6	87.6
42.5°	71.8	71.4	69.6	69.6	71.1	72.1	71.4	73.9
45°	58.9	57.4	56.3	56.3	57.4	57.4	58.5	58.1
47.5°	46.3	44.9	45.2	44.1	45.2	46.6	44.9	45.2
50°	34.8	34.8	34.1	34.8	34.4	34.8	34.1	33.4
52.5°	23.7	26.9	27.3	25.8	22.6	19.7	17.9	19.4
55°	13.6	12.2	12.2	11.8	11.1	10.8	9.7	10.8
57.5°	6.8	6.1	6.1	6.1	5.7	5.4	4.7	4.7
60°	2.9	2.5	2.5	2.2	1.8	1.4	1.1	1.4
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)