

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

Summary

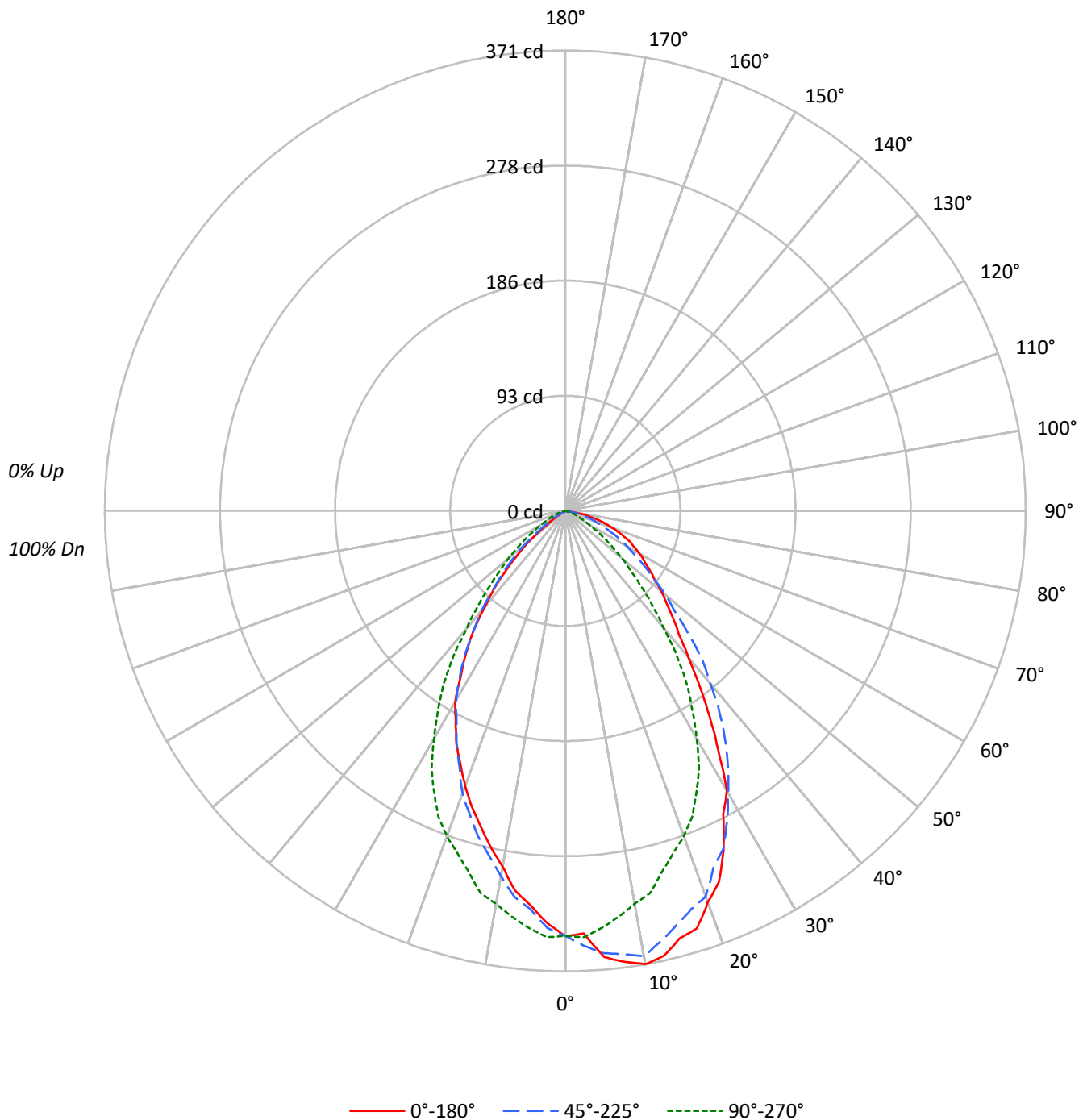
Lumens per Lamp: N/A
 Luminaire Lumens: 491.0 lumens
 Efficiency: N/A
 Efficacy: 68.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C05D010 FEU4C059027 F4LC-SQLWW-LI

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
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°	33047	33047	33047
5°	34966	32660	30907
10°	36340	31510	28492
15°	35612	30068	26302
20°	34460	28638	24212
25°	32141	26627	22081
30°	29013	23564	19765
35°	23900	20178	16397
40°	19498	15568	12621
45°	16757	11831	9074
50°	15161	9007	5734
55°	13963	6493	2069
60°	13393	4438	309
65°	12945	2991	91
70°	11595	2088	113
75°	9507	1081	0
80°	5946	445	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.1	6.5
10°-20°	86.5	17.6
20°-30°	115.5	23.5
30°-40°	109.6	22.3
40°-50°	75.8	15.4
50°-60°	41.9	8.5
60°-70°	20.8	4.2
70°-80°	8.2	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°	234.0	47.7
0°-40°	343.6	70.0
0°-60°	461.2	93.9
0°-90°	491.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	491.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	342	342	342	342	342	
5°	361	358	337	322	319	35
15°	356	346	301	272	263	101
25°	302	301	250	207	207	138
35°	203	224	171	141	139	127
45°	123	141	87	71	66	96
55°	83	78	39	20	12	75
65°	57	41	13	0	0	55
75°	26	16	3	0	0	27
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°	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5
2.5°	340.9	350.3	351.2	350.3	351.6	351.2	353.2	351.2	353.6	349.9	350.8
5°	361.0	357.3	365.1	361.0	361.0	360.6	359.4	359.0	360.6	355.3	357.7
7.5°	366.4	371.7	378.7	370.1	370.5	370.5	368.0	367.2	367.2	357.3	360.2
10°	370.9	367.6	371.3	368.0	370.9	370.5	372.1	366.8	370.5	364.7	364.3
12.5°	367.2	365.9	370.9	365.5	363.9	364.3	362.3	361.0	362.3	355.7	355.3
15°	356.5	357.7	365.1	359.4	358.6	357.7	355.3	351.2	354.5	345.4	345.8
17.5°	352.8	350.8	352.0	347.1	348.3	347.5	347.1	343.4	342.5	336.8	336.8
20°	335.6	340.1	340.1	336.8	336.8	336.4	331.0	334.3	330.6	329.0	330.6
22.5°	323.6	324.1	324.1	321.2	321.6	320.0	317.1	315.0	317.1	315.0	311.7
25°	301.9	302.7	307.6	302.3	301.5	303.1	300.6	299.4	299.0	294.1	300.6
27.5°	275.6	283.8	283.4	281.3	283.8	280.5	279.3	279.7	280.9	280.5	282.2
30°	260.4	261.6	262.9	261.2	261.6	260.4	260.4	260.8	264.1	262.9	262.4
32.5°	229.6	233.7	237.0	237.0	237.4	238.6	238.2	246.8	248.9	244.8	244.0
35°	202.9	205.8	208.6	209.1	214.4	214.8	215.2	217.7	223.4	224.7	224.2
37.5°	177.4	180.3	181.1	184.8	187.7	190.6	193.9	197.1	202.1	206.2	204.1
40°	154.8	156.1	158.1	159.8	165.5	165.5	167.2	173.7	179.1	182.4	181.9
42.5°	136.0	136.4	138.0	140.9	146.2	145.0	146.2	150.7	158.5	158.9	163.5
45°	122.8	122.4	123.6	124.0	127.3	129.0	129.8	133.1	139.6	140.5	140.9
47.5°	110.9	110.5	112.5	113.4	114.6	116.2	116.2	116.6	119.1	121.2	119.5
50°	101.0	101.0	101.0	101.9	103.9	103.5	103.9	105.6	106.8	106.0	105.6
52.5°	90.4	92.0	93.2	93.7	94.1	94.1	94.5	93.7	93.2	92.0	89.5
55°	83.0	84.6	84.6	84.6	84.6	86.2	84.2	84.6	84.6	81.3	78.0
57.5°	75.6	77.2	78.4	76.8	78.4	76.8	76.0	75.6	74.7	71.5	66.5
60°	69.4	70.2	69.8	69.4	70.2	69.0	68.2	66.5	65.7	61.2	57.9
62.5°	62.4	62.8	63.3	62.4	61.6	61.2	59.6	57.1	55.5	51.7	48.9
65°	56.7	55.5	55.0	54.6	53.8	52.6	51.3	48.5	47.2	43.9	41.1
67.5°	48.0	47.6	48.5	47.2	45.2	45.2	43.9	41.5	38.6	36.6	33.7
70°	41.1	40.7	39.8	38.6	38.2	36.6	36.6	33.7	32.9	29.2	26.7
72.5°	33.7	33.7	32.4	31.2	30.0	29.2	28.8	26.7	25.5	23.4	21.4
75°	25.5	25.5	25.1	23.8	23.0	22.2	21.8	20.1	18.9	16.8	15.6
77.5°	18.1	18.1	16.4	15.6	16.0	15.2	14.4	14.0	13.5	12.3	10.7
80°	10.7	10.3	9.0	9.4	9.0	9.0	8.6	8.2	7.4	6.6	5.7
82.5°	2.9	3.3	3.3	3.3	3.7	2.9	2.9	2.9	3.3	3.3	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	0.8	1.6	1.6	1.6	1.6	1.6	1.2	1.2	1.2	0.8
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°	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5
2.5°	346.7	346.2	346.7	343.8	350.3	345.4	344.6	343.8	346.7	343.8	339.7
5°	354.0	349.9	348.7	347.5	351.2	345.4	344.2	344.6	342.5	337.2	337.6
7.5°	356.5	352.8	349.1	341.3	344.6	343.4	340.1	337.6	334.3	329.8	329.0
10°	357.3	353.2	347.9	345.4	340.5	338.8	337.6	333.5	329.4	321.6	319.5
12.5°	354.9	349.9	343.4	341.3	337.6	332.3	329.4	325.3	321.6	315.4	310.9
15°	344.2	340.1	338.0	331.0	329.4	326.1	320.4	314.6	309.3	301.0	298.6
17.5°	331.9	330.2	328.2	322.8	322.4	319.1	313.8	308.9	301.9	289.1	285.0
20°	319.1	319.1	312.6	310.5	314.6	308.0	303.9	299.4	285.0	278.9	271.5
22.5°	309.7	305.2	301.5	298.2	298.6	294.5	288.7	279.7	274.4	267.0	258.3
25°	291.2	292.8	284.6	283.4	284.6	275.2	272.3	264.9	257.1	250.1	243.6
27.5°	279.7	275.2	269.8	265.3	265.3	261.6	253.4	251.8	239.9	233.3	225.1
30°	262.4	259.2	254.6	248.1	247.3	244.4	237.8	233.7	221.4	211.5	207.0
32.5°	240.7	239.5	235.8	228.4	225.9	222.6	214.4	207.4	201.7	190.6	185.2
35°	225.1	220.6	212.8	206.6	204.5	198.8	192.2	187.3	181.1	171.3	164.3
37.5°	201.7	197.1	189.7	182.4	182.4	176.6	167.6	162.6	154.0	148.3	142.5
40°	181.1	175.4	168.0	159.4	158.1	149.9	146.2	138.0	132.7	123.6	122.8
42.5°	158.1	152.8	146.2	139.6	134.7	130.6	121.2	115.0	109.3	104.7	103.5
45°	137.2	130.2	124.4	116.2	111.3	106.4	100.2	96.1	91.6	86.7	83.8
47.5°	119.1	113.4	105.1	97.8	92.8	90.4	83.4	78.9	75.2	71.9	69.8
50°	100.6	93.7	89.1	80.9	80.1	74.3	68.6	64.9	62.8	60.0	57.1
52.5°	86.7	80.1	73.9	67.8	64.5	62.4	57.1	53.4	50.5	48.5	46.8
55°	73.1	67.4	62.4	56.3	54.2	51.3	45.2	44.4	41.5	38.6	36.6
57.5°	62.8	57.5	51.7	47.6	43.9	41.9	37.0	33.7	32.0	29.6	27.5
60°	53.4	47.6	43.1	38.2	36.6	33.7	30.0	27.1	25.1	23.0	21.0
62.5°	44.8	39.8	34.9	30.8	28.3	26.7	23.8	21.4	19.3	17.7	16.0
65°	37.0	32.4	28.3	24.2	23.0	21.0	18.9	16.8	15.2	13.1	11.5
67.5°	30.4	26.3	22.2	19.3	18.1	17.2	14.8	12.7	11.5	10.3	8.6
70°	23.8	21.0	17.7	15.2	14.0	12.7	11.1	9.9	8.2	7.4	6.2
72.5°	18.5	16.0	13.1	11.1	10.3	9.4	7.8	6.6	5.7	4.9	4.1
75°	13.1	11.1	9.4	7.4	7.0	6.6	5.3	4.5	3.7	2.9	2.5
77.5°	9.0	7.4	5.7	4.9	4.5	3.7	3.3	2.5	2.1	1.6	1.2
80°	4.9	3.7	2.9	2.5	2.1	1.6	1.6	1.2	0.8	0.8	0.4
82.5°	1.6	1.2	0.8	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°	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5
2.5°	342.1	337.6	338.8	338.8	338.0	338.0	337.2	336.0	336.4	333.9	328.6
5°	338.4	332.7	331.9	332.7	329.4	328.6	326.9	329.4	322.0	324.9	321.6
7.5°	327.8	322.4	321.2	324.1	320.0	317.5	317.1	320.4	313.8	310.5	306.8
10°	315.8	313.8	310.1	308.0	306.8	307.2	303.9	299.8	298.6	297.8	294.5
12.5°	305.2	300.6	297.4	294.9	294.1	294.1	288.7	287.9	284.2	283.4	278.5
15°	292.4	287.1	285.0	281.8	278.9	280.5	274.4	272.7	271.5	266.1	267.0
17.5°	281.3	275.6	270.7	268.6	266.1	263.7	257.9	259.2	256.3	256.3	248.9
20°	267.0	260.8	257.1	253.0	253.0	249.7	245.6	246.0	242.3	238.6	232.1
22.5°	251.8	245.2	240.7	239.0	234.9	234.1	229.2	227.9	223.0	223.4	217.7
25°	235.8	229.2	223.0	223.4	219.7	218.1	215.2	209.5	207.4	205.0	203.3
27.5°	216.9	212.3	207.0	206.6	199.6	200.0	196.3	194.7	189.7	191.0	187.3
30°	199.6	193.0	188.1	186.9	184.0	183.2	177.4	175.0	175.8	172.5	170.5
32.5°	181.9	172.1	170.0	167.6	165.9	163.9	159.8	161.4	157.7	158.5	155.2
35°	158.5	154.4	149.1	149.1	147.4	145.8	142.9	144.6	140.9	139.2	136.0
37.5°	138.8	135.1	129.8	131.4	128.6	126.1	123.6	124.0	120.7	120.3	117.0
40°	117.5	115.4	111.7	111.7	109.7	109.7	108.4	107.2	105.1	102.7	99.0
42.5°	97.3	95.7	94.1	94.5	91.6	94.1	90.8	92.8	86.2	85.8	83.4
45°	82.5	78.9	79.3	77.6	76.0	76.8	73.9	74.7	71.1	70.2	67.8
47.5°	67.0	65.7	63.3	62.4	62.4	61.2	60.0	59.6	57.9	55.9	52.6
50°	55.0	50.5	49.7	48.5	47.6	47.6	46.0	43.5	43.9	41.9	38.6
52.5°	43.1	39.4	37.8	37.4	35.7	34.9	32.9	31.2	30.0	29.2	27.1
55°	33.3	30.0	27.9	27.9	25.5	25.5	22.6	21.4	19.7	18.1	16.8
57.5°	25.1	23.4	21.4	19.7	18.9	16.8	15.2	13.1	11.9	9.4	7.8
60°	18.9	17.2	15.2	14.0	13.1	11.1	9.0	7.4	4.5	3.7	3.3
62.5°	14.0	12.3	10.3	9.4	8.6	7.0	4.9	2.5	1.2	1.2	1.2
65°	10.3	8.2	6.6	5.7	4.9	3.7	1.6	0.8	0.4	0.4	0.4
67.5°	7.0	5.3	3.7	3.3	2.5	1.2	0.4	0.4	0.4	0.4	0.4
70°	4.5	3.3	1.6	1.2	0.8	0.4	0.4	0.4	0.4	0.4	0.4
72.5°	2.9	1.6	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.8	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-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	342.5	342.5	342.5	342.5	342.5	342.5	342.5	342.5
2.5°	334.3	331.4	333.1	329.4	331.0	333.9	331.9	332.7
5°	322.8	321.2	319.1	313.8	317.9	321.2	319.5	319.1
7.5°	310.5	304.8	307.6	306.0	305.2	308.5	304.8	308.9
10°	297.8	293.7	293.3	290.4	290.4	292.8	293.3	290.8
12.5°	278.9	276.8	276.8	276.4	276.0	278.5	278.9	277.7
15°	265.3	264.5	262.4	262.0	259.6	263.3	263.7	263.3
17.5°	248.9	249.3	247.3	247.3	248.9	250.1	246.8	250.1
20°	237.8	235.8	234.9	231.2	233.3	235.3	235.3	235.8
22.5°	221.8	218.5	219.7	217.7	216.4	219.3	219.3	220.6
25°	203.7	203.7	204.5	203.3	204.1	205.8	204.5	207.4
27.5°	186.5	188.1	188.1	186.5	187.3	192.2	194.3	191.0
30°	170.5	170.9	172.1	171.3	173.7	175.4	175.0	177.4
32.5°	152.4	154.4	155.2	154.0	154.8	158.5	156.5	156.1
35°	138.4	134.7	134.3	134.7	136.4	137.2	136.4	139.2
37.5°	118.3	117.0	115.4	115.8	117.0	118.7	119.5	121.6
40°	99.0	97.3	97.3	96.9	95.7	100.2	100.2	100.2
42.5°	82.1	81.7	79.7	79.7	81.3	82.5	81.7	84.6
45°	67.4	65.7	64.5	64.5	65.7	65.7	67.0	66.5
47.5°	53.0	51.3	51.7	50.5	51.7	53.4	51.3	51.7
50°	39.8	39.8	39.0	39.8	39.4	39.8	39.0	38.2
52.5°	27.1	30.8	31.2	29.6	25.9	22.6	20.5	22.2
55°	15.6	14.0	14.0	13.5	12.7	12.3	11.1	12.3
57.5°	7.8	7.0	7.0	7.0	6.6	6.2	5.3	5.3
60°	3.3	2.9	2.9	2.5	2.1	1.6	1.2	1.6
62.5°	1.2	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)