

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 FEU4C059040 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 FEU4C059040 F4LC-SQLWW-LI  
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

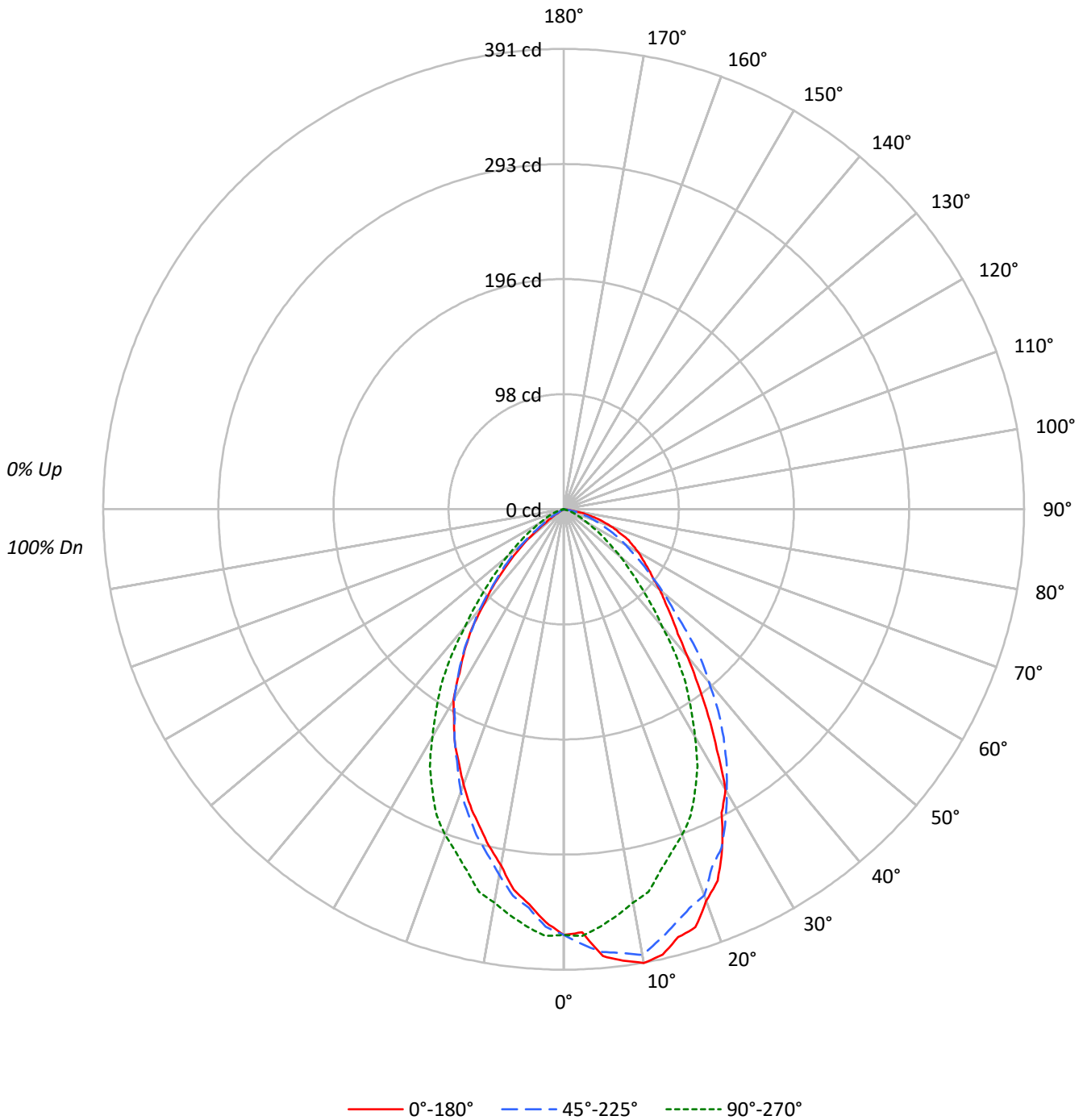
Lumens per Lamp: N/A  
 Luminaire Lumens: 518.0 lumens  
 Efficiency: N/A  
 Efficacy: 71.9 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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 FEU4C059040 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°	34871	34871	34871
5°	36893	34452	32612
10°	38339	33244	30059
15°	37570	31726	27740
20°	36349	30209	25537
25°	33909	28096	23294
30°	30606	24857	20857
35°	25219	21285	17304
40°	20581	16425	13314
45°	17685	12472	9579
50°	16002	9502	6049
55°	14720	6847	2187
60°	14126	4689	328
65°	13653	3174	91
70°	12216	2200	113
75°	10028	1118	0
80°	6279	500	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	33.9	6.5
10°-20°	91.2	17.6
20°-30°	121.8	23.5
30°-40°	115.6	22.3
40°-50°	79.9	15.4
50°-60°	44.2	8.5
60°-70°	21.9	4.2
70°-80°	8.6	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°	246.9	47.7
0°-40°	362.5	70.0
0°-60°	486.6	93.9
0°-90°	518.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	518.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	361	361	361	361	361	
5°	381	377	356	340	337	36
15°	376	365	318	286	278	106
25°	318	317	264	219	219	145
35°	214	237	181	149	147	134
45°	130	149	91	75	70	101
55°	88	82	41	21	13	79
65°	60	43	14	0	0	58
75°	27	16	3	0	0	29
85°	0	0	0	0	0	2
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C05D010 FEU4C059040 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4
2.5°	359.6	369.6	370.5	369.6	370.9	370.5	372.6	370.5	373.1	369.2	370.0
5°	380.9	377.0	385.2	380.9	380.9	380.4	379.1	378.7	380.4	374.8	377.4
7.5°	386.5	392.1	399.5	390.4	390.8	390.8	388.2	387.4	387.4	377.0	380.0
10°	391.3	387.8	391.7	388.2	391.3	390.8	392.6	386.9	390.8	384.8	384.3
12.5°	387.4	386.1	391.3	385.6	383.9	384.3	382.2	380.9	382.2	375.2	374.8
15°	376.1	377.4	385.2	379.1	378.3	377.4	374.8	370.5	373.9	364.4	364.8
17.5°	372.2	370.0	371.4	366.1	367.4	366.6	366.1	362.3	361.4	355.3	355.3
20°	354.0	358.8	358.8	355.3	355.3	354.9	349.2	352.7	348.8	347.1	348.8
22.5°	341.4	341.9	341.9	338.8	339.3	337.6	334.5	332.3	334.5	332.3	328.9
25°	318.5	319.4	324.5	318.9	318.0	319.8	317.2	315.9	315.4	310.3	317.2
27.5°	290.7	299.4	299.0	296.8	299.4	295.9	294.7	295.1	296.4	295.9	297.7
30°	274.7	276.0	277.3	275.6	276.0	274.7	274.7	275.1	278.6	277.3	276.9
32.5°	242.2	246.5	250.0	250.0	250.4	251.8	251.3	260.4	262.6	258.3	257.4
35°	214.1	217.1	220.1	220.6	226.2	226.6	227.1	229.7	235.7	237.0	236.6
37.5°	187.2	190.2	191.1	195.0	198.0	201.0	204.5	208.0	213.2	217.5	215.4
40°	163.4	164.7	166.8	168.6	174.6	174.6	176.3	183.3	188.9	192.4	191.9
42.5°	143.4	143.9	145.6	148.6	154.3	153.0	154.3	159.0	167.2	167.7	172.5
45°	129.6	129.1	130.4	130.9	134.3	136.1	136.9	140.4	147.3	148.2	148.6
47.5°	117.0	116.6	118.7	119.6	120.9	122.6	122.6	123.1	125.7	127.8	126.1
50°	106.6	106.6	106.6	107.5	109.6	109.2	109.6	111.4	112.7	111.8	111.4
52.5°	95.3	97.1	98.4	98.8	99.2	99.2	99.7	98.8	98.4	97.1	94.5
55°	87.5	89.3	89.3	89.3	89.3	91.0	88.8	89.3	89.3	85.8	82.3
57.5°	79.7	81.5	82.8	81.0	82.8	81.0	80.2	79.7	78.9	75.4	70.2
60°	73.2	74.1	73.7	73.2	74.1	72.8	71.9	70.2	69.3	64.6	61.1
62.5°	65.9	66.3	66.7	65.9	65.0	64.6	62.8	60.2	58.5	54.6	51.6
65°	59.8	58.5	58.1	57.6	56.8	55.5	54.2	51.1	49.8	46.4	43.3
67.5°	50.7	50.3	51.1	49.8	47.7	47.7	46.4	43.8	40.7	38.6	35.5
70°	43.3	42.9	42.0	40.7	40.3	38.6	38.6	35.5	34.7	30.8	28.2
72.5°	35.5	35.5	34.2	32.9	31.6	30.8	30.3	28.2	26.9	24.7	22.5
75°	26.9	26.9	26.4	25.1	24.3	23.4	23.0	21.2	19.9	17.8	16.5
77.5°	19.1	19.1	17.3	16.5	16.9	16.0	15.2	14.7	14.3	13.0	11.3
80°	11.3	10.8	9.5	10.0	9.5	9.5	9.1	8.7	7.8	6.9	6.1
82.5°	3.0	3.5	3.5	3.5	3.9	3.0	3.0	3.0	3.5	3.5	2.2
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°	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4
2.5°	365.7	365.3	365.7	362.7	369.6	364.4	363.5	362.7	365.7	362.7	358.3
5°	373.5	369.2	367.9	366.6	370.5	364.4	363.1	363.5	361.4	355.7	356.2
7.5°	376.1	372.2	368.3	360.1	363.5	362.3	358.8	356.2	352.7	347.9	347.1
10°	377.0	372.6	367.0	364.4	359.2	357.5	356.2	351.8	347.5	339.3	337.1
12.5°	374.4	369.2	362.3	360.1	356.2	350.5	347.5	343.2	339.3	332.8	328.0
15°	363.1	358.8	356.6	349.2	347.5	344.0	338.0	331.9	326.3	317.6	315.0
17.5°	350.1	348.4	346.2	340.6	340.1	336.7	331.0	325.8	318.5	305.0	300.7
20°	336.7	336.7	329.7	327.6	331.9	325.0	320.6	315.9	300.7	294.2	286.4
22.5°	326.7	322.0	318.0	314.6	315.0	310.7	304.6	295.1	289.4	281.6	272.6
25°	307.2	308.9	300.3	299.0	300.3	290.3	287.3	279.5	271.2	263.9	256.9
27.5°	295.1	290.3	284.7	279.9	279.9	276.0	267.4	265.6	253.0	246.1	237.4
30°	276.9	273.4	268.6	261.7	260.9	257.8	250.9	246.5	233.6	223.1	218.4
32.5°	253.9	252.6	248.7	240.9	238.3	234.8	226.2	218.8	212.8	201.0	195.4
35°	237.4	232.7	224.5	218.0	215.8	209.7	202.8	197.6	191.1	180.7	173.3
37.5°	212.8	208.0	200.2	192.4	192.4	186.3	176.8	171.6	162.5	156.4	150.4
40°	191.1	185.0	177.2	168.1	166.8	158.1	154.3	145.6	140.0	130.4	129.6
42.5°	166.8	161.2	154.3	147.3	142.1	137.8	127.8	121.3	115.3	110.5	109.2
45°	144.7	137.4	131.3	122.6	117.4	112.2	105.7	101.4	96.6	91.4	88.4
47.5°	125.7	119.6	110.9	103.1	97.9	95.3	88.0	83.2	79.3	75.8	73.7
50°	106.2	98.8	94.0	85.4	84.5	78.4	72.4	68.5	66.3	63.3	60.2
52.5°	91.4	84.5	78.0	71.5	68.0	65.9	60.2	56.3	53.3	51.1	49.4
55°	77.1	71.1	65.9	59.4	57.2	54.2	47.7	46.8	43.8	40.7	38.6
57.5°	66.3	60.7	54.6	50.3	46.4	44.2	39.0	35.5	33.8	31.2	29.0
60°	56.3	50.3	45.5	40.3	38.6	35.5	31.6	28.6	26.4	24.3	22.1
62.5°	47.2	42.0	36.8	32.5	29.9	28.2	25.1	22.5	20.4	18.6	16.9
65°	39.0	34.2	29.9	25.6	24.3	22.1	19.9	17.8	16.0	13.9	12.1
67.5°	32.1	27.7	23.4	20.4	19.1	18.2	15.6	13.4	12.1	10.8	9.1
70°	25.1	22.1	18.6	16.0	14.7	13.4	11.7	10.4	8.7	7.8	6.5
72.5°	19.5	16.9	13.9	11.7	10.8	10.0	8.2	6.9	6.1	5.2	4.3
75°	13.9	11.7	10.0	7.8	7.4	6.9	5.6	4.8	3.9	3.0	2.6
77.5°	9.5	7.8	6.1	5.2	4.8	3.9	3.5	2.6	2.2	1.7	1.3
80°	5.2	3.9	3.0	2.6	2.2	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°	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4
2.5°	360.9	356.2	357.5	357.5	356.6	356.6	355.7	354.4	354.9	352.3	346.7
5°	357.0	351.0	350.1	351.0	347.5	346.7	344.9	347.5	339.7	342.7	339.3
7.5°	345.8	340.1	338.8	341.9	337.6	334.9	334.5	338.0	331.0	327.6	323.7
10°	333.2	331.0	327.1	325.0	323.7	324.1	320.6	316.3	315.0	314.1	310.7
12.5°	322.0	317.2	313.7	311.1	310.3	310.3	304.6	303.8	299.8	299.0	293.8
15°	308.5	302.9	300.7	297.3	294.2	295.9	289.4	287.7	286.4	280.8	281.6
17.5°	296.8	290.7	285.6	283.4	280.8	278.2	272.1	273.4	270.4	270.4	262.6
20°	281.6	275.1	271.2	266.9	266.9	263.5	259.1	259.5	255.6	251.8	244.8
22.5°	265.6	258.7	253.9	252.2	247.8	247.0	241.8	240.5	235.3	235.7	229.7
25°	248.7	241.8	235.3	235.7	231.8	230.1	227.1	221.0	218.8	216.2	214.5
27.5°	228.8	224.0	218.4	218.0	210.6	211.0	207.1	205.4	200.2	201.5	197.6
30°	210.6	203.7	198.4	197.2	194.1	193.3	187.2	184.6	185.5	182.0	179.8
32.5°	191.9	181.6	179.4	176.8	175.1	172.9	168.6	170.3	166.4	167.2	163.8
35°	167.2	162.9	157.3	157.3	155.6	153.8	150.8	152.5	148.6	146.9	143.4
37.5°	146.5	142.6	136.9	138.7	135.6	133.0	130.4	130.9	127.4	127.0	123.5
40°	123.9	121.8	117.9	117.9	115.7	115.7	114.4	113.1	110.9	108.3	104.4
42.5°	102.7	101.0	99.2	99.7	96.6	99.2	95.8	97.9	91.0	90.6	88.0
45°	87.1	83.2	83.6	81.9	80.2	81.0	78.0	78.9	75.0	74.1	71.5
47.5°	70.6	69.3	66.7	65.9	65.9	64.6	63.3	62.8	61.1	58.9	55.5
50°	58.1	53.3	52.4	51.1	50.3	50.3	48.5	45.9	46.4	44.2	40.7
52.5°	45.5	41.6	39.9	39.4	37.7	36.8	34.7	32.9	31.6	30.8	28.6
55°	35.1	31.6	29.5	29.5	26.9	26.9	23.8	22.5	20.8	19.1	17.8
57.5°	26.4	24.7	22.5	20.8	19.9	17.8	16.0	13.9	12.6	10.0	8.2
60°	19.9	18.2	16.0	14.7	13.9	11.7	9.5	7.8	4.8	3.9	3.5
62.5°	14.7	13.0	10.8	10.0	9.1	7.4	5.2	2.6	1.3	1.3	1.3
65°	10.8	8.7	6.9	6.1	5.2	3.9	1.7	0.9	0.4	0.4	0.4
67.5°	7.4	5.6	3.9	3.5	2.6	1.3	0.4	0.4	0.4	0.4	0.4
70°	4.8	3.5	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 FEU4C059040 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	361.4	361.4	361.4	361.4	361.4	361.4	361.4	361.4
2.5°	352.7	349.7	351.4	347.5	349.2	352.3	350.1	351.0
5°	340.6	338.8	336.7	331.0	335.4	338.8	337.1	336.7
7.5°	327.6	321.5	324.5	322.8	322.0	325.4	321.5	325.8
10°	314.1	309.8	309.4	306.3	306.3	308.9	309.4	306.8
12.5°	294.2	292.1	292.1	291.6	291.2	293.8	294.2	292.9
15°	279.9	279.1	276.9	276.5	273.9	277.7	278.2	277.7
17.5°	262.6	263.0	260.9	260.9	262.6	263.9	260.4	263.9
20°	250.9	248.7	247.8	243.9	246.1	248.3	248.3	248.7
22.5°	234.0	230.5	231.8	229.7	228.3	231.4	231.4	232.7
25°	214.9	214.9	215.8	214.5	215.4	217.1	215.8	218.8
27.5°	196.7	198.4	198.4	196.7	197.6	202.8	205.0	201.5
30°	179.8	180.3	181.6	180.7	183.3	185.0	184.6	187.2
32.5°	160.8	162.9	163.8	162.5	163.4	167.2	165.1	164.7
35°	146.0	142.1	141.7	142.1	143.9	144.7	143.9	146.9
37.5°	124.8	123.5	121.8	122.2	123.5	125.2	126.1	128.3
40°	104.4	102.7	102.7	102.3	101.0	105.7	105.7	105.7
42.5°	86.7	86.2	84.1	84.1	85.8	87.1	86.2	89.3
45°	71.1	69.3	68.0	68.0	69.3	69.3	70.6	70.2
47.5°	55.9	54.2	54.6	53.3	54.6	56.3	54.2	54.6
50°	42.0	42.0	41.2	42.0	41.6	42.0	41.2	40.3
52.5°	28.6	32.5	32.9	31.2	27.3	23.8	21.7	23.4
55°	16.5	14.7	14.7	14.3	13.4	13.0	11.7	13.0
57.5°	8.2	7.4	7.4	7.4	6.9	6.5	5.6	5.6
60°	3.5	3.0	3.0	2.6	2.2	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)