

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: **FLDSQ4C15D010 FEU4C159035 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: FLDSQ4C15D010 FEU4C159035 F4LC-SQLWW-LI  
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

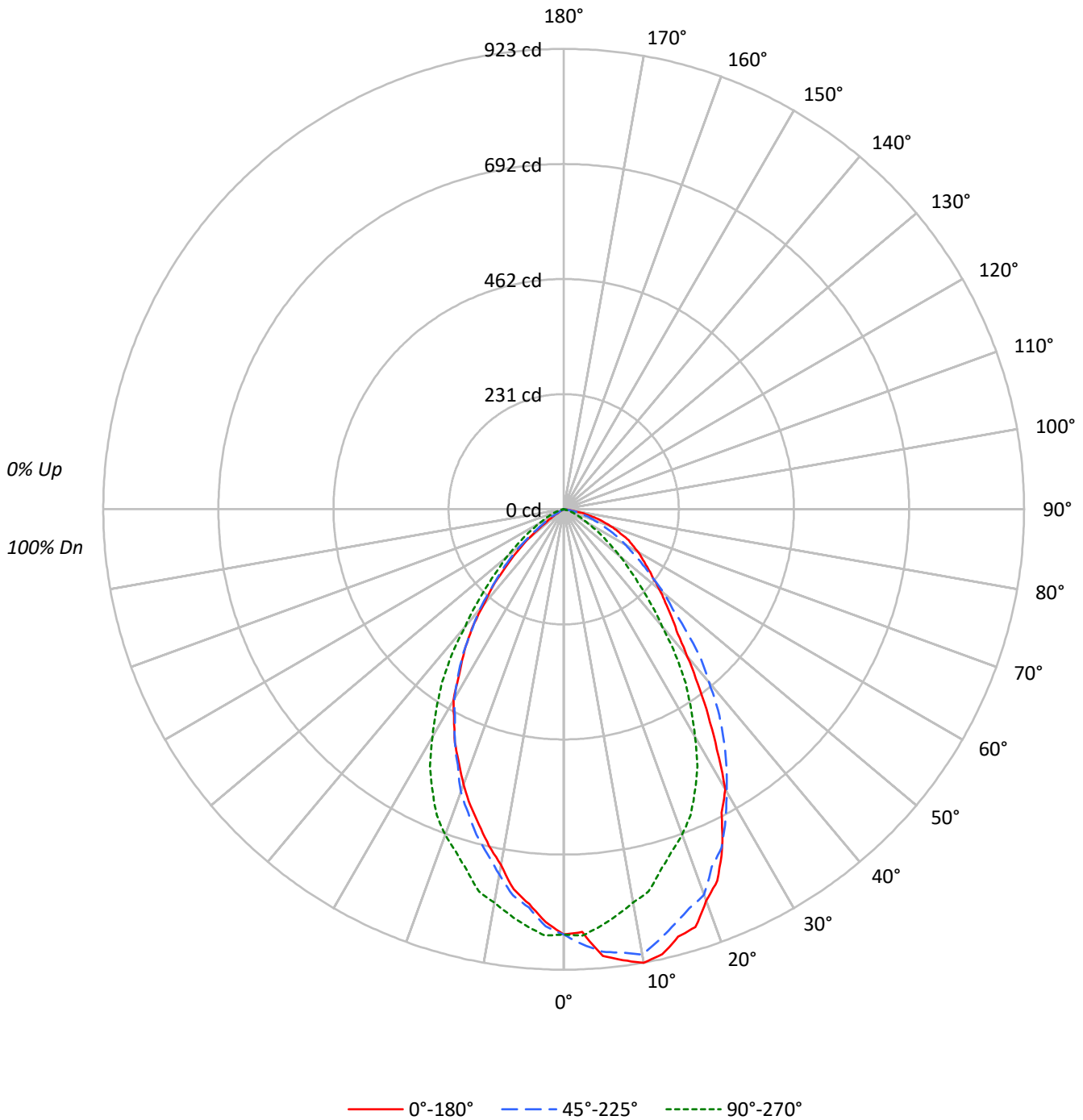
Lumens per Lamp: N/A  
 Luminaire Lumens: 1222.0 lumens  
 Efficiency: N/A  
 Efficacy: 77.3 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 15.8  
 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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CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-SQLWW-LI

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 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°	82257	82257	82257
5°	87026	81283	76934
10°	90443	78421	70906
15°	88635	74850	65450
20°	85759	71271	60243
25°	79986	66274	54957
30°	72209	58649	49201
35°	59485	50214	40815
40°	48544	38757	31414
45°	41701	29434	22597
50°	37753	22411	14275
55°	34738	16166	5164
60°	33347	11038	791
65°	32192	7466	228
70°	28832	5191	282
75°	23636	2684	0
80°	14780	1111	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	79.9	6.5
10°-20°	215.2	17.6
20°-30°	287.4	23.5
30°-40°	272.8	22.3
40°-50°	188.6	15.4
50°-60°	104.2	8.5
60°-70°	51.7	4.2
70°-80°	20.4	1.7
80°-90°	1.9	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°	582.4	47.7
0°-40°	855.2	70.0
0°-60°	1147.9	93.9
0°-90°	1222.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1222.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	852	852	852	852	852	
5°	898	890	839	801	794	86
15°	887	861	749	676	655	251
25°	751	748	622	516	516	343
35°	505	558	426	351	346	316
45°	306	351	216	177	166	238
55°	206	194	96	49	31	186
65°	141	102	33	1	1	137
75°	63	39	7	0	0	68
85°	0	1	0	0	0	6
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5
2.5°	848.4	871.9	874.0	871.9	875.0	874.0	879.1	874.0	880.1	870.9	873.0
5°	898.5	889.3	908.7	898.5	898.5	897.5	894.4	893.4	897.5	884.2	890.3
7.5°	911.8	925.1	942.5	921.0	922.0	922.0	915.9	913.8	913.8	889.3	896.5
10°	923.1	914.8	924.1	915.9	923.1	922.0	926.1	912.8	922.0	907.7	906.7
12.5°	913.8	910.8	923.1	909.8	905.7	906.7	901.6	898.5	901.6	885.2	884.2
15°	887.3	890.3	908.7	894.4	892.4	890.3	884.2	874.0	882.2	859.7	860.7
17.5°	878.1	873.0	876.0	863.7	866.8	864.8	863.7	854.6	852.5	838.2	838.2
20°	835.2	846.4	846.4	838.2	838.2	837.2	823.9	832.1	822.9	818.8	822.9
22.5°	805.5	806.5	806.5	799.4	800.4	796.3	789.1	784.0	789.1	784.0	775.8
25°	751.3	753.4	765.6	752.3	750.3	754.4	748.3	745.2	744.2	731.9	748.3
27.5°	685.9	706.3	705.3	700.2	706.3	698.2	695.1	696.1	699.2	698.2	702.2
30°	648.1	651.1	654.2	650.1	651.1	648.1	648.1	649.1	657.3	654.2	653.2
32.5°	571.4	581.6	589.8	589.8	590.8	593.9	592.9	614.3	619.5	609.2	607.2
35°	505.0	512.1	519.3	520.3	533.6	534.6	535.6	541.8	556.1	559.1	558.1
37.5°	441.6	448.7	450.8	460.0	467.2	474.3	482.5	490.7	502.9	513.1	508.0
40°	385.4	388.4	393.5	397.6	411.9	411.9	416.0	432.4	445.7	453.9	452.8
42.5°	338.4	339.4	343.4	350.6	363.9	360.8	363.9	375.2	394.5	395.6	406.8
45°	305.6	304.6	307.7	308.7	316.9	321.0	323.0	331.2	347.5	349.6	350.6
47.5°	276.0	275.0	280.1	282.1	285.2	289.3	289.3	290.3	296.4	301.6	297.5
50°	251.5	251.5	251.5	253.5	258.6	257.6	258.6	262.7	265.8	263.7	262.7
52.5°	224.9	229.0	232.0	233.1	234.1	234.1	235.1	233.1	232.0	229.0	222.8
55°	206.5	210.6	210.6	210.6	210.6	214.7	209.6	210.6	210.6	202.4	194.2
57.5°	188.1	192.2	195.2	191.1	195.2	191.1	189.1	188.1	186.0	177.9	165.6
60°	172.8	174.8	173.8	172.8	174.8	171.7	169.7	165.6	163.6	152.3	144.1
62.5°	155.4	156.4	157.4	155.4	153.3	152.3	148.2	142.1	138.0	128.8	121.6
65°	141.0	138.0	137.0	136.0	133.9	130.8	127.8	120.6	117.5	109.4	102.2
67.5°	119.6	118.6	120.6	117.5	112.5	112.5	109.4	103.2	96.1	91.0	83.8
70°	102.2	101.2	99.2	96.1	95.1	91.0	91.0	83.8	81.8	72.6	66.4
72.5°	83.8	83.8	80.7	77.7	74.6	72.6	71.6	66.4	63.4	58.3	53.1
75°	63.4	63.4	62.4	59.3	57.2	55.2	54.2	50.1	47.0	41.9	38.8
77.5°	45.0	45.0	40.9	38.8	39.8	37.8	35.8	34.8	33.7	30.7	26.6
80°	26.6	25.6	22.5	23.5	22.5	22.5	21.5	20.4	18.4	16.3	14.3
82.5°	7.2	8.2	8.2	8.2	9.2	7.2	7.2	7.2	8.2	8.2	5.1
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
87.5°	1.0	2.0	4.1	4.1	4.1	4.1	4.1	3.1	3.1	3.1	2.0
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: FLDSQ4C15D010 FEU4C159035 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5
2.5°	862.7	861.7	862.7	855.6	871.9	859.7	857.6	855.6	862.7	855.6	845.4
5°	881.1	870.9	867.8	864.8	874.0	859.7	856.6	857.6	852.5	839.2	840.2
7.5°	887.3	878.1	868.9	849.5	857.6	854.6	846.4	840.2	832.1	820.8	818.8
10°	889.3	879.1	865.8	859.7	847.4	843.3	840.2	830.0	819.8	800.4	795.3
12.5°	883.2	870.9	854.6	849.5	840.2	826.9	819.8	809.6	800.4	785.1	773.8
15°	856.6	846.4	841.3	823.9	819.8	811.6	797.3	783.0	769.7	749.3	743.1
17.5°	825.9	821.9	816.7	803.4	802.4	794.3	781.0	768.7	751.3	719.6	709.4
20°	794.3	794.3	777.9	772.8	783.0	766.6	756.4	745.2	709.4	694.1	675.7
22.5°	770.8	759.5	750.3	742.1	743.1	732.9	718.6	696.1	682.8	664.4	643.0
25°	724.7	728.8	708.4	705.3	708.4	684.9	677.7	659.3	639.9	622.5	606.2
27.5°	696.1	684.9	671.6	660.3	660.3	651.1	630.7	626.6	597.0	580.6	560.1
30°	653.2	645.0	633.8	617.4	615.4	608.2	591.9	581.6	551.0	526.4	515.2
32.5°	599.0	595.9	586.7	568.4	562.2	554.0	533.6	516.2	501.9	474.3	461.0
35°	560.1	548.9	529.5	514.2	509.0	494.7	478.4	466.1	450.8	426.3	408.9
37.5°	501.9	490.7	472.2	453.9	453.9	439.6	417.1	404.8	383.3	369.0	354.7
40°	450.8	436.5	418.1	396.6	393.5	373.1	363.9	343.4	330.2	307.7	305.6
42.5°	393.5	380.3	363.9	347.5	335.3	325.1	301.6	286.2	271.9	260.7	257.6
45°	341.4	324.0	309.7	289.3	277.0	264.8	249.4	239.2	228.0	215.7	208.5
47.5°	296.4	282.1	261.7	243.3	231.0	224.9	207.5	196.3	187.1	178.9	173.8
50°	250.5	233.1	221.8	201.4	199.3	185.0	170.7	161.5	156.4	149.3	142.1
52.5°	215.7	199.3	184.0	168.7	160.5	155.4	142.1	132.9	125.7	120.6	116.5
55°	181.9	167.6	155.4	140.0	134.9	127.8	112.5	110.4	103.2	96.1	91.0
57.5°	156.4	143.1	128.8	118.6	109.4	104.3	92.0	83.8	79.7	73.6	68.5
60°	132.9	118.6	107.3	95.1	91.0	83.8	74.6	67.5	62.4	57.2	52.1
62.5°	111.4	99.2	86.9	76.7	70.5	66.4	59.3	53.1	48.1	44.0	39.8
65°	92.0	80.7	70.5	60.3	57.2	52.1	47.0	41.9	37.8	32.7	28.6
67.5°	75.7	65.4	55.2	48.1	45.0	42.9	36.8	31.7	28.6	25.6	21.5
70°	59.3	52.1	44.0	37.8	34.8	31.7	27.6	24.5	20.4	18.4	15.3
72.5°	46.0	39.8	32.7	27.6	25.6	23.5	19.4	16.3	14.3	12.3	10.2
75°	32.7	27.6	23.5	18.4	17.4	16.3	13.3	11.3	9.2	7.2	6.1
77.5°	22.5	18.4	14.3	12.3	11.3	9.2	8.2	6.1	5.1	4.1	3.1
80°	12.3	9.2	7.2	6.1	5.1	4.1	4.1	3.1	2.0	2.0	1.0
82.5°	4.1	3.1	2.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0
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°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5
2.5°	851.5	840.2	843.3	843.3	841.3	841.3	839.2	836.2	837.2	831.0	817.8
5°	842.3	828.0	825.9	828.0	819.8	817.8	813.7	819.8	801.4	808.6	800.4
7.5°	815.7	802.4	799.4	806.5	796.3	790.1	789.1	797.3	781.0	772.8	763.6
10°	786.1	781.0	771.8	766.6	763.6	764.6	756.4	746.2	743.1	741.1	732.9
12.5°	759.5	748.3	740.1	734.0	731.9	731.9	718.6	716.6	707.4	705.3	693.1
15°	727.8	714.5	709.4	701.2	694.1	698.2	682.8	678.7	675.7	662.4	664.4
17.5°	700.2	685.9	673.6	668.5	662.4	656.3	641.9	645.0	637.8	637.8	619.5
20°	664.4	649.1	639.9	629.7	629.7	621.5	611.3	612.3	603.1	593.9	577.5
22.5°	626.6	610.2	599.0	594.9	584.7	582.7	570.4	567.3	555.1	556.1	541.8
25°	586.7	570.4	555.1	556.1	546.9	542.8	535.6	521.3	516.2	510.1	506.0
27.5°	539.7	528.5	515.2	514.2	496.8	497.8	488.6	484.5	472.2	475.3	466.1
30°	496.8	480.5	468.2	465.1	457.9	455.9	441.6	435.4	437.5	429.3	424.2
32.5°	452.8	428.3	423.2	417.1	413.0	407.8	397.6	401.7	392.5	394.5	386.4
35°	394.5	384.3	371.0	371.0	367.0	362.9	355.7	359.8	350.6	346.5	338.4
37.5°	345.5	336.3	323.0	327.1	319.9	313.8	307.7	308.7	300.5	299.5	291.3
40°	292.3	287.2	278.1	278.1	272.9	272.9	269.8	266.8	261.7	255.5	246.3
42.5°	242.2	238.2	234.1	235.1	228.0	234.1	225.9	231.0	214.7	213.7	207.5
45°	205.4	196.3	197.3	193.2	189.1	191.1	184.0	186.0	176.9	174.8	168.7
47.5°	166.6	163.6	157.4	155.4	155.4	152.3	149.3	148.2	144.1	139.0	130.8
50°	137.0	125.7	123.7	120.6	118.6	118.6	114.5	108.4	109.4	104.3	96.1
52.5°	107.3	98.1	94.0	93.0	88.9	86.9	81.8	77.7	74.6	72.6	67.5
55°	82.8	74.6	69.5	69.5	63.4	63.4	56.2	53.1	49.1	45.0	41.9
57.5°	62.4	58.3	53.1	49.1	47.0	41.9	37.8	32.7	29.6	23.5	19.4
60°	47.0	42.9	37.8	34.8	32.7	27.6	22.5	18.4	11.3	9.2	8.2
62.5°	34.8	30.7	25.6	23.5	21.5	17.4	12.3	6.1	3.1	3.1	3.1
65°	25.6	20.4	16.3	14.3	12.3	9.2	4.1	2.0	1.0	1.0	1.0
67.5°	17.4	13.3	9.2	8.2	6.1	3.1	1.0	1.0	1.0	1.0	1.0
70°	11.3	8.2	4.1	3.1	2.0	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	7.2	4.1	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	4.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.0	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	1.0	1.0	1.0
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: FLDSQ4C15D010 FEU4C159035 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	852.5	852.5	852.5	852.5	852.5	852.5	852.5	852.5
2.5°	832.1	824.9	829.0	819.8	823.9	831.0	825.9	828.0
5°	803.4	799.4	794.3	781.0	791.2	799.4	795.3	794.3
7.5°	772.8	758.5	765.6	761.5	759.5	767.7	758.5	768.7
10°	741.1	730.9	729.9	722.7	722.7	728.8	729.9	723.7
12.5°	694.1	689.0	689.0	687.9	686.9	693.1	694.1	691.0
15°	660.3	658.3	653.2	652.2	646.0	655.2	656.3	655.2
17.5°	619.5	620.5	615.4	615.4	619.5	622.5	614.3	622.5
20°	591.9	586.7	584.7	575.5	580.6	585.7	585.7	586.7
22.5°	552.0	543.8	546.9	541.8	538.7	545.9	545.9	548.9
25°	507.0	507.0	509.0	506.0	508.0	512.1	509.0	516.2
27.5°	464.1	468.2	468.2	464.1	466.1	478.4	483.5	475.3
30°	424.2	425.2	428.3	426.3	432.4	436.5	435.4	441.6
32.5°	379.3	384.3	386.4	383.3	385.4	394.5	389.5	388.4
35°	344.5	335.3	334.3	335.3	339.4	341.4	339.4	346.5
37.5°	294.4	291.3	287.2	288.3	291.3	295.4	297.5	302.6
40°	246.3	242.2	242.2	241.2	238.2	249.4	249.4	249.4
42.5°	204.4	203.4	198.3	198.3	202.4	205.4	203.4	210.6
45°	167.6	163.6	160.5	160.5	163.6	163.6	166.6	165.6
47.5°	131.9	127.8	128.8	125.7	128.8	132.9	127.8	128.8
50°	99.2	99.2	97.1	99.2	98.1	99.2	97.1	95.1
52.5°	67.5	76.7	77.7	73.6	64.4	56.2	51.1	55.2
55°	38.8	34.8	34.8	33.7	31.7	30.7	27.6	30.7
57.5°	19.4	17.4	17.4	17.4	16.3	15.3	13.3	13.3
60°	8.2	7.2	7.2	6.1	5.1	4.1	3.1	4.1
62.5°	3.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
65°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
67.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)