

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 FEU4C159030 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 FEU4C159030 F4LC-SQLWW-LI  
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

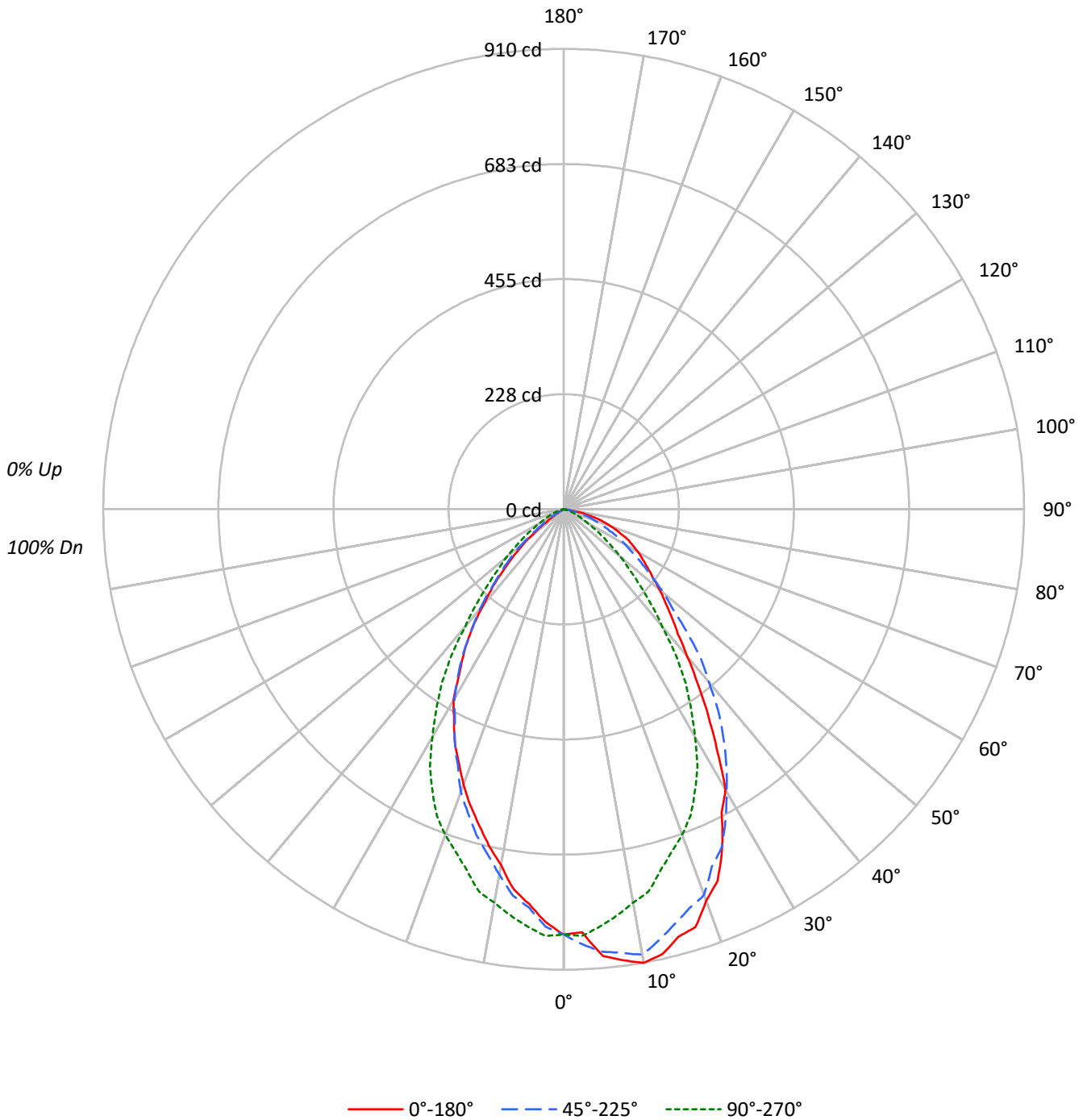
Lumens per Lamp: N/A  
 Luminaire Lumens: 1205.0 lumens  
 Efficiency: N/A  
 Efficacy: 76.3 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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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### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C15D010 FEU4C159030 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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90				90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80				80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72				72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64				64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58				58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53				53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48				48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44				44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38				38

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	81109	81109	81109
5°	85816	80159	75859
10°	89179	77334	69917
15°	87396	73801	64541
20°	84558	70275	59411
25°	78879	65347	54190
30°	71206	57836	48522
35°	58648	49508	40249
40°	47864	38215	30973
45°	41128	29024	22283
50°	37227	22096	14080
55°	34250	15931	5080
60°	32883	10884	772
65°	31758	7374	228
70°	28437	5106	282
75°	23300	2647	0
80°	14558	1111	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	78.8	6.5
10°-20°	212.2	17.6
20°-30°	283.4	23.5
30°-40°	269.0	22.3
40°-50°	185.9	15.4
50°-60°	102.7	8.5
60°-70°	51.0	4.2
70°-80°	20.1	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°	574.3	47.7
0°-40°	843.3	70.0
0°-60°	1132.0	93.9
0°-90°	1205.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1205.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	841	841	841	841	841	
5°	886	878	828	790	783	85
15°	875	849	739	666	646	247
25°	741	738	614	509	509	338
35°	498	550	420	346	342	312
45°	301	346	213	174	163	235
55°	204	192	95	48	30	183
65°	139	101	32	1	1	135
75°	62	38	7	0	0	67
85°	0	1	0	0	0	6
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159030 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6
2.5°	836.6	859.8	861.8	859.8	862.8	861.8	866.9	861.8	867.9	858.8	860.8
5°	886.0	876.9	896.1	886.0	886.0	885.0	882.0	881.0	885.0	871.9	878.0
7.5°	899.1	912.2	929.4	908.2	909.2	909.2	903.1	901.1	901.1	876.9	884.0
10°	910.2	902.1	911.2	903.1	910.2	909.2	913.2	900.1	909.2	895.1	894.1
12.5°	901.1	898.1	910.2	897.1	893.1	894.1	889.1	886.0	889.1	872.9	871.9
15°	874.9	878.0	896.1	882.0	880.0	878.0	871.9	861.8	869.9	847.7	848.7
17.5°	865.9	860.8	863.9	851.7	854.8	852.8	851.7	842.7	840.6	826.5	826.5
20°	823.5	834.6	834.6	826.5	826.5	825.6	812.4	820.5	811.4	807.4	811.4
22.5°	794.3	795.3	795.3	788.2	789.3	785.2	778.2	773.1	778.2	773.1	765.1
25°	740.9	742.9	755.0	741.9	739.9	743.9	737.8	734.8	733.8	721.7	737.8
27.5°	676.4	696.5	695.5	690.5	696.5	688.4	685.4	686.4	689.5	688.4	692.5
30°	639.1	642.1	645.1	641.1	642.1	639.1	639.1	640.1	648.1	645.1	644.1
32.5°	563.5	573.5	581.6	581.6	582.6	585.6	584.6	605.8	610.8	600.8	598.8
35°	497.9	505.0	512.0	513.1	526.2	527.2	528.2	534.2	548.3	551.4	550.3
37.5°	435.5	442.5	444.5	453.6	460.7	467.7	475.8	483.8	495.9	506.0	501.0
40°	380.0	383.0	388.1	392.1	406.2	406.2	410.2	426.4	439.5	447.5	446.5
42.5°	333.7	334.6	338.7	345.7	358.9	355.8	358.9	369.9	389.1	390.1	401.2
45°	301.4	300.4	303.4	304.4	312.5	316.5	318.5	326.6	342.7	344.7	345.7
47.5°	272.2	271.1	276.2	278.2	281.2	285.2	285.2	286.3	292.3	297.4	293.3
50°	248.0	248.0	248.0	250.0	255.0	254.0	255.0	259.1	262.1	260.0	259.1
52.5°	221.7	225.8	228.8	229.8	230.8	230.8	231.8	229.8	228.8	225.8	219.7
55°	203.6	207.6	207.6	207.6	207.6	211.7	206.7	207.6	207.6	199.6	191.5
57.5°	185.5	189.5	192.5	188.5	192.5	188.5	186.5	185.5	183.4	175.4	163.3
60°	170.4	172.4	171.3	170.4	172.4	169.3	167.3	163.3	161.3	150.2	142.1
62.5°	153.2	154.2	155.2	153.2	151.2	150.2	146.2	140.1	136.1	127.0	119.9
65°	139.1	136.1	135.1	134.1	132.1	129.0	126.0	118.9	115.9	107.8	100.8
67.5°	117.9	116.9	118.9	115.9	110.9	110.9	107.8	101.8	94.7	89.7	82.7
70°	100.8	99.8	97.8	94.7	93.8	89.7	89.7	82.7	80.6	71.6	65.5
72.5°	82.7	82.7	79.6	76.6	73.6	71.6	70.6	65.5	62.5	57.5	52.4
75°	62.5	62.5	61.5	58.4	56.4	54.4	53.4	49.4	46.4	41.3	38.3
77.5°	44.3	44.3	40.3	38.3	39.3	37.3	35.3	34.3	33.3	30.2	26.2
80°	26.2	25.2	22.2	23.2	22.2	22.2	21.2	20.1	18.1	16.1	14.1
82.5°	7.1	8.1	8.1	8.1	9.1	7.1	7.1	7.1	8.1	8.1	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	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	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

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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6
2.5°	850.7	849.7	850.7	843.7	859.8	847.7	845.7	843.7	850.7	843.7	833.6
5°	868.9	858.8	855.8	852.8	861.8	847.7	844.7	845.7	840.6	827.6	828.6
7.5°	874.9	865.9	856.8	837.6	845.7	842.7	834.6	828.6	820.5	809.4	807.4
10°	876.9	866.9	853.7	847.7	835.6	831.6	828.6	818.5	808.4	789.3	784.2
12.5°	870.9	858.8	842.7	837.6	828.6	815.4	808.4	798.3	789.3	774.1	763.0
15°	844.7	834.6	829.6	812.4	808.4	800.3	786.2	772.1	759.0	738.8	732.8
17.5°	814.5	810.4	805.4	792.3	791.3	783.2	770.1	758.0	740.9	709.6	699.5
20°	783.2	783.2	767.1	762.0	772.1	756.0	745.9	734.8	699.5	684.4	666.3
22.5°	760.0	748.9	739.9	731.8	732.8	722.7	708.6	686.4	673.3	655.2	634.0
25°	714.7	718.7	698.5	695.5	698.5	675.3	668.3	650.1	631.0	613.8	597.7
27.5°	686.4	675.3	662.3	651.2	651.2	642.1	621.9	617.9	588.6	572.5	552.4
30°	644.1	636.0	624.9	608.8	606.8	599.7	583.6	573.5	543.3	519.1	508.0
32.5°	590.7	587.7	578.6	560.5	554.4	546.3	526.2	509.0	494.9	467.7	454.6
35°	552.4	541.3	522.1	507.0	502.0	487.9	471.7	459.6	444.5	420.3	403.2
37.5°	494.9	483.8	465.7	447.5	447.5	433.4	411.3	399.2	378.0	363.9	349.8
40°	444.5	430.4	412.3	391.1	388.1	367.9	358.9	338.7	325.6	303.4	301.4
42.5°	388.1	375.0	358.9	342.7	330.6	320.5	297.4	282.2	268.1	257.0	254.0
45°	336.7	319.5	305.4	285.2	273.2	261.1	245.9	235.9	224.8	212.7	205.6
47.5°	292.3	278.2	258.0	239.9	227.8	221.7	204.6	193.5	184.5	176.4	171.3
50°	247.0	229.8	218.7	198.6	196.5	182.4	168.3	159.3	154.2	147.2	140.1
52.5°	212.7	196.5	181.4	166.3	158.2	153.2	140.1	131.0	124.0	118.9	114.9
55°	179.4	165.3	153.2	138.1	133.0	126.0	110.9	108.9	101.8	94.7	89.7
57.5°	154.2	141.1	127.0	116.9	107.8	102.8	90.7	82.7	78.6	72.6	67.5
60°	131.0	116.9	105.8	93.8	89.7	82.7	73.6	66.5	61.5	56.4	51.4
62.5°	109.9	97.8	85.7	75.6	69.5	65.5	58.4	52.4	47.4	43.4	39.3
65°	90.7	79.6	69.5	59.5	56.4	51.4	46.4	41.3	37.3	32.3	28.2
67.5°	74.6	64.5	54.4	47.4	44.3	42.3	36.3	31.2	28.2	25.2	21.2
70°	58.4	51.4	43.4	37.3	34.3	31.2	27.2	24.2	20.1	18.1	15.1
72.5°	45.4	39.3	32.3	27.2	25.2	23.2	19.2	16.1	14.1	12.1	10.1
75°	32.3	27.2	23.2	18.1	17.1	16.1	13.1	11.1	9.1	7.1	6.0
77.5°	22.2	18.1	14.1	12.1	11.1	9.1	8.1	6.0	5.1	4.0	3.0
80°	12.1	9.1	7.1	6.0	5.1	4.0	4.0	3.0	2.0	2.0	1.0
82.5°	4.0	3.0	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

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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6
2.5°	839.6	828.6	831.6	831.6	829.6	829.6	827.6	824.5	825.6	819.5	806.4
5°	830.6	816.5	814.5	816.5	808.4	806.4	802.4	808.4	790.2	797.3	789.3
7.5°	804.4	791.3	788.2	795.3	785.2	779.1	778.2	786.2	770.1	762.0	753.0
10°	775.1	770.1	761.0	756.0	753.0	754.0	745.9	735.8	732.8	730.8	722.7
12.5°	748.9	737.8	729.8	723.7	721.7	721.7	708.6	706.6	697.5	695.5	683.4
15°	717.7	704.6	699.5	691.5	684.4	688.4	673.3	669.3	666.3	653.2	655.2
17.5°	690.5	676.4	664.3	659.2	653.2	647.1	633.0	636.0	629.0	629.0	610.8
20°	655.2	640.1	631.0	620.9	620.9	612.9	602.8	603.8	594.7	585.6	569.5
22.5°	617.9	601.8	590.7	586.6	576.6	574.5	562.5	559.4	547.3	548.3	534.2
25°	578.6	562.5	547.3	548.3	539.3	535.3	528.2	514.1	509.0	503.0	499.0
27.5°	532.2	521.1	508.0	507.0	489.9	490.9	481.8	477.8	465.7	468.7	459.6
30°	489.9	473.8	461.6	458.6	451.6	449.6	435.5	429.4	431.4	423.3	418.3
32.5°	446.5	422.4	417.3	411.3	407.2	402.2	392.1	396.1	387.0	389.1	381.0
35°	389.1	379.0	365.9	365.9	361.9	357.8	350.8	354.8	345.7	341.7	333.7
37.5°	340.7	331.6	318.5	322.6	315.5	309.4	303.4	304.4	296.3	295.3	287.3
40°	288.3	283.2	274.2	274.2	269.1	269.1	266.1	263.1	258.0	252.0	242.9
42.5°	238.9	234.9	230.8	231.8	224.8	230.8	222.8	227.8	211.7	210.7	204.6
45°	202.6	193.5	194.5	190.5	186.5	188.5	181.4	183.4	174.4	172.4	166.3
47.5°	164.3	161.3	155.2	153.2	153.2	150.2	147.2	146.2	142.1	137.1	129.0
50°	135.1	124.0	121.9	118.9	116.9	116.9	112.9	106.9	107.8	102.8	94.7
52.5°	105.8	96.8	92.7	91.7	87.7	85.7	80.6	76.6	73.6	71.6	66.5
55°	81.6	73.6	68.6	68.6	62.5	62.5	55.4	52.4	48.4	44.3	41.3
57.5°	61.5	57.5	52.4	48.4	46.4	41.3	37.3	32.3	29.2	23.2	19.2
60°	46.4	42.3	37.3	34.3	32.3	27.2	22.2	18.1	11.1	9.1	8.1
62.5°	34.3	30.2	25.2	23.2	21.2	17.1	12.1	6.0	3.0	3.0	3.0
65°	25.2	20.1	16.1	14.1	12.1	9.1	4.0	2.0	1.0	1.0	1.0
67.5°	17.1	13.1	9.1	8.1	6.0	3.0	1.0	1.0	1.0	1.0	1.0
70°	11.1	8.1	4.0	3.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	7.1	4.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	4.0	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 FEU4C159030 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	840.6	840.6	840.6	840.6	840.6	840.6	840.6	840.6
2.5°	820.5	813.4	817.5	808.4	812.4	819.5	814.5	816.5
5°	792.3	788.2	783.2	770.1	780.2	788.2	784.2	783.2
7.5°	762.0	747.9	755.0	751.0	748.9	757.0	747.9	758.0
10°	730.8	720.7	719.7	712.6	712.6	718.7	719.7	713.6
12.5°	684.4	679.4	679.4	678.4	677.3	683.4	684.4	681.4
15°	651.2	649.1	644.1	643.1	637.1	646.1	647.1	646.1
17.5°	610.8	611.8	606.8	606.8	610.8	613.8	605.8	613.8
20°	583.6	578.6	576.6	567.5	572.5	577.6	577.6	578.6
22.5°	544.3	536.2	539.3	534.2	531.2	538.3	538.3	541.3
25°	500.0	500.0	502.0	499.0	501.0	505.0	502.0	509.0
27.5°	457.6	461.6	461.6	457.6	459.6	471.7	476.8	468.7
30°	418.3	419.3	422.4	420.3	426.4	430.4	429.4	435.5
32.5°	374.0	379.0	381.0	378.0	380.0	389.1	384.0	383.0
35°	339.7	330.6	329.6	330.6	334.6	336.7	334.6	341.7
37.5°	290.3	287.3	283.2	284.3	287.3	291.3	293.3	298.4
40°	242.9	238.9	238.9	237.9	234.9	245.9	245.9	245.9
42.5°	201.6	200.6	195.6	195.6	199.6	202.6	200.6	207.6
45°	165.3	161.3	158.2	158.2	161.3	161.3	164.3	163.3
47.5°	130.0	126.0	127.0	124.0	127.0	131.0	126.0	127.0
50°	97.8	97.8	95.8	97.8	96.8	97.8	95.8	93.8
52.5°	66.5	75.6	76.6	72.6	63.5	55.4	50.4	54.4
55°	38.3	34.3	34.3	33.3	31.2	30.2	27.2	30.2
57.5°	19.2	17.1	17.1	17.1	16.1	15.1	13.1	13.1
60°	8.1	7.1	7.1	6.0	5.1	4.0	3.0	4.0
62.5°	3.0	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)