

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-H**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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

**Summary**

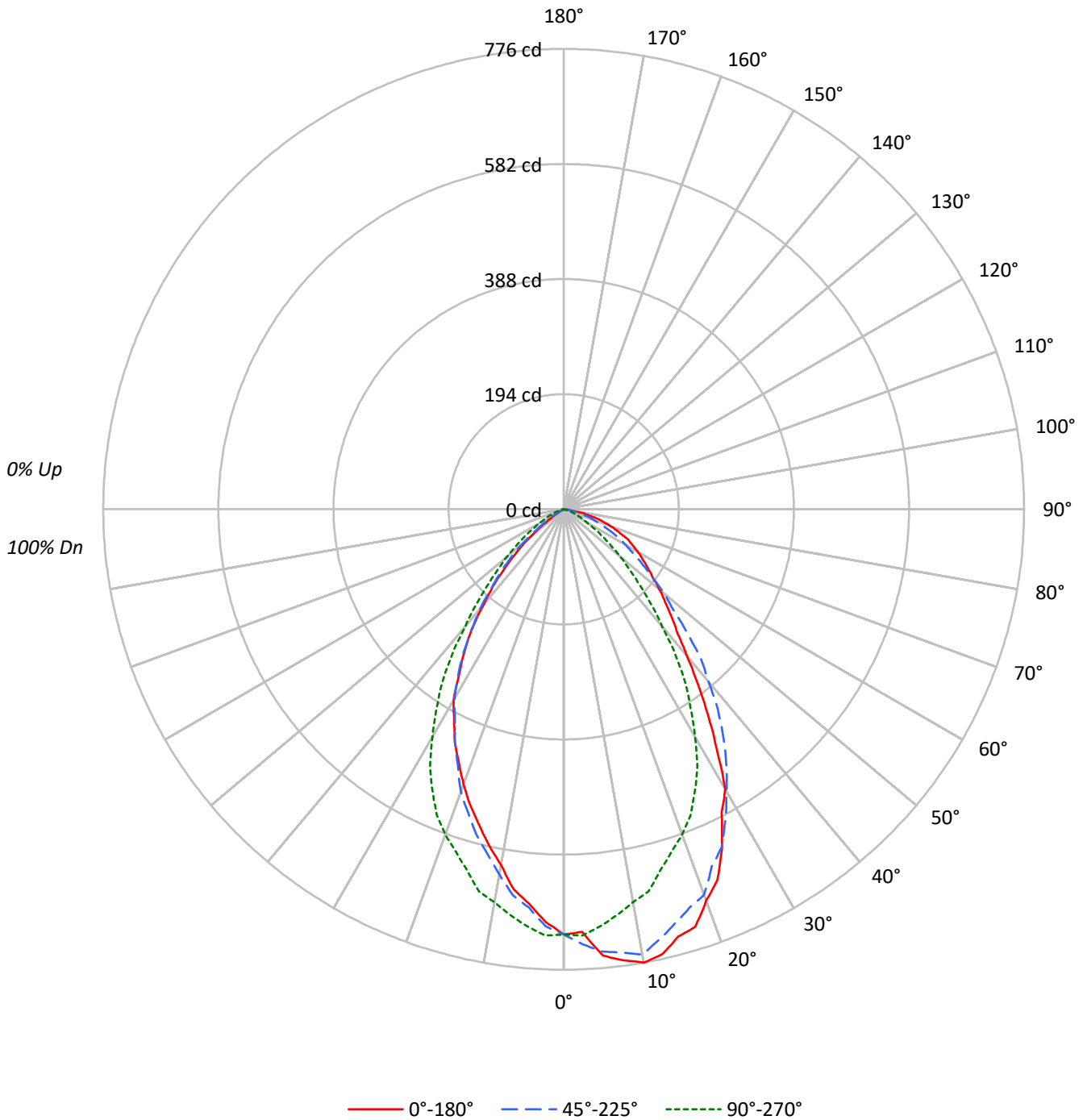
Lumens per Lamp: N/A  
 Luminaire Lumens: 1027.0 lumens  
 Efficiency: N/A  
 Efficacy: 65.0 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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

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

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 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	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°	69134	69134	69134
5°	73137	68314	64652
10°	76011	65909	59590
15°	74490	62902	55011
20°	72072	59894	50632
25°	67221	55702	46184
30°	60688	49290	41346
35°	49991	42193	34301
40°	40798	32573	26401
45°	35056	24739	18995
50°	31718	18824	11994
55°	29187	13576	4340
60°	28020	9282	656
65°	27055	6279	205
70°	24234	4345	254
75°	19870	2237	0
80°	12391	945	0
85°	0	0	0

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

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	67.1	6.5
10°-20°	180.9	17.6
20°-30°	241.5	23.5
30°-40°	229.3	22.3
40°-50°	158.5	15.4
50°-60°	87.6	8.5
60°-70°	43.5	4.2
70°-80°	17.1	1.7
80°-90°	1.6	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°	489.5	47.7
0°-40°	718.7	70.0
0°-60°	964.8	93.9
0°-90°	1027.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1027.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	716	716	716	716	716	
5°	755	748	705	674	668	72
15°	746	723	630	568	551	211
25°	631	629	523	434	434	288
35°	424	469	358	295	291	266
45°	257	295	181	149	139	200
55°	174	163	81	41	26	156
65°	118	86	28	1	1	115
75°	53	33	6	0	0	57
85°	0	1	0	0	0	5
90°	0	0	0	0	0	

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

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5
2.5°	713.0	732.8	734.5	732.8	735.4	734.5	738.8	734.5	739.7	731.9	733.7
5°	755.1	747.4	763.7	755.1	755.1	754.3	751.7	750.8	754.3	743.1	748.3
7.5°	766.3	777.5	792.1	774.0	774.9	774.9	769.7	768.0	768.0	747.4	753.4
10°	775.8	768.9	776.6	769.7	775.8	774.9	778.3	767.1	774.9	762.9	762.0
12.5°	768.0	765.4	775.8	764.6	761.2	762.0	757.7	755.1	757.7	744.0	743.1
15°	745.7	748.3	763.7	751.7	750.0	748.3	743.1	734.5	741.4	722.5	723.4
17.5°	738.0	733.7	736.2	725.9	728.5	726.8	725.9	718.2	716.5	704.4	704.4
20°	701.9	711.3	711.3	704.4	704.4	703.6	692.4	699.3	691.6	688.1	691.6
22.5°	676.9	677.8	677.8	671.8	672.7	669.2	663.2	658.9	663.2	658.9	652.0
25°	631.4	633.2	643.5	632.3	630.6	634.0	628.8	626.3	625.4	615.1	628.8
27.5°	576.4	593.6	592.8	588.5	593.6	586.7	584.2	585.0	587.6	586.7	590.2
30°	544.7	547.2	549.8	546.4	547.2	544.7	544.7	545.5	552.4	549.8	548.9
32.5°	480.2	488.8	495.7	495.7	496.5	499.1	498.3	516.3	520.6	512.0	510.3
35°	424.4	430.4	436.4	437.3	448.4	449.3	450.2	455.3	467.3	469.9	469.0
37.5°	371.1	377.1	378.8	386.6	392.6	398.6	405.5	412.4	422.7	431.2	427.0
40°	323.9	326.4	330.7	334.2	346.2	346.2	349.6	363.4	374.6	381.4	380.6
42.5°	284.4	285.2	288.6	294.7	305.8	303.3	305.8	315.3	331.6	332.5	341.9
45°	256.9	256.0	258.6	259.4	266.3	269.8	271.5	278.3	292.1	293.8	294.7
47.5°	232.0	231.1	235.4	237.1	239.7	243.1	243.1	244.0	249.1	253.4	250.0
50°	211.3	211.3	211.3	213.0	217.4	216.5	217.4	220.8	223.3	221.6	220.8
52.5°	189.0	192.4	195.0	195.9	196.7	196.7	197.6	195.9	195.0	192.4	187.3
55°	173.5	177.0	177.0	177.0	177.0	180.4	176.1	177.0	177.0	170.1	163.2
57.5°	158.1	161.5	164.1	160.6	164.1	160.6	158.9	158.1	156.3	149.5	139.2
60°	145.2	146.9	146.0	145.2	146.9	144.3	142.6	139.2	137.5	128.0	121.1
62.5°	130.6	131.4	132.3	130.6	128.9	128.0	124.6	119.4	116.0	108.2	102.2
65°	118.5	116.0	115.1	114.3	112.5	110.0	107.4	101.4	98.8	91.9	85.9
67.5°	100.5	99.7	101.4	98.8	94.5	94.5	91.9	86.8	80.7	76.5	70.4
70°	85.9	85.1	83.3	80.7	79.9	76.5	76.5	70.4	68.7	61.0	55.8
72.5°	70.4	70.4	67.9	65.3	62.7	61.0	60.1	55.8	53.3	49.0	44.7
75°	53.3	53.3	52.4	49.8	48.1	46.4	45.5	42.1	39.5	35.2	32.6
77.5°	37.8	37.8	34.4	32.6	33.5	31.8	30.1	29.2	28.3	25.8	22.3
80°	22.3	21.5	18.9	19.8	18.9	18.9	18.0	17.2	15.4	13.7	12.0
82.5°	6.0	6.9	6.9	6.9	7.7	6.0	6.0	6.0	6.9	6.9	4.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9
87.5°	0.9	1.7	3.4	3.4	3.4	3.4	3.4	2.6	2.6	2.6	1.7
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-H

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5
2.5°	725.1	724.2	725.1	719.1	732.8	722.5	720.8	719.1	725.1	719.1	710.5
5°	740.5	731.9	729.3	726.8	734.5	722.5	719.9	720.8	716.5	705.3	706.2
7.5°	745.7	738.0	730.2	713.9	720.8	718.2	711.3	706.2	699.3	689.8	688.1
10°	747.4	738.8	727.6	722.5	712.2	708.8	706.2	697.6	689.0	672.7	668.4
12.5°	742.2	731.9	718.2	713.9	706.2	695.0	689.0	680.4	672.7	659.8	650.3
15°	719.9	711.3	707.0	692.4	689.0	682.1	670.1	658.1	646.9	629.7	624.5
17.5°	694.1	690.7	686.4	675.2	674.4	667.5	656.3	646.0	631.4	604.8	596.2
20°	667.5	667.5	653.8	649.5	658.1	644.3	635.7	626.3	596.2	583.3	567.9
22.5°	647.8	638.3	630.6	623.7	624.5	616.0	603.9	585.0	573.9	558.4	540.4
25°	609.1	612.5	595.4	592.8	595.4	575.6	569.6	554.1	537.8	523.2	509.4
27.5°	585.0	575.6	564.4	555.0	555.0	547.2	530.1	526.6	501.7	488.0	470.8
30°	548.9	542.1	532.6	518.9	517.2	511.2	497.4	488.8	463.1	442.4	433.0
32.5°	503.4	500.9	493.1	477.7	472.5	465.6	448.4	433.8	421.8	398.6	387.5
35°	470.8	461.3	445.0	432.1	427.8	415.8	402.0	391.7	378.8	358.2	343.6
37.5°	421.8	412.4	396.9	381.4	381.4	369.4	350.5	340.2	322.2	310.1	298.1
40°	378.8	366.8	351.4	333.3	330.7	313.5	305.8	288.6	277.5	258.6	256.9
42.5°	330.7	319.6	305.8	292.1	281.8	273.2	253.4	240.5	228.5	219.1	216.5
45°	286.9	272.3	260.3	243.1	232.8	222.5	209.6	201.0	191.6	181.3	175.3
47.5°	249.1	237.1	219.9	204.5	194.2	189.0	174.4	165.0	157.2	150.3	146.0
50°	210.5	195.9	186.4	169.2	167.5	155.5	143.5	135.7	131.4	125.4	119.4
52.5°	181.3	167.5	154.6	141.8	134.9	130.6	119.4	111.7	105.7	101.4	97.9
55°	152.9	140.9	130.6	117.7	113.4	107.4	94.5	92.8	86.8	80.7	76.5
57.5°	131.4	120.3	108.2	99.7	91.9	87.6	77.3	70.4	67.0	61.9	57.6
60°	111.7	99.7	90.2	79.9	76.5	70.4	62.7	56.7	52.4	48.1	43.8
62.5°	93.6	83.3	73.0	64.4	59.3	55.8	49.8	44.7	40.4	37.0	33.5
65°	77.3	67.9	59.3	50.7	48.1	43.8	39.5	35.2	31.8	27.5	24.1
67.5°	63.6	55.0	46.4	40.4	37.8	36.1	30.9	26.6	24.1	21.5	18.0
70°	49.8	43.8	37.0	31.8	29.2	26.6	23.2	20.6	17.2	15.4	12.9
72.5°	38.7	33.5	27.5	23.2	21.5	19.8	16.3	13.7	12.0	10.3	8.6
75°	27.5	23.2	19.8	15.4	14.6	13.7	11.2	9.5	7.7	6.0	5.1
77.5°	18.9	15.4	12.0	10.3	9.5	7.7	6.9	5.1	4.3	3.4	2.6
80°	10.3	7.7	6.0	5.1	4.3	3.4	3.4	2.6	1.7	1.7	0.9
82.5°	3.4	2.6	1.7	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.9
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°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	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-H

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5
2.5°	715.6	706.2	708.8	708.8	707.0	707.0	705.3	702.7	703.6	698.4	687.3
5°	707.9	695.9	694.1	695.9	689.0	687.3	683.8	689.0	673.5	679.5	672.7
7.5°	685.6	674.4	671.8	677.8	669.2	664.1	663.2	670.1	656.3	649.5	641.7
10°	660.6	656.3	648.6	644.3	641.7	642.6	635.7	627.1	624.5	622.8	616.0
12.5°	638.3	628.8	622.0	616.8	615.1	615.1	603.9	602.2	594.5	592.8	582.5
15°	611.7	600.5	596.2	589.3	583.3	586.7	573.9	570.4	567.9	556.7	558.4
17.5°	588.5	576.4	566.1	561.8	556.7	551.5	539.5	542.1	536.1	536.1	520.6
20°	558.4	545.5	537.8	529.2	529.2	522.3	513.7	514.6	506.8	499.1	485.4
22.5°	526.6	512.9	503.4	500.0	491.4	489.7	479.4	476.8	466.5	467.3	455.3
25°	493.1	479.4	466.5	467.3	459.6	456.2	450.2	438.1	433.8	428.7	425.3
27.5°	453.6	444.1	433.0	432.1	417.5	418.4	410.7	407.2	396.9	399.5	391.7
30°	417.5	403.8	393.5	390.9	384.9	383.2	371.1	366.0	367.7	360.8	356.5
32.5°	380.6	360.0	355.7	350.5	347.1	342.8	334.2	337.6	329.9	331.6	324.7
35°	331.6	323.0	311.8	311.8	308.4	305.0	299.0	302.4	294.7	291.2	284.4
37.5°	290.4	282.7	271.5	274.9	268.9	263.7	258.6	259.4	252.6	251.7	244.8
40°	245.7	241.4	233.7	233.7	229.4	229.4	226.8	224.2	219.9	214.8	207.0
42.5°	203.6	200.2	196.7	197.6	191.6	196.7	189.9	194.2	180.4	179.6	174.4
45°	172.7	165.0	165.8	162.4	158.9	160.6	154.6	156.3	148.6	146.9	141.8
47.5°	140.0	137.5	132.3	130.6	130.6	128.0	125.4	124.6	121.1	116.8	110.0
50°	115.1	105.7	103.9	101.4	99.7	99.7	96.2	91.1	91.9	87.6	80.7
52.5°	90.2	82.5	79.0	78.2	74.8	73.0	68.7	65.3	62.7	61.0	56.7
55°	69.6	62.7	58.4	58.4	53.3	53.3	47.3	44.7	41.2	37.8	35.2
57.5°	52.4	49.0	44.7	41.2	39.5	35.2	31.8	27.5	24.9	19.8	16.3
60°	39.5	36.1	31.8	29.2	27.5	23.2	18.9	15.4	9.5	7.7	6.9
62.5°	29.2	25.8	21.5	19.8	18.0	14.6	10.3	5.1	2.6	2.6	2.6
65°	21.5	17.2	13.7	12.0	10.3	7.7	3.4	1.7	0.9	0.9	0.9
67.5°	14.6	11.2	7.7	6.9	5.1	2.6	0.9	0.9	0.9	0.9	0.9
70°	9.5	6.9	3.4	2.6	1.7	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	6.0	3.4	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	3.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.9	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	0.9	0.9	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



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

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	716.5	716.5	716.5	716.5	716.5	716.5	716.5	716.5
2.5°	699.3	693.3	696.7	689.0	692.4	698.4	694.1	695.9
5°	675.2	671.8	667.5	656.3	664.9	671.8	668.4	667.5
7.5°	649.5	637.4	643.5	640.0	638.3	645.2	637.4	646.0
10°	622.8	614.2	613.4	607.4	607.4	612.5	613.4	608.2
12.5°	583.3	579.0	579.0	578.2	577.3	582.5	583.3	580.8
15°	555.0	553.3	548.9	548.1	543.0	550.7	551.5	550.7
17.5°	520.6	521.4	517.2	517.2	520.6	523.2	516.3	523.2
20°	497.4	493.1	491.4	483.7	488.0	492.3	492.3	493.1
22.5°	463.9	457.0	459.6	455.3	452.7	458.7	458.7	461.3
25°	426.1	426.1	427.8	425.3	427.0	430.4	427.8	433.8
27.5°	390.0	393.5	393.5	390.0	391.7	402.0	406.3	399.5
30°	356.5	357.4	360.0	358.2	363.4	366.8	366.0	371.1
32.5°	318.7	323.0	324.7	322.2	323.9	331.6	327.3	326.4
35°	289.5	281.8	280.9	281.8	285.2	286.9	285.2	291.2
37.5°	247.4	244.8	241.4	242.3	244.8	248.3	250.0	254.3
40°	207.0	203.6	203.6	202.8	200.2	209.6	209.6	209.6
42.5°	171.8	170.9	166.7	166.7	170.1	172.7	170.9	177.0
45°	140.9	137.5	134.9	134.9	137.5	137.5	140.0	139.2
47.5°	110.8	107.4	108.2	105.7	108.2	111.7	107.4	108.2
50°	83.3	83.3	81.6	83.3	82.5	83.3	81.6	79.9
52.5°	56.7	64.4	65.3	61.9	54.1	47.3	42.9	46.4
55°	32.6	29.2	29.2	28.3	26.6	25.8	23.2	25.8
57.5°	16.3	14.6	14.6	14.6	13.7	12.9	11.2	11.2
60°	6.9	6.0	6.0	5.1	4.3	3.4	2.6	3.4
62.5°	2.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7
65°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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)