

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 FEU4C159040 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 FEU4C159040 F4LC-SQLWW-LI  
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

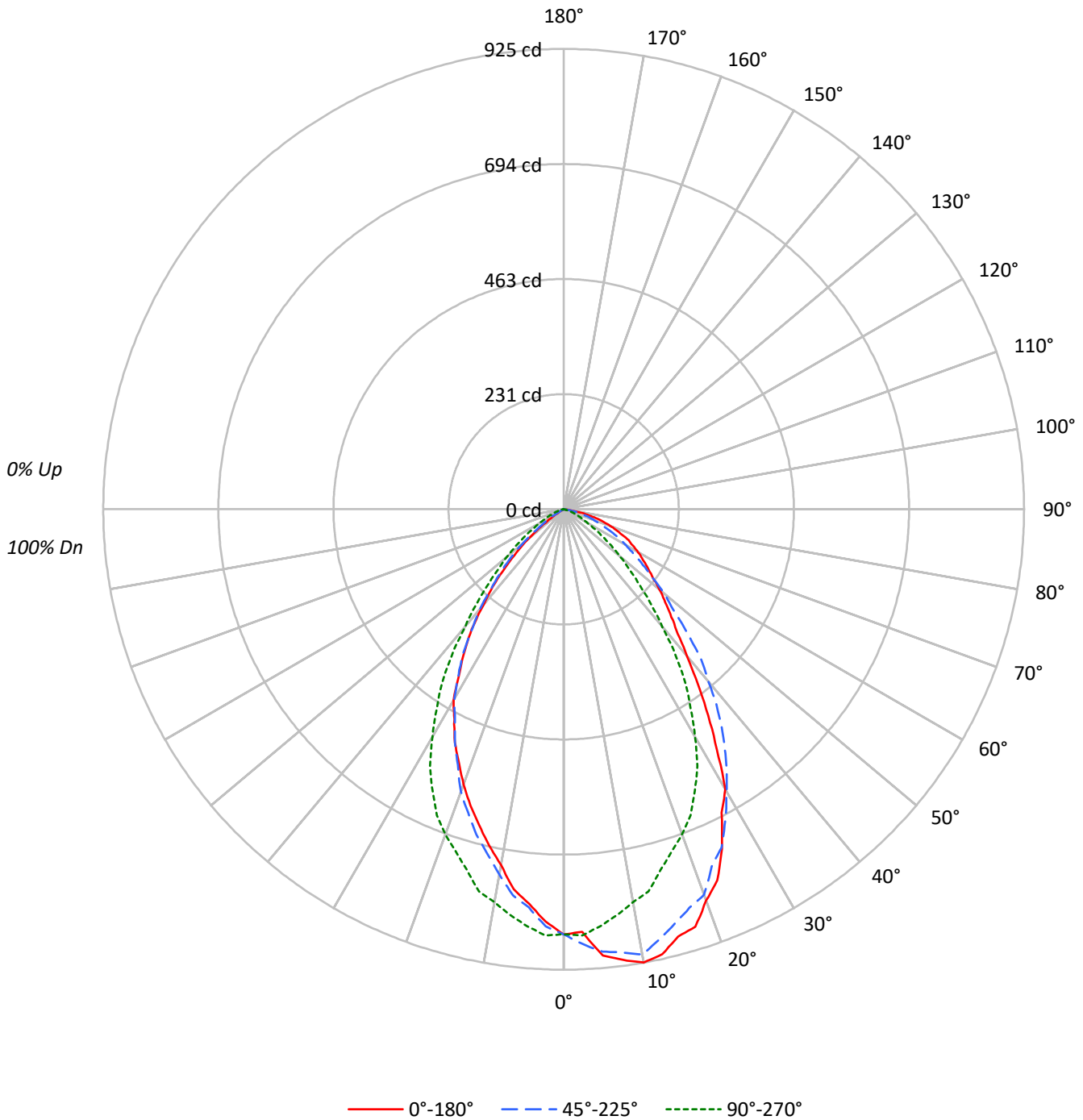
Lumens per Lamp: N/A  
 Luminaire Lumens: 1224.0 lumens  
 Efficiency: N/A  
 Efficacy: 77.5 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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 FEU4C159040 F4LC-SQLWW-LI

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C15D010 FEU4C159040 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°	82392	82392	82392
5°	87172	81418	77060
10°	90590	78548	71024
15°	88775	74969	65560
20°	85893	71384	60346
25°	80125	66380	55052
30°	72331	58750	49279
35°	59579	50297	40885
40°	48620	38820	31464
45°	41769	29474	22638
50°	37813	22441	14290
55°	34789	16183	5164
60°	33385	11058	791
65°	32261	7489	228
70°	28889	5191	282
75°	23673	2684	0
80°	14780	1111	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	80.0	6.5
10°-20°	215.5	17.6
20°-30°	287.8	23.5
30°-40°	273.2	22.3
40°-50°	188.9	15.4
50°-60°	104.4	8.5
60°-70°	51.8	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°	583.4	47.7
0°-40°	856.6	70.0
0°-60°	1149.8	93.9
0°-90°	1224.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1224.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	854	854	854	854	854	
5°	900	892	841	803	796	86
15°	889	862	750	677	656	251
25°	753	750	624	517	517	343
35°	506	559	427	351	347	317
45°	306	351	216	177	166	239
55°	207	194	96	49	31	186
65°	141	102	33	1	1	137
75°	64	39	7	0	0	68
85°	0	1	0	0	0	6
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159040 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9
2.5°	849.8	873.3	875.4	873.3	876.4	875.4	880.5	875.4	881.6	872.3	874.4
5°	900.0	890.8	910.2	900.0	900.0	899.0	895.9	894.8	899.0	885.7	891.8
7.5°	913.3	926.6	944.0	922.5	923.5	923.5	917.4	915.3	915.3	890.8	897.9
10°	924.6	916.3	925.6	917.4	924.6	923.5	927.6	914.3	923.5	909.2	908.2
12.5°	915.3	912.3	924.6	911.3	907.2	908.2	903.1	900.0	903.1	886.7	885.7
15°	888.7	891.8	910.2	895.9	893.8	891.8	885.7	875.4	883.6	861.1	862.1
17.5°	879.5	874.4	877.5	865.2	868.3	866.2	865.2	856.0	853.9	839.6	839.6
20°	836.5	847.8	847.8	839.6	839.6	838.6	825.2	833.4	824.2	820.1	824.2
22.5°	806.8	807.8	807.8	800.7	801.7	797.6	790.4	785.3	790.4	785.3	777.1
25°	752.6	754.6	766.9	753.6	751.5	755.6	749.5	746.4	745.4	733.1	749.5
27.5°	687.0	707.5	706.5	701.3	707.5	699.3	696.2	697.2	700.3	699.3	703.4
30°	649.2	652.2	655.3	651.2	652.2	649.2	649.2	650.2	658.3	655.3	654.2
32.5°	572.3	582.6	590.8	590.8	591.8	594.9	593.8	615.3	620.5	610.2	608.2
35°	505.8	513.0	520.1	521.2	534.5	535.5	536.5	542.7	557.0	560.1	559.0
37.5°	442.3	449.5	451.5	460.7	467.9	475.1	483.3	491.5	503.7	514.0	508.9
40°	386.0	389.1	394.2	398.3	412.6	412.6	416.7	433.1	446.4	454.6	453.6
42.5°	338.9	339.9	344.0	351.2	364.5	361.4	364.5	375.8	395.2	396.2	407.5
45°	306.1	305.1	308.2	309.2	317.4	321.5	323.6	331.7	348.1	350.1	351.2
47.5°	276.5	275.4	280.6	282.6	285.6	289.7	289.7	290.8	296.9	302.1	298.0
50°	251.9	251.9	251.9	253.9	259.1	258.0	259.1	263.1	266.2	264.1	263.1
52.5°	225.2	229.3	232.4	233.5	234.5	234.5	235.5	233.5	232.4	229.3	223.2
55°	206.8	210.9	210.9	210.9	210.9	215.0	209.9	210.9	210.9	202.7	194.5
57.5°	188.4	192.5	195.6	191.5	195.6	191.5	189.4	188.4	186.3	178.1	165.9
60°	173.0	175.1	174.1	173.0	175.1	172.0	170.0	165.9	163.8	152.6	144.4
62.5°	155.6	156.6	157.7	155.6	153.6	152.6	148.5	142.3	138.2	129.0	121.8
65°	141.3	138.2	137.2	136.2	134.1	131.0	128.0	120.8	117.7	109.5	102.4
67.5°	119.8	118.8	120.8	117.7	112.6	112.6	109.5	103.4	96.2	91.1	84.0
70°	102.4	101.4	99.3	96.2	95.2	91.1	91.1	84.0	81.9	72.7	66.5
72.5°	84.0	84.0	80.9	77.8	74.7	72.7	71.7	66.5	63.5	58.4	53.2
75°	63.5	63.5	62.5	59.4	57.3	55.3	54.3	50.2	47.1	42.0	38.9
77.5°	45.0	45.0	41.0	38.9	39.9	37.9	35.8	34.8	33.8	30.7	26.6
80°	26.6	25.6	22.5	23.5	22.5	22.5	21.5	20.5	18.4	16.4	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

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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9
2.5°	864.2	863.1	864.2	857.0	873.3	861.1	859.0	857.0	864.2	857.0	846.8
5°	882.6	872.3	869.3	866.2	875.4	861.1	858.0	859.0	853.9	840.6	841.6
7.5°	888.7	879.5	870.3	850.8	859.0	856.0	847.8	841.6	833.4	822.2	820.1
10°	890.8	880.5	867.2	861.1	848.8	844.7	841.6	831.4	821.2	801.7	796.6
12.5°	884.6	872.3	856.0	850.8	841.6	828.3	821.2	810.9	801.7	786.3	775.1
15°	858.0	847.8	842.7	825.2	821.2	812.9	798.6	784.3	771.0	750.5	744.3
17.5°	827.3	823.2	818.1	804.8	803.7	795.6	782.2	769.9	752.6	720.8	710.6
20°	795.6	795.6	779.2	774.1	784.3	767.9	757.7	746.4	710.6	695.2	676.8
22.5°	772.0	760.7	751.5	743.3	744.3	734.1	719.8	697.2	683.9	665.5	644.0
25°	725.9	730.0	709.6	706.5	709.6	686.0	678.8	660.4	640.9	623.5	607.2
27.5°	697.2	686.0	672.7	661.4	661.4	652.2	631.7	627.7	597.9	581.6	561.1
30°	654.2	646.1	634.8	618.4	616.4	609.2	592.8	582.6	551.9	527.3	516.0
32.5°	600.0	596.9	587.7	569.3	563.1	554.9	534.5	517.1	502.7	475.1	461.8
35°	561.1	549.8	530.4	515.0	509.9	495.6	479.2	466.9	451.5	427.0	409.6
37.5°	502.7	491.5	473.0	454.6	454.6	440.3	417.7	405.5	384.0	369.6	355.3
40°	451.5	437.2	418.8	397.3	394.2	373.7	364.5	344.0	330.7	308.2	306.1
42.5°	394.2	380.9	364.5	348.1	335.8	325.6	302.1	286.7	272.4	261.1	258.0
45°	342.0	324.6	310.2	289.7	277.5	265.2	249.8	239.6	228.3	216.0	208.9
47.5°	296.9	282.6	262.1	243.7	231.4	225.2	207.8	196.6	187.4	179.2	174.1
50°	250.9	233.5	222.2	201.7	199.6	185.3	171.0	161.8	156.6	149.5	142.3
52.5°	216.0	199.6	184.3	169.0	160.7	155.6	142.3	133.1	126.0	120.8	116.7
55°	182.2	167.9	155.6	140.3	135.1	128.0	112.6	110.6	103.4	96.2	91.1
57.5°	156.6	143.3	129.0	118.8	109.5	104.5	92.1	84.0	79.9	73.7	68.6
60°	133.1	118.8	107.5	95.2	91.1	84.0	74.7	67.6	62.5	57.3	52.2
62.5°	111.6	99.3	87.0	76.8	70.6	66.5	59.4	53.2	48.1	44.0	39.9
65°	92.1	80.9	70.6	60.4	57.3	52.2	47.1	42.0	37.9	32.8	28.7
67.5°	75.8	65.5	55.3	48.1	45.0	43.0	36.9	31.7	28.7	25.6	21.5
70°	59.4	52.2	44.0	37.9	34.8	31.7	27.6	24.6	20.5	18.4	15.4
72.5°	46.1	39.9	32.8	27.6	25.6	23.5	19.5	16.4	14.3	12.3	10.2
75°	32.8	27.6	23.5	18.4	17.4	16.4	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#  
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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9
2.5°	852.9	841.6	844.7	844.7	842.7	842.7	840.6	837.5	838.6	832.4	819.1
5°	843.7	829.3	827.3	829.3	821.2	819.1	815.0	821.2	802.7	809.9	801.7
7.5°	817.1	803.7	800.7	807.8	797.6	791.4	790.4	798.6	782.2	774.1	764.8
10°	787.3	782.2	773.0	767.9	764.8	765.8	757.7	747.4	744.3	742.3	734.1
12.5°	760.7	749.5	741.3	735.2	733.1	733.1	719.8	717.7	708.5	706.5	694.2
15°	729.0	715.7	710.6	702.4	695.2	699.3	683.9	679.8	676.8	663.5	665.5
17.5°	701.3	687.0	674.7	669.6	663.5	657.3	643.0	646.1	638.9	638.9	620.5
20°	665.5	650.2	640.9	630.7	630.7	622.5	612.3	613.3	604.1	594.9	578.5
22.5°	627.7	611.2	600.0	595.9	585.7	583.6	571.3	568.2	556.0	557.0	542.7
25°	587.7	571.3	556.0	557.0	547.8	543.7	536.5	522.2	517.1	510.9	506.8
27.5°	540.6	529.3	516.0	515.0	497.6	498.6	489.4	485.3	473.0	476.1	466.9
30°	497.6	481.2	468.9	465.9	458.7	456.6	442.3	436.2	438.2	430.0	424.9
32.5°	453.6	429.0	423.9	417.7	413.6	408.5	398.3	402.4	393.1	395.2	387.0
35°	395.2	385.0	371.6	371.6	367.6	363.5	356.3	360.4	351.2	347.1	338.9
37.5°	346.1	336.9	323.6	327.6	320.5	314.3	308.2	309.2	301.0	300.0	291.8
40°	292.8	287.7	278.5	278.5	273.4	273.4	270.3	267.2	262.1	256.0	246.7
42.5°	242.6	238.6	234.5	235.5	228.3	234.5	226.3	231.4	215.0	214.0	207.8
45°	205.8	196.6	197.6	193.5	189.4	191.5	184.3	186.3	177.1	175.1	169.0
47.5°	166.9	163.8	157.7	155.6	155.6	152.6	149.5	148.5	144.4	139.2	131.0
50°	137.2	126.0	123.9	120.8	118.8	118.8	114.7	108.5	109.5	104.5	96.2
52.5°	107.5	98.3	94.2	93.2	89.1	87.0	81.9	77.8	74.7	72.7	67.6
55°	82.9	74.7	69.6	69.6	63.5	63.5	56.3	53.2	49.1	45.0	42.0
57.5°	62.5	58.4	53.2	49.1	47.1	42.0	37.9	32.8	29.7	23.5	19.5
60°	47.1	43.0	37.9	34.8	32.8	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	20.5	16.4	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 FEU4C159040 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	853.9	853.9	853.9	853.9	853.9	853.9	853.9	853.9
2.5°	833.4	826.3	830.3	821.2	825.2	832.4	827.3	829.3
5°	804.8	800.7	795.6	782.2	792.5	800.7	796.6	795.6
7.5°	774.1	759.7	766.9	762.8	760.7	768.9	759.7	769.9
10°	742.3	732.1	731.1	723.9	723.9	730.0	731.1	724.9
12.5°	695.2	690.1	690.1	689.1	688.0	694.2	695.2	692.2
15°	661.4	659.4	654.2	653.2	647.1	656.3	657.3	656.3
17.5°	620.5	621.5	616.4	616.4	620.5	623.5	615.3	623.5
20°	592.8	587.7	585.7	576.4	581.6	586.7	586.7	587.7
22.5°	552.9	544.7	547.8	542.7	539.6	546.7	546.7	549.8
25°	507.8	507.8	509.9	506.8	508.9	513.0	509.9	517.1
27.5°	464.8	468.9	468.9	464.8	466.9	479.2	484.3	476.1
30°	424.9	425.9	429.0	427.0	433.1	437.2	436.2	442.3
32.5°	379.9	385.0	387.0	384.0	386.0	395.2	390.1	389.1
35°	345.1	335.8	334.8	335.8	339.9	342.0	339.9	347.1
37.5°	294.9	291.8	287.7	288.7	291.8	295.9	298.0	303.1
40°	246.7	242.6	242.6	241.6	238.6	249.8	249.8	249.8
42.5°	204.8	203.7	198.6	198.6	202.7	205.8	203.7	210.9
45°	167.9	163.8	160.7	160.7	163.8	163.8	166.9	165.9
47.5°	132.1	128.0	129.0	126.0	129.0	133.1	128.0	129.0
50°	99.3	99.3	97.3	99.3	98.3	99.3	97.3	95.2
52.5°	67.6	76.8	77.8	73.7	64.5	56.3	51.2	55.3
55°	38.9	34.8	34.8	33.8	31.7	30.7	27.6	30.7
57.5°	19.5	17.4	17.4	17.4	16.4	15.4	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)