

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 FEU4C159050 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 FEU4C159050 F4LC-SQLWW-LI
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

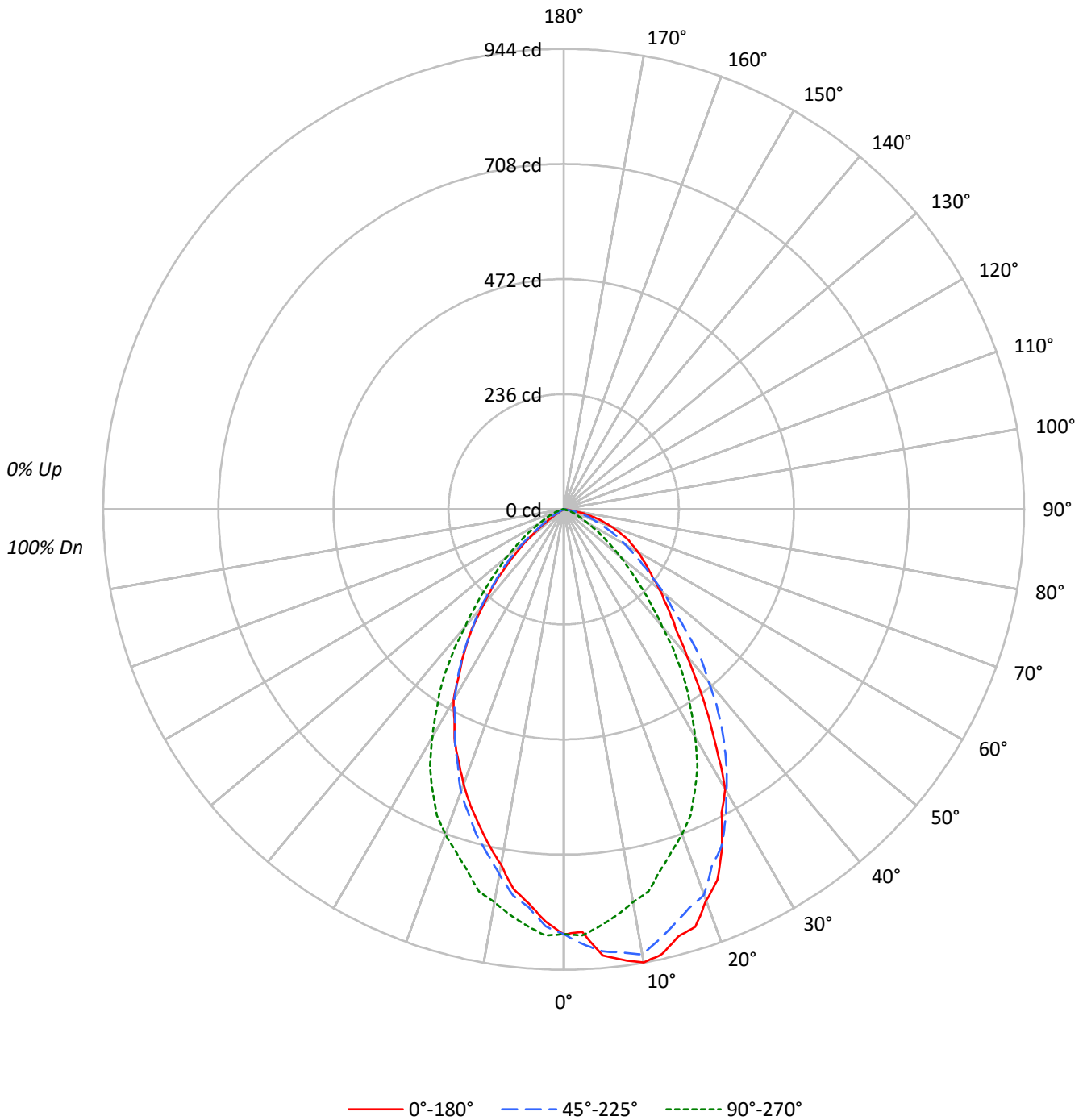
Lumens per Lamp: N/A
 Luminaire Lumens: 1249.0 lumens
 Efficiency: N/A
 Efficacy: 79.1 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C159050 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				
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°	84071	84071	84071
5°	88954	83084	78629
10°	92442	80155	72474
15°	90593	76498	66898
20°	87649	72842	61578
25°	81753	67743	56170
30°	73802	59953	50293
35°	60792	51322	41722
40°	49615	39614	32107
45°	42629	30089	23102
50°	38578	22907	14591
55°	35495	16520	5282
60°	34080	11289	811
65°	32923	7626	251
70°	29481	5304	310
75°	24158	2721	0
80°	15114	1167	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.6	6.5
10°-20°	219.9	17.6
20°-30°	293.7	23.5
30°-40°	278.8	22.3
40°-50°	192.7	15.4
50°-60°	106.5	8.5
60°-70°	52.9	4.2
70°-80°	20.8	1.7
80°-90°	2.0	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°	595.3	47.7
0°-40°	874.1	70.0
0°-60°	1173.3	93.9
0°-90°	1249.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1249.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	871	871	871	871	871	
5°	918	910	858	819	812	88
15°	907	880	766	691	670	257
25°	768	765	636	528	528	350
35°	516	570	436	358	354	323
45°	312	358	220	181	169	244
55°	211	198	98	50	31	190
65°	144	104	33	1	1	140
75°	65	40	7	0	0	69
85°	0	1	0	0	0	6
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3
2.5°	867.2	891.2	893.3	891.2	894.3	893.3	898.5	893.3	899.6	890.2	892.2
5°	918.4	908.9	928.8	918.4	918.4	917.3	914.2	913.1	917.3	903.7	910.0
7.5°	932.0	945.5	963.3	941.4	942.4	942.4	936.1	934.0	934.0	908.9	916.3
10°	943.5	935.1	944.5	936.1	943.5	942.4	946.6	933.0	942.4	927.8	926.7
12.5°	934.0	930.9	943.5	929.9	925.7	926.7	921.5	918.4	921.5	904.8	903.7
15°	906.9	910.0	928.8	914.2	912.1	910.0	903.7	893.3	901.7	878.7	879.7
17.5°	897.5	892.2	895.4	882.8	886.0	883.9	882.8	873.5	871.3	856.7	856.7
20°	853.6	865.1	865.1	856.7	856.7	855.7	842.1	850.5	841.0	836.9	841.0
22.5°	823.3	824.3	824.3	817.0	818.1	813.9	806.6	801.3	806.6	801.3	793.0
25°	767.9	770.0	782.5	769.0	766.9	771.0	764.8	761.6	760.6	748.1	764.8
27.5°	701.1	721.9	720.9	715.7	721.9	713.6	710.5	711.5	714.6	713.6	717.8
30°	662.4	665.5	668.7	664.5	665.5	662.4	662.4	663.4	671.8	668.7	667.6
32.5°	584.0	594.5	602.9	602.9	603.9	607.0	606.0	627.9	633.1	622.7	620.6
35°	516.1	523.4	530.7	531.8	545.4	546.4	547.5	553.7	568.3	571.5	570.4
37.5°	451.4	458.6	460.7	470.2	477.5	484.8	493.2	501.5	514.0	524.5	519.3
40°	393.9	397.0	402.2	406.4	421.0	421.0	425.2	441.9	455.5	463.9	462.8
42.5°	345.8	346.9	351.0	358.4	372.0	368.8	372.0	383.5	403.3	404.3	415.8
45°	312.4	311.3	314.5	315.5	323.9	328.1	330.2	338.5	355.2	357.3	358.4
47.5°	282.1	281.0	286.3	288.4	291.5	295.7	295.7	296.7	303.0	308.2	304.0
50°	257.0	257.0	257.0	259.1	264.3	263.3	264.3	268.5	271.6	269.5	268.5
52.5°	229.8	234.0	237.2	238.2	239.3	239.3	240.3	238.2	237.2	234.0	227.7
55°	211.0	215.2	215.2	215.2	215.2	219.4	214.2	215.2	215.2	206.9	198.5
57.5°	192.3	196.4	199.5	195.4	199.5	195.4	193.3	192.3	190.1	181.8	169.3
60°	176.6	178.7	177.6	176.6	178.7	175.5	173.4	169.3	167.2	155.7	147.3
62.5°	158.8	159.8	160.9	158.8	156.7	155.7	151.5	145.2	141.1	131.6	124.3
65°	144.2	141.1	140.0	139.0	136.9	133.7	130.6	123.3	120.1	111.8	104.5
67.5°	122.2	121.2	123.3	120.1	114.9	114.9	111.8	105.5	98.2	93.0	85.7
70°	104.5	103.4	101.3	98.2	97.2	93.0	93.0	85.7	83.6	74.2	67.9
72.5°	85.7	85.7	82.5	79.4	76.3	74.2	73.1	67.9	64.8	59.6	54.3
75°	64.8	64.8	63.7	60.6	58.5	56.4	55.4	51.2	48.1	42.9	39.7
77.5°	46.0	46.0	41.8	39.7	40.7	38.6	36.6	35.5	34.5	31.4	27.2
80°	27.2	26.1	23.0	24.0	23.0	23.0	21.9	20.9	18.8	16.7	14.6
82.5°	7.3	8.4	8.4	8.4	9.4	7.3	7.3	7.3	8.4	8.4	5.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1
87.5°	1.1	2.1	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	2.1
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°	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3
2.5°	881.8	880.7	881.8	874.5	891.2	878.7	876.6	874.5	881.8	874.5	864.0
5°	900.6	890.2	887.0	883.9	893.3	878.7	875.5	876.6	871.3	857.8	858.8
7.5°	906.9	897.5	888.1	868.2	876.6	873.5	865.1	858.8	850.5	839.0	836.9
10°	908.9	898.5	884.9	878.7	866.1	862.0	858.8	848.4	837.9	818.1	812.8
12.5°	902.7	890.2	873.5	868.2	858.8	845.2	837.9	827.5	818.1	802.4	790.9
15°	875.5	865.1	859.9	842.1	837.9	829.5	814.9	800.3	786.7	765.8	759.5
17.5°	844.2	840.0	834.8	821.2	820.2	811.8	798.2	785.7	767.9	735.5	725.1
20°	811.8	811.8	795.1	789.9	800.3	783.6	773.1	761.6	725.1	709.4	690.6
22.5°	787.8	776.3	766.9	758.5	759.5	749.1	734.5	711.5	697.9	679.1	657.2
25°	740.8	744.9	724.1	720.9	724.1	700.0	692.7	673.9	654.0	636.3	619.6
27.5°	711.5	700.0	686.4	674.9	674.9	665.5	644.6	640.5	610.1	593.4	572.5
30°	667.6	659.3	647.8	631.1	629.0	621.6	604.9	594.5	563.1	538.1	526.6
32.5°	612.2	609.1	599.7	580.9	574.7	566.3	545.4	527.6	513.0	484.8	471.2
35°	572.5	561.1	541.2	525.5	520.3	505.7	488.9	476.4	460.7	435.7	417.9
37.5°	513.0	501.5	482.7	463.9	463.9	449.3	426.3	413.7	391.8	377.2	362.5
40°	460.7	446.1	427.3	405.4	402.2	381.3	372.0	351.0	337.4	314.5	312.4
42.5°	402.2	388.7	372.0	355.2	342.7	332.2	308.2	292.5	277.9	266.4	263.3
45°	348.9	331.2	316.6	295.7	283.1	270.6	254.9	244.5	233.0	220.5	213.1
47.5°	303.0	288.4	267.5	248.7	236.1	229.8	212.1	200.6	191.2	182.8	177.6
50°	256.0	238.2	226.7	205.8	203.7	189.1	174.5	165.1	159.8	152.6	145.2
52.5°	220.5	203.7	188.0	172.4	164.0	158.8	145.2	135.8	128.5	123.3	119.1
55°	186.0	171.3	158.8	143.1	137.9	130.6	114.9	112.9	105.5	98.2	93.0
57.5°	159.8	146.3	131.6	121.2	111.8	106.6	94.0	85.7	81.5	75.2	70.0
60°	135.8	121.2	109.7	97.2	93.0	85.7	76.3	69.0	63.7	58.5	53.3
62.5°	113.9	101.3	88.8	78.3	72.1	67.9	60.6	54.3	49.1	44.9	40.7
65°	94.0	82.5	72.1	61.6	58.5	53.3	48.1	42.9	38.6	33.4	29.3
67.5°	77.3	66.9	56.4	49.1	46.0	43.9	37.6	32.4	29.3	26.1	21.9
70°	60.6	53.3	44.9	38.6	35.5	32.4	28.2	25.1	20.9	18.8	15.7
72.5°	47.0	40.7	33.4	28.2	26.1	24.0	19.9	16.7	14.6	12.5	10.4
75°	33.4	28.2	24.0	18.8	17.8	16.7	13.6	11.5	9.4	7.3	6.3
77.5°	23.0	18.8	14.6	12.5	11.5	9.4	8.4	6.3	5.2	4.2	3.2
80°	12.5	9.4	7.3	6.3	5.2	4.2	4.2	3.2	2.1	2.1	1.1
82.5°	4.2	3.2	2.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	1.1
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°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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°	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3
2.5°	870.3	858.8	862.0	862.0	859.9	859.9	857.8	854.6	855.7	849.4	835.8
5°	860.9	846.3	844.2	846.3	837.9	835.8	831.7	837.9	819.1	826.4	818.1
7.5°	833.8	820.2	817.0	824.3	813.9	807.6	806.6	814.9	798.2	789.9	780.5
10°	803.4	798.2	788.8	783.6	780.5	781.5	773.1	762.7	759.5	757.5	749.1
12.5°	776.3	764.8	756.4	750.2	748.1	748.1	734.5	732.4	723.0	720.9	708.4
15°	743.9	730.3	725.1	716.7	709.4	713.6	697.9	693.7	690.6	677.0	679.1
17.5°	715.7	701.1	688.5	683.3	677.0	670.8	656.1	659.3	651.9	651.9	633.1
20°	679.1	663.4	654.0	643.6	643.6	635.2	624.8	625.8	616.4	607.0	590.3
22.5°	640.5	623.7	612.2	608.1	597.6	595.5	583.0	579.9	567.3	568.3	553.7
25°	599.7	583.0	567.3	568.3	559.0	554.8	547.5	532.9	527.6	521.4	517.2
27.5°	551.6	540.1	526.6	525.5	507.8	508.8	499.4	495.2	482.7	485.8	476.4
30°	507.8	491.1	478.5	475.4	468.1	466.0	451.4	445.1	447.2	438.8	433.6
32.5°	462.8	437.8	432.5	426.3	422.1	416.9	406.4	410.6	401.2	403.3	394.9
35°	403.3	392.8	379.2	379.2	375.1	370.9	363.6	367.8	358.4	354.2	345.8
37.5°	353.1	343.8	330.2	334.3	327.0	320.7	314.5	315.5	307.2	306.1	297.7
40°	298.8	293.6	284.2	284.2	279.0	279.0	275.8	272.7	267.5	261.2	251.8
42.5°	247.6	243.4	239.3	240.3	233.0	239.3	230.9	236.1	219.4	218.4	212.1
45°	210.0	200.6	201.6	197.5	193.3	195.4	188.0	190.1	180.8	178.7	172.4
47.5°	170.3	167.2	160.9	158.8	158.8	155.7	152.6	151.5	147.3	142.1	133.7
50°	140.0	128.5	126.4	123.3	121.2	121.2	117.0	110.8	111.8	106.6	98.2
52.5°	109.7	100.3	96.1	95.1	90.9	88.8	83.6	79.4	76.3	74.2	69.0
55°	84.6	76.3	71.1	71.1	64.8	64.8	57.5	54.3	50.1	46.0	42.9
57.5°	63.7	59.6	54.3	50.1	48.1	42.9	38.6	33.4	30.3	24.0	19.9
60°	48.1	43.9	38.6	35.5	33.4	28.2	23.0	18.8	11.5	9.4	8.4
62.5°	35.5	31.4	26.1	24.0	21.9	17.8	12.5	6.3	3.2	3.2	3.2
65°	26.1	20.9	16.7	14.6	12.5	9.4	4.2	2.1	1.1	1.1	1.1
67.5°	17.8	13.6	9.4	8.4	6.3	3.2	1.1	1.1	1.1	1.1	1.1
70°	11.5	8.4	4.2	3.2	2.1	1.1	1.1	1.1	1.1	1.1	1.1
72.5°	7.3	4.2	2.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	4.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.1	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	1.1	1.1	1.1
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 FEU4C159050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3
2.5°	850.5	843.1	847.3	837.9	842.1	849.4	844.2	846.3
5°	821.2	817.0	811.8	798.2	808.7	817.0	812.8	811.8
7.5°	789.9	775.2	782.5	778.4	776.3	784.6	775.2	785.7
10°	757.5	747.0	746.0	738.7	738.7	744.9	746.0	739.7
12.5°	709.4	704.2	704.2	703.1	702.1	708.4	709.4	706.3
15°	674.9	672.8	667.6	666.6	660.3	669.7	670.8	669.7
17.5°	633.1	634.2	629.0	629.0	633.1	636.3	627.9	636.3
20°	604.9	599.7	597.6	588.2	593.4	598.7	598.7	599.7
22.5°	564.2	555.8	559.0	553.7	550.6	557.9	557.9	561.1
25°	518.2	518.2	520.3	517.2	519.3	523.4	520.3	527.6
27.5°	474.3	478.5	478.5	474.3	476.4	488.9	494.2	485.8
30°	433.6	434.6	437.8	435.7	441.9	446.1	445.1	451.4
32.5°	387.6	392.8	394.9	391.8	393.9	403.3	398.1	397.0
35°	352.1	342.7	341.7	342.7	346.9	348.9	346.9	354.2
37.5°	300.9	297.7	293.6	294.6	297.7	302.0	304.0	309.2
40°	251.8	247.6	247.6	246.6	243.4	254.9	254.9	254.9
42.5°	209.0	207.9	202.7	202.7	206.9	210.0	207.9	215.2
45°	171.3	167.2	164.0	164.0	167.2	167.2	170.3	169.3
47.5°	134.8	130.6	131.6	128.5	131.6	135.8	130.6	131.6
50°	101.3	101.3	99.3	101.3	100.3	101.3	99.3	97.2
52.5°	69.0	78.3	79.4	75.2	65.8	57.5	52.2	56.4
55°	39.7	35.5	35.5	34.5	32.4	31.4	28.2	31.4
57.5°	19.9	17.8	17.8	17.8	16.7	15.7	13.6	13.6
60°	8.4	7.3	7.3	6.3	5.2	4.2	3.2	4.2
62.5°	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
65°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)