

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: **FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI**

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: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

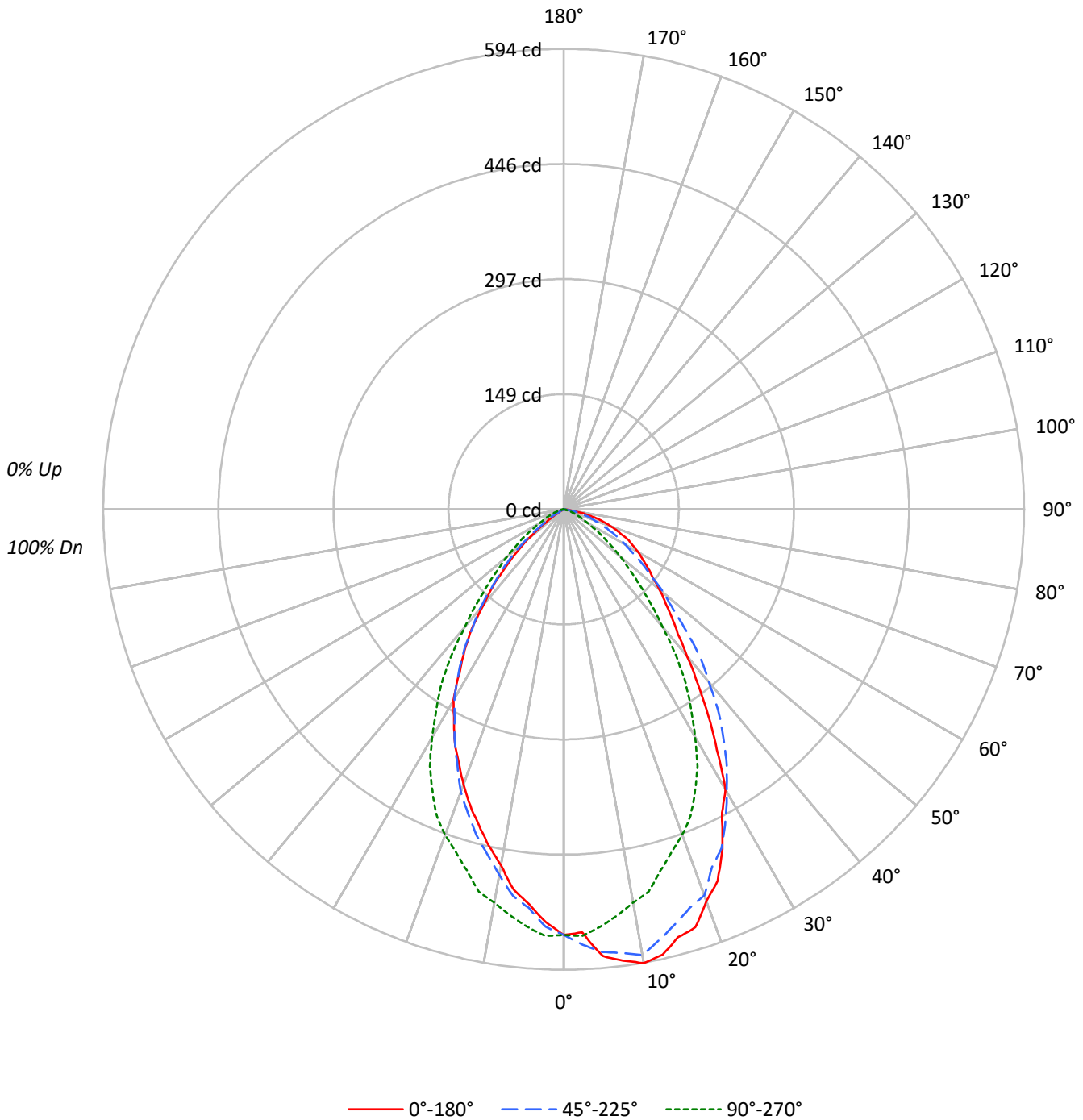
Lumens per Lamp: N/A
 Luminaire Lumens: 787.0 lumens
 Efficiency: N/A
 Efficacy: 80.3 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.8
 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: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI

Luminous Intensity Polar Plot





TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109030 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°	52972	52972	52972
5°	56051	52351	49543
10°	58248	50507	45667
15°	57079	48198	42155
20°	55232	45899	38803
25°	51518	42681	35399
30°	46505	37770	31687
35°	38306	32334	26291
40°	31263	24965	20229
45°	26855	18954	14546
50°	24303	14426	9187
55°	22374	10413	3331
60°	21478	7121	502
65°	20731	4817	160
70°	18563	3329	197
75°	15210	1715	0
80°	9502	722	0
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.4	6.5
10°-20°	138.6	17.6
20°-30°	185.1	23.5
30°-40°	175.7	22.3
40°-50°	121.4	15.4
50°-60°	67.1	8.5
60°-70°	33.3	4.2
70°-80°	13.1	1.7
80°-90°	1.3	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°	375.1	47.7
0°-40°	550.8	70.0
0°-60°	739.3	93.9
0°-90°	787.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	787.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	549	549	549	549	549	
5°	579	573	540	516	512	55
15°	571	554	482	435	422	162
25°	484	482	401	332	332	221
35°	325	359	274	226	223	204
45°	197	226	139	114	107	154
55°	133	125	62	32	20	120
65°	91	66	21	1	1	88
75°	41	25	5	0	0	44
85°	0	1	0	0	0	4
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	546.4	561.5	562.9	561.5	563.5	562.9	566.2	562.9	566.8	560.9	562.2
5°	578.7	572.7	585.2	578.7	578.7	578.0	576.0	575.4	578.0	569.5	573.4
7.5°	587.2	595.8	607.0	593.2	593.8	593.8	589.9	588.5	588.5	572.7	577.3
10°	594.5	589.2	595.1	589.9	594.5	593.8	596.4	587.9	593.8	584.6	583.9
12.5°	588.5	586.6	594.5	585.9	583.3	583.9	580.6	578.7	580.6	570.1	569.5
15°	571.4	573.4	585.2	576.0	574.7	573.4	569.5	562.9	568.1	553.6	554.3
17.5°	565.5	562.2	564.2	556.3	558.3	556.9	556.3	550.4	549.0	539.8	539.8
20°	537.9	545.1	545.1	539.8	539.8	539.2	530.6	535.9	529.9	527.3	529.9
22.5°	518.7	519.4	519.4	514.8	515.5	512.8	508.2	504.9	508.2	504.9	499.7
25°	483.9	485.2	493.1	484.5	483.2	485.8	481.9	479.9	479.3	471.4	481.9
27.5°	441.7	454.9	454.2	450.9	454.9	449.6	447.7	448.3	450.3	449.6	452.3
30°	417.4	419.3	421.3	418.7	419.3	417.4	417.4	418.0	423.3	421.3	420.7
32.5°	368.0	374.6	379.9	379.9	380.5	382.5	381.8	395.6	398.9	392.4	391.1
35°	325.2	329.8	334.4	335.1	343.6	344.3	345.0	348.9	358.1	360.1	359.4
37.5°	284.4	289.0	290.3	296.2	300.9	305.5	310.7	316.0	323.9	330.5	327.2
40°	248.2	250.2	253.5	256.1	265.3	265.3	267.9	278.5	287.0	292.3	291.6
42.5°	217.9	218.6	221.2	225.8	234.4	232.4	234.4	241.6	254.1	254.8	262.0
45°	196.8	196.2	198.2	198.8	204.1	206.7	208.0	213.3	223.8	225.1	225.8
47.5°	177.8	177.1	180.4	181.7	183.7	186.3	186.3	187.0	190.9	194.2	191.6
50°	161.9	161.9	161.9	163.3	166.6	165.9	166.6	169.2	171.2	169.8	169.2
52.5°	144.8	147.5	149.4	150.1	150.8	150.8	151.4	150.1	149.4	147.5	143.5
55°	133.0	135.6	135.6	135.6	135.6	138.2	135.0	135.6	135.6	130.4	125.1
57.5°	121.1	123.8	125.7	123.1	125.7	123.1	121.8	121.1	119.8	114.5	106.6
60°	111.3	112.6	111.9	111.3	112.6	110.6	109.3	106.6	105.3	98.1	92.8
62.5°	100.1	100.7	101.4	100.1	98.8	98.1	95.5	91.5	88.9	82.9	78.3
65°	90.8	88.9	88.2	87.6	86.2	84.3	82.3	77.7	75.7	70.4	65.8
67.5°	77.0	76.4	77.7	75.7	72.4	72.4	70.4	66.5	61.9	58.6	54.0
70°	65.8	65.2	63.9	61.9	61.2	58.6	58.6	54.0	52.7	46.7	42.8
72.5°	54.0	54.0	52.0	50.0	48.1	46.7	46.1	42.8	40.8	37.5	34.2
75°	40.8	40.8	40.2	38.2	36.9	35.5	34.9	32.3	30.3	27.0	25.0
77.5°	29.0	29.0	26.3	25.0	25.7	24.3	23.0	22.4	21.7	19.8	17.1
80°	17.1	16.5	14.5	15.1	14.5	14.5	13.8	13.2	11.8	10.5	9.2
82.5°	4.6	5.3	5.3	5.3	5.9	4.6	4.6	4.6	5.3	5.3	3.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
87.5°	0.7	1.3	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	1.3
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: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	555.6	555.0	555.6	551.0	561.5	553.6	552.3	551.0	555.6	551.0	544.4
5°	567.5	560.9	558.9	556.9	562.9	553.6	551.7	552.3	549.0	540.5	541.1
7.5°	571.4	565.5	559.6	547.1	552.3	550.4	545.1	541.1	535.9	528.6	527.3
10°	572.7	566.2	557.6	553.6	545.8	543.1	541.1	534.6	528.0	515.5	512.2
12.5°	568.8	560.9	550.4	547.1	541.1	532.6	528.0	521.4	515.5	505.6	498.3
15°	551.7	545.1	541.8	530.6	528.0	522.7	513.5	504.3	495.7	482.5	478.6
17.5°	531.9	529.3	526.0	517.4	516.8	511.5	503.0	495.0	483.9	463.5	456.9
20°	511.5	511.5	501.0	497.7	504.3	493.7	487.2	479.9	456.9	447.0	435.2
22.5°	496.4	489.1	483.2	477.9	478.6	472.0	462.8	448.3	439.7	427.9	414.1
25°	466.8	469.4	456.2	454.2	456.2	441.1	436.5	424.6	412.1	400.9	390.4
27.5°	448.3	441.1	432.5	425.3	425.3	419.3	406.2	403.6	384.5	373.9	360.7
30°	420.7	415.4	408.2	397.6	396.3	391.7	381.2	374.6	354.8	339.0	331.8
32.5°	385.8	383.8	377.9	366.0	362.1	356.8	343.6	332.5	323.2	305.5	296.9
35°	360.7	353.5	341.0	331.1	327.8	318.6	308.1	300.2	290.3	274.5	263.3
37.5°	323.2	316.0	304.1	292.3	292.3	283.1	268.6	260.7	246.9	237.6	228.4
40°	290.3	281.1	269.3	255.4	253.5	240.3	234.4	221.2	212.6	198.2	196.8
42.5°	253.5	244.9	234.4	223.8	215.9	209.4	194.2	184.3	175.1	167.9	165.9
45°	219.9	208.7	199.5	186.3	178.4	170.5	160.6	154.1	146.8	138.9	134.3
47.5°	190.9	181.7	168.5	156.7	148.8	144.8	133.6	126.4	120.5	115.2	111.9
50°	161.3	150.1	142.9	129.7	128.4	119.2	110.0	104.0	100.7	96.1	91.5
52.5°	138.9	128.4	118.5	108.6	103.3	100.1	91.5	85.6	81.0	77.7	75.1
55°	117.2	108.0	100.1	90.2	86.9	82.3	72.4	71.1	66.5	61.9	58.6
57.5°	100.7	92.2	82.9	76.4	70.4	67.2	59.2	54.0	51.4	47.4	44.1
60°	85.6	76.4	69.1	61.2	58.6	54.0	48.1	43.5	40.2	36.9	33.6
62.5°	71.8	63.9	56.0	49.4	45.4	42.8	38.2	34.2	31.0	28.3	25.7
65°	59.2	52.0	45.4	38.8	36.9	33.6	30.3	27.0	24.3	21.1	18.4
67.5°	48.7	42.1	35.5	31.0	29.0	27.6	23.7	20.4	18.4	16.5	13.8
70°	38.2	33.6	28.3	24.3	22.4	20.4	17.8	15.8	13.2	11.8	9.9
72.5°	29.6	25.7	21.1	17.8	16.5	15.1	12.5	10.5	9.2	7.9	6.6
75°	21.1	17.8	15.1	11.8	11.2	10.5	8.6	7.2	5.9	4.6	3.9
77.5°	14.5	11.8	9.2	7.9	7.2	5.9	5.3	3.9	3.3	2.6	2.0
80°	7.9	5.9	4.6	3.9	3.3	2.6	2.6	2.0	1.3	1.3	0.7
82.5°	2.6	2.0	1.3	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.7
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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	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: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	548.4	541.1	543.1	543.1	541.8	541.8	540.5	538.5	539.2	535.2	526.7
5°	542.5	533.2	531.9	533.2	528.0	526.7	524.0	528.0	516.1	520.7	515.5
7.5°	525.4	516.8	514.8	519.4	512.8	508.9	508.2	513.5	503.0	497.7	491.8
10°	506.2	503.0	497.0	493.7	491.8	492.4	487.2	480.6	478.6	477.3	472.0
12.5°	489.1	481.9	476.6	472.7	471.4	471.4	462.8	461.5	455.6	454.2	446.4
15°	468.7	460.2	456.9	451.6	447.0	449.6	439.7	437.1	435.2	426.6	427.9
17.5°	450.9	441.7	433.8	430.5	426.6	422.6	413.4	415.4	410.8	410.8	398.9
20°	427.9	418.0	412.1	405.5	405.5	400.3	393.7	394.3	388.4	382.5	371.9
22.5°	403.6	393.0	385.8	383.1	376.6	375.2	367.4	365.4	357.5	358.1	348.9
25°	377.9	367.4	357.5	358.1	352.2	349.6	345.0	335.8	332.5	328.5	325.9
27.5°	347.6	340.3	331.8	331.1	319.9	320.6	314.7	312.1	304.1	306.1	300.2
30°	319.9	309.4	301.5	299.5	294.9	293.6	284.4	280.4	281.8	276.5	273.2
32.5°	291.6	275.8	272.5	268.6	266.0	262.7	256.1	258.7	252.8	254.1	248.8
35°	254.1	247.5	239.0	239.0	236.3	233.7	229.1	231.7	225.8	223.2	217.9
37.5°	222.5	216.6	208.0	210.7	206.1	202.1	198.2	198.8	193.5	192.9	187.6
40°	188.3	185.0	179.1	179.1	175.8	175.8	173.8	171.8	168.5	164.6	158.6
42.5°	156.0	153.4	150.8	151.4	146.8	150.8	145.5	148.8	138.2	137.6	133.6
45°	132.3	126.4	127.1	124.4	121.8	123.1	118.5	119.8	113.9	112.6	108.6
47.5°	107.3	105.3	101.4	100.1	100.1	98.1	96.1	95.5	92.8	89.5	84.3
50°	88.2	81.0	79.6	77.7	76.4	76.4	73.7	69.8	70.4	67.2	61.9
52.5°	69.1	63.2	60.6	59.9	57.3	56.0	52.7	50.0	48.1	46.7	43.5
55°	53.3	48.1	44.8	44.8	40.8	40.8	36.2	34.2	31.6	29.0	27.0
57.5°	40.2	37.5	34.2	31.6	30.3	27.0	24.3	21.1	19.1	15.1	12.5
60°	30.3	27.6	24.3	22.4	21.1	17.8	14.5	11.8	7.2	5.9	5.3
62.5°	22.4	19.8	16.5	15.1	13.8	11.2	7.9	3.9	2.0	2.0	2.0
65°	16.5	13.2	10.5	9.2	7.9	5.9	2.6	1.3	0.7	0.7	0.7
67.5°	11.2	8.6	5.9	5.3	3.9	2.0	0.7	0.7	0.7	0.7	0.7
70°	7.2	5.3	2.6	2.0	1.3	0.7	0.7	0.7	0.7	0.7	0.7
72.5°	4.6	2.6	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.7	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	0.7	0.7	0.7
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: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	535.9	531.3	533.9	528.0	530.6	535.2	531.9	533.2
5°	517.4	514.8	511.5	503.0	509.5	514.8	512.2	511.5
7.5°	497.7	488.5	493.1	490.5	489.1	494.4	488.5	495.0
10°	477.3	470.7	470.1	465.4	465.4	469.4	470.1	466.1
12.5°	447.0	443.7	443.7	443.1	442.4	446.4	447.0	445.0
15°	425.3	424.0	420.7	420.0	416.1	422.0	422.6	422.0
17.5°	398.9	399.6	396.3	396.3	398.9	400.9	395.6	400.9
20°	381.2	377.9	376.6	370.6	373.9	377.2	377.2	377.9
22.5°	355.5	350.2	352.2	348.9	346.9	351.5	351.5	353.5
25°	326.5	326.5	327.8	325.9	327.2	329.8	327.8	332.5
27.5°	298.9	301.5	301.5	298.9	300.2	308.1	311.4	306.1
30°	273.2	273.9	275.8	274.5	278.5	281.1	280.4	284.4
32.5°	244.2	247.5	248.8	246.9	248.2	254.1	250.8	250.2
35°	221.9	215.9	215.3	215.9	218.6	219.9	218.6	223.2
37.5°	189.6	187.6	185.0	185.6	187.6	190.3	191.6	194.9
40°	158.6	156.0	156.0	155.4	153.4	160.6	160.6	160.6
42.5°	131.7	131.0	127.7	127.7	130.4	132.3	131.0	135.6
45°	108.0	105.3	103.3	103.3	105.3	105.3	107.3	106.6
47.5°	84.9	82.3	82.9	81.0	82.9	85.6	82.3	82.9
50°	63.9	63.9	62.5	63.9	63.2	63.9	62.5	61.2
52.5°	43.5	49.4	50.0	47.4	41.5	36.2	32.9	35.5
55°	25.0	22.4	22.4	21.7	20.4	19.8	17.8	19.8
57.5°	12.5	11.2	11.2	11.2	10.5	9.9	8.6	8.6
60°	5.3	4.6	4.6	3.9	3.3	2.6	2.0	2.6
62.5°	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
65°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
70°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)