

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: **FLDSQ4C70D010 FEU4C709035 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: FLDSQ4C70D010 FEU4C709035 F4LC-SQLWW-LI  
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

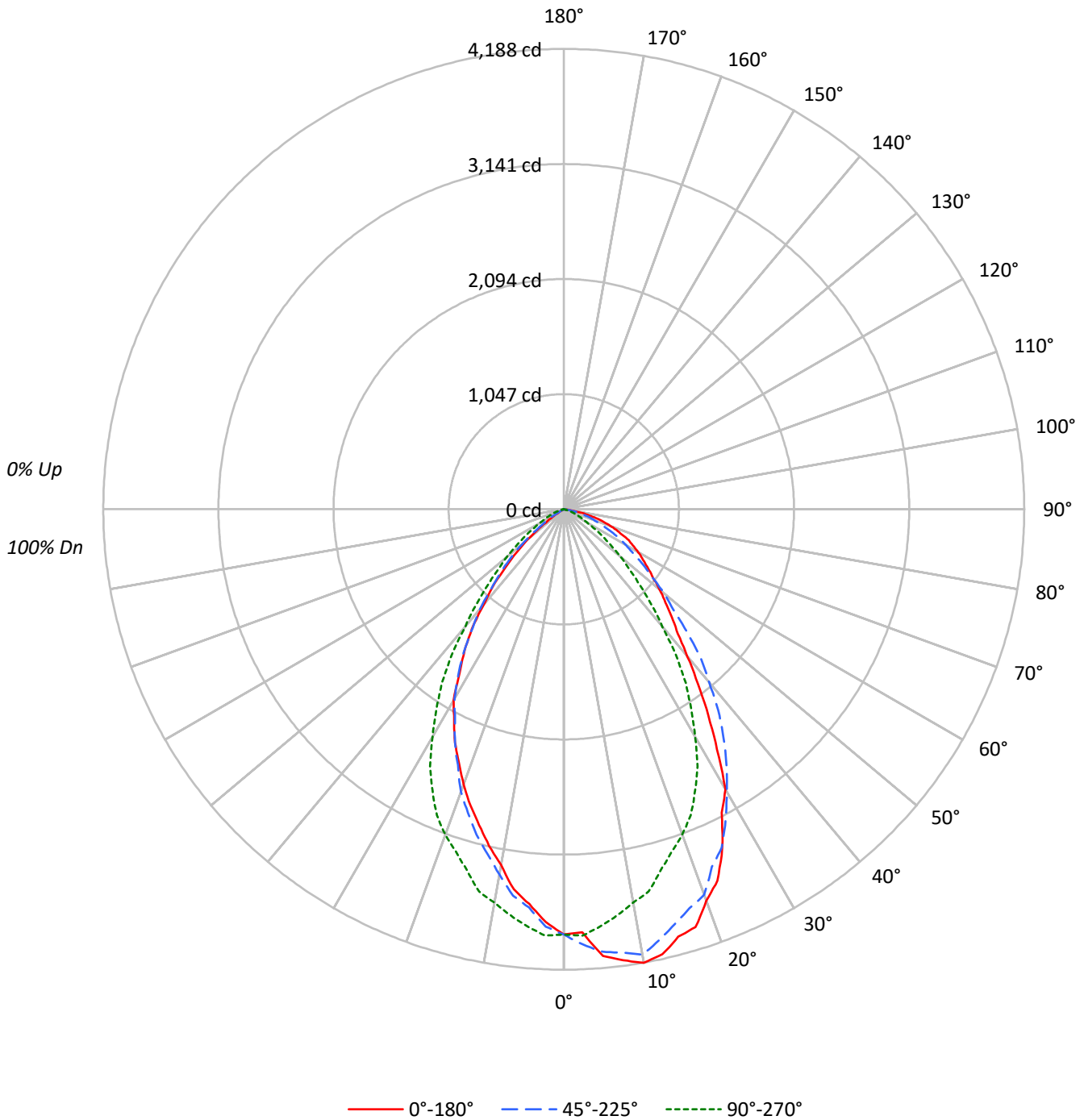
Lumens per Lamp: N/A  
 Luminaire Lumens: 5545.0 lumens  
 Efficiency: N/A  
 Efficacy: 71.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 78  
 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#

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**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°	373248	373248	373248
5°	394898	368853	349084
10°	410378	355844	321748
15°	402178	339615	297001
20°	389121	323385	273379
25°	362967	300728	249381
30°	327652	266139	223255
35°	269895	227843	185215
40°	220262	175862	142558
45°	189251	133563	102533
50°	171276	101670	64757
55°	157625	73345	23417
60°	151275	50116	3570
65°	146120	33904	1073
70°	130845	23528	1326
75°	107256	12116	0
80°	67068	5168	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	362.4	6.5
10°-20°	976.5	17.6
20°-30°	1303.9	23.5
30°-40°	1237.8	22.3
40°-50°	855.6	15.4
50°-60°	472.7	8.5
60°-70°	234.8	4.2
70°-80°	92.5	1.7
80°-90°	8.8	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°	2642.8	47.7
0°-40°	3880.6	70.0
0°-60°	5208.9	93.9
0°-90°	5545.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5545.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	3868	3868	3868	3868	3868	
5°	4077	4040	3808	3636	3604	390
15°	4026	3906	3400	3066	2973	1139
25°	3409	3395	2825	2342	2342	1554
35°	2291	2532	1934	1591	1572	1435
45°	1387	1591	979	802	751	1082
55°	937	881	436	223	139	843
65°	640	464	148	5	5	621
75°	288	176	32	0	0	307
85°	0	5	0	0	0	26
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709035 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3
2.5°	3849.8	3956.5	3965.7	3956.5	3970.4	3965.7	3989.0	3965.7	3993.7	3951.9	3961.2
5°	4077.1	4035.3	4123.5	4077.1	4077.1	4072.6	4058.6	4053.9	4072.6	4012.2	4040.0
7.5°	4137.4	4197.8	4276.6	4179.2	4183.8	4183.8	4156.0	4146.7	4146.7	4035.3	4067.8
10°	4188.5	4151.3	4193.1	4156.0	4188.5	4183.8	4202.3	4142.0	4183.8	4118.9	4114.2
12.5°	4146.7	4132.7	4188.5	4128.2	4109.6	4114.2	4091.1	4077.1	4091.1	4016.8	4012.2
15°	4026.1	4040.0	4123.5	4058.6	4049.3	4040.0	4012.2	3965.7	4003.0	3900.8	3905.6
17.5°	3984.4	3961.2	3975.2	3919.4	3933.4	3924.1	3919.4	3877.8	3868.3	3803.4	3803.4
20°	3789.6	3840.5	3840.5	3803.4	3803.4	3798.9	3738.6	3775.6	3733.8	3715.3	3733.8
22.5°	3655.0	3659.7	3659.7	3627.2	3631.9	3613.4	3580.8	3557.6	3580.8	3557.6	3520.5
25°	3409.3	3418.6	3474.2	3413.8	3404.6	3423.1	3395.3	3381.3	3376.8	3321.2	3395.3
27.5°	3112.4	3205.0	3200.5	3177.2	3205.0	3168.0	3154.2	3158.7	3172.7	3168.0	3186.5
30°	2940.8	2954.6	2968.6	2950.1	2954.6	2940.8	2940.8	2945.4	2982.4	2968.6	2963.9
32.5°	2592.8	2639.2	2676.4	2676.4	2680.9	2694.9	2690.2	2787.6	2810.9	2764.5	2755.3
35°	2291.3	2323.9	2356.2	2360.9	2421.3	2425.8	2430.5	2458.3	2523.2	2537.2	2532.5
37.5°	2003.8	2036.2	2045.5	2087.3	2119.8	2152.1	2189.4	2226.5	2282.1	2328.4	2305.3
40°	1748.7	1762.5	1785.8	1804.3	1869.2	1869.2	1887.7	1962.1	2022.4	2059.5	2054.7
42.5°	1535.4	1539.9	1558.4	1591.0	1651.3	1637.3	1651.3	1702.4	1790.3	1795.1	1846.1
45°	1386.9	1382.2	1396.2	1400.7	1438.0	1456.5	1465.8	1502.8	1577.0	1586.3	1591.0
47.5°	1252.4	1247.7	1271.0	1280.2	1294.0	1312.6	1312.6	1317.3	1345.1	1368.4	1349.8
50°	1141.0	1141.0	1141.0	1150.3	1173.6	1168.8	1173.6	1192.1	1205.9	1196.6	1192.1
52.5°	1020.4	1038.9	1052.9	1057.6	1062.2	1062.2	1066.9	1057.6	1052.9	1038.9	1011.1
55°	937.0	955.5	955.5	955.5	955.5	974.0	951.0	955.5	955.5	918.4	881.4
57.5°	853.5	872.1	885.9	867.4	885.9	867.4	858.1	853.5	844.1	807.0	751.4
60°	783.9	793.2	788.5	783.9	793.2	779.2	770.0	751.4	742.2	691.1	654.0
62.5°	705.1	709.6	714.3	705.1	695.8	691.1	672.6	644.8	626.2	584.4	551.9
65°	640.0	626.2	621.5	616.9	607.7	593.7	579.9	547.3	533.4	496.3	463.8
67.5°	542.6	538.1	547.3	533.4	510.3	510.3	496.3	468.5	436.0	412.9	380.3
70°	463.8	459.2	449.9	436.0	431.4	412.9	412.9	380.3	371.1	329.3	301.5
72.5°	380.3	380.3	366.4	352.5	338.5	329.3	324.7	301.5	287.7	264.4	241.1
75°	287.7	287.7	282.9	268.9	259.7	250.4	245.9	227.3	213.3	190.3	176.3
77.5°	204.1	204.1	185.5	176.3	180.8	171.5	162.3	157.7	153.0	139.2	120.7
80°	120.7	115.9	102.1	106.7	102.1	102.1	97.4	92.7	83.4	74.1	64.9
82.5°	32.5	37.1	37.1	37.1	41.8	32.5	32.5	32.5	37.1	37.1	23.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	4.7	4.7
87.5°	4.7	9.3	18.5	18.5	18.5	18.5	18.5	14.0	14.0	14.0	9.3
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°	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3
2.5°	3914.8	3910.1	3914.8	3882.3	3956.5	3900.8	3891.6	3882.3	3914.8	3882.3	3836.0
5°	3998.3	3951.9	3937.9	3924.1	3965.7	3900.8	3887.0	3891.6	3868.3	3808.2	3812.7
7.5°	4026.1	3984.4	3942.6	3854.5	3891.6	3877.8	3840.5	3812.7	3775.6	3724.6	3715.3
10°	4035.3	3989.0	3928.7	3900.8	3845.2	3826.7	3812.7	3766.4	3720.0	3631.9	3608.6
12.5°	4007.5	3951.9	3877.8	3854.5	3812.7	3752.4	3720.0	3673.5	3631.9	3562.3	3511.2
15°	3887.0	3840.5	3817.4	3738.6	3720.0	3682.8	3617.9	3553.0	3492.7	3399.8	3372.0
17.5°	3747.8	3729.3	3706.0	3645.7	3641.2	3604.1	3543.8	3488.0	3409.3	3265.4	3219.0
20°	3604.1	3604.1	3529.8	3506.7	3553.0	3478.7	3432.4	3381.3	3219.0	3149.4	3066.0
22.5°	3497.4	3446.4	3404.6	3367.5	3372.0	3325.7	3260.8	3158.7	3098.4	3015.0	2917.5
25°	3288.6	3307.2	3214.5	3200.5	3214.5	3107.6	3075.3	2991.7	2903.6	2824.7	2750.5
27.5°	3158.7	3107.6	3047.5	2996.4	2996.4	2954.6	2861.9	2843.4	2708.7	2634.6	2541.7
30°	2963.9	2926.8	2875.8	2801.6	2792.3	2759.8	2685.7	2639.2	2500.1	2388.7	2337.7
32.5°	2718.0	2704.2	2662.4	2579.0	2551.2	2513.9	2421.3	2342.4	2277.5	2152.1	2092.0
35°	2541.7	2490.9	2402.7	2333.1	2309.9	2245.0	2170.7	2115.1	2045.5	1934.3	1855.4
37.5°	2277.5	2226.5	2142.9	2059.5	2059.5	1994.6	1892.5	1836.8	1739.4	1674.4	1609.5
40°	2045.5	1980.6	1897.2	1799.8	1785.8	1692.9	1651.3	1558.4	1498.1	1396.2	1386.9
42.5°	1785.8	1725.5	1651.3	1577.0	1521.4	1475.0	1368.4	1298.8	1233.9	1182.8	1168.8
45°	1549.2	1470.3	1405.4	1312.6	1257.0	1201.4	1131.8	1085.4	1034.4	978.8	946.2
47.5°	1345.1	1280.2	1187.4	1104.0	1048.4	1020.4	941.5	890.6	848.8	811.8	788.5
50°	1136.5	1057.6	1006.6	913.7	904.4	839.6	774.7	732.9	709.6	677.3	644.8
52.5°	978.8	904.4	834.8	765.4	728.2	705.1	644.8	603.0	570.6	547.3	528.8
55°	825.6	760.7	705.1	635.5	612.2	579.9	510.3	501.0	468.5	436.0	412.9
57.5°	709.6	649.3	584.4	538.1	496.3	473.2	417.4	380.3	361.8	334.0	310.7
60°	603.0	538.1	487.0	431.4	412.9	380.3	338.5	306.2	282.9	259.7	236.6
62.5°	505.6	449.9	394.3	347.8	320.0	301.5	268.9	241.1	218.1	199.5	180.8
65°	417.4	366.4	320.0	273.7	259.7	236.6	213.3	190.3	171.5	148.5	129.9
67.5°	343.3	296.9	250.4	218.1	204.1	194.8	167.0	143.7	129.9	115.9	97.4
70°	268.9	236.6	199.5	171.5	157.7	143.7	125.2	111.4	92.7	83.4	69.6
72.5°	208.8	180.8	148.5	125.2	115.9	106.7	88.1	74.1	64.9	55.6	46.3
75°	148.5	125.2	106.7	83.4	78.9	74.1	60.3	51.1	41.8	32.5	27.8
77.5°	102.1	83.4	64.9	55.6	51.1	41.8	37.1	27.8	23.3	18.5	14.0
80°	55.6	41.8	32.5	27.8	23.3	18.5	18.5	14.0	9.3	9.3	4.7
82.5°	18.5	14.0	9.3	4.7	4.7	4.7	4.7	4.7	4.7	0.0	4.7
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°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	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

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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3
2.5°	3863.8	3812.7	3826.7	3826.7	3817.4	3817.4	3808.2	3794.2	3798.9	3770.9	3710.8
5°	3822.0	3757.1	3747.8	3757.1	3720.0	3710.8	3692.2	3720.0	3636.4	3669.0	3631.9
7.5°	3701.5	3641.2	3627.2	3659.7	3613.4	3585.4	3580.8	3617.9	3543.8	3506.7	3464.9
10°	3566.8	3543.8	3502.0	3478.7	3464.9	3469.4	3432.4	3386.0	3372.0	3362.8	3325.7
12.5°	3446.4	3395.3	3358.2	3330.4	3321.2	3321.2	3260.8	3251.6	3209.8	3200.5	3144.9
15°	3302.4	3242.3	3219.0	3182.0	3149.4	3168.0	3098.4	3079.8	3066.0	3005.7	3015.0
17.5°	3177.2	3112.4	3056.7	3033.5	3005.7	2977.9	2912.8	2926.8	2894.3	2894.3	2810.9
20°	3015.0	2945.4	2903.6	2857.2	2857.2	2820.1	2773.8	2778.3	2736.6	2694.9	2620.6
22.5°	2843.4	2769.1	2718.0	2699.5	2653.1	2643.9	2588.3	2574.3	2518.7	2523.2	2458.3
25°	2662.4	2588.3	2518.7	2523.2	2481.6	2463.1	2430.5	2365.7	2342.4	2314.6	2296.1
27.5°	2449.1	2398.0	2337.7	2333.1	2254.3	2258.8	2217.2	2198.7	2142.9	2156.9	2115.1
30°	2254.3	2180.1	2124.3	2110.5	2078.0	2068.7	2003.8	1975.9	1985.3	1948.1	1925.0
32.5°	2054.7	1943.5	1920.3	1892.5	1873.9	1850.7	1804.3	1822.9	1781.1	1790.3	1753.3
35°	1790.3	1744.0	1683.7	1683.7	1665.1	1646.6	1614.2	1632.8	1591.0	1572.4	1535.4
37.5°	1567.7	1526.1	1465.8	1484.3	1451.8	1424.0	1396.2	1400.7	1363.6	1359.1	1321.8
40°	1326.6	1303.3	1261.7	1261.7	1238.4	1238.4	1224.4	1210.6	1187.4	1159.6	1117.8
42.5°	1099.2	1080.7	1062.2	1066.9	1034.4	1062.2	1025.1	1048.4	974.0	969.5	941.5
45°	932.2	890.6	895.2	876.6	858.1	867.4	834.8	844.1	802.5	793.2	765.4
47.5°	756.1	742.2	714.3	705.1	705.1	691.1	677.3	672.6	654.0	630.8	593.7
50°	621.5	570.6	561.2	547.3	538.1	538.1	519.5	491.7	496.3	473.2	436.0
52.5°	487.0	445.2	426.7	422.1	403.6	394.3	371.1	352.5	338.5	329.3	306.2
55°	375.6	338.5	315.5	315.5	287.7	287.7	255.1	241.1	222.6	204.1	190.3
57.5°	282.9	264.4	241.1	222.6	213.3	190.3	171.5	148.5	134.5	106.7	88.1
60°	213.3	194.8	171.5	157.7	148.5	125.2	102.1	83.4	51.1	41.8	37.1
62.5°	157.7	139.2	115.9	106.7	97.4	78.9	55.6	27.8	14.0	14.0	14.0
65°	115.9	92.7	74.1	64.9	55.6	41.8	18.5	9.3	4.7	4.7	4.7
67.5°	78.9	60.3	41.8	37.1	27.8	14.0	4.7	4.7	4.7	4.7	4.7
70°	51.1	37.1	18.5	14.0	9.3	4.7	4.7	4.7	4.7	4.7	4.7
72.5°	32.5	18.5	9.3	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	18.5	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	9.3	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	4.7	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	4.7	4.7	4.7
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: FLDSQ4C70D010 FEU4C709035 F4LC-SQLWW-LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3	3868.3
2.5°	3775.6	3743.1	3761.6	3720.0	3738.6	3770.9	3747.8	3757.1
5°	3645.7	3627.2	3604.1	3543.8	3590.1	3627.2	3608.6	3604.1
7.5°	3506.7	3441.6	3474.2	3455.6	3446.4	3483.4	3441.6	3488.0
10°	3362.8	3316.4	3311.9	3279.4	3279.4	3307.2	3311.9	3283.9
12.5°	3149.4	3126.3	3126.3	3121.6	3116.9	3144.9	3149.4	3135.6
15°	2996.4	2987.1	2963.9	2959.3	2931.5	2973.2	2977.9	2973.2
17.5°	2810.9	2815.4	2792.3	2792.3	2810.9	2824.7	2787.6	2824.7
20°	2685.7	2662.4	2653.1	2611.3	2634.6	2657.9	2657.9	2662.4
22.5°	2504.7	2467.6	2481.6	2458.3	2444.3	2476.9	2476.9	2490.9
25°	2300.6	2300.6	2309.9	2296.1	2305.3	2323.9	2309.9	2342.4
27.5°	2105.8	2124.3	2124.3	2105.8	2115.1	2170.7	2193.9	2156.9
30°	1925.0	1929.5	1943.5	1934.3	1962.1	1980.6	1975.9	2003.8
32.5°	1720.9	1744.0	1753.3	1739.4	1748.7	1790.3	1767.2	1762.5
35°	1563.2	1521.4	1516.8	1521.4	1539.9	1549.2	1539.9	1572.4
37.5°	1335.8	1321.8	1303.3	1308.0	1321.8	1340.6	1349.8	1372.9
40°	1117.8	1099.2	1099.2	1094.7	1080.7	1131.8	1131.8	1131.8
42.5°	927.7	923.0	899.9	899.9	918.4	932.2	923.0	955.5
45°	760.7	742.2	728.2	728.2	742.2	742.2	756.1	751.4
47.5°	598.4	579.9	584.4	570.6	584.4	603.0	579.9	584.4
50°	449.9	449.9	440.7	449.9	445.2	449.9	440.7	431.4
52.5°	306.2	347.8	352.5	334.0	292.2	255.1	231.9	250.4
55°	176.3	157.7	157.7	153.0	143.7	139.2	125.2	139.2
57.5°	88.1	78.9	78.9	78.9	74.1	69.6	60.3	60.3
60°	37.1	32.5	32.5	27.8	23.3	18.5	14.0	18.5
62.5°	14.0	9.3	9.3	9.3	9.3	9.3	9.3	9.3
65°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
67.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
70°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
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)