

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: **FLDSQ4C65D010 FEU4C659035 F4LC-SQLWW-H**

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: FLDSQ4C65D010 FEU4C659035 F4LC-SQLWW-H
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

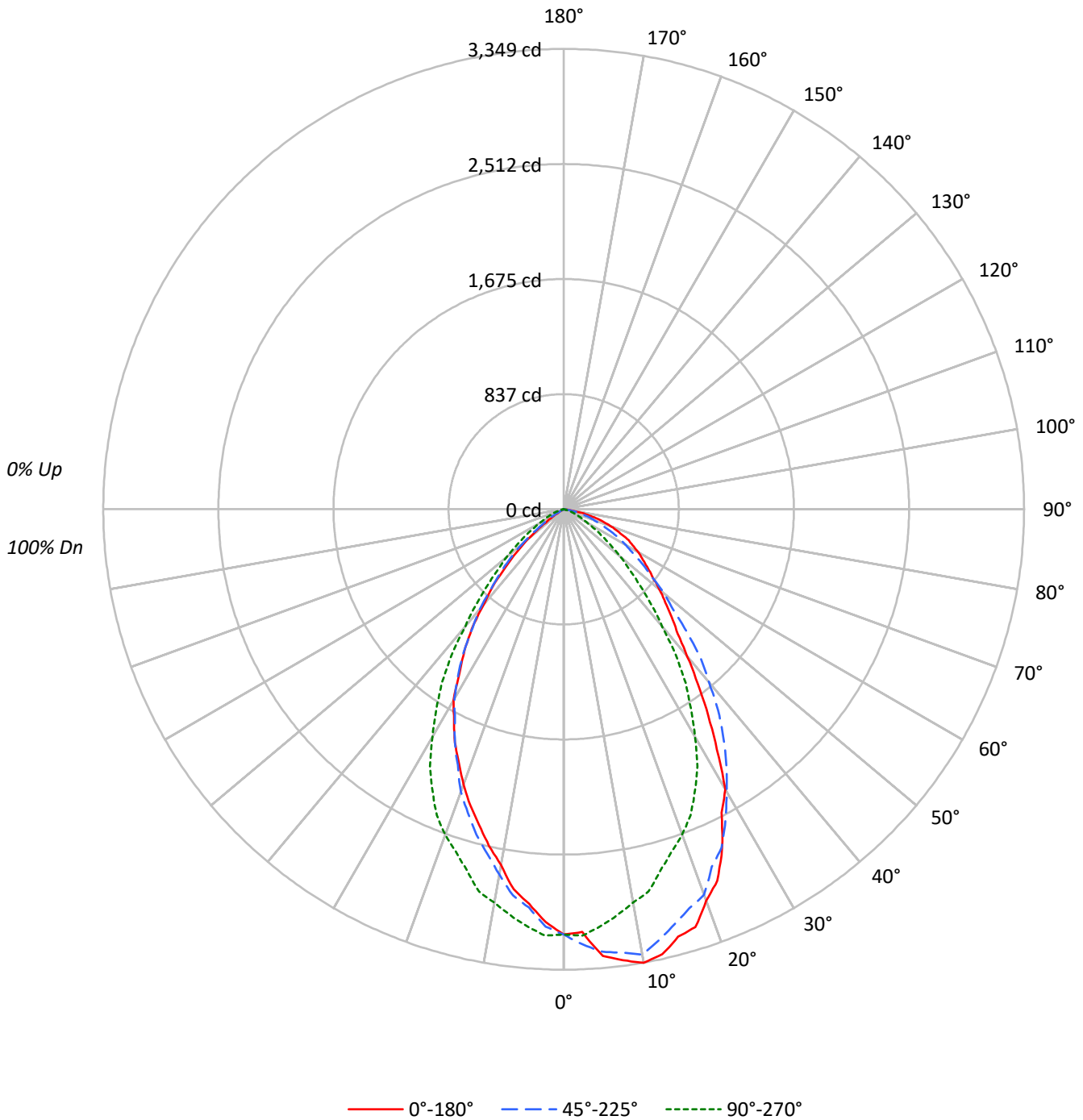
Lumens per Lamp: N/A
 Luminaire Lumens: 4434.0 lumens
 Efficiency: N/A
 Efficacy: 61.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 72.4
 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: FLDSQ4C65D010 FEU4C659035 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	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°	298469	298469	298469
5°	315775	294950	279143
10°	328156	284546	257279
15°	321594	271568	237495
20°	311155	258593	218609
25°	290241	240470	199417
30°	262005	212815	178533
35°	215817	182188	148111
40°	176126	140619	113991
45°	151330	106804	81996
50°	136960	81300	51788
55°	126033	58643	18723
60°	120978	40081	2856
65°	116850	27101	868
70°	104608	18817	1072
75°	85745	9693	0
80°	53621	4112	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	289.8	6.5
10°-20°	780.8	17.6
20°-30°	1042.7	23.5
30°-40°	989.8	22.3
40°-50°	684.2	15.4
50°-60°	378.0	8.5
60°-70°	187.7	4.2
70°-80°	74.0	1.7
80°-90°	7.0	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°	2113.3	47.7
0°-40°	3103.1	70.0
0°-60°	4165.3	93.9
0°-90°	4434.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4434.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3093	3093	3093	3093	3093	
5°	3260	3231	3045	2908	2882	312
15°	3219	3123	2719	2452	2378	911
25°	2726	2715	2259	1873	1873	1243
35°	1832	2025	1547	1272	1257	1148
45°	1109	1272	783	642	601	865
55°	749	705	349	178	111	674
65°	512	371	119	4	4	497
75°	230	141	26	0	0	245
85°	0	4	0	0	0	21
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3
2.5°	3078.4	3163.7	3171.1	3163.7	3174.9	3171.1	3189.7	3171.1	3193.5	3160.1	3167.5
5°	3260.2	3226.8	3297.3	3260.2	3260.2	3256.6	3245.4	3241.6	3256.6	3208.3	3230.6
7.5°	3308.5	3356.7	3419.8	3341.9	3345.5	3345.5	3323.3	3315.9	3315.9	3226.8	3252.8
10°	3349.3	3319.5	3352.9	3323.3	3349.3	3345.5	3360.3	3312.1	3345.5	3293.6	3289.9
12.5°	3315.9	3304.7	3349.3	3301.1	3286.2	3289.9	3271.4	3260.2	3271.4	3212.0	3208.3
15°	3219.4	3230.6	3297.3	3245.4	3238.0	3230.6	3208.3	3171.1	3200.9	3119.3	3123.0
17.5°	3186.1	3167.5	3178.7	3134.1	3145.3	3137.9	3134.1	3100.8	3093.3	3041.4	3041.4
20°	3030.3	3071.0	3071.0	3041.4	3041.4	3037.8	2989.5	3019.2	2985.7	2970.9	2985.7
22.5°	2922.7	2926.4	2926.4	2900.4	2904.2	2889.4	2863.4	2844.8	2863.4	2844.8	2815.1
25°	2726.2	2733.6	2778.1	2729.8	2722.4	2737.2	2715.0	2703.8	2700.2	2655.7	2715.0
27.5°	2488.8	2562.9	2559.2	2540.6	2562.9	2533.2	2522.2	2525.8	2537.0	2533.2	2548.0
30°	2351.6	2362.6	2373.8	2359.0	2362.6	2351.6	2351.6	2355.2	2384.9	2373.8	2370.0
32.5°	2073.3	2110.4	2140.2	2140.2	2143.8	2155.0	2151.2	2229.1	2247.7	2210.6	2203.2
35°	1832.2	1858.3	1884.1	1887.9	1936.1	1939.8	1943.6	1965.8	2017.7	2028.8	2025.1
37.5°	1602.4	1628.2	1635.6	1669.1	1695.1	1720.9	1750.7	1780.4	1824.8	1861.9	1843.4
40°	1398.3	1409.4	1428.0	1442.8	1494.7	1494.7	1509.5	1568.9	1617.2	1646.8	1643.0
42.5°	1227.7	1231.4	1246.2	1272.2	1320.5	1309.3	1320.5	1361.3	1431.6	1435.4	1476.2
45°	1109.0	1105.2	1116.4	1120.1	1149.9	1164.7	1172.1	1201.7	1261.0	1268.4	1272.2
47.5°	1001.5	997.7	1016.3	1023.7	1034.8	1049.6	1049.6	1053.4	1075.6	1094.2	1079.4
50°	912.4	912.4	912.4	919.8	938.4	934.6	938.4	953.2	964.3	956.9	953.2
52.5°	815.9	830.7	841.9	845.7	849.3	849.3	853.1	845.7	841.9	830.7	808.5
55°	749.2	764.1	764.1	764.1	764.1	778.9	760.4	764.1	764.1	734.4	704.8
57.5°	682.5	697.4	708.4	693.6	708.4	693.6	686.2	682.5	675.0	645.3	600.9
60°	626.9	634.3	630.5	626.9	634.3	623.1	615.7	600.9	593.5	552.6	523.0
62.5°	563.8	567.4	571.2	563.8	556.4	552.6	537.8	515.6	500.7	467.3	441.3
65°	511.8	500.7	497.0	493.3	485.9	474.7	463.7	437.7	426.5	396.8	370.8
67.5°	433.9	430.3	437.7	426.5	408.0	408.0	396.8	374.6	348.6	330.1	304.1
70°	370.8	367.2	359.8	348.6	345.0	330.1	330.1	304.1	296.7	263.3	241.1
72.5°	304.1	304.1	292.9	281.9	270.7	263.3	259.7	241.1	230.0	211.4	192.8
75°	230.0	230.0	226.3	215.1	207.7	200.2	196.6	181.8	170.6	152.1	141.0
77.5°	163.2	163.2	148.4	141.0	144.6	137.2	129.8	126.1	122.4	111.3	96.5
80°	96.5	92.7	81.7	85.3	81.7	81.7	77.9	74.1	66.7	59.3	51.9
82.5°	26.0	29.6	29.6	29.6	33.4	26.0	26.0	26.0	29.6	29.6	18.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8	3.8
87.5°	3.8	7.4	14.8	14.8	14.8	14.8	14.8	11.2	11.2	11.2	7.4
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°	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3
2.5°	3130.5	3126.7	3130.5	3104.4	3163.7	3119.3	3111.9	3104.4	3130.5	3104.4	3067.4
5°	3197.2	3160.1	3148.9	3137.9	3171.1	3119.3	3108.2	3111.9	3093.3	3045.2	3048.8
7.5°	3219.4	3186.1	3152.7	3082.2	3111.9	3100.8	3071.0	3048.8	3019.2	2978.3	2970.9
10°	3226.8	3189.7	3141.5	3119.3	3074.8	3060.0	3048.8	3011.7	2974.7	2904.2	2885.6
12.5°	3204.6	3160.1	3100.8	3082.2	3048.8	3000.6	2974.7	2937.5	2904.2	2848.6	2807.7
15°	3108.2	3071.0	3052.6	2989.5	2974.7	2944.9	2893.0	2841.1	2792.9	2718.6	2696.4
17.5°	2996.9	2982.1	2963.5	2915.3	2911.6	2882.0	2833.7	2789.1	2726.2	2611.1	2574.1
20°	2882.0	2882.0	2822.5	2804.1	2841.1	2781.7	2744.7	2703.8	2574.1	2518.4	2451.7
22.5°	2796.7	2755.8	2722.4	2692.8	2696.4	2659.4	2607.5	2525.8	2477.6	2410.9	2333.0
25°	2629.7	2644.5	2570.4	2559.2	2570.4	2485.0	2459.1	2392.3	2321.8	2258.7	2199.4
27.5°	2525.8	2485.0	2436.9	2396.1	2396.1	2362.6	2288.5	2273.7	2166.0	2106.7	2032.5
30°	2370.0	2340.4	2299.6	2240.3	2232.9	2206.9	2147.6	2110.4	1999.2	1910.1	1869.3
32.5°	2173.4	2162.4	2129.0	2062.3	2040.0	2010.2	1936.1	1873.1	1821.2	1720.9	1672.8
35°	2032.5	1991.8	1921.3	1865.7	1847.1	1795.2	1735.8	1691.3	1635.6	1546.7	1483.6
37.5°	1821.2	1780.4	1713.5	1646.8	1646.8	1594.9	1513.3	1468.8	1390.9	1338.9	1287.0
40°	1635.6	1583.8	1517.1	1439.2	1428.0	1353.7	1320.5	1246.2	1198.0	1116.4	1109.0
42.5°	1428.0	1379.7	1320.5	1261.0	1216.6	1179.5	1094.2	1038.5	986.7	945.8	934.6
45°	1238.8	1175.7	1123.8	1049.6	1005.1	960.7	905.0	867.9	827.1	782.7	756.6
47.5°	1075.6	1023.7	949.5	882.8	838.3	815.9	752.9	712.2	678.8	649.1	630.5
50°	908.8	845.7	804.9	730.6	723.2	671.3	619.5	586.0	567.4	541.6	515.6
52.5°	782.7	723.2	667.6	612.1	582.3	563.8	515.6	482.1	456.3	437.7	422.9
55°	660.2	608.3	563.8	508.2	489.6	463.7	408.0	400.6	374.6	348.6	330.1
57.5°	567.4	519.2	467.3	430.3	396.8	378.4	333.8	304.1	289.3	267.1	248.5
60°	482.1	430.3	389.4	345.0	330.1	304.1	270.7	244.9	226.3	207.7	189.2
62.5°	404.3	359.8	315.3	278.1	255.9	241.1	215.1	192.8	174.4	159.6	144.6
65°	333.8	292.9	255.9	218.8	207.7	189.2	170.6	152.1	137.2	118.7	103.9
67.5°	274.5	237.4	200.2	174.4	163.2	155.8	133.5	114.9	103.9	92.7	77.9
70°	215.1	189.2	159.6	137.2	126.1	114.9	100.1	89.1	74.1	66.7	55.7
72.5°	167.0	144.6	118.7	100.1	92.7	85.3	70.5	59.3	51.9	44.5	37.1
75°	118.7	100.1	85.3	66.7	63.1	59.3	48.2	40.8	33.4	26.0	22.2
77.5°	81.7	66.7	51.9	44.5	40.8	33.4	29.6	22.2	18.6	14.8	11.2
80°	44.5	33.4	26.0	22.2	18.6	14.8	14.8	11.2	7.4	7.4	3.8
82.5°	14.8	11.2	7.4	3.8	3.8	3.8	3.8	3.8	3.8	0.0	3.8
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°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	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°	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3
2.5°	3089.6	3048.8	3060.0	3060.0	3052.6	3052.6	3045.2	3034.0	3037.8	3015.4	2967.3
5°	3056.2	3004.3	2996.9	3004.3	2974.7	2967.3	2952.5	2974.7	2907.8	2933.9	2904.2
7.5°	2959.9	2911.6	2900.4	2926.4	2889.4	2867.0	2863.4	2893.0	2833.7	2804.1	2770.7
10°	2852.2	2833.7	2800.3	2781.7	2770.7	2774.3	2744.7	2707.6	2696.4	2689.0	2659.4
12.5°	2755.8	2715.0	2685.4	2663.1	2655.7	2655.7	2607.5	2600.1	2566.6	2559.2	2514.8
15°	2640.8	2592.7	2574.1	2544.4	2518.4	2533.2	2477.6	2462.8	2451.7	2403.5	2410.9
17.5°	2540.6	2488.8	2444.3	2425.7	2403.5	2381.2	2329.2	2340.4	2314.4	2314.4	2247.7
20°	2410.9	2355.2	2321.8	2284.7	2284.7	2255.1	2218.0	2221.7	2188.3	2155.0	2095.5
22.5°	2273.7	2214.3	2173.4	2158.6	2121.6	2114.1	2069.7	2058.5	2014.0	2017.7	1965.8
25°	2129.0	2069.7	2014.0	2017.7	1984.4	1969.6	1943.6	1891.7	1873.1	1850.8	1836.0
27.5°	1958.4	1917.5	1869.3	1865.7	1802.6	1806.2	1773.0	1758.1	1713.5	1724.7	1691.3
30°	1802.6	1743.3	1698.7	1687.7	1661.6	1654.2	1602.4	1580.0	1587.5	1557.7	1539.3
32.5°	1643.0	1554.1	1535.5	1513.3	1498.5	1479.9	1442.8	1457.6	1424.2	1431.6	1402.0
35°	1431.6	1394.6	1346.3	1346.3	1331.5	1316.7	1290.8	1305.6	1272.2	1257.4	1227.7
37.5°	1253.6	1220.3	1172.1	1186.9	1160.9	1138.7	1116.4	1120.1	1090.4	1086.8	1057.0
40°	1060.8	1042.2	1008.9	1008.9	990.3	990.3	979.1	968.1	949.5	927.2	893.8
42.5°	879.0	864.2	849.3	853.1	827.1	849.3	819.7	838.3	778.9	775.2	752.9
45°	745.5	712.2	715.8	701.0	686.2	693.6	667.6	675.0	641.7	634.3	612.1
47.5°	604.6	593.5	571.2	563.8	563.8	552.6	541.6	537.8	523.0	504.4	474.7
50°	497.0	456.3	448.7	437.7	430.3	430.3	415.4	393.2	396.8	378.4	348.6
52.5°	389.4	356.0	341.2	337.6	322.7	315.3	296.7	281.9	270.7	263.3	244.9
55°	300.4	270.7	252.3	252.3	230.0	230.0	204.0	192.8	178.0	163.2	152.1
57.5°	226.3	211.4	192.8	178.0	170.6	152.1	137.2	118.7	107.5	85.3	70.5
60°	170.6	155.8	137.2	126.1	118.7	100.1	81.7	66.7	40.8	33.4	29.6
62.5°	126.1	111.3	92.7	85.3	77.9	63.1	44.5	22.2	11.2	11.2	11.2
65°	92.7	74.1	59.3	51.9	44.5	33.4	14.8	7.4	3.8	3.8	3.8
67.5°	63.1	48.2	33.4	29.6	22.2	11.2	3.8	3.8	3.8	3.8	3.8
70°	40.8	29.6	14.8	11.2	7.4	3.8	3.8	3.8	3.8	3.8	3.8
72.5°	26.0	14.8	7.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	14.8	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	7.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	3.8	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	3.8	3.8	3.8
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: FLDSQ4C65D010 FEU4C659035 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3	3093.3
2.5°	3019.2	2993.1	3008.0	2974.7	2989.5	3015.4	2996.9	3004.3
5°	2915.3	2900.4	2882.0	2833.7	2870.8	2900.4	2885.6	2882.0
7.5°	2804.1	2752.1	2778.1	2763.3	2755.8	2785.5	2752.1	2789.1
10°	2689.0	2651.9	2648.3	2622.3	2622.3	2644.5	2648.3	2625.9
12.5°	2518.4	2500.0	2500.0	2496.2	2492.4	2514.8	2518.4	2507.4
15°	2396.1	2388.6	2370.0	2366.4	2344.2	2377.5	2381.2	2377.5
17.5°	2247.7	2251.3	2232.9	2232.9	2247.7	2258.7	2229.1	2258.7
20°	2147.6	2129.0	2121.6	2088.1	2106.7	2125.3	2125.3	2129.0
22.5°	2002.8	1973.2	1984.4	1965.8	1954.6	1980.6	1980.6	1991.8
25°	1839.7	1839.7	1847.1	1836.0	1843.4	1858.3	1847.1	1873.1
27.5°	1683.9	1698.7	1698.7	1683.9	1691.3	1735.8	1754.4	1724.7
30°	1539.3	1542.9	1554.1	1546.7	1568.9	1583.8	1580.0	1602.4
32.5°	1376.1	1394.6	1402.0	1390.9	1398.3	1431.6	1413.2	1409.4
35°	1250.0	1216.6	1212.9	1216.6	1231.4	1238.8	1231.4	1257.4
37.5°	1068.2	1057.0	1042.2	1046.0	1057.0	1072.0	1079.4	1097.8
40°	893.8	879.0	879.0	875.4	864.2	905.0	905.0	905.0
42.5°	741.8	738.0	719.6	719.6	734.4	745.5	738.0	764.1
45°	608.3	593.5	582.3	582.3	593.5	593.5	604.6	600.9
47.5°	478.5	463.7	467.3	456.3	467.3	482.1	463.7	467.3
50°	359.8	359.8	352.4	359.8	356.0	359.8	352.4	345.0
52.5°	244.9	278.1	281.9	267.1	233.7	204.0	185.4	200.2
55°	141.0	126.1	126.1	122.4	114.9	111.3	100.1	111.3
57.5°	70.5	63.1	63.1	63.1	59.3	55.7	48.2	48.2
60°	29.6	26.0	26.0	22.2	18.6	14.8	11.2	14.8
62.5°	11.2	7.4	7.4	7.4	7.4	7.4	7.4	7.4
65°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
67.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
70°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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)