

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 FEU4C659050 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: FLDSQ4C65D010 FEU4C659050 F4LC-SQLWW-LI
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

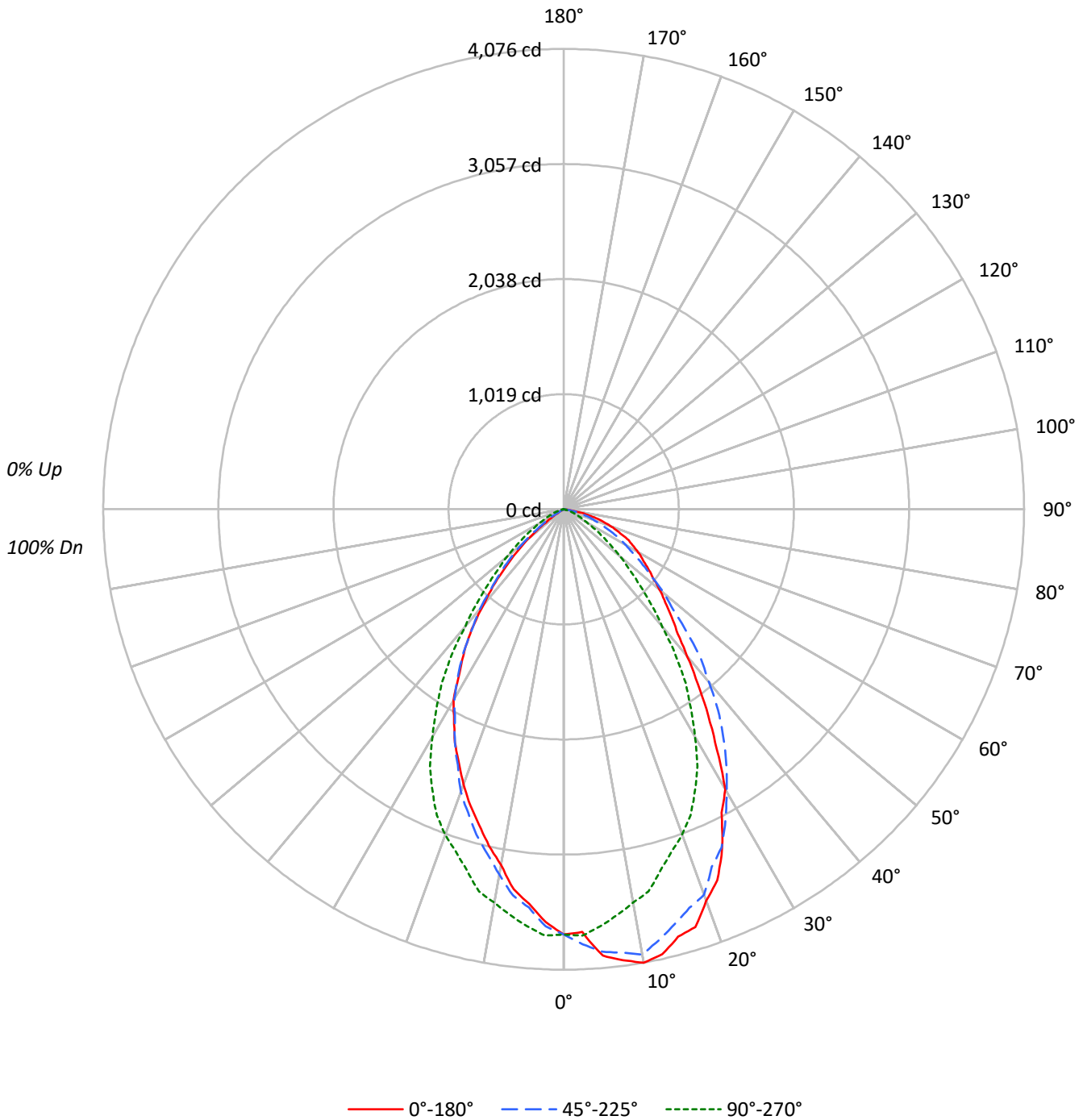
Lumens per Lamp: N/A
 Luminaire Lumens: 5396.0 lumens
 Efficiency: N/A
 Efficacy: 74.5 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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 FEU4C659050 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				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°	363223	363223	363223
5°	384292	358934	339699
10°	399356	346281	313106
15°	391369	330495	289019
20°	378668	314698	266037
25°	353215	292647	242684
30°	318850	258986	217261
35°	262651	221718	180244
40°	214342	171138	138729
45°	184161	129974	99777
50°	166682	98938	63016
55°	153386	71360	22794
60°	147223	48765	3474
65°	142193	32991	1050
70°	127318	22908	1298
75°	104348	11818	0
80°	65234	5001	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.7	6.5
10°-20°	950.2	17.6
20°-30°	1268.9	23.5
30°-40°	1204.5	22.3
40°-50°	832.6	15.4
50°-60°	460.0	8.5
60°-70°	228.5	4.2
70°-80°	90.0	1.7
80°-90°	8.6	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°	2571.8	47.7
0°-40°	3776.3	70.0
0°-60°	5069.0	93.9
0°-90°	5396.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5396.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3764	3764	3764	3764	3764	
5°	3968	3932	3706	3539	3507	380
15°	3918	3801	3308	2984	2893	1108
25°	3318	3304	2749	2280	2280	1512
35°	2230	2464	1882	1548	1530	1397
45°	1350	1548	952	781	731	1053
55°	912	858	424	217	136	821
65°	623	451	144	5	5	605
75°	280	172	32	0	0	298
85°	0	5	0	0	0	26
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4
2.5°	3746.3	3850.1	3859.2	3850.1	3863.8	3859.2	3881.8	3859.2	3886.4	3845.7	3854.7
5°	3967.6	3926.9	4012.7	3967.6	3967.6	3963.1	3949.5	3944.9	3963.1	3904.4	3931.5
7.5°	4026.3	4085.0	4161.7	4066.9	4071.4	4071.4	4044.3	4035.3	4035.3	3926.9	3958.5
10°	4076.0	4039.7	4080.4	4044.3	4076.0	4071.4	4089.4	4030.7	4071.4	4008.2	4003.6
12.5°	4035.3	4021.7	4076.0	4017.3	3999.2	4003.6	3981.2	3967.6	3981.2	3908.9	3904.4
15°	3917.9	3931.5	4012.7	3949.5	3940.5	3931.5	3904.4	3859.2	3895.4	3796.0	3800.6
17.5°	3877.4	3854.7	3868.4	3814.1	3827.7	3818.7	3814.1	3773.6	3764.4	3701.2	3701.2
20°	3687.8	3737.3	3737.3	3701.2	3701.2	3696.8	3638.1	3674.2	3633.5	3615.5	3633.5
22.5°	3556.8	3561.4	3561.4	3529.7	3534.3	3516.3	3484.6	3462.0	3484.6	3462.0	3425.9
25°	3317.7	3326.7	3380.8	3322.1	3313.1	3331.1	3304.1	3290.4	3286.0	3231.9	3304.1
27.5°	3028.7	3118.9	3114.5	3091.9	3118.9	3082.8	3069.4	3073.8	3087.4	3082.8	3100.9
30°	2861.8	2875.2	2888.8	2870.8	2875.2	2861.8	2861.8	2866.2	2902.3	2888.8	2884.2
32.5°	2523.1	2568.2	2604.5	2604.5	2608.9	2622.5	2617.9	2712.7	2735.3	2690.3	2681.2
35°	2229.8	2261.4	2292.9	2297.5	2356.2	2360.6	2365.2	2392.3	2455.4	2469.0	2464.4
37.5°	1950.0	1981.5	1990.5	2031.2	2062.8	2094.3	2130.6	2166.6	2220.7	2265.8	2243.4
40°	1701.7	1715.2	1737.8	1755.8	1819.0	1819.0	1837.0	1909.3	1968.0	2004.1	1999.5
42.5°	1494.1	1498.5	1516.6	1548.2	1606.9	1593.3	1606.9	1656.6	1742.2	1746.8	1796.5
45°	1349.6	1345.0	1358.7	1363.1	1399.3	1417.4	1426.4	1462.5	1534.6	1543.6	1548.2
47.5°	1218.8	1214.2	1236.8	1245.8	1259.3	1277.3	1277.3	1281.9	1309.0	1331.6	1313.6
50°	1110.4	1110.4	1110.4	1119.4	1142.0	1137.4	1142.0	1160.1	1173.5	1164.5	1160.1
52.5°	993.0	1011.0	1024.6	1029.2	1033.6	1033.6	1038.2	1029.2	1024.6	1011.0	983.9
55°	911.8	929.8	929.8	929.8	929.8	947.9	925.4	929.8	929.8	893.7	857.7
57.5°	830.6	848.7	862.1	844.1	862.1	844.1	835.0	830.6	821.4	785.3	731.2
60°	762.9	771.9	767.3	762.9	771.9	758.3	749.3	731.2	722.2	672.5	636.4
62.5°	686.1	690.6	695.2	686.1	677.1	672.5	654.5	627.4	609.4	568.7	537.1
65°	622.8	609.4	604.8	600.4	591.3	577.7	564.3	532.6	519.0	482.9	451.3
67.5°	528.0	523.6	532.6	519.0	496.6	496.6	482.9	455.9	424.2	401.8	370.1
70°	451.3	446.9	437.9	424.2	419.8	401.8	401.8	370.1	361.1	320.4	293.4
72.5°	370.1	370.1	356.5	343.1	329.5	320.4	316.0	293.4	279.9	257.3	234.7
75°	279.9	279.9	275.3	261.7	252.7	243.7	239.3	221.2	207.6	185.2	171.5
77.5°	198.6	198.6	180.6	171.5	176.0	166.9	157.9	153.5	148.9	135.5	117.4
80°	117.4	112.8	99.4	103.8	99.4	99.4	94.8	90.2	81.2	72.2	63.1
82.5°	31.7	36.1	36.1	36.1	40.7	31.7	31.7	31.7	36.1	36.1	22.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	4.6	4.6
87.5°	4.6	9.0	18.0	18.0	18.0	18.0	18.0	13.6	13.6	13.6	9.0
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°	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4
2.5°	3809.6	3805.0	3809.6	3778.0	3850.1	3796.0	3787.0	3778.0	3809.6	3778.0	3732.9
5°	3890.8	3845.7	3832.1	3818.7	3859.2	3796.0	3782.6	3787.0	3764.4	3705.8	3710.3
7.5°	3917.9	3877.4	3836.7	3750.9	3787.0	3773.6	3737.3	3710.3	3674.2	3624.5	3615.5
10°	3926.9	3881.8	3823.1	3796.0	3741.9	3723.9	3710.3	3665.2	3620.1	3534.3	3511.7
12.5°	3899.8	3845.7	3773.6	3750.9	3710.3	3651.5	3620.1	3574.8	3534.3	3466.6	3416.9
15°	3782.6	3737.3	3714.9	3638.1	3620.1	3583.8	3520.7	3457.6	3398.8	3308.5	3281.4
17.5°	3647.1	3629.1	3606.5	3547.7	3543.3	3507.2	3448.5	3394.2	3317.7	3177.6	3132.5
20°	3507.2	3507.2	3434.9	3412.5	3457.6	3385.2	3340.1	3290.4	3132.5	3064.8	2983.6
22.5°	3403.4	3353.8	3313.1	3277.0	3281.4	3236.3	3173.2	3073.8	3015.1	2933.9	2839.2
25°	3200.3	3218.3	3128.1	3114.5	3128.1	3024.1	2992.6	2911.3	2825.5	2748.8	2676.6
27.5°	3073.8	3024.1	2965.6	2915.9	2915.9	2875.2	2785.0	2767.0	2636.0	2563.8	2473.4
30°	2884.2	2848.2	2798.5	2726.3	2717.3	2685.7	2613.5	2568.2	2433.0	2324.5	2274.9
32.5°	2645.0	2631.5	2590.9	2509.7	2482.6	2446.4	2356.2	2279.5	2216.3	2094.3	2035.8
35°	2473.4	2423.9	2338.2	2270.4	2247.8	2184.7	2112.3	2058.2	1990.5	1882.3	1805.5
37.5°	2216.3	2166.6	2085.3	2004.1	2004.1	1941.0	1841.6	1787.5	1692.7	1629.4	1566.3
40°	1990.5	1927.4	1846.2	1751.4	1737.8	1647.4	1606.9	1516.6	1457.9	1358.7	1349.6
42.5°	1737.8	1679.1	1606.9	1534.6	1480.5	1435.4	1331.6	1263.9	1200.7	1151.0	1137.4
45°	1507.6	1430.8	1367.7	1277.3	1223.2	1169.1	1101.4	1056.3	1006.6	952.5	920.8
47.5°	1309.0	1245.8	1155.5	1074.3	1020.2	993.0	916.2	866.7	826.0	789.9	767.3
50°	1106.0	1029.2	979.5	889.1	880.1	817.0	753.9	713.2	690.6	659.1	627.4
52.5°	952.5	880.1	812.4	744.8	708.6	686.1	627.4	586.8	555.3	532.6	514.6
55°	803.4	740.2	686.1	618.4	595.8	564.3	496.6	487.5	455.9	424.2	401.8
57.5°	690.6	631.8	568.7	523.6	482.9	460.5	406.2	370.1	352.1	325.0	302.4
60°	586.8	523.6	473.9	419.8	401.8	370.1	329.5	298.0	275.3	252.7	230.2
62.5°	492.0	437.9	383.7	338.5	311.4	293.4	261.7	234.7	212.2	194.2	176.0
65°	406.2	356.5	311.4	266.3	252.7	230.2	207.6	185.2	166.9	144.5	126.4
67.5°	334.0	289.0	243.7	212.2	198.6	189.6	162.5	139.9	126.4	112.8	94.8
70°	261.7	230.2	194.2	166.9	153.5	139.9	121.8	108.4	90.2	81.2	67.7
72.5°	203.2	176.0	144.5	121.8	112.8	103.8	85.8	72.2	63.1	54.1	45.1
75°	144.5	121.8	103.8	81.2	76.7	72.2	58.7	49.7	40.7	31.7	27.1
77.5°	99.4	81.2	63.1	54.1	49.7	40.7	36.1	27.1	22.6	18.0	13.6
80°	54.1	40.7	31.7	27.1	22.6	18.0	18.0	13.6	9.0	9.0	4.6
82.5°	18.0	13.6	9.0	4.6	4.6	4.6	4.6	4.6	4.6	0.0	4.6
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°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	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°	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4
2.5°	3760.0	3710.3	3723.9	3723.9	3714.9	3714.9	3705.8	3692.2	3696.8	3669.6	3611.1
5°	3719.3	3656.1	3647.1	3656.1	3620.1	3611.1	3593.0	3620.1	3538.7	3570.4	3534.3
7.5°	3602.0	3543.3	3529.7	3561.4	3516.3	3489.0	3484.6	3520.7	3448.5	3412.5	3371.8
10°	3471.0	3448.5	3407.9	3385.2	3371.8	3376.2	3340.1	3295.0	3281.4	3272.4	3236.3
12.5°	3353.8	3304.1	3268.0	3240.9	3231.9	3231.9	3173.2	3164.2	3123.5	3114.5	3060.4
15°	3213.7	3155.2	3132.5	3096.5	3064.8	3082.8	3015.1	2997.1	2983.6	2924.9	2933.9
17.5°	3091.9	3028.7	2974.6	2952.0	2924.9	2897.9	2834.6	2848.2	2816.5	2816.5	2735.3
20°	2933.9	2866.2	2825.5	2780.4	2780.4	2744.4	2699.3	2703.7	2663.0	2622.5	2550.2
22.5°	2767.0	2694.7	2645.0	2626.9	2581.9	2572.8	2518.7	2505.1	2451.0	2455.4	2392.3
25°	2590.9	2518.7	2451.0	2455.4	2414.9	2396.9	2365.2	2302.1	2279.5	2252.4	2234.4
27.5°	2383.3	2333.6	2274.9	2270.4	2193.7	2198.1	2157.6	2139.6	2085.3	2098.9	2058.2
30°	2193.7	2121.5	2067.2	2053.8	2022.2	2013.1	1950.0	1922.8	1932.0	1895.7	1873.3
32.5°	1999.5	1891.3	1868.7	1841.6	1823.6	1800.9	1755.8	1773.9	1733.2	1742.2	1706.1
35°	1742.2	1697.1	1638.4	1638.4	1620.4	1602.3	1570.9	1588.9	1548.2	1530.2	1494.1
37.5°	1525.6	1485.1	1426.4	1444.4	1412.8	1385.7	1358.7	1363.1	1327.0	1322.6	1286.3
40°	1290.9	1268.3	1227.8	1227.8	1205.2	1205.2	1191.5	1178.1	1155.5	1128.4	1087.7
42.5°	1069.7	1051.7	1033.6	1038.2	1006.6	1033.6	997.5	1020.2	947.9	943.4	916.2
45°	907.2	866.7	871.1	853.1	835.0	844.1	812.4	821.4	780.9	771.9	744.8
47.5°	735.8	722.2	695.2	686.1	686.1	672.5	659.1	654.5	636.4	613.8	577.7
50°	604.8	555.3	546.1	532.6	523.6	523.6	505.6	478.5	482.9	460.5	424.2
52.5°	473.9	433.3	415.2	410.8	392.8	383.7	361.1	343.1	329.5	320.4	298.0
55°	365.5	329.5	307.0	307.0	279.9	279.9	248.3	234.7	216.6	198.6	185.2
57.5°	275.3	257.3	234.7	216.6	207.6	185.2	166.9	144.5	130.9	103.8	85.8
60°	207.6	189.6	166.9	153.5	144.5	121.8	99.4	81.2	49.7	40.7	36.1
62.5°	153.5	135.5	112.8	103.8	94.8	76.7	54.1	27.1	13.6	13.6	13.6
65°	112.8	90.2	72.2	63.1	54.1	40.7	18.0	9.0	4.6	4.6	4.6
67.5°	76.7	58.7	40.7	36.1	27.1	13.6	4.6	4.6	4.6	4.6	4.6
70°	49.7	36.1	18.0	13.6	9.0	4.6	4.6	4.6	4.6	4.6	4.6
72.5°	31.7	18.0	9.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	18.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	9.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	4.6	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	4.6	4.6	4.6
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 FEU4C659050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4	3764.4
2.5°	3674.2	3642.5	3660.6	3620.1	3638.1	3669.6	3647.1	3656.1
5°	3547.7	3529.7	3507.2	3448.5	3493.6	3529.7	3511.7	3507.2
7.5°	3412.5	3349.2	3380.8	3362.8	3353.8	3389.8	3349.2	3394.2
10°	3272.4	3227.3	3222.9	3191.2	3191.2	3218.3	3222.9	3195.7
12.5°	3064.8	3042.3	3042.3	3037.7	3033.1	3060.4	3064.8	3051.4
15°	2915.9	2906.9	2884.2	2879.8	2852.8	2893.3	2897.9	2893.3
17.5°	2735.3	2739.8	2717.3	2717.3	2735.3	2748.8	2712.7	2748.8
20°	2613.5	2590.9	2581.9	2541.2	2563.8	2586.4	2586.4	2590.9
22.5°	2437.4	2401.3	2414.9	2392.3	2378.7	2410.3	2410.3	2423.9
25°	2238.8	2238.8	2247.8	2234.4	2243.4	2261.4	2247.8	2279.5
27.5°	2049.2	2067.2	2067.2	2049.2	2058.2	2112.3	2135.0	2098.9
30°	1873.3	1877.7	1891.3	1882.3	1909.3	1927.4	1922.8	1950.0
32.5°	1674.7	1697.1	1706.1	1692.7	1701.7	1742.2	1719.8	1715.2
35°	1521.2	1480.5	1476.1	1480.5	1498.5	1507.6	1498.5	1530.2
37.5°	1299.9	1286.3	1268.3	1272.9	1286.3	1304.5	1313.6	1336.0
40°	1087.7	1069.7	1069.7	1065.3	1051.7	1101.4	1101.4	1101.4
42.5°	902.8	898.2	875.7	875.7	893.7	907.2	898.2	929.8
45°	740.2	722.2	708.6	708.6	722.2	722.2	735.8	731.2
47.5°	582.3	564.3	568.7	555.3	568.7	586.8	564.3	568.7
50°	437.9	437.9	428.8	437.9	433.3	437.9	428.8	419.8
52.5°	298.0	338.5	343.1	325.0	284.4	248.3	225.6	243.7
55°	171.5	153.5	153.5	148.9	139.9	135.5	121.8	135.5
57.5°	85.8	76.7	76.7	76.7	72.2	67.7	58.7	58.7
60°	36.1	31.7	31.7	27.1	22.6	18.0	13.6	18.0
62.5°	13.6	9.0	9.0	9.0	9.0	9.0	9.0	9.0
65°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
67.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
70°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
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)