

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 FEU4C659030 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 FEU4C659030 F4LC-SQLWW-LI
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

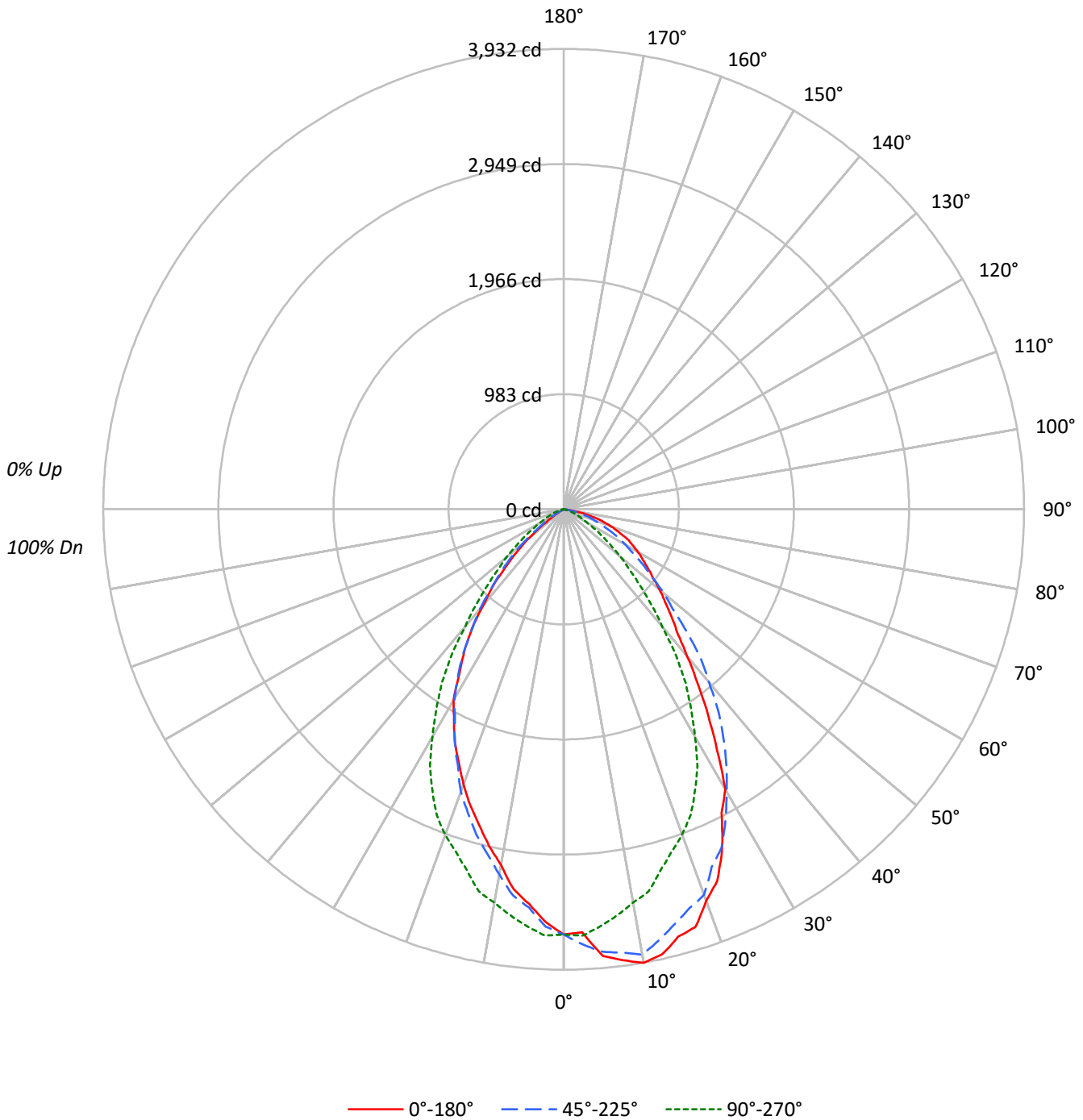
Lumens per Lamp: N/A
 Luminaire Lumens: 5206.0 lumens
 Efficiency: N/A
 Efficacy: 71.9 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



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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°	350428	350428	350428
5°	370761	346304	327746
10°	385286	334093	302074
15°	377584	318857	278840
20°	365330	303618	256662
25°	340780	282342	234135
30°	307619	249872	209607
35°	253404	213909	173895
40°	206797	165105	133842
45°	177679	125389	96270
50°	160813	95455	60795
55°	147986	68854	21987
60°	142032	47048	3358
65°	137193	31827	1005
70°	122833	22090	1241
75°	100694	11371	0
80°	62956	4834	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	340.3	6.5
10°-20°	916.8	17.6
20°-30°	1224.2	23.5
30°-40°	1162.1	22.3
40°-50°	803.3	15.4
50°-60°	443.8	8.5
60°-70°	220.4	4.2
70°-80°	86.8	1.7
80°-90°	8.3	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°	2481.2	47.7
0°-40°	3643.4	70.0
0°-60°	4890.5	93.9
0°-90°	5206.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5206.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3632	3632	3632	3632	3632	
5°	3828	3793	3575	3414	3384	366
15°	3780	3667	3192	2879	2791	1069
25°	3201	3188	2652	2199	2199	1459
35°	2151	2378	1816	1494	1476	1348
45°	1302	1494	919	753	706	1016
55°	880	828	409	209	131	792
65°	601	435	139	4	4	583
75°	270	166	30	0	0	288
85°	0	4	0	0	0	25
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°	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8
2.5°	3614.4	3714.6	3723.3	3714.6	3727.7	3723.3	3745.1	3723.3	3749.5	3710.3	3719.0
5°	3827.9	3788.6	3871.4	3827.9	3827.9	3823.6	3810.5	3806.0	3823.6	3766.9	3793.1
7.5°	3884.5	3941.1	4015.2	3923.7	3928.0	3928.0	3901.9	3893.2	3893.2	3788.6	3819.2
10°	3932.4	3897.5	3936.7	3901.9	3932.4	3928.0	3945.4	3888.8	3928.0	3867.1	3862.7
12.5°	3893.2	3880.1	3932.4	3875.8	3858.4	3862.7	3841.0	3827.9	3841.0	3771.2	3766.9
15°	3779.9	3793.1	3871.4	3810.5	3801.8	3793.1	3766.9	3723.3	3758.2	3662.4	3666.8
17.5°	3740.8	3719.0	3732.1	3679.8	3692.9	3684.2	3679.8	3640.7	3631.8	3570.9	3570.9
20°	3557.9	3605.7	3605.7	3570.9	3570.9	3566.7	3510.0	3544.8	3505.6	3488.2	3505.6
22.5°	3431.5	3436.0	3436.0	3405.4	3409.9	3392.5	3361.9	3340.1	3361.9	3340.1	3305.3
25°	3200.9	3209.6	3261.8	3205.1	3196.4	3213.8	3187.7	3174.6	3170.3	3118.1	3187.7
27.5°	2922.1	3009.1	3004.8	2983.0	3009.1	2974.3	2961.3	2965.6	2978.7	2974.3	2991.7
30°	2761.0	2774.0	2787.1	2769.7	2774.0	2761.0	2761.0	2765.3	2800.1	2787.1	2782.7
32.5°	2434.3	2477.8	2512.8	2512.8	2517.0	2530.2	2525.7	2617.2	2639.0	2595.5	2586.8
35°	2151.3	2181.8	2212.2	2216.6	2273.2	2277.5	2281.9	2308.0	2369.0	2382.1	2377.7
37.5°	1881.3	1911.7	1920.4	1959.7	1990.2	2020.6	2055.5	2090.3	2142.5	2186.1	2164.4
40°	1641.8	1654.8	1676.6	1694.0	1754.9	1754.9	1772.3	1842.1	1898.7	1933.5	1929.1
42.5°	1441.5	1445.8	1463.2	1493.7	1550.4	1537.2	1550.4	1598.3	1680.9	1685.3	1733.3
45°	1302.1	1297.7	1310.8	1315.1	1350.1	1367.5	1376.2	1411.0	1480.6	1489.3	1493.7
47.5°	1175.9	1171.4	1193.3	1202.0	1214.9	1232.3	1232.3	1236.8	1262.9	1284.7	1267.3
50°	1071.3	1071.3	1071.3	1080.0	1101.8	1097.4	1101.8	1119.2	1132.2	1123.5	1119.2
52.5°	958.0	975.4	988.5	993.0	997.2	997.2	1001.7	993.0	988.5	975.4	949.3
55°	879.7	897.1	897.1	897.1	897.1	914.5	892.8	897.1	897.1	862.3	827.5
57.5°	801.4	818.8	831.7	814.3	831.7	814.3	805.6	801.4	792.5	757.7	705.5
60°	736.0	744.7	740.3	736.0	744.7	731.6	722.9	705.5	696.8	648.8	614.0
62.5°	662.0	666.2	670.7	662.0	653.3	648.8	631.4	605.3	587.9	548.7	518.1
65°	600.9	587.9	583.5	579.2	570.5	557.4	544.4	513.9	500.7	465.9	435.4
67.5°	509.4	505.2	513.9	500.7	479.1	479.1	465.9	439.8	409.3	387.6	357.1
70°	435.4	431.1	422.4	409.3	405.0	387.6	387.6	357.1	348.4	309.1	283.0
72.5°	357.1	357.1	344.0	331.0	317.9	309.1	304.9	283.0	270.1	248.2	226.4
75°	270.1	270.1	265.6	252.5	243.8	235.1	230.8	213.4	200.3	178.6	165.5
77.5°	191.6	191.6	174.2	165.5	169.8	161.1	152.4	148.1	143.7	130.7	113.3
80°	113.3	108.9	95.9	100.1	95.9	95.9	91.4	87.0	78.3	69.6	60.9
82.5°	30.5	34.8	34.8	34.8	39.2	30.5	30.5	30.5	34.8	34.8	21.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	4.4	4.4
87.5°	4.4	8.7	17.4	17.4	17.4	17.4	17.4	13.1	13.1	13.1	8.7
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°	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8
2.5°	3675.5	3671.1	3675.5	3645.0	3714.6	3662.4	3653.7	3645.0	3675.5	3645.0	3601.5
5°	3753.8	3710.3	3697.2	3684.2	3723.3	3662.4	3649.4	3653.7	3631.8	3575.4	3579.6
7.5°	3779.9	3740.8	3701.6	3618.9	3653.7	3640.7	3605.7	3579.6	3544.8	3496.9	3488.2
10°	3788.6	3745.1	3688.5	3662.4	3610.2	3592.8	3579.6	3536.1	3492.6	3409.9	3388.0
12.5°	3762.5	3710.3	3640.7	3618.9	3579.6	3523.0	3492.6	3448.9	3409.9	3344.5	3296.6
15°	3649.4	3605.7	3584.1	3510.0	3492.6	3457.6	3396.7	3335.8	3279.2	3192.0	3165.9
17.5°	3518.7	3501.3	3479.5	3422.8	3418.6	3383.8	3327.1	3274.7	3200.9	3065.7	3022.2
20°	3383.8	3383.8	3314.0	3292.3	3335.8	3266.0	3222.5	3174.6	3022.2	2956.9	2878.6
22.5°	3283.6	3235.7	3196.4	3161.6	3165.9	3122.4	3061.5	2965.6	2908.9	2830.6	2739.2
25°	3087.6	3105.0	3018.0	3004.8	3018.0	2917.6	2887.3	2808.8	2726.0	2652.0	2582.4
27.5°	2965.6	2917.6	2861.2	2813.2	2813.2	2774.0	2687.0	2669.6	2543.1	2473.5	2386.4
30°	2782.7	2747.9	2699.9	2630.3	2621.6	2591.1	2521.5	2477.8	2347.3	2242.7	2194.8
32.5°	2551.8	2538.9	2499.6	2421.3	2395.2	2360.3	2273.2	2199.2	2138.3	2020.6	1964.1
35°	2386.4	2338.6	2255.8	2190.5	2168.7	2107.7	2038.0	1985.8	1920.4	1816.0	1742.0
37.5°	2138.3	2090.3	2011.9	1933.5	1933.5	1872.6	1776.8	1724.5	1633.1	1572.0	1511.1
40°	1920.4	1859.5	1781.2	1689.7	1676.6	1589.4	1550.4	1463.2	1406.5	1310.8	1302.1
42.5°	1676.6	1620.0	1550.4	1480.6	1428.4	1384.9	1284.7	1219.4	1158.5	1110.5	1097.4
45°	1454.5	1380.4	1319.5	1232.3	1180.1	1127.9	1062.6	1019.1	971.1	918.9	888.4
47.5°	1262.9	1202.0	1114.8	1036.5	984.3	958.0	883.9	836.2	796.9	762.1	740.3
50°	1067.0	993.0	945.0	857.8	849.1	788.2	727.3	688.1	666.2	635.9	605.3
52.5°	918.9	849.1	783.8	718.6	683.6	662.0	605.3	566.1	535.7	513.9	496.5
55°	775.1	714.2	662.0	596.6	574.8	544.4	479.1	470.4	439.8	409.3	387.6
57.5°	666.2	609.6	548.7	505.2	465.9	444.3	391.9	357.1	339.7	313.6	291.7
60°	566.1	505.2	457.2	405.0	387.6	357.1	317.9	287.5	265.6	243.8	222.1
62.5°	474.6	422.4	370.2	326.6	300.4	283.0	252.5	226.4	204.7	187.3	169.8
65°	391.9	344.0	300.4	256.9	243.8	222.1	200.3	178.6	161.1	139.4	122.0
67.5°	322.3	278.8	235.1	204.7	191.6	182.9	156.8	135.0	122.0	108.9	91.4
70°	252.5	222.1	187.3	161.1	148.1	135.0	117.6	104.6	87.0	78.3	65.3
72.5°	196.0	169.8	139.4	117.6	108.9	100.1	82.7	69.6	60.9	52.2	43.5
75°	139.4	117.6	100.1	78.3	74.0	69.6	56.6	47.9	39.2	30.5	26.1
77.5°	95.9	78.3	60.9	52.2	47.9	39.2	34.8	26.1	21.8	17.4	13.1
80°	52.2	39.2	30.5	26.1	21.8	17.4	17.4	13.1	8.7	8.7	4.4
82.5°	17.4	13.1	8.7	4.4	4.4	4.4	4.4	4.4	4.4	0.0	4.4
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°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	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°	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8
2.5°	3627.6	3579.6	3592.8	3592.8	3584.1	3584.1	3575.4	3562.2	3566.7	3540.4	3483.9
5°	3588.3	3527.4	3518.7	3527.4	3492.6	3483.9	3466.5	3492.6	3414.1	3444.7	3409.9
7.5°	3475.2	3418.6	3405.4	3436.0	3392.5	3366.2	3361.9	3396.7	3327.1	3292.3	3253.1
10°	3348.8	3327.1	3287.9	3266.0	3253.1	3257.3	3222.5	3179.0	3165.9	3157.2	3122.4
12.5°	3235.7	3187.7	3152.9	3126.8	3118.1	3118.1	3061.5	3052.8	3013.5	3004.8	2952.6
15°	3100.5	3044.1	3022.2	2987.4	2956.9	2974.3	2908.9	2891.5	2878.6	2821.9	2830.6
17.5°	2983.0	2922.1	2869.9	2848.0	2821.9	2795.8	2734.7	2747.9	2717.3	2717.3	2639.0
20°	2830.6	2765.3	2726.0	2682.5	2682.5	2647.7	2604.2	2608.5	2569.3	2530.2	2460.4
22.5°	2669.6	2599.8	2551.8	2534.4	2490.9	2482.2	2430.0	2416.9	2364.7	2369.0	2308.0
25°	2499.6	2430.0	2364.7	2369.0	2329.9	2312.5	2281.9	2221.0	2199.2	2173.1	2155.7
27.5°	2299.3	2251.4	2194.8	2190.5	2116.4	2120.7	2081.6	2064.2	2011.9	2025.0	1985.8
30°	2116.4	2046.8	1994.5	1981.5	1951.0	1942.3	1881.3	1855.1	1863.9	1829.0	1807.3
32.5°	1929.1	1824.7	1802.9	1776.8	1759.4	1737.5	1694.0	1711.4	1672.2	1680.9	1646.1
35°	1680.9	1637.4	1580.7	1580.7	1563.3	1545.9	1515.5	1533.0	1493.7	1476.3	1441.5
37.5°	1471.9	1432.8	1376.2	1393.6	1363.0	1336.9	1310.8	1315.1	1280.3	1276.0	1241.0
40°	1245.5	1223.6	1184.6	1184.6	1162.7	1162.7	1149.6	1136.6	1114.8	1088.7	1049.4
42.5°	1032.0	1014.6	997.2	1001.7	971.1	997.2	962.4	984.3	914.5	910.2	883.9
45°	875.2	836.2	840.4	823.0	805.6	814.3	783.8	792.5	753.4	744.7	718.6
47.5°	709.9	696.8	670.7	662.0	662.0	648.8	635.9	631.4	614.0	592.2	557.4
50°	583.5	535.7	526.9	513.9	505.2	505.2	487.8	461.7	465.9	444.3	409.3
52.5°	457.2	418.0	400.6	396.3	378.9	370.2	348.4	331.0	317.9	309.1	287.5
55°	352.7	317.9	296.2	296.2	270.1	270.1	239.5	226.4	209.0	191.6	178.6
57.5°	265.6	248.2	226.4	209.0	200.3	178.6	161.1	139.4	126.3	100.1	82.7
60°	200.3	182.9	161.1	148.1	139.4	117.6	95.9	78.3	47.9	39.2	34.8
62.5°	148.1	130.7	108.9	100.1	91.4	74.0	52.2	26.1	13.1	13.1	13.1
65°	108.9	87.0	69.6	60.9	52.2	39.2	17.4	8.7	4.4	4.4	4.4
67.5°	74.0	56.6	39.2	34.8	26.1	13.1	4.4	4.4	4.4	4.4	4.4
70°	47.9	34.8	17.4	13.1	8.7	4.4	4.4	4.4	4.4	4.4	4.4
72.5°	30.5	17.4	8.7	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	17.4	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	8.7	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	4.4	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	4.4	4.4	4.4
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 FEU4C659030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8	3631.8
2.5°	3544.8	3514.3	3531.7	3492.6	3510.0	3540.4	3518.7	3527.4
5°	3422.8	3405.4	3383.8	3327.1	3370.6	3405.4	3388.0	3383.8
7.5°	3292.3	3231.2	3261.8	3244.4	3235.7	3270.5	3231.2	3274.7
10°	3157.2	3113.7	3109.4	3078.9	3078.9	3105.0	3109.4	3083.1
12.5°	2956.9	2935.2	2935.2	2930.8	2926.3	2952.6	2956.9	2943.9
15°	2813.2	2804.5	2782.7	2778.4	2752.3	2791.4	2795.8	2791.4
17.5°	2639.0	2643.3	2621.6	2621.6	2639.0	2652.0	2617.2	2652.0
20°	2521.5	2499.6	2490.9	2451.7	2473.5	2495.4	2495.4	2499.6
22.5°	2351.5	2316.7	2329.9	2308.0	2294.9	2325.4	2325.4	2338.6
25°	2160.0	2160.0	2168.7	2155.7	2164.4	2181.8	2168.7	2199.2
27.5°	1977.1	1994.5	1994.5	1977.1	1985.8	2038.0	2059.8	2025.0
30°	1807.3	1811.6	1824.7	1816.0	1842.1	1859.5	1855.1	1881.3
32.5°	1615.7	1637.4	1646.1	1633.1	1641.8	1680.9	1659.2	1654.8
35°	1467.6	1428.4	1424.1	1428.4	1445.8	1454.5	1445.8	1476.3
37.5°	1254.2	1241.0	1223.6	1228.1	1241.0	1258.6	1267.3	1289.0
40°	1049.4	1032.0	1032.0	1027.8	1014.6	1062.6	1062.6	1062.6
42.5°	871.0	866.5	844.9	844.9	862.3	875.2	866.5	897.1
45°	714.2	696.8	683.6	683.6	696.8	696.8	709.9	705.5
47.5°	561.8	544.4	548.7	535.7	548.7	566.1	544.4	548.7
50°	422.4	422.4	413.7	422.4	418.0	422.4	413.7	405.0
52.5°	287.5	326.6	331.0	313.6	274.3	239.5	217.7	235.1
55°	165.5	148.1	148.1	143.7	135.0	130.7	117.6	130.7
57.5°	82.7	74.0	74.0	74.0	69.6	65.3	56.6	56.6
60°	34.8	30.5	30.5	26.1	21.8	17.4	13.1	17.4
62.5°	13.1	8.7	8.7	8.7	8.7	8.7	8.7	8.7
65°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
67.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
70°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
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)