

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: **FLDSQ4C50D010 FEU4C509030 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: FLDSQ4C50D010 FEU4C509030 F4LC-SQLWW-LI
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

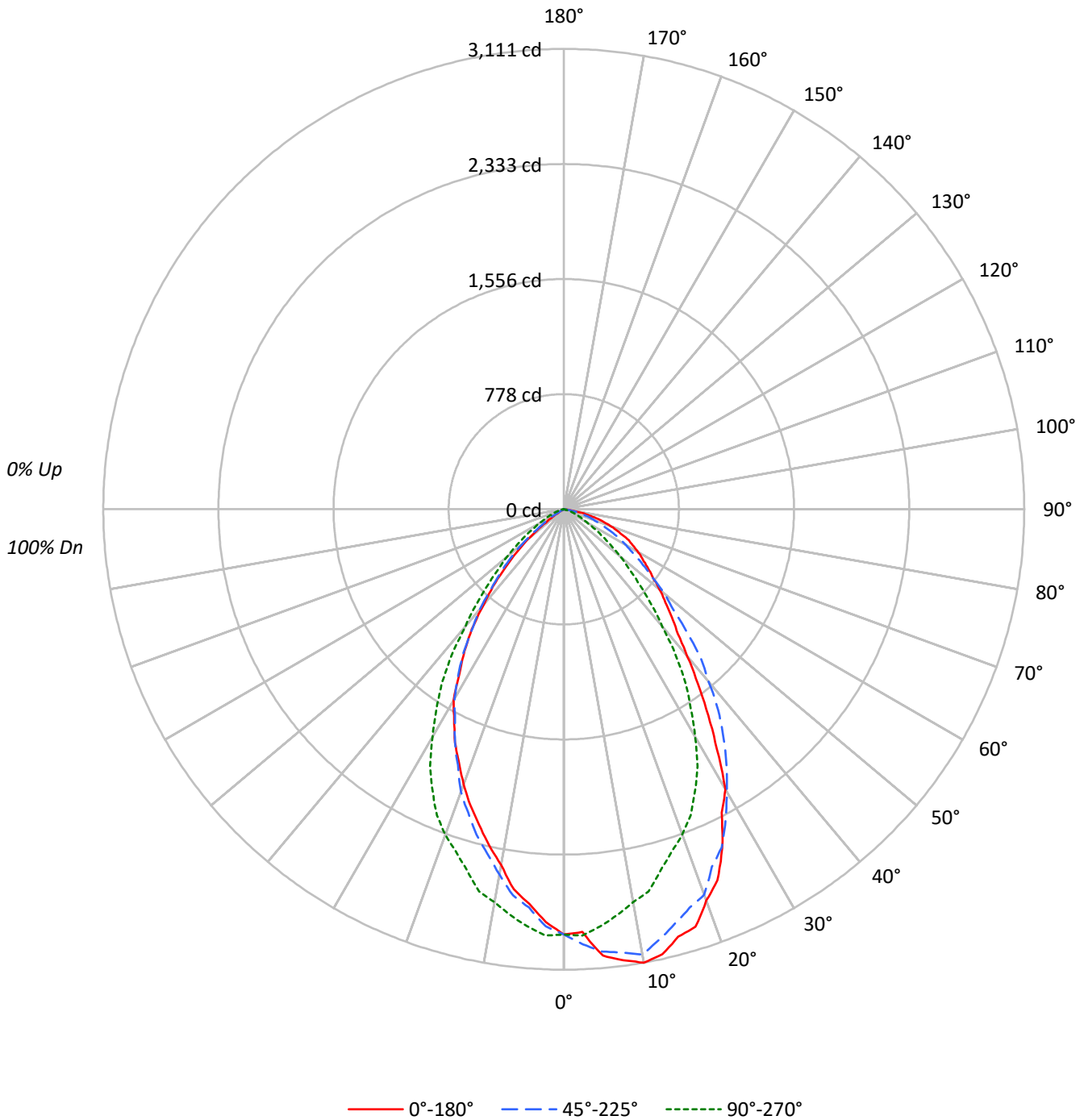
Lumens per Lamp: N/A
 Luminaire Lumens: 4118.0 lumens
 Efficiency: N/A
 Efficacy: 70.5 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 58.4
 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: FLDSQ4C50D010 FEU4C509030 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°	277193	277193	277193
5°	293275	273923	259249
10°	304768	264265	238947
15°	298679	252219	220563
20°	288986	240161	203022
25°	269555	223340	185204
30°	243332	197652	165809
35°	200445	169207	137557
40°	163581	130605	105867
45°	140550	99190	76142
50°	127203	75505	48095
55°	117050	54471	17394
60°	112352	37225	2663
65°	108517	25183	799
70°	97160	17463	987
75°	79631	9022	0
80°	49787	3834	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	269.2	6.5
10°-20°	725.2	17.6
20°-30°	968.3	23.5
30°-40°	919.2	22.3
40°-50°	635.4	15.4
50°-60°	351.1	8.5
60°-70°	174.3	4.2
70°-80°	68.7	1.7
80°-90°	6.5	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°	1962.7	47.7
0°-40°	2881.9	70.0
0°-60°	3868.4	93.9
0°-90°	4118.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4118.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2873	2873	2873	2873	2873	
5°	3028	3000	2828	2701	2677	290
15°	2990	2900	2525	2277	2208	846
25°	2532	2522	2098	1740	1740	1154
35°	1702	1881	1436	1182	1168	1066
45°	1030	1182	727	596	558	803
55°	696	654	324	165	103	626
65°	475	344	110	4	4	461
75°	214	131	24	0	0	228
85°	0	4	0	0	0	20
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°	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8
2.5°	2859.0	2938.3	2945.1	2938.3	2948.7	2945.1	2962.4	2945.1	2965.9	2934.9	2941.8
5°	3027.9	2996.8	3062.3	3027.9	3027.9	3024.5	3014.1	3010.6	3024.5	2979.7	3000.3
7.5°	3072.7	3117.5	3176.1	3103.7	3107.1	3107.1	3086.4	3079.6	3079.6	2996.8	3021.0
10°	3110.6	3082.9	3114.0	3086.4	3110.6	3107.1	3120.9	3076.1	3107.1	3058.9	3055.4
12.5°	3079.6	3069.2	3110.6	3065.8	3052.0	3055.4	3038.3	3027.9	3038.3	2983.1	2979.7
15°	2990.0	3000.3	3062.3	3014.1	3007.2	3000.3	2979.7	2945.1	2972.8	2897.0	2900.5
17.5°	2959.0	2941.8	2952.2	2910.7	2921.1	2914.2	2910.7	2879.8	2872.8	2824.6	2824.6
20°	2814.4	2852.2	2852.2	2824.6	2824.6	2821.3	2776.5	2804.0	2772.9	2759.2	2772.9
22.5°	2714.4	2717.9	2717.9	2693.7	2697.2	2683.5	2659.3	2642.0	2659.3	2642.0	2614.5
25°	2531.9	2538.8	2580.1	2535.3	2528.4	2542.2	2521.5	2511.1	2507.8	2466.5	2521.5
27.5°	2311.4	2380.2	2376.8	2359.6	2380.2	2352.7	2342.4	2345.8	2356.2	2352.7	2366.5
30°	2184.0	2194.3	2204.6	2190.9	2194.3	2184.0	2184.0	2187.4	2214.9	2204.6	2201.1
32.5°	1925.6	1960.0	1987.6	1987.6	1991.0	2001.4	1997.9	2070.2	2087.5	2053.1	2046.2
35°	1701.7	1725.8	1749.8	1753.3	1798.2	1801.5	1805.0	1825.7	1873.9	1884.3	1880.7
37.5°	1488.2	1512.2	1519.1	1550.1	1574.3	1598.3	1626.0	1653.5	1694.8	1729.2	1712.1
40°	1298.7	1308.9	1326.2	1340.0	1388.2	1388.2	1401.9	1457.1	1501.9	1529.5	1525.9
42.5°	1140.2	1143.6	1157.4	1181.5	1226.3	1216.0	1226.3	1264.3	1329.6	1333.1	1371.0
45°	1030.0	1026.5	1036.9	1040.2	1067.9	1081.7	1088.6	1116.1	1171.1	1178.0	1181.5
47.5°	930.1	926.6	943.9	950.8	961.0	974.8	974.8	978.3	998.9	1016.2	1002.5
50°	847.4	847.4	847.4	854.3	871.5	868.0	871.5	885.3	895.6	888.7	885.3
52.5°	757.8	771.5	781.9	785.4	788.8	788.8	792.3	785.4	781.9	771.5	750.9
55°	695.8	709.6	709.6	709.6	709.6	723.4	706.2	709.6	709.6	682.1	654.5
57.5°	633.9	647.7	657.9	644.1	657.9	644.1	637.3	633.9	626.9	599.3	558.0
60°	582.2	589.1	585.6	582.2	589.1	578.7	571.8	558.0	551.2	513.2	485.7
62.5°	523.6	527.0	530.5	523.6	516.7	513.2	499.5	478.8	465.1	434.0	409.9
65°	475.3	465.1	461.5	458.2	451.3	440.9	430.6	406.5	396.1	368.6	344.4
67.5°	403.0	399.6	406.5	396.1	379.0	379.0	368.6	347.9	323.8	306.6	282.5
70°	344.4	341.0	334.2	323.8	320.4	306.6	306.6	282.5	275.6	244.5	223.9
72.5°	282.5	282.5	272.1	261.8	251.4	244.5	241.2	223.9	213.6	196.4	179.1
75°	213.6	213.6	210.1	199.7	192.9	186.0	182.6	168.8	158.4	141.3	130.9
77.5°	151.6	151.6	137.8	130.9	134.3	127.4	120.5	117.1	113.6	103.4	89.6
80°	89.6	86.1	75.8	79.2	75.8	75.8	72.3	68.8	61.9	55.1	48.2
82.5°	24.2	27.5	27.5	27.5	31.0	24.2	24.2	24.2	27.5	27.5	17.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.5	3.5
87.5°	3.5	6.9	13.8	13.8	13.8	13.8	13.8	10.4	10.4	10.4	6.9
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°	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8
2.5°	2907.4	2903.9	2907.4	2883.2	2938.3	2897.0	2890.1	2883.2	2907.4	2883.2	2848.8
5°	2969.3	2934.9	2924.5	2914.2	2945.1	2897.0	2886.7	2890.1	2872.8	2828.1	2831.5
7.5°	2990.0	2959.0	2928.0	2862.6	2890.1	2879.8	2852.2	2831.5	2804.0	2766.1	2759.2
10°	2996.8	2962.4	2917.6	2897.0	2855.7	2841.9	2831.5	2797.1	2762.7	2697.2	2680.0
12.5°	2976.2	2934.9	2879.8	2862.6	2831.5	2786.7	2762.7	2728.1	2697.2	2645.5	2607.6
15°	2886.7	2852.2	2835.0	2776.5	2762.7	2735.0	2686.8	2638.7	2593.9	2524.9	2504.2
17.5°	2783.3	2769.6	2752.3	2707.5	2704.1	2676.6	2631.8	2590.3	2531.9	2425.0	2390.6
20°	2676.6	2676.6	2621.4	2604.2	2638.7	2583.5	2549.1	2511.1	2390.6	2338.9	2277.0
22.5°	2597.4	2559.4	2528.4	2500.9	2504.2	2469.8	2421.7	2345.8	2301.0	2239.1	2166.7
25°	2442.3	2456.1	2387.2	2376.8	2387.2	2307.9	2283.9	2221.8	2156.3	2097.8	2042.7
27.5°	2345.8	2307.9	2263.2	2225.3	2225.3	2194.3	2125.4	2111.7	2011.7	1956.6	1887.6
30°	2201.1	2173.6	2135.7	2080.6	2073.7	2049.6	1994.5	1960.0	1856.7	1774.0	1736.1
32.5°	2018.5	2008.3	1977.2	1915.3	1894.6	1867.0	1798.2	1739.6	1691.4	1598.3	1553.6
35°	1887.6	1849.8	1784.4	1732.7	1715.4	1667.2	1612.1	1570.8	1519.1	1436.5	1377.9
37.5°	1691.4	1653.5	1591.4	1529.5	1529.5	1481.3	1405.4	1364.1	1291.8	1243.5	1195.3
40°	1519.1	1470.9	1408.9	1336.6	1326.2	1257.3	1226.3	1157.4	1112.6	1036.9	1030.0
42.5°	1326.2	1281.4	1226.3	1171.1	1129.9	1095.4	1016.2	964.5	916.4	878.4	868.0
45°	1150.5	1091.9	1043.8	974.8	933.5	892.2	840.5	806.1	768.2	726.9	702.7
47.5°	998.9	950.8	881.8	819.9	778.6	757.8	699.2	661.4	630.4	602.8	585.6
50°	844.0	785.4	747.5	678.6	671.7	623.5	575.3	544.3	527.0	503.0	478.8
52.5°	726.9	671.7	620.0	568.4	540.8	523.6	478.8	447.8	423.8	406.5	392.7
55°	613.1	564.9	523.6	471.9	454.7	430.6	379.0	372.1	347.9	323.8	306.6
57.5°	527.0	482.2	434.0	399.6	368.6	351.4	310.0	282.5	268.7	248.0	230.8
60°	447.8	399.6	361.7	320.4	306.6	282.5	251.4	227.4	210.1	192.9	175.7
62.5°	375.4	334.2	292.9	258.3	237.7	223.9	199.7	179.1	161.9	148.2	134.3
65°	310.0	272.1	237.7	203.2	192.9	175.7	158.4	141.3	127.4	110.3	96.5
67.5°	254.9	220.5	186.0	161.9	151.6	144.7	124.0	106.8	96.5	86.1	72.3
70°	199.7	175.7	148.2	127.4	117.1	106.8	93.0	82.7	68.8	61.9	51.7
72.5°	155.1	134.3	110.3	93.0	86.1	79.2	65.5	55.1	48.2	41.3	34.4
75°	110.3	93.0	79.2	61.9	58.6	55.1	44.8	37.9	31.0	24.2	20.6
77.5°	75.8	61.9	48.2	41.3	37.9	31.0	27.5	20.6	17.3	13.8	10.4
80°	41.3	31.0	24.2	20.6	17.3	13.8	13.8	10.4	6.9	6.9	3.5
82.5°	13.8	10.4	6.9	3.5	3.5	3.5	3.5	3.5	3.5	0.0	3.5
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°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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°	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8
2.5°	2869.4	2831.5	2841.9	2841.9	2835.0	2835.0	2828.1	2817.7	2821.3	2800.5	2755.8
5°	2838.4	2790.2	2783.3	2790.2	2762.7	2755.8	2742.0	2762.7	2700.6	2724.8	2697.2
7.5°	2748.9	2704.1	2693.7	2717.9	2683.5	2662.7	2659.3	2686.8	2631.8	2604.2	2573.2
10°	2648.9	2631.8	2600.7	2583.5	2573.2	2576.6	2549.1	2514.6	2504.2	2497.4	2469.8
12.5°	2559.4	2521.5	2494.0	2473.3	2466.5	2466.5	2421.7	2414.8	2383.7	2376.8	2335.6
15°	2452.6	2407.9	2390.6	2363.1	2338.9	2352.7	2301.0	2287.2	2277.0	2232.2	2239.1
17.5°	2359.6	2311.4	2270.1	2252.8	2232.2	2211.5	2163.2	2173.6	2149.4	2149.4	2087.5
20°	2239.1	2187.4	2156.3	2121.9	2121.9	2094.4	2060.0	2063.3	2032.3	2001.4	1946.2
22.5°	2111.7	2056.5	2018.5	2004.8	1970.4	1963.5	1922.2	1911.8	1870.5	1873.9	1825.7
25°	1977.2	1922.2	1870.5	1873.9	1843.0	1829.2	1805.0	1756.9	1739.6	1718.9	1705.2
27.5°	1818.8	1780.9	1736.1	1732.7	1674.1	1677.5	1646.6	1632.8	1591.4	1601.8	1570.8
30°	1674.1	1619.1	1577.6	1567.4	1543.2	1536.3	1488.2	1467.4	1474.4	1446.7	1429.6
32.5°	1525.9	1443.4	1426.1	1405.4	1391.7	1374.4	1340.0	1353.7	1322.7	1329.6	1302.1
35°	1329.6	1295.2	1250.4	1250.4	1236.6	1222.8	1198.8	1212.6	1181.5	1167.8	1140.2
37.5°	1164.3	1133.4	1088.6	1102.3	1078.2	1057.5	1036.9	1040.2	1012.7	1009.3	981.7
40°	985.2	967.9	937.0	937.0	919.7	919.7	909.3	899.1	881.8	861.2	830.1
42.5°	816.3	802.6	788.8	792.3	768.2	788.8	761.3	778.6	723.4	720.0	699.2
45°	692.3	661.4	664.8	651.0	637.3	644.1	620.0	626.9	596.0	589.1	568.4
47.5°	561.6	551.2	530.5	523.6	523.6	513.2	503.0	499.5	485.7	468.4	440.9
50°	461.5	423.8	416.7	406.5	399.6	399.6	385.8	365.2	368.6	351.4	323.8
52.5°	361.7	330.6	316.9	313.5	299.7	292.9	275.6	261.8	251.4	244.5	227.4
55°	279.0	251.4	234.3	234.3	213.6	213.6	189.5	179.1	165.3	151.6	141.3
57.5°	210.1	196.4	179.1	165.3	158.4	141.3	127.4	110.3	99.9	79.2	65.5
60°	158.4	144.7	127.4	117.1	110.3	93.0	75.8	61.9	37.9	31.0	27.5
62.5°	117.1	103.4	86.1	79.2	72.3	58.6	41.3	20.6	10.4	10.4	10.4
65°	86.1	68.8	55.1	48.2	41.3	31.0	13.8	6.9	3.5	3.5	3.5
67.5°	58.6	44.8	31.0	27.5	20.6	10.4	3.5	3.5	3.5	3.5	3.5
70°	37.9	27.5	13.8	10.4	6.9	3.5	3.5	3.5	3.5	3.5	3.5
72.5°	24.2	13.8	6.9	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	13.8	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	6.9	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	3.5	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	3.5	3.5	3.5
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: FLDSQ4C50D010 FEU4C509030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8	2872.8
2.5°	2804.0	2779.8	2793.6	2762.7	2776.5	2800.5	2783.3	2790.2
5°	2707.5	2693.7	2676.6	2631.8	2666.2	2693.7	2680.0	2676.6
7.5°	2604.2	2555.9	2580.1	2566.3	2559.4	2587.0	2555.9	2590.3
10°	2497.4	2462.9	2459.6	2435.4	2435.4	2456.1	2459.6	2438.8
12.5°	2338.9	2321.8	2321.8	2318.3	2314.8	2335.6	2338.9	2328.7
15°	2225.3	2218.4	2201.1	2197.8	2177.1	2208.0	2211.5	2208.0
17.5°	2087.5	2090.9	2073.7	2073.7	2087.5	2097.8	2070.2	2097.8
20°	1994.5	1977.2	1970.4	1939.3	1956.6	1973.9	1973.9	1977.2
22.5°	1860.1	1832.6	1843.0	1825.7	1815.3	1839.5	1839.5	1849.8
25°	1708.5	1708.5	1715.4	1705.2	1712.1	1725.8	1715.4	1739.6
27.5°	1563.9	1577.6	1577.6	1563.9	1570.8	1612.1	1629.3	1601.8
30°	1429.6	1433.0	1443.4	1436.5	1457.1	1470.9	1467.4	1488.2
32.5°	1278.0	1295.2	1302.1	1291.8	1298.7	1329.6	1312.4	1308.9
35°	1160.9	1129.9	1126.5	1129.9	1143.6	1150.5	1143.6	1167.8
37.5°	992.1	981.7	967.9	971.4	981.7	995.6	1002.5	1019.6
40°	830.1	816.3	816.3	813.0	802.6	840.5	840.5	840.5
42.5°	689.0	685.4	668.3	668.3	682.1	692.3	685.4	709.6
45°	564.9	551.2	540.8	540.8	551.2	551.2	561.6	558.0
47.5°	444.4	430.6	434.0	423.8	434.0	447.8	430.6	434.0
50°	334.2	334.2	327.3	334.2	330.6	334.2	327.3	320.4
52.5°	227.4	258.3	261.8	248.0	217.0	189.5	172.2	186.0
55°	130.9	117.1	117.1	113.6	106.8	103.4	93.0	103.4
57.5°	65.5	58.6	58.6	58.6	55.1	51.7	44.8	44.8
60°	27.5	24.2	24.2	20.6	17.3	13.8	10.4	13.8
62.5°	10.4	6.9	6.9	6.9	6.9	6.9	6.9	6.9
65°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
67.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
70°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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)