

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 FEU4C709050 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: FLDSQ4C70D010 FEU4C709050 F4LC-SQLWW-H
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

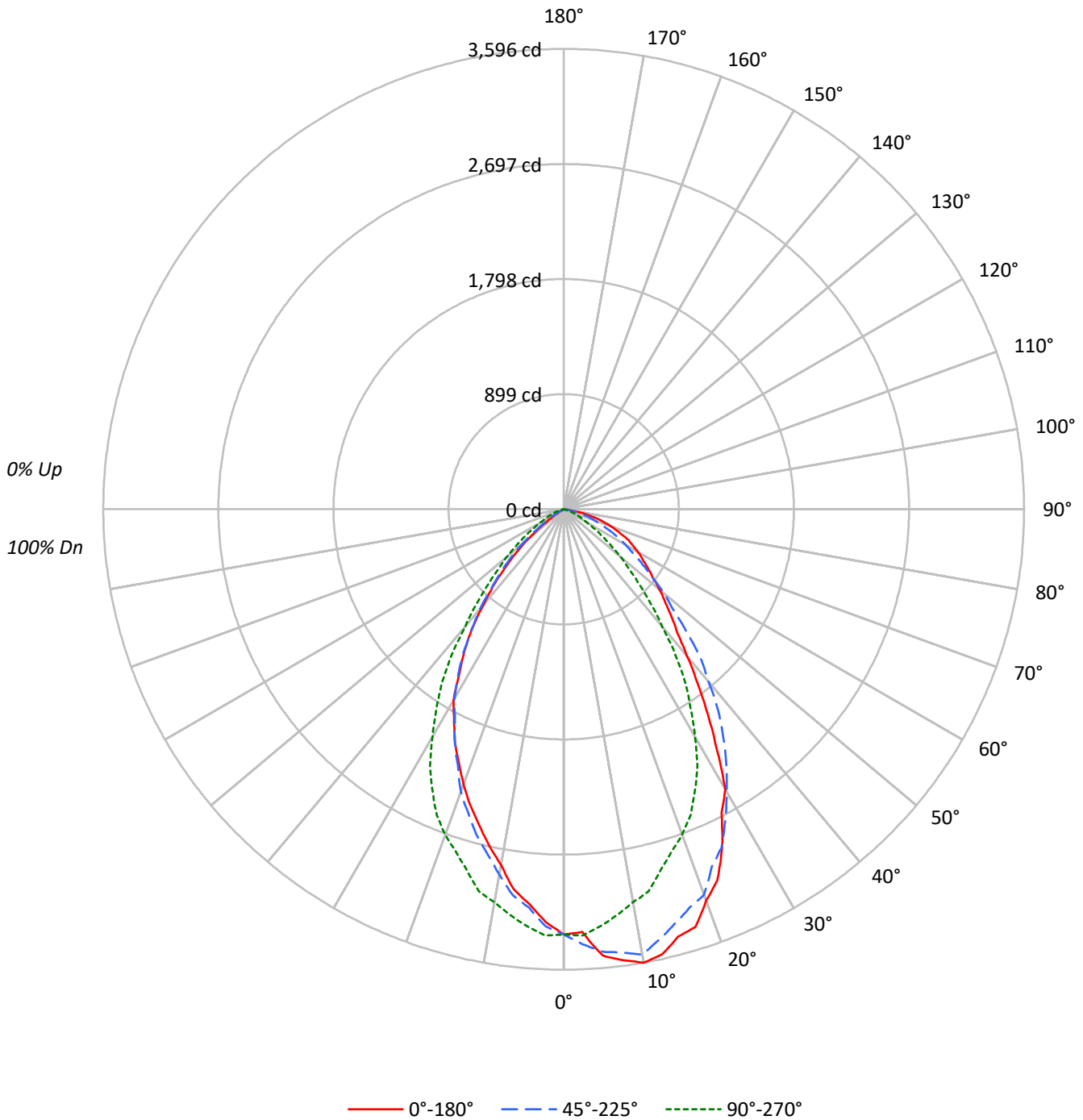
Lumens per Lamp: N/A
 Luminaire Lumens: 4760.0 lumens
 Efficiency: N/A
 Efficacy: 61.0 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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#

CATALOG NUMBER: FLDSQ4C70D010 FEU4C709050 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				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°	320411	320411	320411
5°	338991	316637	299667
10°	352278	305464	276198
15°	345239	291537	254946
20°	334033	277609	234678
25°	311577	258153	214077
30°	281269	228469	191657
35°	231695	195580	158995
40°	189075	150960	122368
45°	162464	114650	88014
50°	147033	87274	55586
55°	135302	62949	20103
60°	129874	43015	3068
65°	125435	29087	936
70°	112310	20199	1157
75°	92045	10401	0
80°	57566	4445	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	311.1	6.5
10°-20°	838.2	17.6
20°-30°	1119.3	23.5
30°-40°	1062.6	22.3
40°-50°	734.5	15.4
50°-60°	405.8	8.5
60°-70°	201.5	4.2
70°-80°	79.4	1.7
80°-90°	7.6	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°	2268.7	47.7
0°-40°	3331.2	70.0
0°-60°	4471.5	93.9
0°-90°	4760.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4760.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3321	3321	3321	3321	3321	
5°	3500	3468	3269	3122	3094	335
15°	3456	3353	2918	2632	2552	978
25°	2927	2915	2425	2011	2011	1334
35°	1967	2174	1660	1366	1350	1232
45°	1191	1366	840	689	645	929
55°	804	757	374	191	120	724
65°	549	398	127	4	4	533
75°	247	151	28	0	0	263
85°	0	4	0	0	0	23
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°	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7
2.5°	3304.8	3396.3	3404.3	3396.3	3408.4	3404.3	3424.3	3404.3	3428.3	3392.4	3400.4
5°	3499.9	3464.0	3539.7	3499.9	3499.9	3496.0	3484.0	3480.0	3496.0	3444.2	3468.1
7.5°	3551.7	3603.5	3671.2	3587.6	3591.5	3591.5	3567.6	3559.7	3559.7	3464.0	3492.0
10°	3595.5	3563.6	3599.4	3567.6	3595.5	3591.5	3607.4	3555.6	3591.5	3535.8	3531.7
12.5°	3559.7	3547.7	3595.5	3543.8	3527.8	3531.7	3511.9	3499.9	3511.9	3448.1	3444.2
15°	3456.1	3468.1	3539.7	3484.0	3476.1	3468.1	3444.2	3404.3	3436.3	3348.6	3352.7
17.5°	3420.4	3400.4	3412.4	3364.5	3376.5	3368.6	3364.5	3328.8	3320.7	3265.0	3265.0
20°	3253.1	3296.8	3296.8	3265.0	3265.0	3261.1	3209.3	3241.1	3205.2	3189.3	3205.2
22.5°	3137.5	3141.6	3141.6	3113.7	3117.7	3101.8	3073.9	3053.9	3073.9	3053.9	3022.1
25°	2926.6	2934.6	2982.3	2930.5	2922.6	2938.5	2914.6	2902.6	2898.7	2851.0	2914.6
27.5°	2671.7	2751.3	2747.4	2727.4	2751.3	2719.5	2707.6	2711.5	2723.5	2719.5	2735.4
30°	2524.5	2536.3	2548.3	2532.4	2536.3	2524.5	2524.5	2528.4	2560.2	2548.3	2544.3
32.5°	2225.7	2265.5	2297.5	2297.5	2301.4	2313.4	2309.4	2393.0	2412.9	2373.2	2365.2
35°	1967.0	1994.9	2022.6	2026.7	2078.5	2082.4	2086.4	2110.3	2166.0	2178.0	2174.0
37.5°	1720.2	1747.9	1755.9	1791.8	1819.7	1847.5	1879.4	1911.3	1959.0	1998.8	1979.0
40°	1501.1	1513.0	1533.0	1548.9	1604.6	1604.6	1620.5	1684.3	1736.1	1767.9	1763.8
42.5°	1318.0	1321.9	1337.8	1365.7	1417.5	1405.5	1417.5	1461.4	1536.9	1540.9	1584.8
45°	1190.6	1186.5	1198.5	1202.4	1234.4	1250.3	1258.3	1290.1	1353.7	1361.7	1365.7
47.5°	1075.1	1071.1	1091.0	1099.0	1110.8	1126.8	1126.8	1130.8	1154.7	1174.6	1158.7
50°	979.5	979.5	979.5	987.5	1007.4	1003.4	1007.4	1023.3	1035.2	1027.2	1023.3
52.5°	875.9	891.8	903.8	907.9	911.8	911.8	915.9	907.9	903.8	891.8	868.0
55°	804.3	820.2	820.2	820.2	820.2	836.1	816.3	820.2	820.2	788.4	756.6
57.5°	732.7	748.6	760.5	744.6	760.5	744.6	736.6	732.7	724.6	692.8	645.0
60°	673.0	680.9	676.9	673.0	680.9	668.9	661.0	645.0	637.1	593.3	561.4
62.5°	605.3	609.2	613.2	605.3	597.3	593.3	577.3	553.5	537.6	501.7	473.8
65°	549.4	537.6	533.5	529.6	521.7	509.6	497.8	469.9	457.8	426.0	398.1
67.5°	465.8	461.9	469.9	457.8	438.0	438.0	426.0	402.2	374.2	354.4	326.5
70°	398.1	394.2	386.2	374.2	370.3	354.4	354.4	326.5	318.5	282.7	258.8
72.5°	326.5	326.5	314.5	302.6	290.6	282.7	278.8	258.8	246.9	227.0	207.0
75°	246.9	246.9	242.9	230.9	222.9	215.0	211.1	195.2	183.1	163.3	151.3
77.5°	175.2	175.2	159.3	151.3	155.2	147.3	139.3	135.4	131.3	119.5	103.6
80°	103.6	99.5	87.7	91.6	87.7	87.7	83.6	79.6	71.6	63.6	55.7
82.5°	27.9	31.8	31.8	31.8	35.9	27.9	27.9	27.9	31.8	31.8	20.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	4.1	4.1
87.5°	4.1	8.0	15.9	15.9	15.9	15.9	15.9	12.0	12.0	12.0	8.0
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°	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7
2.5°	3360.6	3356.6	3360.6	3332.7	3396.3	3348.6	3340.7	3332.7	3360.6	3332.7	3292.9
5°	3432.2	3392.4	3380.4	3368.6	3404.3	3348.6	3336.8	3340.7	3320.7	3269.1	3273.0
7.5°	3456.1	3420.4	3384.5	3308.8	3340.7	3328.8	3296.8	3273.0	3241.1	3197.3	3189.3
10°	3464.0	3424.3	3372.5	3348.6	3300.9	3285.0	3273.0	3233.2	3193.4	3117.7	3097.8
12.5°	3440.2	3392.4	3328.8	3308.8	3273.0	3221.2	3193.4	3153.5	3117.7	3058.0	3014.2
15°	3336.8	3296.8	3277.0	3209.3	3193.4	3161.4	3105.7	3050.0	2998.2	2918.5	2894.7
17.5°	3217.3	3201.3	3181.4	3129.6	3125.7	3093.9	3042.1	2994.2	2926.6	2803.1	2763.3
20°	3093.9	3093.9	3030.1	3010.3	3050.0	2986.2	2946.5	2902.6	2763.3	2703.6	2632.0
22.5°	3002.3	2958.5	2922.6	2890.8	2894.7	2854.9	2799.2	2711.5	2659.7	2588.1	2504.5
25°	2823.1	2839.0	2759.4	2747.4	2759.4	2667.7	2639.9	2568.2	2492.5	2424.8	2361.2
27.5°	2711.5	2667.7	2616.1	2572.2	2572.2	2536.3	2456.8	2440.9	2325.3	2261.6	2181.9
30°	2544.3	2512.5	2468.6	2405.0	2397.0	2369.1	2305.5	2265.5	2146.2	2050.6	2006.7
32.5°	2333.2	2321.4	2285.5	2213.9	2190.0	2158.0	2078.5	2010.8	1955.1	1847.5	1795.8
35°	2181.9	2138.2	2062.6	2002.8	1982.9	1927.2	1863.4	1815.6	1755.9	1660.4	1592.7
37.5°	1955.1	1911.3	1839.5	1767.9	1767.9	1712.2	1624.5	1576.8	1493.2	1437.3	1381.7
40°	1755.9	1700.2	1628.6	1545.0	1533.0	1453.3	1417.5	1337.8	1286.0	1198.5	1190.6
42.5°	1533.0	1481.2	1417.5	1353.7	1306.0	1266.2	1174.6	1114.9	1059.2	1015.4	1003.4
45°	1329.9	1262.2	1206.5	1126.8	1079.0	1031.3	971.5	931.8	887.9	840.2	812.3
47.5°	1154.7	1099.0	1019.3	947.7	899.9	875.9	808.2	764.5	728.7	696.8	676.9
50°	975.6	907.9	864.1	784.3	776.4	720.7	665.0	629.1	609.2	581.4	553.5
52.5°	840.2	776.4	716.6	657.1	625.1	605.3	553.5	517.6	489.8	469.9	453.9
55°	708.7	653.0	605.3	545.5	525.6	497.8	438.0	430.1	402.2	374.2	354.4
57.5°	609.2	557.4	501.7	461.9	426.0	406.2	358.3	326.5	310.6	286.7	266.8
60°	517.6	461.9	418.1	370.3	354.4	326.5	290.6	262.9	242.9	222.9	203.1
62.5°	434.0	386.2	338.5	298.6	274.7	258.8	230.9	207.0	187.2	171.3	155.2
65°	358.3	314.5	274.7	234.9	222.9	203.1	183.1	163.3	147.3	127.4	111.5
67.5°	294.7	254.9	215.0	187.2	175.2	167.2	143.4	123.4	111.5	99.5	83.6
70°	230.9	203.1	171.3	147.3	135.4	123.4	107.5	95.6	79.6	71.6	59.7
72.5°	179.2	155.2	127.4	107.5	99.5	91.6	75.7	63.6	55.7	47.7	39.8
75°	127.4	107.5	91.6	71.6	67.7	63.6	51.8	43.8	35.9	27.9	23.9
77.5°	87.7	71.6	55.7	47.7	43.8	35.9	31.8	23.9	20.0	15.9	12.0
80°	47.7	35.9	27.9	23.9	20.0	15.9	15.9	12.0	8.0	8.0	4.1
82.5°	15.9	12.0	8.0	4.1	4.1	4.1	4.1	4.1	4.1	0.0	4.1
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°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	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°	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7
2.5°	3316.8	3273.0	3285.0	3285.0	3277.0	3277.0	3269.1	3257.0	3261.1	3237.1	3185.4
5°	3280.9	3225.2	3217.3	3225.2	3193.4	3185.4	3169.5	3193.4	3121.6	3149.6	3117.7
7.5°	3177.5	3125.7	3113.7	3141.6	3101.8	3077.8	3073.9	3105.7	3042.1	3010.3	2974.4
10°	3061.9	3042.1	3006.2	2986.2	2974.4	2978.3	2946.5	2906.7	2894.7	2886.7	2854.9
12.5°	2958.5	2914.6	2882.8	2858.9	2851.0	2851.0	2799.2	2791.2	2755.4	2747.4	2699.7
15°	2834.9	2783.3	2763.3	2731.5	2703.6	2719.5	2659.7	2643.8	2632.0	2580.2	2588.1
17.5°	2727.4	2671.7	2624.0	2604.0	2580.2	2556.3	2500.5	2512.5	2484.5	2484.5	2412.9
20°	2588.1	2528.4	2492.5	2452.7	2452.7	2420.9	2381.1	2385.0	2349.1	2313.4	2249.6
22.5°	2440.9	2377.1	2333.2	2317.3	2277.5	2269.6	2221.8	2209.8	2162.1	2166.0	2110.3
25°	2285.5	2221.8	2162.1	2166.0	2130.3	2114.4	2086.4	2030.8	2010.8	1986.9	1971.0
27.5°	2102.4	2058.5	2006.7	2002.8	1935.1	1939.0	1903.3	1887.4	1839.5	1851.5	1815.6
30°	1935.1	1871.5	1823.6	1811.7	1783.8	1775.9	1720.2	1696.1	1704.3	1672.3	1652.5
32.5°	1763.8	1668.4	1648.4	1624.5	1608.6	1588.7	1548.9	1564.8	1528.9	1536.9	1505.0
35°	1536.9	1497.1	1445.3	1445.3	1429.4	1413.5	1385.7	1401.6	1365.7	1349.8	1318.0
37.5°	1345.8	1310.1	1258.3	1274.2	1246.3	1222.4	1198.5	1202.4	1170.6	1166.7	1134.7
40°	1138.8	1118.8	1083.1	1083.1	1063.1	1063.1	1051.1	1039.2	1019.3	995.4	959.5
42.5°	943.6	927.7	911.8	915.9	887.9	911.8	880.0	899.9	836.1	832.2	808.2
45°	800.3	764.5	768.4	752.5	736.6	744.6	716.6	724.6	688.9	680.9	657.1
47.5°	649.1	637.1	613.2	605.3	605.3	593.3	581.4	577.3	561.4	541.5	509.6
50°	533.5	489.8	481.7	469.9	461.9	461.9	446.0	422.1	426.0	406.2	374.2
52.5°	418.1	382.2	366.3	362.4	346.5	338.5	318.5	302.6	290.6	282.7	262.9
55°	322.4	290.6	270.8	270.8	246.9	246.9	219.0	207.0	191.1	175.2	163.3
57.5°	242.9	227.0	207.0	191.1	183.1	163.3	147.3	127.4	115.4	91.6	75.7
60°	183.1	167.2	147.3	135.4	127.4	107.5	87.7	71.6	43.8	35.9	31.8
62.5°	135.4	119.5	99.5	91.6	83.6	67.7	47.7	23.9	12.0	12.0	12.0
65°	99.5	79.6	63.6	55.7	47.7	35.9	15.9	8.0	4.1	4.1	4.1
67.5°	67.7	51.8	35.9	31.8	23.9	12.0	4.1	4.1	4.1	4.1	4.1
70°	43.8	31.8	15.9	12.0	8.0	4.1	4.1	4.1	4.1	4.1	4.1
72.5°	27.9	15.9	8.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	15.9	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	8.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	4.1	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	4.1	4.1	4.1
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 FEU4C709050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7	3320.7
2.5°	3241.1	3213.2	3229.1	3193.4	3209.3	3237.1	3217.3	3225.2
5°	3129.6	3113.7	3093.9	3042.1	3081.9	3113.7	3097.8	3093.9
7.5°	3010.3	2954.4	2982.3	2966.4	2958.5	2990.3	2954.4	2994.2
10°	2886.7	2846.9	2843.0	2815.1	2815.1	2839.0	2843.0	2819.0
12.5°	2703.6	2683.8	2683.8	2679.7	2675.6	2699.7	2703.6	2691.7
15°	2572.2	2564.3	2544.3	2540.4	2516.5	2552.2	2556.3	2552.2
17.5°	2412.9	2416.8	2397.0	2397.0	2412.9	2424.8	2393.0	2424.8
20°	2305.5	2285.5	2277.5	2241.7	2261.6	2281.6	2281.6	2285.5
22.5°	2150.1	2118.3	2130.3	2110.3	2098.3	2126.2	2126.2	2138.2
25°	1974.9	1974.9	1982.9	1971.0	1979.0	1994.9	1982.9	2010.8
27.5°	1807.7	1823.6	1823.6	1807.7	1815.6	1863.4	1883.3	1851.5
30°	1652.5	1656.4	1668.4	1660.4	1684.3	1700.2	1696.1	1720.2
32.5°	1477.3	1497.1	1505.0	1493.2	1501.1	1536.9	1517.1	1513.0
35°	1341.9	1306.0	1302.1	1306.0	1321.9	1329.9	1321.9	1349.8
37.5°	1146.7	1134.7	1118.8	1122.9	1134.7	1150.8	1158.7	1178.5
40°	959.5	943.6	943.6	939.7	927.7	971.5	971.5	971.5
42.5°	796.4	792.3	772.5	772.5	788.4	800.3	792.3	820.2
45°	653.0	637.1	625.1	625.1	637.1	637.1	649.1	645.0
47.5°	513.7	497.8	501.7	489.8	501.7	517.6	497.8	501.7
50°	386.2	386.2	378.3	386.2	382.2	386.2	378.3	370.3
52.5°	262.9	298.6	302.6	286.7	250.8	219.0	199.1	215.0
55°	151.3	135.4	135.4	131.3	123.4	119.5	107.5	119.5
57.5°	75.7	67.7	67.7	67.7	63.6	59.7	51.8	51.8
60°	31.8	27.9	27.9	23.9	20.0	15.9	12.0	15.9
62.5°	12.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
65°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
70°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
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)