

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 FEU4C509040 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: FLDSQ4C50D010 FEU4C509040 F4LC-SQLWW-H
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

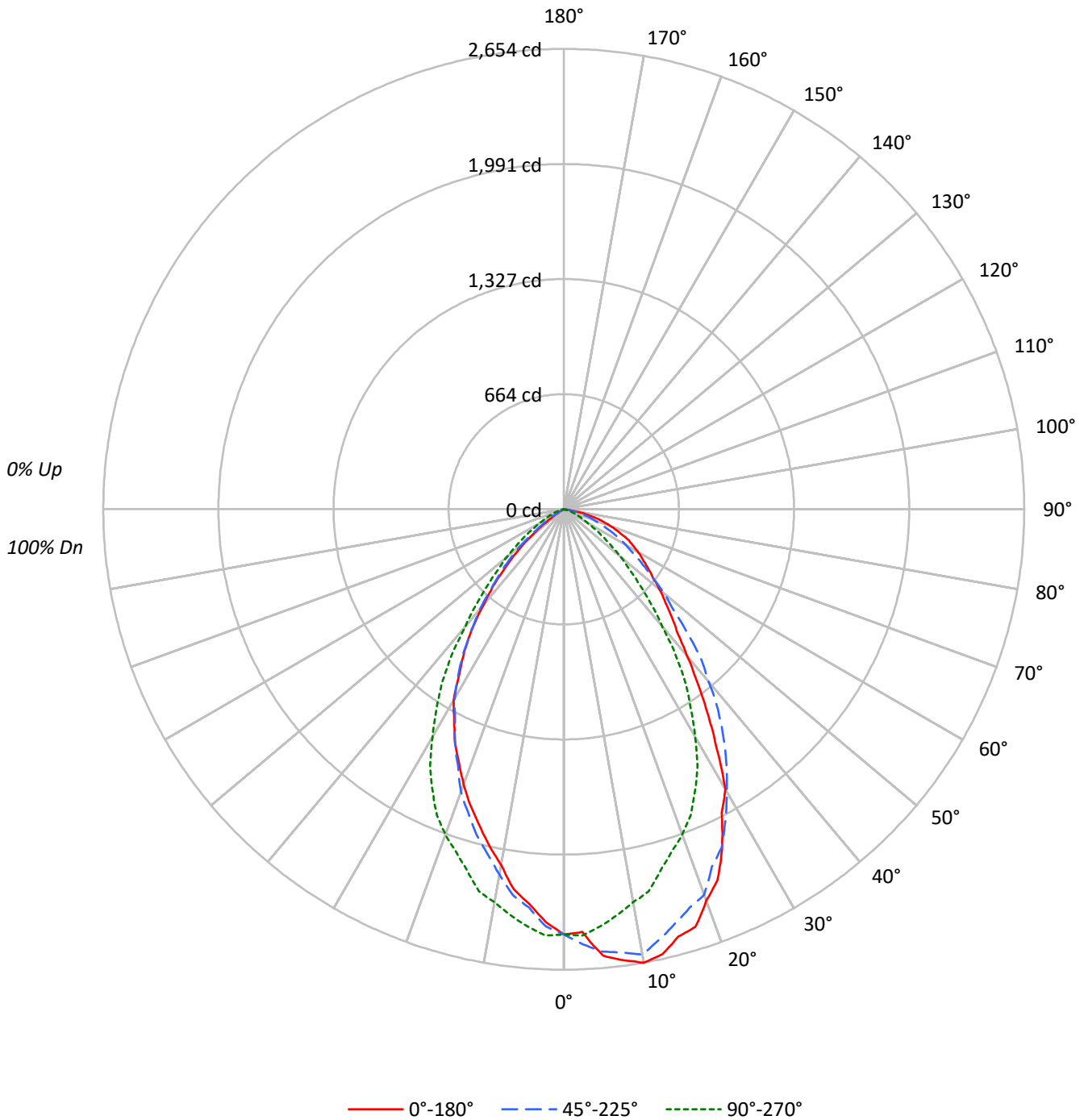
Lumens per Lamp: N/A
 Luminaire Lumens: 3513.0 lumens
 Efficiency: N/A
 Efficacy: 60.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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



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CATALOG NUMBER: FLDSQ4C50D010 FEU4C509040 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°	236465	236465	236465
5°	250183	233678	221164
10°	259993	225446	203842
15°	254796	215159	188158
20°	246528	204880	173203
25°	229951	190527	157992
30°	207579	168617	141442
35°	170997	144341	117344
40°	139548	111409	90311
45°	119904	84616	64967
50°	108515	64412	41025
55°	99857	46463	14837
60°	95852	31745	2258
65°	92581	21484	685
70°	82885	14896	846
75°	67925	7680	0
80°	42452	3278	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	229.6	6.5
10°-20°	618.6	17.6
20°-30°	826.1	23.5
30°-40°	784.2	22.3
40°-50°	542.1	15.4
50°-60°	299.5	8.5
60°-70°	148.7	4.2
70°-80°	58.6	1.7
80°-90°	5.6	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°	1674.3	47.7
0°-40°	2458.5	70.0
0°-60°	3300.1	93.9
0°-90°	3513.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3513.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2451	2451	2451	2451	2451	
5°	2583	2560	2413	2304	2283	247
15°	2551	2474	2154	1942	1884	722
25°	2160	2151	1790	1484	1484	985
35°	1452	1604	1225	1008	996	909
45°	879	1008	620	508	476	685
55°	594	558	276	141	88	534
65°	406	294	94	3	3	394
75°	182	112	21	0	0	194
85°	0	3	0	0	0	17
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°	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7
2.5°	2439.0	2506.6	2512.5	2506.6	2515.5	2512.5	2527.2	2512.5	2530.2	2503.7	2509.6
5°	2583.0	2556.6	2612.4	2583.0	2583.0	2580.2	2571.3	2568.3	2580.2	2541.9	2559.5
7.5°	2621.3	2659.5	2709.4	2647.7	2650.6	2650.6	2633.0	2627.1	2627.1	2556.6	2577.2
10°	2653.6	2630.0	2656.5	2633.0	2653.6	2650.6	2662.4	2624.1	2650.6	2609.5	2606.5
12.5°	2627.1	2618.3	2653.6	2615.4	2603.6	2606.5	2591.9	2583.0	2591.9	2544.8	2541.9
15°	2550.7	2559.5	2612.4	2571.3	2565.4	2559.5	2541.9	2512.5	2536.1	2471.4	2474.4
17.5°	2524.3	2509.6	2518.4	2483.1	2492.0	2486.1	2483.1	2456.7	2450.7	2409.6	2409.6
20°	2400.9	2433.1	2433.1	2409.6	2409.6	2406.8	2368.5	2392.0	2365.6	2353.8	2365.6
22.5°	2315.6	2318.6	2318.6	2298.0	2301.0	2289.2	2268.6	2253.9	2268.6	2253.9	2230.4
25°	2159.9	2165.8	2201.0	2162.8	2156.9	2168.7	2151.1	2142.2	2139.3	2104.1	2151.1
27.5°	1971.8	2030.5	2027.7	2012.9	2030.5	2007.0	1998.3	2001.2	2010.0	2007.0	2018.8
30°	1863.1	1871.9	1880.7	1869.0	1871.9	1863.1	1863.1	1866.0	1889.5	1880.7	1877.8
32.5°	1642.7	1672.0	1695.6	1695.6	1698.5	1707.4	1704.4	1766.1	1780.8	1751.5	1745.6
35°	1451.7	1472.3	1492.8	1495.8	1534.0	1536.9	1539.8	1557.5	1598.6	1607.4	1604.4
37.5°	1269.5	1290.0	1295.9	1322.4	1343.0	1363.5	1387.1	1410.6	1445.8	1475.1	1460.5
40°	1107.9	1116.6	1131.4	1143.1	1184.2	1184.2	1196.0	1243.0	1281.3	1304.8	1301.8
42.5°	972.7	975.6	987.3	1008.0	1046.2	1037.3	1046.2	1078.5	1134.3	1137.2	1169.6
45°	878.7	875.7	884.5	887.4	911.0	922.8	928.6	952.1	999.1	1005.0	1008.0
47.5°	793.5	790.5	805.2	811.1	819.8	831.6	831.6	834.6	852.2	866.9	855.2
50°	722.9	722.9	722.9	728.8	743.5	740.5	743.5	755.2	764.0	758.1	755.2
52.5°	646.4	658.2	667.1	670.1	672.9	672.9	675.9	670.1	667.1	658.2	640.6
55°	593.6	605.3	605.3	605.3	605.3	617.1	602.5	605.3	605.3	581.9	558.4
57.5°	540.8	552.5	561.3	549.5	561.3	549.5	543.6	540.8	534.8	511.3	476.1
60°	496.7	502.5	499.5	496.7	502.5	493.7	487.8	476.1	470.2	437.8	414.3
62.5°	446.7	449.6	452.6	446.7	440.8	437.8	426.1	408.5	396.7	370.3	349.6
65°	405.5	396.7	393.7	390.9	385.0	376.1	367.4	346.8	337.9	314.4	293.8
67.5°	343.8	340.9	346.8	337.9	323.3	323.3	314.4	296.8	276.2	261.6	241.0
70°	293.8	290.9	285.1	276.2	273.3	261.6	261.6	241.0	235.1	208.6	191.0
72.5°	241.0	241.0	232.1	223.4	214.5	208.6	205.7	191.0	182.2	167.5	152.8
75°	182.2	182.2	179.3	170.4	164.5	158.6	155.8	144.0	135.2	120.5	111.7
77.5°	129.3	129.3	117.5	111.7	114.6	108.7	102.8	99.9	96.9	88.2	76.4
80°	76.4	73.5	64.7	67.6	64.7	64.7	61.7	58.7	52.8	47.0	41.1
82.5°	20.6	23.5	23.5	23.5	26.5	20.6	20.6	20.6	23.5	23.5	14.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0
87.5°	3.0	5.9	11.7	11.7	11.7	11.7	11.7	8.9	8.9	8.9	5.9
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°	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7
2.5°	2480.2	2477.2	2480.2	2459.6	2506.6	2471.4	2465.5	2459.6	2480.2	2459.6	2430.3
5°	2533.1	2503.7	2494.8	2486.1	2512.5	2471.4	2462.6	2465.5	2450.7	2412.6	2415.5
7.5°	2550.7	2524.3	2497.8	2442.0	2465.5	2456.7	2433.1	2415.5	2392.0	2359.7	2353.8
10°	2556.6	2527.2	2489.0	2471.4	2436.1	2424.4	2415.5	2386.2	2356.8	2301.0	2286.2
12.5°	2538.9	2503.7	2456.7	2442.0	2415.5	2377.3	2356.8	2327.3	2301.0	2256.9	2224.5
15°	2462.6	2433.1	2418.5	2368.5	2356.8	2333.2	2292.1	2251.0	2212.8	2153.9	2136.3
17.5°	2374.4	2362.7	2347.9	2309.7	2306.8	2283.4	2245.1	2209.8	2159.9	2068.8	2039.4
20°	2283.4	2283.4	2236.3	2221.6	2251.0	2203.9	2174.6	2142.2	2039.4	1995.3	1942.5
22.5°	2215.8	2183.4	2156.9	2133.5	2136.3	2107.0	2065.9	2001.2	1962.9	1910.1	1848.4
25°	2083.5	2095.2	2036.5	2027.7	2036.5	1968.8	1948.3	1895.4	1839.5	1789.6	1742.6
27.5°	2001.2	1968.8	1930.7	1898.4	1898.4	1871.9	1813.2	1801.4	1716.1	1669.1	1610.3
30°	1877.8	1854.3	1821.9	1774.9	1769.1	1748.5	1701.5	1672.0	1583.9	1513.4	1481.0
32.5°	1722.0	1713.2	1686.8	1633.9	1616.3	1592.7	1534.0	1484.0	1442.9	1363.5	1325.4
35°	1610.3	1578.1	1522.2	1478.1	1463.4	1422.3	1375.2	1340.0	1295.9	1225.4	1175.5
37.5°	1442.9	1410.6	1357.6	1304.8	1304.8	1263.7	1199.0	1163.7	1102.0	1060.8	1019.7
40°	1295.9	1254.8	1201.9	1140.2	1131.4	1072.5	1046.2	987.3	949.1	884.5	878.7
42.5°	1131.4	1093.1	1046.2	999.1	963.9	934.5	866.9	822.8	781.7	749.4	740.5
45°	981.5	931.5	890.4	831.6	796.3	761.1	717.0	687.7	655.3	620.1	599.5
47.5°	852.2	811.1	752.3	699.4	664.2	646.4	596.5	564.2	537.8	514.3	499.5
50°	720.0	670.1	637.7	578.9	573.0	531.9	490.8	464.3	449.6	429.1	408.5
52.5°	620.1	573.0	528.9	484.9	461.3	446.7	408.5	382.0	361.5	346.8	335.0
55°	523.0	481.9	446.7	402.6	387.9	367.4	323.3	317.4	296.8	276.2	261.6
57.5°	449.6	411.4	370.3	340.9	314.4	299.8	264.5	241.0	229.2	211.6	196.9
60°	382.0	340.9	308.5	273.3	261.6	241.0	214.5	194.0	179.3	164.5	149.9
62.5°	320.3	285.1	249.8	220.4	202.7	191.0	170.4	152.8	138.2	126.4	114.6
65°	264.5	232.1	202.7	173.4	164.5	149.9	135.2	120.5	108.7	94.1	82.3
67.5°	217.5	188.1	158.6	138.2	129.3	123.4	105.8	91.1	82.3	73.5	61.7
70°	170.4	149.9	126.4	108.7	99.9	91.1	79.3	70.6	58.7	52.8	44.1
72.5°	132.3	114.6	94.1	79.3	73.5	67.6	55.8	47.0	41.1	35.2	29.4
75°	94.1	79.3	67.6	52.8	50.0	47.0	38.2	32.4	26.5	20.6	17.6
77.5°	64.7	52.8	41.1	35.2	32.4	26.5	23.5	17.6	14.7	11.7	8.9
80°	35.2	26.5	20.6	17.6	14.7	11.7	11.7	8.9	5.9	5.9	3.0
82.5°	11.7	8.9	5.9	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0
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°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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°	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7
2.5°	2447.9	2415.5	2424.4	2424.4	2418.5	2418.5	2412.6	2403.8	2406.8	2389.0	2350.9
5°	2421.4	2380.3	2374.4	2380.3	2356.8	2350.9	2339.2	2356.8	2303.8	2324.5	2301.0
7.5°	2345.1	2306.8	2298.0	2318.6	2289.2	2271.5	2268.6	2292.1	2245.1	2221.6	2195.2
10°	2259.8	2245.1	2218.6	2203.9	2195.2	2198.0	2174.6	2145.2	2136.3	2130.5	2107.0
12.5°	2183.4	2151.1	2127.6	2110.0	2104.1	2104.1	2065.9	2060.0	2033.5	2027.7	1992.4
15°	2092.2	2054.1	2039.4	2015.9	1995.3	2007.0	1962.9	1951.2	1942.5	1904.2	1910.1
17.5°	2012.9	1971.8	1936.6	1921.8	1904.2	1886.6	1845.4	1854.3	1833.7	1833.7	1780.8
20°	1910.1	1866.0	1839.5	1810.2	1810.2	1786.7	1757.3	1760.2	1733.7	1707.4	1660.3
22.5°	1801.4	1754.3	1722.0	1710.2	1680.9	1675.0	1639.8	1630.9	1595.7	1598.6	1557.5
25°	1686.8	1639.8	1595.7	1598.6	1572.2	1560.5	1539.8	1498.7	1484.0	1466.4	1454.7
27.5°	1551.6	1519.2	1481.0	1478.1	1428.2	1431.1	1404.7	1392.9	1357.6	1366.5	1340.0
30°	1428.2	1381.2	1345.9	1337.1	1316.5	1310.6	1269.5	1251.8	1257.8	1234.2	1219.6
32.5°	1301.8	1231.3	1216.6	1199.0	1187.2	1172.5	1143.1	1154.9	1128.4	1134.3	1110.8
35°	1134.3	1104.9	1066.7	1066.7	1054.9	1043.2	1022.7	1034.4	1008.0	996.2	972.7
37.5°	993.2	966.9	928.6	940.4	919.8	902.2	884.5	887.4	863.9	861.0	837.4
40°	840.4	825.7	799.3	799.3	784.6	784.6	775.7	767.0	752.3	734.6	708.2
42.5°	696.4	684.7	672.9	675.9	655.3	672.9	649.4	664.2	617.1	614.2	596.5
45°	590.6	564.2	567.1	555.4	543.6	549.5	528.9	534.8	508.4	502.5	484.9
47.5°	479.1	470.2	452.6	446.7	446.7	437.8	429.1	426.1	414.3	399.6	376.1
50°	393.7	361.5	355.5	346.8	340.9	340.9	329.2	311.5	314.4	299.8	276.2
52.5°	308.5	282.1	270.3	267.4	255.7	249.8	235.1	223.4	214.5	208.6	194.0
55°	238.0	214.5	199.9	199.9	182.2	182.2	161.6	152.8	141.0	129.3	120.5
57.5°	179.3	167.5	152.8	141.0	135.2	120.5	108.7	94.1	85.2	67.6	55.8
60°	135.2	123.4	108.7	99.9	94.1	79.3	64.7	52.8	32.4	26.5	23.5
62.5°	99.9	88.2	73.5	67.6	61.7	50.0	35.2	17.6	8.9	8.9	8.9
65°	73.5	58.7	47.0	41.1	35.2	26.5	11.7	5.9	3.0	3.0	3.0
67.5°	50.0	38.2	26.5	23.5	17.6	8.9	3.0	3.0	3.0	3.0	3.0
70°	32.4	23.5	11.7	8.9	5.9	3.0	3.0	3.0	3.0	3.0	3.0
72.5°	20.6	11.7	5.9	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	11.7	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	5.9	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	3.0	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	3.0	3.0	3.0
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 FEU4C509040 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7	2450.7
2.5°	2392.0	2371.4	2383.2	2356.8	2368.5	2389.0	2374.4	2380.3
5°	2309.7	2298.0	2283.4	2245.1	2274.5	2298.0	2286.2	2283.4
7.5°	2221.6	2180.4	2201.0	2189.3	2183.4	2206.9	2180.4	2209.8
10°	2130.5	2101.1	2098.2	2077.6	2077.6	2095.2	2098.2	2080.5
12.5°	1995.3	1980.7	1980.7	1977.7	1974.7	1992.4	1995.3	1986.5
15°	1898.4	1892.5	1877.8	1874.9	1857.3	1883.6	1886.6	1883.6
17.5°	1780.8	1783.7	1769.1	1769.1	1780.8	1789.6	1766.1	1789.6
20°	1701.5	1686.8	1680.9	1654.4	1669.1	1683.9	1683.9	1686.8
22.5°	1586.8	1563.3	1572.2	1557.5	1548.6	1569.2	1569.2	1578.1
25°	1457.5	1457.5	1463.4	1454.7	1460.5	1472.3	1463.4	1484.0
27.5°	1334.1	1345.9	1345.9	1334.1	1340.0	1375.2	1390.0	1366.5
30°	1219.6	1222.4	1231.3	1225.4	1243.0	1254.8	1251.8	1269.5
32.5°	1090.3	1104.9	1110.8	1102.0	1107.9	1134.3	1119.6	1116.6
35°	990.3	963.9	961.0	963.9	975.6	981.5	975.6	996.2
37.5°	846.3	837.4	825.7	828.7	837.4	849.3	855.2	869.8
40°	708.2	696.4	696.4	693.5	684.7	717.0	717.0	717.0
42.5°	587.7	584.7	570.1	570.1	581.9	590.6	584.7	605.3
45°	481.9	470.2	461.3	461.3	470.2	470.2	479.1	476.1
47.5°	379.1	367.4	370.3	361.5	370.3	382.0	367.4	370.3
50°	285.1	285.1	279.2	285.1	282.1	285.1	279.2	273.3
52.5°	194.0	220.4	223.4	211.6	185.1	161.6	146.9	158.6
55°	111.7	99.9	99.9	96.9	91.1	88.2	79.3	88.2
57.5°	55.8	50.0	50.0	50.0	47.0	44.1	38.2	38.2
60°	23.5	20.6	20.6	17.6	14.7	11.7	8.9	11.7
62.5°	8.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
65°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
67.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
70°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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)