

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

Summary

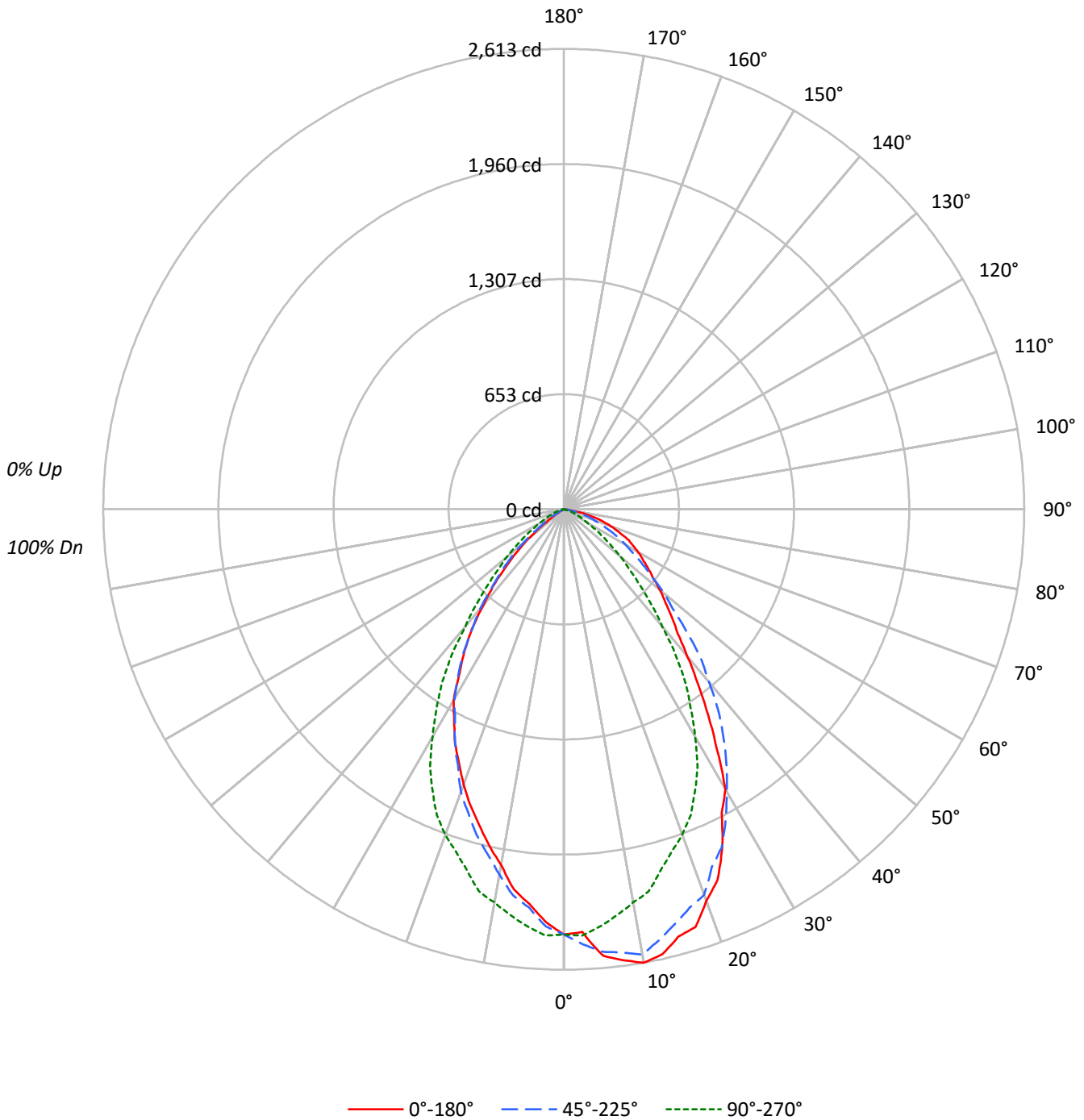
Lumens per Lamp: N/A
 Luminaire Lumens: 3459.0 lumens
 Efficiency: N/A
 Efficacy: 59.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 F4LC-SQLWW-H

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 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				
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90				
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80				
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72				
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64				
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58				
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53				
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48				
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44				
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	232837	232837	232837
5°	246338	230095	217765
10°	255995	221978	200707
15°	250880	211852	185271
20°	242739	201728	170533
25°	226416	187600	155565
30°	204392	166021	139270
35°	168359	142127	115541
40°	137407	109696	88926
45°	118062	83320	63957
50°	106848	63422	40395
55°	98326	45740	14602
60°	94366	31262	2239
65°	91165	21142	662
70°	81616	14670	818
75°	66881	7568	0
80°	41841	3223	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	226.1	6.5
10°-20°	609.1	17.6
20°-30°	813.4	23.5
30°-40°	772.1	22.3
40°-50°	533.7	15.4
50°-60°	294.9	8.5
60°-70°	146.4	4.2
70°-80°	57.7	1.7
80°-90°	5.5	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°	1648.6	47.7
0°-40°	2420.7	70.0
0°-60°	3249.4	93.9
0°-90°	3459.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3459.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2413	2413	2413	2413	2413	
5°	2543	2520	2376	2268	2248	243
15°	2512	2436	2121	1913	1855	710
25°	2127	2118	1762	1461	1461	970
35°	1429	1580	1207	992	981	895
45°	865	992	611	501	469	675
55°	584	550	272	139	87	526
65°	399	289	93	3	3	388
75°	179	110	20	0	0	191
85°	0	3	0	0	0	17
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 F4LC-SQLWW-H

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1
2.5°	2401.5	2468.1	2473.8	2468.1	2476.8	2473.8	2488.3	2473.8	2491.3	2465.2	2471.0
5°	2543.3	2517.3	2572.2	2543.3	2543.3	2540.5	2531.8	2528.8	2540.5	2502.9	2520.2
7.5°	2581.0	2618.6	2667.8	2607.0	2609.9	2609.9	2592.5	2586.7	2586.7	2517.3	2537.5
10°	2612.8	2589.6	2615.7	2592.5	2612.8	2609.9	2621.4	2583.8	2609.9	2569.4	2566.5
12.5°	2586.7	2578.0	2612.8	2575.2	2563.6	2566.5	2552.1	2543.3	2552.1	2505.7	2502.9
15°	2511.5	2520.2	2572.2	2531.8	2526.0	2520.2	2502.9	2473.8	2497.1	2433.4	2436.3
17.5°	2485.5	2471.0	2479.7	2444.9	2453.7	2447.9	2444.9	2419.0	2413.1	2372.6	2372.6
20°	2364.0	2395.7	2395.7	2372.6	2372.6	2369.8	2332.1	2355.3	2329.2	2317.6	2329.2
22.5°	2280.0	2282.9	2282.9	2262.6	2265.6	2254.0	2233.7	2219.2	2233.7	2219.2	2196.1
25°	2126.7	2132.5	2167.2	2129.6	2123.8	2135.3	2118.0	2109.3	2106.4	2071.8	2118.0
27.5°	1941.5	1999.3	1996.5	1982.0	1999.3	1976.2	1967.6	1970.4	1979.1	1976.2	1987.8
30°	1834.5	1843.1	1851.8	1840.3	1843.1	1834.5	1834.5	1837.3	1860.5	1851.8	1848.9
32.5°	1617.4	1646.3	1669.6	1669.6	1672.4	1681.1	1678.2	1738.9	1753.4	1724.5	1718.8
35°	1429.3	1449.6	1469.8	1472.8	1510.4	1513.2	1516.2	1533.5	1574.0	1582.7	1579.8
37.5°	1250.0	1270.2	1276.0	1302.0	1322.3	1342.5	1365.8	1388.9	1423.6	1452.5	1438.1
40°	1090.9	1099.5	1114.0	1125.5	1166.0	1166.0	1177.6	1223.9	1261.6	1284.7	1281.8
42.5°	957.8	960.6	972.2	992.5	1030.1	1021.4	1030.1	1061.9	1116.8	1119.8	1151.6
45°	865.2	862.2	870.9	873.8	897.0	908.6	914.4	937.5	983.7	989.5	992.5
47.5°	781.3	778.3	792.8	798.6	807.2	818.8	818.8	821.7	839.1	853.6	842.0
50°	711.8	711.8	711.8	717.6	732.1	729.1	732.1	743.6	752.3	746.5	743.6
52.5°	636.5	648.1	656.8	659.8	662.6	662.6	665.5	659.8	656.8	648.1	630.7
55°	584.5	596.0	596.0	596.0	596.0	607.6	593.2	596.0	596.0	572.9	549.8
57.5°	532.4	544.0	552.6	541.1	552.6	541.1	535.3	532.4	526.6	503.4	468.7
60°	489.0	494.8	491.9	489.0	494.8	486.1	480.3	468.7	463.0	431.1	408.0
62.5°	439.8	442.7	445.6	439.8	434.1	431.1	419.5	402.2	390.6	364.6	344.3
65°	399.3	390.6	387.7	384.9	379.1	370.3	361.7	341.4	332.7	309.6	289.3
67.5°	338.5	335.7	341.4	332.7	318.3	318.3	309.6	292.2	271.9	257.6	237.3
70°	289.3	286.5	280.7	271.9	269.1	257.6	257.6	237.3	231.5	205.4	188.1
72.5°	237.3	237.3	228.5	219.9	211.2	205.4	202.6	188.1	179.4	164.9	150.4
75°	179.4	179.4	176.5	167.8	162.0	156.2	153.4	141.8	133.1	118.7	110.0
77.5°	127.3	127.3	115.7	110.0	112.8	107.0	101.2	98.4	95.4	86.8	75.3
80°	75.3	72.3	63.7	66.5	63.7	63.7	60.8	57.8	52.0	46.3	40.5
82.5°	20.3	23.1	23.1	23.1	26.1	20.3	20.3	20.3	23.1	23.1	14.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	2.9	2.9
87.5°	2.9	5.8	11.6	11.6	11.6	11.6	11.6	8.7	8.7	8.7	5.8
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-H

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1
2.5°	2442.1	2439.2	2442.1	2421.8	2468.1	2433.4	2427.6	2421.8	2442.1	2421.8	2392.9
5°	2494.1	2465.2	2456.5	2447.9	2473.8	2433.4	2424.8	2427.6	2413.1	2375.6	2378.4
7.5°	2511.5	2485.5	2459.4	2404.5	2427.6	2419.0	2395.7	2378.4	2355.3	2323.4	2317.6
10°	2517.3	2488.3	2450.7	2433.4	2398.7	2387.1	2378.4	2349.5	2320.6	2265.6	2251.1
12.5°	2499.9	2465.2	2419.0	2404.5	2378.4	2340.8	2320.6	2291.6	2265.6	2222.2	2190.3
15°	2424.8	2395.7	2381.3	2332.1	2320.6	2297.3	2256.9	2216.4	2178.8	2120.8	2103.5
17.5°	2337.9	2326.4	2311.8	2274.2	2271.4	2248.3	2210.6	2175.8	2126.7	2037.0	2008.0
20°	2248.3	2248.3	2201.9	2187.5	2216.4	2170.0	2141.1	2109.3	2008.0	1964.6	1912.6
22.5°	2181.7	2149.9	2123.8	2100.7	2103.5	2074.6	2034.1	1970.4	1932.8	1880.7	1820.0
25°	2051.5	2063.0	2005.2	1996.5	2005.2	1938.6	1918.4	1866.2	1811.3	1762.1	1715.8
27.5°	1970.4	1938.6	1901.0	1869.2	1869.2	1843.1	1785.3	1773.7	1689.7	1643.5	1585.6
30°	1848.9	1825.8	1793.9	1747.7	1741.9	1721.6	1675.3	1646.3	1559.6	1490.1	1458.3
32.5°	1695.5	1686.9	1660.8	1608.8	1591.4	1568.2	1510.4	1461.2	1420.7	1342.5	1305.0
35°	1585.6	1553.8	1498.8	1455.4	1440.9	1400.4	1354.1	1319.4	1276.0	1206.6	1157.4
37.5°	1420.7	1388.9	1336.7	1284.7	1284.7	1244.2	1180.5	1145.8	1085.1	1044.5	1004.0
40°	1276.0	1235.5	1183.5	1122.7	1114.0	1056.1	1030.1	972.2	934.5	870.9	865.2
42.5°	1114.0	1076.3	1030.1	983.7	949.0	920.1	853.6	810.2	769.7	737.9	729.1
45°	966.4	917.2	876.7	818.8	784.1	749.4	706.0	677.1	645.2	610.6	590.3
47.5°	839.1	798.6	740.7	688.7	654.0	636.5	587.3	555.6	529.5	506.4	491.9
50°	708.9	659.8	627.9	570.0	564.2	523.7	483.3	457.2	442.7	422.5	402.2
52.5°	610.6	564.2	520.8	477.5	454.2	439.8	402.2	376.1	355.9	341.4	329.9
55°	515.0	474.5	439.8	396.4	381.9	361.7	318.3	312.5	292.2	271.9	257.6
57.5°	442.7	405.0	364.6	335.7	309.6	295.2	260.4	237.3	225.7	208.4	193.8
60°	376.1	335.7	303.8	269.1	257.6	237.3	211.2	191.0	176.5	162.0	147.6
62.5°	315.4	280.7	246.0	217.0	199.6	188.1	167.8	150.4	136.0	124.5	112.8
65°	260.4	228.5	199.6	170.7	162.0	147.6	133.1	118.7	107.0	92.6	81.1
67.5°	214.1	185.2	156.2	136.0	127.3	121.5	104.2	89.7	81.1	72.3	60.8
70°	167.8	147.6	124.5	107.0	98.4	89.7	78.1	69.5	57.8	52.0	43.4
72.5°	130.2	112.8	92.6	78.1	72.3	66.5	55.0	46.3	40.5	34.7	28.9
75°	92.6	78.1	66.5	52.0	49.2	46.3	37.6	31.9	26.1	20.3	17.3
77.5°	63.7	52.0	40.5	34.7	31.9	26.1	23.1	17.3	14.5	11.6	8.7
80°	34.7	26.1	20.3	17.3	14.5	11.6	11.6	8.7	5.8	5.8	2.9
82.5°	11.6	8.7	5.8	2.9	2.9	2.9	2.9	2.9	2.9	0.0	2.9
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°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1
2.5°	2410.2	2378.4	2387.1	2387.1	2381.3	2381.3	2375.6	2366.8	2369.8	2352.3	2314.8
5°	2384.2	2343.7	2337.9	2343.7	2320.6	2314.8	2303.2	2320.6	2268.4	2288.7	2265.6
7.5°	2309.0	2271.4	2262.6	2282.9	2254.0	2236.6	2233.7	2256.9	2210.6	2187.5	2161.4
10°	2225.0	2210.6	2184.5	2170.0	2161.4	2164.3	2141.1	2112.2	2103.5	2097.7	2074.6
12.5°	2149.9	2118.0	2094.9	2077.5	2071.8	2071.8	2034.1	2028.3	2002.3	1996.5	1961.8
15°	2060.1	2022.6	2008.0	1984.9	1964.6	1976.2	1932.8	1921.2	1912.6	1875.0	1880.7
17.5°	1982.0	1941.5	1906.8	1892.3	1875.0	1857.6	1817.0	1825.8	1805.5	1805.5	1753.4
20°	1880.7	1837.3	1811.3	1782.3	1782.3	1759.2	1730.3	1733.1	1707.1	1681.1	1634.8
22.5°	1773.7	1727.4	1695.5	1684.0	1655.0	1649.3	1614.6	1605.8	1571.2	1574.0	1533.5
25°	1660.8	1614.6	1571.2	1574.0	1548.0	1536.5	1516.2	1475.7	1461.2	1443.9	1432.3
27.5°	1527.7	1495.9	1458.3	1455.4	1406.2	1409.1	1383.1	1371.5	1336.7	1345.5	1319.4
30°	1406.2	1360.0	1325.2	1316.6	1296.3	1290.5	1250.0	1232.6	1238.4	1215.2	1200.8
32.5°	1281.8	1212.4	1197.9	1180.5	1169.0	1154.5	1125.5	1137.1	1111.0	1116.8	1093.7
35°	1116.8	1087.9	1050.3	1050.3	1038.7	1027.1	1007.0	1018.5	992.5	980.9	957.8
37.5°	977.9	952.0	914.4	925.9	905.6	888.3	870.9	873.8	850.6	847.8	824.6
40°	827.5	813.0	787.1	787.1	772.5	772.5	763.8	755.2	740.7	723.3	697.3
42.5°	685.7	674.1	662.6	665.5	645.2	662.6	639.5	654.0	607.6	604.8	587.3
45°	581.5	555.6	558.4	546.8	535.3	541.1	520.8	526.6	500.6	494.8	477.5
47.5°	471.7	463.0	445.6	439.8	439.8	431.1	422.5	419.5	408.0	393.5	370.3
50°	387.7	355.9	350.1	341.4	335.7	335.7	324.1	306.8	309.6	295.2	271.9
52.5°	303.8	277.7	266.2	263.3	251.8	246.0	231.5	219.9	211.2	205.4	191.0
55°	234.3	211.2	196.8	196.8	179.4	179.4	159.2	150.4	138.9	127.3	118.7
57.5°	176.5	164.9	150.4	138.9	133.1	118.7	107.0	92.6	83.9	66.5	55.0
60°	133.1	121.5	107.0	98.4	92.6	78.1	63.7	52.0	31.9	26.1	23.1
62.5°	98.4	86.8	72.3	66.5	60.8	49.2	34.7	17.3	8.7	8.7	8.7
65°	72.3	57.8	46.3	40.5	34.7	26.1	11.6	5.8	2.9	2.9	2.9
67.5°	49.2	37.6	26.1	23.1	17.3	8.7	2.9	2.9	2.9	2.9	2.9
70°	31.9	23.1	11.6	8.7	5.8	2.9	2.9	2.9	2.9	2.9	2.9
72.5°	20.3	11.6	5.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	11.6	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	5.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.9	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	2.9	2.9	2.9
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-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1	2413.1
2.5°	2355.3	2335.0	2346.5	2320.6	2332.1	2352.3	2337.9	2343.7
5°	2274.2	2262.6	2248.3	2210.6	2239.5	2262.6	2251.1	2248.3
7.5°	2187.5	2146.9	2167.2	2155.6	2149.9	2173.0	2146.9	2175.8
10°	2097.7	2068.8	2066.0	2045.7	2045.7	2063.0	2066.0	2048.5
12.5°	1964.6	1950.2	1950.2	1947.3	1944.3	1961.8	1964.6	1956.0
15°	1869.2	1863.4	1848.9	1846.1	1828.7	1854.7	1857.6	1854.7
17.5°	1753.4	1756.3	1741.9	1741.9	1753.4	1762.1	1738.9	1762.1
20°	1675.3	1660.8	1655.0	1629.0	1643.5	1658.0	1658.0	1660.8
22.5°	1562.4	1539.3	1548.0	1533.5	1524.8	1545.1	1545.1	1553.8
25°	1435.1	1435.1	1440.9	1432.3	1438.1	1449.6	1440.9	1461.2
27.5°	1313.6	1325.2	1325.2	1313.6	1319.4	1354.1	1368.6	1345.5
30°	1200.8	1203.6	1212.4	1206.6	1223.9	1235.5	1232.6	1250.0
32.5°	1073.5	1087.9	1093.7	1085.1	1090.9	1116.8	1102.4	1099.5
35°	975.1	949.0	946.2	949.0	960.6	966.4	960.6	980.9
37.5°	833.3	824.6	813.0	816.0	824.6	836.3	842.0	856.4
40°	697.3	685.7	685.7	682.9	674.1	706.0	706.0	706.0
42.5°	578.7	575.8	561.4	561.4	572.9	581.5	575.8	596.0
45°	474.5	463.0	454.2	454.2	463.0	463.0	471.7	468.7
47.5°	373.3	361.7	364.6	355.9	364.6	376.1	361.7	364.6
50°	280.7	280.7	274.9	280.7	277.7	280.7	274.9	269.1
52.5°	191.0	217.0	219.9	208.4	182.3	159.2	144.6	156.2
55°	110.0	98.4	98.4	95.4	89.7	86.8	78.1	86.8
57.5°	55.0	49.2	49.2	49.2	46.3	43.4	37.6	37.6
60°	23.1	20.3	20.3	17.3	14.5	11.6	8.7	11.6
62.5°	8.7	5.8	5.8	5.8	5.8	5.8	5.8	5.8
65°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
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)