

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: **FLDSQ4C40D010 FEU4C409050 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: FLDSQ4C40D010 FEU4C409050 F4LC-SQLWW-H  
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

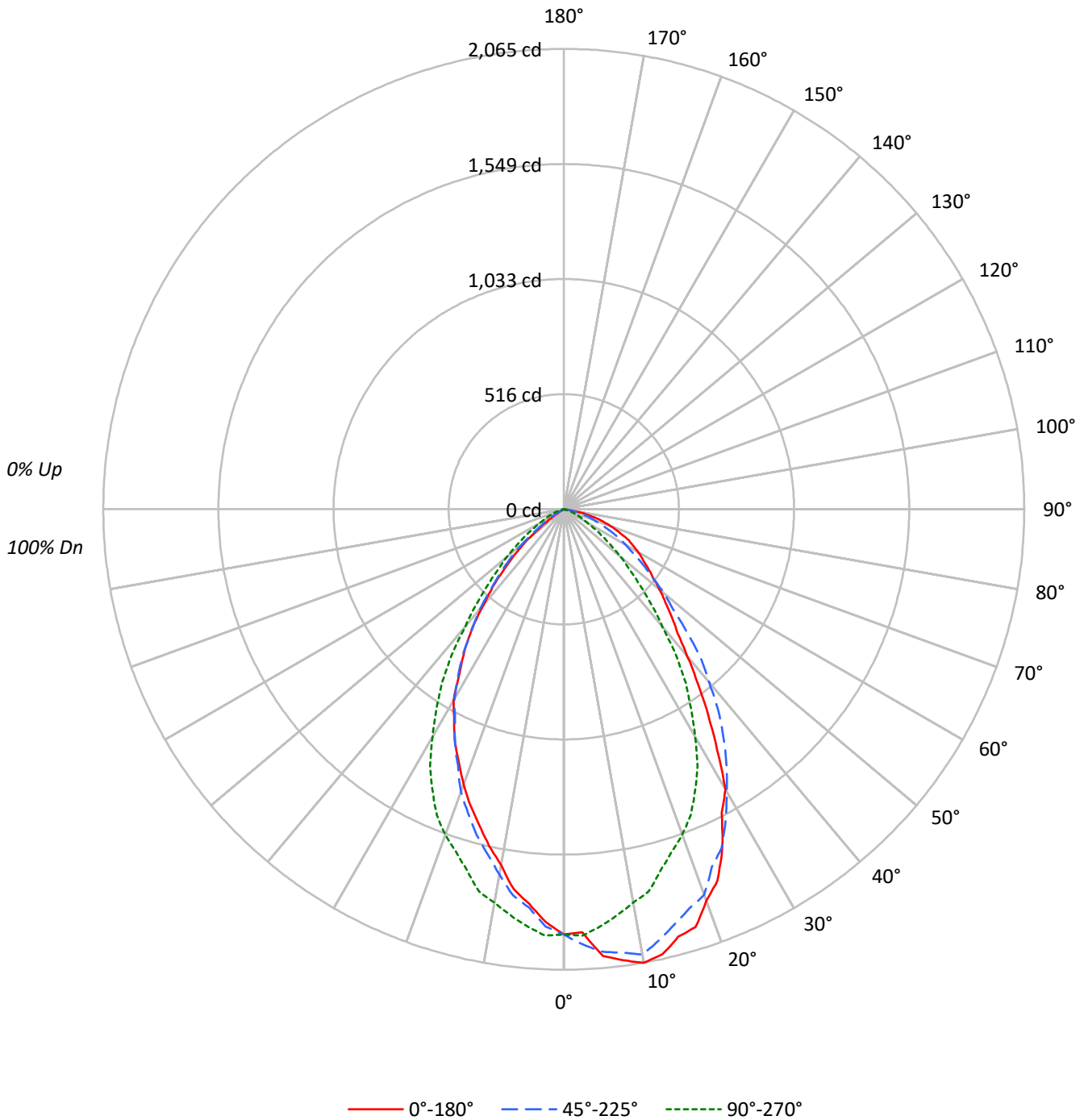
Lumens per Lamp: N/A  
 Luminaire Lumens: 2734.0 lumens  
 Efficiency: N/A  
 Efficacy: 58.2 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 47  
 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#

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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	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°	184033	184033	184033
5°	194713	181860	172116
10°	202343	175448	158635
15°	198297	167450	146433
20°	191860	159444	134790
25°	178966	148272	122955
30°	161553	131226	110079
35°	133080	112337	91324
40°	108600	86709	70284
45°	93309	65854	50557
50°	84452	50122	31928
55°	77719	36151	11540
60°	74586	24701	1756
65°	72055	16712	525
70°	64520	11595	649
75°	52864	5965	0
80°	33062	2556	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	178.7	6.5
10°-20°	481.5	17.6
20°-30°	642.9	23.5
30°-40°	610.3	22.3
40°-50°	421.9	15.4
50°-60°	233.1	8.5
60°-70°	115.7	4.2
70°-80°	45.6	1.7
80°-90°	4.3	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°	1303.1	47.7
0°-40°	1913.4	70.0
0°-60°	2568.3	93.9
0°-90°	2734.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2734.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1907	1907	1907	1907	1907	
5°	2010	1992	1878	1793	1777	192
15°	1985	1926	1676	1512	1466	562
25°	1681	1674	1393	1155	1155	766
35°	1130	1249	954	784	775	708
45°	684	784	483	396	370	533
55°	462	435	215	110	69	416
65°	316	229	73	2	2	306
75°	142	87	16	0	0	151
85°	0	2	0	0	0	13
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°	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3
2.5°	1898.2	1950.8	1955.3	1950.8	1957.7	1955.3	1966.8	1955.3	1969.1	1948.5	1953.1
5°	2010.3	1989.6	2033.1	2010.3	2010.3	2008.0	2001.1	1998.8	2008.0	1978.3	1992.0
7.5°	2040.0	2069.7	2108.6	2060.6	2062.8	2062.8	2049.1	2044.6	2044.6	1989.6	2005.7
10°	2065.2	2046.8	2067.4	2049.1	2065.2	2062.8	2072.0	2042.2	2062.8	2030.9	2028.5
12.5°	2044.6	2037.7	2065.2	2035.4	2026.3	2028.5	2017.1	2010.3	2017.1	1980.5	1978.3
15°	1985.1	1992.0	2033.1	2001.1	1996.5	1992.0	1978.3	1955.3	1973.7	1923.3	1925.7
17.5°	1964.6	1953.1	1960.0	1932.5	1939.4	1934.8	1932.5	1912.0	1907.3	1875.3	1875.3
20°	1868.5	1893.6	1893.6	1875.3	1875.3	1873.1	1843.3	1861.6	1841.0	1831.9	1841.0
22.5°	1802.1	1804.4	1804.4	1788.4	1790.7	1781.6	1765.6	1754.1	1765.6	1754.1	1735.8
25°	1681.0	1685.5	1713.0	1683.2	1678.6	1687.8	1674.1	1667.2	1664.9	1637.5	1674.1
27.5°	1534.6	1580.3	1578.0	1566.6	1580.3	1562.0	1555.2	1557.4	1564.3	1562.0	1571.1
30°	1450.0	1456.8	1463.7	1454.6	1456.8	1450.0	1450.0	1452.2	1470.5	1463.7	1461.4
32.5°	1278.4	1301.3	1319.6	1319.6	1321.9	1328.8	1326.4	1374.5	1385.9	1363.1	1358.5
35°	1129.8	1145.8	1161.7	1164.1	1193.8	1196.1	1198.4	1212.1	1244.1	1251.0	1248.7
37.5°	988.0	1004.0	1008.5	1029.1	1045.2	1061.1	1079.5	1097.8	1125.2	1148.0	1136.7
40°	862.2	869.0	880.5	889.6	921.6	921.6	930.8	967.4	997.2	1015.4	1013.1
42.5°	757.0	759.3	768.4	784.4	814.2	807.3	814.2	839.4	882.7	885.1	910.2
45°	683.8	681.5	688.4	690.6	709.0	718.1	722.7	741.0	777.5	782.1	784.4
47.5°	617.5	615.2	626.7	631.2	638.0	647.2	647.2	649.5	663.2	674.7	665.5
50°	562.6	562.6	562.6	567.2	578.6	576.3	578.6	587.8	594.6	590.0	587.8
52.5°	503.1	512.2	519.1	521.5	523.7	523.7	526.0	521.5	519.1	512.2	498.5
55°	462.0	471.1	471.1	471.1	471.1	480.3	468.9	471.1	471.1	452.8	434.6
57.5°	420.8	430.0	436.8	427.7	436.8	427.7	423.1	420.8	416.2	397.9	370.5
60°	386.5	391.1	388.8	386.5	391.1	384.2	379.6	370.5	365.9	340.7	322.5
62.5°	347.6	349.9	352.2	347.6	343.1	340.7	331.6	317.9	308.8	288.2	272.1
65°	315.6	308.8	306.4	304.2	299.6	292.7	285.9	269.9	263.0	244.7	228.7
67.5°	267.5	265.3	269.9	263.0	251.6	251.6	244.7	231.0	214.9	203.6	187.5
70°	228.7	226.4	221.8	214.9	212.7	203.6	203.6	187.5	183.0	162.4	148.6
72.5°	187.5	187.5	180.6	173.8	166.9	162.4	160.1	148.6	141.8	130.4	118.9
75°	141.8	141.8	139.5	132.6	128.0	123.5	121.2	112.1	105.2	93.8	86.9
77.5°	100.6	100.6	91.5	86.9	89.2	84.6	80.0	77.8	75.4	68.6	59.5
80°	59.5	57.2	50.4	52.6	50.4	50.4	48.0	45.7	41.1	36.6	32.0
82.5°	16.0	18.3	18.3	18.3	20.6	16.0	16.0	16.0	18.3	18.3	11.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	2.3
87.5°	2.3	4.6	9.1	9.1	9.1	9.1	9.1	6.9	6.9	6.9	4.6
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°	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3
2.5°	1930.2	1927.9	1930.2	1914.2	1950.8	1923.3	1918.8	1914.2	1930.2	1914.2	1891.4
5°	1971.4	1948.5	1941.6	1934.8	1955.3	1923.3	1916.5	1918.8	1907.3	1877.6	1879.9
7.5°	1985.1	1964.6	1943.9	1900.5	1918.8	1912.0	1893.6	1879.9	1861.6	1836.4	1831.9
10°	1989.6	1966.8	1937.0	1923.3	1895.9	1886.8	1879.9	1857.0	1834.2	1790.7	1779.3
12.5°	1975.9	1948.5	1912.0	1900.5	1879.9	1850.1	1834.2	1811.3	1790.7	1756.4	1731.2
15°	1916.5	1893.6	1882.2	1843.3	1834.2	1815.8	1783.8	1751.8	1722.1	1676.3	1662.6
17.5°	1847.9	1838.8	1827.3	1797.5	1795.3	1777.0	1747.3	1719.8	1681.0	1610.0	1587.2
20°	1777.0	1777.0	1740.4	1729.0	1751.8	1715.2	1692.4	1667.2	1587.2	1552.8	1511.7
22.5°	1724.4	1699.3	1678.6	1660.4	1662.6	1639.8	1607.8	1557.4	1527.7	1486.5	1438.5
25°	1621.5	1630.6	1584.9	1578.0	1584.9	1532.2	1516.3	1475.1	1431.6	1392.7	1356.2
27.5°	1557.4	1532.2	1502.6	1477.4	1477.4	1456.8	1411.1	1402.0	1335.6	1299.0	1253.2
30°	1461.4	1443.1	1417.9	1381.4	1376.8	1360.7	1324.2	1301.3	1232.7	1177.8	1152.6
32.5°	1340.1	1333.3	1312.7	1271.6	1257.9	1239.5	1193.8	1154.9	1122.9	1061.1	1031.5
35°	1253.2	1228.1	1184.7	1150.4	1138.9	1106.9	1070.3	1042.8	1008.5	953.7	914.8
37.5°	1122.9	1097.8	1056.6	1015.4	1015.4	983.4	933.1	905.7	857.6	825.6	793.6
40°	1008.5	976.5	935.4	887.4	880.5	834.7	814.2	768.4	738.7	688.4	683.8
42.5°	880.5	850.7	814.2	777.5	750.1	727.3	674.7	640.4	608.4	583.2	576.3
45°	763.8	724.9	693.0	647.2	619.8	592.3	558.0	535.2	510.0	482.6	466.5
47.5°	663.2	631.2	585.4	544.3	516.9	503.1	464.2	439.1	418.5	400.2	388.8
50°	560.4	521.5	496.3	450.5	445.9	413.9	382.0	361.4	349.9	333.9	317.9
52.5°	482.6	445.9	411.6	377.4	359.0	347.6	317.9	297.3	281.3	269.9	260.7
55°	407.0	375.1	347.6	313.3	301.9	285.9	251.6	247.0	231.0	214.9	203.6
57.5°	349.9	320.1	288.2	265.3	244.7	233.3	205.8	187.5	178.4	164.7	153.2
60°	297.3	265.3	240.1	212.7	203.6	187.5	166.9	151.0	139.5	128.0	116.7
62.5°	249.3	221.8	194.4	171.5	157.8	148.6	132.6	118.9	107.5	98.4	89.2
65°	205.8	180.6	157.8	134.9	128.0	116.7	105.2	93.8	84.6	73.2	64.1
67.5°	169.3	146.4	123.5	107.5	100.6	96.1	82.3	70.9	64.1	57.2	48.0
70°	132.6	116.7	98.4	84.6	77.8	70.9	61.7	54.9	45.7	41.1	34.3
72.5°	102.9	89.2	73.2	61.7	57.2	52.6	43.5	36.6	32.0	27.4	22.8
75°	73.2	61.7	52.6	41.1	38.9	36.6	29.7	25.2	20.6	16.0	13.7
77.5°	50.4	41.1	32.0	27.4	25.2	20.6	18.3	13.7	11.5	9.1	6.9
80°	27.4	20.6	16.0	13.7	11.5	9.1	9.1	6.9	4.6	4.6	2.3
82.5°	9.1	6.9	4.6	2.3	2.3	2.3	2.3	2.3	2.3	0.0	2.3
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°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	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°	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3
2.5°	1905.1	1879.9	1886.8	1886.8	1882.2	1882.2	1877.6	1870.7	1873.1	1859.3	1829.6
5°	1884.5	1852.5	1847.9	1852.5	1834.2	1829.6	1820.5	1834.2	1793.0	1809.0	1790.7
7.5°	1825.0	1795.3	1788.4	1804.4	1781.6	1767.8	1765.6	1783.8	1747.3	1729.0	1708.4
10°	1758.7	1747.3	1726.7	1715.2	1708.4	1710.6	1692.4	1669.5	1662.6	1658.0	1639.8
12.5°	1699.3	1674.1	1655.8	1642.1	1637.5	1637.5	1607.8	1603.2	1582.6	1578.0	1550.6
15°	1628.3	1598.6	1587.2	1568.9	1552.8	1562.0	1527.7	1518.5	1511.7	1482.0	1486.5
17.5°	1566.6	1534.6	1507.2	1495.7	1482.0	1468.3	1436.2	1443.1	1427.0	1427.0	1385.9
20°	1486.5	1452.2	1431.6	1408.8	1408.8	1390.5	1367.6	1369.9	1349.3	1328.8	1292.1
22.5°	1402.0	1365.3	1340.1	1331.0	1308.2	1303.6	1276.2	1269.3	1241.8	1244.1	1212.1
25°	1312.7	1276.2	1241.8	1244.1	1223.6	1214.4	1198.4	1166.4	1154.9	1141.2	1132.1
27.5°	1207.5	1182.4	1152.6	1150.4	1111.5	1113.7	1093.2	1084.1	1056.6	1063.5	1042.8
30°	1111.5	1074.9	1047.4	1040.6	1024.6	1020.0	988.0	974.2	978.9	960.5	949.1
32.5°	1013.1	958.3	946.8	933.1	923.9	912.5	889.6	898.8	878.2	882.7	864.5
35°	882.7	859.9	830.1	830.1	821.0	811.9	795.9	805.0	784.4	775.3	757.0
37.5°	773.0	752.5	722.7	731.8	715.8	702.1	688.4	690.6	672.4	670.1	651.7
40°	654.1	642.6	622.1	622.1	610.6	610.6	603.7	596.9	585.4	571.7	551.1
42.5°	542.0	532.8	523.7	526.0	510.0	523.7	505.4	516.9	480.3	478.0	464.2
45°	459.6	439.1	441.4	432.2	423.1	427.7	411.6	416.2	395.7	391.1	377.4
47.5°	372.8	365.9	352.2	347.6	347.6	340.7	333.9	331.6	322.5	311.0	292.7
50°	306.4	281.3	276.7	269.9	265.3	265.3	256.2	242.5	244.7	233.3	214.9
52.5°	240.1	219.5	210.4	208.1	199.0	194.4	183.0	173.8	166.9	162.4	151.0
55°	185.2	166.9	155.5	155.5	141.8	141.8	125.8	118.9	109.8	100.6	93.8
57.5°	139.5	130.4	118.9	109.8	105.2	93.8	84.6	73.2	66.3	52.6	43.5
60°	105.2	96.1	84.6	77.8	73.2	61.7	50.4	41.1	25.2	20.6	18.3
62.5°	77.8	68.6	57.2	52.6	48.0	38.9	27.4	13.7	6.9	6.9	6.9
65°	57.2	45.7	36.6	32.0	27.4	20.6	9.1	4.6	2.3	2.3	2.3
67.5°	38.9	29.7	20.6	18.3	13.7	6.9	2.3	2.3	2.3	2.3	2.3
70°	25.2	18.3	9.1	6.9	4.6	2.3	2.3	2.3	2.3	2.3	2.3
72.5°	16.0	9.1	4.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	9.1	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	4.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.3	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	2.3	2.3	2.3
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: FLDSQ4C40D010 FEU4C409050 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3	1907.3
2.5°	1861.6	1845.6	1854.7	1834.2	1843.3	1859.3	1847.9	1852.5
5°	1797.5	1788.4	1777.0	1747.3	1770.1	1788.4	1779.3	1777.0
7.5°	1729.0	1696.9	1713.0	1703.8	1699.3	1717.5	1696.9	1719.8
10°	1658.0	1635.2	1632.9	1616.9	1616.9	1630.6	1632.9	1619.1
12.5°	1552.8	1541.5	1541.5	1539.1	1536.8	1550.6	1552.8	1546.0
15°	1477.4	1472.8	1461.4	1459.1	1445.4	1465.9	1468.3	1465.9
17.5°	1385.9	1388.2	1376.8	1376.8	1385.9	1392.7	1374.5	1392.7
20°	1324.2	1312.7	1308.2	1287.5	1299.0	1310.5	1310.5	1312.7
22.5°	1234.9	1216.7	1223.6	1212.1	1205.2	1221.2	1221.2	1228.1
25°	1134.3	1134.3	1138.9	1132.1	1136.7	1145.8	1138.9	1154.9
27.5°	1038.3	1047.4	1047.4	1038.3	1042.8	1070.3	1081.7	1063.5
30°	949.1	951.4	958.3	953.7	967.4	976.5	974.2	988.0
32.5°	848.5	859.9	864.5	857.6	862.2	882.7	871.4	869.0
35°	770.7	750.1	747.9	750.1	759.3	763.8	759.3	775.3
37.5°	658.6	651.7	642.6	644.9	651.7	661.0	665.5	676.9
40°	551.1	542.0	542.0	539.7	532.8	558.0	558.0	558.0
42.5°	457.4	455.1	443.7	443.7	452.8	459.6	455.1	471.1
45°	375.1	365.9	359.0	359.0	365.9	365.9	372.8	370.5
47.5°	295.1	285.9	288.2	281.3	288.2	297.3	285.9	288.2
50°	221.8	221.8	217.3	221.8	219.5	221.8	217.3	212.7
52.5°	151.0	171.5	173.8	164.7	144.1	125.8	114.3	123.5
55°	86.9	77.8	77.8	75.4	70.9	68.6	61.7	68.6
57.5°	43.5	38.9	38.9	38.9	36.6	34.3	29.7	29.7
60°	18.3	16.0	16.0	13.7	11.5	9.1	6.9	9.1
62.5°	6.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6
65°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
70°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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)