

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 FEU4C409040 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 FEU4C409040 F4LC-SQLWW-H  
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

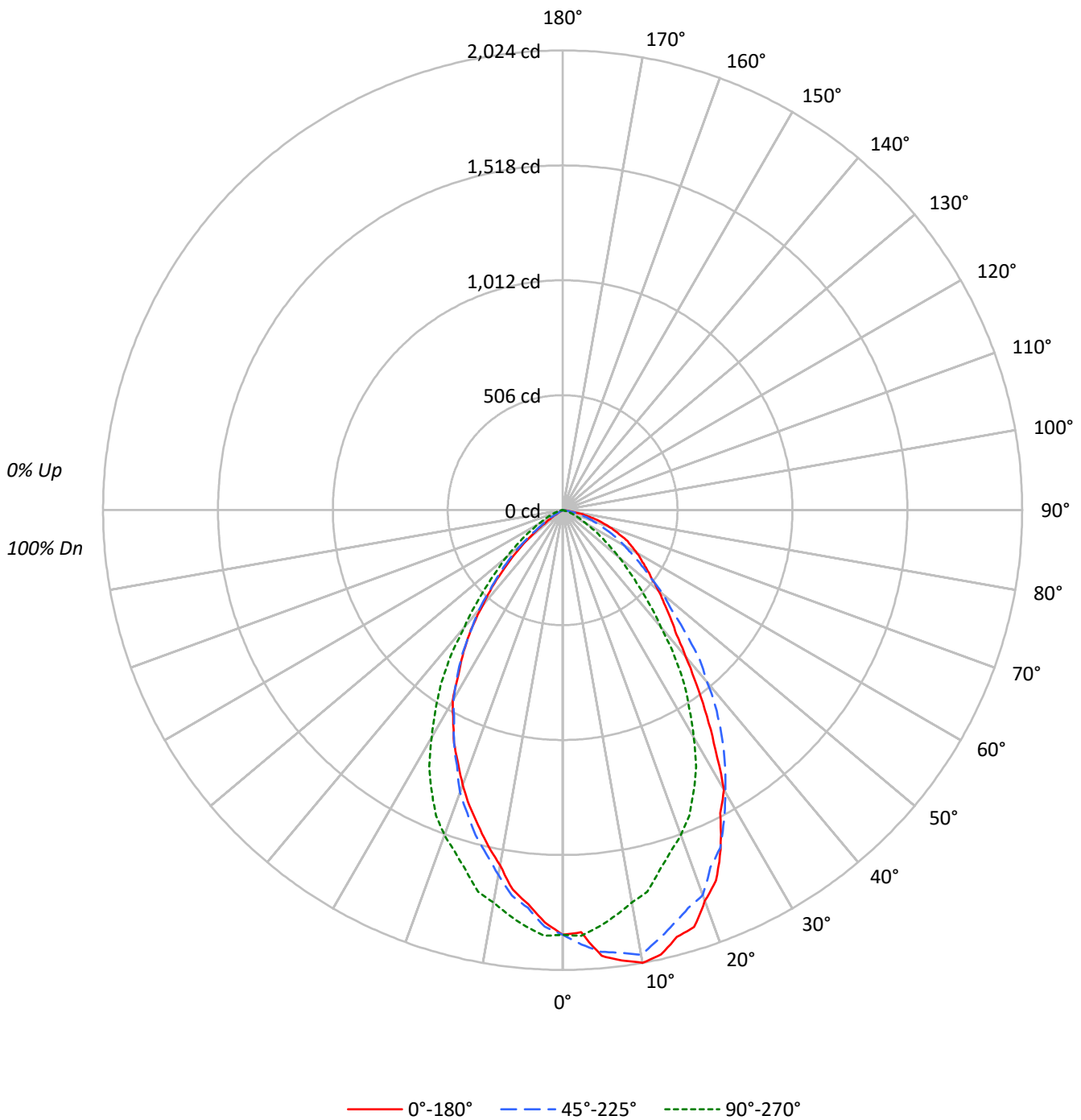
Lumens per Lamp: N/A  
 Luminaire Lumens: 2679.0 lumens  
 Efficiency: N/A  
 Efficacy: 57.0 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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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CATALOG NUMBER: FLDSQ4C40D010 FEU4C409040 F4LC-SQLWW-H

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C40D010 FEU4C409040 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	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°	180328	180328	180328
5°	190790	178208	168658
10°	198267	171921	155451
15°	194301	164084	143486
20°	187999	156240	132079
25°	175367	145291	120485
30°	158300	128585	107862
35°	130395	110076	89486
40°	106421	84958	68873
45°	91439	64530	49533
50°	82756	49116	31283
55°	76155	35428	11321
60°	73100	24219	1737
65°	70594	16370	525
70°	63222	11369	649
75°	51820	5853	0
80°	32395	2500	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	175.1	6.5
10°-20°	471.8	17.6
20°-30°	630.0	23.5
30°-40°	598.0	22.3
40°-50°	413.4	15.4
50°-60°	228.4	8.5
60°-70°	113.4	4.2
70°-80°	44.7	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°	1276.8	47.7
0°-40°	1874.9	70.0
0°-60°	2516.6	93.9
0°-90°	2679.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2679.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1869	1869	1869	1869	1869	
5°	1970	1952	1840	1757	1741	189
15°	1945	1887	1643	1481	1436	550
25°	1647	1640	1365	1132	1132	751
35°	1107	1224	934	769	760	694
45°	670	769	473	388	363	523
55°	453	426	211	108	67	407
65°	309	224	72	2	2	300
75°	139	85	16	0	0	148
85°	0	2	0	0	0	13
90°	0	0	0	0	0	

TEST NUMBER: P#  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9
2.5°	1860.0	1911.5	1916.0	1911.5	1918.3	1916.0	1927.2	1916.0	1929.5	1909.3	1913.8
5°	1969.8	1949.6	1992.2	1969.8	1969.8	1967.6	1960.9	1958.6	1967.6	1938.5	1951.9
7.5°	1999.0	2028.1	2066.2	2019.2	2021.3	2021.3	2007.9	2003.4	2003.4	1949.6	1965.3
10°	2023.6	2005.6	2025.8	2007.9	2023.6	2021.3	2030.3	2001.2	2021.3	1990.0	1987.7
12.5°	2003.4	1996.7	2023.6	1994.5	1985.5	1987.7	1976.6	1969.8	1976.6	1940.7	1938.5
15°	1945.1	1951.9	1992.2	1960.9	1956.4	1951.9	1938.5	1916.0	1934.0	1884.6	1886.9
17.5°	1925.0	1913.8	1920.6	1893.6	1900.4	1895.9	1893.6	1873.5	1868.9	1837.6	1837.6
20°	1830.9	1855.5	1855.5	1837.6	1837.6	1835.4	1806.2	1824.2	1804.0	1795.0	1804.0
22.5°	1765.9	1768.1	1768.1	1752.4	1754.7	1745.8	1730.0	1718.8	1730.0	1718.8	1700.9
25°	1647.2	1651.6	1678.5	1649.4	1644.9	1653.8	1640.4	1633.6	1631.4	1604.6	1640.4
27.5°	1503.7	1548.5	1546.3	1535.0	1548.5	1530.6	1523.9	1526.1	1532.8	1530.6	1539.5
30°	1420.8	1427.5	1434.2	1425.3	1427.5	1420.8	1420.8	1423.0	1440.9	1434.2	1432.0
32.5°	1252.7	1275.1	1293.1	1293.1	1295.3	1302.0	1299.7	1346.8	1358.0	1335.7	1331.2
35°	1107.0	1122.7	1138.4	1140.7	1169.8	1172.0	1174.3	1187.7	1219.1	1225.8	1223.5
37.5°	968.1	983.8	988.2	1008.4	1024.2	1039.8	1057.8	1075.7	1102.6	1124.9	1113.8
40°	844.9	851.5	862.8	871.7	903.1	903.1	912.0	947.9	977.1	995.0	992.7
42.5°	741.8	744.0	752.9	768.7	797.8	791.0	797.8	822.5	865.0	867.3	891.9
45°	670.1	667.8	674.5	676.7	694.7	703.7	708.2	726.1	761.9	766.4	768.7
47.5°	605.1	602.8	614.1	618.5	625.2	634.2	634.2	636.4	649.9	661.1	652.2
50°	551.3	551.3	551.3	555.8	567.0	564.7	567.0	575.9	582.6	578.1	575.9
52.5°	493.0	501.9	508.7	511.0	513.2	513.2	515.5	511.0	508.7	501.9	488.5
55°	452.7	461.6	461.6	461.6	461.6	470.6	459.4	461.6	461.6	443.7	425.8
57.5°	412.4	421.3	428.0	419.1	428.0	419.1	414.6	412.4	407.8	389.9	363.0
60°	378.8	383.2	381.0	378.8	383.2	376.5	372.0	363.0	358.6	333.9	316.0
62.5°	340.7	342.8	345.1	340.7	336.2	333.9	324.9	311.5	302.5	282.4	266.6
65°	309.2	302.5	300.3	298.1	293.6	286.8	280.2	264.4	257.7	239.8	224.1
67.5°	262.2	260.0	264.4	257.7	246.5	246.5	239.8	226.3	210.6	199.5	183.8
70°	224.1	221.9	217.4	210.6	208.4	199.5	199.5	183.8	179.3	159.1	145.7
72.5°	183.8	183.8	177.0	170.3	163.6	159.1	156.9	145.7	139.0	127.7	116.5
75°	139.0	139.0	136.7	129.9	125.5	121.0	118.8	109.8	103.1	91.9	85.2
77.5°	98.6	98.6	89.6	85.2	87.4	82.9	78.4	76.2	73.9	67.3	58.3
80°	58.3	56.0	49.3	51.5	49.3	49.3	47.1	44.8	40.3	35.8	31.3
82.5°	15.7	17.9	17.9	17.9	20.2	15.7	15.7	15.7	17.9	17.9	11.2
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	4.5	9.0	9.0	9.0	9.0	9.0	6.8	6.8	6.8	4.5
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°	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9
2.5°	1891.4	1889.1	1891.4	1875.7	1911.5	1884.6	1880.2	1875.7	1891.4	1875.7	1853.3
5°	1931.7	1909.3	1902.6	1895.9	1916.0	1884.6	1878.0	1880.2	1868.9	1839.9	1842.1
7.5°	1945.1	1925.0	1904.8	1862.3	1880.2	1873.5	1855.5	1842.1	1824.2	1799.5	1795.0
10°	1949.6	1927.2	1898.1	1884.6	1857.8	1848.8	1842.1	1819.7	1797.3	1754.7	1743.5
12.5°	1936.2	1909.3	1873.5	1862.3	1842.1	1812.9	1797.3	1774.8	1754.7	1721.1	1696.4
15°	1878.0	1855.5	1844.3	1806.2	1797.3	1779.3	1747.9	1716.6	1687.5	1642.6	1629.2
17.5°	1810.7	1801.8	1790.5	1761.4	1759.2	1741.3	1712.1	1685.2	1647.2	1577.6	1555.2
20°	1741.3	1741.3	1705.4	1694.2	1716.6	1680.7	1658.3	1633.6	1555.2	1521.6	1481.3
22.5°	1689.7	1665.1	1644.9	1627.0	1629.2	1606.8	1575.4	1526.1	1496.9	1456.6	1409.6
25°	1588.9	1597.8	1553.0	1546.3	1553.0	1501.4	1485.8	1445.4	1402.8	1364.7	1328.9
27.5°	1526.1	1501.4	1472.4	1447.7	1447.7	1427.5	1382.7	1373.8	1308.7	1272.9	1228.0
30°	1432.0	1414.1	1389.4	1353.6	1349.1	1333.4	1297.5	1275.1	1207.9	1154.1	1129.4
32.5°	1313.2	1306.5	1286.3	1246.0	1232.6	1214.6	1169.8	1131.7	1100.4	1039.8	1010.7
35°	1228.0	1203.4	1160.9	1127.2	1116.0	1084.6	1048.7	1021.9	988.2	934.5	896.4
37.5°	1100.4	1075.7	1035.3	995.0	995.0	963.7	914.3	887.5	840.4	809.0	777.6
40°	988.2	956.9	916.6	869.5	862.8	817.9	797.8	752.9	723.8	674.5	670.1
42.5°	862.8	833.6	797.8	761.9	735.0	712.6	661.1	627.5	596.1	571.5	564.7
45°	748.5	710.4	679.0	634.2	607.3	580.4	546.8	524.4	499.7	472.9	457.2
47.5°	649.9	618.5	573.7	533.4	506.5	493.0	454.9	430.3	410.1	392.2	381.0
50°	549.1	511.0	486.3	441.4	437.0	405.6	374.3	354.1	342.8	327.2	311.5
52.5°	472.9	437.0	403.3	369.8	351.8	340.7	311.5	291.3	275.7	264.4	255.5
55°	398.9	367.5	340.7	307.0	295.8	280.2	246.5	242.1	226.3	210.6	199.5
57.5°	342.8	313.7	282.4	260.0	239.8	228.6	201.7	183.8	174.8	161.4	150.1
60°	291.3	260.0	235.3	208.4	199.5	183.8	163.6	147.9	136.7	125.5	114.3
62.5°	244.3	217.4	190.5	168.0	154.6	145.7	129.9	116.5	105.4	96.4	87.4
65°	201.7	177.0	154.6	132.2	125.5	114.3	103.1	91.9	82.9	71.7	62.8
67.5°	165.8	143.5	121.0	105.4	98.6	94.1	80.7	69.4	62.8	56.0	47.1
70°	129.9	114.3	96.4	82.9	76.2	69.4	60.5	53.8	44.8	40.3	33.6
72.5°	100.9	87.4	71.7	60.5	56.0	51.5	42.6	35.8	31.3	26.9	22.4
75°	71.7	60.5	51.5	40.3	38.1	35.8	29.1	24.7	20.2	15.7	13.4
77.5°	49.3	40.3	31.3	26.9	24.7	20.2	17.9	13.4	11.2	9.0	6.8
80°	26.9	20.2	15.7	13.4	11.2	9.0	9.0	6.8	4.5	4.5	2.3
82.5°	9.0	6.8	4.5	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



TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C40D010 FEU4C409040 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9
2.5°	1866.7	1842.1	1848.8	1848.8	1844.3	1844.3	1839.9	1833.1	1835.4	1821.9	1792.8
5°	1846.5	1815.2	1810.7	1815.2	1797.3	1792.8	1783.9	1797.3	1756.9	1772.6	1754.7
7.5°	1788.3	1759.2	1752.4	1768.1	1745.8	1732.2	1730.0	1747.9	1712.1	1694.2	1674.0
10°	1723.3	1712.1	1691.9	1680.7	1674.0	1676.2	1658.3	1635.9	1629.2	1624.7	1606.8
12.5°	1665.1	1640.4	1622.5	1609.1	1604.6	1604.6	1575.4	1570.9	1550.8	1546.3	1519.4
15°	1595.5	1566.5	1555.2	1537.3	1521.6	1530.6	1496.9	1488.0	1481.3	1452.2	1456.6
17.5°	1535.0	1503.7	1476.8	1465.6	1452.2	1438.7	1407.3	1414.1	1398.3	1398.3	1358.0
20°	1456.6	1423.0	1402.8	1380.4	1380.4	1362.5	1340.1	1342.3	1322.1	1302.0	1266.1
22.5°	1373.8	1337.8	1313.2	1304.2	1281.8	1277.4	1250.5	1243.7	1216.9	1219.1	1187.7
25°	1286.3	1250.5	1216.9	1219.1	1199.0	1190.0	1174.3	1142.9	1131.7	1118.3	1109.3
27.5°	1183.2	1158.6	1129.4	1127.2	1089.1	1091.3	1071.2	1062.3	1035.3	1042.1	1021.9
30°	1089.1	1053.3	1026.3	1019.7	1004.0	999.5	968.1	954.6	959.2	941.2	930.0
32.5°	992.7	939.0	927.7	914.3	905.4	894.1	871.7	880.7	860.5	865.0	847.1
35°	865.0	842.6	813.4	813.4	804.5	795.5	779.9	788.9	768.7	759.7	741.8
37.5°	757.4	737.3	708.2	717.1	701.4	688.0	674.5	676.7	658.8	656.6	638.6
40°	640.9	629.7	609.6	609.6	598.3	598.3	591.6	584.9	573.7	560.2	540.0
42.5°	531.1	522.1	513.2	515.5	499.7	513.2	495.3	506.5	470.6	468.4	454.9
45°	450.4	430.3	432.5	423.5	414.6	419.1	403.3	407.8	387.7	383.2	369.8
47.5°	365.3	358.6	345.1	340.7	340.7	333.9	327.2	324.9	316.0	304.7	286.8
50°	300.3	275.7	271.1	264.4	260.0	260.0	251.0	237.6	239.8	228.6	210.6
52.5°	235.3	215.1	206.1	204.0	195.0	190.5	179.3	170.3	163.6	159.1	147.9
55°	181.5	163.6	152.4	152.4	139.0	139.0	123.3	116.5	107.6	98.6	91.9
57.5°	136.7	127.7	116.5	107.6	103.1	91.9	82.9	71.7	65.0	51.5	42.6
60°	103.1	94.1	82.9	76.2	71.7	60.5	49.3	40.3	24.7	20.2	17.9
62.5°	76.2	67.3	56.0	51.5	47.1	38.1	26.9	13.4	6.8	6.8	6.8
65°	56.0	44.8	35.8	31.3	26.9	20.2	9.0	4.5	2.3	2.3	2.3
67.5°	38.1	29.1	20.2	17.9	13.4	6.8	2.3	2.3	2.3	2.3	2.3
70°	24.7	17.9	9.0	6.8	4.5	2.3	2.3	2.3	2.3	2.3	2.3
72.5°	15.7	9.0	4.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	9.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	4.5	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 FEU4C409040 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9	1868.9
2.5°	1824.2	1808.4	1817.4	1797.3	1806.2	1821.9	1810.7	1815.2
5°	1761.4	1752.4	1741.3	1712.1	1734.5	1752.4	1743.5	1741.3
7.5°	1694.2	1662.8	1678.5	1669.5	1665.1	1683.0	1662.8	1685.2
10°	1624.7	1602.3	1600.1	1584.4	1584.4	1597.8	1600.1	1586.6
12.5°	1521.6	1510.5	1510.5	1508.2	1505.9	1519.4	1521.6	1514.9
15°	1447.7	1443.2	1432.0	1429.8	1416.3	1436.4	1438.7	1436.4
17.5°	1358.0	1360.2	1349.1	1349.1	1358.0	1364.7	1346.8	1364.7
20°	1297.5	1286.3	1281.8	1261.6	1272.9	1284.1	1284.1	1286.3
22.5°	1210.1	1192.2	1199.0	1187.7	1181.0	1196.7	1196.7	1203.4
25°	1111.5	1111.5	1116.0	1109.3	1113.8	1122.7	1116.0	1131.7
27.5°	1017.4	1026.3	1026.3	1017.4	1021.9	1048.7	1060.0	1042.1
30°	930.0	932.2	939.0	934.5	947.9	956.9	954.6	968.1
32.5°	831.4	842.6	847.1	840.4	844.9	865.0	853.8	851.5
35°	755.2	735.0	732.8	735.0	744.0	748.5	744.0	759.7
37.5°	645.4	638.6	629.7	632.0	638.6	647.7	652.2	663.3
40°	540.0	531.1	531.1	528.9	522.1	546.8	546.8	546.8
42.5°	448.2	445.9	434.8	434.8	443.7	450.4	445.9	461.6
45°	367.5	358.6	351.8	351.8	358.6	358.6	365.3	363.0
47.5°	289.1	280.2	282.4	275.7	282.4	291.3	280.2	282.4
50°	217.4	217.4	212.9	217.4	215.1	217.4	212.9	208.4
52.5°	147.9	168.0	170.3	161.4	141.2	123.3	112.0	121.0
55°	85.2	76.2	76.2	73.9	69.4	67.3	60.5	67.3
57.5°	42.6	38.1	38.1	38.1	35.8	33.6	29.1	29.1
60°	17.9	15.7	15.7	13.4	11.2	9.0	6.8	9.0
62.5°	6.8	4.5	4.5	4.5	4.5	4.5	4.5	4.5
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)