

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 FEU4C409035 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 FEU4C409035 F4LC-SQLWW-H  
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

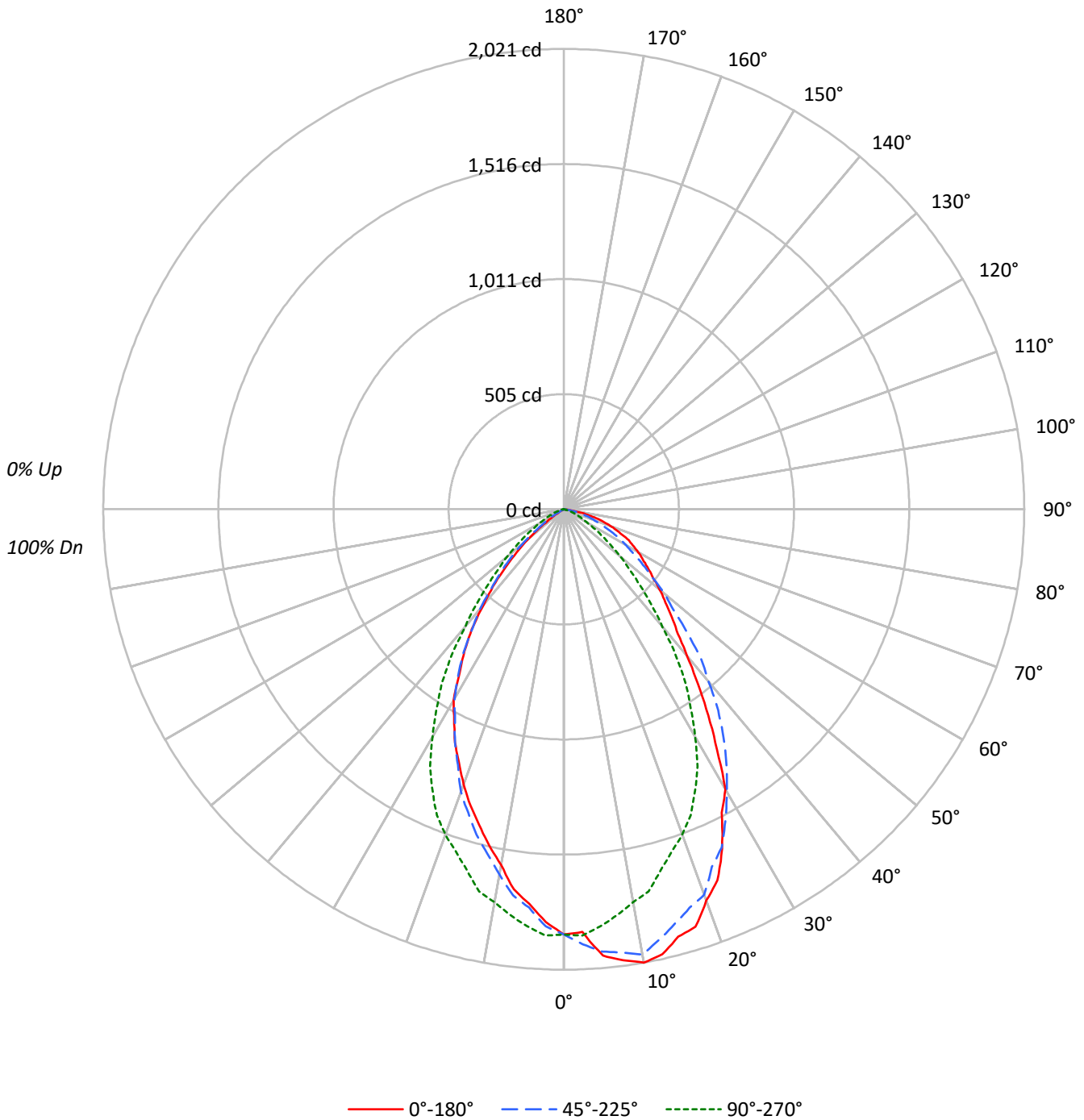
Lumens per Lamp: N/A  
 Luminaire Lumens: 2675.0 lumens  
 Efficiency: N/A  
 Efficacy: 56.9 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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#

CATALOG NUMBER: FLDSQ4C40D010 FEU4C409035 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°	180058	180058	180058
5°	190509	177937	168406
10°	197973	171666	155216
15°	194012	163834	143276
20°	187722	156004	131884
25°	175101	145078	120304
30°	158066	128396	107706
35°	130206	109911	89356
40°	106258	84832	68773
45°	91303	64434	49465
50°	82636	49041	31238
55°	76037	35377	11305
60°	72984	24180	1718
65°	70503	16347	525
70°	63109	11341	649
75°	51745	5853	0
80°	32339	2500	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	174.8	6.5
10°-20°	471.1	17.6
20°-30°	629.0	23.5
30°-40°	597.1	22.3
40°-50°	412.8	15.4
50°-60°	228.1	8.5
60°-70°	113.3	4.2
70°-80°	44.6	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°	1274.9	47.7
0°-40°	1872.1	70.0
0°-60°	2512.9	93.9
0°-90°	2675.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2675.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1866	1866	1866	1866	1866	
5°	1967	1949	1837	1754	1739	188
15°	1942	1884	1640	1479	1434	549
25°	1645	1638	1363	1130	1130	750
35°	1105	1222	933	768	759	692
45°	669	768	472	387	362	522
55°	452	425	210	107	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	

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1
2.5°	1857.2	1908.7	1913.1	1908.7	1915.4	1913.1	1924.4	1913.1	1926.6	1906.5	1910.9
5°	1966.9	1946.7	1989.2	1966.9	1966.9	1964.7	1957.9	1955.6	1964.7	1935.6	1949.0
7.5°	1996.0	2025.1	2063.1	2016.1	2018.3	2018.3	2004.9	2000.4	2000.4	1946.7	1962.4
10°	2020.6	2002.6	2022.8	2004.9	2020.6	2018.3	2027.3	1998.2	2018.3	1987.0	1984.8
12.5°	2000.4	1993.7	2020.6	1991.5	1982.6	1984.8	1973.6	1966.9	1973.6	1937.8	1935.6
15°	1942.2	1949.0	1989.2	1957.9	1953.5	1949.0	1935.6	1913.1	1931.1	1881.8	1884.1
17.5°	1922.2	1910.9	1917.7	1890.8	1897.5	1893.1	1890.8	1870.7	1866.1	1834.8	1834.8
20°	1828.2	1852.7	1852.7	1834.8	1834.8	1832.7	1803.5	1821.4	1801.3	1792.3	1801.3
22.5°	1763.2	1765.5	1765.5	1749.8	1752.1	1743.1	1727.5	1716.2	1727.5	1716.2	1698.3
25°	1644.7	1649.2	1676.0	1646.9	1642.4	1651.4	1637.9	1631.2	1629.0	1602.2	1637.9
27.5°	1501.5	1546.2	1544.0	1532.7	1546.2	1528.3	1521.6	1523.8	1530.6	1528.3	1537.2
30°	1418.7	1425.4	1432.1	1423.2	1425.4	1418.7	1418.7	1420.9	1438.8	1432.1	1429.8
32.5°	1250.8	1273.2	1291.1	1291.1	1293.3	1300.1	1297.8	1344.8	1356.0	1333.7	1329.2
35°	1105.4	1121.1	1136.7	1139.0	1168.1	1170.3	1172.5	1185.9	1217.2	1224.0	1221.7
37.5°	966.7	982.3	986.8	1006.9	1022.6	1038.2	1056.2	1074.1	1100.9	1123.3	1112.1
40°	843.6	850.3	861.5	870.4	901.7	901.7	910.7	946.5	975.6	993.5	991.2
42.5°	740.7	742.9	751.8	767.5	796.6	789.9	796.6	821.3	863.7	866.0	890.6
45°	669.1	666.8	673.5	675.7	693.7	702.6	707.1	725.0	760.8	765.2	767.5
47.5°	604.2	601.9	613.1	617.6	624.3	633.2	633.2	635.5	648.9	660.1	651.2
50°	550.5	550.5	550.5	554.9	566.1	563.9	566.1	575.1	581.8	577.3	575.1
52.5°	492.2	501.2	507.9	510.2	512.4	512.4	514.7	510.2	507.9	501.2	487.8
55°	452.0	460.9	460.9	460.9	460.9	469.9	458.8	460.9	460.9	443.1	425.2
57.5°	411.8	420.7	427.4	418.4	427.4	418.4	414.0	411.8	407.2	389.3	362.5
60°	378.2	382.7	380.4	378.2	382.7	375.9	371.4	362.5	358.0	333.4	315.5
62.5°	340.1	342.3	344.6	340.1	335.7	333.4	324.5	311.0	302.1	281.9	266.2
65°	308.8	302.1	299.8	297.6	293.2	286.4	279.7	264.0	257.3	239.4	223.7
67.5°	261.8	259.6	264.0	257.3	246.2	246.2	239.4	226.0	210.3	199.2	183.5
70°	223.7	221.5	217.1	210.3	208.1	199.2	199.2	183.5	179.0	158.9	145.4
72.5°	183.5	183.5	176.7	170.1	163.3	158.9	156.7	145.4	138.8	127.6	116.3
75°	138.8	138.8	136.5	129.7	125.3	120.8	118.6	109.7	102.9	91.8	85.0
77.5°	98.4	98.4	89.5	85.0	87.2	82.8	78.3	76.1	73.8	67.2	58.2
80°	58.2	55.9	49.3	51.5	49.3	49.3	47.0	44.7	40.2	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	8.9	8.9	8.9	8.9	8.9	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°	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1
2.5°	1888.6	1886.3	1888.6	1872.9	1908.7	1881.8	1877.4	1872.9	1888.6	1872.9	1850.5
5°	1928.8	1906.5	1899.7	1893.1	1913.1	1881.8	1875.2	1877.4	1866.1	1837.1	1839.3
7.5°	1942.2	1922.2	1902.0	1859.5	1877.4	1870.7	1852.7	1839.3	1821.4	1796.8	1792.3
10°	1946.7	1924.4	1895.2	1881.8	1855.0	1846.1	1839.3	1817.0	1794.6	1752.1	1740.9
12.5°	1933.3	1906.5	1870.7	1859.5	1839.3	1810.2	1794.6	1772.2	1752.1	1718.5	1693.9
15°	1875.2	1852.7	1841.6	1803.5	1794.6	1776.6	1745.3	1714.0	1684.9	1640.1	1626.7
17.5°	1808.0	1799.1	1787.9	1758.8	1756.6	1738.7	1709.6	1682.7	1644.7	1575.3	1552.9
20°	1738.7	1738.7	1702.8	1691.7	1714.0	1678.2	1655.8	1631.2	1552.9	1519.3	1479.1
22.5°	1687.2	1662.6	1642.4	1624.5	1626.7	1604.4	1573.1	1523.8	1494.7	1454.5	1407.5
25°	1586.5	1595.4	1550.7	1544.0	1550.7	1499.2	1483.6	1443.2	1400.7	1362.7	1326.9
27.5°	1523.8	1499.2	1470.2	1445.5	1445.5	1425.4	1380.6	1371.7	1306.7	1271.0	1226.2
30°	1429.8	1411.9	1387.3	1351.5	1347.1	1331.4	1295.6	1273.2	1206.1	1152.4	1127.7
32.5°	1311.2	1304.6	1284.4	1244.2	1230.7	1212.8	1168.1	1130.0	1098.7	1038.2	1009.2
35°	1226.2	1201.6	1159.1	1125.5	1114.3	1083.0	1047.2	1020.3	986.8	933.1	895.1
37.5°	1098.7	1074.1	1033.8	993.5	993.5	962.2	913.0	886.1	839.1	807.8	776.5
40°	986.8	955.5	915.2	868.2	861.5	816.7	796.6	751.8	722.7	673.5	669.1
42.5°	861.5	832.4	796.6	760.8	733.9	711.6	660.1	626.5	595.3	570.6	563.9
45°	747.4	709.3	678.0	633.2	606.4	579.6	546.0	523.6	499.0	472.2	456.5
47.5°	648.9	617.6	572.8	532.6	505.7	492.2	454.2	429.6	409.5	391.6	380.4
50°	548.3	510.2	485.6	440.8	436.3	405.0	373.7	353.6	342.3	326.7	311.0
52.5°	472.2	436.3	402.7	369.2	351.3	340.1	311.0	290.9	275.3	264.0	255.1
55°	398.3	367.0	340.1	306.6	295.3	279.7	246.2	241.7	226.0	210.3	199.2
57.5°	342.3	313.2	281.9	259.6	239.4	228.3	201.4	183.5	174.5	161.1	149.9
60°	290.9	259.6	234.9	208.1	199.2	183.5	163.3	147.7	136.5	125.3	114.1
62.5°	243.9	217.1	190.2	167.8	154.4	145.4	129.7	116.3	105.2	96.3	87.2
65°	201.4	176.7	154.4	132.0	125.3	114.1	102.9	91.8	82.8	71.6	62.7
67.5°	165.6	143.2	120.8	105.2	98.4	94.0	80.6	69.3	62.7	55.9	47.0
70°	129.7	114.1	96.3	82.8	76.1	69.3	60.4	53.7	44.7	40.2	33.6
72.5°	100.7	87.2	71.6	60.4	55.9	51.5	42.5	35.8	31.3	26.8	22.4
75°	71.6	60.4	51.5	40.2	38.0	35.8	29.1	24.6	20.2	15.7	13.4
77.5°	49.3	40.2	31.3	26.8	24.6	20.2	17.9	13.4	11.2	8.9	6.8
80°	26.8	20.2	15.7	13.4	11.2	8.9	8.9	6.8	4.5	4.5	2.3
82.5°	8.9	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

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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1
2.5°	1863.9	1839.3	1846.1	1846.1	1841.6	1841.6	1837.1	1830.4	1832.7	1819.2	1790.1
5°	1843.8	1812.5	1808.0	1812.5	1794.6	1790.1	1781.2	1794.6	1754.3	1770.0	1752.1
7.5°	1785.7	1756.6	1749.8	1765.5	1743.1	1729.6	1727.5	1745.3	1709.6	1691.7	1671.5
10°	1720.7	1709.6	1689.4	1678.2	1671.5	1673.7	1655.8	1633.5	1626.7	1622.3	1604.4
12.5°	1662.6	1637.9	1620.1	1606.7	1602.2	1602.2	1573.1	1568.6	1548.4	1544.0	1517.1
15°	1593.1	1564.1	1552.9	1535.0	1519.3	1528.3	1494.7	1485.8	1479.1	1450.0	1454.5
17.5°	1532.7	1501.5	1474.6	1463.4	1450.0	1436.6	1405.2	1411.9	1396.3	1396.3	1356.0
20°	1454.5	1420.9	1400.7	1378.4	1378.4	1360.5	1338.1	1340.3	1320.2	1300.1	1264.2
22.5°	1371.7	1335.9	1311.2	1302.3	1279.9	1275.4	1248.6	1241.9	1215.0	1217.2	1185.9
25°	1284.4	1248.6	1215.0	1217.2	1197.2	1188.2	1172.5	1141.2	1130.0	1116.6	1107.7
27.5°	1181.5	1156.8	1127.7	1125.5	1087.5	1089.7	1069.6	1060.7	1033.8	1040.5	1020.3
30°	1087.5	1051.7	1024.8	1018.2	1002.5	998.0	966.7	953.2	957.7	939.8	928.6
32.5°	991.2	937.6	926.4	913.0	904.0	892.8	870.4	879.4	859.2	863.7	845.8
35°	863.7	841.3	812.2	812.2	803.3	794.3	778.7	787.7	767.5	758.6	740.7
37.5°	756.3	736.2	707.1	716.1	700.4	686.9	673.5	675.7	657.8	655.7	637.7
40°	640.0	628.7	608.7	608.7	597.4	597.4	590.7	584.0	572.8	559.4	539.2
42.5°	530.3	521.3	512.4	514.7	499.0	512.4	494.5	505.7	469.9	467.7	454.2
45°	449.7	429.6	431.8	422.9	414.0	418.4	402.7	407.2	387.1	382.7	369.2
47.5°	364.8	358.0	344.6	340.1	340.1	333.4	326.7	324.5	315.5	304.3	286.4
50°	299.8	275.3	270.7	264.0	259.6	259.6	250.6	237.2	239.4	228.3	210.3
52.5°	234.9	214.8	205.8	203.6	194.7	190.2	179.0	170.1	163.3	158.9	147.7
55°	181.2	163.3	152.2	152.2	138.8	138.8	123.1	116.3	107.4	98.4	91.8
57.5°	136.5	127.6	116.3	107.4	102.9	91.8	82.8	71.6	64.9	51.5	42.5
60°	102.9	94.0	82.8	76.1	71.6	60.4	49.3	40.2	24.6	20.2	17.9
62.5°	76.1	67.2	55.9	51.5	47.0	38.0	26.8	13.4	6.8	6.8	6.8
65°	55.9	44.7	35.8	31.3	26.8	20.2	8.9	4.5	2.3	2.3	2.3
67.5°	38.0	29.1	20.2	17.9	13.4	6.8	2.3	2.3	2.3	2.3	2.3
70°	24.6	17.9	8.9	6.8	4.5	2.3	2.3	2.3	2.3	2.3	2.3
72.5°	15.7	8.9	4.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	8.9	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 FEU4C409035 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1	1866.1
2.5°	1821.4	1805.7	1814.7	1794.6	1803.5	1819.2	1808.0	1812.5
5°	1758.8	1749.8	1738.7	1709.6	1731.9	1749.8	1740.9	1738.7
7.5°	1691.7	1660.3	1676.0	1667.1	1662.6	1680.5	1660.3	1682.7
10°	1622.3	1599.9	1597.7	1582.0	1582.0	1595.4	1597.7	1584.2
12.5°	1519.3	1508.2	1508.2	1505.9	1503.6	1517.1	1519.3	1512.7
15°	1445.5	1441.0	1429.8	1427.6	1414.2	1434.3	1436.6	1434.3
17.5°	1356.0	1358.2	1347.1	1347.1	1356.0	1362.7	1344.8	1362.7
20°	1295.6	1284.4	1279.9	1259.8	1271.0	1282.2	1282.2	1284.4
22.5°	1208.3	1190.4	1197.2	1185.9	1179.2	1194.9	1194.9	1201.6
25°	1109.8	1109.8	1114.3	1107.7	1112.1	1121.1	1114.3	1130.0
27.5°	1015.9	1024.8	1024.8	1015.9	1020.3	1047.2	1058.4	1040.5
30°	928.6	930.8	937.6	933.1	946.5	955.5	953.2	966.7
32.5°	830.2	841.3	845.8	839.1	843.6	863.7	852.5	850.3
35°	754.1	733.9	731.7	733.9	742.9	747.4	742.9	758.6
37.5°	644.4	637.7	628.7	631.0	637.7	646.7	651.2	662.3
40°	539.2	530.3	530.3	528.1	521.3	546.0	546.0	546.0
42.5°	447.5	445.3	434.1	434.1	443.1	449.7	445.3	460.9
45°	367.0	358.0	351.3	351.3	358.0	358.0	364.8	362.5
47.5°	288.7	279.7	281.9	275.3	281.9	290.9	279.7	281.9
50°	217.1	217.1	212.6	217.1	214.8	217.1	212.6	208.1
52.5°	147.7	167.8	170.1	161.1	141.0	123.1	111.9	120.8
55°	85.0	76.1	76.1	73.8	69.3	67.2	60.4	67.2
57.5°	42.5	38.0	38.0	38.0	35.8	33.6	29.1	29.1
60°	17.9	15.7	15.7	13.4	11.2	8.9	6.8	8.9
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)