

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 FEU4C409027 F4LC-SQLWW-LI**

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 FEU4C409027 F4LC-SQLWW-LI
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

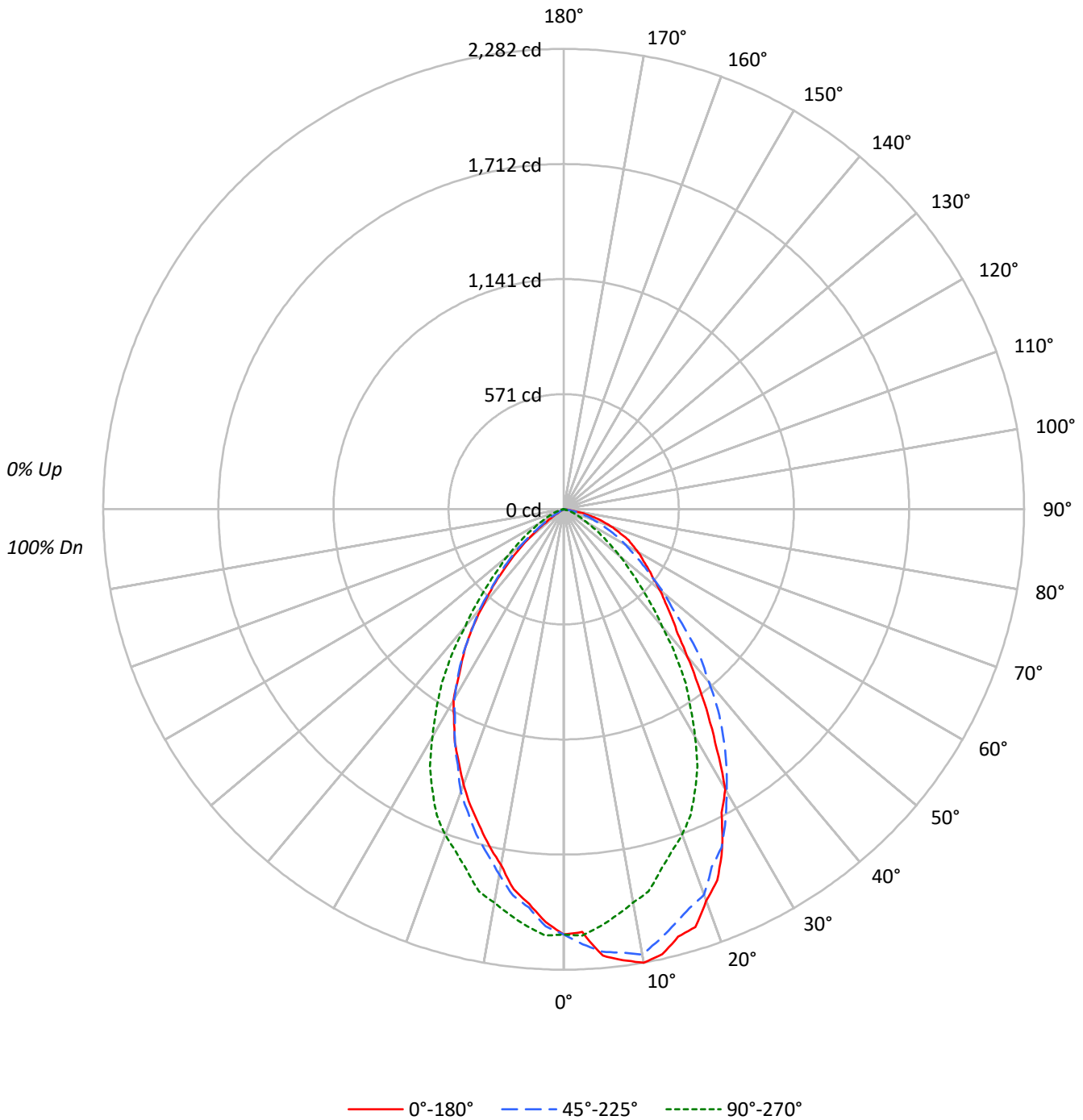
Lumens per Lamp: N/A
 Luminaire Lumens: 3021.0 lumens
 Efficiency: N/A
 Efficacy: 64.3 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C409027 F4LC-SQLWW-LI

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°	203350	203350	203350
5°	215149	200950	190189
10°	223584	193868	175291
15°	219115	185031	161806
20°	211996	176191	148939
25°	197746	163837	135869
30°	178510	144996	121633
35°	147051	124128	100912
40°	120000	95816	77665
45°	103106	72758	55865
50°	93323	55391	35276
55°	85878	39953	12751
60°	82421	27306	1949
65°	79612	18470	594
70°	71290	12808	733
75°	58418	6599	0
80°	36507	2778	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	197.5	6.5
10°-20°	532.0	17.6
20°-30°	710.4	23.5
30°-40°	674.4	22.3
40°-50°	466.1	15.4
50°-60°	257.6	8.5
60°-70°	127.9	4.2
70°-80°	50.4	1.7
80°-90°	4.8	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°	1439.8	47.7
0°-40°	2114.2	70.0
0°-60°	2837.9	93.9
0°-90°	3021.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3021.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2108	2108	2108	2108	2108	
5°	2221	2201	2075	1981	1964	213
15°	2194	2128	1852	1670	1620	620
25°	1857	1850	1539	1276	1276	847
35°	1248	1380	1054	867	857	782
45°	756	867	533	437	409	589
55°	510	480	238	121	76	459
65°	349	253	81	3	3	338
75°	157	96	18	0	0	167
85°	0	3	0	0	0	14
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°	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5
2.5°	2097.4	2155.5	2160.6	2155.5	2163.2	2160.6	2173.3	2160.6	2175.8	2153.1	2158.1
5°	2221.3	2198.5	2246.5	2221.3	2221.3	2218.8	2211.2	2208.6	2218.8	2185.9	2201.1
7.5°	2254.1	2287.0	2330.0	2276.9	2279.4	2279.4	2264.2	2259.2	2259.2	2198.5	2216.2
10°	2282.0	2261.7	2284.4	2264.2	2282.0	2279.4	2289.5	2256.6	2279.4	2244.0	2241.5
12.5°	2259.2	2251.6	2282.0	2249.1	2239.0	2241.5	2228.9	2221.3	2228.9	2188.4	2185.9
15°	2193.5	2201.1	2246.5	2211.2	2206.1	2201.1	2185.9	2160.6	2180.9	2125.2	2127.8
17.5°	2170.8	2158.1	2165.7	2135.3	2143.0	2137.9	2135.3	2112.7	2107.5	2072.2	2072.2
20°	2064.6	2092.4	2092.4	2072.2	2072.2	2069.7	2036.8	2057.0	2034.3	2024.2	2034.3
22.5°	1991.3	1993.9	1993.9	1976.1	1978.7	1968.6	1950.9	1938.2	1950.9	1938.2	1918.0
25°	1857.4	1862.5	1892.8	1859.9	1854.9	1865.0	1849.8	1842.2	1839.7	1809.4	1849.8
27.5°	1695.7	1746.2	1743.7	1731.0	1746.2	1726.0	1718.4	1720.9	1728.5	1726.0	1736.1
30°	1602.2	1609.7	1617.3	1607.2	1609.7	1602.2	1602.2	1604.7	1624.9	1617.3	1614.8
32.5°	1412.6	1437.8	1458.1	1458.1	1460.6	1468.2	1465.7	1518.7	1531.4	1506.2	1501.1
35°	1248.4	1266.1	1283.7	1286.3	1319.1	1321.6	1324.2	1339.3	1374.7	1382.3	1379.7
37.5°	1091.7	1109.4	1114.4	1137.2	1154.9	1172.5	1192.8	1213.0	1243.3	1268.6	1256.0
40°	952.7	960.2	972.9	983.0	1018.4	1018.4	1028.5	1069.0	1101.8	1122.0	1119.4
42.5°	836.5	839.0	849.1	866.8	899.7	892.0	899.7	927.5	975.4	978.0	1005.8
45°	755.6	753.0	760.7	763.1	783.4	793.5	798.6	818.8	859.2	864.2	866.8
47.5°	682.3	679.8	692.4	697.5	705.0	715.1	715.1	717.7	732.8	745.5	735.4
50°	621.7	621.7	621.7	626.7	639.4	636.8	639.4	649.5	657.0	651.9	649.5
52.5°	555.9	566.0	573.6	576.2	578.7	578.7	581.3	576.2	573.6	566.0	550.9
55°	510.5	520.6	520.6	520.6	520.6	530.7	518.1	520.6	520.6	500.4	480.2
57.5°	465.0	475.1	482.6	472.6	482.6	472.6	467.5	465.0	459.9	439.7	409.4
60°	427.1	432.2	429.6	427.1	432.2	424.5	419.5	409.4	404.3	376.5	356.3
62.5°	384.1	386.6	389.2	384.1	379.1	376.5	366.4	351.3	341.2	318.4	300.7
65°	348.7	341.2	338.6	336.1	331.1	323.4	315.9	298.2	290.6	270.4	252.7
67.5°	295.6	293.2	298.2	290.6	278.0	278.0	270.4	255.2	237.5	224.9	207.2
70°	252.7	250.2	245.1	237.5	235.0	224.9	224.9	207.2	202.2	179.4	164.2
72.5°	207.2	207.2	199.6	192.1	184.4	179.4	176.9	164.2	156.7	144.1	131.4
75°	156.7	156.7	154.2	146.5	141.5	136.4	134.0	123.9	116.2	103.7	96.0
77.5°	111.2	111.2	101.1	96.0	98.5	93.5	88.4	85.9	83.4	75.8	65.7
80°	65.7	63.2	55.6	58.1	55.6	55.6	53.1	50.5	45.4	40.4	35.3
82.5°	17.7	20.2	20.2	20.2	22.8	17.7	17.7	17.7	20.2	20.2	12.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.6	2.6
87.5°	2.6	5.0	10.1	10.1	10.1	10.1	10.1	7.6	7.6	7.6	5.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5
2.5°	2132.9	2130.3	2132.9	2115.1	2155.5	2125.2	2120.2	2115.1	2132.9	2115.1	2089.9
5°	2178.3	2153.1	2145.4	2137.9	2160.6	2125.2	2117.7	2120.2	2107.5	2074.7	2077.2
7.5°	2193.5	2170.8	2148.0	2100.0	2120.2	2112.7	2092.4	2077.2	2057.0	2029.2	2024.2
10°	2198.5	2173.3	2140.4	2125.2	2094.9	2084.8	2077.2	2052.0	2026.7	1978.7	1966.0
12.5°	2183.4	2153.1	2112.7	2100.0	2077.2	2044.4	2026.7	2001.4	1978.7	1940.8	1913.0
15°	2117.7	2092.4	2079.8	2036.8	2026.7	2006.4	1971.1	1935.7	1902.9	1852.3	1837.1
17.5°	2041.9	2031.8	2019.1	1986.2	1983.8	1963.6	1930.7	1900.3	1857.4	1779.0	1753.8
20°	1963.6	1963.6	1923.1	1910.5	1935.7	1895.3	1870.0	1842.2	1753.8	1715.9	1670.4
22.5°	1905.4	1877.6	1854.9	1834.7	1837.1	1811.9	1776.5	1720.9	1688.0	1642.6	1589.5
25°	1791.7	1801.8	1751.3	1743.7	1751.3	1693.1	1675.5	1629.9	1581.9	1538.9	1498.5
27.5°	1720.9	1693.1	1660.3	1632.5	1632.5	1609.7	1559.2	1549.1	1475.8	1435.4	1384.8
30°	1614.8	1594.6	1566.8	1526.4	1521.3	1503.6	1463.2	1437.8	1362.1	1301.4	1273.6
32.5°	1480.8	1473.3	1450.5	1405.1	1389.9	1369.6	1319.1	1276.2	1240.8	1172.5	1139.7
35°	1384.8	1357.1	1309.0	1271.1	1258.5	1223.1	1182.6	1152.3	1114.4	1053.8	1010.8
37.5°	1240.8	1213.0	1167.5	1122.0	1122.0	1086.7	1031.0	1000.7	947.7	912.2	876.9
40°	1114.4	1079.1	1033.6	980.5	972.9	922.3	899.7	849.1	816.2	760.7	755.6
42.5°	972.9	940.1	899.7	859.2	828.9	803.6	745.5	707.6	672.2	644.4	636.8
45°	844.0	801.0	765.7	715.1	684.8	654.5	616.6	591.4	563.5	533.2	515.5
47.5°	732.8	697.5	646.9	601.5	571.2	555.9	512.9	485.2	462.5	442.3	429.6
50°	619.2	576.2	548.4	497.8	492.7	457.4	422.1	399.3	386.6	369.0	351.3
52.5°	533.2	492.7	454.8	417.0	396.7	384.1	351.3	328.5	310.9	298.2	288.1
55°	449.8	414.4	384.1	346.2	333.5	315.9	278.0	273.0	255.2	237.5	224.9
57.5°	386.6	353.7	318.4	293.2	270.4	257.8	227.4	207.2	197.1	182.0	169.3
60°	328.5	293.2	265.3	235.0	224.9	207.2	184.4	166.8	154.2	141.5	128.9
62.5°	275.4	245.1	214.8	189.5	174.3	164.2	146.5	131.4	118.8	108.7	98.5
65°	227.4	199.6	174.3	149.1	141.5	128.9	116.2	103.7	93.5	80.9	70.8
67.5°	187.0	161.8	136.4	118.8	111.2	106.1	91.0	78.3	70.8	63.2	53.1
70°	146.5	128.9	108.7	93.5	85.9	78.3	68.2	60.7	50.5	45.4	37.9
72.5°	113.8	98.5	80.9	68.2	63.2	58.1	48.0	40.4	35.3	30.3	25.2
75°	80.9	68.2	58.1	45.4	43.0	40.4	32.9	27.8	22.8	17.7	15.1
77.5°	55.6	45.4	35.3	30.3	27.8	22.8	20.2	15.1	12.7	10.1	7.6
80°	30.3	22.8	17.7	15.1	12.7	10.1	10.1	7.6	5.0	5.0	2.6
82.5°	10.1	7.6	5.0	2.6	2.6	2.6	2.6	2.6	2.6	0.0	2.6
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°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	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°	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5
2.5°	2105.0	2077.2	2084.8	2084.8	2079.8	2079.8	2074.7	2067.1	2069.7	2054.5	2021.7
5°	2082.3	2046.9	2041.9	2046.9	2026.7	2021.7	2011.6	2026.7	1981.2	1998.9	1978.7
7.5°	2016.6	1983.8	1976.1	1993.9	1968.6	1953.4	1950.9	1971.1	1930.7	1910.5	1887.7
10°	1943.3	1930.7	1907.9	1895.3	1887.7	1890.2	1870.0	1844.8	1837.1	1832.1	1811.9
12.5°	1877.6	1849.8	1829.6	1814.5	1809.4	1809.4	1776.5	1771.5	1748.7	1743.7	1713.4
15°	1799.2	1766.4	1753.8	1733.6	1715.9	1726.0	1688.0	1677.9	1670.4	1637.5	1642.6
17.5°	1731.0	1695.7	1665.4	1652.7	1637.5	1622.4	1587.0	1594.6	1576.9	1576.9	1531.4
20°	1642.6	1604.7	1581.9	1556.7	1556.7	1536.5	1511.2	1513.7	1490.9	1468.2	1427.8
22.5°	1549.1	1508.6	1480.8	1470.7	1445.5	1440.4	1410.1	1402.5	1372.2	1374.7	1339.3
25°	1450.5	1410.1	1372.2	1374.7	1352.0	1341.9	1324.2	1288.8	1276.2	1261.0	1250.9
27.5°	1334.3	1306.5	1273.6	1271.1	1228.2	1230.6	1208.0	1197.9	1167.5	1175.1	1152.3
30°	1228.2	1187.8	1157.4	1149.8	1132.1	1127.1	1091.7	1076.5	1081.6	1061.3	1048.8
32.5°	1119.4	1058.9	1046.2	1031.0	1020.9	1008.3	983.0	993.1	970.3	975.4	955.2
35°	975.4	950.2	917.3	917.3	907.2	897.1	879.5	889.6	866.8	856.7	836.5
37.5°	854.1	831.4	798.6	808.7	791.0	775.8	760.7	763.1	742.9	740.5	720.2
40°	722.7	710.1	687.4	687.4	674.7	674.7	667.1	659.6	646.9	631.8	609.0
42.5°	598.9	588.8	578.7	581.3	563.5	578.7	558.5	571.2	530.7	528.2	512.9
45°	507.9	485.2	487.7	477.6	467.5	472.6	454.8	459.9	437.2	432.2	417.0
47.5°	412.0	404.3	389.2	384.1	384.1	376.5	369.0	366.4	356.3	343.6	323.4
50°	338.6	310.9	305.7	298.2	293.2	293.2	283.1	267.9	270.4	257.8	237.5
52.5°	265.3	242.6	232.5	230.0	219.9	214.8	202.2	192.1	184.4	179.4	166.8
55°	204.6	184.4	171.9	171.9	156.7	156.7	139.0	131.4	121.3	111.2	103.7
57.5°	154.2	144.1	131.4	121.3	116.2	103.7	93.5	80.9	73.3	58.1	48.0
60°	116.2	106.1	93.5	85.9	80.9	68.2	55.6	45.4	27.8	22.8	20.2
62.5°	85.9	75.8	63.2	58.1	53.1	43.0	30.3	15.1	7.6	7.6	7.6
65°	63.2	50.5	40.4	35.3	30.3	22.8	10.1	5.0	2.6	2.6	2.6
67.5°	43.0	32.9	22.8	20.2	15.1	7.6	2.6	2.6	2.6	2.6	2.6
70°	27.8	20.2	10.1	7.6	5.0	2.6	2.6	2.6	2.6	2.6	2.6
72.5°	17.7	10.1	5.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	10.1	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	5.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.6	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	2.6	2.6	2.6
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 FEU4C409027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5	2107.5
2.5°	2057.0	2039.3	2049.4	2026.7	2036.8	2054.5	2041.9	2046.9
5°	1986.2	1976.1	1963.6	1930.7	1955.9	1976.1	1966.0	1963.6
7.5°	1910.5	1875.1	1892.8	1882.7	1877.6	1897.8	1875.1	1900.3
10°	1832.1	1806.8	1804.4	1786.6	1786.6	1801.8	1804.4	1789.1
12.5°	1715.9	1703.3	1703.3	1700.7	1698.1	1713.4	1715.9	1708.3
15°	1632.5	1627.4	1614.8	1612.3	1597.1	1619.8	1622.4	1619.8
17.5°	1531.4	1533.9	1521.3	1521.3	1531.4	1538.9	1518.7	1538.9
20°	1463.2	1450.5	1445.5	1422.7	1435.4	1448.0	1448.0	1450.5
22.5°	1364.6	1344.4	1352.0	1339.3	1331.7	1349.4	1349.4	1357.1
25°	1253.4	1253.4	1258.5	1250.9	1256.0	1266.1	1258.5	1276.2
27.5°	1147.3	1157.4	1157.4	1147.3	1152.3	1182.6	1195.3	1175.1
30°	1048.8	1051.2	1058.9	1053.8	1069.0	1079.1	1076.5	1091.7
32.5°	937.6	950.2	955.2	947.7	952.7	975.4	962.8	960.2
35°	851.6	828.9	826.4	828.9	839.0	844.0	839.0	856.7
37.5°	727.8	720.2	710.1	712.6	720.2	730.4	735.4	748.0
40°	609.0	598.9	598.9	596.4	588.8	616.6	616.6	616.6
42.5°	505.4	502.8	490.3	490.3	500.4	507.9	502.8	520.6
45°	414.4	404.3	396.7	396.7	404.3	404.3	412.0	409.4
47.5°	326.0	315.9	318.4	310.9	318.4	328.5	315.9	318.4
50°	245.1	245.1	240.1	245.1	242.6	245.1	240.1	235.0
52.5°	166.8	189.5	192.1	182.0	159.2	139.0	126.3	136.4
55°	96.0	85.9	85.9	83.4	78.3	75.8	68.2	75.8
57.5°	48.0	43.0	43.0	43.0	40.4	37.9	32.9	32.9
60°	20.2	17.7	17.7	15.1	12.7	10.1	7.6	10.1
62.5°	7.6	5.0	5.0	5.0	5.0	5.0	5.0	5.0
65°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
67.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
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)