

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 FEU4C509027 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 FEU4C509027 F4LC-SQLWW-H
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

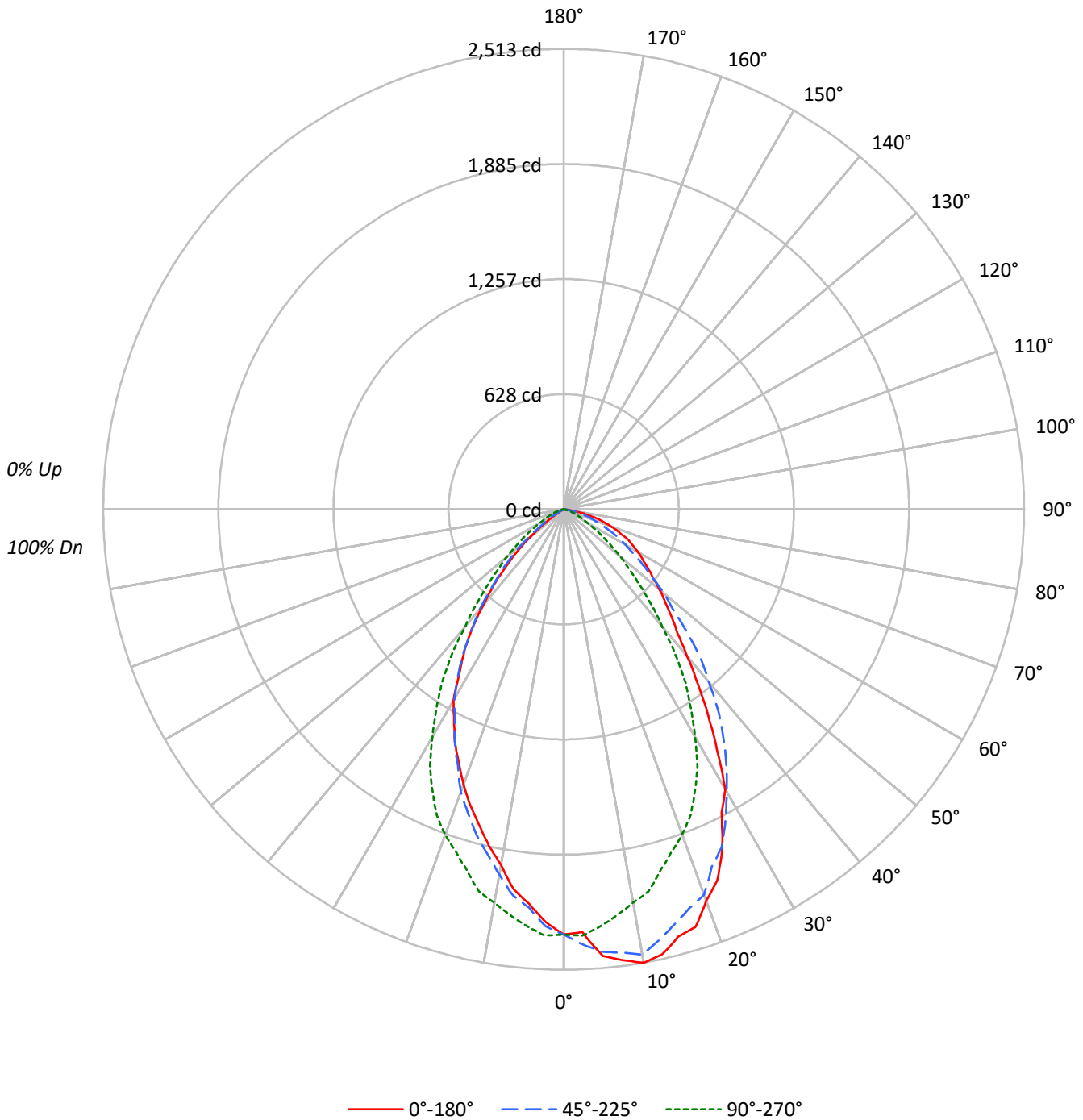
Lumens per Lamp: N/A
 Luminaire Lumens: 3327.0 lumens
 Efficiency: N/A
 Efficacy: 57.0 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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

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Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C50D010 FEU4C509027 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°	223951	223951	223951
5°	236942	221310	209454
10°	246227	213503	193045
15°	241301	203771	178199
20°	233477	194037	164023
25°	217782	180435	149624
30°	196593	159681	133955
35°	161939	136708	111136
40°	132154	105514	85538
45°	113545	80141	61528
50°	102765	61005	38848
55°	94575	44007	14047
60°	90777	30066	2142
65°	87672	20343	639
70°	78513	14106	790
75°	64346	7270	0
80°	40230	3112	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	217.5	6.5
10°-20°	585.9	17.6
20°-30°	782.3	23.5
30°-40°	742.7	22.3
40°-50°	513.4	15.4
50°-60°	283.6	8.5
60°-70°	140.9	4.2
70°-80°	55.5	1.7
80°-90°	5.3	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°	1585.7	47.7
0°-40°	2328.4	70.0
0°-60°	3125.4	93.9
0°-90°	3327.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3327.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2321	2321	2321	2321	2321	
5°	2446	2424	2285	2182	2162	234
15°	2416	2343	2040	1840	1784	683
25°	2046	2037	1695	1405	1405	933
35°	1375	1520	1161	955	944	861
45°	832	955	587	482	451	649
55°	562	529	262	134	84	506
65°	384	278	89	3	3	373
75°	173	106	20	0	0	184
85°	0	3	0	0	0	16
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°	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0
2.5°	2309.9	2373.9	2379.4	2373.9	2382.3	2379.4	2393.4	2379.4	2396.2	2371.1	2376.7
5°	2446.3	2421.2	2474.1	2446.3	2446.3	2443.5	2435.1	2432.3	2443.5	2407.3	2424.0
7.5°	2482.5	2518.7	2566.0	2507.5	2510.3	2510.3	2493.6	2488.0	2488.0	2421.2	2440.7
10°	2513.1	2490.8	2515.8	2493.6	2513.1	2510.3	2521.4	2485.2	2510.3	2471.3	2468.5
12.5°	2488.0	2479.6	2513.1	2476.9	2465.8	2468.5	2454.7	2446.3	2454.7	2410.1	2407.3
15°	2415.6	2424.0	2474.1	2435.1	2429.6	2424.0	2407.3	2379.4	2401.8	2340.5	2343.3
17.5°	2390.7	2376.7	2385.1	2351.6	2360.0	2354.5	2351.6	2326.7	2321.0	2282.1	2282.1
20°	2273.8	2304.3	2304.3	2282.1	2282.1	2279.3	2243.1	2265.4	2240.3	2229.2	2240.3
22.5°	2193.0	2195.8	2195.8	2176.3	2179.1	2168.0	2148.5	2134.5	2148.5	2134.5	2112.3
25°	2045.6	2051.1	2084.5	2048.3	2042.7	2053.9	2037.2	2028.8	2026.1	1992.7	2037.2
27.5°	1867.4	1923.0	1920.3	1906.3	1923.0	1900.8	1892.5	1895.2	1903.6	1900.8	1911.9
30°	1764.5	1772.8	1781.2	1770.0	1772.8	1764.5	1764.5	1767.2	1789.5	1781.2	1778.3
32.5°	1555.7	1583.5	1605.8	1605.8	1608.6	1617.0	1614.1	1672.6	1686.5	1658.7	1653.2
35°	1374.8	1394.3	1413.7	1416.6	1452.8	1455.5	1458.3	1475.0	1513.9	1522.3	1519.5
37.5°	1202.3	1221.7	1227.3	1252.4	1271.9	1291.3	1313.6	1335.9	1369.2	1397.0	1383.2
40°	1049.2	1057.5	1071.5	1082.6	1121.5	1121.5	1132.6	1177.2	1213.4	1235.7	1232.8
42.5°	921.2	923.9	935.1	954.6	990.8	982.4	990.8	1021.4	1074.2	1077.0	1107.7
45°	832.1	829.3	837.7	840.4	862.8	873.9	879.5	901.7	946.2	951.8	954.6
47.5°	751.5	748.6	762.6	768.1	776.4	787.5	787.5	790.4	807.1	821.0	809.9
50°	684.6	684.6	684.6	690.2	704.1	701.3	704.1	715.3	723.5	718.0	715.3
52.5°	612.2	623.3	631.7	634.6	637.3	637.3	640.1	634.6	631.7	623.3	606.7
55°	562.2	573.3	573.3	573.3	573.3	584.4	570.6	573.3	573.3	551.1	528.8
57.5°	512.1	523.3	531.5	520.4	531.5	520.4	514.9	512.1	506.5	484.2	450.9
60°	470.4	475.9	473.1	470.4	475.9	467.5	462.0	450.9	445.3	414.7	392.4
62.5°	423.0	425.8	428.6	423.0	417.5	414.7	403.5	386.9	375.7	350.7	331.1
65°	384.0	375.7	372.9	370.2	364.6	356.2	347.9	328.4	320.0	297.8	278.3
67.5°	325.6	322.8	328.4	320.0	306.2	306.2	297.8	281.1	261.6	247.7	228.2
70°	278.3	275.5	270.0	261.6	258.8	247.7	247.7	228.2	222.6	197.6	180.9
72.5°	228.2	228.2	219.8	211.5	203.1	197.6	194.8	180.9	172.6	158.6	144.7
75°	172.6	172.6	169.8	161.4	155.8	150.2	147.5	136.4	128.0	114.2	105.8
77.5°	122.4	122.4	111.3	105.8	108.5	102.9	97.4	94.6	91.8	83.5	72.4
80°	72.4	69.6	61.3	64.0	61.3	61.3	58.4	55.6	50.0	44.5	38.9
82.5°	19.5	22.2	22.2	22.2	25.1	19.5	19.5	19.5	22.2	22.2	14.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8
87.5°	2.8	5.6	11.1	11.1	11.1	11.1	11.1	8.4	8.4	8.4	5.6
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°	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0
2.5°	2348.9	2346.1	2348.9	2329.4	2373.9	2340.5	2334.9	2329.4	2348.9	2329.4	2301.6
5°	2399.0	2371.1	2362.8	2354.5	2379.4	2340.5	2332.2	2334.9	2321.0	2284.9	2287.6
7.5°	2415.6	2390.7	2365.6	2312.7	2334.9	2326.7	2304.3	2287.6	2265.4	2234.7	2229.2
10°	2421.2	2393.4	2357.2	2340.5	2307.1	2296.0	2287.6	2259.8	2232.0	2179.1	2165.2
12.5°	2404.5	2371.1	2326.7	2312.7	2287.6	2251.4	2232.0	2204.1	2179.1	2137.4	2106.7
15°	2332.2	2304.3	2290.5	2243.1	2232.0	2209.7	2170.7	2131.8	2095.6	2039.9	2023.2
17.5°	2248.7	2237.6	2223.6	2187.4	2184.7	2162.5	2126.3	2092.8	2045.6	1959.2	1931.4
20°	2162.5	2162.5	2117.9	2104.0	2131.8	2087.2	2059.4	2028.8	1931.4	1889.7	1839.6
22.5°	2098.5	2067.8	2042.7	2020.5	2023.2	1995.4	1956.5	1895.2	1859.0	1809.0	1750.5
25°	1973.2	1984.3	1928.7	1920.3	1928.7	1864.6	1845.2	1795.0	1742.1	1694.8	1650.3
27.5°	1895.2	1864.6	1828.5	1797.8	1797.8	1772.8	1717.2	1706.0	1625.2	1580.8	1525.0
30°	1778.3	1756.1	1725.5	1681.0	1675.4	1655.9	1611.4	1583.5	1500.1	1433.2	1402.6
32.5°	1630.8	1622.5	1597.4	1547.4	1530.7	1508.4	1452.8	1405.4	1366.5	1291.3	1255.2
35°	1525.0	1494.5	1441.6	1399.9	1385.9	1347.0	1302.4	1269.0	1227.3	1160.6	1113.2
37.5°	1366.5	1335.9	1285.7	1235.7	1235.7	1196.7	1135.5	1102.1	1043.7	1004.6	965.7
40°	1227.3	1188.4	1138.3	1079.9	1071.5	1015.8	990.8	935.1	898.9	837.7	832.1
42.5°	1071.5	1035.3	990.8	946.2	912.8	885.0	821.0	779.3	740.3	709.7	701.3
45°	929.5	882.2	843.3	787.5	754.2	720.8	679.1	651.3	620.6	587.3	567.7
47.5°	807.1	768.1	712.4	662.4	629.0	612.2	564.9	534.4	509.3	487.1	473.1
50°	681.9	634.6	603.9	548.2	542.7	503.7	464.8	439.7	425.8	406.4	386.9
52.5°	587.3	542.7	500.9	459.2	436.9	423.0	386.9	361.8	342.4	328.4	317.3
55°	495.3	456.4	423.0	381.3	367.3	347.9	306.2	300.6	281.1	261.6	247.7
57.5°	425.8	389.6	350.7	322.8	297.8	283.9	250.4	228.2	217.1	200.4	186.4
60°	361.8	322.8	292.2	258.8	247.7	228.2	203.1	183.7	169.8	155.8	142.0
62.5°	303.3	270.0	236.6	208.7	192.0	180.9	161.4	144.7	130.8	119.7	108.5
65°	250.4	219.8	192.0	164.2	155.8	142.0	128.0	114.2	102.9	89.1	78.0
67.5°	206.0	178.2	150.2	130.8	122.4	116.9	100.2	86.2	78.0	69.6	58.4
70°	161.4	142.0	119.7	102.9	94.6	86.2	75.1	66.8	55.6	50.0	41.8
72.5°	125.3	108.5	89.1	75.1	69.6	64.0	52.9	44.5	38.9	33.4	27.8
75°	89.1	75.1	64.0	50.0	47.3	44.5	36.2	30.6	25.1	19.5	16.7
77.5°	61.3	50.0	38.9	33.4	30.6	25.1	22.2	16.7	14.0	11.1	8.4
80°	33.4	25.1	19.5	16.7	14.0	11.1	11.1	8.4	5.6	5.6	2.8
82.5°	11.1	8.4	5.6	2.8	2.8	2.8	2.8	2.8	2.8	0.0	2.8
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°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	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°	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0
2.5°	2318.3	2287.6	2296.0	2296.0	2290.5	2290.5	2284.9	2276.5	2279.3	2262.5	2226.5
5°	2293.2	2254.3	2248.7	2254.3	2232.0	2226.5	2215.3	2232.0	2181.9	2201.4	2179.1
7.5°	2220.9	2184.7	2176.3	2195.8	2168.0	2151.2	2148.5	2170.7	2126.3	2104.0	2078.9
10°	2140.1	2126.3	2101.2	2087.2	2078.9	2081.7	2059.4	2031.6	2023.2	2017.7	1995.4
12.5°	2067.8	2037.2	2014.9	1998.3	1992.7	1992.7	1956.5	1950.9	1925.9	1920.3	1886.9
15°	1981.5	1945.4	1931.4	1909.2	1889.7	1900.8	1859.0	1847.9	1839.6	1803.4	1809.0
17.5°	1906.3	1867.4	1834.0	1820.1	1803.4	1786.7	1747.7	1756.1	1736.6	1736.6	1686.5
20°	1809.0	1767.2	1742.1	1714.3	1714.3	1692.1	1664.3	1667.0	1641.9	1617.0	1572.4
22.5°	1706.0	1661.4	1630.8	1619.7	1591.9	1586.3	1553.0	1544.6	1511.2	1513.9	1475.0
25°	1597.4	1553.0	1511.2	1513.9	1489.0	1477.8	1458.3	1419.4	1405.4	1388.8	1377.6
27.5°	1469.4	1438.8	1402.6	1399.9	1352.6	1355.3	1330.3	1319.2	1285.7	1294.1	1269.0
30°	1352.6	1308.1	1274.6	1266.3	1246.8	1241.2	1202.3	1185.5	1191.2	1168.8	1155.0
32.5°	1232.8	1166.1	1152.2	1135.5	1124.4	1110.4	1082.6	1093.7	1068.6	1074.2	1052.0
35°	1074.2	1046.4	1010.2	1010.2	999.1	988.0	968.5	979.7	954.6	943.5	921.2
37.5°	940.6	915.7	879.5	890.6	871.1	854.4	837.7	840.4	818.2	815.5	793.1
40°	795.9	782.0	757.0	757.0	743.1	743.1	734.7	726.4	712.4	695.7	670.7
42.5°	659.5	648.4	637.3	640.1	620.6	637.3	615.1	629.0	584.4	581.7	564.9
45°	559.3	534.4	537.1	526.0	514.9	520.4	500.9	506.5	481.5	475.9	459.2
47.5°	453.7	445.3	428.6	423.0	423.0	414.7	406.4	403.5	392.4	378.5	356.2
50°	372.9	342.4	336.7	328.4	322.8	322.8	311.7	295.0	297.8	283.9	261.6
52.5°	292.2	267.1	256.0	253.3	242.2	236.6	222.6	211.5	203.1	197.6	183.7
55°	225.4	203.1	189.3	189.3	172.6	172.6	153.1	144.7	133.6	122.4	114.2
57.5°	169.8	158.6	144.7	133.6	128.0	114.2	102.9	89.1	80.7	64.0	52.9
60°	128.0	116.9	102.9	94.6	89.1	75.1	61.3	50.0	30.6	25.1	22.2
62.5°	94.6	83.5	69.6	64.0	58.4	47.3	33.4	16.7	8.4	8.4	8.4
65°	69.6	55.6	44.5	38.9	33.4	25.1	11.1	5.6	2.8	2.8	2.8
67.5°	47.3	36.2	25.1	22.2	16.7	8.4	2.8	2.8	2.8	2.8	2.8
70°	30.6	22.2	11.1	8.4	5.6	2.8	2.8	2.8	2.8	2.8	2.8
72.5°	19.5	11.1	5.6	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	11.1	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	5.6	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.8	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	2.8	2.8	2.8
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 FEU4C509027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0	2321.0
2.5°	2265.4	2245.9	2257.0	2232.0	2243.1	2262.5	2248.7	2254.3
5°	2187.4	2176.3	2162.5	2126.3	2154.1	2176.3	2165.2	2162.5
7.5°	2104.0	2065.0	2084.5	2073.4	2067.8	2090.1	2065.0	2092.8
10°	2017.7	1989.9	1987.1	1967.6	1967.6	1984.3	1987.1	1970.3
12.5°	1889.7	1875.8	1875.8	1873.0	1870.1	1886.9	1889.7	1881.4
15°	1797.8	1792.3	1778.3	1775.6	1758.9	1783.9	1786.7	1783.9
17.5°	1686.5	1689.3	1675.4	1675.4	1686.5	1694.8	1672.6	1694.8
20°	1611.4	1597.4	1591.9	1566.8	1580.8	1594.7	1594.7	1597.4
22.5°	1502.8	1480.6	1489.0	1475.0	1466.6	1486.1	1486.1	1494.5
25°	1380.4	1380.4	1385.9	1377.6	1383.2	1394.3	1385.9	1405.4
27.5°	1263.5	1274.6	1274.6	1263.5	1269.0	1302.4	1316.4	1294.1
30°	1155.0	1157.7	1166.1	1160.6	1177.2	1188.4	1185.5	1202.3
32.5°	1032.5	1046.4	1052.0	1043.7	1049.2	1074.2	1060.3	1057.5
35°	937.9	912.8	910.1	912.8	923.9	929.5	923.9	943.5
37.5°	801.5	793.1	782.0	784.8	793.1	804.3	809.9	823.7
40°	670.7	659.5	659.5	656.8	648.4	679.1	679.1	679.1
42.5°	556.6	553.8	539.9	539.9	551.1	559.3	553.8	573.3
45°	456.4	445.3	436.9	436.9	445.3	445.3	453.7	450.9
47.5°	359.0	347.9	350.7	342.4	350.7	361.8	347.9	350.7
50°	270.0	270.0	264.4	270.0	267.1	270.0	264.4	258.8
52.5°	183.7	208.7	211.5	200.4	175.3	153.1	139.1	150.2
55°	105.8	94.6	94.6	91.8	86.2	83.5	75.1	83.5
57.5°	52.9	47.3	47.3	47.3	44.5	41.8	36.2	36.2
60°	22.2	19.5	19.5	16.7	14.0	11.1	8.4	11.1
62.5°	8.4	5.6	5.6	5.6	5.6	5.6	5.6	5.6
65°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
67.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
70°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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)