

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: **FLDSQ4C30D010 FEU4C309050 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: FLDSQ4C30D010 FEU4C309050 F4LC-SQLWW-LI
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

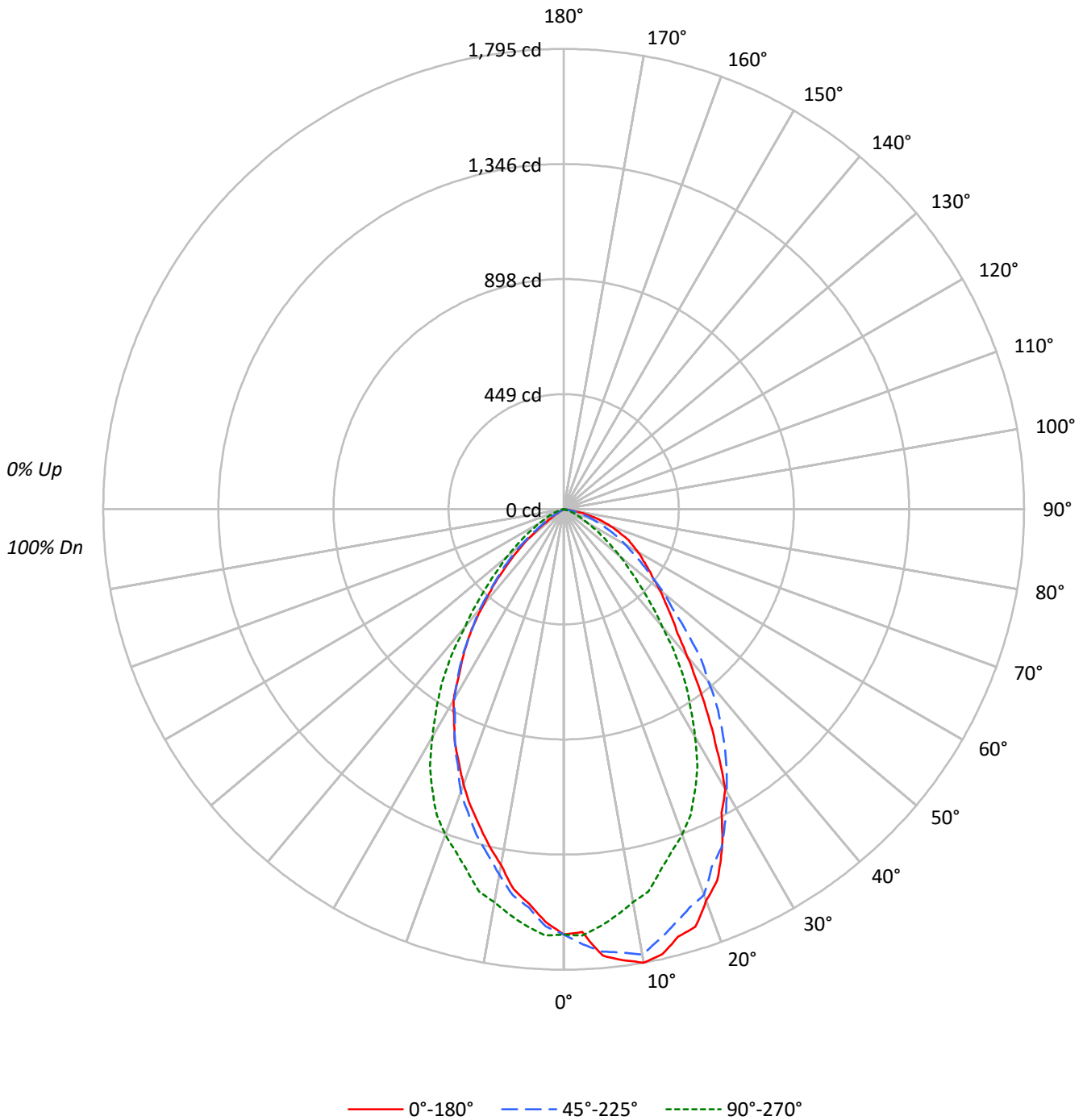
Lumens per Lamp: N/A
 Luminaire Lumens: 2376.0 lumens
 Efficiency: N/A
 Efficacy: 75.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.6
 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: FLDSQ4C30D010 FEU4C309050 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	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°	159940	159940	159940
5°	169210	158052	149577
10°	175850	152472	137864
15°	172325	145524	127263
20°	166734	138568	117139
25°	155533	128864	106858
30°	140395	114045	95662
35°	115647	97625	79368
40°	94380	75360	61089
45°	81096	57230	43939
50°	73389	43562	27755
55°	67542	31424	10026
60°	64821	21478	1525
65°	62603	14521	457
70°	56056	10071	564
75°	45967	5182	0
80°	28727	2223	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.3	6.5
10°-20°	418.4	17.6
20°-30°	558.7	23.5
30°-40°	530.4	22.3
40°-50°	366.6	15.4
50°-60°	202.6	8.5
60°-70°	100.6	4.2
70°-80°	39.6	1.7
80°-90°	3.8	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°	1132.4	47.7
0°-40°	1662.8	70.0
0°-60°	2232.0	93.9
0°-90°	2376.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2376.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1658	1658	1658	1658	1658	
5°	1747	1731	1632	1558	1544	167
15°	1725	1674	1457	1314	1274	488
25°	1461	1455	1210	1004	1004	666
35°	982	1085	829	682	674	615
45°	594	682	419	344	322	464
55°	402	378	187	95	60	361
65°	274	199	64	2	2	266
75°	123	76	14	0	0	131
85°	0	2	0	0	0	11
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°	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6
2.5°	1649.6	1695.3	1699.3	1695.3	1701.3	1699.3	1709.3	1699.3	1711.3	1693.4	1697.3
5°	1747.0	1729.1	1766.9	1747.0	1747.0	1745.1	1739.1	1737.1	1745.1	1719.2	1731.1
7.5°	1772.9	1798.7	1832.5	1790.8	1792.7	1792.7	1780.8	1776.8	1776.8	1729.1	1743.0
10°	1794.8	1778.8	1796.7	1780.8	1794.8	1792.7	1800.7	1774.8	1792.7	1764.9	1762.9
12.5°	1776.8	1770.8	1794.8	1768.9	1761.0	1762.9	1753.0	1747.0	1753.0	1721.2	1719.2
15°	1725.1	1731.1	1766.9	1739.1	1735.1	1731.1	1719.2	1699.3	1715.3	1671.5	1673.5
17.5°	1707.3	1697.3	1703.3	1679.4	1685.4	1681.5	1679.4	1661.6	1657.6	1629.8	1629.8
20°	1623.8	1645.6	1645.6	1629.8	1629.8	1627.8	1602.0	1617.8	1599.9	1592.0	1599.9
22.5°	1566.1	1568.2	1568.2	1554.2	1556.2	1548.3	1534.4	1524.4	1534.4	1524.4	1508.5
25°	1460.9	1464.8	1488.7	1462.8	1458.8	1466.8	1454.9	1448.9	1446.9	1423.1	1454.9
27.5°	1333.6	1373.3	1371.4	1361.4	1373.3	1357.5	1351.5	1353.5	1359.5	1357.5	1365.4
30°	1260.1	1266.0	1272.0	1264.1	1266.0	1260.1	1260.1	1262.1	1278.0	1272.0	1270.0
32.5°	1111.0	1130.9	1146.8	1146.8	1148.8	1154.8	1152.7	1194.5	1204.4	1184.6	1180.6
35°	981.8	995.8	1009.6	1011.6	1037.5	1039.4	1041.5	1053.4	1081.2	1087.2	1085.2
37.5°	858.6	872.5	876.5	894.4	908.3	922.2	938.1	954.0	977.9	997.7	987.8
40°	749.3	755.2	765.2	773.1	800.9	800.9	808.9	840.7	866.6	882.5	880.4
42.5°	657.9	659.8	667.8	681.7	707.6	701.6	707.6	729.5	767.1	769.2	791.0
45°	594.3	592.3	598.3	600.2	616.2	624.1	628.1	644.0	675.7	679.7	681.7
47.5°	536.7	534.6	544.6	548.6	554.5	562.4	562.4	564.5	576.4	586.3	578.4
50°	488.9	488.9	488.9	492.9	502.9	500.8	502.9	510.8	516.7	512.8	510.8
52.5°	437.2	445.2	451.2	453.2	455.1	455.1	457.2	453.2	451.2	445.2	433.3
55°	401.5	409.4	409.4	409.4	409.4	417.4	407.5	409.4	409.4	393.5	377.7
57.5°	365.7	373.7	379.6	371.7	379.6	371.7	367.7	365.7	361.7	345.8	322.0
60°	335.9	339.9	337.9	335.9	339.9	333.9	329.9	322.0	318.0	296.1	280.2
62.5°	302.1	304.1	306.1	302.1	298.2	296.1	288.2	276.3	268.3	250.4	236.5
65°	274.2	268.3	266.3	264.4	260.4	254.4	248.5	234.5	228.5	212.7	198.7
67.5°	232.5	230.6	234.5	228.5	218.7	218.7	212.7	200.7	186.8	176.9	163.0
70°	198.7	196.8	192.8	186.8	184.9	176.9	176.9	163.0	159.0	141.1	129.2
72.5°	163.0	163.0	157.0	151.1	145.1	141.1	139.1	129.2	123.3	113.3	103.3
75°	123.3	123.3	121.2	115.2	111.3	107.3	105.4	97.4	91.4	81.5	75.5
77.5°	87.4	87.4	79.5	75.5	77.5	73.5	69.5	67.6	65.6	59.6	51.7
80°	51.7	49.7	43.8	45.7	43.8	43.8	41.7	39.7	35.7	31.8	27.8
82.5°	13.9	15.9	15.9	15.9	17.9	13.9	13.9	13.9	15.9	15.9	10.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0
87.5°	2.0	4.0	7.9	7.9	7.9	7.9	7.9	6.0	6.0	6.0	4.0
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°	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6
2.5°	1677.5	1675.5	1677.5	1663.5	1695.3	1671.5	1667.5	1663.5	1677.5	1663.5	1643.7
5°	1713.2	1693.4	1687.4	1681.5	1699.3	1671.5	1665.6	1667.5	1657.6	1631.8	1633.7
7.5°	1725.1	1707.3	1689.4	1651.6	1667.5	1661.6	1645.6	1633.7	1617.8	1596.0	1592.0
10°	1729.1	1709.3	1683.4	1671.5	1647.7	1639.7	1633.7	1613.9	1594.0	1556.2	1546.3
12.5°	1717.2	1693.4	1661.6	1651.6	1633.7	1607.9	1594.0	1574.1	1556.2	1526.4	1504.5
15°	1665.6	1645.6	1635.7	1602.0	1594.0	1578.0	1550.3	1522.5	1496.6	1456.8	1444.9
17.5°	1605.9	1598.0	1588.0	1562.2	1560.2	1544.3	1518.5	1494.6	1460.9	1399.2	1379.3
20°	1544.3	1544.3	1512.5	1502.6	1522.5	1490.6	1470.7	1448.9	1379.3	1349.5	1313.8
22.5°	1498.6	1476.7	1458.8	1443.0	1444.9	1425.0	1397.2	1353.5	1327.6	1291.9	1250.2
25°	1409.2	1417.1	1377.4	1371.4	1377.4	1331.6	1317.7	1281.9	1244.2	1210.4	1178.6
27.5°	1353.5	1331.6	1305.8	1283.9	1283.9	1266.0	1226.3	1218.4	1160.7	1128.9	1089.1
30°	1270.0	1254.1	1232.2	1200.5	1196.5	1182.6	1150.8	1130.9	1071.3	1023.6	1001.7
32.5°	1164.7	1158.7	1140.8	1105.1	1093.2	1077.2	1037.5	1003.7	975.9	922.2	896.4
35°	1089.1	1067.3	1029.6	999.7	989.8	962.0	930.1	906.3	876.5	828.8	795.0
37.5°	975.9	954.0	918.2	882.5	882.5	854.7	810.9	787.1	745.3	717.5	689.7
40°	876.5	848.7	812.9	771.2	765.2	725.4	707.6	667.8	641.9	598.3	594.3
42.5°	765.2	739.3	707.6	675.7	651.9	632.0	586.3	556.5	528.7	506.8	500.8
45°	663.8	630.0	602.2	562.4	538.6	514.8	485.0	465.1	443.2	419.4	405.5
47.5°	576.4	548.6	508.8	473.0	449.2	437.2	403.4	381.6	363.7	347.8	337.9
50°	487.0	453.2	431.3	391.5	387.5	359.7	331.9	314.0	304.1	290.2	276.3
52.5°	419.4	387.5	357.7	328.0	312.0	302.1	276.3	258.4	244.5	234.5	226.6
55°	353.7	326.0	302.1	272.3	262.3	248.5	218.7	214.7	200.7	186.8	176.9
57.5°	304.1	278.2	250.4	230.6	212.7	202.8	178.9	163.0	155.0	143.1	133.2
60°	258.4	230.6	208.7	184.9	176.9	163.0	145.1	131.2	121.2	111.3	101.4
62.5°	216.6	192.8	169.0	149.0	137.1	129.2	115.2	103.3	93.4	85.5	77.5
65°	178.9	157.0	137.1	117.3	111.3	101.4	91.4	81.5	73.5	63.6	55.7
67.5°	147.1	127.2	107.3	93.4	87.4	83.5	71.6	61.6	55.7	49.7	41.7
70°	115.2	101.4	85.5	73.5	67.6	61.6	53.7	47.7	39.7	35.7	29.8
72.5°	89.5	77.5	63.6	53.7	49.7	45.7	37.8	31.8	27.8	23.8	19.9
75°	63.6	53.7	45.7	35.7	33.8	31.8	25.9	21.9	17.9	13.9	11.9
77.5°	43.8	35.7	27.8	23.8	21.9	17.9	15.9	11.9	10.0	7.9	6.0
80°	23.8	17.9	13.9	11.9	10.0	7.9	7.9	6.0	4.0	4.0	2.0
82.5°	7.9	6.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
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°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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°	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6
2.5°	1655.6	1633.7	1639.7	1639.7	1635.7	1635.7	1631.8	1625.8	1627.8	1615.8	1590.0
5°	1637.7	1609.9	1605.9	1609.9	1594.0	1590.0	1582.1	1594.0	1558.2	1572.1	1556.2
7.5°	1586.1	1560.2	1554.2	1568.2	1548.3	1536.3	1534.4	1550.3	1518.5	1502.6	1484.7
10°	1528.4	1518.5	1500.6	1490.6	1484.7	1486.6	1470.7	1450.9	1444.9	1440.9	1425.0
12.5°	1476.7	1454.9	1439.0	1427.1	1423.1	1423.1	1397.2	1393.3	1375.4	1371.4	1347.6
15°	1415.1	1389.3	1379.3	1363.4	1349.5	1357.5	1327.6	1319.7	1313.8	1287.9	1291.9
17.5°	1361.4	1333.6	1309.8	1299.8	1287.9	1276.0	1248.1	1254.1	1240.2	1240.2	1204.4
20°	1291.9	1262.1	1244.2	1224.3	1224.3	1208.4	1188.6	1190.5	1172.6	1154.8	1122.9
22.5°	1218.4	1186.5	1164.7	1156.7	1136.9	1132.9	1109.1	1103.1	1079.2	1081.2	1053.4
25°	1140.8	1109.1	1079.2	1081.2	1063.3	1055.4	1041.5	1013.7	1003.7	991.8	983.8
27.5°	1049.4	1027.5	1001.7	999.7	965.9	967.9	950.1	942.1	918.2	924.2	906.3
30°	965.9	934.2	910.3	904.3	890.4	886.4	858.6	846.6	850.7	834.7	824.8
32.5°	880.4	832.8	822.8	810.9	803.0	793.0	773.1	781.1	763.2	767.1	751.3
35°	767.1	747.3	721.4	721.4	713.5	705.6	691.7	699.6	681.7	673.8	657.9
37.5°	671.8	653.9	628.1	636.0	622.1	610.2	598.3	600.2	584.3	582.4	566.4
40°	568.4	558.5	540.6	540.6	530.7	530.7	524.7	518.7	508.8	496.9	479.0
42.5°	471.0	463.1	455.1	457.2	443.2	455.1	439.2	449.2	417.4	415.4	403.4
45°	399.5	381.6	383.6	375.6	367.7	371.7	357.7	361.7	343.9	339.9	328.0
47.5°	324.0	318.0	306.1	302.1	302.1	296.1	290.2	288.2	280.2	270.3	254.4
50°	266.3	244.5	240.5	234.5	230.6	230.6	222.6	210.7	212.7	202.8	186.8
52.5°	208.7	190.8	182.8	180.9	172.9	169.0	159.0	151.1	145.1	141.1	131.2
55°	161.0	145.1	135.2	135.2	123.3	123.3	109.3	103.3	95.4	87.4	81.5
57.5°	121.2	113.3	103.3	95.4	91.4	81.5	73.5	63.6	57.6	45.7	37.8
60°	91.4	83.5	73.5	67.6	63.6	53.7	43.8	35.7	21.9	17.9	15.9
62.5°	67.6	59.6	49.7	45.7	41.7	33.8	23.8	11.9	6.0	6.0	6.0
65°	49.7	39.7	31.8	27.8	23.8	17.9	7.9	4.0	2.0	2.0	2.0
67.5°	33.8	25.9	17.9	15.9	11.9	6.0	2.0	2.0	2.0	2.0	2.0
70°	21.9	15.9	7.9	6.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
72.5°	13.9	7.9	4.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	7.9	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	4.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.0	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	2.0	2.0	2.0
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: FLDSQ4C30D010 FEU4C309050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6	1657.6
2.5°	1617.8	1603.9	1611.8	1594.0	1602.0	1615.8	1605.9	1609.9
5°	1562.2	1554.2	1544.3	1518.5	1538.3	1554.2	1546.3	1544.3
7.5°	1502.6	1474.7	1488.7	1480.7	1476.7	1492.6	1474.7	1494.6
10°	1440.9	1421.1	1419.1	1405.2	1405.2	1417.1	1419.1	1407.1
12.5°	1349.5	1339.6	1339.6	1337.6	1335.6	1347.6	1349.5	1343.6
15°	1283.9	1280.0	1270.0	1268.1	1256.1	1274.0	1276.0	1274.0
17.5°	1204.4	1206.4	1196.5	1196.5	1204.4	1210.4	1194.5	1210.4
20°	1150.8	1140.8	1136.9	1118.9	1128.9	1138.9	1138.9	1140.8
22.5°	1073.2	1057.4	1063.3	1053.4	1047.4	1061.3	1061.3	1067.3
25°	985.8	985.8	989.8	983.8	987.8	995.8	989.8	1003.7
27.5°	902.3	910.3	910.3	902.3	906.3	930.1	940.1	924.2
30°	824.8	826.8	832.8	828.8	840.7	848.7	846.6	858.6
32.5°	737.4	747.3	751.3	745.3	749.3	767.1	757.3	755.2
35°	669.8	651.9	650.0	651.9	659.8	663.8	659.8	673.8
37.5°	572.4	566.4	558.5	560.5	566.4	574.4	578.4	588.3
40°	479.0	471.0	471.0	469.1	463.1	485.0	485.0	485.0
42.5°	397.5	395.5	385.6	385.6	393.5	399.5	395.5	409.4
45°	326.0	318.0	312.0	312.0	318.0	318.0	324.0	322.0
47.5°	256.4	248.5	250.4	244.5	250.4	258.4	248.5	250.4
50°	192.8	192.8	188.8	192.8	190.8	192.8	188.8	184.9
52.5°	131.2	149.0	151.1	143.1	125.2	109.3	99.4	107.3
55°	75.5	67.6	67.6	65.6	61.6	59.6	53.7	59.6
57.5°	37.8	33.8	33.8	33.8	31.8	29.8	25.9	25.9
60°	15.9	13.9	13.9	11.9	10.0	7.9	6.0	7.9
62.5°	6.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
65°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)