

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 FEU4C309030 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 FEU4C309030 F4LC-SQLWW-LI
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

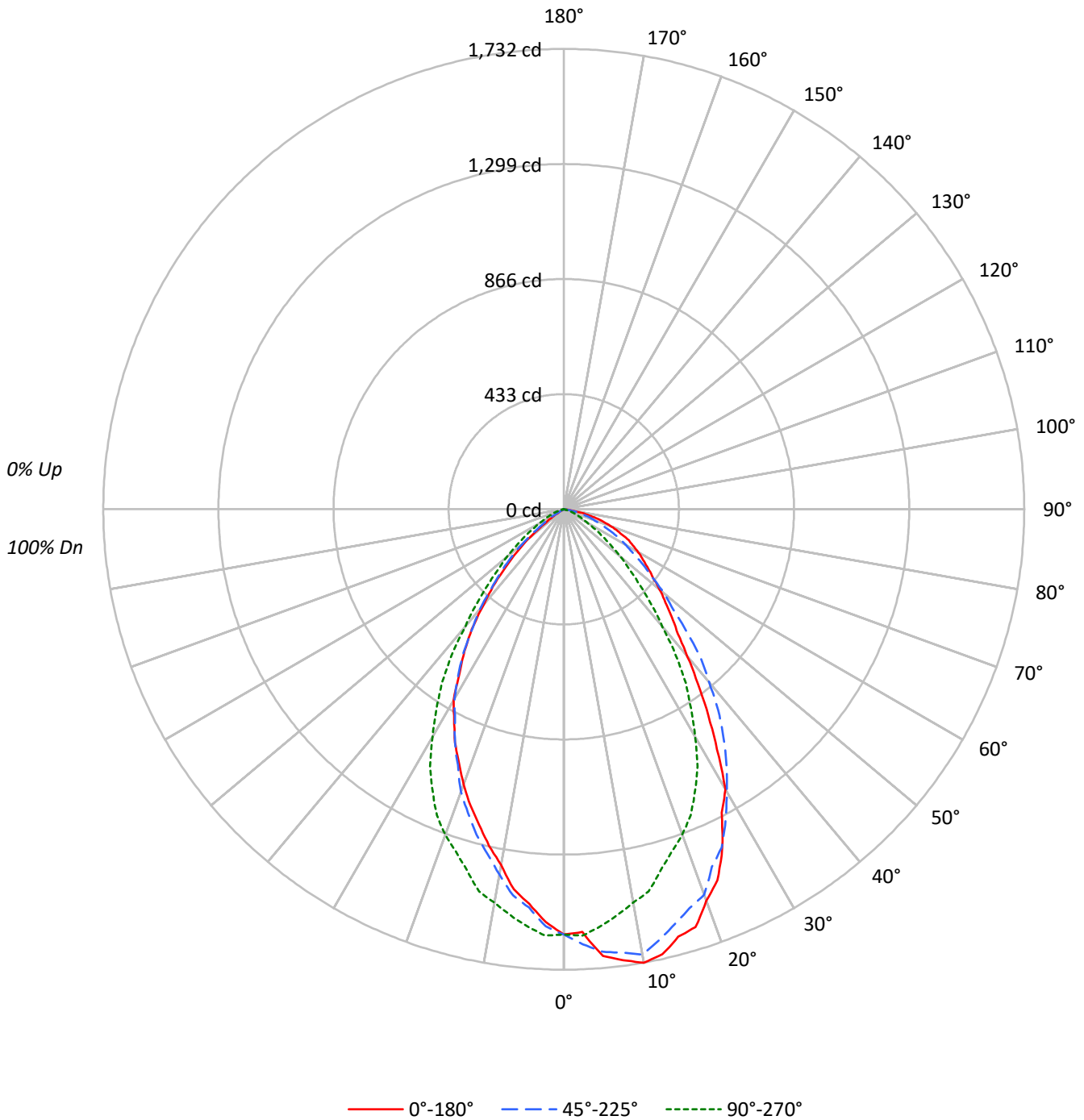
Lumens per Lamp: N/A
 Luminaire Lumens: 2293.0 lumens
 Efficiency: N/A
 Efficacy: 72.6 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C309030 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				100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90				90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80				80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72				72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64				64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58				58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53				53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48				48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44				44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38				38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	154344	154344	154344
5°	163302	152531	144356
10°	169707	147152	133053
15°	166311	140439	122818
20°	160912	133732	113052
25°	150093	124360	103121
30°	135493	110057	92319
35°	111607	94221	76588
40°	91080	72728	58948
45°	78257	55224	42397
50°	70822	42046	26780
55°	65187	30331	9690
60°	62563	20726	1486
65°	60434	14018	457
70°	54110	9733	564
75°	44364	5033	0
80°	27727	2111	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.9	6.5
10°-20°	403.8	17.6
20°-30°	539.2	23.5
30°-40°	511.9	22.3
40°-50°	353.8	15.4
50°-60°	195.5	8.5
60°-70°	97.1	4.2
70°-80°	38.2	1.7
80°-90°	3.6	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°	1092.9	47.7
0°-40°	1604.7	70.0
0°-60°	2154.0	93.9
0°-90°	2293.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2293.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1600	1600	1600	1600	1600	
5°	1686	1671	1575	1504	1490	161
15°	1665	1615	1406	1268	1230	471
25°	1410	1404	1168	969	969	643
35°	948	1047	800	658	650	594
45°	574	658	405	332	311	447
55°	388	364	180	92	58	349
65°	265	192	61	2	2	257
75°	119	73	14	0	0	127
85°	0	2	0	0	0	11
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°	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6
2.5°	1592.0	1636.1	1639.9	1636.1	1641.9	1639.9	1649.5	1639.9	1651.5	1634.2	1638.0
5°	1686.0	1668.7	1705.2	1686.0	1686.0	1684.1	1678.3	1676.4	1684.1	1659.2	1670.7
7.5°	1710.9	1735.9	1768.5	1728.2	1730.1	1730.1	1718.6	1714.8	1714.8	1668.7	1682.2
10°	1732.1	1716.7	1733.9	1718.6	1732.1	1730.1	1737.8	1712.8	1730.1	1703.3	1701.3
12.5°	1714.8	1709.0	1732.1	1707.1	1699.4	1701.3	1691.8	1686.0	1691.8	1661.0	1659.2
15°	1664.9	1670.7	1705.2	1678.3	1674.5	1670.7	1659.2	1639.9	1655.3	1613.1	1615.1
17.5°	1647.7	1638.0	1643.8	1620.8	1626.6	1622.7	1620.8	1603.6	1599.6	1572.8	1572.8
20°	1567.1	1588.2	1588.2	1572.8	1572.8	1570.9	1546.0	1561.3	1544.0	1536.4	1544.0
22.5°	1511.4	1513.4	1513.4	1499.9	1501.9	1494.2	1480.8	1471.1	1480.8	1471.1	1455.8
25°	1409.8	1413.7	1436.7	1411.7	1407.9	1415.5	1404.0	1398.3	1396.4	1373.4	1404.0
27.5°	1287.0	1325.4	1323.5	1313.9	1325.4	1310.0	1304.3	1306.2	1312.0	1310.0	1317.7
30°	1216.1	1221.8	1227.6	1219.9	1221.8	1216.1	1216.1	1218.0	1233.3	1227.6	1225.6
32.5°	1072.2	1091.4	1106.8	1106.8	1108.6	1114.4	1112.5	1152.8	1162.4	1143.2	1139.4
35°	947.5	961.0	974.4	976.3	1001.3	1003.1	1005.1	1016.6	1043.4	1049.2	1047.2
37.5°	828.6	842.0	845.9	863.1	876.6	890.0	905.4	920.7	943.7	962.9	953.3
40°	723.1	728.8	738.5	746.1	773.0	773.0	780.6	811.4	836.3	851.6	849.7
42.5°	634.9	636.8	644.5	657.9	682.9	677.1	682.9	704.0	740.3	742.3	763.4
45°	573.5	571.6	577.4	579.2	594.6	602.3	606.1	621.5	652.1	656.0	657.9
47.5°	517.9	516.0	525.6	529.4	535.1	542.8	542.8	544.7	556.2	565.9	558.2
50°	471.8	471.8	471.8	475.7	485.3	483.3	485.3	493.0	498.7	494.8	493.0
52.5°	421.9	429.6	435.4	437.4	439.2	439.2	441.2	437.4	435.4	429.6	418.1
55°	387.5	395.1	395.1	395.1	395.1	402.8	393.2	395.1	395.1	379.8	364.5
57.5°	353.0	360.6	366.3	358.7	366.3	358.7	354.8	353.0	349.1	333.7	310.7
60°	324.2	328.0	326.1	324.2	328.0	322.2	318.4	310.7	306.9	285.8	270.5
62.5°	291.6	293.4	295.4	291.6	287.7	285.8	278.1	266.6	259.0	241.7	228.2
65°	264.7	259.0	257.0	255.1	251.3	245.5	239.8	226.3	220.6	205.2	191.8
67.5°	224.4	222.5	226.3	220.6	211.0	211.0	205.2	193.7	180.3	170.7	157.3
70°	191.8	189.9	186.1	180.3	178.4	170.7	170.7	157.3	153.4	136.2	124.7
72.5°	157.3	157.3	151.5	145.8	140.0	136.2	134.3	124.7	119.0	109.3	99.7
75°	119.0	119.0	117.0	111.2	107.4	103.6	101.7	94.0	88.2	78.7	72.9
77.5°	84.4	84.4	76.7	72.9	74.8	70.9	67.1	65.2	63.3	57.6	49.9
80°	49.9	47.9	42.2	44.1	42.2	42.2	40.3	38.3	34.5	30.7	26.8
82.5°	13.5	15.3	15.3	15.3	17.3	13.5	13.5	13.5	15.3	15.3	9.6
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	3.8	7.7	7.7	7.7	7.7	7.7	5.8	5.8	5.8	3.8
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°	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6
2.5°	1618.9	1616.9	1618.9	1605.4	1636.1	1613.1	1609.3	1605.4	1618.9	1605.4	1586.3
5°	1653.4	1634.2	1628.4	1622.7	1639.9	1613.1	1607.4	1609.3	1599.6	1574.8	1576.7
7.5°	1664.9	1647.7	1630.4	1593.9	1609.3	1603.6	1588.2	1576.7	1561.3	1540.2	1536.4
10°	1668.7	1649.5	1624.6	1613.1	1590.1	1582.4	1576.7	1557.5	1538.3	1501.9	1492.3
12.5°	1657.2	1634.2	1603.6	1593.9	1576.7	1551.7	1538.3	1519.1	1501.9	1473.1	1452.0
15°	1607.4	1588.2	1578.6	1546.0	1538.3	1522.9	1496.1	1469.3	1444.3	1405.9	1394.4
17.5°	1549.8	1542.2	1532.5	1507.6	1505.7	1490.4	1465.4	1442.4	1409.8	1350.3	1331.1
20°	1490.4	1490.4	1459.7	1450.1	1469.3	1438.5	1419.4	1398.3	1331.1	1302.4	1267.9
22.5°	1446.3	1425.2	1407.9	1392.5	1394.4	1375.3	1348.4	1306.2	1281.3	1246.8	1206.5
25°	1359.9	1367.6	1329.3	1323.5	1329.3	1285.1	1271.7	1237.1	1200.7	1168.1	1137.4
27.5°	1306.2	1285.1	1260.2	1239.1	1239.1	1221.8	1183.5	1175.8	1120.1	1089.5	1051.1
30°	1225.6	1210.3	1189.2	1158.5	1154.7	1141.3	1110.6	1091.4	1033.9	987.8	966.7
32.5°	1124.0	1118.3	1101.0	1066.5	1055.0	1039.6	1001.3	968.6	941.8	890.0	865.1
35°	1051.1	1030.0	993.6	964.8	955.2	928.4	897.6	874.6	845.9	799.9	767.2
37.5°	941.8	920.7	886.1	851.6	851.6	824.8	782.6	759.6	719.3	692.4	665.6
40°	845.9	819.0	784.5	744.3	738.5	700.1	682.9	644.5	619.5	577.4	573.5
42.5°	738.5	713.5	682.9	652.1	629.1	610.0	565.9	537.1	510.2	489.1	483.3
45°	640.6	608.0	581.2	542.8	519.8	496.8	468.0	448.9	427.7	404.7	391.3
47.5°	556.2	529.4	491.0	456.5	433.5	421.9	389.3	368.3	351.0	335.7	326.1
50°	470.0	437.4	416.2	377.8	374.0	347.2	320.4	303.1	293.4	280.1	266.6
52.5°	404.7	374.0	345.2	316.5	301.1	291.6	266.6	249.3	236.0	226.3	218.7
55°	341.4	314.6	291.6	262.8	253.2	239.8	211.0	207.2	193.7	180.3	170.7
57.5°	293.4	268.5	241.7	222.5	205.2	195.7	172.6	157.3	149.6	138.1	128.5
60°	249.3	222.5	201.4	178.4	170.7	157.3	140.0	126.6	117.0	107.4	97.8
62.5°	209.1	186.1	163.1	143.8	132.3	124.7	111.2	99.7	90.2	82.5	74.8
65°	172.6	151.5	132.3	113.2	107.4	97.8	88.2	78.7	70.9	61.4	53.7
67.5°	142.0	122.8	103.6	90.2	84.4	80.6	69.1	59.4	53.7	47.9	40.3
70°	111.2	97.8	82.5	70.9	65.2	59.4	51.8	46.1	38.3	34.5	28.8
72.5°	86.3	74.8	61.4	51.8	47.9	44.1	36.4	30.7	26.8	23.0	19.2
75°	61.4	51.8	44.1	34.5	32.6	30.7	24.9	21.1	17.3	13.5	11.5
77.5°	42.2	34.5	26.8	23.0	21.1	17.3	15.3	11.5	9.6	7.7	5.8
80°	23.0	17.3	13.5	11.5	9.6	7.7	7.7	5.8	3.8	3.8	2.0
82.5°	7.7	5.8	3.8	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°	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6
2.5°	1597.8	1576.7	1582.4	1582.4	1578.6	1578.6	1574.8	1569.0	1570.9	1559.4	1534.5
5°	1580.5	1553.7	1549.8	1553.7	1538.3	1534.5	1526.8	1538.3	1503.8	1517.2	1501.9
7.5°	1530.7	1505.7	1499.9	1513.4	1494.2	1482.6	1480.8	1496.1	1465.4	1450.1	1432.8
10°	1475.0	1465.4	1448.2	1438.5	1432.8	1434.7	1419.4	1400.2	1394.4	1390.6	1375.3
12.5°	1425.2	1404.0	1388.7	1377.2	1373.4	1373.4	1348.4	1344.6	1327.3	1323.5	1300.5
15°	1365.6	1340.8	1331.1	1315.8	1302.4	1310.0	1281.3	1273.6	1267.9	1242.9	1246.8
17.5°	1313.9	1287.0	1264.0	1254.4	1242.9	1231.4	1204.5	1210.3	1196.9	1196.9	1162.4
20°	1246.8	1218.0	1200.7	1181.5	1181.5	1166.2	1147.0	1148.9	1131.6	1114.4	1083.7
22.5°	1175.8	1145.1	1124.0	1116.3	1097.1	1093.3	1070.3	1064.5	1041.5	1043.4	1016.6
25°	1101.0	1070.3	1041.5	1043.4	1026.2	1018.5	1005.1	978.3	968.6	957.1	949.5
27.5°	1012.8	991.6	966.7	964.8	932.2	934.1	916.9	909.2	886.1	891.9	874.6
30°	932.2	901.5	878.5	872.8	859.3	855.5	828.6	817.1	821.0	805.6	796.0
32.5°	849.7	803.7	794.1	782.6	774.9	765.3	746.1	753.8	736.5	740.3	725.0
35°	740.3	721.2	696.2	696.2	688.6	680.9	667.5	675.2	657.9	650.2	634.9
37.5°	648.3	631.1	606.1	613.8	600.3	588.9	577.4	579.2	563.9	562.0	546.6
40°	548.6	539.0	521.7	521.7	512.1	512.1	506.3	500.6	491.0	479.5	462.2
42.5°	454.6	446.9	439.2	441.2	427.7	439.2	423.9	433.5	402.8	400.9	389.3
45°	385.5	368.3	370.2	362.5	354.8	358.7	345.2	349.1	331.8	328.0	316.5
47.5°	312.7	306.9	295.4	291.6	291.6	285.8	280.1	278.1	270.5	260.8	245.5
50°	257.0	236.0	232.1	226.3	222.5	222.5	214.8	203.3	205.2	195.7	180.3
52.5°	201.4	184.1	176.4	174.6	166.9	163.1	153.4	145.8	140.0	136.2	126.6
55°	155.3	140.0	130.5	130.5	119.0	119.0	105.5	99.7	92.1	84.4	78.7
57.5°	117.0	109.3	99.7	92.1	88.2	78.7	70.9	61.4	55.6	44.1	36.4
60°	88.2	80.6	70.9	65.2	61.4	51.8	42.2	34.5	21.1	17.3	15.3
62.5°	65.2	57.6	47.9	44.1	40.3	32.6	23.0	11.5	5.8	5.8	5.8
65°	47.9	38.3	30.7	26.8	23.0	17.3	7.7	3.8	2.0	2.0	2.0
67.5°	32.6	24.9	17.3	15.3	11.5	5.8	2.0	2.0	2.0	2.0	2.0
70°	21.1	15.3	7.7	5.8	3.8	2.0	2.0	2.0	2.0	2.0	2.0
72.5°	13.5	7.7	3.8	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	7.7	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	3.8	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 FEU4C309030 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6	1599.6
2.5°	1561.3	1547.9	1555.5	1538.3	1546.0	1559.4	1549.8	1553.7
5°	1507.6	1499.9	1490.4	1465.4	1484.6	1499.9	1492.3	1490.4
7.5°	1450.1	1423.2	1436.7	1429.0	1425.2	1440.5	1423.2	1442.4
10°	1390.6	1371.4	1369.5	1356.1	1356.1	1367.6	1369.5	1358.0
12.5°	1302.4	1292.8	1292.8	1290.9	1288.9	1300.5	1302.4	1296.7
15°	1239.1	1235.3	1225.6	1223.8	1212.3	1229.5	1231.4	1229.5
17.5°	1162.4	1164.2	1154.7	1154.7	1162.4	1168.1	1152.8	1168.1
20°	1110.6	1101.0	1097.1	1079.9	1089.5	1099.1	1099.1	1101.0
22.5°	1035.7	1020.4	1026.2	1016.6	1010.8	1024.3	1024.3	1030.0
25°	951.4	951.4	955.2	949.5	953.3	961.0	955.2	968.6
27.5°	870.8	878.5	878.5	870.8	874.6	897.6	907.2	891.9
30°	796.0	797.9	803.7	799.9	811.4	819.0	817.1	828.6
32.5°	711.6	721.2	725.0	719.3	723.1	740.3	730.8	728.8
35°	646.4	629.1	627.3	629.1	636.8	640.6	636.8	650.2
37.5°	552.4	546.6	539.0	540.9	546.6	554.4	558.2	567.7
40°	462.2	454.6	454.6	452.7	446.9	468.0	468.0	468.0
42.5°	383.6	381.7	372.1	372.1	379.8	385.5	381.7	395.1
45°	314.6	306.9	301.1	301.1	306.9	306.9	312.7	310.7
47.5°	247.5	239.8	241.7	236.0	241.7	249.3	239.8	241.7
50°	186.1	186.1	182.2	186.1	184.1	186.1	182.2	178.4
52.5°	126.6	143.8	145.8	138.1	120.8	105.5	95.9	103.6
55°	72.9	65.2	65.2	63.3	59.4	57.6	51.8	57.6
57.5°	36.4	32.6	32.6	32.6	30.7	28.8	24.9	24.9
60°	15.3	13.5	13.5	11.5	9.6	7.7	5.8	7.7
62.5°	5.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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)