

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 FEU4C309027 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 FEU4C309027 F4LC-SQLWW-LI
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

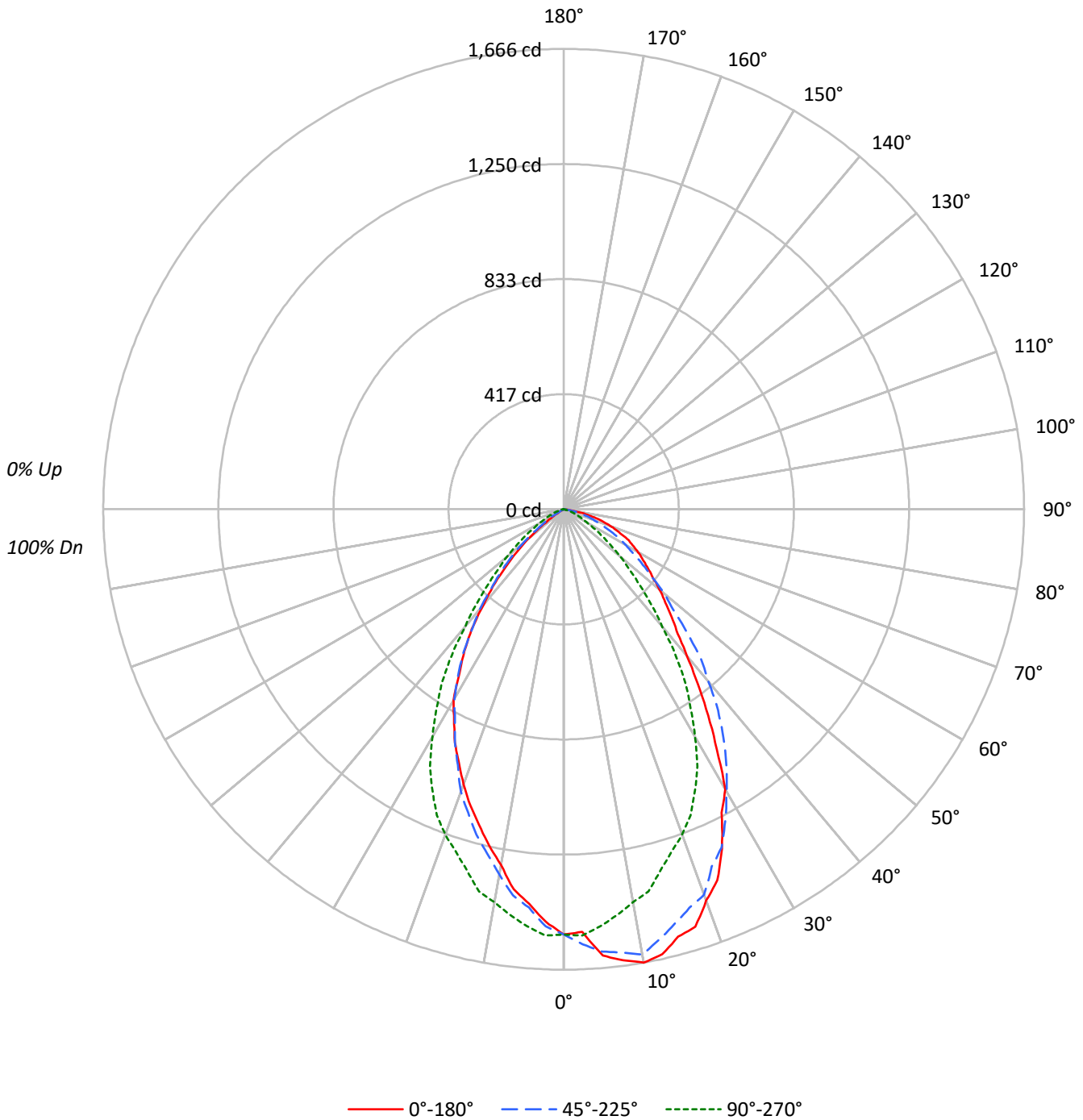
Lumens per Lamp: N/A
 Luminaire Lumens: 2205.0 lumens
 Efficiency: N/A
 Efficacy: 69.8 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C309027 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°	148429	148429	148429
5°	157035	146671	138816
10°	163191	141499	127949
15°	159928	135055	118103
20°	154741	128598	108709
25°	144333	119591	99171
30°	130290	105834	88776
35°	107331	90605	73655
40°	87591	69931	56693
45°	75255	53109	40773
50°	68105	40425	25759
55°	62680	29170	9320
60°	60151	19935	1428
65°	58105	13470	434
70°	52022	9366	536
75°	42649	4809	0
80°	26672	2056	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.1	6.5
10°-20°	388.3	17.6
20°-30°	518.5	23.5
30°-40°	492.2	22.3
40°-50°	340.2	15.4
50°-60°	188.0	8.5
60°-70°	93.4	4.2
70°-80°	36.8	1.7
80°-90°	3.5	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°	1050.9	47.7
0°-40°	1543.1	70.0
0°-60°	2071.4	93.9
0°-90°	2205.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2205.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1538	1538	1538	1538	1538	
5°	1621	1606	1514	1446	1433	155
15°	1601	1553	1352	1219	1182	453
25°	1356	1350	1123	932	932	618
35°	911	1007	769	633	625	571
45°	552	633	389	319	299	430
55°	373	350	173	88	55	335
65°	254	184	59	2	2	247
75°	114	70	13	0	0	122
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°	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3
2.5°	1530.9	1573.3	1577.0	1573.3	1578.9	1577.0	1586.2	1577.0	1588.1	1571.5	1575.2
5°	1621.3	1604.7	1639.7	1621.3	1621.3	1619.5	1613.9	1612.0	1619.5	1595.5	1606.5
7.5°	1645.3	1669.3	1700.6	1661.9	1663.7	1663.7	1652.7	1649.0	1649.0	1604.7	1617.6
10°	1665.6	1650.8	1667.4	1652.7	1665.6	1663.7	1671.1	1647.1	1663.7	1637.9	1636.0
12.5°	1649.0	1643.4	1665.6	1641.6	1634.2	1636.0	1626.9	1621.3	1626.9	1597.3	1595.5
15°	1601.0	1606.5	1639.7	1613.9	1610.2	1606.5	1595.5	1577.0	1591.8	1551.2	1553.1
17.5°	1584.4	1575.2	1580.7	1558.6	1564.1	1560.4	1558.6	1542.0	1538.3	1512.5	1512.5
20°	1507.0	1527.2	1527.2	1512.5	1512.5	1510.7	1486.7	1501.4	1484.8	1477.4	1484.8
22.5°	1453.4	1455.3	1455.3	1442.4	1444.2	1436.9	1423.9	1414.7	1423.9	1414.7	1399.9
25°	1355.7	1359.4	1381.5	1357.5	1353.8	1361.2	1350.2	1344.6	1342.8	1320.7	1350.2
27.5°	1237.6	1274.5	1272.7	1263.4	1274.5	1259.8	1254.3	1256.1	1261.6	1259.8	1267.1
30°	1169.4	1174.9	1180.5	1173.1	1174.9	1169.4	1169.4	1171.2	1186.0	1180.5	1178.6
32.5°	1031.0	1049.5	1064.3	1064.3	1066.1	1071.7	1069.8	1108.5	1117.8	1099.3	1095.6
35°	911.2	924.1	937.0	938.8	962.8	964.6	966.5	977.6	1003.4	1008.9	1007.1
37.5°	796.8	809.7	813.4	830.0	842.9	855.8	870.6	885.4	907.5	925.9	916.7
40°	695.4	700.9	710.1	717.5	743.3	743.3	750.7	780.2	804.2	819.0	817.1
42.5°	610.5	612.4	619.7	632.7	656.7	651.1	656.7	677.0	711.9	713.8	734.1
45°	551.5	549.6	555.2	557.0	571.8	579.2	582.9	597.6	627.1	630.8	632.7
47.5°	498.0	496.2	505.4	509.1	514.6	522.0	522.0	523.8	534.9	544.1	536.8
50°	453.7	453.7	453.7	457.4	466.7	464.8	466.7	474.0	479.5	475.9	474.0
52.5°	405.8	413.1	418.7	420.6	422.4	422.4	424.3	420.6	418.7	413.1	402.1
55°	372.6	380.0	380.0	380.0	380.0	387.3	378.2	380.0	380.0	365.2	350.5
57.5°	339.4	346.8	352.3	344.9	352.3	344.9	341.2	339.4	335.7	320.9	298.8
60°	311.7	315.4	313.5	311.7	315.4	309.9	306.2	298.8	295.1	274.8	260.1
62.5°	280.4	282.2	284.1	280.4	276.7	274.8	267.4	256.4	249.0	232.4	219.5
65°	254.5	249.0	247.1	245.3	241.6	236.1	230.6	217.7	212.1	197.3	184.4
67.5°	215.8	214.0	217.7	212.1	202.9	202.9	197.3	186.3	173.4	164.2	151.2
70°	184.4	182.6	178.9	173.4	171.6	164.2	164.2	151.2	147.6	130.9	119.9
72.5°	151.2	151.2	145.7	140.2	134.6	130.9	129.1	119.9	114.4	105.1	95.9
75°	114.4	114.4	112.5	106.9	103.3	99.6	97.8	90.4	84.8	75.7	70.1
77.5°	81.2	81.2	73.8	70.1	71.9	68.2	64.5	62.7	60.8	55.4	48.0
80°	48.0	46.1	40.6	42.4	40.6	40.6	38.7	36.9	33.2	29.5	25.8
82.5°	12.9	14.7	14.7	14.7	16.6	12.9	12.9	12.9	14.7	14.7	9.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	1.9
87.5°	1.9	3.7	7.4	7.4	7.4	7.4	7.4	5.6	5.6	5.6	3.7
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°	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3
2.5°	1556.8	1554.9	1556.8	1543.8	1573.3	1551.2	1547.5	1543.8	1556.8	1543.8	1525.4
5°	1589.9	1571.5	1565.9	1560.4	1577.0	1551.2	1545.7	1547.5	1538.3	1514.3	1516.1
7.5°	1601.0	1584.4	1567.8	1532.8	1547.5	1542.0	1527.2	1516.1	1501.4	1481.1	1477.4
10°	1604.7	1586.2	1562.2	1551.2	1529.1	1521.7	1516.1	1497.7	1479.3	1444.2	1435.0
12.5°	1593.6	1571.5	1542.0	1532.8	1516.1	1492.2	1479.3	1460.8	1444.2	1416.6	1396.3
15°	1545.7	1527.2	1518.0	1486.7	1479.3	1464.5	1438.7	1412.9	1388.9	1352.0	1340.9
17.5°	1490.3	1483.0	1473.7	1449.7	1447.9	1433.2	1409.2	1387.0	1355.7	1298.5	1280.1
20°	1433.2	1433.2	1403.6	1394.5	1412.9	1383.3	1364.9	1344.6	1280.1	1252.4	1219.2
22.5°	1390.8	1370.5	1353.8	1339.1	1340.9	1322.5	1296.7	1256.1	1232.1	1198.9	1160.2
25°	1307.7	1315.1	1278.3	1272.7	1278.3	1235.8	1222.9	1189.7	1154.6	1123.3	1093.8
27.5°	1256.1	1235.8	1211.8	1191.5	1191.5	1174.9	1138.1	1130.7	1077.1	1047.7	1010.7
30°	1178.6	1163.9	1143.6	1114.1	1110.4	1097.5	1068.0	1049.5	994.2	949.9	929.6
32.5°	1080.8	1075.3	1058.7	1025.6	1014.5	999.7	962.8	931.5	905.7	855.8	831.9
35°	1010.7	990.5	955.5	927.8	918.5	892.7	863.2	841.1	813.4	769.2	737.8
37.5°	905.7	885.4	852.1	819.0	819.0	793.2	752.5	730.4	691.7	665.8	640.0
40°	813.4	787.6	754.4	715.7	710.1	673.2	656.7	619.7	595.7	555.2	551.5
42.5°	710.1	686.1	656.7	627.1	605.0	586.6	544.1	516.5	490.7	470.4	464.8
45°	616.0	584.7	558.9	522.0	499.8	477.7	450.1	431.6	411.3	389.2	376.3
47.5°	534.9	509.1	472.2	439.0	416.9	405.8	374.4	354.2	337.5	322.8	313.5
50°	451.9	420.6	400.3	363.3	359.7	333.9	308.1	291.4	282.2	269.3	256.4
52.5°	389.2	359.7	332.0	304.4	289.6	280.4	256.4	239.8	226.9	217.7	210.3
55°	328.3	302.5	280.4	252.7	243.5	230.6	202.9	199.2	186.3	173.4	164.2
57.5°	282.2	258.2	232.4	214.0	197.3	188.2	166.0	151.2	143.9	132.8	123.6
60°	239.8	214.0	193.7	171.6	164.2	151.2	134.6	121.8	112.5	103.3	94.1
62.5°	201.0	178.9	156.8	138.3	127.3	119.9	106.9	95.9	86.7	79.3	71.9
65°	166.0	145.7	127.3	108.8	103.3	94.1	84.8	75.7	68.2	59.0	51.7
67.5°	136.5	118.1	99.6	86.7	81.2	77.5	66.4	57.2	51.7	46.1	38.7
70°	106.9	94.1	79.3	68.2	62.7	57.2	49.8	44.3	36.9	33.2	27.7
72.5°	83.0	71.9	59.0	49.8	46.1	42.4	35.0	29.5	25.8	22.1	18.4
75°	59.0	49.8	42.4	33.2	31.4	29.5	24.0	20.3	16.6	12.9	11.1
77.5°	40.6	33.2	25.8	22.1	20.3	16.6	14.7	11.1	9.2	7.4	5.6
80°	22.1	16.6	12.9	11.1	9.2	7.4	7.4	5.6	3.7	3.7	1.9
82.5°	7.4	5.6	3.7	1.9	1.9	1.9	1.9	1.9	1.9	0.0	1.9
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°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	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°	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3
2.5°	1536.5	1516.1	1521.7	1521.7	1518.0	1518.0	1514.3	1508.8	1510.7	1499.5	1475.6
5°	1519.8	1494.0	1490.3	1494.0	1479.3	1475.6	1468.2	1479.3	1446.1	1459.0	1444.2
7.5°	1471.9	1447.9	1442.4	1455.3	1436.9	1425.7	1423.9	1438.7	1409.2	1394.5	1377.8
10°	1418.4	1409.2	1392.6	1383.3	1377.8	1379.6	1364.9	1346.5	1340.9	1337.2	1322.5
12.5°	1370.5	1350.2	1335.4	1324.4	1320.7	1320.7	1296.7	1293.0	1276.4	1272.7	1250.6
15°	1313.2	1289.3	1280.1	1265.3	1252.4	1259.8	1232.1	1224.7	1219.2	1195.2	1198.9
17.5°	1263.4	1237.6	1215.5	1206.3	1195.2	1184.2	1158.3	1163.9	1150.9	1150.9	1117.8
20°	1198.9	1171.2	1154.6	1136.2	1136.2	1121.4	1103.0	1104.8	1088.2	1071.7	1042.1
22.5°	1130.7	1101.1	1080.8	1073.5	1055.0	1051.4	1029.2	1023.7	1001.6	1003.4	977.6
25°	1058.7	1029.2	1001.6	1003.4	986.8	979.5	966.5	940.7	931.5	920.4	913.0
27.5°	973.9	953.6	929.6	927.8	896.4	898.2	881.7	874.3	852.1	857.7	841.1
30°	896.4	866.9	844.8	839.3	826.3	822.6	796.8	785.7	789.5	774.7	765.5
32.5°	817.1	772.9	763.6	752.5	745.2	735.9	717.5	724.9	708.2	711.9	697.2
35°	711.9	693.5	669.5	669.5	662.1	654.8	641.9	649.3	632.7	625.3	610.5
37.5°	623.4	606.9	582.9	590.2	577.3	566.3	555.2	557.0	542.3	540.5	525.6
40°	527.5	518.3	501.7	501.7	492.5	492.5	486.9	481.4	472.2	461.1	444.5
42.5°	437.1	429.7	422.4	424.3	411.3	422.4	407.6	416.9	387.3	385.5	374.4
45°	370.7	354.2	356.0	348.6	341.2	344.9	332.0	335.7	319.1	315.4	304.4
47.5°	300.7	295.1	284.1	280.4	280.4	274.8	269.3	267.4	260.1	250.8	236.1
50°	247.1	226.9	223.1	217.7	214.0	214.0	206.6	195.5	197.3	188.2	173.4
52.5°	193.7	177.0	169.7	167.9	160.5	156.8	147.6	140.2	134.6	130.9	121.8
55°	149.4	134.6	125.4	125.4	114.4	114.4	101.5	95.9	88.5	81.2	75.7
57.5°	112.5	105.1	95.9	88.5	84.8	75.7	68.2	59.0	53.5	42.4	35.0
60°	84.8	77.5	68.2	62.7	59.0	49.8	40.6	33.2	20.3	16.6	14.7
62.5°	62.7	55.4	46.1	42.4	38.7	31.4	22.1	11.1	5.6	5.6	5.6
65°	46.1	36.9	29.5	25.8	22.1	16.6	7.4	3.7	1.9	1.9	1.9
67.5°	31.4	24.0	16.6	14.7	11.1	5.6	1.9	1.9	1.9	1.9	1.9
70°	20.3	14.7	7.4	5.6	3.7	1.9	1.9	1.9	1.9	1.9	1.9
72.5°	12.9	7.4	3.7	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	7.4	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	3.7	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.9	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	1.9	1.9	1.9
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 FEU4C309027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3	1538.3
2.5°	1501.4	1488.5	1495.8	1479.3	1486.7	1499.5	1490.3	1494.0
5°	1449.7	1442.4	1433.2	1409.2	1427.6	1442.4	1435.0	1433.2
7.5°	1394.5	1368.6	1381.5	1374.1	1370.5	1385.2	1368.6	1387.0
10°	1337.2	1318.8	1317.0	1304.1	1304.1	1315.1	1317.0	1305.9
12.5°	1252.4	1243.2	1243.2	1241.3	1239.5	1250.6	1252.4	1246.9
15°	1191.5	1187.9	1178.6	1176.8	1165.7	1182.3	1184.2	1182.3
17.5°	1117.8	1119.6	1110.4	1110.4	1117.8	1123.3	1108.5	1123.3
20°	1068.0	1058.7	1055.0	1038.4	1047.7	1056.9	1056.9	1058.7
22.5°	996.0	981.3	986.8	977.6	972.0	984.9	984.9	990.5
25°	914.8	914.8	918.5	913.0	916.7	924.1	918.5	931.5
27.5°	837.4	844.8	844.8	837.4	841.1	863.2	872.4	857.7
30°	765.5	767.3	772.9	769.2	780.2	787.6	785.7	796.8
32.5°	684.3	693.5	697.2	691.7	695.4	711.9	702.8	700.9
35°	621.6	605.0	603.2	605.0	612.4	616.0	612.4	625.3
37.5°	531.2	525.6	518.3	520.1	525.6	533.1	536.8	545.9
40°	444.5	437.1	437.1	435.3	429.7	450.1	450.1	450.1
42.5°	368.9	367.0	357.8	357.8	365.2	370.7	367.0	380.0
45°	302.5	295.1	289.6	289.6	295.1	295.1	300.7	298.8
47.5°	238.0	230.6	232.4	226.9	232.4	239.8	230.6	232.4
50°	178.9	178.9	175.2	178.9	177.0	178.9	175.2	171.6
52.5°	121.8	138.3	140.2	132.8	116.2	101.5	92.2	99.6
55°	70.1	62.7	62.7	60.8	57.2	55.4	49.8	55.4
57.5°	35.0	31.4	31.4	31.4	29.5	27.7	24.0	24.0
60°	14.7	12.9	12.9	11.1	9.2	7.4	5.6	7.4
62.5°	5.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7
65°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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)