

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: **FLDSQ4C80D010 FEU4C809040 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: FLDSQ4C80D010 FEU4C809040 F4LC-SQLWW-H
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

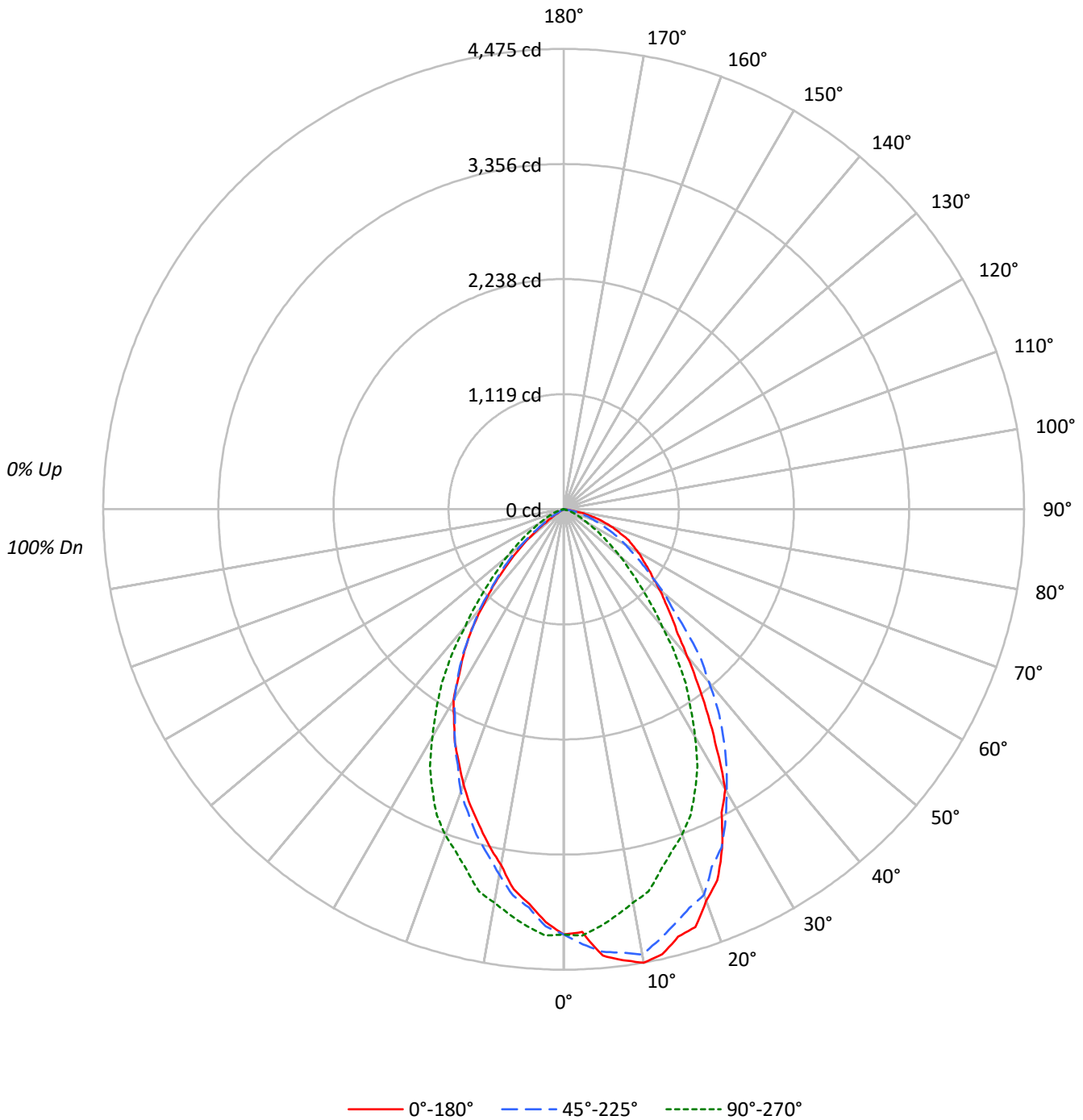
Lumens per Lamp: N/A
 Luminaire Lumens: 5924.0 lumens
 Efficiency: N/A
 Efficacy: 66.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 89.5
 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#

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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°	398760	398760	398760
5°	421892	394065	372940
10°	438429	380162	343744
15°	429658	362830	317299
20°	415726	345492	292067
25°	387773	321286	266425
30°	350046	284333	238519
35°	288341	243415	197877
40°	235313	187878	152295
45°	202187	142692	109547
50°	182984	108620	69186
55°	168391	78342	25015
60°	161619	53532	3821
65°	156120	36210	1142
70°	139788	25136	1411
75°	114563	12974	0
80°	71624	5501	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	387.2	6.5
10°-20°	1043.2	17.6
20°-30°	1393.0	23.5
30°-40°	1322.4	22.3
40°-50°	914.1	15.4
50°-60°	505.1	8.5
60°-70°	250.8	4.2
70°-80°	98.8	1.7
80°-90°	9.4	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°	2823.4	47.7
0°-40°	4145.8	70.0
0°-60°	5565.0	93.9
0°-90°	5924.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5924.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4133	4133	4133	4133	4133	
5°	4356	4316	4068	3885	3850	417
15°	4301	4172	3632	3276	3176	1217
25°	3642	3627	3018	2502	2502	1660
35°	2448	2706	2066	1700	1680	1534
45°	1482	1700	1046	857	803	1156
55°	1001	942	466	238	149	901
65°	684	496	159	5	5	664
75°	307	188	35	0	0	328
85°	0	5	0	0	0	28
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°	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7
2.5°	4112.9	4226.9	4236.8	4226.9	4241.8	4236.8	4261.6	4236.8	4266.7	4222.0	4231.9
5°	4355.8	4311.1	4405.3	4355.8	4355.8	4350.9	4336.0	4330.9	4350.9	4286.5	4316.2
7.5°	4420.2	4484.7	4569.0	4464.9	4469.7	4469.7	4440.0	4430.1	4430.1	4311.1	4345.9
10°	4474.8	4435.0	4479.7	4440.0	4474.8	4469.7	4489.6	4425.1	4469.7	4400.4	4395.4
12.5°	4430.1	4415.2	4474.8	4410.3	4390.5	4395.4	4370.7	4355.8	4370.7	4291.3	4286.5
15°	4301.2	4316.2	4405.3	4336.0	4326.1	4316.2	4286.5	4236.8	4276.6	4167.5	4172.5
17.5°	4256.8	4231.9	4246.9	4187.3	4202.2	4192.3	4187.3	4142.8	4132.7	4063.4	4063.4
20°	4048.7	4103.0	4103.0	4063.4	4063.4	4058.6	3994.1	4033.7	3989.1	3969.2	3989.1
22.5°	3904.8	3909.8	3909.8	3875.1	3880.1	3860.3	3825.6	3800.7	3825.6	3800.7	3761.1
25°	3642.3	3652.2	3711.6	3647.2	3637.3	3657.1	3627.4	3612.4	3607.6	3548.2	3627.4
27.5°	3325.1	3424.1	3419.2	3394.4	3424.1	3384.5	3369.7	3374.6	3389.5	3384.5	3404.3
30°	3141.8	3156.6	3171.5	3151.7	3156.6	3141.8	3141.8	3146.7	3186.3	3171.5	3166.5
32.5°	2770.0	2819.5	2859.3	2859.3	2864.2	2879.1	2874.1	2978.2	3003.0	2953.5	2943.6
35°	2447.9	2482.7	2517.3	2522.3	2586.8	2591.6	2596.7	2626.4	2695.7	2710.6	2705.6
37.5°	2140.8	2175.4	2185.3	2229.9	2264.7	2299.2	2339.0	2378.6	2438.0	2487.6	2462.9
40°	1868.2	1883.0	1907.8	1927.6	1997.0	1997.0	2016.8	2096.2	2160.6	2200.2	2195.2
42.5°	1640.3	1645.2	1665.0	1699.7	1764.2	1749.2	1764.2	1818.7	1912.7	1917.7	1972.3
45°	1481.7	1476.7	1491.6	1496.5	1536.3	1556.1	1566.0	1605.6	1684.8	1694.7	1699.7
47.5°	1338.0	1333.0	1357.8	1367.7	1382.5	1402.3	1402.3	1407.3	1437.0	1461.9	1442.1
50°	1219.0	1219.0	1219.0	1228.9	1253.8	1248.7	1253.8	1273.6	1288.3	1278.4	1273.6
52.5°	1090.1	1109.9	1124.9	1129.9	1134.8	1134.8	1139.8	1129.9	1124.9	1109.9	1080.2
55°	1001.0	1020.8	1020.8	1020.8	1020.8	1040.6	1015.9	1020.8	1020.8	981.2	941.6
57.5°	911.9	931.7	946.4	926.6	946.4	926.6	916.7	911.9	901.8	862.2	802.8
60°	837.5	847.4	842.4	837.5	847.4	832.5	822.6	802.8	792.9	738.3	698.7
62.5°	753.3	758.1	763.2	753.3	743.4	738.3	718.5	688.8	669.0	624.4	589.6
65°	683.8	669.0	664.0	659.1	649.2	634.3	619.5	584.8	569.8	530.2	495.5
67.5°	579.7	574.9	584.8	569.8	545.2	545.2	530.2	500.5	465.7	441.1	406.3
70°	495.5	490.6	480.7	465.7	460.9	441.1	441.1	406.3	396.4	351.8	322.1
72.5°	406.3	406.3	391.4	376.6	361.7	351.8	346.9	322.1	307.3	282.5	257.6
75°	307.3	307.3	302.3	287.3	277.4	267.5	262.7	242.9	227.9	203.3	188.3
77.5°	218.0	218.0	198.2	188.3	193.2	183.3	173.4	168.5	163.5	148.7	128.9
80°	128.9	123.9	109.1	114.0	109.1	109.1	104.1	99.0	89.1	79.2	69.3
82.5°	34.8	39.6	39.6	39.6	44.7	34.8	34.8	34.8	39.6	39.6	24.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.0
87.5°	5.0	9.9	19.8	19.8	19.8	19.8	19.8	14.9	14.9	14.9	9.9
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°	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7
2.5°	4182.4	4177.4	4182.4	4147.7	4226.9	4167.5	4157.6	4147.7	4182.4	4147.7	4098.2
5°	4271.5	4222.0	4207.1	4192.3	4236.8	4167.5	4152.7	4157.6	4132.7	4068.5	4073.3
7.5°	4301.2	4256.8	4212.1	4118.0	4157.6	4142.8	4103.0	4073.3	4033.7	3979.2	3969.2
10°	4311.1	4261.6	4197.2	4167.5	4108.1	4088.3	4073.3	4023.8	3974.3	3880.1	3855.3
12.5°	4281.4	4222.0	4142.8	4118.0	4073.3	4008.9	3974.3	3924.6	3880.1	3805.8	3751.2
15°	4152.7	4103.0	4078.4	3994.1	3974.3	3934.5	3865.2	3795.9	3731.4	3632.2	3602.5
17.5°	4004.0	3984.2	3959.3	3894.9	3890.0	3850.4	3786.0	3726.4	3642.3	3488.6	3439.0
20°	3850.4	3850.4	3771.0	3746.4	3795.9	3716.5	3667.0	3612.4	3439.0	3364.7	3275.6
22.5°	3736.5	3681.9	3637.3	3597.7	3602.5	3553.0	3483.7	3374.6	3310.1	3221.0	3117.0
25°	3513.4	3533.2	3434.2	3419.2	3434.2	3320.0	3285.5	3196.2	3102.0	3017.8	2938.5
27.5°	3374.6	3320.0	3255.8	3201.2	3201.2	3156.6	3057.6	3037.8	2893.9	2814.7	2715.5
30°	3166.5	3126.9	3072.3	2993.1	2983.2	2948.4	2869.2	2819.5	2671.0	2552.0	2497.5
32.5°	2903.8	2889.0	2844.4	2755.3	2725.6	2685.8	2586.8	2502.5	2433.2	2299.2	2235.0
35°	2715.5	2661.1	2567.0	2492.6	2467.7	2398.4	2319.0	2259.6	2185.3	2066.5	1982.2
37.5°	2433.2	2378.6	2289.3	2200.2	2200.2	2130.9	2021.8	1962.4	1858.3	1788.8	1719.5
40°	2185.3	2116.0	2026.9	1922.8	1907.8	1808.6	1764.2	1665.0	1600.5	1491.6	1481.7
42.5°	1907.8	1843.4	1764.2	1684.8	1625.4	1575.9	1461.9	1387.5	1318.2	1263.7	1248.7
45°	1655.1	1570.8	1501.5	1402.3	1342.9	1283.5	1209.1	1159.6	1105.1	1045.7	1010.9
47.5°	1437.0	1367.7	1268.5	1179.4	1120.0	1090.1	1005.9	951.5	906.8	867.2	842.4
50°	1214.2	1129.9	1075.4	976.2	966.2	896.9	827.6	783.0	758.1	723.6	688.8
52.5°	1045.7	966.2	891.9	817.7	777.9	753.3	688.8	644.2	609.6	584.8	565.0
55°	882.0	812.7	753.3	678.9	654.1	619.5	545.2	535.3	500.5	465.7	441.1
57.5°	758.1	693.7	624.4	574.9	530.2	505.5	445.9	406.3	386.5	356.8	332.0
60°	644.2	574.9	520.3	460.9	441.1	406.3	361.7	327.1	302.3	277.4	252.8
62.5°	540.1	480.7	421.3	371.6	341.9	322.1	287.3	257.6	233.0	213.2	193.2
65°	445.9	391.4	341.9	292.4	277.4	252.8	227.9	203.3	183.3	158.6	138.8
67.5°	366.7	317.2	267.5	233.0	218.0	208.1	178.4	153.6	138.8	123.9	104.1
70°	287.3	252.8	213.2	183.3	168.5	153.6	133.8	119.0	99.0	89.1	74.4
72.5°	223.1	193.2	158.6	133.8	123.9	114.0	94.2	79.2	69.3	59.4	49.5
75°	158.6	133.8	114.0	89.1	84.3	79.2	64.5	54.6	44.7	34.8	29.7
77.5°	109.1	89.1	69.3	59.4	54.6	44.7	39.6	29.7	24.9	19.8	14.9
80°	59.4	44.7	34.8	29.7	24.9	19.8	19.8	14.9	9.9	9.9	5.0
82.5°	19.8	14.9	9.9	5.0	5.0	5.0	5.0	5.0	5.0	0.0	5.0
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°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	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°	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7
2.5°	4127.9	4073.3	4088.3	4088.3	4078.4	4078.4	4068.5	4053.5	4058.6	4028.7	3964.4
5°	4083.2	4013.9	4004.0	4013.9	3974.3	3964.4	3944.6	3974.3	3885.0	3919.7	3880.1
7.5°	3954.5	3890.0	3875.1	3909.8	3860.3	3830.4	3825.6	3865.2	3786.0	3746.4	3701.7
10°	3810.6	3786.0	3741.3	3716.5	3701.7	3706.6	3667.0	3617.5	3602.5	3592.6	3553.0
12.5°	3681.9	3627.4	3587.8	3558.1	3548.2	3548.2	3483.7	3473.8	3429.1	3419.2	3359.8
15°	3528.2	3463.9	3439.0	3399.4	3364.7	3384.5	3310.1	3290.3	3275.6	3211.1	3221.0
17.5°	3394.4	3325.1	3265.7	3240.8	3211.1	3181.4	3111.9	3126.9	3092.1	3092.1	3003.0
20°	3221.0	3146.7	3102.0	3052.5	3052.5	3012.9	2963.4	2968.2	2923.6	2879.1	2799.7
22.5°	3037.8	2958.3	2903.8	2884.0	2834.5	2824.6	2765.2	2750.2	2690.8	2695.7	2626.4
25°	2844.4	2765.2	2690.8	2695.7	2651.2	2631.4	2596.7	2527.4	2502.5	2472.8	2453.0
27.5°	2616.5	2561.9	2497.5	2492.6	2408.3	2413.2	2368.7	2348.9	2289.3	2304.3	2259.6
30°	2408.3	2329.1	2269.5	2254.8	2220.0	2210.1	2140.8	2110.9	2121.0	2081.2	2056.6
32.5°	2195.2	2076.4	2051.5	2021.8	2002.0	1977.2	1927.6	1947.4	1902.8	1912.7	1873.1
35°	1912.7	1863.2	1798.7	1798.7	1778.9	1759.1	1724.6	1744.4	1699.7	1679.9	1640.3
37.5°	1674.9	1630.4	1566.0	1585.8	1551.0	1521.3	1491.6	1496.5	1456.8	1452.0	1412.2
40°	1417.2	1392.4	1347.9	1347.9	1323.1	1323.1	1308.1	1293.4	1268.5	1238.8	1194.2
42.5°	1174.4	1154.6	1134.8	1139.8	1105.1	1134.8	1095.2	1120.0	1040.6	1035.8	1005.9
45°	996.0	951.5	956.3	936.5	916.7	926.6	891.9	901.8	857.3	847.4	817.7
47.5°	807.8	792.9	763.2	753.3	753.3	738.3	723.6	718.5	698.7	673.9	634.3
50°	664.0	609.6	599.5	584.8	574.9	574.9	555.1	525.4	530.2	505.5	465.7
52.5°	520.3	475.6	455.8	451.0	431.2	421.3	396.4	376.6	361.7	351.8	327.1
55°	401.3	361.7	337.0	337.0	307.3	307.3	272.6	257.6	237.8	218.0	203.3
57.5°	302.3	282.5	257.6	237.8	227.9	203.3	183.3	158.6	143.7	114.0	94.2
60°	227.9	208.1	183.3	168.5	158.6	133.8	109.1	89.1	54.6	44.7	39.6
62.5°	168.5	148.7	123.9	114.0	104.1	84.3	59.4	29.7	14.9	14.9	14.9
65°	123.9	99.0	79.2	69.3	59.4	44.7	19.8	9.9	5.0	5.0	5.0
67.5°	84.3	64.5	44.7	39.6	29.7	14.9	5.0	5.0	5.0	5.0	5.0
70°	54.6	39.6	19.8	14.9	9.9	5.0	5.0	5.0	5.0	5.0	5.0
72.5°	34.8	19.8	9.9	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	19.8	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	9.9	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.0	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	5.0	5.0	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C80D010 FEU4C809040 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7	4132.7
2.5°	4033.7	3999.0	4018.8	3974.3	3994.1	4028.7	4004.0	4013.9
5°	3894.9	3875.1	3850.4	3786.0	3835.5	3875.1	3855.3	3850.4
7.5°	3746.4	3676.9	3711.6	3691.8	3681.9	3721.5	3676.9	3726.4
10°	3592.6	3543.1	3538.3	3503.5	3503.5	3533.2	3538.3	3508.4
12.5°	3364.7	3340.0	3340.0	3335.0	3329.9	3359.8	3364.7	3349.9
15°	3201.2	3191.3	3166.5	3161.6	3131.9	3176.4	3181.4	3176.4
17.5°	3003.0	3007.9	2983.2	2983.2	3003.0	3017.8	2978.2	3017.8
20°	2869.2	2844.4	2834.5	2789.8	2814.7	2839.5	2839.5	2844.4
22.5°	2675.9	2636.3	2651.2	2626.4	2611.4	2646.2	2646.2	2661.1
25°	2457.8	2457.8	2467.7	2453.0	2462.9	2482.7	2467.7	2502.5
27.5°	2249.7	2269.5	2269.5	2249.7	2259.6	2319.0	2343.9	2304.3
30°	2056.6	2061.4	2076.4	2066.5	2096.2	2116.0	2110.9	2140.8
32.5°	1838.5	1863.2	1873.1	1858.3	1868.2	1912.7	1888.0	1883.0
35°	1670.0	1625.4	1620.5	1625.4	1645.2	1655.1	1645.2	1679.9
37.5°	1427.1	1412.2	1392.4	1397.4	1412.2	1432.2	1442.1	1466.7
40°	1194.2	1174.4	1174.4	1169.5	1154.6	1209.1	1209.1	1209.1
42.5°	991.1	986.1	961.4	961.4	981.2	996.0	986.1	1020.8
45°	812.7	792.9	777.9	777.9	792.9	792.9	807.8	802.8
47.5°	639.3	619.5	624.4	609.6	624.4	644.2	619.5	624.4
50°	480.7	480.7	470.8	480.7	475.6	480.7	470.8	460.9
52.5°	327.1	371.6	376.6	356.8	312.2	272.6	247.7	267.5
55°	188.3	168.5	168.5	163.5	153.6	148.7	133.8	148.7
57.5°	94.2	84.3	84.3	84.3	79.2	74.4	64.5	64.5
60°	39.6	34.8	34.8	29.7	24.9	19.8	14.9	19.8
62.5°	14.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
65°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
67.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
70°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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)