

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 FEU4C809035 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 FEU4C809035 F4LC-SQLWW-H
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

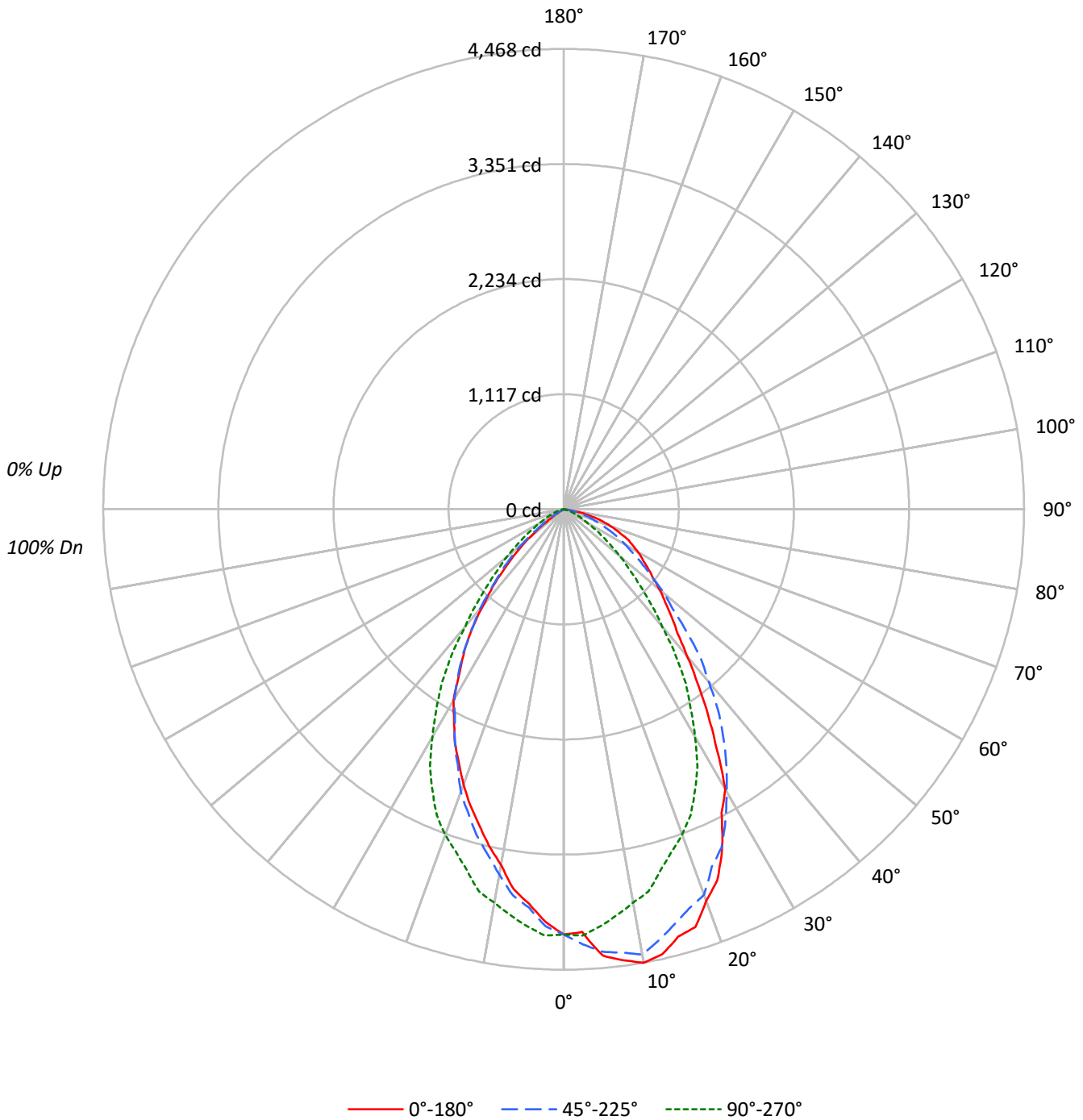
Lumens per Lamp: N/A
 Luminaire Lumens: 5915.0 lumens
 Efficiency: N/A
 Efficacy: 66.1 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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#

CATALOG NUMBER: FLDSQ4C80D010 FEU4C809035 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°	398152	398152	398152
5°	421252	393464	372378
10°	437763	379584	343215
15°	429009	362281	316810
20°	415089	344968	291625
25°	387187	320796	266021
30°	349511	283899	238162
35°	287905	243039	197583
40°	234961	187588	152068
45°	201873	142474	109383
50°	182714	108455	69081
55°	168139	78224	24981
60°	161387	53455	3821
65°	155869	36165	1142
70°	139562	25108	1411
75°	114414	12936	0
80°	71513	5501	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	386.6	6.5
10°-20°	1041.6	17.6
20°-30°	1390.9	23.5
30°-40°	1320.4	22.3
40°-50°	912.7	15.4
50°-60°	504.3	8.5
60°-70°	250.4	4.2
70°-80°	98.7	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°	2819.2	47.7
0°-40°	4139.5	70.0
0°-60°	5556.5	93.9
0°-90°	5915.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5915.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4126	4126	4126	4126	4126	
5°	4349	4310	4062	3879	3845	416
15°	4295	4166	3627	3271	3172	1215
25°	3637	3622	3013	2499	2499	1658
35°	2444	2702	2063	1697	1677	1531
45°	1479	1697	1044	856	802	1154
55°	1000	940	465	238	148	900
65°	683	495	158	5	5	663
75°	307	188	35	0	0	327
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°	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4
2.5°	4106.7	4220.5	4230.3	4220.5	4235.4	4230.3	4255.2	4230.3	4260.2	4215.6	4225.5
5°	4349.2	4304.6	4398.6	4349.2	4349.2	4344.3	4329.4	4324.4	4344.3	4280.0	4309.6
7.5°	4413.5	4477.9	4562.0	4458.1	4463.0	4463.0	4433.3	4423.4	4423.4	4304.6	4339.3
10°	4468.0	4428.3	4472.8	4433.3	4468.0	4463.0	4482.7	4418.4	4463.0	4393.8	4388.7
12.5°	4423.4	4408.5	4468.0	4403.6	4383.9	4388.7	4364.1	4349.2	4364.1	4284.8	4280.0
15°	4294.7	4309.6	4398.6	4329.4	4319.5	4309.6	4280.0	4230.3	4270.1	4161.1	4166.2
17.5°	4250.3	4225.5	4240.4	4180.9	4195.8	4186.0	4180.9	4136.5	4126.4	4057.2	4057.2
20°	4042.5	4096.8	4096.8	4057.2	4057.2	4052.4	3988.0	4027.6	3983.0	3963.2	3983.0
22.5°	3898.9	3903.9	3903.9	3869.2	3874.2	3854.5	3819.8	3795.0	3819.8	3795.0	3755.4
25°	3636.8	3646.7	3706.0	3641.6	3631.7	3651.5	3621.9	3606.9	3602.1	3542.8	3621.9
27.5°	3320.0	3418.9	3414.0	3389.2	3418.9	3379.3	3364.6	3369.5	3384.4	3379.3	3399.1
30°	3137.0	3151.8	3166.7	3146.9	3151.8	3137.0	3137.0	3141.9	3181.4	3166.7	3161.7
32.5°	2765.8	2815.3	2855.0	2855.0	2859.8	2874.8	2869.7	2973.6	2998.4	2949.0	2939.1
35°	2444.2	2478.9	2513.4	2518.5	2582.8	2587.7	2592.7	2622.4	2691.6	2706.5	2701.5
37.5°	2137.6	2172.1	2182.0	2226.5	2261.2	2295.7	2335.5	2375.0	2434.3	2483.8	2459.2
40°	1865.4	1880.1	1904.9	1924.7	1993.9	1993.9	2013.7	2093.0	2157.3	2196.9	2191.8
42.5°	1637.8	1642.7	1662.4	1697.1	1761.5	1746.6	1761.5	1816.0	1909.8	1914.8	1969.3
45°	1479.4	1474.4	1489.3	1494.2	1533.9	1553.7	1563.6	1603.1	1682.2	1692.1	1697.1
47.5°	1336.0	1331.0	1355.8	1365.7	1380.4	1400.2	1400.2	1405.2	1434.9	1459.7	1439.9
50°	1217.2	1217.2	1217.2	1227.1	1251.9	1246.8	1251.9	1271.6	1286.4	1276.5	1271.6
52.5°	1088.5	1108.2	1123.2	1128.2	1133.0	1133.0	1138.1	1128.2	1123.2	1108.2	1078.6
55°	999.5	1019.3	1019.3	1019.3	1019.3	1039.0	1014.4	1019.3	1019.3	979.7	940.2
57.5°	910.5	930.3	945.0	925.2	945.0	925.2	915.3	910.5	900.4	860.9	801.6
60°	836.3	846.1	841.1	836.3	846.1	831.2	821.3	801.6	791.7	737.2	697.7
62.5°	752.1	757.0	762.0	752.1	742.2	737.2	717.4	687.8	668.0	623.4	588.7
65°	682.7	668.0	663.0	658.1	648.2	633.3	618.6	583.9	568.9	529.4	494.7
67.5°	578.8	574.0	583.9	568.9	544.3	544.3	529.4	499.7	465.0	440.4	405.7
70°	494.7	489.9	480.0	465.0	460.2	440.4	440.4	405.7	395.8	351.3	321.6
72.5°	405.7	405.7	390.8	376.1	361.1	351.3	346.4	321.6	306.9	282.0	257.2
75°	306.9	306.9	301.8	286.9	277.0	267.1	262.3	242.5	227.6	203.0	188.0
77.5°	217.7	217.7	197.9	188.0	192.9	183.0	173.1	168.3	163.2	148.5	128.7
80°	128.7	123.7	108.9	113.8	108.9	108.9	103.9	98.9	89.0	79.1	69.2
82.5°	34.7	39.5	39.5	39.5	44.6	34.7	34.7	34.7	39.5	39.5	24.8
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°	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4
2.5°	4176.1	4171.0	4176.1	4141.4	4220.5	4161.1	4151.3	4141.4	4176.1	4141.4	4091.9
5°	4265.0	4215.6	4200.7	4186.0	4230.3	4161.1	4146.4	4151.3	4126.4	4062.3	4067.1
7.5°	4294.7	4250.3	4205.7	4111.7	4151.3	4136.5	4096.8	4067.1	4027.6	3973.1	3963.2
10°	4304.6	4255.2	4190.8	4161.1	4101.8	4082.0	4067.1	4017.7	3968.3	3874.2	3849.4
12.5°	4274.9	4215.6	4136.5	4111.7	4067.1	4002.8	3968.3	3918.6	3874.2	3800.0	3745.5
15°	4146.4	4096.8	4072.2	3988.0	3968.3	3928.5	3859.3	3790.1	3725.8	3626.7	3597.0
17.5°	3997.9	3978.1	3953.3	3889.0	3884.1	3844.6	3780.2	3720.7	3636.8	3483.3	3433.8
20°	3844.6	3844.6	3765.3	3740.7	3790.1	3710.8	3661.4	3606.9	3433.8	3359.6	3270.6
22.5°	3730.8	3676.3	3631.7	3592.2	3597.0	3547.6	3478.4	3369.5	3305.1	3216.1	3112.2
25°	3508.1	3527.8	3429.0	3414.0	3429.0	3315.0	3280.5	3191.3	3097.3	3013.2	2934.1
27.5°	3369.5	3315.0	3250.8	3196.4	3196.4	3151.8	3052.9	3033.1	2889.5	2810.4	2711.3
30°	3161.7	3122.1	3067.6	2988.6	2978.7	2944.0	2864.9	2815.3	2667.0	2548.1	2493.7
32.5°	2899.4	2884.6	2840.1	2751.1	2721.4	2681.7	2582.8	2498.7	2429.5	2295.7	2231.6
35°	2711.3	2657.1	2563.1	2488.8	2464.0	2394.8	2315.5	2256.2	2182.0	2063.3	1979.2
37.5°	2429.5	2375.0	2285.9	2196.9	2196.9	2127.7	2018.7	1959.4	1855.5	1786.1	1716.9
40°	2182.0	2112.7	2023.8	1919.9	1904.9	1805.9	1761.5	1662.4	1598.1	1489.3	1479.4
42.5°	1904.9	1840.6	1761.5	1682.2	1622.9	1573.5	1459.7	1385.4	1316.2	1261.8	1246.8
45°	1652.6	1568.4	1499.2	1400.2	1340.8	1281.5	1207.3	1157.9	1103.4	1044.1	1009.4
47.5°	1434.9	1365.7	1266.6	1177.6	1118.3	1088.5	1004.3	950.0	905.5	865.9	841.1
50°	1212.3	1128.2	1073.7	974.7	964.8	895.6	826.4	781.8	757.0	722.5	687.8
52.5°	1044.1	964.8	890.5	816.5	776.7	752.1	687.8	643.2	608.7	583.9	564.1
55°	880.7	811.4	752.1	677.9	653.1	618.6	544.3	534.4	499.7	465.0	440.4
57.5°	757.0	692.6	623.4	574.0	529.4	504.8	445.3	405.7	386.0	356.3	331.5
60°	643.2	574.0	519.5	460.2	440.4	405.7	361.1	326.6	301.8	277.0	252.4
62.5°	539.3	480.0	420.6	371.0	341.4	321.6	286.9	257.2	232.6	212.8	192.9
65°	445.3	390.8	341.4	291.9	277.0	252.4	227.6	203.0	183.0	158.4	138.6
67.5°	366.2	316.7	267.1	232.6	217.7	207.8	178.1	153.3	138.6	123.7	103.9
70°	286.9	252.4	212.8	183.0	168.3	153.3	133.6	118.8	98.9	89.0	74.2
72.5°	222.7	192.9	158.4	133.6	123.7	113.8	94.0	79.1	69.2	59.3	49.4
75°	158.4	133.6	113.8	89.0	84.1	79.1	64.4	54.5	44.6	34.7	29.7
77.5°	108.9	89.0	69.2	59.3	54.5	44.6	39.5	29.7	24.8	19.8	14.9
80°	59.3	44.6	34.7	29.7	24.8	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°	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4
2.5°	4121.6	4067.1	4082.0	4082.0	4072.2	4072.2	4062.3	4047.3	4052.4	4022.5	3958.4
5°	4077.0	4007.8	3997.9	4007.8	3968.3	3958.4	3938.6	3968.3	3879.1	3913.8	3874.2
7.5°	3948.5	3884.1	3869.2	3903.9	3854.5	3824.6	3819.8	3859.3	3780.2	3740.7	3696.1
10°	3804.8	3780.2	3735.6	3710.8	3696.1	3700.9	3661.4	3612.0	3597.0	3587.2	3547.6
12.5°	3676.3	3621.9	3582.3	3552.6	3542.8	3542.8	3478.4	3468.5	3423.9	3414.0	3354.7
15°	3522.8	3458.6	3433.8	3394.3	3359.6	3379.3	3305.1	3285.3	3270.6	3206.2	3216.1
17.5°	3389.2	3320.0	3260.7	3235.9	3206.2	3176.6	3107.2	3122.1	3087.4	3087.4	2998.4
20°	3216.1	3141.9	3097.3	3047.9	3047.9	3008.3	2958.9	2963.7	2919.2	2874.8	2795.5
22.5°	3033.1	2953.9	2899.4	2879.6	2830.2	2820.3	2761.0	2746.0	2686.7	2691.6	2622.4
25°	2840.1	2761.0	2686.7	2691.6	2647.2	2627.4	2592.7	2523.5	2498.7	2469.0	2449.3
27.5°	2612.5	2558.0	2493.7	2488.8	2404.7	2409.5	2365.1	2345.4	2285.9	2300.8	2256.2
30°	2404.7	2325.6	2266.1	2251.3	2216.7	2206.8	2137.6	2107.7	2117.8	2078.0	2053.4
32.5°	2191.8	2073.2	2048.4	2018.7	1999.0	1974.1	1924.7	1944.5	1899.9	1909.8	1870.2
35°	1909.8	1860.4	1796.0	1796.0	1776.2	1756.5	1722.0	1741.7	1697.1	1677.4	1637.8
37.5°	1672.3	1627.9	1563.6	1583.3	1548.7	1519.0	1489.3	1494.2	1454.6	1449.8	1410.0
40°	1415.1	1390.3	1345.9	1345.9	1321.1	1321.1	1306.1	1291.4	1266.6	1236.9	1192.4
42.5°	1172.6	1152.8	1133.0	1138.1	1103.4	1133.0	1093.5	1118.3	1039.0	1034.2	1004.3
45°	994.4	950.0	954.9	935.1	915.3	925.2	890.5	900.4	856.0	846.1	816.5
47.5°	806.6	791.7	762.0	752.1	752.1	737.2	722.5	717.4	697.7	672.8	633.3
50°	663.0	608.7	598.6	583.9	574.0	574.0	554.2	524.6	529.4	504.8	465.0
52.5°	519.5	474.9	455.2	450.3	430.5	420.6	395.8	376.1	361.1	351.3	326.6
55°	400.7	361.1	336.5	336.5	306.9	306.9	272.2	257.2	237.5	217.7	203.0
57.5°	301.8	282.0	257.2	237.5	227.6	203.0	183.0	158.4	143.4	113.8	94.0
60°	227.6	207.8	183.0	168.3	158.4	133.6	108.9	89.0	54.5	44.6	39.5
62.5°	168.3	148.5	123.7	113.8	103.9	84.1	59.3	29.7	14.9	14.9	14.9
65°	123.7	98.9	79.1	69.2	59.3	44.6	19.8	9.9	5.0	5.0	5.0
67.5°	84.1	64.4	44.6	39.5	29.7	14.9	5.0	5.0	5.0	5.0	5.0
70°	54.5	39.5	19.8	14.9	9.9	5.0	5.0	5.0	5.0	5.0	5.0
72.5°	34.7	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 FEU4C809035 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4	4126.4
2.5°	4027.6	3992.9	4012.7	3968.3	3988.0	4022.5	3997.9	4007.8
5°	3889.0	3869.2	3844.6	3780.2	3829.7	3869.2	3849.4	3844.6
7.5°	3740.7	3671.3	3706.0	3686.2	3676.3	3715.9	3671.3	3720.7
10°	3587.2	3537.7	3532.9	3498.2	3498.2	3527.8	3532.9	3503.0
12.5°	3359.6	3335.0	3335.0	3329.9	3324.9	3354.7	3359.6	3344.8
15°	3196.4	3186.5	3161.7	3156.8	3127.2	3171.5	3176.6	3171.5
17.5°	2998.4	3003.3	2978.7	2978.7	2998.4	3013.2	2973.6	3013.2
20°	2864.9	2840.1	2830.2	2785.6	2810.4	2835.2	2835.2	2840.1
22.5°	2671.8	2632.3	2647.2	2622.4	2607.4	2642.1	2642.1	2657.1
25°	2454.1	2454.1	2464.0	2449.3	2459.2	2478.9	2464.0	2498.7
27.5°	2246.3	2266.1	2266.1	2246.3	2256.2	2315.5	2340.3	2300.8
30°	2053.4	2058.3	2073.2	2063.3	2093.0	2112.7	2107.7	2137.6
32.5°	1835.7	1860.4	1870.2	1855.5	1865.4	1909.8	1885.2	1880.1
35°	1667.5	1622.9	1618.0	1622.9	1642.7	1652.6	1642.7	1677.4
37.5°	1425.0	1410.0	1390.3	1395.3	1410.0	1430.0	1439.9	1464.5
40°	1192.4	1172.6	1172.6	1167.7	1152.8	1207.3	1207.3	1207.3
42.5°	989.6	984.6	959.9	959.9	979.7	994.4	984.6	1019.3
45°	811.4	791.7	776.7	776.7	791.7	791.7	806.6	801.6
47.5°	638.3	618.6	623.4	608.7	623.4	643.2	618.6	623.4
50°	480.0	480.0	470.1	480.0	474.9	480.0	470.1	460.2
52.5°	326.6	371.0	376.1	356.3	311.7	272.2	247.3	267.1
55°	188.0	168.3	168.3	163.2	153.3	148.5	133.6	148.5
57.5°	94.0	84.1	84.1	84.1	79.1	74.2	64.4	64.4
60°	39.5	34.7	34.7	29.7	24.8	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)