

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: **FLDSQ4C90D010 FEU4C909027 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: FLDSQ4C90D010 FEU4C909027 F4LC-SQLWW-H
 Description: 4 INCH 9000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

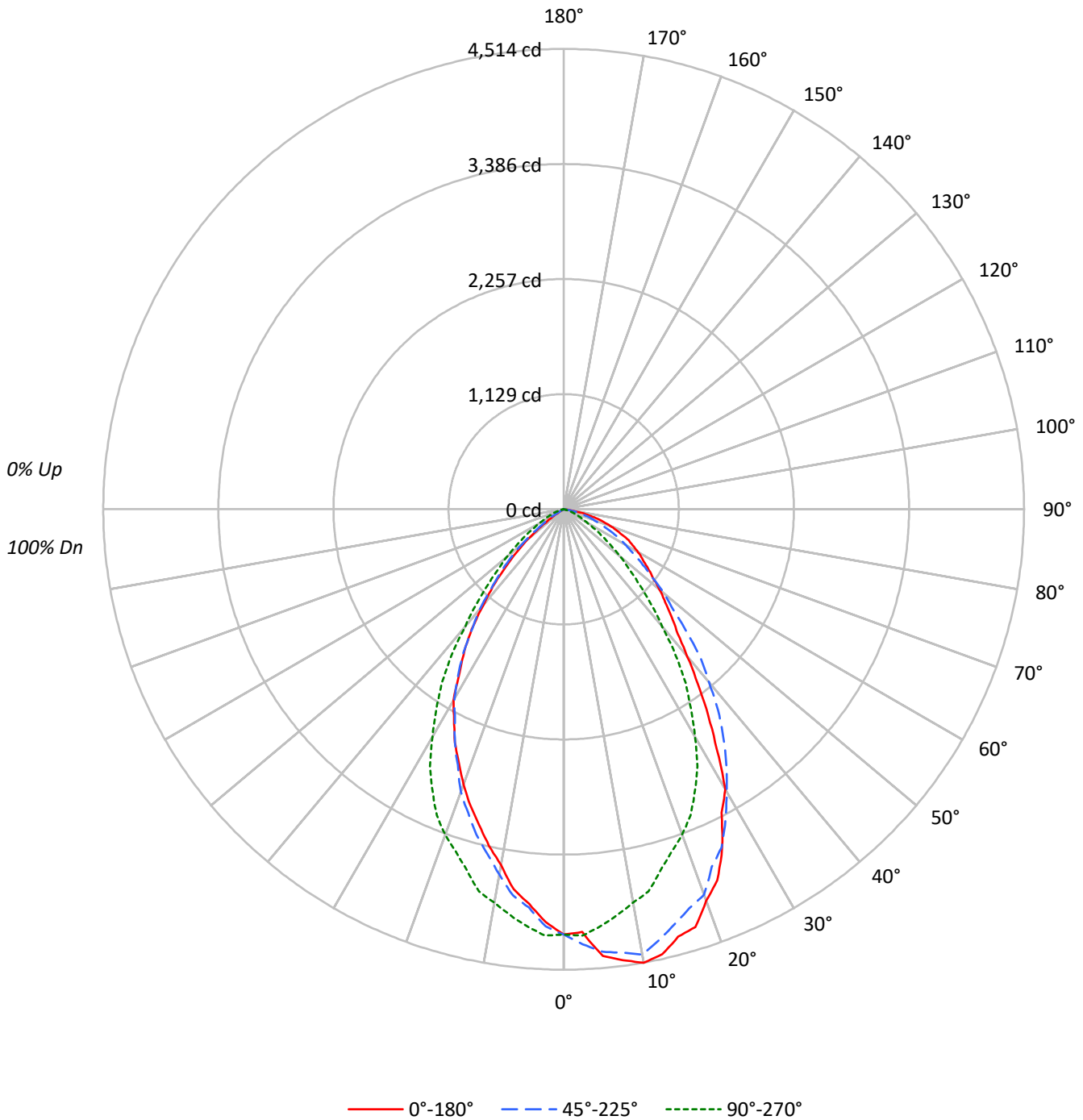
Lumens per Lamp: N/A
 Luminaire Lumens: 5976.0 lumens
 Efficiency: N/A
 Efficacy: 61.5 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 97.1
 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: FLDSQ4C90D010 FEU4C909027 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°	402262	402262	402262
5°	425592	397522	376214
10°	442280	383503	346762
15°	433434	366017	320086
20°	419371	348521	294634
25°	391180	324097	268768
30°	353121	286829	240614
35°	290874	245548	199621
40°	237379	189528	153630
45°	203961	143934	110502
50°	184590	109565	69786
55°	169872	79031	25233
60°	163047	54014	3860
65°	157490	36530	1164
70°	141001	25362	1439
75°	115569	13085	0
80°	72235	5557	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	390.6	6.5
10°-20°	1052.4	17.6
20°-30°	1405.3	23.5
30°-40°	1334.0	22.3
40°-50°	922.1	15.4
50°-60°	509.5	8.5
60°-70°	253.0	4.2
70°-80°	99.7	1.7
80°-90°	9.5	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°	2848.2	47.7
0°-40°	4182.2	70.0
0°-60°	5613.8	93.9
0°-90°	5976.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5976.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4169	4169	4169	4169	4169	
5°	4394	4354	4104	3919	3884	421
15°	4339	4209	3664	3304	3204	1227
25°	3674	3659	3044	2524	2524	1675
35°	2469	2729	2085	1715	1695	1547
45°	1495	1715	1055	865	810	1166
55°	1010	950	470	240	150	909
65°	690	500	160	5	5	670
75°	310	190	35	0	0	330
85°	0	5	0	0	0	29
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°	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0
2.5°	4149.0	4264.0	4274.0	4264.0	4279.1	4274.0	4299.0	4274.0	4304.1	4259.1	4269.1
5°	4394.0	4349.0	4444.0	4394.0	4394.0	4389.1	4374.0	4369.0	4389.1	4324.1	4354.1
7.5°	4459.0	4524.1	4609.1	4504.1	4509.0	4509.0	4479.0	4469.0	4469.0	4349.0	4384.0
10°	4514.1	4473.9	4519.0	4479.0	4514.1	4509.0	4529.0	4463.9	4509.0	4439.1	4434.0
12.5°	4469.0	4454.0	4514.1	4449.1	4429.1	4434.0	4409.1	4394.0	4409.1	4329.0	4324.1
15°	4339.0	4354.1	4444.0	4374.0	4364.1	4354.1	4324.1	4274.0	4314.1	4204.1	4209.1
17.5°	4294.1	4269.1	4284.2	4224.0	4239.1	4229.1	4224.0	4179.2	4169.0	4099.1	4099.1
20°	4084.2	4139.0	4139.0	4099.1	4099.1	4094.2	4029.2	4069.1	4024.1	4004.1	4024.1
22.5°	3939.1	3944.2	3944.2	3909.1	3914.2	3894.2	3859.2	3834.1	3859.2	3834.1	3794.1
25°	3674.3	3684.3	3744.2	3679.2	3669.2	3689.2	3659.2	3644.1	3639.2	3579.3	3659.2
27.5°	3354.3	3454.2	3449.3	3424.2	3454.2	3414.2	3399.3	3404.2	3419.3	3414.2	3434.2
30°	3169.4	3184.3	3199.4	3179.4	3184.3	3169.4	3169.4	3174.3	3214.2	3199.4	3194.3
32.5°	2794.3	2844.3	2884.4	2884.4	2889.3	2904.4	2899.3	3004.3	3029.4	2979.4	2969.4
35°	2469.4	2504.5	2539.4	2544.4	2609.5	2614.4	2619.5	2649.4	2719.3	2734.4	2729.3
37.5°	2159.6	2194.5	2204.5	2249.5	2284.6	2319.4	2359.6	2399.5	2459.4	2509.4	2484.5
40°	1884.6	1899.5	1924.6	1944.6	2014.5	2014.5	2034.5	2114.6	2179.6	2219.5	2214.4
42.5°	1654.7	1659.6	1679.6	1714.6	1779.7	1764.6	1779.7	1834.7	1929.5	1934.6	1989.6
45°	1494.7	1489.6	1504.7	1509.6	1549.7	1569.7	1579.7	1619.7	1699.6	1709.5	1714.6
47.5°	1349.8	1344.7	1369.8	1379.7	1394.6	1414.6	1414.6	1419.7	1449.7	1474.7	1454.8
50°	1229.7	1229.7	1229.7	1239.7	1264.8	1259.7	1264.8	1284.8	1299.6	1289.7	1284.8
52.5°	1099.7	1119.7	1134.7	1139.8	1144.7	1144.7	1149.8	1139.8	1134.7	1119.7	1089.7
55°	1009.8	1029.8	1029.8	1029.8	1029.8	1049.7	1024.9	1029.8	1029.8	989.8	949.9
57.5°	919.9	939.9	954.8	934.8	954.8	934.8	924.8	919.9	909.7	869.8	809.8
60°	844.9	854.9	849.8	844.9	854.9	839.8	829.8	809.8	799.8	744.8	704.9
62.5°	759.9	764.8	769.9	759.9	749.9	744.8	724.8	694.9	674.9	629.8	594.8
65°	689.8	674.9	669.8	664.9	654.9	639.8	624.9	589.9	574.8	534.9	499.8
67.5°	584.8	579.9	589.9	574.8	549.9	549.9	534.9	504.9	469.8	445.0	409.9
70°	499.8	494.9	484.9	469.8	464.9	445.0	445.0	409.9	399.9	354.9	324.9
72.5°	409.9	409.9	394.8	379.9	364.9	354.9	350.0	324.9	310.0	285.0	259.9
75°	310.0	310.0	304.9	289.9	279.9	269.9	265.0	245.0	229.9	205.1	190.0
77.5°	219.9	219.9	200.0	190.0	194.9	184.9	174.9	170.0	164.9	150.0	130.0
80°	130.0	125.0	110.1	115.0	110.1	110.1	105.0	99.9	89.9	79.9	69.9
82.5°	35.1	40.0	40.0	40.0	45.0	35.1	35.1	35.1	40.0	40.0	25.1
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.1	5.1
87.5°	5.1	10.0	20.0	20.0	20.0	20.0	20.0	15.1	15.1	15.1	10.0
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°	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0
2.5°	4219.1	4214.0	4219.1	4184.1	4264.0	4204.1	4194.1	4184.1	4219.1	4184.1	4134.1
5°	4309.0	4259.1	4244.0	4229.1	4274.0	4204.1	4189.2	4194.1	4169.0	4104.2	4109.1
7.5°	4339.0	4294.1	4249.1	4154.1	4194.1	4179.2	4139.0	4109.1	4069.1	4014.1	4004.1
10°	4349.0	4299.0	4234.0	4204.1	4144.1	4124.1	4109.1	4059.1	4009.2	3914.2	3889.1
12.5°	4319.0	4259.1	4179.2	4154.1	4109.1	4044.0	4009.2	3959.0	3914.2	3839.2	3784.2
15°	4189.2	4139.0	4114.2	4029.2	4009.2	3969.0	3899.1	3829.2	3764.2	3664.1	3634.1
17.5°	4039.1	4019.2	3994.1	3929.1	3924.2	3884.2	3819.2	3759.1	3674.3	3519.2	3469.2
20°	3884.2	3884.2	3804.1	3779.3	3829.2	3749.1	3699.2	3644.1	3469.2	3394.2	3304.3
22.5°	3769.3	3714.2	3669.2	3629.2	3634.1	3584.2	3514.3	3404.2	3339.2	3249.3	3144.3
25°	3544.2	3564.2	3464.3	3449.3	3464.3	3349.2	3314.3	3224.2	3129.2	3044.2	2964.3
27.5°	3404.2	3349.2	3284.4	3229.3	3229.3	3184.3	3084.4	3064.4	2919.3	2839.4	2739.3
30°	3194.3	3154.3	3099.3	3019.4	3009.4	2974.3	2894.4	2844.3	2694.5	2574.4	2519.4
32.5°	2929.3	2914.4	2869.4	2779.5	2749.5	2709.3	2609.5	2524.5	2454.5	2319.4	2254.6
35°	2739.3	2684.5	2589.5	2514.5	2489.4	2419.5	2339.4	2279.5	2204.5	2084.6	1999.6
37.5°	2454.5	2399.5	2309.4	2219.5	2219.5	2149.6	2039.6	1979.6	1874.6	1804.5	1734.6
40°	2204.5	2134.5	2044.6	1939.7	1924.6	1824.5	1779.7	1679.6	1614.6	1504.7	1494.7
42.5°	1924.6	1859.6	1779.7	1699.6	1639.6	1589.7	1474.7	1399.7	1329.8	1274.8	1259.7
45°	1669.6	1584.6	1514.7	1414.6	1354.7	1294.7	1219.7	1169.8	1114.8	1054.8	1019.8
47.5°	1449.7	1379.7	1279.7	1189.8	1129.8	1099.7	1014.7	959.8	914.8	874.8	849.8
50°	1224.8	1139.8	1084.8	984.7	974.7	904.8	834.9	789.9	764.8	729.9	694.9
52.5°	1054.8	974.7	899.7	824.9	784.8	759.9	694.9	649.8	615.0	589.9	569.9
55°	889.7	819.8	759.9	684.9	659.8	624.9	549.9	540.0	504.9	469.8	445.0
57.5°	764.8	699.8	629.8	579.9	534.9	510.0	449.9	409.9	389.9	360.0	334.9
60°	649.8	579.9	524.9	464.9	445.0	409.9	364.9	330.0	304.9	279.9	255.0
62.5°	544.8	484.9	425.0	374.9	344.9	324.9	289.9	259.9	235.0	215.0	194.9
65°	449.9	394.8	344.9	294.9	279.9	255.0	229.9	205.1	184.9	160.0	140.0
67.5°	370.0	320.0	269.9	235.0	219.9	209.9	180.0	154.9	140.0	125.0	105.0
70°	289.9	255.0	215.0	184.9	170.0	154.9	134.9	120.1	99.9	89.9	75.0
72.5°	225.0	194.9	160.0	134.9	125.0	115.0	95.0	79.9	69.9	59.9	49.9
75°	160.0	134.9	115.0	89.9	85.0	79.9	65.0	55.0	45.0	35.1	30.0
77.5°	110.1	89.9	69.9	59.9	55.0	45.0	40.0	30.0	25.1	20.0	15.1
80°	59.9	45.0	35.1	30.0	25.1	20.0	20.0	15.1	10.0	10.0	5.1
82.5°	20.0	15.1	10.0	5.1	5.1	5.1	5.1	5.1	5.1	0.0	5.1
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°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	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°	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0
2.5°	4164.1	4109.1	4124.1	4124.1	4114.2	4114.2	4104.2	4089.1	4094.2	4064.0	3999.2
5°	4119.1	4049.1	4039.1	4049.1	4009.2	3999.2	3979.2	4009.2	3919.1	3954.2	3914.2
7.5°	3989.2	3924.2	3909.1	3944.2	3894.2	3864.1	3859.2	3899.1	3819.2	3779.3	3734.2
10°	3844.1	3819.2	3774.2	3749.1	3734.2	3739.1	3699.2	3649.2	3634.1	3624.1	3584.2
12.5°	3714.2	3659.2	3619.3	3589.3	3579.3	3579.3	3514.3	3504.3	3459.2	3449.3	3389.3
15°	3559.1	3494.3	3469.2	3429.3	3394.2	3414.2	3339.2	3319.2	3304.3	3239.3	3249.3
17.5°	3424.2	3354.3	3294.3	3269.3	3239.3	3209.3	3139.2	3154.3	3119.3	3119.3	3029.4
20°	3249.3	3174.3	3129.2	3079.3	3079.3	3039.3	2989.4	2994.3	2949.3	2904.4	2824.3
22.5°	3064.4	2984.3	2929.3	2909.3	2859.4	2849.4	2789.4	2774.4	2714.4	2719.3	2649.4
25°	2869.4	2789.4	2714.4	2719.3	2674.5	2654.5	2619.5	2549.5	2524.5	2494.5	2474.5
27.5°	2639.4	2584.4	2519.4	2514.5	2429.5	2434.4	2389.5	2369.6	2309.4	2324.5	2279.5
30°	2429.5	2349.6	2289.5	2274.6	2239.5	2229.5	2159.6	2129.4	2139.6	2099.5	2074.6
32.5°	2214.4	2094.6	2069.5	2039.6	2019.6	1994.5	1944.6	1964.5	1919.5	1929.5	1889.5
35°	1929.5	1879.5	1814.5	1814.5	1794.5	1774.6	1739.7	1759.7	1714.6	1694.7	1654.7
37.5°	1689.6	1644.7	1579.7	1599.7	1564.6	1534.7	1504.7	1509.6	1469.6	1464.7	1424.6
40°	1429.7	1404.6	1359.8	1359.8	1334.7	1334.7	1319.6	1304.7	1279.7	1249.7	1204.7
42.5°	1184.7	1164.7	1144.7	1149.8	1114.8	1144.7	1104.8	1129.8	1049.7	1044.8	1014.7
45°	1004.7	959.8	964.7	944.8	924.8	934.8	899.7	909.7	864.9	854.9	824.9
47.5°	814.9	799.8	769.9	759.9	759.9	744.8	729.9	724.8	704.9	679.8	639.8
50°	669.8	615.0	604.8	589.9	579.9	579.9	559.9	530.0	534.9	510.0	469.8
52.5°	524.9	479.8	459.8	455.0	435.0	425.0	399.9	379.9	364.9	354.9	330.0
55°	404.8	364.9	340.0	340.0	310.0	310.0	275.0	259.9	239.9	219.9	205.1
57.5°	304.9	285.0	259.9	239.9	229.9	205.1	184.9	160.0	144.9	115.0	95.0
60°	229.9	209.9	184.9	170.0	160.0	134.9	110.1	89.9	55.0	45.0	40.0
62.5°	170.0	150.0	125.0	115.0	105.0	85.0	59.9	30.0	15.1	15.1	15.1
65°	125.0	99.9	79.9	69.9	59.9	45.0	20.0	10.0	5.1	5.1	5.1
67.5°	85.0	65.0	45.0	40.0	30.0	15.1	5.1	5.1	5.1	5.1	5.1
70°	55.0	40.0	20.0	15.1	10.0	5.1	5.1	5.1	5.1	5.1	5.1
72.5°	35.1	20.0	10.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	20.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	10.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.1	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	5.1	5.1	5.1
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: FLDSQ4C90D010 FEU4C909027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0	4169.0
2.5°	4069.1	4034.1	4054.0	4009.2	4029.2	4064.0	4039.1	4049.1
5°	3929.1	3909.1	3884.2	3819.2	3869.2	3909.1	3889.1	3884.2
7.5°	3779.3	3709.1	3744.2	3724.2	3714.2	3754.2	3709.1	3759.1
10°	3624.1	3574.2	3569.3	3534.3	3534.3	3564.2	3569.3	3539.2
12.5°	3394.2	3369.4	3369.4	3364.3	3359.2	3389.3	3394.2	3379.3
15°	3229.3	3219.3	3194.3	3189.4	3159.4	3204.3	3209.3	3204.3
17.5°	3029.4	3034.3	3009.4	3009.4	3029.4	3044.2	3004.3	3044.2
20°	2894.4	2869.4	2859.4	2814.3	2839.4	2864.5	2864.5	2869.4
22.5°	2699.4	2659.4	2674.5	2649.4	2634.3	2669.4	2669.4	2684.5
25°	2479.4	2479.4	2489.4	2474.5	2484.5	2504.5	2489.4	2524.5
27.5°	2269.5	2289.5	2289.5	2269.5	2279.5	2339.4	2364.5	2324.5
30°	2074.6	2079.5	2094.6	2084.6	2114.6	2134.5	2129.4	2159.6
32.5°	1854.7	1879.5	1889.5	1874.6	1884.6	1929.5	1904.6	1899.5
35°	1684.7	1639.6	1634.7	1639.6	1659.6	1669.6	1659.6	1694.7
37.5°	1439.7	1424.6	1404.6	1409.7	1424.6	1444.8	1454.8	1479.6
40°	1204.7	1184.7	1184.7	1179.8	1164.7	1219.7	1219.7	1219.7
42.5°	999.8	994.7	969.8	969.8	989.8	1004.7	994.7	1029.8
45°	819.8	799.8	784.8	784.8	799.8	799.8	814.9	809.8
47.5°	644.9	624.9	629.8	615.0	629.8	649.8	624.9	629.8
50°	484.9	484.9	474.9	484.9	479.8	484.9	474.9	464.9
52.5°	330.0	374.9	379.9	360.0	314.9	275.0	249.9	269.9
55°	190.0	170.0	170.0	164.9	154.9	150.0	134.9	150.0
57.5°	95.0	85.0	85.0	85.0	79.9	75.0	65.0	65.0
60°	40.0	35.1	35.1	30.0	25.1	20.0	15.1	20.0
62.5°	15.1	10.0	10.0	10.0	10.0	10.0	10.0	10.0
65°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
67.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
70°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
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)