

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 FEU4C909050 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 FEU4C909050 F4LC-SQLWW-H
 Description: 4 INCH 9000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

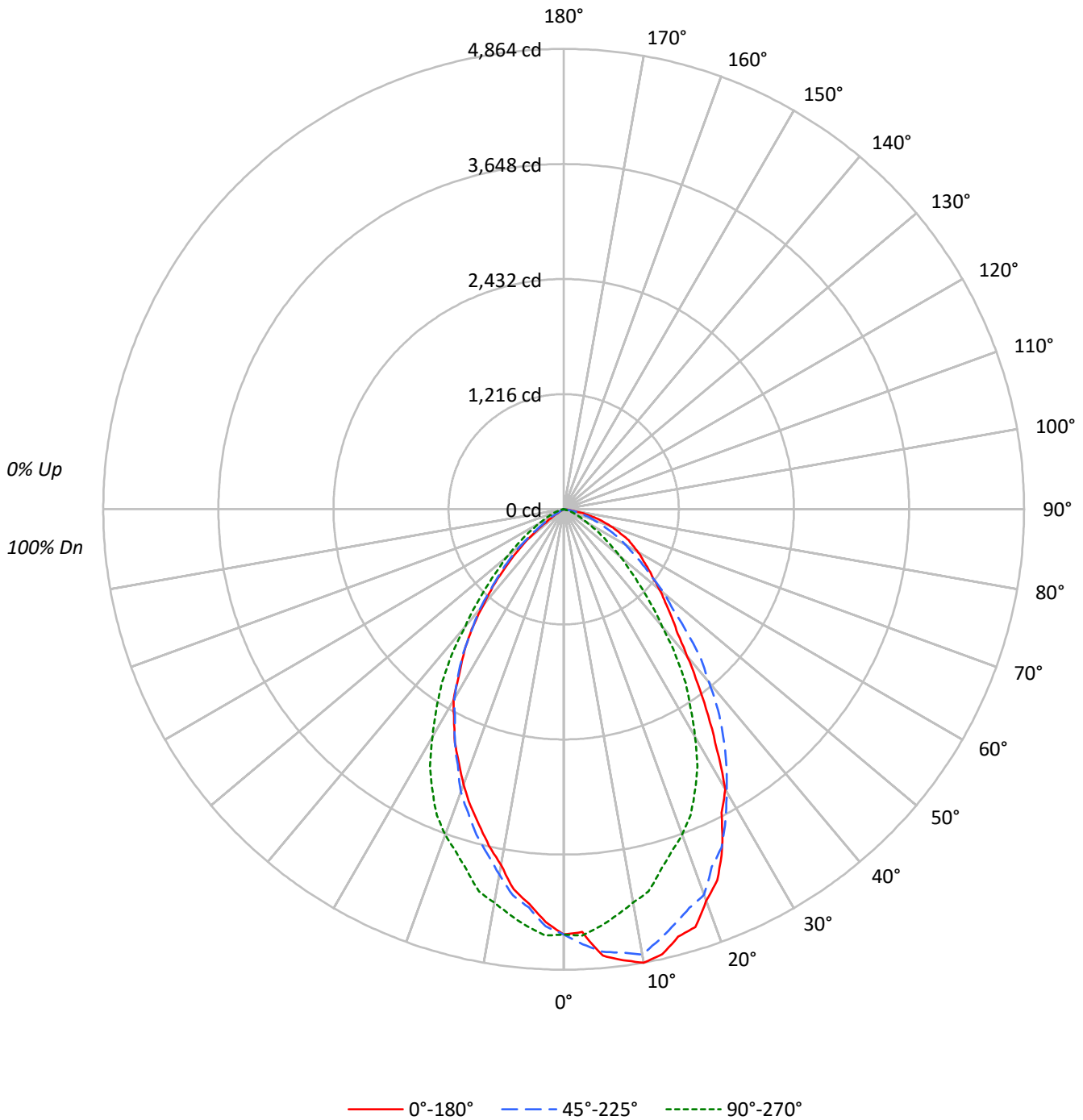
Lumens per Lamp: N/A
 Luminaire Lumens: 6439.0 lumens
 Efficiency: N/A
 Efficacy: 66.3 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C909050 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	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°	433428	433428	433428
5°	458572	428313	405368
10°	476542	413220	373627
15°	467018	394376	344879
20°	451859	375526	317460
25°	421490	349212	289592
30°	380474	309056	259253
35°	313419	264571	215087
40°	255782	204215	165533
45°	219762	155096	119071
50°	198896	118062	75205
55°	183027	85155	27185
60°	175668	58183	4149
65°	169682	39361	1256
70°	151919	27337	1552
75°	124517	14092	0
80°	77848	6001	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	420.9	6.5
10°-20°	1133.9	17.6
20°-30°	1514.1	23.5
30°-40°	1437.3	22.3
40°-50°	993.5	15.4
50°-60°	549.0	8.5
60°-70°	272.6	4.2
70°-80°	107.4	1.7
80°-90°	10.2	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°	3068.9	47.7
0°-40°	4506.3	70.0
0°-60°	6048.8	93.9
0°-90°	6439.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6439.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4492	4492	4492	4492	4492	
5°	4734	4691	4422	4223	4185	453
15°	4675	4535	3948	3560	3452	1323
25°	3959	3943	3280	2720	2720	1805
35°	2661	2941	2246	1848	1826	1667
45°	1610	1848	1137	932	873	1256
55°	1088	1023	506	258	162	979
65°	743	538	172	6	6	721
75°	334	205	38	0	0	356
85°	0	6	0	0	0	31
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°	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0
2.5°	4470.5	4594.3	4605.1	4594.3	4610.6	4605.1	4632.1	4605.1	4637.6	4589.1	4599.8
5°	4734.5	4685.9	4788.3	4734.5	4734.5	4729.2	4712.9	4707.4	4729.2	4659.1	4691.4
7.5°	4804.5	4874.6	4966.2	4853.0	4858.3	4858.3	4826.0	4815.3	4815.3	4685.9	4723.7
10°	4863.8	4820.6	4869.1	4826.0	4863.8	4858.3	4879.8	4809.8	4858.3	4783.0	4777.5
12.5°	4815.3	4799.0	4863.8	4793.8	4772.2	4777.5	4750.7	4734.5	4750.7	4664.4	4659.1
15°	4675.2	4691.4	4788.3	4712.9	4702.2	4691.4	4659.1	4605.1	4648.4	4529.8	4535.3
17.5°	4626.8	4599.8	4616.1	4551.3	4567.5	4556.8	4551.3	4503.0	4492.0	4416.7	4416.7
20°	4400.6	4459.7	4459.7	4416.7	4416.7	4411.4	4341.3	4384.4	4335.8	4314.3	4335.8
22.5°	4244.3	4249.7	4249.7	4212.0	4217.5	4195.9	4158.2	4131.1	4158.2	4131.1	4088.1
25°	3959.0	3969.7	4034.3	3964.2	3953.5	3975.0	3942.7	3926.5	3921.2	3856.6	3942.7
27.5°	3614.1	3721.8	3716.5	3689.5	3721.8	3678.7	3662.7	3668.0	3684.2	3678.7	3700.2
30°	3414.9	3431.0	3447.2	3425.7	3431.0	3414.9	3414.9	3420.2	3463.3	3447.2	3441.7
32.5°	3010.8	3064.7	3107.9	3107.9	3113.2	3129.4	3123.9	3237.1	3264.1	3210.3	3199.5
35°	2660.8	2698.5	2736.1	2741.6	2811.6	2816.9	2822.4	2854.7	2930.0	2946.3	2940.8
37.5°	2326.9	2364.5	2375.2	2423.8	2461.6	2499.1	2542.4	2585.4	2650.0	2703.8	2677.0
40°	2030.7	2046.7	2073.7	2095.2	2170.6	2170.6	2192.1	2278.4	2348.4	2391.5	2386.0
42.5°	1782.9	1788.2	1809.7	1847.5	1917.5	1901.3	1917.5	1976.8	2079.0	2084.5	2143.8
45°	1610.5	1605.0	1621.3	1626.5	1669.8	1691.3	1702.1	1745.1	1831.2	1842.0	1847.5
47.5°	1454.4	1448.9	1475.9	1486.6	1502.7	1524.2	1524.2	1529.7	1562.0	1589.0	1567.5
50°	1325.0	1325.0	1325.0	1335.8	1362.8	1357.3	1362.8	1384.3	1400.3	1389.6	1384.3
52.5°	1184.9	1206.4	1222.7	1228.1	1233.4	1233.4	1238.9	1228.1	1222.7	1206.4	1174.1
55°	1088.0	1109.5	1109.5	1109.5	1109.5	1131.1	1104.3	1109.5	1109.5	1066.5	1023.4
57.5°	991.2	1012.7	1028.7	1007.2	1028.7	1007.2	996.4	991.2	980.2	937.1	872.6
60°	910.3	921.1	915.6	910.3	921.1	904.9	894.1	872.6	861.8	802.5	759.5
62.5°	818.8	824.0	829.5	818.8	808.0	802.5	781.0	748.7	727.2	678.6	640.9
65°	743.2	727.2	721.7	716.4	705.7	689.4	673.4	635.6	619.3	576.3	538.5
67.5°	630.1	624.8	635.6	619.3	592.5	592.5	576.3	544.0	506.2	479.4	441.7
70°	538.5	533.2	522.5	506.2	501.0	479.4	479.4	441.7	430.9	382.4	350.1
72.5°	441.7	441.7	425.4	409.4	393.1	382.4	377.1	350.1	334.0	307.0	280.0
75°	334.0	334.0	328.6	312.3	301.5	290.8	285.5	264.0	247.7	220.9	204.7
77.5°	237.0	237.0	215.5	204.7	210.0	199.2	188.4	183.2	177.7	161.6	140.1
80°	140.1	134.6	118.6	123.9	118.6	118.6	113.1	107.6	96.9	86.1	75.3
82.5°	37.8	43.0	43.0	43.0	48.5	37.8	37.8	37.8	43.0	43.0	27.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.5	5.5
87.5°	5.5	10.8	21.5	21.5	21.5	21.5	21.5	16.2	16.2	16.2	10.8
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°	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0
2.5°	4546.0	4540.5	4546.0	4508.2	4594.3	4529.8	4519.0	4508.2	4546.0	4508.2	4454.4
5°	4642.9	4589.1	4572.8	4556.8	4605.1	4529.8	4513.7	4519.0	4492.0	4422.1	4427.4
7.5°	4675.2	4626.8	4578.3	4476.0	4519.0	4503.0	4459.7	4427.4	4384.4	4325.1	4314.3
10°	4685.9	4632.1	4562.1	4529.8	4465.2	4443.7	4427.4	4373.6	4319.8	4217.5	4190.4
12.5°	4653.6	4589.1	4503.0	4476.0	4427.4	4357.4	4319.8	4265.8	4217.5	4136.6	4077.3
15°	4513.7	4459.7	4432.9	4341.3	4319.8	4276.5	4201.2	4125.9	4055.8	3948.0	3915.7
17.5°	4352.1	4330.6	4303.6	4233.5	4228.2	4185.2	4115.1	4050.3	3959.0	3791.8	3738.0
20°	4185.2	4185.2	4098.9	4072.1	4125.9	4039.6	3985.8	3926.5	3738.0	3657.2	3560.3
22.5°	4061.3	4002.0	3953.5	3910.4	3915.7	3861.9	3786.6	3668.0	3597.9	3501.0	3387.9
25°	3818.8	3840.4	3732.7	3716.5	3732.7	3608.7	3571.1	3474.0	3371.7	3280.1	3194.0
27.5°	3668.0	3608.7	3538.8	3479.5	3479.5	3431.0	3323.4	3301.8	3145.5	3059.4	2951.5
30°	3441.7	3398.7	3339.4	3253.3	3242.5	3204.8	3118.7	3064.7	2903.2	2773.9	2714.6
32.5°	3156.2	3140.2	3091.7	2994.8	2962.5	2919.3	2811.6	2720.1	2644.7	2499.1	2429.3
35°	2951.5	2892.5	2790.1	2709.3	2682.3	2606.9	2520.6	2456.1	2375.2	2246.1	2154.5
37.5°	2644.7	2585.4	2488.4	2391.5	2391.5	2316.2	2197.6	2133.0	2019.9	1944.3	1869.0
40°	2375.2	2299.9	2203.1	2089.9	2073.7	1965.9	1917.5	1809.7	1739.7	1621.3	1610.5
42.5°	2073.7	2003.6	1917.5	1831.2	1766.7	1712.9	1589.0	1508.2	1432.8	1373.5	1357.3
45°	1798.9	1707.4	1632.0	1524.2	1459.6	1395.1	1314.2	1260.4	1201.1	1136.6	1098.8
47.5°	1562.0	1486.6	1378.8	1281.9	1217.4	1184.9	1093.3	1034.2	985.7	942.6	915.6
50°	1319.7	1228.1	1168.8	1061.0	1050.2	974.9	899.6	851.0	824.0	786.5	748.7
52.5°	1136.6	1050.2	969.4	888.8	845.6	818.8	748.7	700.2	662.6	635.6	614.1
55°	958.7	883.3	818.8	737.9	710.9	673.4	592.5	581.8	544.0	506.2	479.4
57.5°	824.0	754.0	678.6	624.8	576.3	549.5	484.7	441.7	420.1	387.9	360.8
60°	700.2	624.8	565.5	501.0	479.4	441.7	393.1	355.6	328.6	301.5	274.7
62.5°	587.1	522.5	457.9	403.9	371.6	350.1	312.3	280.0	253.2	231.7	210.0
65°	484.7	425.4	371.6	317.8	301.5	274.7	247.7	220.9	199.2	172.4	150.9
67.5°	398.6	344.8	290.8	253.2	237.0	226.2	193.9	166.9	150.9	134.6	113.1
70°	312.3	274.7	231.7	199.2	183.2	166.9	145.4	129.4	107.6	96.9	80.8
72.5°	242.5	210.0	172.4	145.4	134.6	123.9	102.3	86.1	75.3	64.6	53.8
75°	172.4	145.4	123.9	96.9	91.6	86.1	70.1	59.3	48.5	37.8	32.3
77.5°	118.6	96.9	75.3	64.6	59.3	48.5	43.0	32.3	27.0	21.5	16.2
80°	64.6	48.5	37.8	32.3	27.0	21.5	21.5	16.2	10.8	10.8	5.5
82.5°	21.5	16.2	10.8	5.5	5.5	5.5	5.5	5.5	5.5	0.0	5.5
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°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	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°	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0
2.5°	4486.7	4427.4	4443.7	4443.7	4432.9	4432.9	4422.1	4405.9	4411.4	4378.9	4309.0
5°	4438.2	4362.8	4352.1	4362.8	4319.8	4309.0	4287.5	4319.8	4222.7	4260.5	4217.5
7.5°	4298.3	4228.2	4212.0	4249.7	4195.9	4163.4	4158.2	4201.2	4115.1	4072.1	4023.5
10°	4141.9	4115.1	4066.6	4039.6	4023.5	4028.8	3985.8	3931.9	3915.7	3904.9	3861.9
12.5°	4002.0	3942.7	3899.7	3867.4	3856.6	3856.6	3786.6	3775.8	3727.3	3716.5	3651.9
15°	3834.9	3765.0	3738.0	3695.0	3657.2	3678.7	3597.9	3576.4	3560.3	3490.3	3501.0
17.5°	3689.5	3614.1	3549.6	3522.6	3490.3	3458.0	3382.4	3398.7	3360.9	3360.9	3264.1
20°	3501.0	3420.2	3371.7	3317.9	3317.9	3274.8	3221.0	3226.3	3177.8	3129.4	3043.1
22.5°	3301.8	3215.5	3156.2	3134.7	3080.9	3070.1	3005.6	2989.3	2924.7	2930.0	2854.7
25°	3091.7	3005.6	2924.7	2930.0	2881.7	2860.2	2822.4	2747.1	2720.1	2687.8	2666.2
27.5°	2843.9	2784.6	2714.6	2709.3	2617.7	2623.0	2574.7	2553.1	2488.4	2504.6	2456.1
30°	2617.7	2531.6	2466.8	2450.8	2413.0	2402.3	2326.9	2294.4	2305.4	2262.1	2235.3
32.5°	2386.0	2256.9	2229.9	2197.6	2176.0	2149.0	2095.2	2116.7	2068.2	2079.0	2035.9
35°	2079.0	2025.2	1955.1	1955.1	1933.6	1912.1	1874.5	1896.0	1847.5	1826.0	1782.9
37.5°	1820.5	1772.2	1702.1	1723.6	1685.8	1653.6	1621.3	1626.5	1583.5	1578.2	1535.0
40°	1540.4	1513.4	1465.1	1465.1	1438.1	1438.1	1421.9	1405.8	1378.8	1346.5	1298.0
42.5°	1276.5	1254.9	1233.4	1238.9	1201.1	1233.4	1190.4	1217.4	1131.1	1125.8	1093.3
45°	1082.5	1034.2	1039.5	1018.0	996.4	1007.2	969.4	980.2	931.9	921.1	888.8
47.5°	878.1	861.8	829.5	818.8	818.8	802.5	786.5	781.0	759.5	732.5	689.4
50°	721.7	662.6	651.6	635.6	624.8	624.8	603.3	571.0	576.3	549.5	506.2
52.5°	565.5	517.0	495.5	490.2	468.7	457.9	430.9	409.4	393.1	382.4	355.6
55°	436.2	393.1	366.3	366.3	334.0	334.0	296.3	280.0	258.5	237.0	220.9
57.5°	328.6	307.0	280.0	258.5	247.7	220.9	199.2	172.4	156.2	123.9	102.3
60°	247.7	226.2	199.2	183.2	172.4	145.4	118.6	96.9	59.3	48.5	43.0
62.5°	183.2	161.6	134.6	123.9	113.1	91.6	64.6	32.3	16.2	16.2	16.2
65°	134.6	107.6	86.1	75.3	64.6	48.5	21.5	10.8	5.5	5.5	5.5
67.5°	91.6	70.1	48.5	43.0	32.3	16.2	5.5	5.5	5.5	5.5	5.5
70°	59.3	43.0	21.5	16.2	10.8	5.5	5.5	5.5	5.5	5.5	5.5
72.5°	37.8	21.5	10.8	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	21.5	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	10.8	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.5	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	5.5	5.5	5.5
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 FEU4C909050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0	4492.0
2.5°	4384.4	4346.6	4368.1	4319.8	4341.3	4378.9	4352.1	4362.8
5°	4233.5	4212.0	4185.2	4115.1	4168.9	4212.0	4190.4	4185.2
7.5°	4072.1	3996.5	4034.3	4012.8	4002.0	4045.1	3996.5	4050.3
10°	3904.9	3851.1	3845.8	3808.1	3808.1	3840.4	3845.8	3813.4
12.5°	3657.2	3630.4	3630.4	3624.9	3619.4	3651.9	3657.2	3641.2
15°	3479.5	3468.8	3441.7	3436.5	3404.2	3452.5	3458.0	3452.5
17.5°	3264.1	3269.3	3242.5	3242.5	3264.1	3280.1	3237.1	3280.1
20°	3118.7	3091.7	3080.9	3032.4	3059.4	3086.4	3086.4	3091.7
22.5°	2908.5	2865.4	2881.7	2854.7	2838.4	2876.2	2876.2	2892.5
25°	2671.5	2671.5	2682.3	2666.2	2677.0	2698.5	2682.3	2720.1
27.5°	2445.3	2466.8	2466.8	2445.3	2456.1	2520.6	2547.7	2504.6
30°	2235.3	2240.6	2256.9	2246.1	2278.4	2299.9	2294.4	2326.9
32.5°	1998.4	2025.2	2035.9	2019.9	2030.7	2079.0	2052.2	2046.7
35°	1815.2	1766.7	1761.4	1766.7	1788.2	1798.9	1788.2	1826.0
37.5°	1551.2	1535.0	1513.4	1518.9	1535.0	1556.7	1567.5	1594.3
40°	1298.0	1276.5	1276.5	1271.2	1254.9	1314.2	1314.2	1314.2
42.5°	1077.3	1071.8	1045.0	1045.0	1066.5	1082.5	1071.8	1109.5
45°	883.3	861.8	845.6	845.6	861.8	861.8	878.1	872.6
47.5°	694.9	673.4	678.6	662.6	678.6	700.2	673.4	678.6
50°	522.5	522.5	511.7	522.5	517.0	522.5	511.7	501.0
52.5°	355.6	403.9	409.4	387.9	339.3	296.3	269.3	290.8
55°	204.7	183.2	183.2	177.7	166.9	161.6	145.4	161.6
57.5°	102.3	91.6	91.6	91.6	86.1	80.8	70.1	70.1
60°	43.0	37.8	37.8	32.3	27.0	21.5	16.2	21.5
62.5°	16.2	10.8	10.8	10.8	10.8	10.8	10.8	10.8
65°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
67.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
70°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
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)