

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

Summary

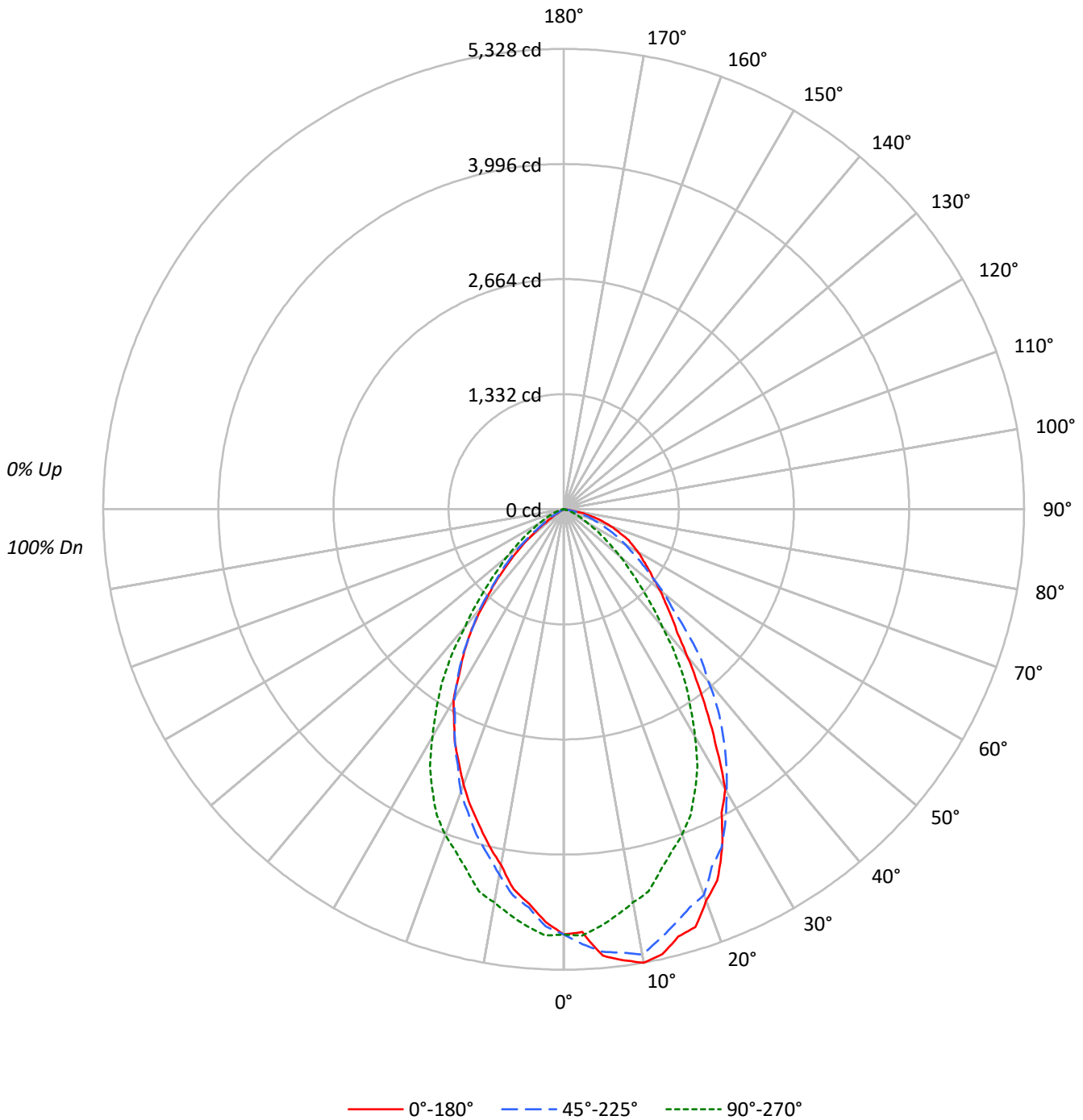
Lumens per Lamp: N/A
 Luminaire Lumens: 7053.0 lumens
 Efficiency: N/A
 Efficacy: 78.8 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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 FEU4C809040 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	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°	474754	474754	474754
5°	502293	469158	444024
10°	521984	452616	409252
15°	511550	431976	377764
20°	494945	411331	347730
25°	461680	382513	317198
30°	416762	338526	283977
35°	343302	289802	235594
40°	280167	223688	181328
45°	240722	169874	130425
50°	217855	129320	82365
55°	200488	93280	29792
60°	192418	63741	4554
65°	185869	43105	1370
70°	166419	29932	1693
75°	136409	15434	0
80°	85293	6557	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	461.0	6.5
10°-20°	1242.0	17.6
20°-30°	1658.5	23.5
30°-40°	1574.4	22.3
40°-50°	1088.3	15.4
50°-60°	601.3	8.5
60°-70°	298.6	4.2
70°-80°	117.6	1.7
80°-90°	11.2	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°	3361.5	47.7
0°-40°	4935.9	70.0
0°-60°	6625.6	93.9
0°-90°	7053.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7053.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4920	4920	4920	4920	4920	
5°	5186	5139	4844	4625	4584	496
15°	5121	4968	4324	3900	3782	1449
25°	4336	4319	3593	2979	2979	1977
35°	2914	3221	2460	2024	2000	1826
45°	1764	2024	1245	1021	956	1376
55°	1192	1121	554	283	177	1073
65°	814	590	189	6	6	790
75°	366	224	41	0	0	390
85°	0	6	0	0	0	34
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°	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3
2.5°	4896.8	5032.4	5044.2	5032.4	5050.2	5044.2	5073.8	5044.2	5079.8	5026.7	5038.4
5°	5185.9	5132.8	5244.9	5185.9	5185.9	5180.1	5162.3	5156.3	5180.1	5103.4	5138.8
7.5°	5262.7	5339.4	5439.7	5315.8	5321.6	5321.6	5286.2	5274.4	5274.4	5132.8	5174.1
10°	5327.6	5280.2	5333.4	5286.2	5327.6	5321.6	5345.2	5268.4	5321.6	5239.1	5233.1
12.5°	5274.4	5256.6	5327.6	5250.9	5227.3	5233.1	5203.7	5185.9	5203.7	5109.2	5103.4
15°	5121.0	5138.8	5244.9	5162.3	5150.6	5138.8	5103.4	5044.2	5091.6	4961.7	4967.7
17.5°	5068.0	5038.4	5056.2	4985.3	5003.1	4991.3	4985.3	4932.4	4920.3	4837.8	4837.8
20°	4820.2	4885.0	4885.0	4837.8	4837.8	4832.0	4755.3	4802.5	4749.3	4725.7	4749.3
22.5°	4649.0	4655.0	4655.0	4613.6	4619.6	4596.0	4554.7	4525.1	4554.7	4525.1	4477.9
25°	4336.5	4348.3	4419.0	4342.2	4330.5	4354.0	4318.7	4300.9	4295.1	4224.4	4318.7
27.5°	3958.8	4076.7	4070.9	4041.3	4076.7	4029.5	4011.9	4017.7	4035.5	4029.5	4053.1
30°	3740.6	3758.1	3775.9	3752.4	3758.1	3740.6	3740.6	3746.4	3793.5	3775.9	3769.9
32.5°	3297.9	3356.9	3404.3	3404.3	3410.0	3427.8	3421.8	3545.7	3575.3	3516.4	3504.6
35°	2914.5	2955.9	2997.0	3003.0	3079.7	3085.5	3091.5	3126.9	3209.4	3227.2	3221.2
37.5°	2548.8	2590.0	2601.7	2654.9	2696.3	2737.4	2784.8	2832.0	2902.7	2961.6	2932.3
40°	2224.3	2241.9	2271.4	2295.0	2377.5	2377.5	2401.1	2495.6	2572.4	2619.5	2613.5
42.5°	1952.9	1958.7	1982.3	2023.7	2100.4	2082.6	2100.4	2165.3	2277.2	2283.2	2348.2
45°	1764.1	1758.1	1775.9	1781.6	1829.0	1852.6	1864.4	1911.5	2005.9	2017.6	2023.7
47.5°	1593.0	1587.0	1616.6	1628.4	1646.0	1669.5	1669.5	1675.6	1710.9	1740.5	1716.9
50°	1451.3	1451.3	1451.3	1463.1	1492.7	1486.7	1492.7	1516.3	1533.9	1522.1	1516.3
52.5°	1297.9	1321.4	1339.2	1345.3	1351.0	1351.0	1357.0	1345.3	1339.2	1321.4	1286.1
55°	1191.8	1215.3	1215.3	1215.3	1215.3	1238.9	1209.6	1215.3	1215.3	1168.2	1121.0
57.5°	1085.7	1109.3	1126.8	1103.2	1126.8	1103.2	1091.5	1085.7	1073.7	1026.5	955.8
60°	997.1	1008.9	1002.9	997.1	1008.9	991.1	979.4	955.8	944.0	879.0	831.9
62.5°	896.8	902.6	908.6	896.8	885.0	879.0	855.5	820.1	796.5	743.4	702.0
65°	814.1	796.5	790.5	784.7	772.9	755.1	737.6	696.2	678.4	631.3	589.9
67.5°	690.2	684.4	696.2	678.4	649.0	649.0	631.3	595.9	554.5	525.2	483.8
70°	589.9	584.1	572.3	554.5	548.7	525.2	525.2	483.8	472.0	418.8	383.5
72.5°	483.8	483.8	466.0	448.4	430.6	418.8	413.1	383.5	365.9	336.3	306.7
75°	365.9	365.9	359.9	342.1	330.3	318.5	312.7	289.2	271.4	242.0	224.2
77.5°	259.6	259.6	236.0	224.2	230.0	218.2	206.4	200.6	194.6	177.1	153.5
80°	153.5	147.5	129.9	135.7	129.9	129.9	123.9	117.9	106.1	94.3	82.5
82.5°	41.4	47.2	47.2	47.2	53.2	41.4	41.4	41.4	47.2	47.2	29.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0
87.5°	6.0	11.8	23.6	23.6	23.6	23.6	23.6	17.8	17.8	17.8	11.8
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°	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3
2.5°	4979.5	4973.5	4979.5	4938.1	5032.4	4961.7	4949.9	4938.1	4979.5	4938.1	4879.2
5°	5085.6	5026.7	5008.9	4991.3	5044.2	4961.7	4944.1	4949.9	4920.3	4843.8	4849.6
7.5°	5121.0	5068.0	5014.9	4902.8	4949.9	4932.4	4885.0	4849.6	4802.5	4737.5	4725.7
10°	5132.8	5073.8	4997.1	4961.7	4891.0	4867.4	4849.6	4790.7	4731.7	4619.6	4590.0
12.5°	5097.4	5026.7	4932.4	4902.8	4849.6	4772.9	4731.7	4672.5	4619.6	4531.1	4466.1
15°	4944.1	4885.0	4855.6	4755.3	4731.7	4684.3	4601.8	4519.3	4442.6	4324.4	4289.1
17.5°	4767.1	4743.5	4713.9	4637.2	4631.4	4584.3	4507.5	4436.6	4336.5	4153.4	4094.5
20°	4584.3	4584.3	4489.7	4460.4	4519.3	4424.8	4365.8	4300.9	4094.5	4005.9	3899.8
22.5°	4448.6	4383.6	4330.5	4283.3	4289.1	4230.1	4147.6	4017.7	3941.0	3834.9	3711.0
25°	4183.0	4206.6	4088.7	4070.9	4088.7	3952.8	3911.6	3805.3	3693.2	3592.9	3498.6
27.5°	4017.7	3952.8	3876.3	3811.3	3811.3	3758.1	3640.3	3616.7	3445.4	3351.1	3233.0
30°	3769.9	3722.8	3657.8	3563.5	3551.7	3510.4	3416.1	3356.9	3180.1	3038.4	2973.4
32.5°	3457.2	3439.6	3386.5	3280.4	3245.0	3197.6	3079.7	2979.4	2896.9	2737.4	2660.9
35°	3233.0	3168.3	3056.2	2967.6	2938.1	2855.5	2761.0	2690.3	2601.7	2460.3	2360.0
37.5°	2896.9	2832.0	2725.6	2619.5	2619.5	2537.0	2407.1	2336.4	2212.5	2129.7	2047.2
40°	2601.7	2519.2	2413.1	2289.2	2271.4	2153.3	2100.4	1982.3	1905.5	1775.9	1764.1
42.5°	2271.4	2194.7	2100.4	2005.9	1935.1	1876.2	1740.5	1652.0	1569.5	1504.5	1486.7
45°	1970.5	1870.2	1787.7	1669.5	1598.8	1528.1	1439.6	1380.6	1315.7	1244.9	1203.6
47.5°	1710.9	1628.4	1510.3	1404.2	1333.5	1297.9	1197.6	1132.8	1079.7	1032.5	1002.9
50°	1445.6	1345.3	1280.3	1162.2	1150.4	1067.9	985.4	932.2	902.6	861.5	820.1
52.5°	1244.9	1150.4	1061.9	973.6	926.2	896.8	820.1	766.9	725.8	696.2	672.6
55°	1050.1	967.6	896.8	808.3	778.7	737.6	649.0	637.3	595.9	554.5	525.2
57.5°	902.6	825.9	743.4	684.4	631.3	601.9	530.9	483.8	460.2	424.8	395.3
60°	766.9	684.4	619.5	548.7	525.2	483.8	430.6	389.5	359.9	330.3	300.9
62.5°	643.0	572.3	501.6	442.4	407.0	383.5	342.1	306.7	277.4	253.8	230.0
65°	530.9	466.0	407.0	348.1	330.3	300.9	271.4	242.0	218.2	188.8	165.3
67.5°	436.6	377.7	318.5	277.4	259.6	247.8	212.4	182.8	165.3	147.5	123.9
70°	342.1	300.9	253.8	218.2	200.6	182.8	159.3	141.7	117.9	106.1	88.5
72.5°	265.6	230.0	188.8	159.3	147.5	135.7	112.1	94.3	82.5	70.7	58.9
75°	188.8	159.3	135.7	106.1	100.3	94.3	76.7	65.0	53.2	41.4	35.4
77.5°	129.9	106.1	82.5	70.7	65.0	53.2	47.2	35.4	29.6	23.6	17.8
80°	70.7	53.2	41.4	35.4	29.6	23.6	23.6	17.8	11.8	11.8	6.0
82.5°	23.6	17.8	11.8	6.0	6.0	6.0	6.0	6.0	6.0	0.0	6.0
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°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	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°	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3
2.5°	4914.6	4849.6	4867.4	4867.4	4855.6	4855.6	4843.8	4826.0	4832.0	4796.4	4719.9
5°	4861.4	4778.9	4767.1	4778.9	4731.7	4719.9	4696.4	4731.7	4625.4	4666.8	4619.6
7.5°	4708.1	4631.4	4613.6	4655.0	4596.0	4560.4	4554.7	4601.8	4507.5	4460.4	4407.2
10°	4536.9	4507.5	4454.4	4424.8	4407.2	4413.0	4365.8	4306.9	4289.1	4277.3	4230.1
12.5°	4383.6	4318.7	4271.5	4236.2	4224.4	4224.4	4147.6	4135.8	4082.7	4070.9	4000.2
15°	4200.6	4124.0	4094.5	4047.3	4005.9	4029.5	3941.0	3917.4	3899.8	3823.1	3834.9
17.5°	4041.3	3958.8	3888.1	3858.5	3823.1	3787.7	3705.0	3722.8	3681.4	3681.4	3575.3
20°	3834.9	3746.4	3693.2	3634.3	3634.3	3587.1	3528.2	3533.9	3480.8	3427.8	3333.3
22.5°	3616.7	3522.2	3457.2	3433.6	3374.7	3362.9	3292.2	3274.4	3203.6	3209.4	3126.9
25°	3386.5	3292.2	3203.6	3209.4	3156.5	3132.9	3091.5	3009.0	2979.4	2944.1	2920.5
27.5°	3115.1	3050.2	2973.4	2967.6	2867.3	2873.1	2820.2	2796.6	2725.6	2743.4	2690.3
30°	2867.3	2773.0	2702.1	2684.5	2643.1	2631.3	2548.8	2513.2	2525.2	2477.8	2448.5
32.5°	2613.5	2472.1	2442.5	2407.1	2383.5	2354.0	2295.0	2318.6	2265.4	2277.2	2230.1
35°	2277.2	2218.3	2141.5	2141.5	2118.0	2094.4	2053.2	2076.8	2023.7	2000.1	1952.9
37.5°	1994.1	1941.1	1864.4	1888.0	1846.6	1811.2	1775.9	1781.6	1734.5	1728.7	1681.3
40°	1687.3	1657.8	1604.8	1604.8	1575.2	1575.2	1557.4	1539.9	1510.3	1474.9	1421.8
42.5°	1398.2	1374.6	1351.0	1357.0	1315.7	1351.0	1303.9	1333.5	1238.9	1233.1	1197.6
45°	1185.8	1132.8	1138.6	1115.0	1091.5	1103.2	1061.9	1073.7	1020.7	1008.9	973.6
47.5°	961.8	944.0	908.6	896.8	896.8	879.0	861.5	855.5	831.9	802.3	755.1
50°	790.5	725.8	713.8	696.2	684.4	684.4	660.8	625.5	631.3	601.9	554.5
52.5°	619.5	566.3	542.7	536.9	513.4	501.6	472.0	448.4	430.6	418.8	389.5
55°	477.8	430.6	401.3	401.3	365.9	365.9	324.5	306.7	283.1	259.6	242.0
57.5°	359.9	336.3	306.7	283.1	271.4	242.0	218.2	188.8	171.0	135.7	112.1
60°	271.4	247.8	218.2	200.6	188.8	159.3	129.9	106.1	65.0	53.2	47.2
62.5°	200.6	177.1	147.5	135.7	123.9	100.3	70.7	35.4	17.8	17.8	17.8
65°	147.5	117.9	94.3	82.5	70.7	53.2	23.6	11.8	6.0	6.0	6.0
67.5°	100.3	76.7	53.2	47.2	35.4	17.8	6.0	6.0	6.0	6.0	6.0
70°	65.0	47.2	23.6	17.8	11.8	6.0	6.0	6.0	6.0	6.0	6.0
72.5°	41.4	23.6	11.8	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	23.6	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	11.8	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	6.0	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	6.0	6.0	6.0
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-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3	4920.3
2.5°	4802.5	4761.1	4784.7	4731.7	4755.3	4796.4	4767.1	4778.9
5°	4637.2	4613.6	4584.3	4507.5	4566.5	4613.6	4590.0	4584.3
7.5°	4460.4	4377.6	4419.0	4395.4	4383.6	4430.8	4377.6	4436.6
10°	4277.3	4218.4	4212.6	4171.2	4171.2	4206.6	4212.6	4177.0
12.5°	4005.9	3976.6	3976.6	3970.6	3964.6	4000.2	4005.9	3988.4
15°	3811.3	3799.5	3769.9	3764.2	3728.8	3781.7	3787.7	3781.7
17.5°	3575.3	3581.1	3551.7	3551.7	3575.3	3592.9	3545.7	3592.9
20°	3416.1	3386.5	3374.7	3321.5	3351.1	3380.7	3380.7	3386.5
22.5°	3185.8	3138.7	3156.5	3126.9	3109.1	3150.5	3150.5	3168.3
25°	2926.3	2926.3	2938.1	2920.5	2932.3	2955.9	2938.1	2979.4
27.5°	2678.5	2702.1	2702.1	2678.5	2690.3	2761.0	2790.6	2743.4
30°	2448.5	2454.3	2472.1	2460.3	2495.6	2519.2	2513.2	2548.8
32.5°	2188.9	2218.3	2230.1	2212.5	2224.3	2277.2	2247.9	2241.9
35°	1988.3	1935.1	1929.3	1935.1	1958.7	1970.5	1958.7	2000.1
37.5°	1699.1	1681.3	1657.8	1663.8	1681.3	1705.1	1716.9	1746.3
40°	1421.8	1398.2	1398.2	1392.4	1374.6	1439.6	1439.6	1439.6
42.5°	1180.0	1174.0	1144.6	1144.6	1168.2	1185.8	1174.0	1215.3
45°	967.6	944.0	926.2	926.2	944.0	944.0	961.8	955.8
47.5°	761.2	737.6	743.4	725.8	743.4	766.9	737.6	743.4
50°	572.3	572.3	560.5	572.3	566.3	572.3	560.5	548.7
52.5°	389.5	442.4	448.4	424.8	371.7	324.5	294.9	318.5
55°	224.2	200.6	200.6	194.6	182.8	177.1	159.3	177.1
57.5°	112.1	100.3	100.3	100.3	94.3	88.5	76.7	76.7
60°	47.2	41.4	41.4	35.4	29.6	23.6	17.8	23.6
62.5°	17.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
65°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
67.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
70°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
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)