

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 FEU4C809027 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 FEU4C809027 F4LC-SQLWW-LI
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

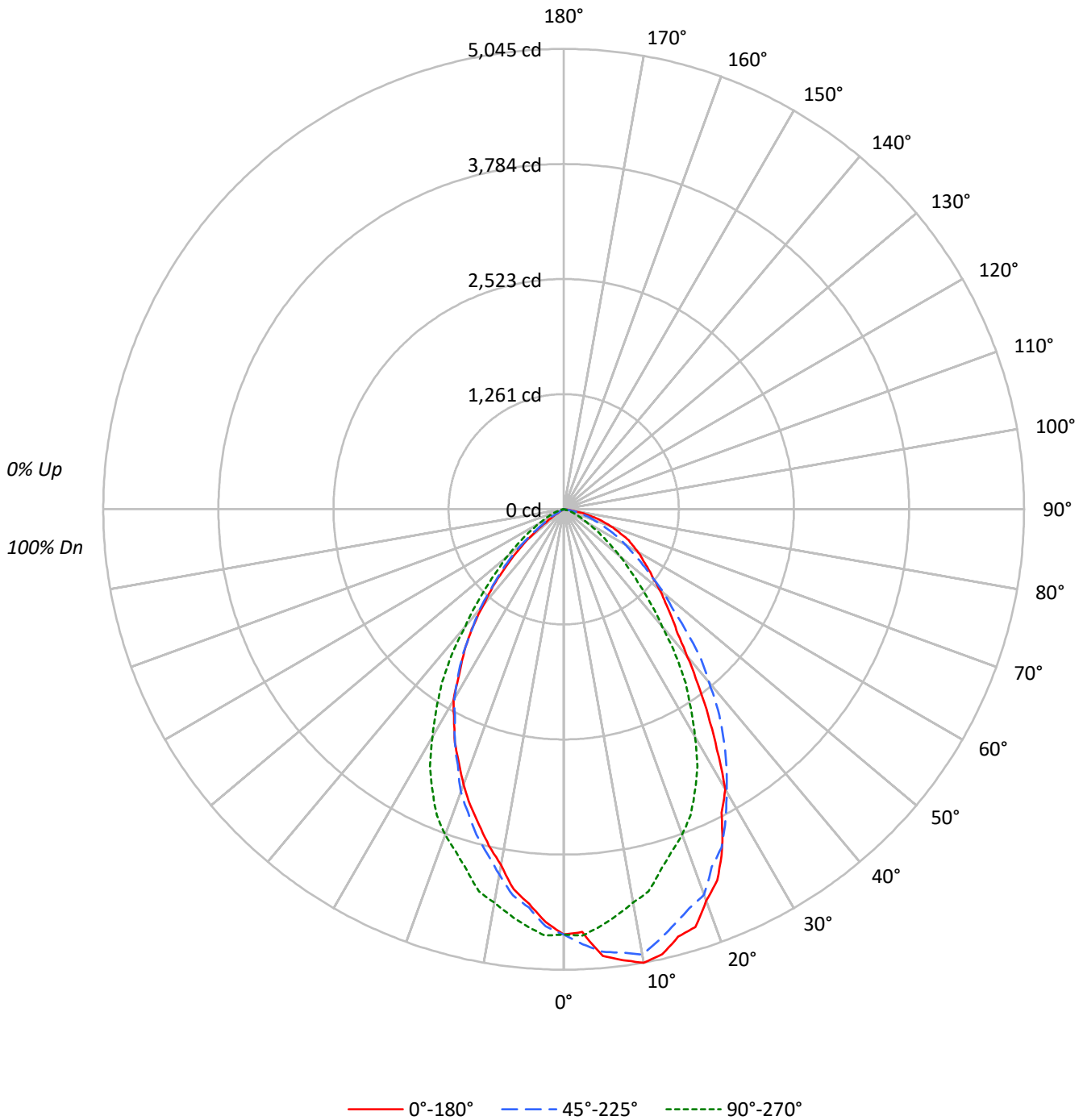
Lumens per Lamp: N/A
 Luminaire Lumens: 6679.0 lumens
 Efficiency: N/A
 Efficacy: 74.6 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C809027 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°	449580	449580	449580
5°	475657	444285	420478
10°	494306	428622	387550
15°	484419	409070	357736
20°	468699	389522	329289
25°	437193	362232	300377
30°	394657	320577	268924
35°	325092	274430	223097
40°	265304	211822	171705
45°	227950	160868	123506
50°	206311	122460	77997
55°	189857	88334	28211
60°	182229	60363	4303
65°	176006	40822	1301
70°	157589	28353	1608
75°	129177	14614	0
80°	80737	6223	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	436.6	6.5
10°-20°	1176.2	17.6
20°-30°	1570.6	23.5
30°-40°	1490.9	22.3
40°-50°	1030.6	15.4
50°-60°	569.4	8.5
60°-70°	282.8	4.2
70°-80°	111.4	1.7
80°-90°	10.6	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°	3183.3	47.7
0°-40°	4674.2	70.0
0°-60°	6274.2	93.9
0°-90°	6679.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6679.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4659	4659	4659	4659	4659	
5°	4911	4866	4587	4380	4341	470
15°	4849	4704	4095	3693	3581	1372
25°	4106	4090	3402	2821	2821	1872
35°	2760	3050	2330	1916	1894	1729
45°	1670	1916	1179	967	905	1303
55°	1129	1062	525	268	168	1016
65°	771	559	179	6	6	748
75°	346	212	39	0	0	369
85°	0	6	0	0	0	32
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°	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4
2.5°	4637.1	4765.6	4776.7	4765.6	4782.4	4776.7	4804.8	4776.7	4810.5	4760.1	4771.3
5°	4910.9	4860.6	4966.7	4910.9	4910.9	4905.5	4888.6	4882.9	4905.5	4832.8	4866.3
7.5°	4983.6	5056.3	5151.3	5033.9	5039.4	5039.4	5005.9	4994.8	4994.8	4860.6	4899.8
10°	5045.1	5000.2	5050.6	5005.9	5045.1	5039.4	5061.7	4989.1	5039.4	4961.3	4955.6
12.5°	4994.8	4977.9	5045.1	4972.4	4950.1	4955.6	4927.8	4910.9	4927.8	4838.3	4832.8
15°	4849.4	4866.3	4966.7	4888.6	4877.4	4866.3	4832.8	4776.7	4821.6	4698.6	4704.3
17.5°	4799.3	4771.3	4788.1	4720.9	4737.8	4726.6	4720.9	4670.8	4659.4	4581.3	4581.3
20°	4564.6	4625.9	4625.9	4581.3	4581.3	4575.8	4503.1	4547.8	4497.4	4475.1	4497.4
22.5°	4402.5	4408.1	4408.1	4369.0	4374.7	4352.3	4313.1	4285.1	4313.1	4285.1	4240.5
25°	4106.5	4117.7	4184.7	4112.0	4100.8	4123.2	4089.7	4072.8	4067.3	4000.4	4089.7
27.5°	3748.9	3860.5	3855.0	3827.0	3860.5	3815.8	3799.2	3804.7	3821.5	3815.8	3838.2
30°	3542.2	3558.9	3575.7	3553.4	3558.9	3542.2	3542.2	3547.7	3592.4	3575.7	3570.0
32.5°	3123.1	3178.9	3223.8	3223.8	3229.2	3246.1	3240.4	3357.7	3385.7	3329.9	3318.7
35°	2759.9	2799.1	2838.1	2843.8	2916.4	2921.9	2927.6	2961.1	3039.2	3056.1	3050.4
37.5°	2413.7	2452.6	2463.8	2514.1	2553.3	2592.3	2637.1	2681.8	2748.8	2804.6	2776.8
40°	2106.3	2123.0	2151.0	2173.3	2251.5	2251.5	2273.8	2363.3	2436.0	2480.6	2474.9
42.5°	1849.4	1854.8	1877.2	1916.3	1989.0	1972.2	1989.0	2050.5	2156.5	2162.2	2223.7
45°	1670.5	1664.8	1681.7	1687.2	1732.0	1754.4	1765.5	1810.2	1899.5	1910.7	1916.3
47.5°	1508.6	1502.9	1530.9	1542.1	1558.7	1581.0	1581.0	1586.7	1620.2	1648.2	1625.9
50°	1374.4	1374.4	1374.4	1385.5	1413.6	1407.9	1413.6	1435.9	1452.5	1441.4	1435.9
52.5°	1229.0	1251.4	1268.2	1273.9	1279.4	1279.4	1285.1	1273.9	1268.2	1251.4	1217.9
55°	1128.6	1150.9	1150.9	1150.9	1150.9	1173.2	1145.4	1150.9	1150.9	1106.2	1061.6
57.5°	1028.1	1050.4	1067.1	1044.7	1067.1	1044.7	1033.6	1028.1	1016.7	972.1	905.1
60°	944.3	955.4	949.7	944.3	955.4	938.6	927.4	905.1	893.9	832.4	787.8
62.5°	849.3	854.7	860.4	849.3	838.1	832.4	810.1	776.6	754.3	703.9	664.8
65°	770.9	754.3	748.6	743.1	732.0	715.1	698.5	659.3	642.4	597.8	558.6
67.5°	653.6	648.1	659.3	642.4	614.6	614.6	597.8	564.3	525.1	497.3	458.1
70°	558.6	553.1	542.0	525.1	519.6	497.3	497.3	458.1	447.0	396.6	363.1
72.5°	458.1	458.1	441.3	424.6	407.8	396.6	391.1	363.1	346.5	318.5	290.5
75°	346.5	346.5	340.8	324.0	312.8	301.6	296.2	273.8	257.0	229.2	212.3
77.5°	245.8	245.8	223.5	212.3	217.8	206.6	195.5	190.0	184.3	167.7	145.3
80°	145.3	139.6	123.0	128.5	123.0	123.0	117.3	111.6	100.5	89.3	78.1
82.5°	39.2	44.7	44.7	44.7	50.3	39.2	39.2	39.2	44.7	44.7	28.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	5.7	5.7
87.5°	5.7	11.2	22.3	22.3	22.3	22.3	22.3	16.9	16.9	16.9	11.2
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°	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4
2.5°	4715.5	4709.8	4715.5	4676.3	4765.6	4698.6	4687.4	4676.3	4715.5	4676.3	4620.5
5°	4815.9	4760.1	4743.3	4726.6	4776.7	4698.6	4682.0	4687.4	4659.4	4587.0	4592.4
7.5°	4849.4	4799.3	4748.9	4642.8	4687.4	4670.8	4625.9	4592.4	4547.8	4486.3	4475.1
10°	4860.6	4804.8	4732.1	4698.6	4631.6	4609.3	4592.4	4536.6	4480.8	4374.7	4346.6
12.5°	4827.1	4760.1	4670.8	4642.8	4592.4	4519.8	4480.8	4424.8	4374.7	4290.8	4229.3
15°	4682.0	4625.9	4598.1	4503.1	4480.8	4435.9	4357.8	4279.7	4207.0	4095.1	4061.6
17.5°	4514.3	4492.0	4464.0	4391.3	4385.8	4341.2	4268.5	4201.3	4106.5	3933.2	3877.3
20°	4341.2	4341.2	4251.6	4223.8	4279.7	4190.1	4134.3	4072.8	3877.3	3793.5	3693.0
22.5°	4212.7	4151.2	4100.8	4056.2	4061.6	4005.8	3927.7	3804.7	3732.0	3631.5	3514.2
25°	3961.2	3983.5	3871.9	3855.0	3871.9	3743.2	3704.2	3603.5	3497.4	3402.4	3313.1
27.5°	3804.7	3743.2	3670.7	3609.2	3609.2	3558.9	3447.2	3424.9	3262.7	3173.4	3061.6
30°	3570.0	3525.4	3463.9	3374.6	3363.4	3324.2	3234.9	3178.9	3011.4	2877.3	2815.7
32.5°	3273.9	3257.2	3206.9	3106.4	3072.9	3028.1	2916.4	2821.4	2743.3	2592.3	2519.8
35°	3061.6	3000.3	2894.1	2810.3	2782.3	2704.1	2614.6	2547.6	2463.8	2329.8	2234.8
37.5°	2743.3	2681.8	2581.1	2480.6	2480.6	2402.5	2279.5	2212.5	2095.2	2016.8	1938.7
40°	2463.8	2385.6	2285.2	2167.8	2151.0	2039.1	1989.0	1877.2	1804.5	1681.7	1670.5
42.5°	2151.0	2078.3	1989.0	1899.5	1832.5	1776.7	1648.2	1564.4	1486.2	1424.7	1407.9
45°	1866.0	1771.0	1692.9	1581.0	1514.0	1447.1	1363.2	1307.4	1245.9	1178.9	1139.7
47.5°	1620.2	1542.1	1430.2	1329.7	1262.8	1229.0	1134.0	1072.8	1022.4	977.8	949.7
50°	1368.9	1273.9	1212.4	1100.6	1089.4	1011.3	933.1	882.8	854.7	815.8	776.6
52.5°	1178.9	1089.4	1005.6	921.9	877.1	849.3	776.6	726.3	687.3	659.3	637.0
55°	994.4	916.3	849.3	765.4	737.4	698.5	614.6	603.5	564.3	525.1	497.3
57.5°	854.7	782.1	703.9	648.1	597.8	570.0	502.8	458.1	435.8	402.3	374.3
60°	726.3	648.1	586.6	519.6	497.3	458.1	407.8	368.8	340.8	312.8	285.0
62.5°	608.9	542.0	475.0	418.9	385.5	363.1	324.0	290.5	262.7	240.3	217.8
65°	502.8	441.3	385.5	329.6	312.8	285.0	257.0	229.2	206.6	178.8	156.5
67.5°	413.5	357.7	301.6	262.7	245.8	234.6	201.2	173.1	156.5	139.6	117.3
70°	324.0	285.0	240.3	206.6	190.0	173.1	150.8	134.2	111.6	100.5	83.8
72.5°	251.5	217.8	178.8	150.8	139.6	128.5	106.2	89.3	78.1	67.0	55.8
75°	178.8	150.8	128.5	100.5	95.0	89.3	72.7	61.5	50.3	39.2	33.5
77.5°	123.0	100.5	78.1	67.0	61.5	50.3	44.7	33.5	28.0	22.3	16.9
80°	67.0	50.3	39.2	33.5	28.0	22.3	22.3	16.9	11.2	11.2	5.7
82.5°	22.3	16.9	11.2	5.7	5.7	5.7	5.7	5.7	5.7	0.0	5.7
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°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	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°	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4
2.5°	4654.0	4592.4	4609.3	4609.3	4598.1	4598.1	4587.0	4570.1	4575.8	4542.1	4469.6
5°	4603.6	4525.5	4514.3	4525.5	4480.8	4469.6	4447.3	4480.8	4380.1	4419.3	4374.7
7.5°	4458.5	4385.8	4369.0	4408.1	4352.3	4318.6	4313.1	4357.8	4268.5	4223.8	4173.5
10°	4296.3	4268.5	4218.1	4190.1	4173.5	4179.0	4134.3	4078.5	4061.6	4050.5	4005.8
12.5°	4151.2	4089.7	4045.0	4011.5	4000.4	4000.4	3927.7	3916.5	3866.2	3855.0	3788.0
15°	3977.8	3905.4	3877.3	3832.7	3793.5	3815.8	3732.0	3709.7	3693.0	3620.4	3631.5
17.5°	3827.0	3748.9	3681.9	3653.9	3620.4	3586.9	3508.5	3525.4	3486.2	3486.2	3385.7
20°	3631.5	3547.7	3497.4	3441.5	3441.5	3396.9	3341.1	3346.5	3296.2	3246.1	3156.6
22.5°	3424.9	3335.4	3273.9	3251.5	3195.7	3184.6	3117.6	3100.7	3033.8	3039.2	2961.1
25°	3206.9	3117.6	3033.8	3039.2	2989.1	2966.8	2927.6	2849.5	2821.4	2787.9	2765.6
27.5°	2949.9	2888.4	2815.7	2810.3	2715.3	2720.8	2670.6	2648.3	2581.1	2598.0	2547.6
30°	2715.3	2626.0	2558.8	2542.1	2503.0	2491.8	2413.7	2379.9	2391.3	2346.5	2318.7
32.5°	2474.9	2341.0	2313.0	2279.5	2257.2	2229.1	2173.3	2195.6	2145.3	2156.5	2111.8
35°	2156.5	2100.6	2028.0	2028.0	2005.7	1983.3	1944.4	1966.7	1916.3	1894.0	1849.4
37.5°	1888.3	1838.2	1765.5	1787.9	1748.7	1715.2	1681.7	1687.2	1642.5	1637.0	1592.2
40°	1597.9	1569.8	1519.7	1519.7	1491.7	1491.7	1474.9	1458.2	1430.2	1396.7	1346.4
42.5°	1324.0	1301.7	1279.4	1285.1	1245.9	1279.4	1234.7	1262.8	1173.2	1167.8	1134.0
45°	1122.9	1072.8	1078.2	1055.9	1033.6	1044.7	1005.6	1016.7	966.6	955.4	921.9
47.5°	910.8	893.9	860.4	849.3	849.3	832.4	815.8	810.1	787.8	759.8	715.1
50°	748.6	687.3	675.9	659.3	648.1	648.1	625.8	592.3	597.8	570.0	525.1
52.5°	586.6	536.3	513.9	508.5	486.1	475.0	447.0	424.6	407.8	396.6	368.8
55°	452.4	407.8	380.0	380.0	346.5	346.5	307.3	290.5	268.1	245.8	229.2
57.5°	340.8	318.5	290.5	268.1	257.0	229.2	206.6	178.8	162.0	128.5	106.2
60°	257.0	234.6	206.6	190.0	178.8	150.8	123.0	100.5	61.5	50.3	44.7
62.5°	190.0	167.7	139.6	128.5	117.3	95.0	67.0	33.5	16.9	16.9	16.9
65°	139.6	111.6	89.3	78.1	67.0	50.3	22.3	11.2	5.7	5.7	5.7
67.5°	95.0	72.7	50.3	44.7	33.5	16.9	5.7	5.7	5.7	5.7	5.7
70°	61.5	44.7	22.3	16.9	11.2	5.7	5.7	5.7	5.7	5.7	5.7
72.5°	39.2	22.3	11.2	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	22.3	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	11.2	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.7	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	5.7	5.7	5.7
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 FEU4C809027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4	4659.4
2.5°	4547.8	4508.6	4530.9	4480.8	4503.1	4542.1	4514.3	4525.5
5°	4391.3	4369.0	4341.2	4268.5	4324.3	4369.0	4346.6	4341.2
7.5°	4223.8	4145.5	4184.7	4162.3	4151.2	4195.8	4145.5	4201.3
10°	4050.5	3994.7	3989.2	3950.0	3950.0	3983.5	3989.2	3955.5
12.5°	3793.5	3765.7	3765.7	3760.0	3754.3	3788.0	3793.5	3776.9
15°	3609.2	3598.0	3570.0	3564.6	3531.1	3581.2	3586.9	3581.2
17.5°	3385.7	3391.2	3363.4	3363.4	3385.7	3402.4	3357.7	3402.4
20°	3234.9	3206.9	3195.7	3145.4	3173.4	3201.4	3201.4	3206.9
22.5°	3016.9	2972.3	2989.1	2961.1	2944.2	2983.4	2983.4	3000.3
25°	2771.1	2771.1	2782.3	2765.6	2776.8	2799.1	2782.3	2821.4
27.5°	2536.4	2558.8	2558.8	2536.4	2547.6	2614.6	2642.6	2598.0
30°	2318.7	2324.1	2341.0	2329.8	2363.3	2385.6	2379.9	2413.7
32.5°	2072.8	2100.6	2111.8	2095.2	2106.3	2156.5	2128.7	2123.0
35°	1882.9	1832.5	1827.0	1832.5	1854.8	1866.0	1854.8	1894.0
37.5°	1609.0	1592.2	1569.8	1575.5	1592.2	1614.7	1625.9	1653.7
40°	1346.4	1324.0	1324.0	1318.6	1301.7	1363.2	1363.2	1363.2
42.5°	1117.4	1111.7	1083.9	1083.9	1106.2	1122.9	1111.7	1150.9
45°	916.3	893.9	877.1	877.1	893.9	893.9	910.8	905.1
47.5°	720.8	698.5	703.9	687.3	703.9	726.3	698.5	703.9
50°	542.0	542.0	530.8	542.0	536.3	542.0	530.8	519.6
52.5°	368.8	418.9	424.6	402.3	352.0	307.3	279.3	301.6
55°	212.3	190.0	190.0	184.3	173.1	167.7	150.8	167.7
57.5°	106.2	95.0	95.0	95.0	89.3	83.8	72.7	72.7
60°	44.7	39.2	39.2	33.5	28.0	22.3	16.9	22.3
62.5°	16.9	11.2	11.2	11.2	11.2	11.2	11.2	11.2
65°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
67.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
70°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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)