

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: **FLDSQ4C25D010 FEU4C259030 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: FLDSQ4C25D010 FEU4C259030 F4LC-SQLWW-H  
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

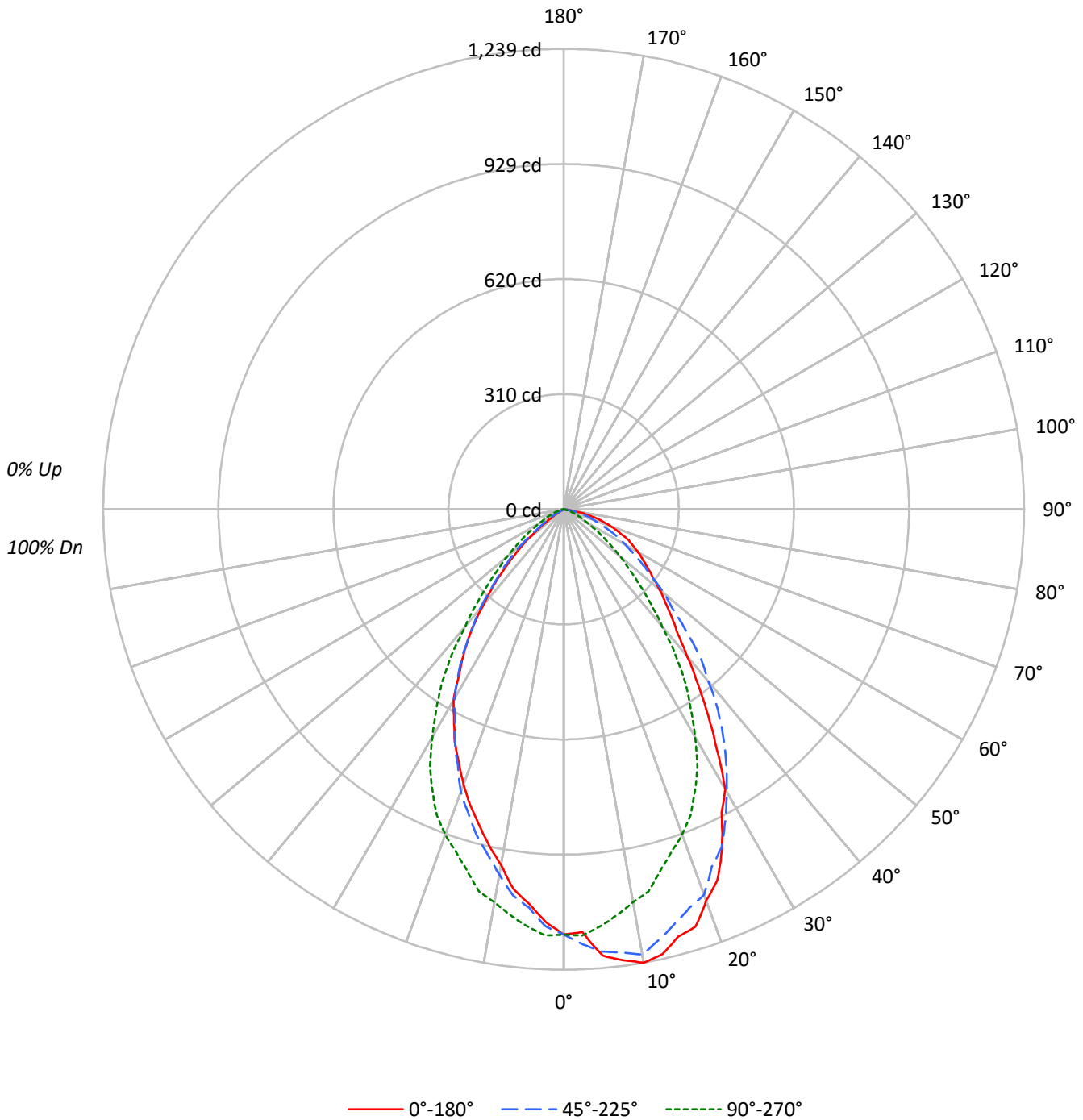
Lumens per Lamp: N/A  
 Luminaire Lumens: 1640.0 lumens  
 Efficiency: N/A  
 Efficacy: 52.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 31.5  
 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#  
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**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°	110393	110393	110393
5°	116800	109091	103250
10°	121374	105247	95165
15°	118952	100442	87836
20°	115085	95648	80851
25°	107347	88940	73758
30°	96909	78715	66036
35°	79827	67388	54785
40°	65145	52008	42158
45°	55974	39504	30321
50°	50662	30067	19154
55°	46615	21684	6931
60°	44752	14821	1061
65°	43219	10023	320
70°	38706	6968	395
75°	31726	3579	0
80°	19837	1500	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	107.2	6.5
10°-20°	288.8	17.6
20°-30°	385.6	23.5
30°-40°	366.1	22.3
40°-50°	253.1	15.4
50°-60°	139.8	8.5
60°-70°	69.4	4.2
70°-80°	27.4	1.7
80°-90°	2.6	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°	781.6	47.7
0°-40°	1147.7	70.0
0°-60°	1540.6	93.9
0°-90°	1640.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1640.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1144	1144	1144	1144	1144	
5°	1206	1195	1126	1076	1066	115
15°	1191	1155	1006	907	879	337
25°	1008	1004	835	693	693	460
35°	678	749	572	471	465	425
45°	410	471	290	237	222	320
55°	277	261	129	66	41	249
65°	189	137	44	1	1	184
75°	85	52	10	0	0	91
85°	0	1	0	0	0	8
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°	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1
2.5°	1138.6	1170.2	1172.9	1170.2	1174.3	1172.9	1179.8	1172.9	1181.2	1168.8	1171.6
5°	1205.9	1193.5	1219.6	1205.9	1205.9	1204.5	1200.4	1199.0	1204.5	1186.7	1194.9
7.5°	1223.7	1241.5	1264.9	1236.1	1237.4	1237.4	1229.2	1226.4	1226.4	1193.5	1203.1
10°	1238.8	1227.8	1240.1	1229.2	1238.8	1237.4	1242.9	1225.0	1237.4	1218.2	1216.8
12.5°	1226.4	1222.3	1238.8	1221.0	1215.5	1216.8	1210.0	1205.9	1210.0	1188.0	1186.7
15°	1190.8	1194.9	1219.6	1200.4	1197.6	1194.9	1186.7	1172.9	1183.9	1153.7	1155.1
17.5°	1178.4	1171.6	1175.7	1159.2	1163.3	1160.6	1159.2	1146.9	1144.1	1124.9	1124.9
20°	1120.8	1135.9	1135.9	1124.9	1124.9	1123.6	1105.7	1116.7	1104.3	1098.8	1104.3
22.5°	1081.0	1082.4	1082.4	1072.8	1074.2	1068.7	1059.1	1052.2	1059.1	1052.2	1041.2
25°	1008.3	1011.1	1027.5	1009.7	1006.9	1012.4	1004.2	1000.1	998.7	982.3	1004.2
27.5°	920.5	947.9	946.6	939.7	947.9	937.0	932.9	934.2	938.4	937.0	942.4
30°	869.8	873.9	878.0	872.5	873.9	869.8	869.8	871.1	882.1	878.0	876.6
32.5°	766.9	780.6	791.6	791.6	792.9	797.1	795.7	824.5	831.4	817.6	814.9
35°	677.7	687.3	696.9	698.3	716.1	717.5	718.9	727.1	746.3	750.4	749.0
37.5°	592.7	602.2	605.0	617.3	627.0	636.5	647.5	658.5	674.9	688.7	681.8
40°	517.2	521.3	528.2	533.6	552.8	552.8	558.3	580.3	598.1	609.1	607.7
42.5°	454.1	455.4	460.9	470.6	488.4	484.3	488.4	503.5	529.5	530.9	546.0
45°	410.2	408.8	412.9	414.3	425.3	430.8	433.5	444.5	466.4	469.2	470.6
47.5°	370.4	369.0	375.9	378.6	382.7	388.2	388.2	389.6	397.8	404.7	399.2
50°	337.5	337.5	337.5	340.2	347.1	345.7	347.1	352.6	356.7	353.9	352.6
52.5°	301.8	307.3	311.4	312.8	314.1	314.1	315.5	312.8	311.4	307.3	299.0
55°	277.1	282.6	282.6	282.6	282.6	288.1	281.3	282.6	282.6	271.6	260.7
57.5°	252.4	257.9	262.0	256.5	262.0	256.5	253.8	252.4	249.7	238.7	222.2
60°	231.9	234.6	233.2	231.9	234.6	230.5	227.7	222.2	219.5	204.4	193.4
62.5°	208.5	209.9	211.3	208.5	205.8	204.4	198.9	190.7	185.2	172.8	163.2
65°	189.3	185.2	183.8	182.5	179.7	175.6	171.5	161.9	157.7	146.8	137.2
67.5°	160.5	159.1	161.9	157.7	150.9	150.9	146.8	138.6	128.9	122.1	112.5
70°	137.2	135.8	133.1	128.9	127.6	122.1	122.1	112.5	109.8	97.4	89.2
72.5°	112.5	112.5	108.4	104.3	100.1	97.4	96.0	89.2	85.1	78.2	71.3
75°	85.1	85.1	83.7	79.5	76.8	74.1	72.7	67.2	63.1	56.3	52.1
77.5°	60.4	60.4	54.9	52.1	53.5	50.7	48.0	46.7	45.3	41.2	35.7
80°	35.7	34.3	30.2	31.5	30.2	30.2	28.8	27.4	24.7	21.9	19.2
82.5°	9.6	11.0	11.0	11.0	12.4	9.6	9.6	9.6	11.0	11.0	6.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4
87.5°	1.4	2.7	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1	2.7
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°	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1
2.5°	1157.9	1156.5	1157.9	1148.2	1170.2	1153.7	1151.0	1148.2	1157.9	1148.2	1134.5
5°	1182.5	1168.8	1164.7	1160.6	1172.9	1153.7	1149.6	1151.0	1144.1	1126.3	1127.7
7.5°	1190.8	1178.4	1166.1	1140.0	1151.0	1146.9	1135.9	1127.7	1116.7	1101.6	1098.8
10°	1193.5	1179.8	1161.9	1153.7	1137.3	1131.8	1127.7	1113.9	1100.2	1074.2	1067.3
12.5°	1185.3	1168.8	1146.9	1140.0	1127.7	1109.8	1100.2	1086.5	1074.2	1053.6	1038.5
15°	1149.6	1135.9	1129.1	1105.7	1100.2	1089.2	1070.0	1050.9	1033.0	1005.5	997.3
17.5°	1108.5	1103.0	1096.1	1078.3	1076.9	1066.0	1048.1	1031.6	1008.3	965.8	952.1
20°	1066.0	1066.0	1044.0	1037.1	1050.9	1028.9	1015.2	1000.1	952.1	931.5	906.8
22.5°	1034.4	1019.3	1006.9	996.0	997.3	983.6	964.4	934.2	916.4	891.7	862.9
25°	972.7	978.1	950.7	946.6	950.7	919.1	909.6	884.8	858.8	835.4	813.5
27.5°	934.2	919.1	901.3	886.2	886.2	873.9	846.5	841.0	801.1	779.2	751.8
30°	876.6	865.6	850.5	828.6	825.9	816.2	794.3	780.6	739.4	706.5	691.4
32.5°	803.9	799.8	787.4	762.8	754.5	743.5	716.1	692.8	673.6	636.5	618.7
35°	751.8	736.7	710.6	690.1	683.2	664.0	642.0	625.6	605.0	572.1	548.8
37.5°	673.6	658.5	633.8	609.1	609.1	589.9	559.7	543.3	514.5	495.2	476.0
40°	605.0	585.8	561.1	532.3	528.2	500.7	488.4	460.9	443.1	412.9	410.2
42.5°	528.2	510.3	488.4	466.4	450.0	436.3	404.7	384.1	364.9	349.8	345.7
45°	458.2	434.9	415.7	388.2	371.8	355.3	334.7	321.0	305.9	289.5	279.9
47.5°	397.8	378.6	351.2	326.5	310.1	301.8	278.5	263.4	251.0	240.1	233.2
50°	336.1	312.8	297.7	270.2	267.5	248.3	229.1	216.8	209.9	200.3	190.7
52.5°	289.5	267.5	246.9	226.4	215.4	208.5	190.7	178.3	168.8	161.9	156.4
55°	244.2	225.0	208.5	188.0	181.1	171.5	150.9	148.2	138.6	128.9	122.1
57.5°	209.9	192.0	172.8	159.1	146.8	140.0	123.5	112.5	107.0	98.8	91.9
60°	178.3	159.1	144.0	127.6	122.1	112.5	100.1	90.6	83.7	76.8	70.0
62.5°	149.5	133.1	116.6	102.9	94.6	89.2	79.5	71.3	64.5	59.0	53.5
65°	123.5	108.4	94.6	80.9	76.8	70.0	63.1	56.3	50.7	43.9	38.4
67.5°	101.5	87.8	74.1	64.5	60.4	57.6	49.4	42.5	38.4	34.3	28.8
70°	79.5	70.0	59.0	50.7	46.7	42.5	37.0	32.9	27.4	24.7	20.6
72.5°	61.8	53.5	43.9	37.0	34.3	31.5	26.1	21.9	19.2	16.4	13.7
75°	43.9	37.0	31.5	24.7	23.3	21.9	17.8	15.1	12.4	9.6	8.2
77.5°	30.2	24.7	19.2	16.4	15.1	12.4	11.0	8.2	6.9	5.5	4.1
80°	16.4	12.4	9.6	8.2	6.9	5.5	5.5	4.1	2.7	2.7	1.4
82.5°	5.5	4.1	2.7	1.4	1.4	1.4	1.4	1.4	1.4	0.0	1.4
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°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	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°	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1
2.5°	1142.8	1127.7	1131.8	1131.8	1129.1	1129.1	1126.3	1122.2	1123.6	1115.3	1097.5
5°	1130.4	1111.2	1108.5	1111.2	1100.2	1097.5	1092.0	1100.2	1075.5	1085.1	1074.2
7.5°	1094.8	1076.9	1072.8	1082.4	1068.7	1060.4	1059.1	1070.0	1048.1	1037.1	1024.8
10°	1054.9	1048.1	1035.7	1028.9	1024.8	1026.1	1015.2	1001.5	997.3	994.6	983.6
12.5°	1019.3	1004.2	993.2	985.0	982.3	982.3	964.4	961.7	949.3	946.6	930.1
15°	976.7	958.9	952.1	941.1	931.5	937.0	916.4	910.9	906.8	889.0	891.7
17.5°	939.7	920.5	904.1	897.2	889.0	880.7	861.5	865.6	856.0	856.0	831.4
20°	891.7	871.1	858.8	845.1	845.1	834.1	820.4	821.7	809.4	797.1	775.1
22.5°	841.0	819.0	803.9	798.4	784.7	782.0	765.5	761.4	744.9	746.3	727.1
25°	787.4	765.5	744.9	746.3	734.0	728.5	718.9	699.7	692.8	684.6	679.1
27.5°	724.3	709.2	691.4	690.1	666.7	668.1	655.8	650.3	633.8	637.9	625.6
30°	666.7	644.8	628.3	624.2	614.6	611.9	592.7	584.4	587.2	576.2	569.3
32.5°	607.7	574.8	567.9	559.7	554.2	547.4	533.6	539.1	526.8	529.5	518.5
35°	529.5	515.8	498.0	498.0	492.5	487.0	477.4	482.9	470.6	465.1	454.1
37.5°	463.7	451.4	433.5	439.0	429.4	421.2	412.9	414.3	403.3	402.0	391.0
40°	392.3	385.5	373.2	373.2	366.3	366.3	362.1	358.1	351.2	343.0	330.6
42.5°	325.1	319.6	314.1	315.5	305.9	314.1	303.2	310.1	288.1	286.7	278.5
45°	275.7	263.4	264.8	259.3	253.8	256.5	246.9	249.7	237.3	234.6	226.4
47.5°	223.6	219.5	211.3	208.5	208.5	204.4	200.3	198.9	193.4	186.6	175.6
50°	183.8	168.8	166.0	161.9	159.1	159.1	153.7	145.4	146.8	140.0	128.9
52.5°	144.0	131.7	126.2	124.9	119.4	116.6	109.8	104.3	100.1	97.4	90.6
55°	111.1	100.1	93.3	93.3	85.1	85.1	75.5	71.3	65.8	60.4	56.3
57.5°	83.7	78.2	71.3	65.8	63.1	56.3	50.7	43.9	39.8	31.5	26.1
60°	63.1	57.6	50.7	46.7	43.9	37.0	30.2	24.7	15.1	12.4	11.0
62.5°	46.7	41.2	34.3	31.5	28.8	23.3	16.4	8.2	4.1	4.1	4.1
65°	34.3	27.4	21.9	19.2	16.4	12.4	5.5	2.7	1.4	1.4	1.4
67.5°	23.3	17.8	12.4	11.0	8.2	4.1	1.4	1.4	1.4	1.4	1.4
70°	15.1	11.0	5.5	4.1	2.7	1.4	1.4	1.4	1.4	1.4	1.4
72.5°	9.6	5.5	2.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	5.5	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.4	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	1.4	1.4	1.4
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: FLDSQ4C25D010 FEU4C259030 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1
2.5°	1116.7	1107.1	1112.6	1100.2	1105.7	1115.3	1108.5	1111.2
5°	1078.3	1072.8	1066.0	1048.1	1061.8	1072.8	1067.3	1066.0
7.5°	1037.1	1017.9	1027.5	1022.0	1019.3	1030.3	1017.9	1031.6
10°	994.6	980.9	979.5	969.9	969.9	978.1	979.5	971.3
12.5°	931.5	924.7	924.7	923.3	921.9	930.1	931.5	927.4
15°	886.2	883.5	876.6	875.3	867.0	879.3	880.7	879.3
17.5°	831.4	832.7	825.9	825.9	831.4	835.4	824.5	835.4
20°	794.3	787.4	784.7	772.3	779.2	786.1	786.1	787.4
22.5°	740.8	729.8	734.0	727.1	722.9	732.6	732.6	736.7
25°	680.4	680.4	683.2	679.1	681.8	687.3	683.2	692.8
27.5°	622.8	628.3	628.3	622.8	625.6	642.0	648.9	637.9
30°	569.3	570.7	574.8	572.1	580.3	585.8	584.4	592.7
32.5°	509.0	515.8	518.5	514.5	517.2	529.5	522.7	521.3
35°	462.3	450.0	448.6	450.0	455.4	458.2	455.4	465.1
37.5°	395.1	391.0	385.5	386.9	391.0	396.5	399.2	406.1
40°	330.6	325.1	325.1	323.8	319.6	334.7	334.7	334.7
42.5°	274.4	273.0	266.2	266.2	271.6	275.7	273.0	282.6
45°	225.0	219.5	215.4	215.4	219.5	219.5	223.6	222.2
47.5°	177.0	171.5	172.8	168.8	172.8	178.3	171.5	172.8
50°	133.1	133.1	130.3	133.1	131.7	133.1	130.3	127.6
52.5°	90.6	102.9	104.3	98.8	86.4	75.5	68.6	74.1
55°	52.1	46.7	46.7	45.3	42.5	41.2	37.0	41.2
57.5°	26.1	23.3	23.3	23.3	21.9	20.6	17.8	17.8
60°	11.0	9.6	9.6	8.2	6.9	5.5	4.1	5.5
62.5°	4.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7
65°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)