

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 FEU4C259027 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 FEU4C259027 F4LC-SQLWW-H
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

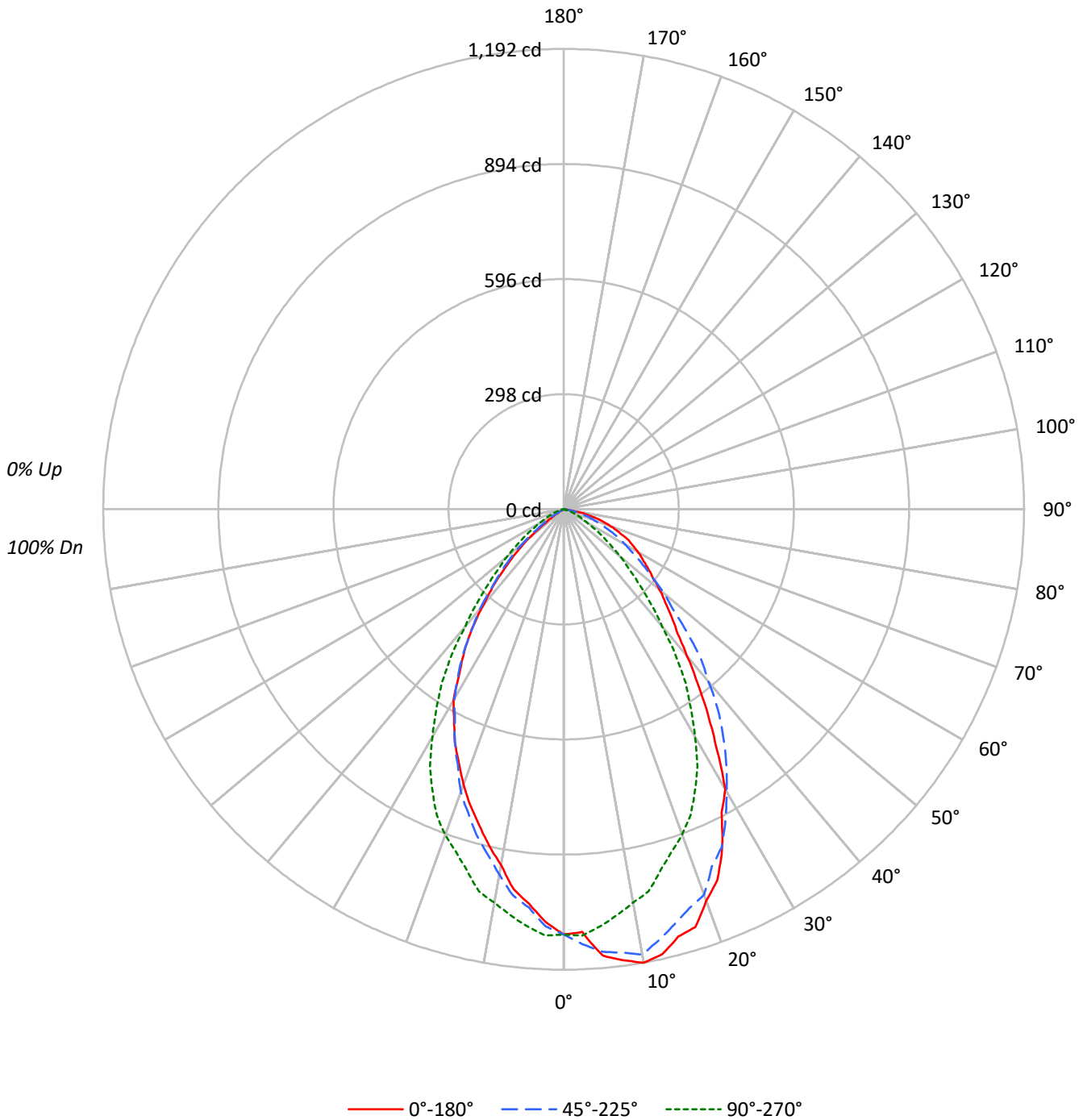
Lumens per Lamp: N/A
 Luminaire Lumens: 1578.0 lumens
 Efficiency: N/A
 Efficacy: 50.1 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C25D010 FEU4C259027 F4LC-SQLWW-H

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C25D010 FEU4C259027 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°	106215	106215	106215
5°	112384	104964	99347
10°	116789	101269	91560
15°	114447	96646	84519
20°	110742	92033	77802
25°	103291	85586	70969
30°	93244	75740	63540
35°	76812	64844	52712
40°	62676	50043	40571
45°	53859	38003	29174
50°	48741	28926	18434
55°	44848	20877	6662
60°	43053	14261	1023
65°	41576	9658	297
70°	37239	6686	367
75°	30533	3467	0
80°	19059	1445	0
85°	0	0	0

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 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259027 F4LC-SQLWW-H

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.1	6.5
10°-20°	277.9	17.6
20°-30°	371.1	23.5
30°-40°	352.2	22.3
40°-50°	243.5	15.4
50°-60°	134.5	8.5
60°-70°	66.8	4.2
70°-80°	26.3	1.7
80°-90°	2.5	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°	752.1	47.7
0°-40°	1104.3	70.0
0°-60°	1482.4	93.9
0°-90°	1578.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1578.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1101	1101	1101	1101	1101	
5°	1160	1150	1084	1035	1026	111
15°	1146	1112	968	872	846	324
25°	970	966	804	667	667	442
35°	652	721	550	453	448	409
45°	395	453	278	228	214	308
55°	267	251	124	63	40	240
65°	182	132	42	1	1	177
75°	82	50	9	0	0	87
85°	0	1	0	0	0	8
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8
2.5°	1095.6	1125.9	1128.6	1125.9	1129.9	1128.6	1135.2	1128.6	1136.5	1124.6	1127.3
5°	1160.3	1148.4	1173.5	1160.3	1160.3	1159.0	1155.0	1153.6	1159.0	1141.8	1149.7
7.5°	1177.4	1194.6	1217.1	1189.3	1190.6	1190.6	1182.7	1180.1	1180.1	1148.4	1157.6
10°	1192.0	1181.4	1193.3	1182.7	1192.0	1190.6	1195.9	1178.7	1190.6	1172.2	1170.8
12.5°	1180.1	1176.1	1192.0	1174.8	1169.5	1170.8	1164.3	1160.3	1164.3	1143.1	1141.8
15°	1145.7	1149.7	1173.5	1155.0	1152.4	1149.7	1141.8	1128.6	1139.2	1110.1	1111.5
17.5°	1133.9	1127.3	1131.3	1115.4	1119.4	1116.7	1115.4	1103.5	1100.8	1082.4	1082.4
20°	1078.5	1092.9	1092.9	1082.4	1082.4	1081.1	1063.9	1074.5	1062.6	1057.3	1062.6
22.5°	1040.1	1041.5	1041.5	1032.2	1033.6	1028.3	1019.0	1012.4	1019.0	1012.4	1001.9
25°	970.2	972.9	988.7	971.5	968.9	974.1	966.2	962.3	961.0	945.1	966.2
27.5°	885.7	912.1	910.8	904.2	912.1	901.5	897.6	898.9	902.9	901.5	906.8
30°	836.9	840.8	844.8	839.5	840.8	836.9	836.9	838.2	848.7	844.8	843.5
32.5°	737.9	751.1	761.7	761.7	762.9	766.9	765.6	793.3	799.9	786.7	784.1
35°	652.1	661.3	670.5	671.9	689.0	690.3	691.7	699.6	718.1	722.0	720.7
37.5°	570.3	579.5	582.1	594.0	603.3	612.5	623.1	633.6	649.4	662.6	656.1
40°	497.6	501.6	508.2	513.5	531.9	531.9	537.2	558.4	575.5	586.1	584.7
42.5°	436.9	438.2	443.5	452.8	469.9	465.9	469.9	484.5	509.5	510.8	525.4
45°	394.7	393.3	397.3	398.6	409.2	414.5	417.1	427.7	448.8	451.4	452.8
47.5°	356.4	355.1	361.7	364.3	368.3	373.5	373.5	374.9	382.8	389.4	384.1
50°	324.7	324.7	324.7	327.4	334.0	332.6	334.0	339.2	343.2	340.5	339.2
52.5°	290.4	295.7	299.6	301.0	302.3	302.3	303.6	301.0	299.6	295.7	287.7
55°	266.6	271.9	271.9	271.9	271.9	277.2	270.6	271.9	271.9	261.4	250.8
57.5°	242.9	248.2	252.1	246.8	252.1	246.8	244.2	242.9	240.2	229.7	213.8
60°	223.1	225.7	224.4	223.1	225.7	221.8	219.1	213.8	211.2	196.7	186.1
62.5°	200.7	201.9	203.3	200.7	198.0	196.7	191.4	183.5	178.2	166.3	157.1
65°	182.1	178.2	176.9	175.6	172.9	169.0	165.0	155.8	151.8	141.2	132.0
67.5°	154.4	153.1	155.8	151.8	145.2	145.2	141.2	133.3	124.1	117.5	108.2
70°	132.0	130.7	128.0	124.1	122.8	117.5	117.5	108.2	105.6	93.7	85.8
72.5°	108.2	108.2	104.3	100.3	96.3	93.7	92.4	85.8	81.9	75.2	68.6
75°	81.9	81.9	80.5	76.5	73.9	71.3	70.0	64.7	60.7	54.1	50.2
77.5°	58.1	58.1	52.8	50.2	51.5	48.8	46.2	44.9	43.5	39.6	34.3
80°	34.3	33.0	29.1	30.4	29.1	29.1	27.7	26.4	23.7	21.1	18.5
82.5°	9.3	10.5	10.5	10.5	11.9	9.3	9.3	9.3	10.5	10.5	6.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3
87.5°	1.3	2.6	5.3	5.3	5.3	5.3	5.3	4.0	4.0	4.0	2.6
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 FEU4C259027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8
2.5°	1114.1	1112.7	1114.1	1104.8	1125.9	1110.1	1107.5	1104.8	1114.1	1104.8	1091.6
5°	1137.8	1124.6	1120.7	1116.7	1128.6	1110.1	1106.2	1107.5	1100.8	1083.7	1085.0
7.5°	1145.7	1133.9	1122.0	1096.9	1107.5	1103.5	1092.9	1085.0	1074.5	1059.9	1057.3
10°	1148.4	1135.2	1118.0	1110.1	1094.3	1089.0	1085.0	1071.8	1058.6	1033.6	1026.9
12.5°	1140.5	1124.6	1103.5	1096.9	1085.0	1067.9	1058.6	1045.4	1033.6	1013.8	999.2
15°	1106.2	1092.9	1086.4	1063.9	1058.6	1048.0	1029.6	1011.1	994.0	967.5	959.6
17.5°	1066.6	1061.3	1054.7	1037.5	1036.2	1025.7	1008.5	992.6	970.2	929.3	916.1
20°	1025.7	1025.7	1004.5	997.9	1011.1	990.0	976.8	962.3	916.1	896.3	872.5
22.5°	995.3	980.8	968.9	958.3	959.6	946.4	928.0	898.9	881.7	858.0	830.3
25°	935.9	941.2	914.8	910.8	914.8	884.4	875.2	851.4	826.3	803.9	782.8
27.5°	898.9	884.4	867.3	852.7	852.7	840.8	814.5	809.2	770.9	749.8	723.3
30°	843.5	832.9	818.4	797.3	794.6	785.4	764.3	751.1	711.5	679.8	665.3
32.5°	773.5	769.6	757.7	733.9	726.0	715.4	689.0	666.6	648.1	612.5	595.3
35°	723.3	708.9	683.8	664.0	657.3	638.9	617.7	601.9	582.1	550.5	528.0
37.5°	648.1	633.6	609.8	586.1	586.1	567.6	538.6	522.7	495.0	476.5	458.0
40°	582.1	563.6	539.9	512.2	508.2	481.8	469.9	443.5	426.3	397.3	394.7
42.5°	508.2	491.0	469.9	448.8	433.0	419.8	389.4	369.6	351.1	336.6	332.6
45°	440.9	418.4	400.0	373.5	357.7	341.9	322.1	308.9	294.4	278.5	269.3
47.5°	382.8	364.3	337.9	314.2	298.3	290.4	267.9	253.5	241.6	231.0	224.4
50°	323.4	301.0	286.4	260.0	257.4	238.9	220.5	208.6	201.9	192.7	183.5
52.5°	278.5	257.4	237.6	217.8	207.2	200.7	183.5	171.6	162.4	155.8	150.5
55°	234.9	216.5	200.7	180.8	174.2	165.0	145.2	142.6	133.3	124.1	117.5
57.5°	201.9	184.8	166.3	153.1	141.2	134.7	118.8	108.2	103.0	95.1	88.4
60°	171.6	153.1	138.6	122.8	117.5	108.2	96.3	87.1	80.5	73.9	67.3
62.5°	143.9	128.0	112.2	99.0	91.1	85.8	76.5	68.6	62.1	56.8	51.5
65°	118.8	104.3	91.1	77.9	73.9	67.3	60.7	54.1	48.8	42.3	37.0
67.5°	97.7	84.5	71.3	62.1	58.1	55.4	47.5	40.9	37.0	33.0	27.7
70°	76.5	67.3	56.8	48.8	44.9	40.9	35.6	31.7	26.4	23.7	19.8
72.5°	59.4	51.5	42.3	35.6	33.0	30.4	25.1	21.1	18.5	15.8	13.2
75°	42.3	35.6	30.4	23.7	22.4	21.1	17.2	14.5	11.9	9.3	7.9
77.5°	29.1	23.7	18.5	15.8	14.5	11.9	10.5	7.9	6.6	5.3	4.0
80°	15.8	11.9	9.3	7.9	6.6	5.3	5.3	4.0	2.6	2.6	1.3
82.5°	5.3	4.0	2.6	1.3	1.3	1.3	1.3	1.3	1.3	0.0	1.3
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°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8
2.5°	1099.6	1085.0	1089.0	1089.0	1086.4	1086.4	1083.7	1079.7	1081.1	1073.1	1056.0
5°	1087.7	1069.2	1066.6	1069.2	1058.6	1056.0	1050.7	1058.6	1034.9	1044.1	1033.6
7.5°	1053.4	1036.2	1032.2	1041.5	1028.3	1020.3	1019.0	1029.6	1008.5	997.9	986.0
10°	1015.1	1008.5	996.6	990.0	986.0	987.3	976.8	963.6	959.6	957.0	946.4
12.5°	980.8	966.2	955.7	947.8	945.1	945.1	928.0	925.3	913.4	910.8	895.0
15°	939.8	922.7	916.1	905.5	896.3	901.5	881.7	876.5	872.5	855.4	858.0
17.5°	904.2	885.7	869.9	863.3	855.4	847.4	828.9	832.9	823.7	823.7	799.9
20°	858.0	838.2	826.3	813.1	813.1	802.6	789.4	790.7	778.8	766.9	745.8
22.5°	809.2	788.0	773.5	768.2	755.0	752.4	736.6	732.6	716.8	718.1	699.6
25°	757.7	736.6	716.8	718.1	706.2	700.9	691.7	673.2	666.6	658.7	653.4
27.5°	697.0	682.4	665.3	664.0	641.5	642.8	631.0	625.7	609.8	613.8	601.9
30°	641.5	620.4	604.5	600.6	591.4	588.7	570.3	562.3	565.0	554.4	547.8
32.5°	584.7	553.1	546.5	538.6	533.3	526.7	513.5	518.7	506.9	509.5	498.9
35°	509.5	496.3	479.1	479.1	473.9	468.6	459.4	464.7	452.8	447.5	436.9
37.5°	446.1	434.3	417.1	422.4	413.1	405.2	397.3	398.6	388.1	386.8	376.2
40°	377.5	370.9	359.1	359.1	352.4	352.4	348.5	344.5	337.9	330.0	318.1
42.5°	312.8	307.5	302.3	303.6	294.4	302.3	291.7	298.3	277.2	275.9	267.9
45°	265.3	253.5	254.7	249.5	244.2	246.8	237.6	240.2	228.4	225.7	217.8
47.5°	215.2	211.2	203.3	200.7	200.7	196.7	192.7	191.4	186.1	179.5	169.0
50°	176.9	162.4	159.7	155.8	153.1	153.1	147.9	139.9	141.2	134.7	124.1
52.5°	138.6	126.7	121.4	120.1	114.9	112.2	105.6	100.3	96.3	93.7	87.1
55°	106.9	96.3	89.8	89.8	81.9	81.9	72.6	68.6	63.4	58.1	54.1
57.5°	80.5	75.2	68.6	63.4	60.7	54.1	48.8	42.3	38.3	30.4	25.1
60°	60.7	55.4	48.8	44.9	42.3	35.6	29.1	23.7	14.5	11.9	10.5
62.5°	44.9	39.6	33.0	30.4	27.7	22.4	15.8	7.9	4.0	4.0	4.0
65°	33.0	26.4	21.1	18.5	15.8	11.9	5.3	2.6	1.3	1.3	1.3
67.5°	22.4	17.2	11.9	10.5	7.9	4.0	1.3	1.3	1.3	1.3	1.3
70°	14.5	10.5	5.3	4.0	2.6	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	9.3	5.3	2.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	5.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.3	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	1.3	1.3	1.3
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 FEU4C259027 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8	1100.8
2.5°	1074.5	1065.2	1070.5	1058.6	1063.9	1073.1	1066.6	1069.2
5°	1037.5	1032.2	1025.7	1008.5	1021.7	1032.2	1026.9	1025.7
7.5°	997.9	979.4	988.7	983.4	980.8	991.3	979.4	992.6
10°	957.0	943.8	942.5	933.2	933.2	941.2	942.5	934.5
12.5°	896.3	889.7	889.7	888.4	887.0	895.0	896.3	892.3
15°	852.7	850.1	843.5	842.2	834.3	846.1	847.4	846.1
17.5°	799.9	801.2	794.6	794.6	799.9	803.9	793.3	803.9
20°	764.3	757.7	755.0	743.1	749.8	756.4	756.4	757.7
22.5°	712.8	702.2	706.2	699.6	695.6	704.9	704.9	708.9
25°	654.7	654.7	657.3	653.4	656.1	661.3	657.3	666.6
27.5°	599.3	604.5	604.5	599.3	601.9	617.7	624.4	613.8
30°	547.8	549.1	553.1	550.5	558.4	563.6	562.3	570.3
32.5°	489.7	496.3	498.9	495.0	497.6	509.5	502.9	501.6
35°	444.8	433.0	431.7	433.0	438.2	440.9	438.2	447.5
37.5°	380.2	376.2	370.9	372.2	376.2	381.5	384.1	390.7
40°	318.1	312.8	312.8	311.5	307.5	322.1	322.1	322.1
42.5°	264.0	262.7	256.1	256.1	261.4	265.3	262.7	271.9
45°	216.5	211.2	207.2	207.2	211.2	211.2	215.2	213.8
47.5°	170.3	165.0	166.3	162.4	166.3	171.6	165.0	166.3
50°	128.0	128.0	125.4	128.0	126.7	128.0	125.4	122.8
52.5°	87.1	99.0	100.3	95.1	83.2	72.6	66.0	71.3
55°	50.2	44.9	44.9	43.5	40.9	39.6	35.6	39.6
57.5°	25.1	22.4	22.4	22.4	21.1	19.8	17.2	17.2
60°	10.5	9.3	9.3	7.9	6.6	5.3	4.0	5.3
62.5°	4.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)