

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 FEU4C259035 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 FEU4C259035 F4LC-SQLWW-H
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

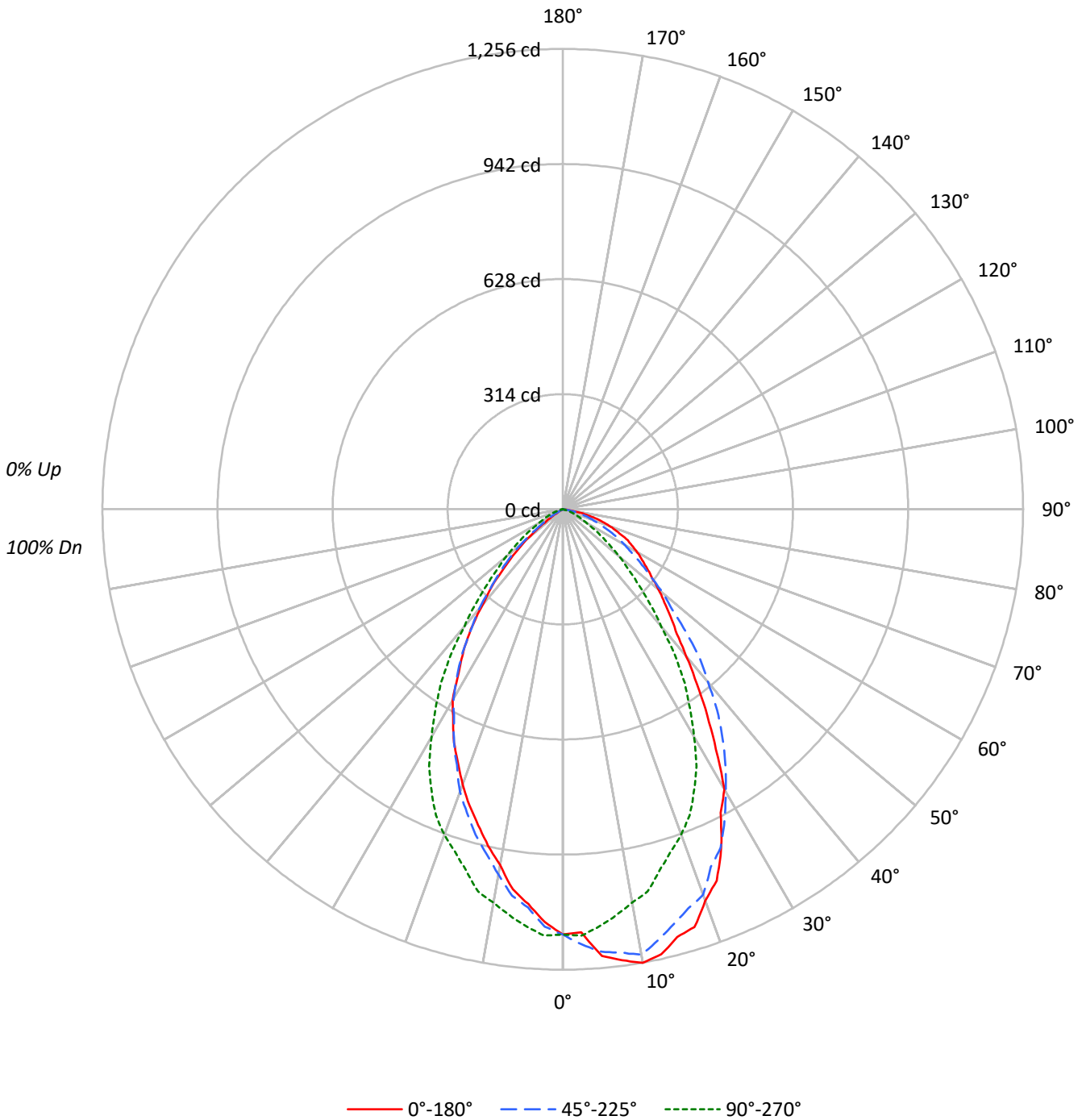
Lumens per Lamp: N/A
 Luminaire Lumens: 1663.0 lumens
 Efficiency: N/A
 Efficacy: 52.8 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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#

CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 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°	111937	111937	111937
5°	118437	110621	104693
10°	123079	106717	96498
15°	120620	101851	89074
20°	116697	96983	81991
25°	108859	90196	74791
30°	98269	79818	66961
35°	80946	68331	55550
40°	66065	52738	42750
45°	56752	40050	30757
50°	51368	30487	19424
55°	47271	21987	7015
60°	45369	15033	1081
65°	43813	10160	320
70°	39242	7053	395
75°	32173	3653	0
80°	20115	1556	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	108.7	6.5
10°-20°	292.9	17.6
20°-30°	391.1	23.5
30°-40°	371.2	22.3
40°-50°	256.6	15.4
50°-60°	141.8	8.5
60°-70°	70.4	4.2
70°-80°	27.7	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°	792.6	47.7
0°-40°	1163.8	70.0
0°-60°	1562.2	93.9
0°-90°	1663.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1663.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1160	1160	1160	1160	1160	
5°	1223	1212	1142	1091	1081	117
15°	1208	1171	1020	920	892	342
25°	1022	1018	847	702	702	466
35°	687	760	580	477	472	431
45°	416	477	294	241	225	324
55°	281	264	131	67	42	253
65°	192	139	44	1	1	186
75°	86	53	10	0	0	92
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°	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1
2.5°	1154.6	1186.6	1189.4	1186.6	1190.8	1189.4	1196.3	1189.4	1197.8	1185.2	1188.0
5°	1222.8	1210.2	1236.7	1222.8	1222.8	1221.4	1217.2	1215.8	1221.4	1203.3	1211.6
7.5°	1240.9	1259.0	1282.6	1253.4	1254.8	1254.8	1246.4	1243.6	1243.6	1210.2	1220.0
10°	1256.2	1245.0	1257.5	1246.4	1256.2	1254.8	1260.3	1242.2	1254.8	1235.3	1233.9
12.5°	1243.6	1239.4	1256.2	1238.1	1232.5	1233.9	1227.0	1222.8	1227.0	1204.7	1203.3
15°	1207.5	1211.6	1236.7	1217.2	1214.4	1211.6	1203.3	1189.4	1200.5	1169.9	1171.3
17.5°	1195.0	1188.0	1192.2	1175.5	1179.7	1176.9	1175.5	1163.0	1160.1	1140.7	1140.7
20°	1136.5	1151.8	1151.8	1140.7	1140.7	1139.3	1121.2	1132.4	1119.8	1114.3	1119.8
22.5°	1096.2	1097.6	1097.6	1087.8	1089.2	1083.7	1073.9	1067.0	1073.9	1067.0	1055.8
25°	1022.5	1025.3	1041.9	1023.8	1021.1	1026.6	1018.3	1014.1	1012.7	996.0	1018.3
27.5°	933.4	961.2	959.9	952.9	961.2	950.1	946.0	947.3	951.5	950.1	955.7
30°	882.0	886.1	890.3	884.8	886.1	882.0	882.0	883.3	894.5	890.3	888.9
32.5°	777.6	791.5	802.7	802.7	804.0	808.2	806.8	836.0	843.0	829.1	826.3
35°	687.2	696.9	706.7	708.1	726.2	727.5	728.9	737.3	756.7	760.9	759.5
37.5°	601.0	610.7	613.5	626.0	635.7	645.4	656.6	667.7	684.4	698.3	691.4
40°	524.5	528.6	535.6	541.1	560.6	560.6	566.1	588.4	606.5	617.7	616.2
42.5°	460.5	461.8	467.4	477.1	495.2	491.0	495.2	510.6	536.9	538.4	553.7
45°	415.9	414.5	418.7	420.1	431.3	436.8	439.6	450.7	473.0	475.7	477.1
47.5°	375.6	374.2	381.2	384.0	388.1	393.7	393.7	395.1	403.4	410.4	404.8
50°	342.2	342.2	342.2	345.0	352.0	350.5	352.0	357.5	361.7	358.9	357.5
52.5°	306.0	311.6	315.8	317.2	318.6	318.6	320.0	317.2	315.8	311.6	303.2
55°	281.0	286.6	286.6	286.6	286.6	292.1	285.2	286.6	286.6	275.4	264.3
57.5°	256.0	261.5	265.7	260.1	265.7	260.1	257.4	256.0	253.2	242.0	225.4
60°	235.1	237.9	236.5	235.1	237.9	233.7	230.9	225.4	222.6	207.3	196.1
62.5°	211.5	212.8	214.2	211.5	208.7	207.3	201.7	193.4	187.8	175.3	165.5
65°	191.9	187.8	186.4	185.0	182.2	178.1	173.9	164.2	160.0	148.8	139.1
67.5°	162.7	161.4	164.2	160.0	153.0	153.0	148.8	140.5	130.7	123.8	114.1
70°	139.1	137.7	134.9	130.7	129.4	123.8	123.8	114.1	111.3	98.8	90.4
72.5°	114.1	114.1	109.9	105.7	101.5	98.8	97.4	90.4	86.3	79.3	72.3
75°	86.3	86.3	84.9	80.7	77.9	75.1	73.7	68.2	64.0	57.1	52.9
77.5°	61.2	61.2	55.6	52.9	54.2	51.4	48.7	47.3	45.9	41.7	36.2
80°	36.2	34.8	30.6	32.0	30.6	30.6	29.2	27.8	25.0	22.2	19.5
82.5°	9.8	11.1	11.1	11.1	12.5	9.8	9.8	9.8	11.1	11.1	7.0
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	2.8	5.6	5.6	5.6	5.6	5.6	4.2	4.2	4.2	2.8
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°	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1
2.5°	1174.1	1172.7	1174.1	1164.3	1186.6	1169.9	1167.1	1164.3	1174.1	1164.3	1150.4
5°	1199.1	1185.2	1181.0	1176.9	1189.4	1169.9	1165.8	1167.1	1160.1	1142.1	1143.5
7.5°	1207.5	1195.0	1182.4	1156.0	1167.1	1163.0	1151.8	1143.5	1132.4	1117.0	1114.3
10°	1210.2	1196.3	1178.2	1169.9	1153.2	1147.7	1143.5	1129.6	1115.7	1089.2	1082.3
12.5°	1201.9	1185.2	1163.0	1156.0	1143.5	1125.4	1115.7	1101.7	1089.2	1068.4	1053.1
15°	1165.8	1151.8	1144.9	1121.2	1115.7	1104.5	1085.0	1065.6	1047.5	1019.6	1011.3
17.5°	1124.0	1118.5	1111.5	1093.4	1092.0	1080.9	1062.8	1046.1	1022.5	979.3	965.4
20°	1080.9	1080.9	1058.6	1051.7	1065.6	1043.3	1029.4	1014.1	965.4	944.5	919.5
22.5°	1048.9	1033.6	1021.1	1009.9	1011.3	997.4	978.0	947.3	929.2	904.2	875.0
25°	986.3	991.9	964.1	959.9	964.1	932.0	922.3	897.2	870.8	847.2	824.9
27.5°	947.3	932.0	914.0	898.7	898.7	886.1	858.3	852.8	812.4	790.1	762.3
30°	888.9	877.8	862.5	840.2	837.5	827.7	805.5	791.5	749.8	716.4	701.1
32.5°	815.2	811.0	798.5	773.5	765.1	754.0	726.2	702.5	683.1	645.4	627.4
35°	762.3	747.0	720.6	699.7	692.8	673.3	651.0	634.3	613.5	580.1	556.4
37.5°	683.1	667.7	642.7	617.7	617.7	598.2	567.6	550.9	521.7	502.2	482.7
40°	613.5	594.0	569.0	539.8	535.6	507.7	495.2	467.4	449.3	418.7	415.9
42.5°	535.6	517.5	495.2	473.0	456.3	442.4	410.4	389.5	370.1	354.7	350.5
45°	464.6	441.0	421.5	393.7	377.0	360.3	339.4	325.5	310.2	293.5	283.8
47.5°	403.4	384.0	356.1	331.1	314.4	306.0	282.4	267.1	254.6	243.5	236.5
50°	340.8	317.2	301.9	274.0	271.2	251.8	232.3	219.8	212.8	203.1	193.4
52.5°	293.5	271.2	250.4	229.6	218.4	211.5	193.4	180.8	171.1	164.2	158.6
55°	247.6	228.1	211.5	190.6	183.6	173.9	153.0	150.3	140.5	130.7	123.8
57.5°	212.8	194.7	175.3	161.4	148.8	141.9	125.2	114.1	108.5	100.2	93.2
60°	180.8	161.4	146.1	129.4	123.8	114.1	101.5	91.8	84.9	77.9	71.0
62.5°	151.6	134.9	118.3	104.3	96.0	90.4	80.7	72.3	65.4	59.8	54.2
65°	125.2	109.9	96.0	82.1	77.9	71.0	64.0	57.1	51.4	44.5	39.0
67.5°	103.0	89.1	75.1	65.4	61.2	58.4	50.1	43.1	39.0	34.8	29.2
70°	80.7	71.0	59.8	51.4	47.3	43.1	37.6	33.4	27.8	25.0	20.9
72.5°	62.6	54.2	44.5	37.6	34.8	32.0	26.4	22.2	19.5	16.7	13.9
75°	44.5	37.6	32.0	25.0	23.7	22.2	18.1	15.3	12.5	9.8	8.3
77.5°	30.6	25.0	19.5	16.7	15.3	12.5	11.1	8.3	7.0	5.6	4.2
80°	16.7	12.5	9.8	8.3	7.0	5.6	5.6	4.2	2.8	2.8	1.4
82.5°	5.6	4.2	2.8	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°	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1
2.5°	1158.8	1143.5	1147.7	1147.7	1144.9	1144.9	1142.1	1137.9	1139.3	1130.9	1112.9
5°	1146.2	1126.8	1124.0	1126.8	1115.7	1112.9	1107.3	1115.7	1090.6	1100.4	1089.2
7.5°	1110.1	1092.0	1087.8	1097.6	1083.7	1075.3	1073.9	1085.0	1062.8	1051.7	1039.2
10°	1069.7	1062.8	1050.3	1043.3	1039.2	1040.5	1029.4	1015.5	1011.3	1008.5	997.4
12.5°	1033.6	1018.3	1007.2	998.8	996.0	996.0	978.0	975.2	962.6	959.9	943.2
15°	990.4	972.4	965.4	954.3	944.5	950.1	929.2	923.7	919.5	901.4	904.2
17.5°	952.9	933.4	916.7	909.8	901.4	893.1	873.6	877.8	868.0	868.0	843.0
20°	904.2	883.3	870.8	856.9	856.9	845.8	831.9	833.3	820.7	808.2	785.9
22.5°	852.8	830.5	815.2	809.6	795.7	792.9	776.2	772.1	755.4	756.7	737.3
25°	798.5	776.2	755.4	756.7	744.3	738.7	728.9	709.5	702.5	694.2	688.6
27.5°	734.5	719.2	701.1	699.7	676.1	677.4	665.0	659.4	642.7	646.9	634.3
30°	676.1	653.8	637.1	633.0	623.2	620.4	601.0	592.6	595.4	584.2	577.3
32.5°	616.2	582.9	575.9	567.6	562.0	555.0	541.1	546.7	534.2	536.9	525.8
35°	536.9	523.0	504.9	504.9	499.4	493.8	484.1	489.7	477.1	471.6	460.5
37.5°	470.2	457.7	439.6	445.2	435.4	427.1	418.7	420.1	409.0	407.6	396.4
40°	397.9	390.9	378.4	378.4	371.4	371.4	367.2	363.1	356.1	347.8	335.2
42.5°	329.7	324.1	318.6	320.0	310.2	318.6	307.4	314.4	292.1	290.8	282.4
45°	279.6	267.1	268.5	262.9	257.4	260.1	250.4	253.2	240.7	237.9	229.6
47.5°	226.8	222.6	214.2	211.5	211.5	207.3	203.1	201.7	196.1	189.2	178.1
50°	186.4	171.1	168.3	164.2	161.4	161.4	155.8	147.5	148.8	141.9	130.7
52.5°	146.1	133.5	128.0	126.6	121.0	118.3	111.3	105.7	101.5	98.8	91.8
55°	112.7	101.5	94.6	94.6	86.3	86.3	76.5	72.3	66.8	61.2	57.1
57.5°	84.9	79.3	72.3	66.8	64.0	57.1	51.4	44.5	40.3	32.0	26.4
60°	64.0	58.4	51.4	47.3	44.5	37.6	30.6	25.0	15.3	12.5	11.1
62.5°	47.3	41.7	34.8	32.0	29.2	23.7	16.7	8.3	4.2	4.2	4.2
65°	34.8	27.8	22.2	19.5	16.7	12.5	5.6	2.8	1.4	1.4	1.4
67.5°	23.7	18.1	12.5	11.1	8.3	4.2	1.4	1.4	1.4	1.4	1.4
70°	15.3	11.1	5.6	4.2	2.8	1.4	1.4	1.4	1.4	1.4	1.4
72.5°	9.8	5.6	2.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	5.6	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.8	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 FEU4C259035 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1	1160.1
2.5°	1132.4	1122.6	1128.2	1115.7	1121.2	1130.9	1124.0	1126.8
5°	1093.4	1087.8	1080.9	1062.8	1076.7	1087.8	1082.3	1080.9
7.5°	1051.7	1032.2	1041.9	1036.4	1033.6	1044.7	1032.2	1046.1
10°	1008.5	994.6	993.3	983.5	983.5	991.9	993.3	984.9
12.5°	944.5	937.6	937.6	936.2	934.8	943.2	944.5	940.4
15°	898.7	895.9	888.9	887.5	879.2	891.7	893.1	891.7
17.5°	843.0	844.4	837.5	837.5	843.0	847.2	836.0	847.2
20°	805.5	798.5	795.7	783.2	790.1	797.1	797.1	798.5
22.5°	751.2	740.1	744.3	737.3	733.1	742.8	742.8	747.0
25°	690.0	690.0	692.8	688.6	691.4	696.9	692.8	702.5
27.5°	631.5	637.1	637.1	631.5	634.3	651.0	658.0	646.9
30°	577.3	578.7	582.9	580.1	588.4	594.0	592.6	601.0
32.5°	516.1	523.0	525.8	521.7	524.5	536.9	530.0	528.6
35°	468.8	456.3	454.9	456.3	461.8	464.6	461.8	471.6
37.5°	400.6	396.4	390.9	392.3	396.4	402.0	404.8	411.7
40°	335.2	329.7	329.7	328.3	324.1	339.4	339.4	339.4
42.5°	278.2	276.8	269.9	269.9	275.4	279.6	276.8	286.6
45°	228.1	222.6	218.4	218.4	222.6	222.6	226.8	225.4
47.5°	179.5	173.9	175.3	171.1	175.3	180.8	173.9	175.3
50°	134.9	134.9	132.2	134.9	133.5	134.9	132.2	129.4
52.5°	91.8	104.3	105.7	100.2	87.6	76.5	69.5	75.1
55°	52.9	47.3	47.3	45.9	43.1	41.7	37.6	41.7
57.5°	26.4	23.7	23.7	23.7	22.2	20.9	18.1	18.1
60°	11.1	9.8	9.8	8.3	7.0	5.6	4.2	5.6
62.5°	4.2	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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)