

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 FEU4C809050 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: FLDSQ4C80D010 FEU4C809050 F4LC-SQLWW-H
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH
 Light Source: -
 Ballast/Driver: -

Summary

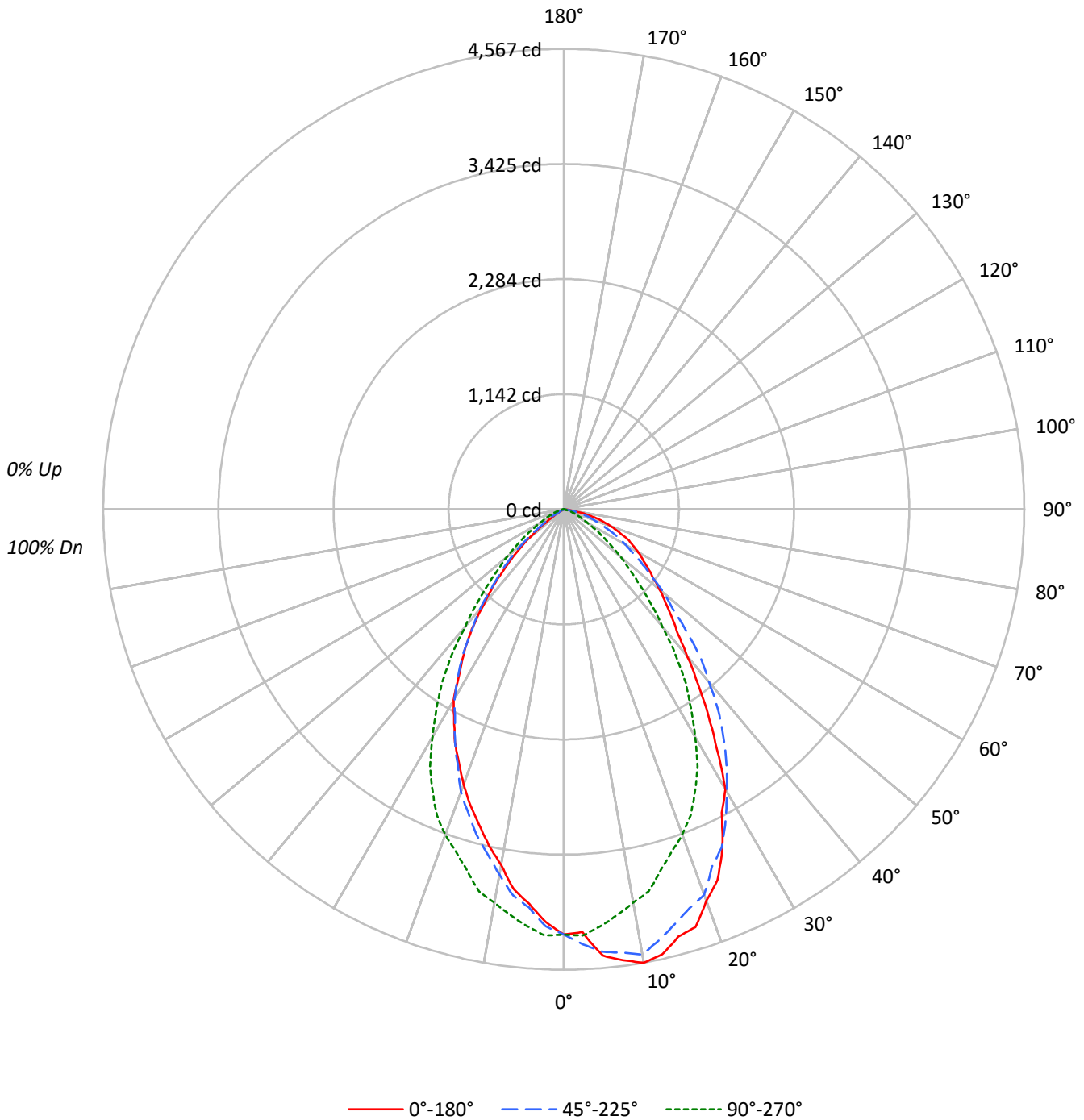
Lumens per Lamp: N/A
 Luminaire Lumens: 6046.0 lumens
 Efficiency: N/A
 Efficacy: 67.6 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



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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°	406971	406971	406971
5°	430580	402172	380621
10°	447463	387990	350818
15°	438509	370302	323832
20°	424279	352608	298084
25°	395758	327898	271908
30°	357255	290194	243432
35°	294290	248422	201953
40°	240163	191745	155431
45°	206349	145626	111798
50°	186752	110856	70612
55°	171857	79957	25536
60°	164957	54632	3898
65°	159339	36964	1187
70°	142665	25644	1467
75°	116949	13235	0
80°	73125	5612	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	395.2	6.5
10°-20°	1064.7	17.6
20°-30°	1421.7	23.5
30°-40°	1349.6	22.3
40°-50°	932.9	15.4
50°-60°	515.5	8.5
60°-70°	256.0	4.2
70°-80°	100.8	1.7
80°-90°	9.6	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°	2881.6	47.7
0°-40°	4231.2	70.0
0°-60°	5679.6	93.9
0°-90°	6046.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6046.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4218	4218	4218	4218	4218	
5°	4446	4405	4152	3965	3930	426
15°	4390	4258	3707	3343	3242	1242
25°	3717	3702	3080	2554	2554	1695
35°	2498	2761	2109	1735	1714	1565
45°	1512	1735	1067	875	819	1179
55°	1022	961	475	243	152	920
65°	698	506	162	5	5	677
75°	314	192	36	0	0	334
85°	0	5	0	0	0	29
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°	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8
2.5°	4197.6	4313.9	4324.0	4313.9	4329.2	4324.0	4349.4	4324.0	4354.5	4309.0	4319.1
5°	4445.5	4399.9	4496.0	4445.5	4445.5	4440.5	4425.3	4420.1	4440.5	4374.8	4405.1
7.5°	4511.3	4577.1	4663.1	4556.8	4561.8	4561.8	4531.5	4521.4	4521.4	4399.9	4435.4
10°	4567.0	4526.3	4571.9	4531.5	4567.0	4561.8	4582.0	4516.2	4561.8	4491.1	4485.9
12.5°	4521.4	4506.1	4567.0	4501.2	4481.0	4485.9	4460.7	4445.5	4460.7	4379.7	4374.8
15°	4389.8	4405.1	4496.0	4425.3	4415.2	4405.1	4374.8	4324.0	4364.7	4253.3	4258.4
17.5°	4344.4	4319.1	4334.3	4273.5	4288.8	4278.7	4273.5	4228.1	4217.8	4147.1	4147.1
20°	4132.0	4187.5	4187.5	4147.1	4147.1	4142.1	4076.4	4116.8	4071.2	4051.0	4071.2
22.5°	3985.2	3990.4	3990.4	3954.9	3960.0	3939.8	3904.4	3879.0	3904.4	3879.0	3838.6
25°	3717.3	3727.4	3788.1	3722.3	3712.2	3732.4	3702.1	3686.8	3681.9	3621.2	3702.1
27.5°	3393.6	3494.6	3489.7	3464.3	3494.6	3454.2	3439.1	3444.1	3459.3	3454.2	3474.4
30°	3206.5	3221.6	3236.8	3216.6	3221.6	3206.5	3206.5	3211.5	3251.9	3236.8	3231.7
32.5°	2827.1	2877.6	2918.2	2918.2	2923.2	2938.4	2933.3	3039.5	3064.8	3014.3	3004.2
35°	2498.4	2533.8	2569.1	2574.2	2640.0	2645.0	2650.1	2680.5	2751.2	2766.4	2761.3
37.5°	2184.9	2220.2	2230.3	2275.8	2311.3	2346.6	2387.2	2427.6	2488.3	2538.8	2513.6
40°	1906.7	1921.8	1947.1	1967.3	2038.1	2038.1	2058.3	2139.3	2205.1	2245.5	2240.4
42.5°	1674.1	1679.0	1699.3	1734.7	1800.5	1785.3	1800.5	1856.2	1952.1	1957.2	2012.9
45°	1512.2	1507.1	1522.3	1527.3	1567.9	1588.1	1598.2	1638.6	1719.5	1729.6	1734.7
47.5°	1365.6	1360.4	1385.8	1395.9	1411.0	1431.2	1431.2	1436.3	1466.6	1492.0	1471.8
50°	1244.1	1244.1	1244.1	1254.2	1279.6	1274.4	1279.6	1299.8	1314.9	1304.8	1299.8
52.5°	1112.6	1132.8	1148.0	1153.2	1158.1	1158.1	1163.3	1153.2	1148.0	1132.8	1102.5
55°	1021.6	1041.8	1041.8	1041.8	1041.8	1062.0	1036.9	1041.8	1041.8	1001.4	961.0
57.5°	930.7	950.9	965.9	945.7	965.9	945.7	935.6	930.7	920.4	879.9	819.3
60°	854.8	864.9	859.7	854.8	864.9	849.6	839.5	819.3	809.2	753.5	713.1
62.5°	768.8	773.7	778.9	768.8	758.7	753.5	733.3	703.0	682.8	637.2	601.8
65°	697.9	682.8	677.6	672.7	662.6	647.3	632.3	596.8	581.5	541.1	505.7
67.5°	591.6	586.7	596.8	581.5	556.4	556.4	541.1	510.8	475.3	450.2	414.7
70°	505.7	500.7	490.6	475.3	470.4	450.2	450.2	414.7	404.6	359.0	328.7
72.5°	414.7	414.7	399.5	384.4	369.1	359.0	354.1	328.7	313.7	288.3	262.9
75°	313.7	313.7	308.5	293.2	283.1	273.0	268.1	247.9	232.6	207.5	192.2
77.5°	222.5	222.5	202.3	192.2	197.2	187.0	176.9	172.0	166.8	151.8	131.6
80°	131.6	126.4	111.4	116.3	111.4	111.4	106.2	101.1	90.9	80.8	70.7
82.5°	35.5	40.4	40.4	40.4	45.6	35.5	35.5	35.5	40.4	40.4	25.4
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	5.2	5.2
87.5°	5.2	10.1	20.2	20.2	20.2	20.2	20.2	15.3	15.3	15.3	10.1
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°	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8
2.5°	4268.6	4263.4	4268.6	4233.1	4313.9	4253.3	4243.2	4233.1	4268.6	4233.1	4182.6
5°	4359.5	4309.0	4293.7	4278.7	4324.0	4253.3	4238.2	4243.2	4217.8	4152.2	4157.2
7.5°	4389.8	4344.4	4298.9	4202.8	4243.2	4228.1	4187.5	4157.2	4116.8	4061.1	4051.0
10°	4399.9	4349.4	4283.6	4253.3	4192.7	4172.5	4157.2	4106.7	4056.1	3960.0	3934.7
12.5°	4369.6	4309.0	4228.1	4202.8	4157.2	4091.4	4056.1	4005.4	3960.0	3884.2	3828.5
15°	4238.2	4187.5	4162.3	4076.4	4056.1	4015.5	3944.8	3874.1	3808.3	3707.0	3676.7
17.5°	4086.5	4066.3	4040.9	3975.1	3970.2	3929.7	3863.9	3803.1	3717.3	3560.4	3509.9
20°	3929.7	3929.7	3848.7	3823.5	3874.1	3793.0	3742.5	3686.8	3509.9	3434.0	3343.0
22.5°	3813.4	3757.7	3712.2	3671.8	3676.7	3626.2	3555.4	3444.1	3378.3	3287.4	3181.2
25°	3585.8	3606.0	3504.9	3489.7	3504.9	3388.4	3353.1	3262.0	3165.9	3079.9	2999.1
27.5°	3444.1	3388.4	3322.8	3267.1	3267.1	3221.6	3120.5	3100.3	2953.5	2872.6	2771.4
30°	3231.7	3191.3	3135.6	3054.7	3044.6	3009.2	2928.3	2877.6	2726.0	2604.6	2548.9
32.5°	2963.6	2948.5	2903.0	2812.0	2781.7	2741.1	2640.0	2554.0	2483.3	2346.6	2281.0
35°	2771.4	2715.9	2619.8	2543.9	2518.6	2447.8	2366.8	2306.2	2230.3	2109.0	2023.0
37.5°	2483.3	2427.6	2336.5	2245.5	2245.5	2174.8	2063.4	2002.8	1896.6	1825.7	1754.9
40°	2230.3	2159.5	2068.6	1962.4	1947.1	1845.9	1800.5	1699.3	1633.5	1522.3	1512.2
42.5°	1947.1	1881.3	1800.5	1719.5	1658.8	1608.3	1492.0	1416.1	1345.4	1289.7	1274.4
45°	1689.2	1603.2	1532.4	1431.2	1370.5	1309.9	1234.0	1183.5	1127.8	1067.2	1031.7
47.5°	1466.6	1395.9	1294.7	1203.7	1143.1	1112.6	1026.6	971.1	925.5	885.1	859.7
50°	1239.2	1153.2	1097.5	996.3	986.1	915.4	844.7	799.1	773.7	738.5	703.0
52.5°	1067.2	986.1	910.3	834.6	794.0	768.8	703.0	657.4	622.2	596.8	576.6
55°	900.2	829.4	768.8	692.9	667.5	632.3	556.4	546.3	510.8	475.3	450.2
57.5°	773.7	708.0	637.2	586.7	541.1	516.0	455.1	414.7	394.5	364.2	338.8
60°	657.4	586.7	531.0	470.4	450.2	414.7	369.1	333.9	308.5	283.1	258.0
62.5°	551.2	490.6	430.0	379.2	348.9	328.7	293.2	262.9	237.8	217.6	197.2
65°	455.1	399.5	348.9	298.4	283.1	258.0	232.6	207.5	187.0	161.9	141.7
67.5°	374.3	323.8	273.0	237.8	222.5	212.4	182.1	156.7	141.7	126.4	106.2
70°	293.2	258.0	217.6	187.0	172.0	156.7	136.5	121.5	101.1	90.9	75.9
72.5°	227.7	197.2	161.9	136.5	126.4	116.3	96.1	80.8	70.7	60.6	50.5
75°	161.9	136.5	116.3	90.9	86.0	80.8	65.8	55.7	45.6	35.5	30.3
77.5°	111.4	90.9	70.7	60.6	55.7	45.6	40.4	30.3	25.4	20.2	15.3
80°	60.6	45.6	35.5	30.3	25.4	20.2	20.2	15.3	10.1	10.1	5.2
82.5°	20.2	15.3	10.1	5.2	5.2	5.2	5.2	5.2	5.2	0.0	5.2
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°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	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°	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8
2.5°	4212.9	4157.2	4172.5	4172.5	4162.3	4162.3	4152.2	4137.0	4142.1	4111.6	4046.0
5°	4167.3	4096.6	4086.5	4096.6	4056.1	4046.0	4025.8	4056.1	3965.0	4000.5	3960.0
7.5°	4035.9	3970.2	3954.9	3990.4	3939.8	3909.3	3904.4	3944.8	3863.9	3823.5	3778.0
10°	3889.1	3863.9	3818.4	3793.0	3778.0	3782.9	3742.5	3692.0	3676.7	3666.6	3626.2
12.5°	3757.7	3702.1	3661.6	3631.3	3621.2	3621.2	3555.4	3545.3	3499.8	3489.7	3429.0
15°	3600.8	3535.2	3509.9	3469.4	3434.0	3454.2	3378.3	3358.1	3343.0	3277.3	3287.4
17.5°	3464.3	3393.6	3332.9	3307.6	3277.3	3246.9	3176.0	3191.3	3155.8	3155.8	3064.8
20°	3287.4	3211.5	3165.9	3115.4	3115.4	3075.0	3024.4	3029.4	2983.8	2938.4	2857.4
22.5°	3100.3	3019.3	2963.6	2943.4	2892.9	2882.8	2822.1	2806.9	2746.2	2751.2	2680.5
25°	2903.0	2822.1	2746.2	2751.2	2705.8	2685.6	2650.1	2579.4	2554.0	2523.7	2503.5
27.5°	2670.3	2614.7	2548.9	2543.9	2457.9	2462.9	2417.5	2397.3	2336.5	2351.7	2306.2
30°	2457.9	2377.1	2316.3	2301.2	2265.7	2255.6	2184.9	2154.4	2164.7	2124.1	2098.9
32.5°	2240.4	2119.1	2093.8	2063.4	2043.2	2017.9	1967.3	1987.6	1942.0	1952.1	1911.7
35°	1952.1	1901.6	1835.8	1835.8	1815.6	1795.4	1760.1	1780.3	1734.7	1714.5	1674.1
37.5°	1709.4	1664.0	1598.2	1618.4	1582.9	1552.6	1522.3	1527.3	1486.9	1481.9	1441.3
40°	1446.4	1421.1	1375.7	1375.7	1350.3	1350.3	1335.1	1320.0	1294.7	1264.3	1218.8
42.5°	1198.6	1178.3	1158.1	1163.3	1127.8	1158.1	1117.7	1143.1	1062.0	1057.1	1026.6
45°	1016.5	971.1	976.0	955.8	935.6	945.7	910.3	920.4	875.0	864.9	834.6
47.5°	824.5	809.2	778.9	768.8	768.8	753.5	738.5	733.3	713.1	687.7	647.3
50°	677.6	622.2	611.9	596.8	586.7	586.7	566.5	536.2	541.1	516.0	475.3
52.5°	531.0	485.4	465.2	460.3	440.1	430.0	404.6	384.4	369.1	359.0	333.9
55°	409.6	369.1	344.0	344.0	313.7	313.7	278.2	262.9	242.7	222.5	207.5
57.5°	308.5	288.3	262.9	242.7	232.6	207.5	187.0	161.9	146.6	116.3	96.1
60°	232.6	212.4	187.0	172.0	161.9	136.5	111.4	90.9	55.7	45.6	40.4
62.5°	172.0	151.8	126.4	116.3	106.2	86.0	60.6	30.3	15.3	15.3	15.3
65°	126.4	101.1	80.8	70.7	60.6	45.6	20.2	10.1	5.2	5.2	5.2
67.5°	86.0	65.8	45.6	40.4	30.3	15.3	5.2	5.2	5.2	5.2	5.2
70°	55.7	40.4	20.2	15.3	10.1	5.2	5.2	5.2	5.2	5.2	5.2
72.5°	35.5	20.2	10.1	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	20.2	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	10.1	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	5.2	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	5.2	5.2	5.2
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 FEU4C809050 F4LC-SQLWW-H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8	4217.8
2.5°	4116.8	4081.3	4101.5	4056.1	4076.4	4111.6	4086.5	4096.6
5°	3975.1	3954.9	3929.7	3863.9	3914.5	3954.9	3934.7	3929.7
7.5°	3823.5	3752.6	3788.1	3767.8	3757.7	3798.2	3752.6	3803.1
10°	3666.6	3616.1	3611.1	3575.7	3575.7	3606.0	3611.1	3580.6
12.5°	3434.0	3408.8	3408.8	3403.7	3398.5	3429.0	3434.0	3418.9
15°	3267.1	3257.0	3231.7	3226.7	3196.4	3241.8	3246.9	3241.8
17.5°	3064.8	3069.8	3044.6	3044.6	3064.8	3079.9	3039.5	3079.9
20°	2928.3	2903.0	2892.9	2847.3	2872.6	2898.0	2898.0	2903.0
22.5°	2731.0	2690.6	2705.8	2680.5	2665.2	2700.7	2700.7	2715.9
25°	2508.5	2508.5	2518.6	2503.5	2513.6	2533.8	2518.6	2554.0
27.5°	2296.1	2316.3	2316.3	2296.1	2306.2	2366.8	2392.2	2351.7
30°	2098.9	2103.9	2119.1	2109.0	2139.3	2159.5	2154.4	2184.9
32.5°	1876.4	1901.6	1911.7	1896.6	1906.7	1952.1	1926.9	1921.8
35°	1704.4	1658.8	1653.9	1658.8	1679.0	1689.2	1679.0	1714.5
37.5°	1456.5	1441.3	1421.1	1426.2	1441.3	1461.7	1471.8	1497.0
40°	1218.8	1198.6	1198.6	1193.6	1178.3	1234.0	1234.0	1234.0
42.5°	1011.5	1006.4	981.2	981.2	1001.4	1016.5	1006.4	1041.8
45°	829.4	809.2	794.0	794.0	809.2	809.2	824.5	819.3
47.5°	652.5	632.3	637.2	622.2	637.2	657.4	632.3	637.2
50°	490.6	490.6	480.5	490.6	485.4	490.6	480.5	470.4
52.5°	333.9	379.2	384.4	364.2	318.6	278.2	252.8	273.0
55°	192.2	172.0	172.0	166.8	156.7	151.8	136.5	151.8
57.5°	96.1	86.0	86.0	86.0	80.8	75.9	65.8	65.8
60°	40.4	35.5	35.5	30.3	25.4	20.2	15.3	20.2
62.5°	15.3	10.1	10.1	10.1	10.1	10.1	10.1	10.1
65°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
67.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
70°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
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)