

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: **FLDSQ4C50D010 FEU4C509050 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: FLDSQ4C50D010 FEU4C509050 F4LC-SQLWW-H  
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

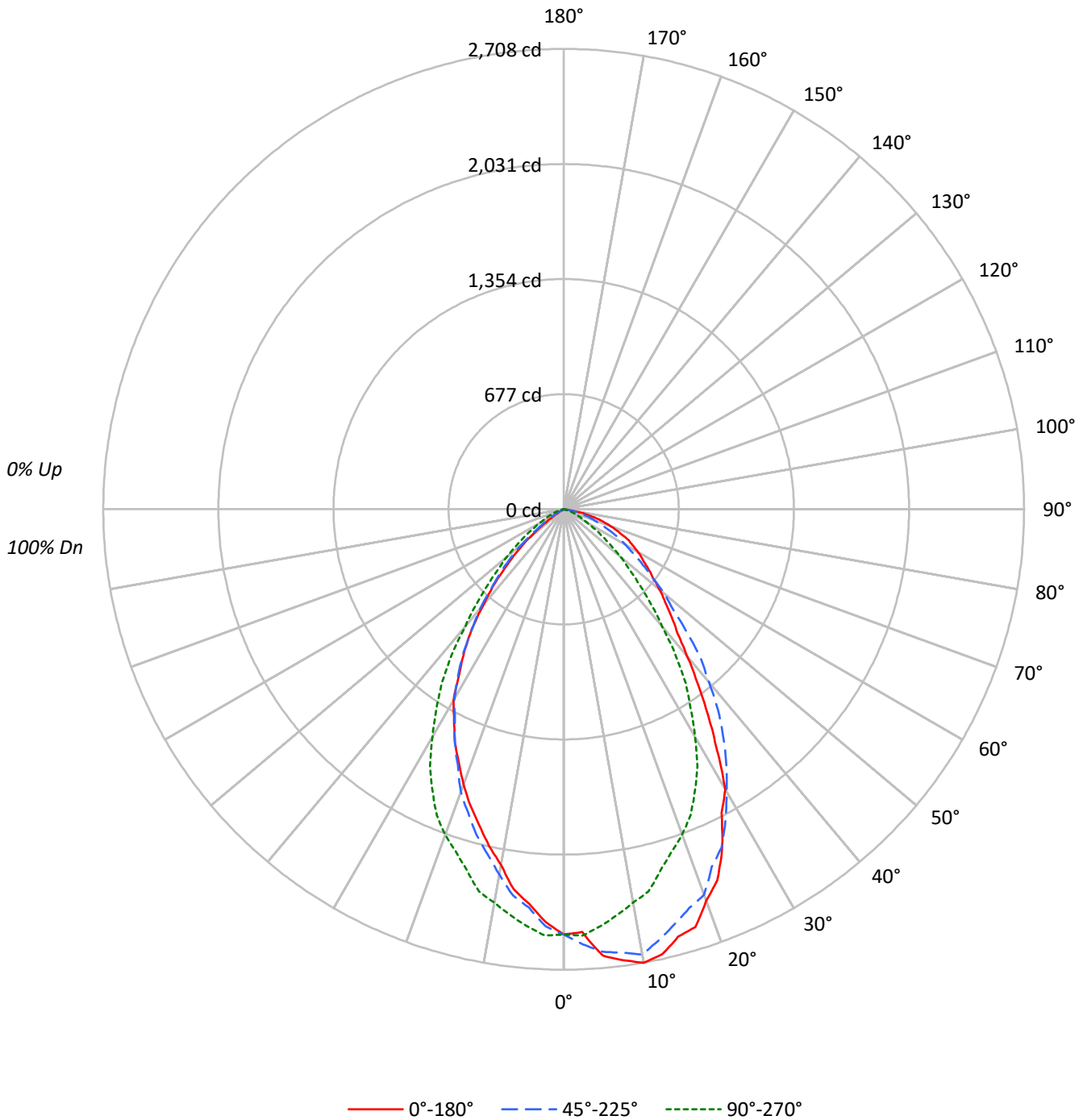
Lumens per Lamp: N/A  
 Luminaire Lumens: 3585.0 lumens  
 Efficiency: N/A  
 Efficacy: 61.4 lumens/watt  
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 58.4  
 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	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°	241319	241319	241319
5°	255316	238473	225688
10°	265323	230061	208016
15°	260021	219574	192014
20°	251580	209080	176745
25°	234667	194424	161229
30°	211835	172071	144339
35°	174496	147298	119747
40°	142407	113702	92163
45°	122360	86349	66290
50°	110736	65733	41866
55°	101910	47422	15140
60°	97801	32401	2316
65°	94476	21918	708
70°	84578	15206	875
75°	69342	7829	0
80°	43341	3334	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	234.3	6.5
10°-20°	631.3	17.6
20°-30°	843.0	23.5
30°-40°	800.3	22.3
40°-50°	553.2	15.4
50°-60°	305.6	8.5
60°-70°	151.8	4.2
70°-80°	59.8	1.7
80°-90°	5.7	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°	1708.7	47.7
0°-40°	2508.9	70.0
0°-60°	3367.7	93.9
0°-90°	3585.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3585.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2501	2501	2501	2501	2501	
5°	2636	2612	2462	2351	2330	252
15°	2603	2525	2198	1982	1922	736
25°	2204	2195	1826	1514	1514	1005
35°	1481	1637	1250	1029	1017	928
45°	897	1029	633	519	486	699
55°	606	570	282	144	90	545
65°	414	300	96	3	3	402
75°	186	114	21	0	0	198
85°	0	3	0	0	0	17
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°	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0
2.5°	2489.0	2558.0	2564.0	2558.0	2567.0	2564.0	2579.0	2564.0	2582.0	2555.0	2561.0
5°	2636.0	2608.9	2665.9	2636.0	2636.0	2633.0	2624.0	2620.9	2633.0	2594.0	2612.0
7.5°	2675.0	2714.0	2765.0	2702.0	2704.9	2704.9	2687.0	2681.0	2681.0	2608.9	2630.0
10°	2708.0	2683.9	2710.9	2687.0	2708.0	2704.9	2716.9	2677.9	2704.9	2663.0	2659.9
12.5°	2681.0	2671.9	2708.0	2669.0	2657.0	2659.9	2645.0	2636.0	2645.0	2597.0	2594.0
15°	2603.0	2612.0	2665.9	2624.0	2618.0	2612.0	2594.0	2564.0	2588.0	2522.0	2525.1
17.5°	2576.1	2561.0	2570.1	2534.0	2543.0	2537.0	2534.0	2507.1	2501.0	2459.0	2459.0
20°	2450.1	2483.0	2483.0	2459.0	2459.0	2456.1	2417.1	2441.1	2414.0	2402.1	2414.0
22.5°	2363.0	2366.1	2366.1	2345.1	2348.1	2336.1	2315.1	2300.1	2315.1	2300.1	2276.1
25°	2204.2	2210.2	2246.1	2207.1	2201.1	2213.1	2195.2	2186.1	2183.2	2147.2	2195.2
27.5°	2012.2	2072.1	2069.2	2054.2	2072.1	2048.2	2039.2	2042.2	2051.2	2048.2	2060.2
30°	1901.3	1910.2	1919.3	1907.3	1910.2	1901.3	1901.3	1904.3	1928.2	1919.3	1916.2
32.5°	1676.3	1706.3	1730.4	1730.4	1733.3	1742.4	1739.3	1802.3	1817.3	1787.4	1781.4
35°	1481.4	1502.4	1523.4	1526.4	1565.4	1568.4	1571.4	1589.4	1631.3	1640.4	1637.3
37.5°	1295.5	1316.5	1322.5	1349.5	1370.5	1391.4	1415.5	1439.5	1475.4	1505.4	1490.5
40°	1130.6	1139.5	1154.6	1166.5	1208.5	1208.5	1220.5	1268.5	1307.5	1331.5	1328.4
42.5°	992.7	995.6	1007.6	1028.6	1067.6	1058.6	1067.6	1100.6	1157.5	1160.6	1193.6
45°	896.7	893.6	902.7	905.6	929.7	941.7	947.7	971.6	1019.6	1025.6	1028.6
47.5°	809.7	806.7	821.7	827.7	836.6	848.6	848.6	851.7	869.6	884.7	872.7
50°	737.7	737.7	737.7	743.7	758.7	755.7	758.7	770.7	779.7	773.7	770.7
52.5°	659.7	671.7	680.7	683.8	686.7	686.7	689.8	683.8	680.7	671.7	653.7
55°	605.8	617.8	617.8	617.8	617.8	629.7	614.8	617.8	617.8	593.8	569.8
57.5°	551.8	563.8	572.8	560.8	572.8	560.8	554.8	551.8	545.7	521.8	485.8
60°	506.8	512.8	509.8	506.8	512.8	503.8	497.8	485.8	479.8	446.8	422.8
62.5°	455.9	458.8	461.8	455.9	449.9	446.8	434.8	416.8	404.9	377.8	356.8
65°	413.8	404.9	401.8	398.9	392.9	383.8	374.9	353.9	344.8	320.9	299.8
67.5°	350.8	347.9	353.9	344.8	329.9	329.9	320.9	302.9	281.9	266.9	245.9
70°	299.8	296.9	290.9	281.9	278.9	266.9	266.9	245.9	239.9	212.9	194.9
72.5°	245.9	245.9	236.9	227.9	218.9	212.9	210.0	194.9	186.0	170.9	155.9
75°	186.0	186.0	182.9	173.9	167.9	161.9	159.0	147.0	137.9	123.0	114.0
77.5°	131.9	131.9	120.0	114.0	116.9	110.9	104.9	102.0	98.9	90.0	78.0
80°	78.0	75.0	66.0	69.0	66.0	66.0	63.0	59.9	53.9	47.9	41.9
82.5°	21.0	24.0	24.0	24.0	27.0	21.0	21.0	21.0	24.0	24.0	15.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1	3.1
87.5°	3.1	6.0	12.0	12.0	12.0	12.0	12.0	9.0	9.0	9.0	6.0
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0
2.5°	2531.1	2528.0	2531.1	2510.0	2558.0	2522.0	2516.0	2510.0	2531.1	2510.0	2480.1
5°	2585.0	2555.0	2546.0	2537.0	2564.0	2522.0	2513.1	2516.0	2501.0	2462.1	2465.0
7.5°	2603.0	2576.1	2549.0	2492.0	2516.0	2507.1	2483.0	2465.0	2441.1	2408.0	2402.1
10°	2608.9	2579.0	2540.0	2522.0	2486.1	2474.1	2465.0	2435.1	2405.1	2348.1	2333.1
12.5°	2591.0	2555.0	2507.1	2492.0	2465.0	2426.0	2405.1	2375.0	2348.1	2303.1	2270.1
15°	2513.1	2483.0	2468.1	2417.1	2405.1	2381.0	2339.1	2297.1	2258.1	2198.1	2180.1
17.5°	2423.1	2411.1	2396.1	2357.1	2354.1	2330.1	2291.1	2255.1	2204.2	2111.2	2081.2
20°	2330.1	2330.1	2282.1	2267.2	2297.1	2249.1	2219.1	2186.1	2081.2	2036.2	1982.3
22.5°	2261.2	2228.2	2201.1	2177.2	2180.1	2150.2	2108.2	2042.2	2003.2	1949.3	1886.3
25°	2126.2	2138.2	2078.3	2069.2	2078.3	2009.2	1988.3	1934.2	1877.2	1826.2	1778.3
27.5°	2042.2	2009.2	1970.3	1937.3	1937.3	1910.2	1850.3	1838.3	1751.3	1703.3	1643.3
30°	1916.2	1892.3	1859.3	1811.3	1805.3	1784.3	1736.4	1706.3	1616.4	1544.4	1511.4
32.5°	1757.3	1748.3	1721.3	1667.4	1649.4	1625.3	1565.4	1514.4	1472.5	1391.4	1352.5
35°	1643.3	1610.4	1553.4	1508.4	1493.4	1451.5	1403.4	1367.4	1322.5	1250.5	1199.6
37.5°	1472.5	1439.5	1385.4	1331.5	1331.5	1289.6	1223.5	1187.6	1124.6	1082.5	1040.6
40°	1322.5	1280.5	1226.6	1163.6	1154.6	1094.5	1067.6	1007.6	968.6	902.7	896.7
42.5°	1154.6	1115.6	1067.6	1019.6	983.6	953.7	884.7	839.7	797.7	764.7	755.7
45°	1001.6	950.6	908.7	848.6	812.7	776.7	731.7	701.8	668.7	632.8	611.8
47.5°	869.6	827.7	767.7	713.7	677.8	659.7	608.7	575.8	548.8	524.8	509.8
50°	734.8	683.8	650.8	590.7	584.7	542.8	500.9	473.8	458.8	437.9	416.8
52.5°	632.8	584.7	539.7	494.9	470.8	455.9	416.8	389.8	368.9	353.9	341.9
55°	533.8	491.8	455.9	410.9	395.8	374.9	329.9	323.9	302.9	281.9	266.9
57.5°	458.8	419.8	377.8	347.9	320.9	305.9	269.9	245.9	233.9	215.9	200.9
60°	389.8	347.9	314.9	278.9	266.9	245.9	218.9	198.0	182.9	167.9	153.0
62.5°	326.9	290.9	255.0	224.9	206.9	194.9	173.9	155.9	141.0	129.0	116.9
65°	269.9	236.9	206.9	176.9	167.9	153.0	137.9	123.0	110.9	96.0	84.0
67.5°	221.9	192.0	161.9	141.0	131.9	125.9	108.0	92.9	84.0	75.0	63.0
70°	173.9	153.0	129.0	110.9	102.0	92.9	80.9	72.0	59.9	53.9	45.0
72.5°	135.0	116.9	96.0	80.9	75.0	69.0	57.0	47.9	41.9	36.0	30.0
75°	96.0	80.9	69.0	53.9	51.0	47.9	39.0	33.0	27.0	21.0	18.0
77.5°	66.0	53.9	41.9	36.0	33.0	27.0	24.0	18.0	15.0	12.0	9.0
80°	36.0	27.0	21.0	18.0	15.0	12.0	12.0	9.0	6.0	6.0	3.1
82.5°	12.0	9.0	6.0	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1
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°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	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°	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0
2.5°	2498.0	2465.0	2474.1	2474.1	2468.1	2468.1	2462.1	2453.0	2456.1	2438.0	2399.1
5°	2471.0	2429.1	2423.1	2429.1	2405.1	2399.1	2387.1	2405.1	2351.1	2372.1	2348.1
7.5°	2393.1	2354.1	2345.1	2366.1	2336.1	2318.0	2315.1	2339.1	2291.1	2267.2	2240.2
10°	2306.1	2291.1	2264.1	2249.1	2240.2	2243.1	2219.1	2189.2	2180.1	2174.1	2150.2
12.5°	2228.2	2195.2	2171.2	2153.2	2147.2	2147.2	2108.2	2102.2	2075.2	2069.2	2033.3
15°	2135.1	2096.2	2081.2	2057.2	2036.2	2048.2	2003.2	1991.2	1982.3	1943.3	1949.3
17.5°	2054.2	2012.2	1976.3	1961.2	1943.3	1925.3	1883.2	1892.3	1871.2	1871.2	1817.3
20°	1949.3	1904.3	1877.2	1847.3	1847.3	1823.3	1793.3	1796.3	1769.3	1742.4	1694.3
22.5°	1838.3	1790.3	1757.3	1745.3	1715.3	1709.3	1673.4	1664.3	1628.4	1631.3	1589.4
25°	1721.3	1673.4	1628.4	1631.3	1604.4	1592.4	1571.4	1529.5	1514.4	1496.5	1484.5
27.5°	1583.4	1550.4	1511.4	1508.4	1457.4	1460.4	1433.5	1421.5	1385.4	1394.5	1367.4
30°	1457.4	1409.5	1373.4	1364.5	1343.5	1337.5	1295.5	1277.5	1283.6	1259.5	1244.6
32.5°	1328.4	1256.5	1241.5	1223.5	1211.5	1196.5	1166.5	1178.5	1151.5	1157.5	1133.5
35°	1157.5	1127.5	1088.5	1088.5	1076.5	1064.6	1043.7	1055.6	1028.6	1016.6	992.7
37.5°	1013.6	986.7	947.7	959.6	938.6	920.6	902.7	905.6	881.6	878.7	854.6
40°	857.7	842.6	815.7	815.7	800.7	800.7	791.6	782.7	767.7	749.7	722.7
42.5°	710.7	698.7	686.7	689.8	668.7	686.7	662.8	677.8	629.7	626.8	608.7
45°	602.7	575.8	578.7	566.8	554.8	560.8	539.7	545.7	518.8	512.8	494.9
47.5°	488.9	479.8	461.8	455.9	455.9	446.8	437.9	434.8	422.8	407.8	383.8
50°	401.8	368.9	362.8	353.9	347.9	347.9	335.9	317.9	320.9	305.9	281.9
52.5°	314.9	287.8	275.9	272.9	260.9	255.0	239.9	227.9	218.9	212.9	198.0
55°	242.8	218.9	204.0	204.0	186.0	186.0	165.0	155.9	143.9	131.9	123.0
57.5°	182.9	170.9	155.9	143.9	137.9	123.0	110.9	96.0	86.9	69.0	57.0
60°	137.9	125.9	110.9	102.0	96.0	80.9	66.0	53.9	33.0	27.0	24.0
62.5°	102.0	90.0	75.0	69.0	63.0	51.0	36.0	18.0	9.0	9.0	9.0
65°	75.0	59.9	47.9	41.9	36.0	27.0	12.0	6.0	3.1	3.1	3.1
67.5°	51.0	39.0	27.0	24.0	18.0	9.0	3.1	3.1	3.1	3.1	3.1
70°	33.0	24.0	12.0	9.0	6.0	3.1	3.1	3.1	3.1	3.1	3.1
72.5°	21.0	12.0	6.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	12.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	6.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	3.1	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	3.1	3.1	3.1
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: FLDSQ4C50D010 FEU4C509050 F4LC-SQLWW-H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0	2501.0
2.5°	2441.1	2420.0	2432.0	2405.1	2417.1	2438.0	2423.1	2429.1
5°	2357.1	2345.1	2330.1	2291.1	2321.1	2345.1	2333.1	2330.1
7.5°	2267.2	2225.1	2246.1	2234.2	2228.2	2252.1	2225.1	2255.1
10°	2174.1	2144.2	2141.2	2120.2	2120.2	2138.2	2141.2	2123.1
12.5°	2036.2	2021.3	2021.3	2018.2	2015.2	2033.3	2036.2	2027.3
15°	1937.3	1931.3	1916.2	1913.3	1895.3	1922.2	1925.3	1922.2
17.5°	1817.3	1820.2	1805.3	1805.3	1817.3	1826.2	1802.3	1826.2
20°	1736.4	1721.3	1715.3	1688.3	1703.3	1718.4	1718.4	1721.3
22.5°	1619.3	1595.4	1604.4	1589.4	1580.3	1601.4	1601.4	1610.4
25°	1487.4	1487.4	1493.4	1484.5	1490.5	1502.4	1493.4	1514.4
27.5°	1361.5	1373.4	1373.4	1361.5	1367.4	1403.4	1418.4	1394.5
30°	1244.6	1247.5	1256.5	1250.5	1268.5	1280.5	1277.5	1295.5
32.5°	1112.6	1127.5	1133.5	1124.6	1130.6	1157.5	1142.6	1139.5
35°	1010.6	983.6	980.7	983.6	995.6	1001.6	995.6	1016.6
37.5°	863.7	854.6	842.6	845.7	854.6	866.7	872.7	887.6
40°	722.7	710.7	710.7	707.8	698.7	731.7	731.7	731.7
42.5°	599.8	596.7	581.8	581.8	593.8	602.7	596.7	617.8
45°	491.8	479.8	470.8	470.8	479.8	479.8	488.9	485.8
47.5°	386.9	374.9	377.8	368.9	377.8	389.8	374.9	377.8
50°	290.9	290.9	284.9	290.9	287.8	290.9	284.9	278.9
52.5°	198.0	224.9	227.9	215.9	188.9	165.0	149.9	161.9
55°	114.0	102.0	102.0	98.9	92.9	90.0	80.9	90.0
57.5°	57.0	51.0	51.0	51.0	47.9	45.0	39.0	39.0
60°	24.0	21.0	21.0	18.0	15.0	12.0	9.0	12.0
62.5°	9.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
65°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
67.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
70°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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)