

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: **FLDSQ4C40D010 FEU4C409050 F4LC-SQLWW-LI**

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: FLDSQ4C40D010 FEU4C409050 F4LC-SQLWW-LI
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

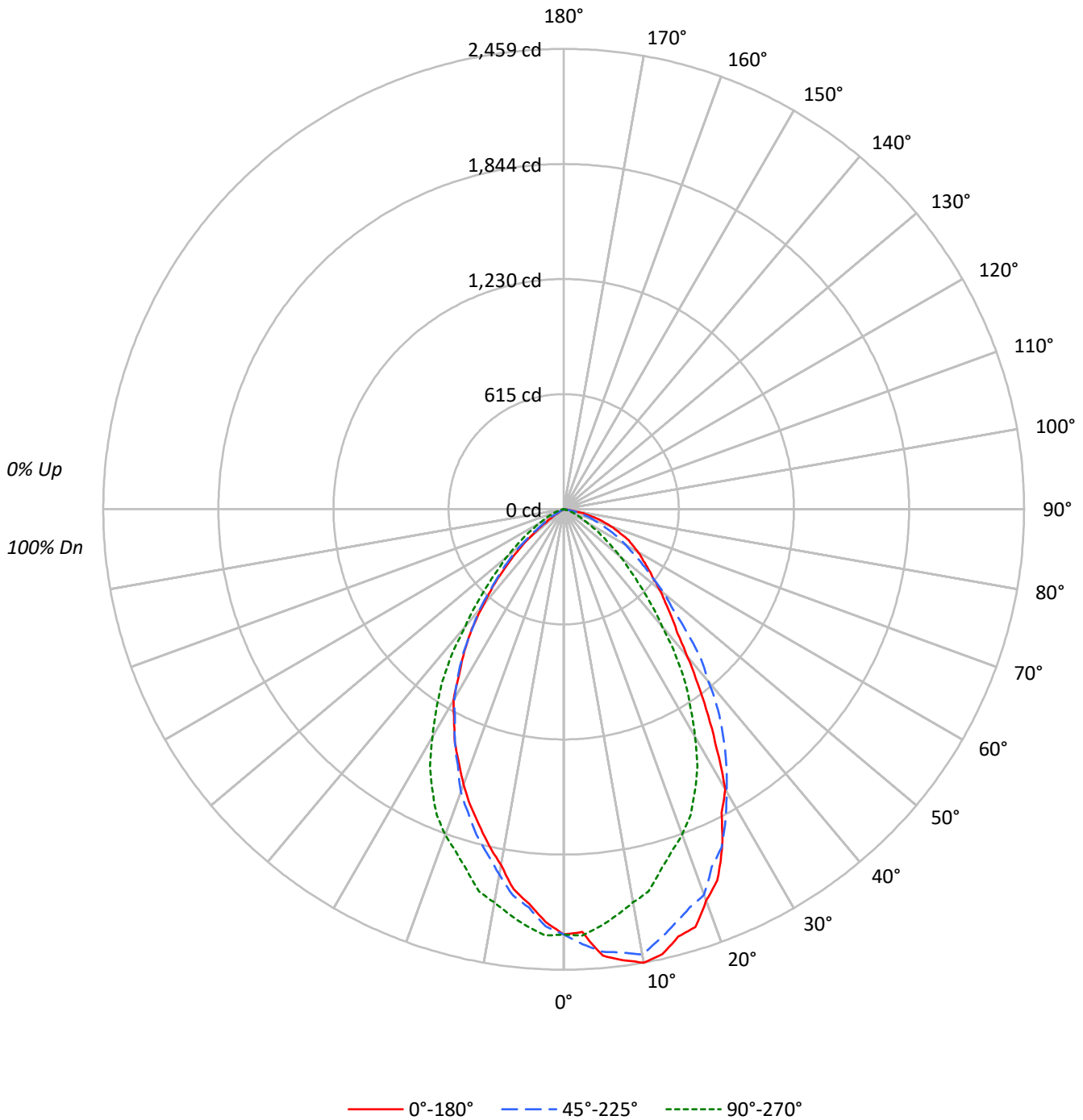
Lumens per Lamp: N/A
 Luminaire Lumens: 3255.0 lumens
 Efficiency: N/A
 Efficacy: 69.3 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 47
 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: FLDSQ4C40D010 FEU4C409050 F4LC-SQLWW-LI

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				
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°	219107	219107	219107
5°	231809	216525	204921
10°	240897	208888	188871
15°	236086	199366	174343
20°	228425	189837	160481
25°	213066	176527	146388
30°	192337	156227	131058
35°	158429	133740	108721
40°	129295	103235	83686
45°	111089	78394	60191
50°	100544	59684	38008
55°	92523	43048	13744
60°	88808	29410	2103
65°	85777	19909	639
70°	76792	13824	790
75°	62967	7121	0
80°	39341	3001	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	212.8	6.5
10°-20°	573.2	17.6
20°-30°	765.4	23.5
30°-40°	726.6	22.3
40°-50°	502.3	15.4
50°-60°	277.5	8.5
60°-70°	137.8	4.2
70°-80°	54.3	1.7
80°-90°	5.2	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°	1551.4	47.7
0°-40°	2278.0	70.0
0°-60°	3057.7	93.9
0°-90°	3255.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3255.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2271	2271	2271	2271	2271	
5°	2393	2372	2236	2135	2116	229
15°	2363	2293	1996	1800	1745	669
25°	2001	1993	1658	1375	1375	912
35°	1345	1487	1135	934	923	843
45°	814	934	574	471	441	635
55°	550	517	256	131	82	495
65°	376	272	87	3	3	365
75°	169	104	19	0	0	180
85°	0	3	0	0	0	16
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°	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8
2.5°	2259.9	2322.5	2327.9	2322.5	2330.7	2327.9	2341.6	2327.9	2344.4	2319.8	2325.3
5°	2393.3	2368.8	2420.5	2393.3	2393.3	2390.7	2382.4	2379.7	2390.7	2355.2	2371.6
7.5°	2428.7	2464.2	2510.5	2453.3	2455.9	2455.9	2439.6	2434.2	2434.2	2368.8	2387.9
10°	2458.7	2436.9	2461.4	2439.6	2458.7	2455.9	2466.8	2431.4	2455.9	2417.9	2415.1
12.5°	2434.2	2426.0	2458.7	2423.3	2412.4	2415.1	2401.5	2393.3	2401.5	2357.9	2355.2
15°	2363.4	2371.6	2420.5	2382.4	2377.0	2371.6	2355.2	2327.9	2349.8	2289.9	2292.6
17.5°	2338.9	2325.3	2333.5	2300.7	2309.0	2303.5	2300.7	2276.3	2270.8	2232.7	2232.7
20°	2224.6	2254.4	2254.4	2232.7	2232.7	2230.0	2194.6	2216.4	2191.8	2180.9	2191.8
22.5°	2145.5	2148.3	2148.3	2129.2	2132.0	2121.1	2102.0	2088.4	2102.0	2088.4	2066.6
25°	2001.3	2006.7	2039.4	2004.0	1998.5	2009.4	1993.1	1984.9	1982.2	1949.6	1993.1
27.5°	1827.0	1881.4	1878.7	1865.1	1881.4	1859.6	1851.5	1854.2	1862.4	1859.6	1870.5
30°	1726.3	1734.4	1742.6	1731.7	1734.4	1726.3	1726.3	1729.0	1750.7	1742.6	1739.8
32.5°	1522.0	1549.2	1571.1	1571.1	1573.8	1582.0	1579.2	1636.4	1650.0	1622.8	1617.4
35°	1345.0	1364.1	1383.1	1385.9	1421.3	1424.0	1426.8	1443.1	1481.2	1489.4	1486.6
37.5°	1176.3	1195.3	1200.7	1225.3	1244.3	1263.3	1285.2	1307.0	1339.6	1366.8	1353.3
40°	1026.5	1034.6	1048.3	1059.2	1097.2	1097.2	1108.1	1151.8	1187.2	1208.9	1206.2
42.5°	901.3	904.0	914.8	933.9	969.3	961.1	969.3	999.3	1050.9	1053.7	1083.7
45°	814.1	811.4	819.6	822.2	844.1	855.0	860.4	882.2	925.7	931.2	933.9
47.5°	735.2	732.4	746.1	751.5	759.6	770.5	770.5	773.3	789.6	803.3	792.4
50°	669.8	669.8	669.8	675.2	688.9	686.1	688.9	699.8	707.9	702.4	699.8
52.5°	599.0	609.9	618.1	620.8	623.5	623.5	626.3	620.8	618.1	609.9	593.5
55°	550.0	560.9	560.9	560.9	560.9	571.8	558.2	560.9	560.9	539.1	517.4
57.5°	501.0	511.9	520.0	509.2	520.0	509.2	503.7	501.0	495.5	473.7	441.1
60°	460.2	465.6	462.9	460.2	465.6	457.4	452.0	441.1	435.7	405.7	383.9
62.5°	413.9	416.6	419.3	413.9	408.5	405.7	394.8	378.5	367.6	343.1	324.0
65°	375.7	367.6	364.8	362.2	356.7	348.5	340.4	321.3	313.1	291.3	272.2
67.5°	318.5	315.9	321.3	313.1	299.5	299.5	291.3	275.0	255.9	242.4	223.3
70°	272.2	269.6	264.1	255.9	253.2	242.4	242.4	223.3	217.8	193.3	177.0
72.5°	223.3	223.3	215.1	206.9	198.7	193.3	190.6	177.0	168.9	155.2	141.6
75°	168.9	168.9	166.1	157.9	152.4	147.0	144.3	133.4	125.2	111.7	103.5
77.5°	119.8	119.8	108.9	103.5	106.1	100.7	95.3	92.6	89.8	81.7	70.8
80°	70.8	68.1	60.0	62.6	60.0	60.0	57.2	54.4	49.0	43.5	38.1
82.5°	19.1	21.8	21.8	21.8	24.5	19.1	19.1	19.1	21.8	21.8	13.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8
87.5°	2.8	5.4	10.9	10.9	10.9	10.9	10.9	8.2	8.2	8.2	5.4
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°	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8
2.5°	2298.1	2295.3	2298.1	2279.0	2322.5	2289.9	2284.4	2279.0	2298.1	2279.0	2251.8
5°	2347.0	2319.8	2311.6	2303.5	2327.9	2289.9	2281.7	2284.4	2270.8	2235.5	2238.1
7.5°	2363.4	2338.9	2314.4	2262.7	2284.4	2276.3	2254.4	2238.1	2216.4	2186.4	2180.9
10°	2368.8	2341.6	2306.2	2289.9	2257.2	2246.3	2238.1	2210.9	2183.7	2132.0	2118.3
12.5°	2352.5	2319.8	2276.3	2262.7	2238.1	2202.7	2183.7	2156.4	2132.0	2091.1	2061.1
15°	2281.7	2254.4	2240.9	2194.6	2183.7	2161.8	2123.8	2085.7	2050.3	1995.8	1979.4
17.5°	2200.0	2189.2	2175.5	2140.1	2137.4	2115.7	2080.2	2047.5	2001.3	1916.8	1889.6
20°	2115.7	2115.7	2072.0	2058.5	2085.7	2042.1	2014.9	1984.9	1889.6	1848.8	1799.8
22.5°	2053.0	2023.1	1998.5	1976.8	1979.4	1952.2	1914.2	1854.2	1818.8	1769.8	1712.6
25°	1930.5	1941.4	1887.0	1878.7	1887.0	1824.2	1805.2	1756.2	1704.4	1658.1	1614.6
27.5°	1854.2	1824.2	1788.9	1758.9	1758.9	1734.4	1680.0	1669.1	1590.1	1546.6	1492.0
30°	1739.8	1718.1	1688.1	1644.6	1639.1	1620.1	1576.5	1549.2	1467.6	1402.2	1372.3
32.5°	1595.5	1587.4	1562.9	1513.9	1497.6	1475.7	1421.3	1375.0	1336.9	1263.3	1228.0
35°	1492.0	1462.2	1410.4	1369.6	1355.9	1317.8	1274.2	1241.6	1200.7	1135.4	1089.1
37.5°	1336.9	1307.0	1257.9	1208.9	1208.9	1170.9	1110.9	1078.3	1021.1	982.9	944.8
40°	1200.7	1162.6	1113.7	1056.5	1048.3	993.8	969.3	914.8	879.4	819.6	814.1
42.5°	1048.3	1012.9	969.3	925.7	893.1	865.9	803.3	762.4	724.3	694.3	686.1
45°	909.4	863.1	825.0	770.5	737.9	705.2	664.4	637.2	607.2	574.5	555.4
47.5°	789.6	751.5	697.0	648.0	615.4	599.0	552.7	522.8	498.3	476.5	462.9
50°	667.1	620.8	590.9	536.4	530.9	492.8	454.7	430.2	416.6	397.6	378.5
52.5°	574.5	530.9	490.1	449.3	427.4	413.9	378.5	353.9	335.0	321.3	310.4
55°	484.6	446.5	413.9	373.0	359.4	340.4	299.5	294.1	275.0	255.9	242.4
57.5°	416.6	381.1	343.1	315.9	291.3	277.8	245.0	223.3	212.4	196.1	182.4
60°	353.9	315.9	285.9	253.2	242.4	223.3	198.7	179.7	166.1	152.4	138.9
62.5°	296.8	264.1	231.5	204.2	187.9	177.0	157.9	141.6	128.0	117.1	106.1
65°	245.0	215.1	187.9	160.7	152.4	138.9	125.2	111.7	100.7	87.2	76.3
67.5°	201.5	174.3	147.0	128.0	119.8	114.4	98.0	84.4	76.3	68.1	57.2
70°	157.9	138.9	117.1	100.7	92.6	84.4	73.5	65.4	54.4	49.0	40.9
72.5°	122.6	106.1	87.2	73.5	68.1	62.6	51.7	43.5	38.1	32.6	27.2
75°	87.2	73.5	62.6	49.0	46.3	43.5	35.4	30.0	24.5	19.1	16.3
77.5°	60.0	49.0	38.1	32.6	30.0	24.5	21.8	16.3	13.7	10.9	8.2
80°	32.6	24.5	19.1	16.3	13.7	10.9	10.9	8.2	5.4	5.4	2.8
82.5°	10.9	8.2	5.4	2.8	2.8	2.8	2.8	2.8	2.8	0.0	2.8
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°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	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°	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8
2.5°	2268.1	2238.1	2246.3	2246.3	2240.9	2240.9	2235.5	2227.2	2230.0	2213.6	2178.3
5°	2243.6	2205.5	2200.0	2205.5	2183.7	2178.3	2167.4	2183.7	2134.6	2153.7	2132.0
7.5°	2172.8	2137.4	2129.2	2148.3	2121.1	2104.7	2102.0	2123.8	2080.2	2058.5	2033.9
10°	2093.8	2080.2	2055.7	2042.1	2033.9	2036.6	2014.9	1987.7	1979.4	1974.0	1952.2
12.5°	2023.1	1993.1	1971.3	1955.0	1949.6	1949.6	1914.2	1908.7	1884.2	1878.7	1846.1
15°	1938.6	1903.3	1889.6	1867.9	1848.8	1859.6	1818.8	1807.9	1799.8	1764.4	1769.8
17.5°	1865.1	1827.0	1794.4	1780.7	1764.4	1748.1	1709.9	1718.1	1699.0	1699.0	1650.0
20°	1769.8	1729.0	1704.4	1677.2	1677.2	1655.5	1628.3	1630.9	1606.4	1582.0	1538.3
22.5°	1669.1	1625.5	1595.5	1584.6	1557.4	1552.0	1519.4	1511.1	1478.5	1481.2	1443.1
25°	1562.9	1519.4	1478.5	1481.2	1456.7	1445.9	1426.8	1388.7	1375.0	1358.7	1347.8
27.5°	1437.6	1407.7	1372.3	1369.6	1323.3	1326.0	1301.5	1290.6	1257.9	1266.1	1241.6
30°	1323.3	1279.8	1247.0	1238.9	1219.8	1214.4	1176.3	1159.9	1165.4	1143.5	1130.0
32.5°	1206.2	1140.9	1127.2	1110.9	1100.0	1086.4	1059.2	1070.0	1045.5	1050.9	1029.2
35°	1050.9	1023.7	988.3	988.3	977.5	966.6	947.6	958.5	933.9	923.0	901.3
37.5°	920.3	895.8	860.4	871.3	852.2	835.9	819.6	822.2	800.5	797.8	775.9
40°	778.7	765.1	740.6	740.6	727.0	727.0	718.8	710.7	697.0	680.7	656.1
42.5°	645.3	634.4	623.5	626.3	607.2	623.5	601.7	615.4	571.8	569.1	552.7
45°	547.2	522.8	525.5	514.6	503.7	509.2	490.1	495.5	471.1	465.6	449.3
47.5°	443.9	435.7	419.3	413.9	413.9	405.7	397.6	394.8	383.9	370.3	348.5
50°	364.8	335.0	329.4	321.3	315.9	315.9	305.0	288.7	291.3	277.8	255.9
52.5°	285.9	261.4	250.5	247.8	236.9	231.5	217.8	206.9	198.7	193.3	179.7
55°	220.5	198.7	185.2	185.2	168.9	168.9	149.8	141.6	130.7	119.8	111.7
57.5°	166.1	155.2	141.6	130.7	125.2	111.7	100.7	87.2	78.9	62.6	51.7
60°	125.2	114.4	100.7	92.6	87.2	73.5	60.0	49.0	30.0	24.5	21.8
62.5°	92.6	81.7	68.1	62.6	57.2	46.3	32.6	16.3	8.2	8.2	8.2
65°	68.1	54.4	43.5	38.1	32.6	24.5	10.9	5.4	2.8	2.8	2.8
67.5°	46.3	35.4	24.5	21.8	16.3	8.2	2.8	2.8	2.8	2.8	2.8
70°	30.0	21.8	10.9	8.2	5.4	2.8	2.8	2.8	2.8	2.8	2.8
72.5°	19.1	10.9	5.4	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	10.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	5.4	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.8	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	2.8	2.8	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C40D010 FEU4C409050 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8	2270.8
2.5°	2216.4	2197.3	2208.1	2183.7	2194.6	2213.6	2200.0	2205.5
5°	2140.1	2129.2	2115.7	2080.2	2107.4	2129.2	2118.3	2115.7
7.5°	2058.5	2020.3	2039.4	2028.5	2023.1	2044.8	2020.3	2047.5
10°	1974.0	1946.8	1944.1	1925.0	1925.0	1941.4	1944.1	1927.7
12.5°	1848.8	1835.2	1835.2	1832.4	1829.7	1846.1	1848.8	1840.7
15°	1758.9	1753.5	1739.8	1737.2	1720.9	1745.3	1748.1	1745.3
17.5°	1650.0	1652.7	1639.1	1639.1	1650.0	1658.1	1636.4	1658.1
20°	1576.5	1562.9	1557.4	1532.9	1546.6	1560.2	1560.2	1562.9
22.5°	1470.3	1448.5	1456.7	1443.1	1434.9	1454.0	1454.0	1462.2
25°	1350.5	1350.5	1355.9	1347.8	1353.3	1364.1	1355.9	1375.0
27.5°	1236.1	1247.0	1247.0	1236.1	1241.6	1274.2	1287.9	1266.1
30°	1130.0	1132.7	1140.9	1135.4	1151.8	1162.6	1159.9	1176.3
32.5°	1010.2	1023.7	1029.2	1021.1	1026.5	1050.9	1037.4	1034.6
35°	917.6	893.1	890.4	893.1	904.0	909.4	904.0	923.0
37.5°	784.2	775.9	765.1	767.8	775.9	786.9	792.4	805.9
40°	656.1	645.3	645.3	642.6	634.4	664.4	664.4	664.4
42.5°	544.6	541.8	528.2	528.2	539.1	547.2	541.8	560.9
45°	446.5	435.7	427.4	427.4	435.7	435.7	443.9	441.1
47.5°	351.3	340.4	343.1	335.0	343.1	353.9	340.4	343.1
50°	264.1	264.1	258.7	264.1	261.4	264.1	258.7	253.2
52.5°	179.7	204.2	206.9	196.1	171.5	149.8	136.1	147.0
55°	103.5	92.6	92.6	89.8	84.4	81.7	73.5	81.7
57.5°	51.7	46.3	46.3	46.3	43.5	40.9	35.4	35.4
60°	21.8	19.1	19.1	16.3	13.7	10.9	8.2	10.9
62.5°	8.2	5.4	5.4	5.4	5.4	5.4	5.4	5.4
65°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
67.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
70°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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)