

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: **FLDSQ4C65D010 FEU4C659040 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: FLDSQ4C65D010 FEU4C659040 F4LC-SQLWW-LI
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

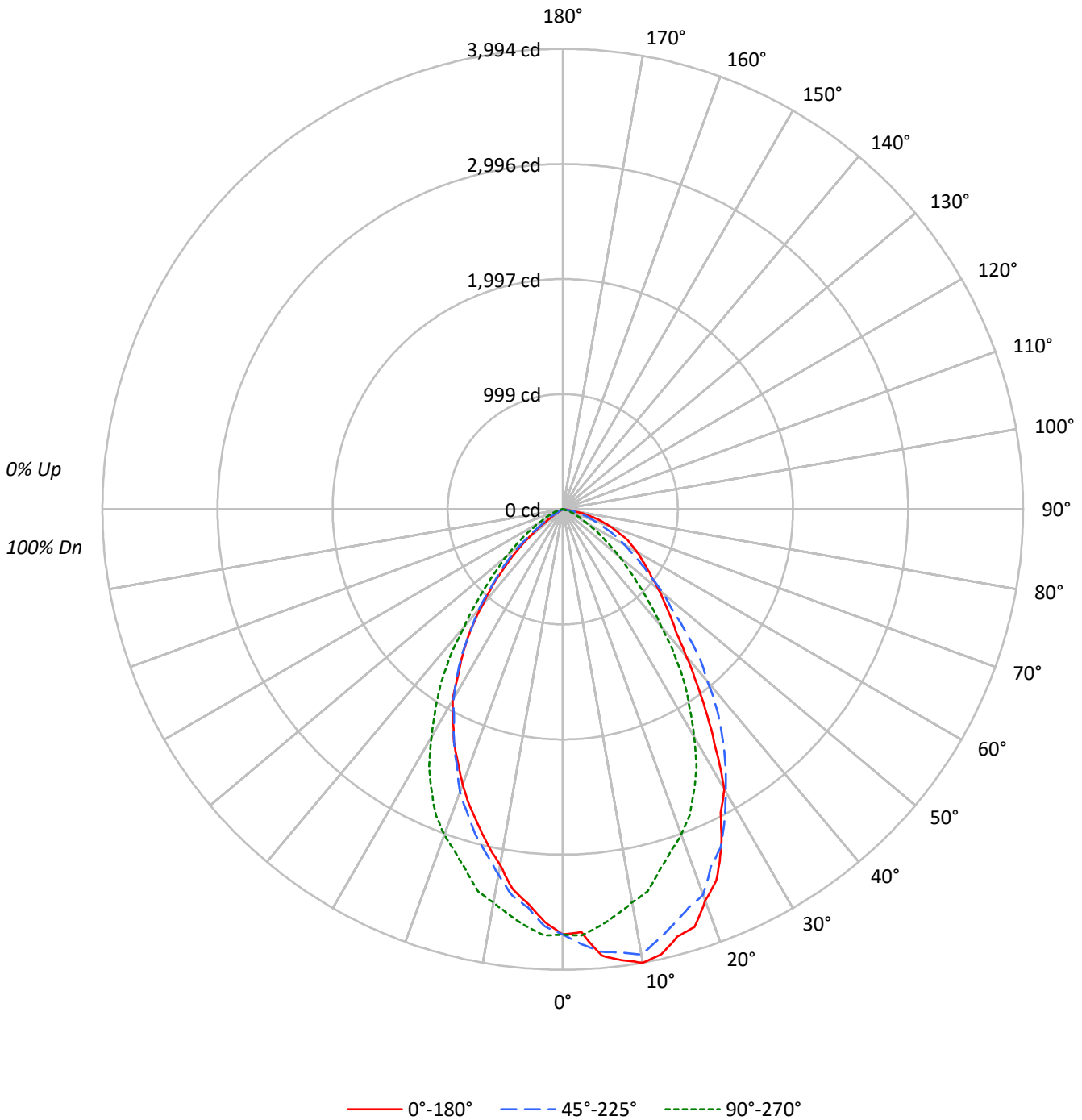
Lumens per Lamp: N/A
 Luminaire Lumens: 5287.0 lumens
 Efficiency: N/A
 Efficacy: 73.0 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 72.4
 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#

CATALOG NUMBER: FLDSQ4C65D010 FEU4C659040 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				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°	355880	355880	355880
5°	376524	351689	332841
10°	391283	339286	306777
15°	383458	323822	283176
20°	371018	308342	260657
25°	346082	286739	237776
30°	312410	253761	212871
35°	257338	217242	176604
40°	210009	167674	135921
45°	180449	127341	97771
50°	163305	96941	61740
55°	150291	69930	22323
60°	144251	47781	3416
65°	139316	32329	1027
70°	124751	22428	1270
75°	102260	11557	0
80°	63901	4890	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.6	6.5
10°-20°	931.0	17.6
20°-30°	1243.2	23.5
30°-40°	1180.2	22.3
40°-50°	815.8	15.4
50°-60°	450.8	8.5
60°-70°	223.8	4.2
70°-80°	88.2	1.7
80°-90°	8.4	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°	2519.8	47.7
0°-40°	3700.0	70.0
0°-60°	4966.6	93.9
0°-90°	5287.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5287.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3688	3688	3688	3688	3688	
5°	3887	3852	3631	3467	3436	372
15°	3839	3724	3242	2923	2835	1086
25°	3251	3237	2693	2233	2233	1482
35°	2185	2415	1844	1517	1499	1369
45°	1322	1517	933	765	716	1031
55°	893	840	416	212	133	804
65°	610	442	142	4	4	592
75°	274	168	31	0	0	292
85°	0	4	0	0	0	25
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3
2.5°	3670.7	3772.4	3781.2	3772.4	3785.7	3781.2	3803.4	3781.2	3807.9	3768.0	3776.9
5°	3887.4	3847.6	3931.6	3887.4	3887.4	3883.1	3869.7	3865.2	3883.1	3825.6	3852.1
7.5°	3944.9	4002.5	4077.7	3984.8	3989.1	3989.1	3962.6	3953.8	3953.8	3847.6	3878.6
10°	3993.6	3958.1	3998.0	3962.6	3993.6	3989.1	4006.8	3949.3	3989.1	3927.3	3922.8
12.5°	3953.8	3940.4	3993.6	3936.1	3918.4	3922.8	3900.8	3887.4	3900.8	3829.9	3825.6
15°	3838.7	3852.1	3931.6	3869.7	3860.9	3852.1	3825.6	3781.2	3816.7	3719.3	3723.9
17.5°	3799.0	3776.9	3790.2	3737.0	3750.4	3741.5	3737.0	3697.3	3688.3	3626.5	3626.5
20°	3613.3	3661.8	3661.8	3626.5	3626.5	3622.1	3564.6	3600.0	3560.1	3542.4	3560.1
22.5°	3484.9	3489.4	3489.4	3458.4	3462.9	3445.2	3414.2	3392.0	3414.2	3392.0	3356.7
25°	3250.7	3259.5	3312.5	3255.0	3246.2	3263.8	3237.3	3224.0	3219.6	3166.6	3237.3
27.5°	2967.5	3055.9	3051.6	3029.4	3055.9	3020.6	3007.4	3011.7	3025.1	3020.6	3038.2
30°	2804.0	2817.1	2830.5	2812.8	2817.1	2804.0	2804.0	2808.3	2843.7	2830.5	2826.0
32.5°	2472.2	2516.4	2551.9	2551.9	2556.2	2569.5	2565.0	2657.9	2680.1	2635.9	2627.1
35°	2184.7	2215.7	2246.6	2251.1	2308.6	2312.9	2317.4	2344.0	2405.8	2419.2	2414.6
37.5°	1910.6	1941.5	1950.3	1990.1	2021.2	2052.0	2087.5	2122.9	2175.9	2220.1	2198.1
40°	1667.3	1680.5	1702.7	1720.4	1782.2	1782.2	1799.9	1870.8	1928.3	1963.6	1959.1
42.5°	1463.9	1468.3	1485.9	1517.0	1574.5	1561.1	1574.5	1623.2	1707.0	1711.5	1760.2
45°	1322.4	1317.9	1331.2	1335.5	1371.1	1388.7	1397.6	1432.9	1503.6	1512.4	1517.0
47.5°	1194.2	1189.7	1211.8	1220.7	1233.8	1251.5	1251.5	1256.0	1282.5	1304.7	1287.0
50°	1087.9	1087.9	1087.9	1096.8	1119.0	1114.5	1119.0	1136.6	1149.8	1141.0	1136.6
52.5°	972.9	990.6	1003.9	1008.4	1012.7	1012.7	1017.2	1008.4	1003.9	990.6	964.1
55°	893.4	911.0	911.0	911.0	911.0	928.7	906.7	911.0	911.0	875.7	840.3
57.5°	813.8	831.5	844.7	827.0	844.7	827.0	818.2	813.8	804.8	769.5	716.5
60°	747.5	756.3	751.8	747.5	756.3	743.0	734.1	716.5	707.6	658.9	623.6
62.5°	672.3	676.6	681.1	672.3	663.4	658.9	641.3	614.8	597.1	557.2	526.2
65°	610.2	597.1	592.6	588.2	579.4	566.1	552.9	521.9	508.5	473.2	442.2
67.5°	517.4	513.0	521.9	508.5	486.5	486.5	473.2	446.7	415.7	393.7	362.6
70°	442.2	437.8	429.0	415.7	411.3	393.7	393.7	362.6	353.8	314.0	287.4
72.5°	362.6	362.6	349.3	336.1	322.8	314.0	309.6	287.4	274.3	252.1	229.9
75°	274.3	274.3	269.8	256.4	247.6	238.8	234.4	216.8	203.4	181.4	168.1
77.5°	194.6	194.6	176.9	168.1	172.4	163.6	154.7	150.4	145.9	132.7	115.0
80°	115.0	110.5	97.4	101.7	97.4	97.4	92.9	88.4	79.5	70.7	61.9
82.5°	31.0	35.3	35.3	35.3	39.9	31.0	31.0	31.0	35.3	35.3	22.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.5	4.5
87.5°	4.5	8.8	17.7	17.7	17.7	17.7	17.7	13.3	13.3	13.3	8.8
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°	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3
2.5°	3732.7	3728.2	3732.7	3701.7	3772.4	3719.3	3710.5	3701.7	3732.7	3701.7	3657.5
5°	3812.2	3768.0	3754.7	3741.5	3781.2	3719.3	3706.2	3710.5	3688.3	3631.0	3635.3
7.5°	3838.7	3799.0	3759.2	3675.2	3710.5	3697.3	3661.8	3635.3	3600.0	3551.3	3542.4
10°	3847.6	3803.4	3745.9	3719.3	3666.3	3648.7	3635.3	3591.1	3546.9	3462.9	3440.7
12.5°	3821.1	3768.0	3697.3	3675.2	3635.3	3577.8	3546.9	3502.6	3462.9	3396.6	3347.9
15°	3706.2	3661.8	3639.8	3564.6	3546.9	3511.4	3449.6	3387.7	3330.2	3241.7	3215.1
17.5°	3573.5	3555.8	3533.6	3476.1	3471.7	3436.4	3378.9	3325.7	3250.7	3113.4	3069.2
20°	3436.4	3436.4	3365.5	3343.5	3387.7	3316.8	3272.7	3224.0	3069.2	3002.9	2923.4
22.5°	3334.7	3286.0	3246.2	3210.8	3215.1	3171.0	3109.1	3011.7	2954.2	2874.7	2781.8
25°	3135.6	3153.3	3064.9	3051.6	3064.9	2963.0	2932.2	2852.5	2768.5	2693.3	2622.6
27.5°	3011.7	2963.0	2905.7	2857.0	2857.0	2817.1	2728.8	2711.1	2582.7	2512.0	2423.5
30°	2826.0	2790.6	2741.9	2671.3	2662.4	2631.4	2560.7	2516.4	2383.8	2277.6	2228.9
32.5°	2591.6	2578.4	2538.5	2459.0	2432.5	2397.0	2308.6	2233.4	2171.6	2052.0	1994.6
35°	2423.5	2375.0	2290.9	2224.6	2202.4	2140.5	2069.7	2016.7	1950.3	1844.3	1769.1
37.5°	2171.6	2122.9	2043.2	1963.6	1963.6	1901.8	1804.4	1751.4	1658.5	1596.5	1534.6
40°	1950.3	1888.4	1808.9	1716.0	1702.7	1614.2	1574.5	1485.9	1428.4	1331.2	1322.4
42.5°	1702.7	1645.2	1574.5	1503.6	1450.6	1406.4	1304.7	1238.3	1176.5	1127.8	1114.5
45°	1477.1	1401.9	1340.0	1251.5	1198.5	1145.5	1079.1	1034.9	986.2	933.2	902.2
47.5°	1282.5	1220.7	1132.1	1052.6	999.6	972.9	897.7	849.2	809.3	774.0	751.8
50°	1083.6	1008.4	959.7	871.2	862.3	800.5	738.6	698.8	676.6	645.8	614.8
52.5°	933.2	862.3	796.0	729.8	694.3	672.3	614.8	574.9	544.1	521.9	504.2
55°	787.2	725.3	672.3	605.9	583.7	552.9	486.5	477.7	446.7	415.7	393.7
57.5°	676.6	619.1	557.2	513.0	473.2	451.2	398.0	362.6	345.0	318.5	296.3
60°	574.9	513.0	464.4	411.3	393.7	362.6	322.8	292.0	269.8	247.6	225.6
62.5°	482.0	429.0	376.0	331.6	305.1	287.4	256.4	229.9	207.9	190.2	172.4
65°	398.0	349.3	305.1	260.9	247.6	225.6	203.4	181.4	163.6	141.6	123.9
67.5°	327.3	283.1	238.8	207.9	194.6	185.7	159.2	137.1	123.9	110.5	92.9
70°	256.4	225.6	190.2	163.6	150.4	137.1	119.4	106.2	88.4	79.5	66.4
72.5°	199.1	172.4	141.6	119.4	110.5	101.7	84.0	70.7	61.9	53.0	44.2
75°	141.6	119.4	101.7	79.5	75.2	70.7	57.5	48.7	39.9	31.0	26.5
77.5°	97.4	79.5	61.9	53.0	48.7	39.9	35.3	26.5	22.2	17.7	13.3
80°	53.0	39.9	31.0	26.5	22.2	17.7	17.7	13.3	8.8	8.8	4.5
82.5°	17.7	13.3	8.8	4.5	4.5	4.5	4.5	4.5	4.5	0.0	4.5
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°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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°	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3
2.5°	3684.0	3635.3	3648.7	3648.7	3639.8	3639.8	3631.0	3617.6	3622.1	3595.5	3538.1
5°	3644.1	3582.3	3573.5	3582.3	3546.9	3538.1	3520.4	3546.9	3467.2	3498.3	3462.9
7.5°	3529.3	3471.7	3458.4	3489.4	3445.2	3418.6	3414.2	3449.6	3378.9	3343.5	3303.7
10°	3400.9	3378.9	3339.0	3316.8	3303.7	3308.0	3272.7	3228.5	3215.1	3206.3	3171.0
12.5°	3286.0	3237.3	3202.0	3175.5	3166.6	3166.6	3109.1	3100.3	3060.4	3051.6	2998.6
15°	3148.8	3091.4	3069.2	3033.9	3002.9	3020.6	2954.2	2936.5	2923.4	2865.8	2874.7
17.5°	3029.4	2967.5	2914.5	2892.3	2865.8	2839.3	2777.3	2790.6	2759.6	2759.6	2680.1
20°	2874.7	2808.3	2768.5	2724.3	2724.3	2688.9	2644.7	2649.1	2609.2	2569.5	2498.7
22.5°	2711.1	2640.2	2591.6	2573.9	2529.7	2520.9	2467.8	2454.5	2401.5	2405.8	2344.0
25°	2538.5	2467.8	2401.5	2405.8	2366.1	2348.5	2317.4	2255.6	2233.4	2206.9	2189.2
27.5°	2335.1	2286.4	2228.9	2224.6	2149.4	2153.7	2114.0	2096.4	2043.2	2056.5	2016.7
30°	2149.4	2078.7	2025.5	2012.3	1981.3	1972.5	1910.6	1883.9	1892.9	1857.4	1835.4
32.5°	1959.1	1853.1	1830.9	1804.4	1786.7	1764.5	1720.4	1738.0	1698.2	1707.0	1671.7
35°	1707.0	1662.8	1605.3	1605.3	1587.6	1570.0	1539.1	1556.8	1517.0	1499.3	1463.9
37.5°	1494.8	1455.1	1397.6	1415.2	1384.2	1357.7	1331.2	1335.5	1300.2	1295.9	1260.3
40°	1264.8	1242.7	1203.0	1203.0	1180.8	1180.8	1167.5	1154.3	1132.1	1105.6	1065.8
42.5°	1048.1	1030.4	1012.7	1017.2	986.2	1012.7	977.4	999.6	928.7	924.4	897.7
45°	888.9	849.2	853.5	835.8	818.2	827.0	796.0	804.8	765.1	756.3	729.8
47.5°	721.0	707.6	681.1	672.3	672.3	658.9	645.8	641.3	623.6	601.4	566.1
50°	592.6	544.1	535.0	521.9	513.0	513.0	495.4	468.9	473.2	451.2	415.7
52.5°	464.4	424.5	406.8	402.5	384.8	376.0	353.8	336.1	322.8	314.0	292.0
55°	358.1	322.8	300.8	300.8	274.3	274.3	243.3	229.9	212.3	194.6	181.4
57.5°	269.8	252.1	229.9	212.3	203.4	181.4	163.6	141.6	128.2	101.7	84.0
60°	203.4	185.7	163.6	150.4	141.6	119.4	97.4	79.5	48.7	39.9	35.3
62.5°	150.4	132.7	110.5	101.7	92.9	75.2	53.0	26.5	13.3	13.3	13.3
65°	110.5	88.4	70.7	61.9	53.0	39.9	17.7	8.8	4.5	4.5	4.5
67.5°	75.2	57.5	39.9	35.3	26.5	13.3	4.5	4.5	4.5	4.5	4.5
70°	48.7	35.3	17.7	13.3	8.8	4.5	4.5	4.5	4.5	4.5	4.5
72.5°	31.0	17.7	8.8	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	17.7	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	8.8	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	4.5	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	4.5	4.5	4.5
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: FLDSQ4C65D010 FEU4C659040 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3	3688.3
2.5°	3600.0	3569.0	3586.6	3546.9	3564.6	3595.5	3573.5	3582.3
5°	3476.1	3458.4	3436.4	3378.9	3423.1	3458.4	3440.7	3436.4
7.5°	3343.5	3281.5	3312.5	3294.8	3286.0	3321.4	3281.5	3325.7
10°	3206.3	3162.1	3157.8	3126.8	3126.8	3153.3	3157.8	3131.1
12.5°	3002.9	2980.9	2980.9	2976.4	2971.9	2998.6	3002.9	2989.7
15°	2857.0	2848.2	2826.0	2821.7	2795.1	2834.8	2839.3	2834.8
17.5°	2680.1	2684.4	2662.4	2662.4	2680.1	2693.3	2657.9	2693.3
20°	2560.7	2538.5	2529.7	2489.8	2512.0	2534.2	2534.2	2538.5
22.5°	2388.1	2352.8	2366.1	2344.0	2330.6	2361.6	2361.6	2375.0
25°	2193.6	2193.6	2202.4	2189.2	2198.1	2215.7	2202.4	2233.4
27.5°	2007.8	2025.5	2025.5	2007.8	2016.7	2069.7	2091.9	2056.5
30°	1835.4	1839.7	1853.1	1844.3	1870.8	1888.4	1883.9	1910.6
32.5°	1640.8	1662.8	1671.7	1658.5	1667.3	1707.0	1685.0	1680.5
35°	1490.4	1450.6	1446.3	1450.6	1468.3	1477.1	1468.3	1499.3
37.5°	1273.7	1260.3	1242.7	1247.2	1260.3	1278.2	1287.0	1309.0
40°	1065.8	1048.1	1048.1	1043.8	1030.4	1079.1	1079.1	1079.1
42.5°	884.5	880.0	858.0	858.0	875.7	888.9	880.0	911.0
45°	725.3	707.6	694.3	694.3	707.6	707.6	721.0	716.5
47.5°	570.6	552.9	557.2	544.1	557.2	574.9	552.9	557.2
50°	429.0	429.0	420.2	429.0	424.5	429.0	420.2	411.3
52.5°	292.0	331.6	336.1	318.5	278.6	243.3	221.1	238.8
55°	168.1	150.4	150.4	145.9	137.1	132.7	119.4	132.7
57.5°	84.0	75.2	75.2	75.2	70.7	66.4	57.5	57.5
60°	35.3	31.0	31.0	26.5	22.2	17.7	13.3	17.7
62.5°	13.3	8.8	8.8	8.8	8.8	8.8	8.8	8.8
65°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
67.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
70°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
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)