

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: **FLDSQ4C10D010 FEU4C109027 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: FLDSQ4C10D010 FEU4C109027 F4LC-SQLWW-LI
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

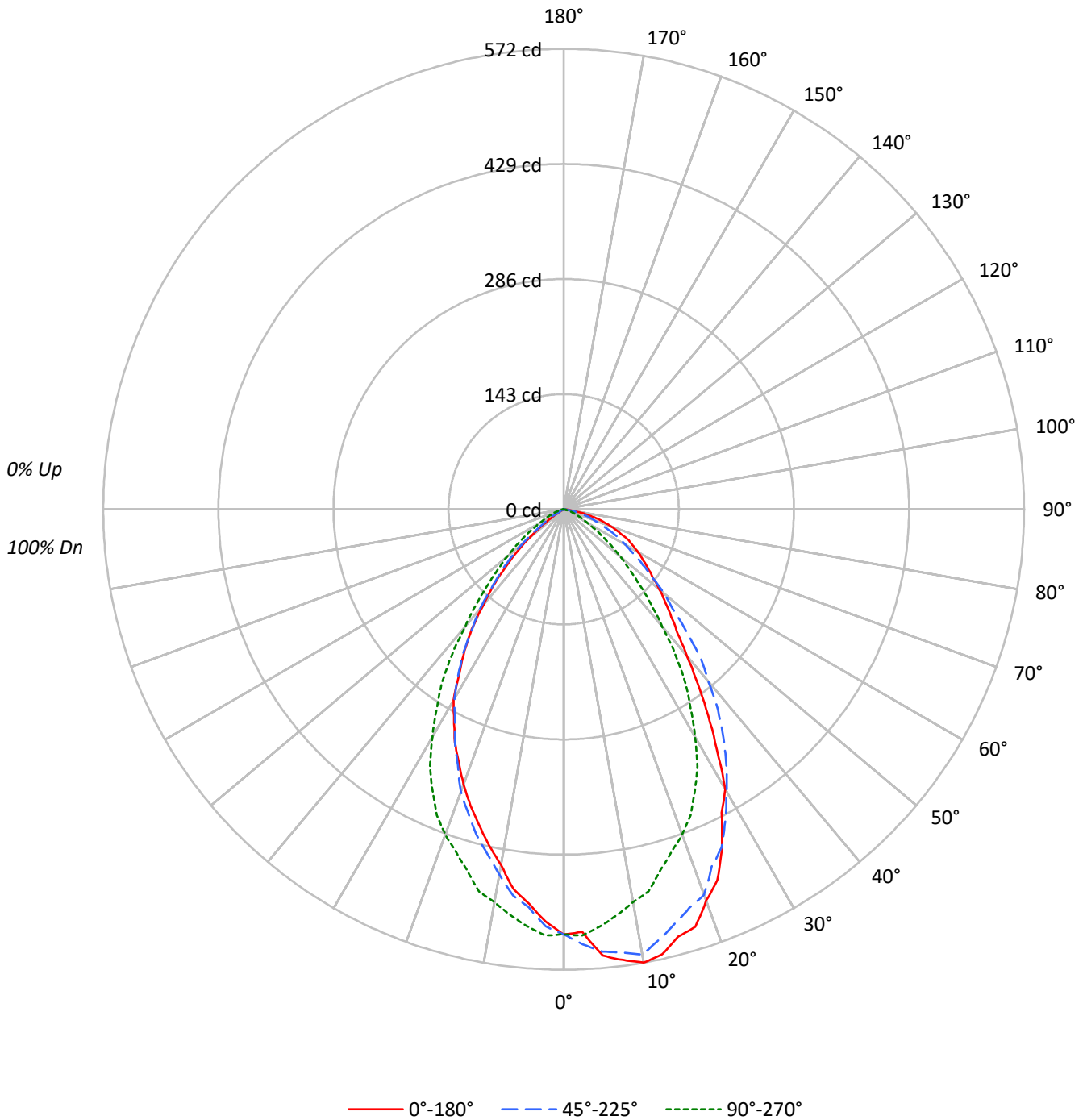
Lumens per Lamp: N/A
 Luminaire Lumens: 757.0 lumens
 Efficiency: N/A
 Efficacy: 77.2 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.8
 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	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°	50956	50956	50956
5°	53911	50356	47654
10°	56023	48577	43923
15°	54901	46360	40546
20°	53127	44153	37325
25°	49548	41052	34047
30°	44733	36333	30483
35°	36845	31109	25290
40°	30066	24007	19460
45°	25831	18231	14000
50°	23387	13885	8841
55°	21516	10009	3196
60°	20649	6851	482
65°	19954	4635	137
70°	17858	3216	169
75°	14651	1640	0
80°	9168	722	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.5	6.5
10°-20°	133.3	17.6
20°-30°	178.0	23.5
30°-40°	169.0	22.3
40°-50°	116.8	15.4
50°-60°	64.5	8.5
60°-70°	32.0	4.2
70°-80°	12.6	1.7
80°-90°	1.2	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°	360.8	47.7
0°-40°	529.8	70.0
0°-60°	711.1	93.9
0°-90°	757.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	757.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	528	528	528	528	528	
5°	557	552	520	496	492	53
15°	550	533	464	419	406	155
25°	465	464	386	320	320	212
35°	313	346	264	217	215	196
45°	189	217	134	110	103	148
55°	128	120	60	30	19	115
65°	87	63	20	1	1	85
75°	39	24	4	0	0	42
85°	0	1	0	0	0	4
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°	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1
2.5°	525.6	540.1	541.4	540.1	542.0	541.4	544.6	541.4	545.2	539.5	540.8
5°	556.6	550.9	562.9	556.6	556.6	556.0	554.1	553.4	556.0	547.7	551.5
7.5°	564.8	573.1	583.8	570.5	571.2	571.2	567.4	566.1	566.1	550.9	555.3
10°	571.8	566.7	572.4	567.4	571.8	571.2	573.7	565.5	571.2	562.3	561.7
12.5°	566.1	564.2	571.8	563.6	561.0	561.7	558.5	556.6	558.5	548.4	547.7
15°	549.6	551.5	562.9	554.1	552.8	551.5	547.7	541.4	546.5	532.5	533.2
17.5°	544.0	540.8	542.7	535.1	537.0	535.7	535.1	529.4	528.1	519.2	519.2
20°	517.4	524.3	524.3	519.2	519.2	518.6	510.4	515.4	509.7	507.2	509.7
22.5°	499.0	499.6	499.6	495.2	495.8	493.3	488.9	485.7	488.9	485.7	480.6
25°	465.4	466.7	474.3	466.1	464.8	467.3	463.5	461.6	461.0	453.4	463.5
27.5°	424.9	437.5	436.9	433.8	437.5	432.5	430.6	431.2	433.1	432.5	435.0
30°	401.5	403.4	405.3	402.7	403.4	401.5	401.5	402.1	407.2	405.3	404.6
32.5°	354.0	360.3	365.4	365.4	366.0	367.9	367.3	380.6	383.7	377.4	376.1
35°	312.8	317.3	321.7	322.3	330.5	331.2	331.8	335.6	344.5	346.4	345.7
37.5°	273.6	278.0	279.2	285.0	289.4	293.8	298.9	304.0	311.5	317.9	314.7
40°	238.7	240.6	243.8	246.3	255.2	255.2	257.7	267.9	276.1	281.2	280.5
42.5°	209.6	210.2	212.8	217.2	225.4	223.5	225.4	232.4	244.4	245.1	252.0
45°	189.3	188.7	190.6	191.2	196.3	198.8	200.1	205.2	215.3	216.6	217.2
47.5°	171.0	170.3	173.5	174.8	176.7	179.2	179.2	179.8	183.6	186.8	184.3
50°	155.8	155.8	155.8	157.0	160.2	159.6	160.2	162.7	164.6	163.4	162.7
52.5°	139.3	141.8	143.7	144.4	145.0	145.0	145.7	144.4	143.7	141.8	138.0
55°	127.9	130.4	130.4	130.4	130.4	133.0	129.8	130.4	130.4	125.4	120.3
57.5°	116.5	119.1	120.9	118.4	120.9	118.4	117.1	116.5	115.2	110.2	102.6
60°	107.0	108.3	107.6	107.0	108.3	106.4	105.1	102.6	101.3	94.3	89.3
62.5°	96.3	96.9	97.5	96.3	95.0	94.3	91.8	88.0	85.5	79.8	75.3
65°	87.4	85.5	84.8	84.2	83.0	81.0	79.2	74.7	72.8	67.8	63.3
67.5°	74.1	73.5	74.7	72.8	69.7	69.7	67.8	64.0	59.5	56.4	51.9
70°	63.3	62.7	61.4	59.5	58.9	56.4	56.4	51.9	50.7	45.0	41.2
72.5°	51.9	51.9	50.0	48.1	46.2	45.0	44.3	41.2	39.3	36.1	32.9
75°	39.3	39.3	38.6	36.7	35.5	34.2	33.6	31.0	29.1	26.0	24.1
77.5°	27.9	27.9	25.3	24.1	24.7	23.4	22.2	21.5	20.9	19.0	16.5
80°	16.5	15.8	13.9	14.6	13.9	13.9	13.3	12.7	11.4	10.1	8.9
82.5°	4.4	5.1	5.1	5.1	5.7	4.4	4.4	4.4	5.1	5.1	3.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6
87.5°	0.6	1.3	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.3
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°	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1
2.5°	534.5	533.8	534.5	530.0	540.1	532.5	531.3	530.0	534.5	530.0	523.7
5°	545.8	539.5	537.6	535.7	541.4	532.5	530.7	531.3	528.1	519.9	520.5
7.5°	549.6	544.0	538.2	526.2	531.3	529.4	524.3	520.5	515.4	508.5	507.2
10°	550.9	544.6	536.3	532.5	524.9	522.4	520.5	514.2	507.9	495.8	492.6
12.5°	547.1	539.5	529.4	526.2	520.5	512.3	507.9	501.5	495.8	486.3	479.4
15°	530.7	524.3	521.2	510.4	507.9	502.8	493.9	485.1	476.8	464.1	460.3
17.5°	511.7	509.1	505.9	497.7	497.1	492.0	483.8	476.2	465.4	445.8	439.5
20°	492.0	492.0	481.9	478.7	485.1	474.9	468.6	461.6	439.5	430.0	418.6
22.5°	477.5	470.5	464.8	459.7	460.3	454.0	445.2	431.2	423.0	411.6	398.3
25°	449.0	451.5	438.8	436.9	438.8	424.3	419.8	408.4	396.4	385.6	375.5
27.5°	431.2	424.3	416.0	409.1	409.1	403.4	390.7	388.2	369.8	359.7	347.0
30°	404.6	399.6	392.6	382.5	381.2	376.8	366.6	360.3	341.3	326.1	319.1
32.5°	371.1	369.2	363.5	352.1	348.3	343.2	330.5	319.8	310.9	293.8	285.6
35°	347.0	340.1	328.0	318.5	315.3	306.5	296.3	288.7	279.2	264.1	253.3
37.5°	310.9	304.0	292.5	281.2	281.2	272.3	258.4	250.8	237.5	228.6	219.7
40°	279.2	270.4	259.0	245.7	243.8	231.1	225.4	212.8	204.5	190.6	189.3
42.5°	243.8	235.6	225.4	215.3	207.7	201.4	186.8	177.3	168.5	161.5	159.6
45°	211.5	200.7	191.9	179.2	171.6	164.0	154.5	148.2	141.2	133.6	129.2
47.5°	183.6	174.8	162.1	150.7	143.1	139.3	128.5	121.6	115.9	110.8	107.6
50°	155.2	144.4	137.4	124.7	123.5	114.6	105.8	100.1	96.9	92.5	88.0
52.5°	133.6	123.5	114.0	104.5	99.4	96.3	88.0	82.3	77.9	74.7	72.2
55°	112.7	103.8	96.3	86.8	83.6	79.2	69.7	68.4	64.0	59.5	56.4
57.5°	96.9	88.6	79.8	73.5	67.8	64.6	57.0	51.9	49.4	45.6	42.4
60°	82.3	73.5	66.5	58.9	56.4	51.9	46.2	41.8	38.6	35.5	32.3
62.5°	69.0	61.4	53.8	47.5	43.7	41.2	36.7	32.9	29.8	27.2	24.7
65°	57.0	50.0	43.7	37.4	35.5	32.3	29.1	26.0	23.4	20.3	17.7
67.5°	46.9	40.5	34.2	29.8	27.9	26.6	22.8	19.6	17.7	15.8	13.3
70°	36.7	32.3	27.2	23.4	21.5	19.6	17.1	15.2	12.7	11.4	9.5
72.5°	28.5	24.7	20.3	17.1	15.8	14.6	12.0	10.1	8.9	7.6	6.3
75°	20.3	17.1	14.6	11.4	10.8	10.1	8.2	7.0	5.7	4.4	3.8
77.5°	13.9	11.4	8.9	7.6	7.0	5.7	5.1	3.8	3.2	2.5	1.9
80°	7.6	5.7	4.4	3.8	3.2	2.5	2.5	1.9	1.3	1.3	0.6
82.5°	2.5	1.9	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6
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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	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°	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1
2.5°	527.5	520.5	522.4	522.4	521.2	521.2	519.9	518.0	518.6	514.8	506.6
5°	521.8	512.9	511.7	512.9	507.9	506.6	504.1	507.9	496.4	500.9	495.8
7.5°	505.3	497.1	495.2	499.6	493.3	489.5	488.9	493.9	483.8	478.7	473.0
10°	486.9	483.8	478.1	474.9	473.0	473.6	468.6	462.3	460.3	459.1	454.0
12.5°	470.5	463.5	458.5	454.7	453.4	453.4	445.2	443.9	438.2	436.9	429.3
15°	450.8	442.6	439.5	434.4	430.0	432.5	423.0	420.5	418.6	410.3	411.6
17.5°	433.8	424.9	417.3	414.1	410.3	406.5	397.7	399.6	395.1	395.1	383.7
20°	411.6	402.1	396.4	390.1	390.1	385.0	378.7	379.3	373.6	367.9	357.8
22.5°	388.2	378.0	371.1	368.5	362.2	360.9	353.3	351.4	343.8	344.5	335.6
25°	363.5	353.3	343.8	344.5	338.8	336.3	331.8	323.0	319.8	316.0	313.5
27.5°	334.3	327.4	319.1	318.5	307.8	308.4	302.7	300.2	292.5	294.5	288.7
30°	307.8	297.6	290.0	288.1	283.7	282.4	273.6	269.7	271.0	265.9	262.8
32.5°	280.5	265.3	262.2	258.4	255.8	252.7	246.3	248.9	243.1	244.4	239.4
35°	244.4	238.1	229.9	229.9	227.3	224.8	220.4	222.9	217.2	214.7	209.6
37.5°	214.0	208.3	200.1	202.6	198.2	194.4	190.6	191.2	186.2	185.5	180.5
40°	181.1	177.9	172.2	172.2	169.1	169.1	167.2	165.3	162.1	158.3	152.6
42.5°	150.1	147.5	145.0	145.7	141.2	145.0	139.9	143.1	133.0	132.4	128.5
45°	127.3	121.6	122.2	119.7	117.1	118.4	114.0	115.2	109.6	108.3	104.5
47.5°	103.2	101.3	97.5	96.3	96.3	94.3	92.5	91.8	89.3	86.1	81.0
50°	84.8	77.9	76.6	74.7	73.5	73.5	70.9	67.1	67.8	64.6	59.5
52.5°	66.5	60.8	58.3	57.6	55.1	53.8	50.7	48.1	46.2	45.0	41.8
55°	51.3	46.2	43.1	43.1	39.3	39.3	34.8	32.9	30.4	27.9	26.0
57.5°	38.6	36.1	32.9	30.4	29.1	26.0	23.4	20.3	18.4	14.6	12.0
60°	29.1	26.6	23.4	21.5	20.3	17.1	13.9	11.4	7.0	5.7	5.1
62.5°	21.5	19.0	15.8	14.6	13.3	10.8	7.6	3.8	1.9	1.9	1.9
65°	15.8	12.7	10.1	8.9	7.6	5.7	2.5	1.3	0.6	0.6	0.6
67.5°	10.8	8.2	5.7	5.1	3.8	1.9	0.6	0.6	0.6	0.6	0.6
70°	7.0	5.1	2.5	1.9	1.3	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	4.4	2.5	1.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.5	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.6	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	0.6	0.6	0.6
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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 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1
2.5°	515.4	511.0	513.5	507.9	510.4	514.8	511.7	512.9
5°	497.7	495.2	492.0	483.8	490.1	495.2	492.6	492.0
7.5°	478.7	469.8	474.3	471.8	470.5	475.6	469.8	476.2
10°	459.1	452.8	452.1	447.7	447.7	451.5	452.1	448.3
12.5°	430.0	426.8	426.8	426.2	425.5	429.3	430.0	428.1
15°	409.1	407.8	404.6	404.0	400.2	405.9	406.5	405.9
17.5°	383.7	384.4	381.2	381.2	383.7	385.6	380.6	385.6
20°	366.6	363.5	362.2	356.5	359.7	362.9	362.9	363.5
22.5°	341.9	336.9	338.8	335.6	333.7	338.1	338.1	340.1
25°	314.1	314.1	315.3	313.5	314.7	317.3	315.3	319.8
27.5°	287.5	290.0	290.0	287.5	288.7	296.3	299.5	294.5
30°	262.8	263.4	265.3	264.1	267.9	270.4	269.7	273.6
32.5°	234.9	238.1	239.4	237.5	238.7	244.4	241.3	240.6
35°	213.4	207.7	207.1	207.7	210.2	211.5	210.2	214.7
37.5°	182.4	180.5	177.9	178.6	180.5	183.0	184.3	187.4
40°	152.6	150.1	150.1	149.4	147.5	154.5	154.5	154.5
42.5°	126.6	126.0	122.9	122.9	125.4	127.3	126.0	130.4
45°	103.8	101.3	99.4	99.4	101.3	101.3	103.2	102.6
47.5°	81.7	79.2	79.8	77.9	79.8	82.3	79.2	79.8
50°	61.4	61.4	60.2	61.4	60.8	61.4	60.2	58.9
52.5°	41.8	47.5	48.1	45.6	39.9	34.8	31.7	34.2
55°	24.1	21.5	21.5	20.9	19.6	19.0	17.1	19.0
57.5°	12.0	10.8	10.8	10.8	10.1	9.5	8.2	8.2
60°	5.1	4.4	4.4	3.8	3.2	2.5	1.9	2.5
62.5°	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
65°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
70°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)