

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: **FLDSQ4C08D010 FEU4C089027 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: FLDSQ4C08D010 FEU4C089027 F4LC-SQLWW-LI
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

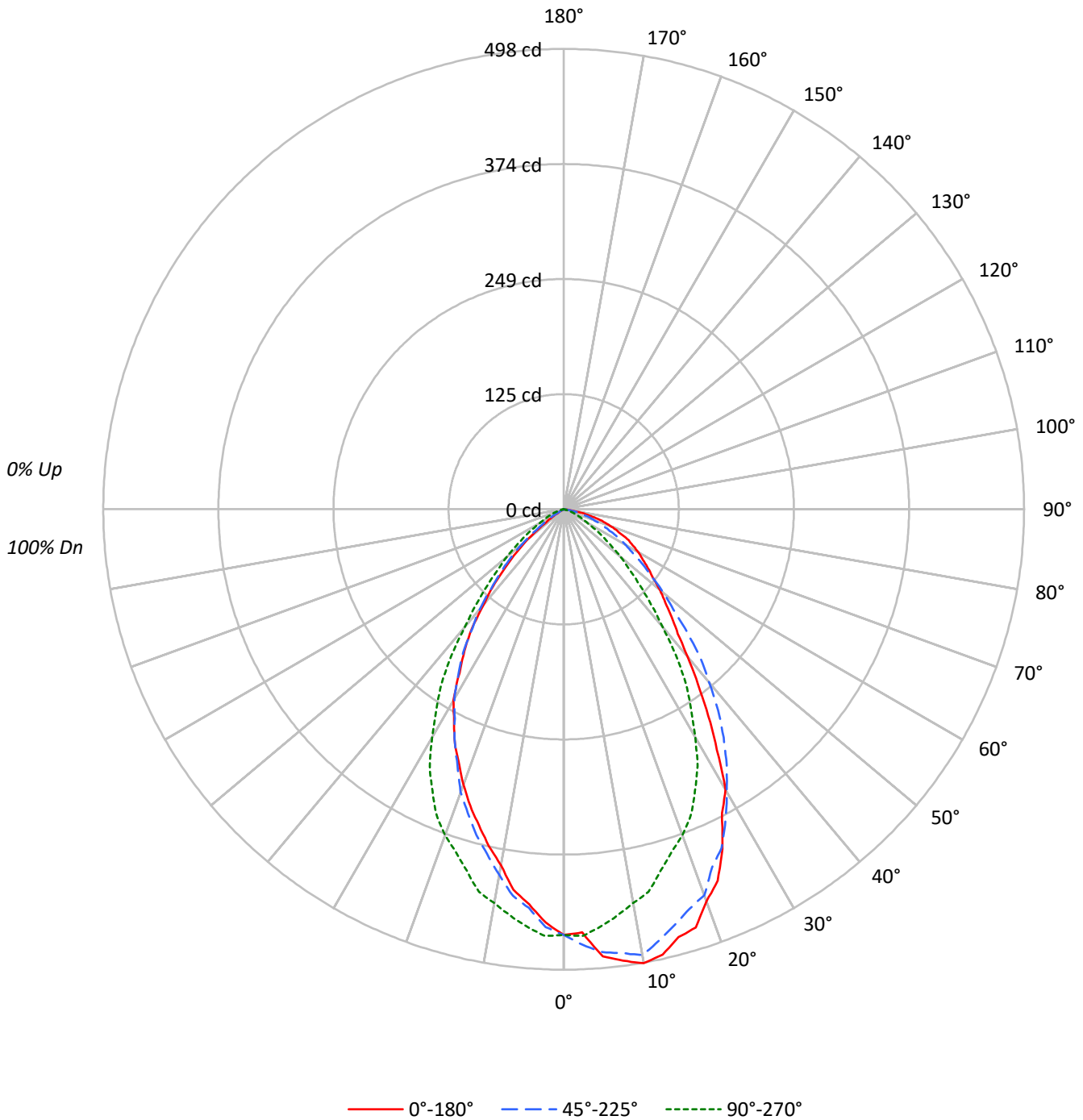
Lumens per Lamp: N/A
 Luminaire Lumens: 660.0 lumens
 Efficiency: N/A
 Efficacy: 66.7 lumens/watt
 Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.9
 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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C08D010 FEU4C089027 F4LC-SQLWW-LI

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°	44423	44423	44423
5°	47005	43905	41552
10°	48842	42356	38299
15°	47869	40427	35352
20°	46320	38495	32540
25°	43203	35793	29682
30°	38996	31676	26573
35°	32122	27116	22051
40°	26212	20934	16966
45°	22529	15897	12199
50°	20385	12099	7701
55°	18757	8731	2793
60°	18005	5963	425
65°	17397	4041	137
70°	15573	2793	169
75°	12750	1454	0
80°	8001	611	0
85°	0	0	0

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 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089027 F4LC-SQLWW-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.1	6.5
10°-20°	116.2	17.6
20°-30°	155.2	23.5
30°-40°	147.3	22.3
40°-50°	101.8	15.4
50°-60°	56.3	8.5
60°-70°	28.0	4.2
70°-80°	11.0	1.7
80°-90°	1.1	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°	314.6	47.7
0°-40°	461.9	70.0
0°-60°	620.0	93.9
0°-90°	660.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	660.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	460	460	460	460	460	
5°	485	481	453	433	429	46
15°	479	465	405	365	354	136
25°	406	404	336	279	279	185
35°	273	301	230	189	187	171
45°	165	189	116	96	89	129
55°	112	105	52	26	17	100
65°	76	55	18	1	1	74
75°	34	21	4	0	0	36
85°	0	1	0	0	0	3
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4
2.5°	458.2	470.9	472.0	470.9	472.6	472.0	474.8	472.0	475.4	470.4	471.5
5°	485.3	480.3	490.8	485.3	485.3	484.7	483.1	482.5	484.7	477.6	480.9
7.5°	492.5	499.6	509.0	497.4	498.0	498.0	494.7	493.6	493.6	480.3	484.2
10°	498.5	494.1	499.1	494.7	498.5	498.0	500.2	493.0	498.0	490.3	489.7
12.5°	493.6	491.9	498.5	491.4	489.2	489.7	486.9	485.3	486.9	478.1	477.6
15°	479.2	480.9	490.8	483.1	482.0	480.9	477.6	472.0	476.5	464.3	464.9
17.5°	474.3	471.5	473.1	466.5	468.2	467.1	466.5	461.6	460.4	452.7	452.7
20°	451.1	457.1	457.1	452.7	452.7	452.2	445.0	449.4	444.4	442.2	444.4
22.5°	435.0	435.6	435.6	431.7	432.3	430.1	426.2	423.4	426.2	423.4	419.0
25°	405.8	406.9	413.5	406.3	405.2	407.4	404.1	402.5	401.9	395.3	404.1
27.5°	370.5	381.5	380.9	378.2	381.5	377.1	375.4	376.0	377.6	377.1	379.3
30°	350.0	351.7	353.3	351.1	351.7	350.0	350.0	350.6	355.0	353.3	352.8
32.5°	308.6	314.1	318.6	318.6	319.1	320.8	320.2	331.8	334.6	329.1	327.9
35°	272.7	276.6	280.5	281.0	288.2	288.7	289.3	292.6	300.3	302.0	301.4
37.5°	238.5	242.4	243.5	248.4	252.3	256.2	260.6	265.0	271.6	277.1	274.4
40°	208.1	209.8	212.6	214.8	222.5	222.5	224.7	233.5	240.7	245.1	244.6
42.5°	182.7	183.3	185.5	189.4	196.5	194.9	196.5	202.6	213.1	213.7	219.7
45°	165.1	164.5	166.2	166.7	171.2	173.4	174.5	178.9	187.7	188.8	189.4
47.5°	149.1	148.5	151.3	152.4	154.0	156.2	156.2	156.8	160.1	162.9	160.7
50°	135.8	135.8	135.8	136.9	139.7	139.1	139.7	141.9	143.5	142.4	141.9
52.5°	121.5	123.7	125.3	125.9	126.4	126.4	127.0	125.9	125.3	123.7	120.3
55°	111.5	113.7	113.7	113.7	113.7	115.9	113.2	113.7	113.7	109.3	104.9
57.5°	101.6	103.8	105.4	103.2	105.4	103.2	102.1	101.6	100.5	96.1	89.4
60°	93.3	94.4	93.9	93.3	94.4	92.7	91.6	89.4	88.3	82.3	77.8
62.5°	83.9	84.5	85.0	83.9	82.8	82.3	80.1	76.7	74.5	69.6	65.7
65°	76.2	74.5	74.0	73.4	72.3	70.7	69.0	65.1	63.5	59.1	55.2
67.5°	64.6	64.0	65.1	63.5	60.7	60.7	59.1	55.8	51.9	49.1	45.3
70°	55.2	54.7	53.6	51.9	51.3	49.1	49.1	45.3	44.2	39.2	35.9
72.5°	45.3	45.3	43.6	42.0	40.3	39.2	38.7	35.9	34.2	31.5	28.7
75°	34.2	34.2	33.7	32.0	30.9	29.8	29.3	27.1	25.4	22.6	21.0
77.5°	24.3	24.3	22.1	21.0	21.5	20.4	19.3	18.8	18.2	16.6	14.4
80°	14.4	13.8	12.2	12.7	12.2	12.2	11.6	11.0	9.9	8.8	7.7
82.5°	3.9	4.4	4.4	4.4	5.0	3.9	3.9	3.9	4.4	4.4	2.8
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	1.1	2.2	2.2	2.2	2.2	2.2	1.7	1.7	1.7	1.1
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: FLDSQ4C08D010 FEU4C089027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4
2.5°	466.0	465.4	466.0	462.1	470.9	464.3	463.2	462.1	466.0	462.1	456.6
5°	475.9	470.4	468.7	467.1	472.0	464.3	462.7	463.2	460.4	453.3	453.8
7.5°	479.2	474.3	469.3	458.8	463.2	461.6	457.1	453.8	449.4	443.3	442.2
10°	480.3	474.8	467.6	464.3	457.7	455.5	453.8	448.3	442.8	432.3	429.5
12.5°	477.0	470.4	461.6	458.8	453.8	446.6	442.8	437.2	432.3	424.0	417.9
15°	462.7	457.1	454.4	445.0	442.8	438.3	430.6	422.9	415.7	404.7	401.4
17.5°	446.1	443.9	441.1	433.9	433.4	429.0	421.8	415.2	405.8	388.7	383.1
20°	429.0	429.0	420.1	417.4	422.9	414.1	408.5	402.5	383.1	374.9	364.9
22.5°	416.3	410.2	405.2	400.8	401.4	395.8	388.1	376.0	368.8	358.9	347.3
25°	391.4	393.6	382.6	380.9	382.6	369.9	366.0	356.1	345.6	336.2	327.4
27.5°	376.0	369.9	362.7	356.7	356.7	351.7	340.6	338.4	322.4	313.6	302.5
30°	352.8	348.4	342.3	333.5	332.4	328.5	319.7	314.1	297.6	284.3	278.2
32.5°	323.5	321.9	316.9	307.0	303.7	299.2	288.2	278.8	271.1	256.2	249.0
35°	302.5	296.5	286.0	277.7	274.9	267.2	258.4	251.7	243.5	230.2	220.8
37.5°	271.1	265.0	255.1	245.1	245.1	237.4	225.3	218.6	207.0	199.3	191.6
40°	243.5	235.7	225.8	214.2	212.6	201.5	196.5	185.5	178.3	166.2	165.1
42.5°	212.6	205.4	196.5	187.7	181.1	175.6	162.9	154.6	146.9	140.8	139.1
45°	184.4	175.0	167.3	156.2	149.6	143.0	134.7	129.2	123.1	116.5	112.6
47.5°	160.1	152.4	141.3	131.4	124.8	121.5	112.1	106.0	101.0	96.6	93.9
50°	135.3	125.9	119.8	108.8	107.7	99.9	92.2	87.2	84.5	80.6	76.7
52.5°	116.5	107.7	99.4	91.1	86.7	83.9	76.7	71.8	67.9	65.1	62.9
55°	98.3	90.5	83.9	75.6	72.9	69.0	60.7	59.6	55.8	51.9	49.1
57.5°	84.5	77.3	69.6	64.0	59.1	56.3	49.7	45.3	43.1	39.8	37.0
60°	71.8	64.0	58.0	51.3	49.1	45.3	40.3	36.4	33.7	30.9	28.2
62.5°	60.2	53.6	46.9	41.4	38.1	35.9	32.0	28.7	26.0	23.7	21.5
65°	49.7	43.6	38.1	32.6	30.9	28.2	25.4	22.6	20.4	17.7	15.5
67.5°	40.9	35.3	29.8	26.0	24.3	23.2	19.9	17.1	15.5	13.8	11.6
70°	32.0	28.2	23.7	20.4	18.8	17.1	14.9	13.3	11.0	9.9	8.3
72.5°	24.9	21.5	17.7	14.9	13.8	12.7	10.5	8.8	7.7	6.6	5.5
75°	17.7	14.9	12.7	9.9	9.4	8.8	7.2	6.1	5.0	3.9	3.3
77.5°	12.2	9.9	7.7	6.6	6.1	5.0	4.4	3.3	2.8	2.2	1.7
80°	6.6	5.0	3.9	3.3	2.8	2.2	2.2	1.7	1.1	1.1	0.6
82.5°	2.2	1.7	1.1	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4
2.5°	459.9	453.8	455.5	455.5	454.4	454.4	453.3	451.6	452.2	448.8	441.7
5°	454.9	447.2	446.1	447.2	442.8	441.7	439.5	442.8	432.8	436.7	432.3
7.5°	440.6	433.4	431.7	435.6	430.1	426.8	426.2	430.6	421.8	417.4	412.4
10°	424.5	421.8	416.8	414.1	412.4	413.0	408.5	403.0	401.4	400.3	395.8
12.5°	410.2	404.1	399.7	396.4	395.3	395.3	388.1	387.0	382.0	380.9	374.3
15°	393.1	385.9	383.1	378.7	374.9	377.1	368.8	366.6	364.9	357.8	358.9
17.5°	378.2	370.5	363.8	361.1	357.8	354.4	346.7	348.4	344.5	344.5	334.6
20°	358.9	350.6	345.6	340.1	340.1	335.7	330.2	330.7	325.7	320.8	311.9
22.5°	338.4	329.6	323.5	321.3	315.8	314.7	308.1	306.4	299.8	300.3	292.6
25°	316.9	308.1	299.8	300.3	295.4	293.2	289.3	281.6	278.8	275.5	273.3
27.5°	291.5	285.4	278.2	277.7	268.3	268.9	263.9	261.7	255.1	256.7	251.7
30°	268.3	259.5	252.9	251.2	247.3	246.2	238.5	235.2	236.3	231.9	229.1
32.5°	244.6	231.3	228.6	225.3	223.0	220.3	214.8	217.0	212.0	213.1	208.7
35°	213.1	207.6	200.4	200.4	198.2	196.0	192.1	194.3	189.4	187.2	182.7
37.5°	186.6	181.6	174.5	176.7	172.8	169.5	166.2	166.7	162.3	161.8	157.3
40°	157.9	155.1	150.2	150.2	147.4	147.4	145.7	144.1	141.3	138.0	133.0
42.5°	130.8	128.6	126.4	127.0	123.1	126.4	122.0	124.8	115.9	115.4	112.1
45°	111.0	106.0	106.5	104.3	102.1	103.2	99.4	100.5	95.5	94.4	91.1
47.5°	90.0	88.3	85.0	83.9	83.9	82.3	80.6	80.1	77.8	75.1	70.7
50°	74.0	67.9	66.8	65.1	64.0	64.0	61.8	58.5	59.1	56.3	51.9
52.5°	58.0	53.0	50.8	50.2	48.0	46.9	44.2	42.0	40.3	39.2	36.4
55°	44.7	40.3	37.5	37.5	34.2	34.2	30.4	28.7	26.5	24.3	22.6
57.5°	33.7	31.5	28.7	26.5	25.4	22.6	20.4	17.7	16.0	12.7	10.5
60°	25.4	23.2	20.4	18.8	17.7	14.9	12.2	9.9	6.1	5.0	4.4
62.5°	18.8	16.6	13.8	12.7	11.6	9.4	6.6	3.3	1.7	1.7	1.7
65°	13.8	11.0	8.8	7.7	6.6	5.0	2.2	1.1	0.6	0.6	0.6
67.5°	9.4	7.2	5.0	4.4	3.3	1.7	0.6	0.6	0.6	0.6	0.6
70°	6.1	4.4	2.2	1.7	1.1	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	3.9	2.2	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.1	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: FLDSQ4C08D010 FEU4C089027 F4LC-SQLWW-LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4
2.5°	449.4	445.5	447.7	442.8	445.0	448.8	446.1	447.2
5°	433.9	431.7	429.0	421.8	427.3	431.7	429.5	429.0
7.5°	417.4	409.6	413.5	411.3	410.2	414.6	409.6	415.2
10°	400.3	394.7	394.2	390.3	390.3	393.6	394.2	390.9
12.5°	374.9	372.1	372.1	371.6	371.0	374.3	374.9	373.2
15°	356.7	355.5	352.8	352.2	348.9	353.9	354.4	353.9
17.5°	334.6	335.1	332.4	332.4	334.6	336.2	331.8	336.2
20°	319.7	316.9	315.8	310.8	313.6	316.4	316.4	316.9
22.5°	298.1	293.7	295.4	292.6	290.9	294.8	294.8	296.5
25°	273.8	273.8	274.9	273.3	274.4	276.6	274.9	278.8
27.5°	250.6	252.9	252.9	250.6	251.7	258.4	261.1	256.7
30°	229.1	229.7	231.3	230.2	233.5	235.7	235.2	238.5
32.5°	204.8	207.6	208.7	207.0	208.1	213.1	210.3	209.8
35°	186.1	181.1	180.5	181.1	183.3	184.4	183.3	187.2
37.5°	159.0	157.3	155.1	155.7	157.3	159.6	160.7	163.4
40°	133.0	130.8	130.8	130.3	128.6	134.7	134.7	134.7
42.5°	110.4	109.9	107.1	107.1	109.3	111.0	109.9	113.7
45°	90.5	88.3	86.7	86.7	88.3	88.3	90.0	89.4
47.5°	71.2	69.0	69.6	67.9	69.6	71.8	69.0	69.6
50°	53.6	53.6	52.5	53.6	53.0	53.6	52.5	51.3
52.5°	36.4	41.4	42.0	39.8	34.8	30.4	27.6	29.8
55°	21.0	18.8	18.8	18.2	17.1	16.6	14.9	16.6
57.5°	10.5	9.4	9.4	9.4	8.8	8.3	7.2	7.2
60°	4.4	3.9	3.9	3.3	2.8	2.2	1.7	2.2
62.5°	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)