

Scaled data based on original data using  
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: P236104

Luminaire Tested: **CFA-2-LD4-UNV-LO-40-OP-EDC1**

Issue Date: 3/3/2020



**Test Information**

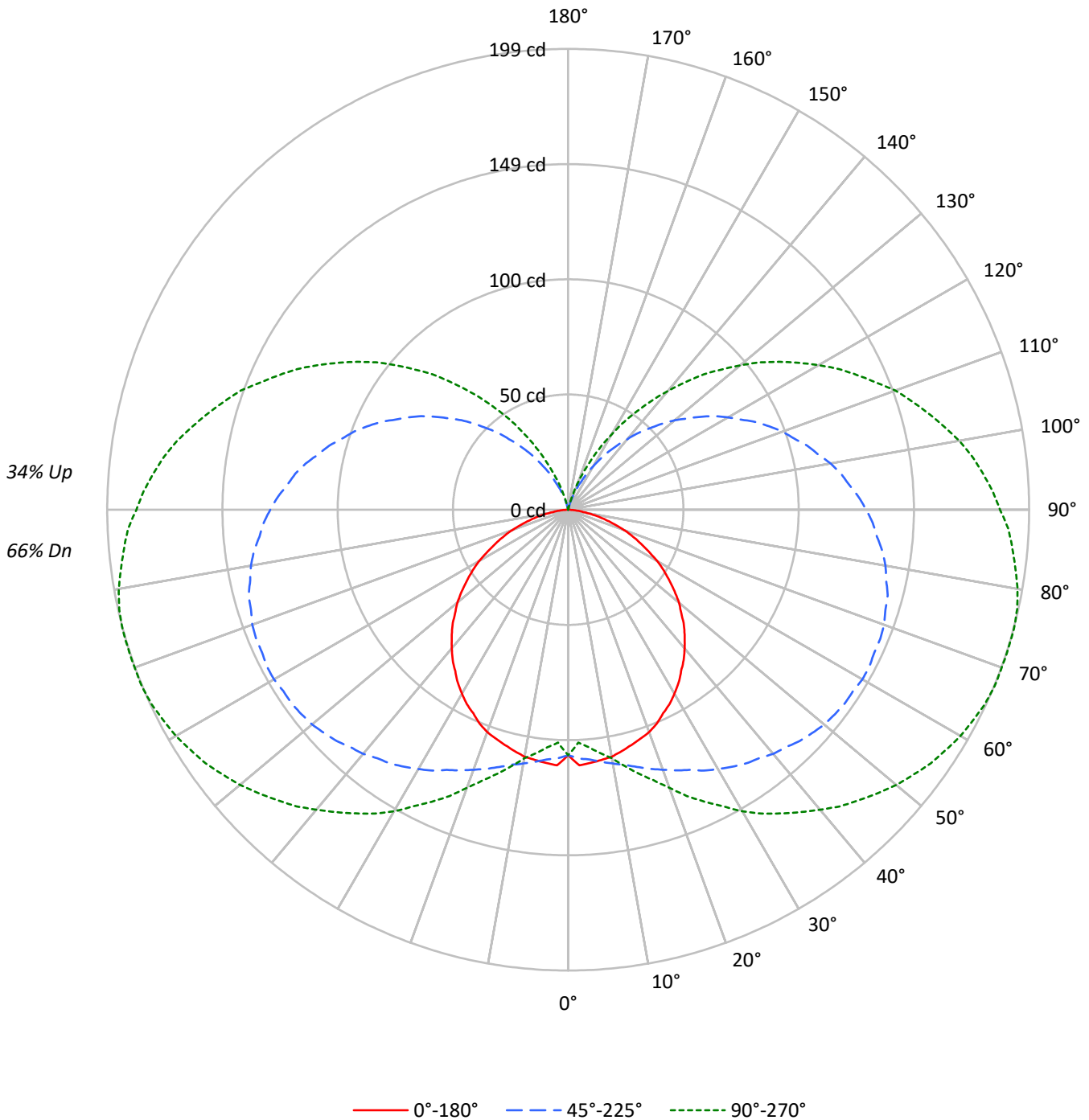
Test Method: LM-79-08  
Report Number: P236104  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1708-243-8)  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: CFA-2-LD4-UNV-LO-40-OP-EDC1  
Description: FAILSAFE CFA LED FIXTURE  
2ft  
Light Source: (42) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1219.0 lumens  
Efficiency: N/A  
Efficacy: 98.3 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 2.26 / 2.09  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 2' x H: 0.27')  
CIE Type: Semi-Direct  
  
Input Watts (W): 12.4  
Input Voltage (V): 120  
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

TEST NUMBER: P236104  
CATALOG NUMBER: CFA-2-LD4-UNV-LO-40-OP-EDC1

### 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	0
RCR																		
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66
1	96	89	83	78	90	84	78	73	73	69	65	63	60	57	54	52	49	44
2	85	75	66	59	79	70	62	56	61	55	49	52	48	43	45	41	37	33
3	77	64	55	47	71	60	51	44	52	45	39	45	39	34	38	33	29	26
4	69	56	46	38	64	52	43	36	45	38	32	39	33	28	33	28	24	21
5	63	49	39	32	59	46	37	30	40	32	27	34	28	23	29	24	20	17
6	58	44	34	27	54	41	32	26	36	28	23	31	24	20	26	21	17	14
7	53	39	30	23	49	37	28	22	32	25	20	28	22	17	23	18	15	12
8	49	35	26	20	46	33	25	19	29	22	17	25	19	15	21	16	13	10
9	46	32	24	18	43	30	22	17	26	20	15	23	17	13	20	15	11	9
10	43	29	21	16	40	28	20	15	24	18	13	21	16	12	18	13	10	8

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	3423	3423	3423
5°	3517	3166	2923
10°	3468	2993	2778
15°	3394	2883	2748
20°	3347	2826	2760
25°	3251	2795	2820
30°	3171	2805	2893
35°	3061	2818	2952
40°	2960	2837	3016
45°	2844	2875	3086
50°	2699	2919	3163
55°	2519	2955	3238
60°	2323	3000	3310
65°	2049	3036	3382
70°	1762	3099	3442
75°	1368	3156	3518
80°	873	3209	3586
85°	436	3255	3644



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	10.4	0.8
10°-20°	32.4	2.7
20°-30°	56.4	4.6
30°-40°	80.8	6.6
40°-50°	103.2	8.5
50°-60°	121.4	10.0
60°-70°	132.6	10.9
70°-80°	135.8	11.1
80°-90°	130.4	10.7
90°-100°	118.2	9.7
100°-110°	100.4	8.2
110°-120°	79.1	6.5
120°-130°	56.7	4.7
130°-140°	35.6	2.9
140°-150°	18.3	1.5
150°-160°	6.5	0.5
160°-170°	0.9	0.1
170°-180°	0.0	0.0
0°-30°	99.1	8.1
0°-40°	179.9	14.8
0°-60°	404.6	33.2
0°-90°	803.4	65.9
90°-120°	297.7	24.4
90°-150°	408.3	33.5
90°-180°	416.0	34.1
0°-180°	1219.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	106	106	106	106	106	
5°	110	110	108	106	103	10
15°	105	109	115	119	118	30
25°	97	107	124	137	139	45
35°	85	104	134	155	160	53
45°	71	98	141	169	177	54
55°	53	93	146	180	191	48
65°	35	86	146	186	198	34
75°	16	77	143	186	199	18
85°	3	66	134	179	192	3
90°	0	61	129	172	186	0
95°	0	55	122	166	180	0
105°	0	44	107	148	161	0
115°	0	34	90	126	138	0
125°	0	25	70	102	111	0
135°	0	16	50	74	83	0
145°	0	10	31	47	52	0
155°	0	4	14	23	24	0
165°	0	1	2	3	3	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P236104

CATALOG NUMBER: CFA-2-LD4-UNV-LO-40-OP-EDC1

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0
2.5°	110.5	110.5	110.5	110.5	109.8	109.8	109.8	109.0	109.0	108.3	107.5
5°	109.8	109.8	109.8	109.8	109.8	109.8	109.8	109.8	109.0	109.0	108.3
7.5°	109.0	109.0	109.8	109.8	109.8	109.8	109.8	109.8	109.8	109.8	109.8
10°	108.3	108.3	108.3	109.0	109.0	109.8	109.8	110.5	110.5	111.3	111.3
12.5°	106.8	107.5	107.5	108.3	109.0	109.0	109.8	110.5	111.3	112.0	112.8
15°	105.2	106.0	106.8	107.5	108.3	109.0	109.8	111.3	112.8	113.5	115.0
17.5°	103.7	104.5	105.2	106.0	108.3	109.0	109.8	111.3	113.5	115.8	117.3
20°	102.2	102.2	103.7	105.2	107.5	108.3	109.8	112.0	114.3	117.3	119.5
22.5°	100.0	100.0	101.5	103.7	106.0	107.5	109.0	112.8	115.8	118.8	121.8
25°	97.0	98.5	100.0	102.2	105.2	106.8	109.0	112.8	116.5	120.3	124.0
27.5°	94.7	95.5	97.7	100.7	104.5	106.8	108.3	112.8	118.0	122.5	127.0
30°	91.7	92.5	95.5	98.5	103.0	105.2	108.3	113.5	118.8	124.0	129.3
32.5°	88.7	89.5	92.5	97.0	101.5	104.5	107.5	113.5	119.5	125.5	131.6
35°	85.0	86.5	90.2	94.7	100.7	103.7	106.8	113.5	120.3	127.0	133.8
37.5°	81.9	83.4	87.2	92.5	98.5	102.2	106.0	113.5	121.0	128.6	135.3
40°	78.2	79.7	84.2	90.2	97.0	101.5	105.2	113.5	121.8	130.1	137.6
42.5°	74.4	75.9	81.2	88.0	95.5	100.0	104.5	113.5	122.5	131.6	139.1
45°	70.7	72.2	78.2	85.0	94.0	98.5	103.7	113.5	123.3	132.3	141.3
47.5°	66.2	68.4	74.4	82.7	92.5	97.7	103.0	113.5	123.3	133.1	142.8
50°	62.4	64.7	71.4	80.4	91.0	96.2	101.5	112.8	124.0	134.6	144.3
52.5°	57.9	60.9	67.7	77.4	88.7	94.7	100.7	112.8	124.0	134.6	145.1
55°	53.4	56.4	64.7	75.2	87.2	93.2	99.2	112.0	124.0	135.3	145.8
57.5°	48.9	52.6	60.9	72.2	85.0	91.7	97.7	111.3	123.3	135.3	145.8
60°	44.4	48.1	57.1	69.2	82.7	89.5	96.2	109.8	123.3	135.3	146.6
62.5°	39.1	43.6	54.1	66.9	80.4	88.0	94.7	109.0	121.8	134.6	146.6
65°	34.6	39.1	50.4	63.9	78.2	85.7	93.2	107.5	121.0	133.8	145.8
67.5°	30.1	35.3	46.6	60.9	75.9	83.4	91.0	106.0	120.3	133.1	145.8
70°	25.6	30.8	42.9	57.9	73.7	81.2	88.7	104.5	118.8	132.3	145.1
72.5°	21.0	27.1	39.8	54.9	70.7	78.9	87.2	102.2	117.3	130.8	143.6
75°	16.5	23.3	36.1	51.9	68.4	76.7	85.0	100.7	115.0	129.3	142.8
77.5°	12.8	19.5	33.1	48.9	66.2	74.4	81.9	98.5	113.5	127.8	140.6
80°	8.3	15.8	30.1	45.9	63.1	71.4	79.7	96.2	111.3	125.5	139.1
82.5°	5.3	12.8	27.1	43.6	60.1	69.2	77.4	93.2	109.0	123.3	136.8
85°	3.0	10.5	24.1	40.6	57.9	66.2	74.4	91.0	106.0	120.3	133.8
87.5°	0.8	8.3	21.8	37.6	54.9	63.1	71.4	88.0	103.7	118.0	131.6
90°	0.0	6.8	19.5	35.3	52.6	60.9	69.2	85.0	100.7	115.0	128.6
92.5°	0.0	5.3	18.0	33.1	49.6	57.9	66.2	82.7	97.7	112.0	125.5
95°	0.0	4.5	15.8	30.8	47.4	54.9	63.1	79.7	94.7	109.0	121.8
97.5°	0.0	3.8	14.3	28.6	44.4	52.6	60.1	75.9	91.0	105.2	118.8
100°	0.0	3.0	12.8	26.3	42.1	49.6	57.9	72.9	88.0	101.5	115.0
102.5°	0.0	3.0	12.0	24.8	39.1	47.4	54.9	69.9	84.2	97.7	110.5
105°	0.0	3.0	10.5	22.6	36.8	44.4	51.9	66.9	81.2	94.0	106.8
107.5°	0.0	2.3	9.8	21.0	34.6	42.1	48.9	63.1	77.4	90.2	102.2
110°	0.0	2.3	9.0	19.5	32.3	39.1	45.9	60.1	73.7	86.5	98.5



TEST NUMBER: P236104

CATALOG NUMBER: CFA-2-LD4-UNV-LO-40-OP-EDC1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	0.0	2.3	8.3	18.0	30.1	36.8	43.6	56.4	69.9	81.9	94.0
115°	0.0	2.3	7.5	16.5	27.8	33.8	40.6	53.4	66.2	78.2	89.5
117.5°	0.0	2.3	6.8	15.0	25.6	31.6	37.6	49.6	62.4	73.7	84.2
120°	0.0	2.3	6.8	14.3	24.1	29.3	34.6	46.6	57.9	69.2	79.7
122.5°	0.0	1.5	6.0	12.8	21.8	27.1	32.3	43.6	54.1	64.7	75.2
125°	0.0	1.5	6.0	12.0	20.3	24.8	29.3	39.8	50.4	60.1	69.9
127.5°	0.0	1.5	5.3	10.5	18.0	22.6	27.1	36.8	45.9	55.6	64.7
130°	0.0	1.5	4.5	9.8	16.5	20.3	24.8	33.1	42.1	51.1	60.1
132.5°	0.0	1.5	4.5	9.0	15.0	18.8	21.8	30.1	38.3	46.6	54.9
135°	0.0	1.5	3.8	8.3	13.5	16.5	20.3	27.1	34.6	42.1	49.6
137.5°	0.0	1.5	3.8	7.5	12.0	15.0	18.0	24.1	30.8	38.3	45.1
140°	0.0	1.5	3.0	6.8	11.3	13.5	15.8	21.8	27.8	33.8	39.8
142.5°	0.0	0.8	3.0	6.0	9.8	12.0	14.3	19.5	24.1	30.1	35.3
145°	0.0	0.8	3.0	5.3	8.3	10.5	12.0	16.5	21.0	26.3	30.8
147.5°	0.0	0.8	2.3	4.5	6.8	8.3	10.5	14.3	18.0	22.6	26.3
150°	0.0	0.8	2.3	3.8	6.0	7.5	8.3	11.3	15.0	18.8	21.8
152.5°	0.0	0.8	1.5	3.0	4.5	6.0	6.8	9.0	12.0	15.0	18.0
155°	0.0	0.8	1.5	2.3	3.8	4.5	5.3	7.5	9.0	11.3	13.5
157.5°	0.0	0.8	0.8	1.5	3.0	3.8	4.5	6.0	7.5	9.0	10.5
160°	0.0	0.8	0.8	1.5	2.3	2.3	3.0	4.5	5.3	6.0	7.5
162.5°	0.0	0.8	0.8	0.8	1.5	1.5	1.5	3.0	3.8	3.8	4.5
165°	0.0	0.8	0.8	0.8	0.8	0.8	0.8	1.5	1.5	2.3	2.3
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P236104

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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0
2.5°	106.8	106.0	105.2	104.5	103.7	103.7	102.2	101.5	100.7	100.7
5°	108.3	107.5	106.8	106.0	106.0	105.2	104.5	103.7	103.0	103.0
7.5°	109.8	109.0	109.0	108.3	108.3	108.3	106.8	106.8	106.0	106.0
10°	111.3	111.3	111.3	111.3	111.3	111.3	110.5	109.8	109.0	109.0
12.5°	113.5	114.3	114.3	115.0	115.0	115.0	114.3	114.3	113.5	113.5
15°	116.5	117.3	118.0	118.8	118.8	118.8	118.8	118.8	118.0	118.0
17.5°	118.8	120.3	121.8	122.5	123.3	123.3	123.3	123.3	123.3	122.5
20°	121.8	124.0	125.5	127.0	127.0	127.8	128.6	128.6	128.6	127.8
22.5°	124.8	127.0	129.3	131.6	132.3	132.3	133.1	133.8	133.8	133.8
25°	127.8	130.8	133.8	136.1	136.8	137.6	138.3	139.1	139.1	139.1
27.5°	130.8	134.6	137.6	140.6	141.3	142.1	143.6	144.3	144.3	144.3
30°	133.8	138.3	142.1	144.3	145.8	147.3	148.9	149.6	149.6	150.4
32.5°	136.8	141.3	145.8	148.9	150.4	151.9	153.4	154.9	155.6	155.6
35°	139.8	145.1	149.6	153.4	154.9	156.4	157.9	159.4	160.1	160.1
37.5°	142.1	148.1	152.6	157.1	158.6	160.1	162.4	163.9	164.6	164.6
40°	144.3	150.4	156.4	160.9	162.4	163.9	166.9	168.4	169.1	169.1
42.5°	146.6	153.4	159.4	163.9	166.1	167.6	170.7	172.2	172.9	173.7
45°	148.9	156.4	162.4	166.9	169.1	171.4	173.7	175.9	177.4	177.4
47.5°	151.1	158.6	164.6	169.9	172.9	174.4	177.4	179.7	181.2	181.2
50°	152.6	160.9	167.6	172.9	175.9	177.4	181.2	183.4	184.9	184.9
52.5°	154.1	162.4	169.9	175.2	178.2	180.4	184.2	186.4	187.9	187.9
55°	155.6	163.9	171.4	177.4	180.4	182.7	186.4	189.4	190.2	191.0
57.5°	156.4	165.4	172.9	179.7	181.9	184.9	188.7	191.7	192.5	193.2
60°	157.1	166.1	173.7	181.2	184.2	186.4	190.2	193.2	194.7	195.5
62.5°	157.1	166.9	174.4	181.9	184.9	187.9	191.7	194.7	196.2	197.0
65°	157.1	166.9	175.2	182.7	185.7	188.7	193.2	196.2	197.7	198.5
67.5°	157.1	166.9	175.9	183.4	187.2	189.4	194.0	197.0	199.2	199.2
70°	156.4	166.1	175.2	183.4	186.4	189.4	194.0	197.7	199.2	199.2
72.5°	155.6	166.1	175.2	182.7	186.4	189.4	194.0	197.7	199.2	199.2
75°	154.1	164.6	174.4	181.9	185.7	188.7	194.0	197.0	199.2	199.2
77.5°	153.4	163.9	173.7	181.2	184.9	187.9	193.2	196.2	197.7	198.5
80°	151.1	161.6	171.4	179.7	182.7	186.4	191.0	194.7	196.2	197.0
82.5°	148.9	160.1	169.1	177.4	181.2	184.2	188.7	192.5	194.7	194.7
85°	146.6	157.1	166.9	175.2	178.9	181.9	186.4	190.2	192.5	192.5
87.5°	143.6	154.1	163.9	172.2	175.2	178.9	184.2	187.2	189.4	190.2
90°	140.6	151.1	160.9	169.1	172.2	175.9	181.2	184.2	185.7	186.4
92.5°	137.6	148.1	157.9	166.1	169.1	172.2	177.4	181.2	182.7	183.4
95°	133.8	145.1	154.1	162.4	166.1	169.1	174.4	177.4	178.9	179.7
97.5°	130.8	141.3	150.4	158.6	162.4	165.4	169.9	173.7	175.2	175.9
100°	126.3	136.8	146.6	154.1	157.9	160.9	165.4	169.1	170.7	171.4
102.5°	122.5	133.1	142.1	149.6	153.4	155.6	160.9	163.9	165.4	166.1
105°	118.0	128.6	137.6	145.1	148.1	151.1	155.6	158.6	160.9	160.9
107.5°	113.5	124.0	132.3	139.8	142.8	145.8	150.4	153.4	154.9	155.6
110°	109.0	118.8	127.8	135.3	137.6	140.6	145.1	148.1	149.6	150.4





TEST NUMBER: P236104

CATALOG NUMBER: CFA-2-LD4-UNV-LO-40-OP-EDC1

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	104.5	113.5	121.8	129.3	132.3	134.6	139.1	142.1	143.6	143.6
115°	99.2	108.3	116.5	123.3	126.3	129.3	133.1	135.3	137.6	137.6
117.5°	94.7	103.0	111.3	117.3	120.3	122.5	127.0	129.3	130.8	131.6
120°	89.5	98.5	105.2	112.0	114.3	117.3	121.0	123.3	124.8	124.8
122.5°	84.2	92.5	100.0	105.2	108.3	110.5	114.3	116.5	118.0	118.0
125°	78.9	86.5	93.2	99.2	101.5	104.5	107.5	109.8	111.3	111.3
127.5°	72.9	80.4	87.2	93.2	94.7	97.7	100.7	103.0	103.7	104.5
130°	67.7	75.2	81.2	86.5	88.7	90.2	94.0	95.5	96.2	97.0
132.5°	62.4	69.2	74.4	79.7	81.9	83.4	86.5	88.7	89.5	89.5
135°	57.1	63.1	68.4	72.9	74.4	76.7	78.9	81.2	81.9	82.7
137.5°	51.1	57.1	61.6	66.2	67.7	69.9	72.2	73.7	74.4	74.4
140°	45.9	51.1	55.6	59.4	60.9	62.4	64.7	66.2	66.9	66.9
142.5°	40.6	45.1	49.6	52.6	54.1	55.6	57.9	58.6	59.4	59.4
145°	35.3	39.1	42.9	46.6	47.4	48.9	50.4	51.9	51.9	51.9
147.5°	30.8	33.8	36.8	39.8	41.3	42.1	43.6	44.4	45.1	45.1
150°	25.6	28.6	31.6	33.8	35.3	35.3	36.8	37.6	37.6	37.6
152.5°	21.0	24.1	26.3	27.8	29.3	29.3	30.1	30.8	30.8	30.8
155°	15.8	18.0	21.0	22.6	22.6	23.3	24.1	24.1	24.8	24.1
157.5°	12.0	13.5	15.0	17.3	18.0	18.0	18.0	18.8	18.8	18.0
160°	8.3	9.8	10.5	12.0	12.0	12.8	13.5	13.5	13.5	12.8
162.5°	5.3	6.0	6.8	6.8	7.5	7.5	8.3	8.3	8.3	8.3
165°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.8	3.8	3.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)