

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: P236097

Luminaire Tested: **CFA-2-LD4-UNV-HI-50-OP-EDC1**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P236097  
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-HI-50-OP-EDC1  
Description: FAILSAFE CFA LED FIXTURE  
2ft  
Light Source: (42) 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

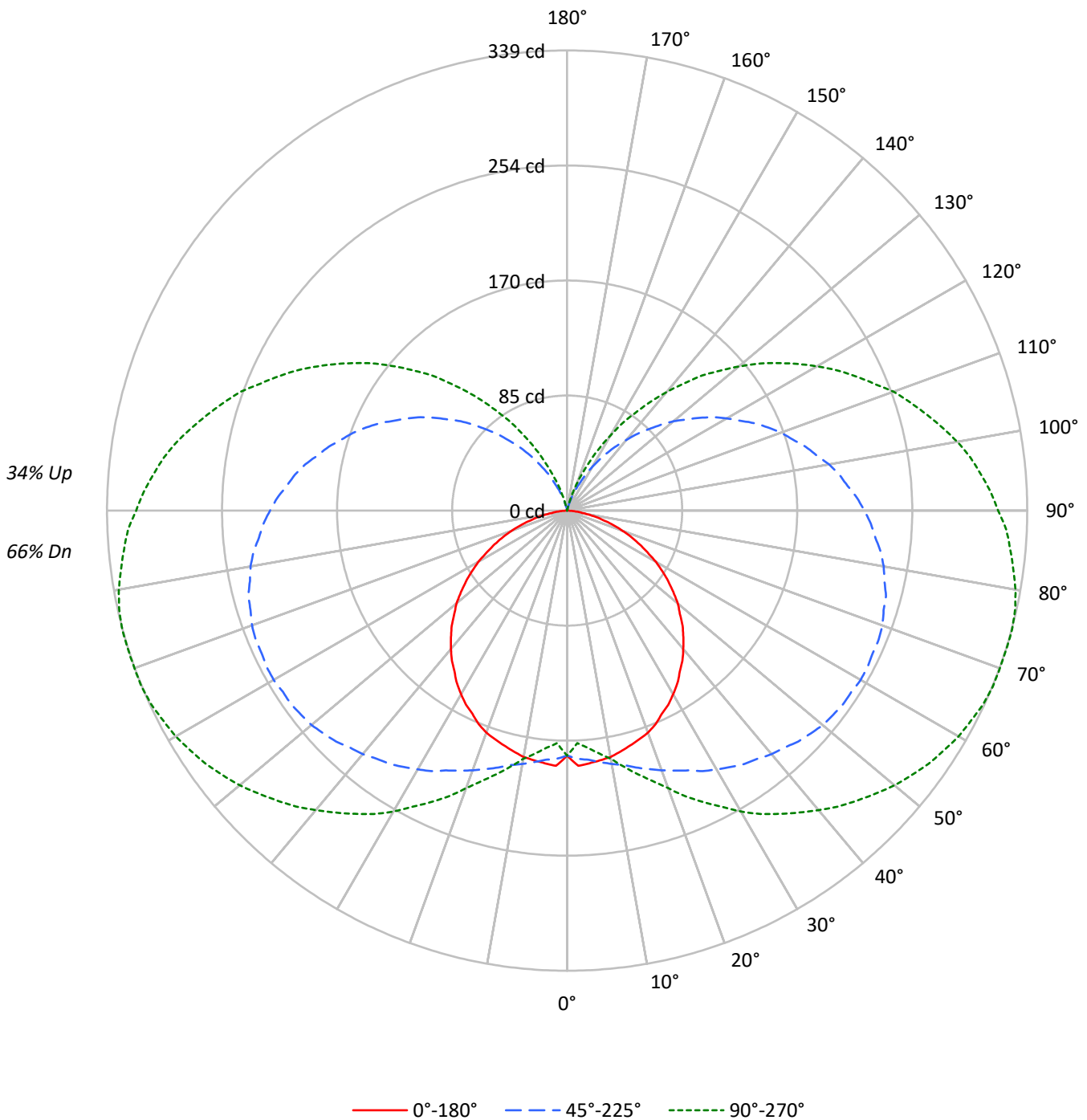
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2075.8 lumens  
Efficiency: N/A  
Efficacy: 93.5 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): 22.2  
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: P236097  
CATALOG NUMBER: CFA-2-LD4-UNV-HI-50-OP-EDC1

### Luminous Intensity Polar Plot





TEST NUMBER: P236097

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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	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°	5829	5829	5829
5°	5987	5387	4978
10°	5902	5095	4730
15°	5781	4911	4681
20°	5702	4815	4699
25°	5533	4761	4800
30°	5402	4777	4925
35°	5210	4800	5028
40°	5038	4831	5137
45°	4839	4897	5256
50°	4598	4972	5387
55°	4288	5035	5513
60°	3950	5108	5636
65°	3488	5172	5759
70°	2993	5278	5862
75°	2337	5375	5992
80°	1483	5464	6105
85°	742	5545	6203



TEST NUMBER: P236097

CATALOG NUMBER: CFA-2-LD4-UNV-HI-50-OP-EDC1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	17.6	0.8
10°-20°	55.1	2.7
20°-30°	96.0	4.6
30°-40°	137.7	6.6
40°-50°	175.8	8.5
50°-60°	206.7	10.0
60°-70°	225.8	10.9
70°-80°	231.3	11.1
80°-90°	222.0	10.7
90°-100°	201.2	9.7
100°-110°	171.0	8.2
110°-120°	134.7	6.5
120°-130°	96.5	4.7
130°-140°	60.6	2.9
140°-150°	31.2	1.5
150°-160°	11.1	0.5
160°-170°	1.4	0.1
170°-180°	0.0	0.0
0°-30°	168.7	8.1
0°-40°	306.4	14.8
0°-60°	688.9	33.2
0°-90°	1368.1	65.9
90°-120°	506.9	24.4
90°-150°	695.2	33.5
90°-180°	708.0	34.1
0°-180°	2075.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	180	180	180	180	180	
5°	187	187	184	180	175	18
15°	179	186	196	202	201	51
25°	165	182	211	233	237	76
35°	145	177	228	264	273	91
45°	120	168	241	288	302	93
55°	91	159	248	307	325	81
65°	59	146	248	316	338	58
75°	28	131	243	316	339	30
85°	5	113	228	305	328	6
90°	0	104	219	293	318	0
95°	0	94	207	283	306	0
105°	0	76	182	252	274	0
115°	0	58	152	215	234	0
125°	0	42	119	173	190	0
135°	0	28	84	127	141	0
145°	0	18	52	81	88	0
155°	0	8	23	38	41	0
165°	0	1	4	5	5	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P236097

CATALOG NUMBER: CFA-2-LD4-UNV-HI-50-OP-EDC1

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	180.5	180.5	180.5	180.5	180.5	180.5	180.5	180.5	180.5	180.5	180.5
2.5°	188.2	188.2	188.2	188.2	186.9	186.9	186.9	185.6	185.6	184.3	183.1
5°	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	185.6	185.6	184.3
7.5°	185.6	185.6	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9
10°	184.3	184.3	184.3	185.6	185.6	186.9	186.9	188.2	188.2	189.5	189.5
12.5°	181.8	183.1	183.1	184.3	185.6	185.6	186.9	188.2	189.5	190.7	192.0
15°	179.2	180.5	181.8	183.1	184.3	185.6	186.9	189.5	192.0	193.3	195.9
17.5°	176.7	177.9	179.2	180.5	184.3	185.6	186.9	189.5	193.3	197.2	199.7
20°	174.1	174.1	176.7	179.2	183.1	184.3	186.9	190.7	194.6	199.7	203.6
22.5°	170.3	170.3	172.8	176.7	180.5	183.1	185.6	192.0	197.2	202.3	207.4
25°	165.1	167.7	170.3	174.1	179.2	181.8	185.6	192.0	198.4	204.8	211.2
27.5°	161.3	162.6	166.4	171.5	177.9	181.8	184.3	192.0	201.0	208.7	216.4
30°	156.2	157.5	162.6	167.7	175.4	179.2	184.3	193.3	202.3	211.2	220.2
32.5°	151.1	152.3	157.5	165.1	172.8	177.9	183.1	193.3	203.6	213.8	224.0
35°	144.7	147.2	153.6	161.3	171.5	176.7	181.8	193.3	204.8	216.4	227.9
37.5°	139.5	142.1	148.5	157.5	167.7	174.1	180.5	193.3	206.1	218.9	230.4
40°	133.1	135.7	143.4	153.6	165.1	172.8	179.2	193.3	207.4	221.5	234.3
42.5°	126.7	129.3	138.3	149.8	162.6	170.3	177.9	193.3	208.7	224.0	236.8
45°	120.3	122.9	133.1	144.7	160.0	167.7	176.7	193.3	210.0	225.3	240.7
47.5°	112.7	116.5	126.7	140.8	157.5	166.4	175.4	193.3	210.0	226.6	243.2
50°	106.3	110.1	121.6	137.0	154.9	163.9	172.8	192.0	211.2	229.2	245.8
52.5°	98.6	103.7	115.2	131.9	151.1	161.3	171.5	192.0	211.2	229.2	247.1
55°	90.9	96.0	110.1	128.0	148.5	158.7	169.0	190.7	211.2	230.4	248.4
57.5°	83.2	89.6	103.7	122.9	144.7	156.2	166.4	189.5	210.0	230.4	248.4
60°	75.5	81.9	97.3	117.8	140.8	152.3	163.9	186.9	210.0	230.4	249.6
62.5°	66.6	74.3	92.2	113.9	137.0	149.8	161.3	185.6	207.4	229.2	249.6
65°	58.9	66.6	85.8	108.8	133.1	145.9	158.7	183.1	206.1	227.9	248.4
67.5°	51.2	60.2	79.4	103.7	129.3	142.1	154.9	180.5	204.8	226.6	248.4
70°	43.5	52.5	73.0	98.6	125.5	138.3	151.1	177.9	202.3	225.3	247.1
72.5°	35.8	46.1	67.9	93.5	120.3	134.4	148.5	174.1	199.7	222.8	244.5
75°	28.2	39.7	61.4	88.3	116.5	130.6	144.7	171.5	195.9	220.2	243.2
77.5°	21.8	33.3	56.3	83.2	112.7	126.7	139.5	167.7	193.3	217.6	239.4
80°	14.1	26.9	51.2	78.1	107.5	121.6	135.7	163.9	189.5	213.8	236.8
82.5°	9.0	21.8	46.1	74.3	102.4	117.8	131.9	158.7	185.6	210.0	233.0
85°	5.1	17.9	41.0	69.1	98.6	112.7	126.7	154.9	180.5	204.8	227.9
87.5°	1.3	14.1	37.1	64.0	93.5	107.5	121.6	149.8	176.7	201.0	224.0
90°	0.0	11.5	33.3	60.2	89.6	103.7	117.8	144.7	171.5	195.9	218.9
92.5°	0.0	9.0	30.7	56.3	84.5	98.6	112.7	140.8	166.4	190.7	213.8
95°	0.0	7.7	26.9	52.5	80.7	93.5	107.5	135.7	161.3	185.6	207.4
97.5°	0.0	6.4	24.3	48.6	75.5	89.6	102.4	129.3	154.9	179.2	202.3
100°	0.0	5.1	21.8	44.8	71.7	84.5	98.6	124.2	149.8	172.8	195.9
102.5°	0.0	5.1	20.5	42.2	66.6	80.7	93.5	119.1	143.4	166.4	188.2
105°	0.0	5.1	17.9	38.4	62.7	75.5	88.3	113.9	138.3	160.0	181.8
107.5°	0.0	3.8	16.6	35.8	58.9	71.7	83.2	107.5	131.9	153.6	174.1
110°	0.0	3.8	15.4	33.3	55.0	66.6	78.1	102.4	125.5	147.2	167.7



TEST NUMBER: P236097

CATALOG NUMBER: CFA-2-LD4-UNV-HI-50-OP-EDC1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	0.0	3.8	14.1	30.7	51.2	62.7	74.3	96.0	119.1	139.5	160.0
115°	0.0	3.8	12.8	28.2	47.4	57.6	69.1	90.9	112.7	133.1	152.3
117.5°	0.0	3.8	11.5	25.6	43.5	53.8	64.0	84.5	106.3	125.5	143.4
120°	0.0	3.8	11.5	24.3	41.0	49.9	58.9	79.4	98.6	117.8	135.7
122.5°	0.0	2.6	10.2	21.8	37.1	46.1	55.0	74.3	92.2	110.1	128.0
125°	0.0	2.6	10.2	20.5	34.6	42.2	49.9	67.9	85.8	102.4	119.1
127.5°	0.0	2.6	9.0	17.9	30.7	38.4	46.1	62.7	78.1	94.7	110.1
130°	0.0	2.6	7.7	16.6	28.2	34.6	42.2	56.3	71.7	87.1	102.4
132.5°	0.0	2.6	7.7	15.4	25.6	32.0	37.1	51.2	65.3	79.4	93.5
135°	0.0	2.6	6.4	14.1	23.0	28.2	34.6	46.1	58.9	71.7	84.5
137.5°	0.0	2.6	6.4	12.8	20.5	25.6	30.7	41.0	52.5	65.3	76.8
140°	0.0	2.6	5.1	11.5	19.2	23.0	26.9	37.1	47.4	57.6	67.9
142.5°	0.0	1.3	5.1	10.2	16.6	20.5	24.3	33.3	41.0	51.2	60.2
145°	0.0	1.3	5.1	9.0	14.1	17.9	20.5	28.2	35.8	44.8	52.5
147.5°	0.0	1.3	3.8	7.7	11.5	14.1	17.9	24.3	30.7	38.4	44.8
150°	0.0	1.3	3.8	6.4	10.2	12.8	14.1	19.2	25.6	32.0	37.1
152.5°	0.0	1.3	2.6	5.1	7.7	10.2	11.5	15.4	20.5	25.6	30.7
155°	0.0	1.3	2.6	3.8	6.4	7.7	9.0	12.8	15.4	19.2	23.0
157.5°	0.0	1.3	1.3	2.6	5.1	6.4	7.7	10.2	12.8	15.4	17.9
160°	0.0	1.3	1.3	2.6	3.8	3.8	5.1	7.7	9.0	10.2	12.8
162.5°	0.0	1.3	1.3	1.3	2.6	2.6	2.6	5.1	6.4	6.4	7.7
165°	0.0	1.3	1.3	1.3	1.3	1.3	1.3	2.6	2.6	3.8	3.8
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: P236097

CATALOG NUMBER: CFA-2-LD4-UNV-HI-50-OP-EDC1

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	180.5	180.5	180.5	180.5	180.5	180.5	180.5	180.5	180.5	180.5
2.5°	181.8	180.5	179.2	177.9	176.7	176.7	174.1	172.8	171.5	171.5
5°	184.3	183.1	181.8	180.5	180.5	179.2	177.9	176.7	175.4	175.4
7.5°	186.9	185.6	185.6	184.3	184.3	184.3	181.8	181.8	180.5	180.5
10°	189.5	189.5	189.5	189.5	189.5	189.5	188.2	186.9	185.6	185.6
12.5°	193.3	194.6	194.6	195.9	195.9	195.9	194.6	194.6	193.3	193.3
15°	198.4	199.7	201.0	202.3	202.3	202.3	202.3	202.3	201.0	201.0
17.5°	202.3	204.8	207.4	208.7	210.0	210.0	210.0	210.0	210.0	208.7
20°	207.4	211.2	213.8	216.4	216.4	217.6	218.9	218.9	218.9	217.6
22.5°	212.5	216.4	220.2	224.0	225.3	225.3	226.6	227.9	227.9	227.9
25°	217.6	222.8	227.9	231.7	233.0	234.3	235.6	236.8	236.8	236.8
27.5°	222.8	229.2	234.3	239.4	240.7	242.0	244.5	245.8	245.8	245.8
30°	227.9	235.6	242.0	245.8	248.4	250.9	253.5	254.8	254.8	256.0
32.5°	233.0	240.7	248.4	253.5	256.0	258.6	261.2	263.7	265.0	265.0
35°	238.1	247.1	254.8	261.2	263.7	266.3	268.8	271.4	272.7	272.7
37.5°	242.0	252.2	259.9	267.6	270.1	272.7	276.5	279.1	280.4	280.4
40°	245.8	256.0	266.3	274.0	276.5	279.1	284.2	286.8	288.0	288.0
42.5°	249.6	261.2	271.4	279.1	282.9	285.5	290.6	293.2	294.4	295.7
45°	253.5	266.3	276.5	284.2	288.0	291.9	295.7	299.6	302.1	302.1
47.5°	257.3	270.1	280.4	289.3	294.4	297.0	302.1	306.0	308.5	308.5
50°	259.9	274.0	285.5	294.4	299.6	302.1	308.5	312.4	314.9	314.9
52.5°	262.4	276.5	289.3	298.3	303.4	307.2	313.6	317.5	320.0	320.0
55°	265.0	279.1	291.9	302.1	307.2	311.1	317.5	322.6	323.9	325.2
57.5°	266.3	281.6	294.4	306.0	309.8	314.9	321.3	326.5	327.7	329.0
60°	267.6	282.9	295.7	308.5	313.6	317.5	323.9	329.0	331.6	332.9
62.5°	267.6	284.2	297.0	309.8	314.9	320.0	326.5	331.6	334.1	335.4
65°	267.6	284.2	298.3	311.1	316.2	321.3	329.0	334.1	336.7	338.0
67.5°	267.6	284.2	299.6	312.4	318.8	322.6	330.3	335.4	339.3	339.3
70°	266.3	282.9	298.3	312.4	317.5	322.6	330.3	336.7	339.3	339.3
72.5°	265.0	282.9	298.3	311.1	317.5	322.6	330.3	336.7	339.3	339.3
75°	262.4	280.4	297.0	309.8	316.2	321.3	330.3	335.4	339.3	339.3
77.5°	261.2	279.1	295.7	308.5	314.9	320.0	329.0	334.1	336.7	338.0
80°	257.3	275.2	291.9	306.0	311.1	317.5	325.2	331.6	334.1	335.4
82.5°	253.5	272.7	288.0	302.1	308.5	313.6	321.3	327.7	331.6	331.6
85°	249.6	267.6	284.2	298.3	304.7	309.8	317.5	323.9	327.7	327.7
87.5°	244.5	262.4	279.1	293.2	298.3	304.7	313.6	318.8	322.6	323.9
90°	239.4	257.3	274.0	288.0	293.2	299.6	308.5	313.6	316.2	317.5
92.5°	234.3	252.2	268.8	282.9	288.0	293.2	302.1	308.5	311.1	312.4
95°	227.9	247.1	262.4	276.5	282.9	288.0	297.0	302.1	304.7	306.0
97.5°	222.8	240.7	256.0	270.1	276.5	281.6	289.3	295.7	298.3	299.6
100°	215.1	233.0	249.6	262.4	268.8	274.0	281.6	288.0	290.6	291.9
102.5°	208.7	226.6	242.0	254.8	261.2	265.0	274.0	279.1	281.6	282.9
105°	201.0	218.9	234.3	247.1	252.2	257.3	265.0	270.1	274.0	274.0
107.5°	193.3	211.2	225.3	238.1	243.2	248.4	256.0	261.2	263.7	265.0
110°	185.6	202.3	217.6	230.4	234.3	239.4	247.1	252.2	254.8	256.0





TEST NUMBER: P236097

CATALOG NUMBER: CFA-2-LD4-UNV-HI-50-OP-EDC1

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	177.9	193.3	207.4	220.2	225.3	229.2	236.8	242.0	244.5	244.5
115°	169.0	184.3	198.4	210.0	215.1	220.2	226.6	230.4	234.3	234.3
117.5°	161.3	175.4	189.5	199.7	204.8	208.7	216.4	220.2	222.8	224.0
120°	152.3	167.7	179.2	190.7	194.6	199.7	206.1	210.0	212.5	212.5
122.5°	143.4	157.5	170.3	179.2	184.3	188.2	194.6	198.4	201.0	201.0
125°	134.4	147.2	158.7	169.0	172.8	177.9	183.1	186.9	189.5	189.5
127.5°	124.2	137.0	148.5	158.7	161.3	166.4	171.5	175.4	176.7	177.9
130°	115.2	128.0	138.3	147.2	151.1	153.6	160.0	162.6	163.9	165.1
132.5°	106.3	117.8	126.7	135.7	139.5	142.1	147.2	151.1	152.3	152.3
135°	97.3	107.5	116.5	124.2	126.7	130.6	134.4	138.3	139.5	140.8
137.5°	87.1	97.3	105.0	112.7	115.2	119.1	122.9	125.5	126.7	126.7
140°	78.1	87.1	94.7	101.1	103.7	106.3	110.1	112.7	113.9	113.9
142.5°	69.1	76.8	84.5	89.6	92.2	94.7	98.6	99.9	101.1	101.1
145°	60.2	66.6	73.0	79.4	80.7	83.2	85.8	88.3	88.3	88.3
147.5°	52.5	57.6	62.7	67.9	70.4	71.7	74.3	75.5	76.8	76.8
150°	43.5	48.6	53.8	57.6	60.2	60.2	62.7	64.0	64.0	64.0
152.5°	35.8	41.0	44.8	47.4	49.9	49.9	51.2	52.5	52.5	52.5
155°	26.9	30.7	35.8	38.4	38.4	39.7	41.0	41.0	42.2	41.0
157.5°	20.5	23.0	25.6	29.4	30.7	30.7	30.7	32.0	32.0	30.7
160°	14.1	16.6	17.9	20.5	20.5	21.8	23.0	23.0	23.0	21.8
162.5°	9.0	10.2	11.5	11.5	12.8	12.8	14.1	14.1	14.1	14.1
165°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	6.4	6.4	5.1
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)