

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: P236096

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

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P236096
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-40-OP-EDC1
Description: FAILSAFE CFA LED FIXTURE
2ft
Light Source: (42) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

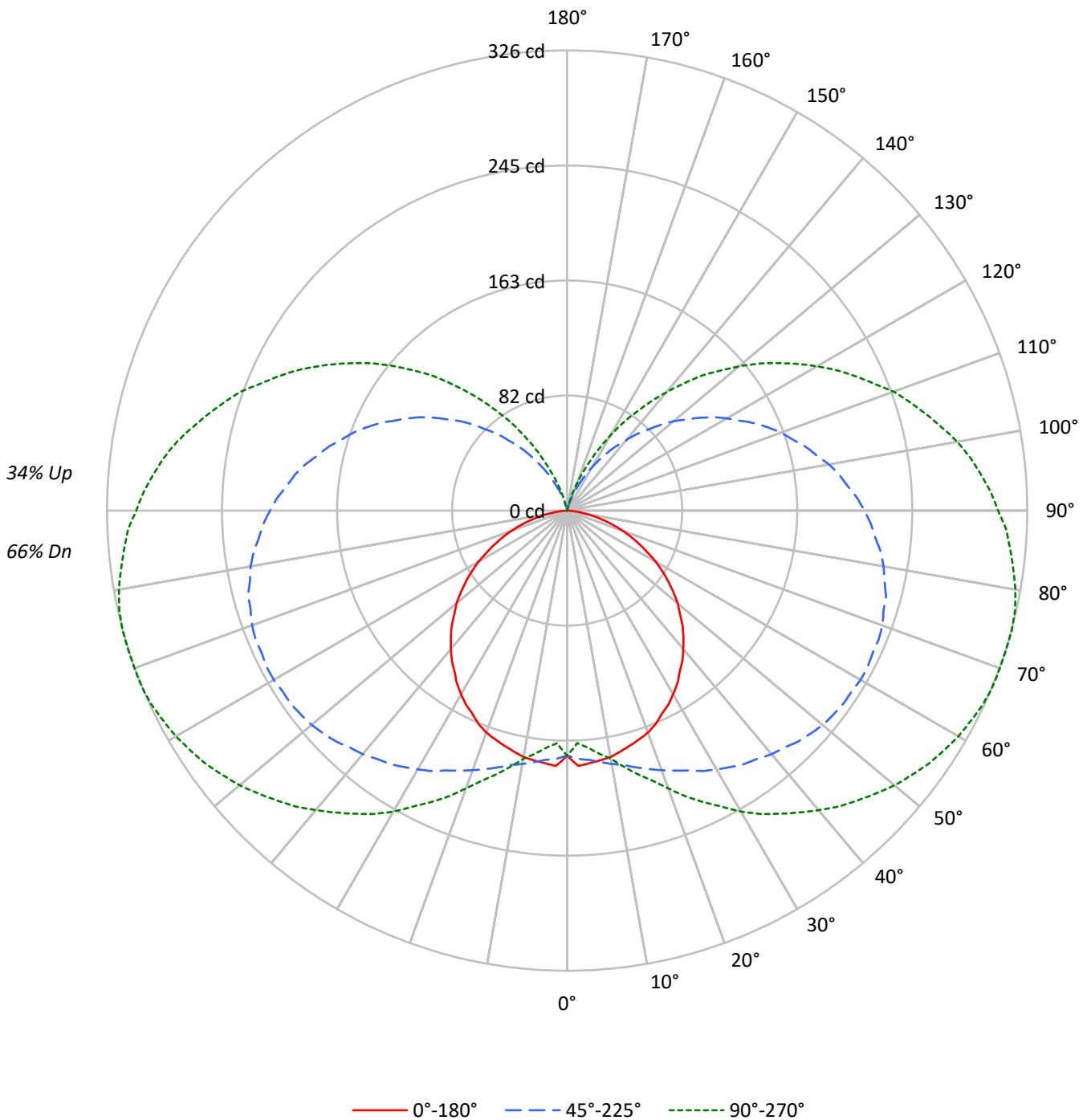
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1996.0 lumens
Efficiency: N/A
Efficacy: 89.9 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

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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	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°	5606	5606	5606
5°	5757	5183	4785
10°	5678	4899	4549
15°	5558	4721	4502
20°	5482	4628	4519
25°	5322	4579	4616
30°	5194	4593	4736
35°	5009	4615	4835
40°	4845	4645	4940
45°	4654	4708	5054
50°	4421	4780	5180
55°	4123	4840	5301
60°	3798	4911	5418
65°	3351	4972	5537
70°	2883	5075	5636
75°	2246	5169	5761
80°	1420	5254	5871
85°	713	5331	5964



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.9	0.8
10°-20°	53.0	2.7
20°-30°	92.3	4.6
30°-40°	132.4	6.6
40°-50°	169.0	8.5
50°-60°	198.8	10.0
60°-70°	217.1	10.9
70°-80°	222.4	11.1
80°-90°	213.5	10.7
90°-100°	193.5	9.7
100°-110°	164.4	8.2
110°-120°	129.5	6.5
120°-130°	92.8	4.7
130°-140°	58.2	2.9
140°-150°	30.0	1.5
150°-160°	10.7	0.5
160°-170°	1.4	0.1
170°-180°	0.0	0.0
0°-30°	162.3	8.1
0°-40°	294.6	14.8
0°-60°	662.4	33.2
0°-90°	1315.5	65.9
90°-120°	487.4	24.4
90°-150°	668.5	33.5
90°-180°	681.0	34.1
0°-180°	1996.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	174	174	174	174	174	
5°	180	180	177	174	169	17
15°	172	178	188	194	193	49
25°	159	175	203	224	228	73
35°	139	170	219	254	262	87
45°	116	161	231	277	290	89
55°	87	153	239	295	313	78
65°	57	140	239	304	325	56
75°	27	126	234	304	326	29
85°	5	108	219	293	315	6
90°	0	100	210	282	305	0
95°	0	90	199	272	294	0
105°	0	73	175	242	263	0
115°	0	55	146	207	225	0
125°	0	41	114	166	182	0
135°	0	27	81	122	135	0
145°	0	17	50	78	85	0
155°	0	7	22	37	39	0
165°	0	1	4	5	5	0
175°	0	0	0	0	0	0
180°	0	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°	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6
2.5°	181.0	181.0	181.0	181.0	179.7	179.7	179.7	178.5	178.5	177.3	176.0
5°	179.7	179.7	179.7	179.7	179.7	179.7	179.7	179.7	178.5	178.5	177.3
7.5°	178.5	178.5	179.7	179.7	179.7	179.7	179.7	179.7	179.7	179.7	179.7
10°	177.3	177.3	177.3	178.5	178.5	179.7	179.7	181.0	181.0	182.2	182.2
12.5°	174.8	176.0	176.0	177.3	178.5	178.5	179.7	181.0	182.2	183.4	184.6
15°	172.3	173.6	174.8	176.0	177.3	178.5	179.7	182.2	184.6	185.9	188.3
17.5°	169.9	171.1	172.3	173.6	177.3	178.5	179.7	182.2	185.9	189.6	192.0
20°	167.4	167.4	169.9	172.3	176.0	177.3	179.7	183.4	187.1	192.0	195.7
22.5°	163.7	163.7	166.2	169.9	173.6	176.0	178.5	184.6	189.6	194.5	199.4
25°	158.8	161.3	163.7	167.4	172.3	174.8	178.5	184.6	190.8	197.0	203.1
27.5°	155.1	156.3	160.0	164.9	171.1	174.8	177.3	184.6	193.3	200.6	208.0
30°	150.2	151.4	156.3	161.3	168.6	172.3	177.3	185.9	194.5	203.1	211.7
32.5°	145.3	146.5	151.4	158.8	166.2	171.1	176.0	185.9	195.7	205.6	215.4
35°	139.1	141.6	147.7	155.1	164.9	169.9	174.8	185.9	197.0	208.0	219.1
37.5°	134.2	136.6	142.8	151.4	161.3	167.4	173.6	185.9	198.2	210.5	221.6
40°	128.0	130.5	137.9	147.7	158.8	166.2	172.3	185.9	199.4	213.0	225.3
42.5°	121.9	124.3	132.9	144.0	156.3	163.7	171.1	185.9	200.6	215.4	227.7
45°	115.7	118.2	128.0	139.1	153.9	161.3	169.9	185.9	201.9	216.6	231.4
47.5°	108.3	112.0	121.9	135.4	151.4	160.0	168.6	185.9	201.9	217.9	233.9
50°	102.2	105.9	116.9	131.7	148.9	157.6	166.2	184.6	203.1	220.3	236.3
52.5°	94.8	99.7	110.8	126.8	145.3	155.1	164.9	184.6	203.1	220.3	237.6
55°	87.4	92.3	105.9	123.1	142.8	152.6	162.5	183.4	203.1	221.6	238.8
57.5°	80.0	86.2	99.7	118.2	139.1	150.2	160.0	182.2	201.9	221.6	238.8
60°	72.6	78.8	93.6	113.2	135.4	146.5	157.6	179.7	201.9	221.6	240.0
62.5°	64.0	71.4	88.6	109.6	131.7	144.0	155.1	178.5	199.4	220.3	240.0
65°	56.6	64.0	82.5	104.6	128.0	140.3	152.6	176.0	198.2	219.1	238.8
67.5°	49.2	57.9	76.3	99.7	124.3	136.6	148.9	173.6	197.0	217.9	238.8
70°	41.9	50.5	70.2	94.8	120.6	132.9	145.3	171.1	194.5	216.6	237.6
72.5°	34.5	44.3	65.2	89.9	115.7	129.3	142.8	167.4	192.0	214.2	235.1
75°	27.1	38.2	59.1	84.9	112.0	125.6	139.1	164.9	188.3	211.7	233.9
77.5°	20.9	32.0	54.2	80.0	108.3	121.9	134.2	161.3	185.9	209.3	230.2
80°	13.5	25.9	49.2	75.1	103.4	116.9	130.5	157.6	182.2	205.6	227.7
82.5°	8.6	20.9	44.3	71.4	98.5	113.2	126.8	152.6	178.5	201.9	224.0
85°	4.9	17.2	39.4	66.5	94.8	108.3	121.9	148.9	173.6	197.0	219.1
87.5°	1.2	13.5	35.7	61.5	89.9	103.4	116.9	144.0	169.9	193.3	215.4
90°	0.0	11.1	32.0	57.9	86.2	99.7	113.2	139.1	164.9	188.3	210.5
92.5°	0.0	8.6	29.5	54.2	81.2	94.8	108.3	135.4	160.0	183.4	205.6
95°	0.0	7.4	25.9	50.5	77.6	89.9	103.4	130.5	155.1	178.5	199.4
97.5°	0.0	6.2	23.4	46.8	72.6	86.2	98.5	124.3	148.9	172.3	194.5
100°	0.0	4.9	20.9	43.1	68.9	81.2	94.8	119.4	144.0	166.2	188.3
102.5°	0.0	4.9	19.7	40.6	64.0	77.6	89.9	114.5	137.9	160.0	181.0
105°	0.0	4.9	17.2	36.9	60.3	72.6	84.9	109.6	132.9	153.9	174.8
107.5°	0.0	3.7	16.0	34.5	56.6	68.9	80.0	103.4	126.8	147.7	167.4
110°	0.0	3.7	14.8	32.0	52.9	64.0	75.1	98.5	120.6	141.6	161.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	0.0	3.7	13.5	29.5	49.2	60.3	71.4	92.3	114.5	134.2	153.9
115°	0.0	3.7	12.3	27.1	45.5	55.4	66.5	87.4	108.3	128.0	146.5
117.5°	0.0	3.7	11.1	24.6	41.9	51.7	61.5	81.2	102.2	120.6	137.9
120°	0.0	3.7	11.1	23.4	39.4	48.0	56.6	76.3	94.8	113.2	130.5
122.5°	0.0	2.5	9.8	20.9	35.7	44.3	52.9	71.4	88.6	105.9	123.1
125°	0.0	2.5	9.8	19.7	33.2	40.6	48.0	65.2	82.5	98.5	114.5
127.5°	0.0	2.5	8.6	17.2	29.5	36.9	44.3	60.3	75.1	91.1	105.9
130°	0.0	2.5	7.4	16.0	27.1	33.2	40.6	54.2	68.9	83.7	98.5
132.5°	0.0	2.5	7.4	14.8	24.6	30.8	35.7	49.2	62.8	76.3	89.9
135°	0.0	2.5	6.2	13.5	22.2	27.1	33.2	44.3	56.6	68.9	81.2
137.5°	0.0	2.5	6.2	12.3	19.7	24.6	29.5	39.4	50.5	62.8	73.9
140°	0.0	2.5	4.9	11.1	18.5	22.2	25.9	35.7	45.5	55.4	65.2
142.5°	0.0	1.2	4.9	9.8	16.0	19.7	23.4	32.0	39.4	49.2	57.9
145°	0.0	1.2	4.9	8.6	13.5	17.2	19.7	27.1	34.5	43.1	50.5
147.5°	0.0	1.2	3.7	7.4	11.1	13.5	17.2	23.4	29.5	36.9	43.1
150°	0.0	1.2	3.7	6.2	9.8	12.3	13.5	18.5	24.6	30.8	35.7
152.5°	0.0	1.2	2.5	4.9	7.4	9.8	11.1	14.8	19.7	24.6	29.5
155°	0.0	1.2	2.5	3.7	6.2	7.4	8.6	12.3	14.8	18.5	22.2
157.5°	0.0	1.2	1.2	2.5	4.9	6.2	7.4	9.8	12.3	14.8	17.2
160°	0.0	1.2	1.2	2.5	3.7	3.7	4.9	7.4	8.6	9.8	12.3
162.5°	0.0	1.2	1.2	1.2	2.5	2.5	2.5	4.9	6.2	6.2	7.4
165°	0.0	1.2	1.2	1.2	1.2	1.2	1.2	2.5	2.5	3.7	3.7
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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6
2.5°	174.8	173.6	172.3	171.1	169.9	169.9	167.4	166.2	164.9	164.9
5°	177.3	176.0	174.8	173.6	173.6	172.3	171.1	169.9	168.6	168.6
7.5°	179.7	178.5	178.5	177.3	177.3	177.3	174.8	174.8	173.6	173.6
10°	182.2	182.2	182.2	182.2	182.2	182.2	181.0	179.7	178.5	178.5
12.5°	185.9	187.1	187.1	188.3	188.3	188.3	187.1	187.1	185.9	185.9
15°	190.8	192.0	193.3	194.5	194.5	194.5	194.5	194.5	193.3	193.3
17.5°	194.5	197.0	199.4	200.6	201.9	201.9	201.9	201.9	201.9	200.6
20°	199.4	203.1	205.6	208.0	208.0	209.3	210.5	210.5	210.5	209.3
22.5°	204.3	208.0	211.7	215.4	216.6	216.6	217.9	219.1	219.1	219.1
25°	209.3	214.2	219.1	222.8	224.0	225.3	226.5	227.7	227.7	227.7
27.5°	214.2	220.3	225.3	230.2	231.4	232.7	235.1	236.3	236.3	236.3
30°	219.1	226.5	232.7	236.3	238.8	241.3	243.7	245.0	245.0	246.2
32.5°	224.0	231.4	238.8	243.7	246.2	248.7	251.1	253.6	254.8	254.8
35°	229.0	237.6	245.0	251.1	253.6	256.0	258.5	261.0	262.2	262.2
37.5°	232.7	242.5	249.9	257.3	259.7	262.2	265.9	268.3	269.6	269.6
40°	236.3	246.2	256.0	263.4	265.9	268.3	273.3	275.7	277.0	277.0
42.5°	240.0	251.1	261.0	268.3	272.0	274.5	279.4	281.9	283.1	284.4
45°	243.7	256.0	265.9	273.3	277.0	280.7	284.4	288.0	290.5	290.5
47.5°	247.4	259.7	269.6	278.2	283.1	285.6	290.5	294.2	296.7	296.7
50°	249.9	263.4	274.5	283.1	288.0	290.5	296.7	300.4	302.8	302.8
52.5°	252.3	265.9	278.2	286.8	291.7	295.4	301.6	305.3	307.7	307.7
55°	254.8	268.3	280.7	290.5	295.4	299.1	305.3	310.2	311.4	312.7
57.5°	256.0	270.8	283.1	294.2	297.9	302.8	309.0	313.9	315.1	316.4
60°	257.3	272.0	284.4	296.7	301.6	305.3	311.4	316.4	318.8	320.0
62.5°	257.3	273.3	285.6	297.9	302.8	307.7	313.9	318.8	321.3	322.5
65°	257.3	273.3	286.8	299.1	304.0	309.0	316.4	321.3	323.7	325.0
67.5°	257.3	273.3	288.0	300.4	306.5	310.2	317.6	322.5	326.2	326.2
70°	256.0	272.0	286.8	300.4	305.3	310.2	317.6	323.7	326.2	326.2
72.5°	254.8	272.0	286.8	299.1	305.3	310.2	317.6	323.7	326.2	326.2
75°	252.3	269.6	285.6	297.9	304.0	309.0	317.6	322.5	326.2	326.2
77.5°	251.1	268.3	284.4	296.7	302.8	307.7	316.4	321.3	323.7	325.0
80°	247.4	264.7	280.7	294.2	299.1	305.3	312.7	318.8	321.3	322.5
82.5°	243.7	262.2	277.0	290.5	296.7	301.6	309.0	315.1	318.8	318.8
85°	240.0	257.3	273.3	286.8	293.0	297.9	305.3	311.4	315.1	315.1
87.5°	235.1	252.3	268.3	281.9	286.8	293.0	301.6	306.5	310.2	311.4
90°	230.2	247.4	263.4	277.0	281.9	288.0	296.7	301.6	304.0	305.3
92.5°	225.3	242.5	258.5	272.0	277.0	281.9	290.5	296.7	299.1	300.4
95°	219.1	237.6	252.3	265.9	272.0	277.0	285.6	290.5	293.0	294.2
97.5°	214.2	231.4	246.2	259.7	265.9	270.8	278.2	284.4	286.8	288.0
100°	206.8	224.0	240.0	252.3	258.5	263.4	270.8	277.0	279.4	280.7
102.5°	200.6	217.9	232.7	245.0	251.1	254.8	263.4	268.3	270.8	272.0
105°	193.3	210.5	225.3	237.6	242.5	247.4	254.8	259.7	263.4	263.4
107.5°	185.9	203.1	216.6	229.0	233.9	238.8	246.2	251.1	253.6	254.8
110°	178.5	194.5	209.3	221.6	225.3	230.2	237.6	242.5	245.0	246.2



TEST NUMBER: P236096

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	171.1	185.9	199.4	211.7	216.6	220.3	227.7	232.7	235.1	235.1
115°	162.5	177.3	190.8	201.9	206.8	211.7	217.9	221.6	225.3	225.3
117.5°	155.1	168.6	182.2	192.0	197.0	200.6	208.0	211.7	214.2	215.4
120°	146.5	161.3	172.3	183.4	187.1	192.0	198.2	201.9	204.3	204.3
122.5°	137.9	151.4	163.7	172.3	177.3	181.0	187.1	190.8	193.3	193.3
125°	129.3	141.6	152.6	162.5	166.2	171.1	176.0	179.7	182.2	182.2
127.5°	119.4	131.7	142.8	152.6	155.1	160.0	164.9	168.6	169.9	171.1
130°	110.8	123.1	132.9	141.6	145.3	147.7	153.9	156.3	157.6	158.8
132.5°	102.2	113.2	121.9	130.5	134.2	136.6	141.6	145.3	146.5	146.5
135°	93.6	103.4	112.0	119.4	121.9	125.6	129.3	132.9	134.2	135.4
137.5°	83.7	93.6	100.9	108.3	110.8	114.5	118.2	120.6	121.9	121.9
140°	75.1	83.7	91.1	97.2	99.7	102.2	105.9	108.3	109.6	109.6
142.5°	66.5	73.9	81.2	86.2	88.6	91.1	94.8	96.0	97.2	97.2
145°	57.9	64.0	70.2	76.3	77.6	80.0	82.5	84.9	84.9	84.9
147.5°	50.5	55.4	60.3	65.2	67.7	68.9	71.4	72.6	73.9	73.9
150°	41.9	46.8	51.7	55.4	57.9	57.9	60.3	61.5	61.5	61.5
152.5°	34.5	39.4	43.1	45.5	48.0	48.0	49.2	50.5	50.5	50.5
155°	25.9	29.5	34.5	36.9	36.9	38.2	39.4	39.4	40.6	39.4
157.5°	19.7	22.2	24.6	28.3	29.5	29.5	29.5	30.8	30.8	29.5
160°	13.5	16.0	17.2	19.7	19.7	20.9	22.2	22.2	22.2	20.9
162.5°	8.6	9.8	11.1	11.1	12.3	12.3	13.5	13.5	13.5	13.5
165°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	6.2	6.2	4.9
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)