

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: NEO-RAY

Report Number: P231604

Luminaire Tested: **S122-DR-LO-30-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231604
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33910)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122-DR-LO-30-X-0048-1-U-DD-4-W
Description: DEFINE 2 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1179.7 lumens
Efficiency: N/A
Efficacy: 86.7 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.27 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.14' x L: 3.92' x H: 0.08')
CIE Type: Semi-Direct

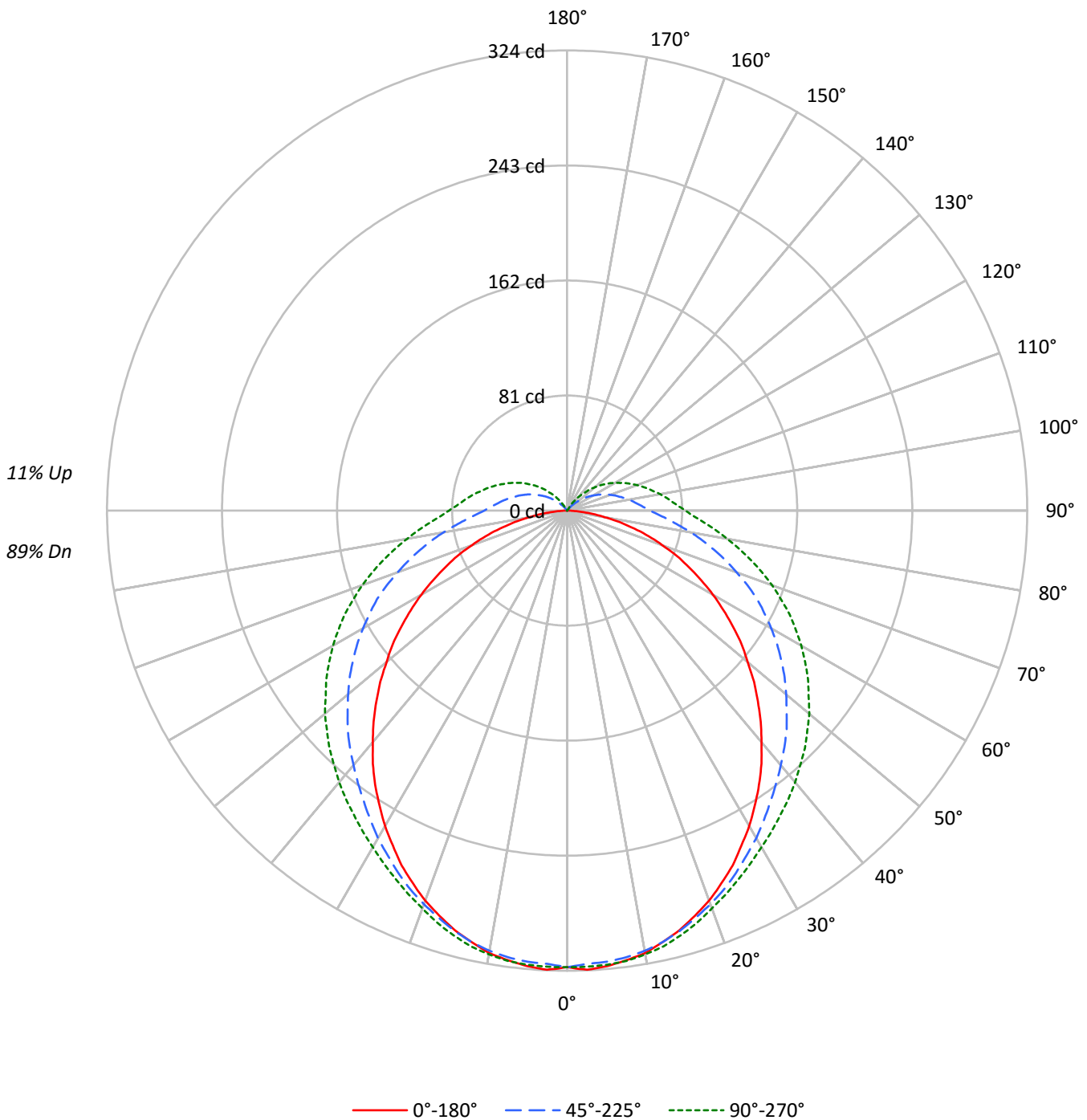
Input Watts (W): 13.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P231604

CATALOG NUMBER: S122-DR-LO-30-X-0048-1-U-DD-4-W

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	116	116	116	116	112	112	112	112	105	105	105	98	98	98	92	92	92	89
1	104	98	93	89	100	95	90	86	89	85	81	83	80	77	77	75	73	70
2	94	85	77	71	90	82	75	69	76	70	66	71	67	62	67	63	59	56
3	85	74	65	58	81	71	63	57	67	60	54	62	57	52	58	54	49	47
4	78	65	56	48	74	63	54	47	59	51	46	55	49	44	52	46	42	39
5	71	58	48	41	68	56	47	41	52	45	39	49	43	38	46	41	36	34
6	66	52	42	36	63	50	42	35	47	40	34	45	38	33	42	36	32	29
7	61	47	38	31	58	45	37	31	43	35	30	40	34	29	38	32	28	26
8	56	43	34	28	54	41	33	28	39	32	27	37	31	26	35	29	25	23
9	53	39	31	25	51	38	30	25	36	29	24	34	28	23	32	27	23	21
10	49	36	28	23	48	35	27	22	33	26	22	32	25	21	30	25	20	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6311	6311	6311
5°	6333	6053	6012
10°	6281	5825	5724
15°	6181	5576	5425
20°	6059	5317	5119
25°	5913	5066	4851
30°	5744	4823	4616
35°	5563	4585	4427
40°	5357	4393	4268
45°	5162	4225	4120
50°	4941	4046	3978
55°	4733	3884	3830
60°	4491	3712	3681
65°	4207	3546	3524
70°	3866	3315	3344
75°	3436	3096	3149
80°	2724	2879	2956
85°	1794	2685	2795



TEST NUMBER: P231604

CATALOG NUMBER: S122-DR-LO-30-X-0048-1-U-DD-4-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.5	2.6
10°-20°	86.8	7.4
20°-30°	129.9	11.0
30°-40°	156.6	13.3
40°-50°	167.1	14.2
50°-60°	161.3	13.7
60°-70°	140.1	11.9
70°-80°	106.6	9.0
80°-90°	70.8	6.0
90°-100°	49.0	4.2
100°-110°	35.8	3.0
110°-120°	24.1	2.0
120°-130°	13.9	1.2
130°-140°	6.1	0.5
140°-150°	1.2	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	247.2	21.0
0°-40°	403.8	34.2
0°-60°	732.2	62.1
0°-90°	1049.7	89.0
90°-120°	108.8	9.2
90°-150°	130.0	11.0
90°-180°	130.0	11.0
0°-180°	1179.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	322	322	322	322	322	
5°	322	321	319	322	321	31
15°	306	307	306	310	310	86
25°	276	279	281	286	286	127
35°	236	242	250	259	262	147
45°	190	202	218	232	237	147
55°	142	160	184	202	207	128
65°	95	118	148	166	173	94
75°	49	77	107	127	134	52
85°	10	40	71	91	97	12
90°	0	28	58	77	83	1
95°	0	23	50	68	74	0
105°	0	14	38	54	59	0
115°	0	6	27	41	46	0
125°	0	1	16	28	32	0
135°	0	0	6	15	19	0
145°	0	0	0	4	7	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P231604

CATALOG NUMBER: S122-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	321.5	321.5	321.5	321.5	321.5	321.5	321.5	321.5	321.5	321.5	321.5
2.5°	323.6	322.5	321.0	321.5	322.0	322.0	321.5	321.5	320.4	319.4	319.4
5°	322.0	321.0	319.4	320.4	321.0	321.0	321.0	320.4	319.9	318.9	319.4
7.5°	319.4	318.4	317.3	317.8	318.4	319.4	318.9	318.9	318.4	317.3	317.8
10°	316.3	314.7	313.7	314.7	315.2	316.3	316.3	316.3	315.8	314.7	315.2
12.5°	311.1	310.6	309.5	311.1	311.6	312.6	312.6	312.6	311.6	311.1	312.1
15°	305.9	304.8	303.8	305.3	306.4	307.4	307.4	307.4	306.9	306.4	307.4
17.5°	299.1	298.1	298.1	299.1	300.7	301.7	301.7	302.2	301.2	300.7	301.7
20°	292.3	291.3	290.8	292.9	293.9	294.9	294.9	295.5	294.9	294.9	296.0
22.5°	284.0	283.5	283.5	285.1	286.1	287.1	288.2	288.2	288.2	288.7	289.2
25°	275.7	275.2	275.7	277.3	278.3	279.9	280.9	280.9	280.9	281.4	283.0
27.5°	265.8	265.8	266.3	268.4	270.0	271.5	272.6	273.1	273.1	273.6	275.7
30°	256.5	255.9	256.5	259.1	260.6	262.7	263.7	264.3	264.8	266.3	267.9
32.5°	246.0	245.5	246.6	249.2	251.2	252.8	254.9	255.9	256.5	258.0	260.1
35°	235.6	235.1	236.2	238.8	241.4	243.4	245.0	246.0	248.1	249.7	252.3
37.5°	224.7	224.7	226.3	228.9	231.5	233.6	235.6	237.2	239.3	241.9	244.5
40°	212.8	213.3	214.8	218.5	221.1	224.2	226.3	227.8	231.0	234.1	237.2
42.5°	201.8	201.8	203.9	207.6	210.2	213.8	216.9	218.5	222.6	226.3	229.9
45°	189.9	189.9	193.0	196.6	199.8	203.9	207.0	209.6	213.8	218.5	221.6
47.5°	178.4	178.9	182.1	185.7	189.3	194.0	197.2	200.8	205.5	209.6	213.8
50°	165.9	167.0	170.6	174.8	178.9	184.1	187.8	191.9	196.6	201.3	205.5
52.5°	155.0	155.5	159.2	163.9	168.0	173.2	178.4	183.1	188.3	193.0	197.2
55°	142.5	144.1	147.7	152.4	157.6	162.8	168.5	173.7	179.5	184.1	189.3
57.5°	130.6	132.6	136.8	141.0	146.7	152.9	158.7	163.9	169.6	175.3	180.0
60°	118.6	120.7	125.4	130.0	136.3	142.5	148.8	155.0	160.2	165.9	170.6
62.5°	106.6	109.2	113.4	118.6	125.9	132.6	138.9	145.1	150.9	156.6	161.8
65°	94.7	97.8	102.0	108.2	115.0	121.7	128.5	135.2	141.0	147.7	151.9
67.5°	83.7	85.8	90.5	97.3	104.6	111.8	118.6	124.8	131.1	137.3	143.1
70°	71.3	74.9	79.1	86.4	93.6	100.9	108.2	115.0	121.2	126.9	132.6
72.5°	60.3	62.9	67.6	75.4	82.7	90.5	97.8	105.1	111.3	117.0	122.8
75°	48.9	52.0	57.2	64.5	72.8	80.6	87.9	94.7	101.4	107.2	112.9
77.5°	38.0	41.1	47.3	55.1	62.4	70.2	78.0	84.8	91.6	97.8	103.5
80°	27.0	31.2	36.9	44.7	53.1	60.3	68.1	74.9	82.2	88.4	93.6
82.5°	18.2	21.8	28.1	35.4	43.7	51.5	59.3	66.1	73.3	79.1	84.8
85°	9.9	14.0	20.8	28.1	35.9	43.7	51.5	58.3	65.0	71.3	76.5
87.5°	4.2	7.8	14.0	21.8	29.1	36.9	44.7	51.5	57.7	64.0	69.7
90°	0.0	3.6	9.4	16.6	24.4	31.7	39.0	46.3	52.5	58.3	63.5
92.5°	0.0	2.6	7.3	14.0	21.3	28.6	35.9	42.1	48.4	54.1	59.3
95°	0.0	1.6	6.2	12.0	19.2	26.0	32.8	39.0	45.3	50.5	55.7
97.5°	0.0	0.5	4.7	10.4	16.6	23.4	30.2	36.4	42.1	47.3	52.0
100°	0.0	0.0	3.1	8.3	14.6	21.3	27.6	33.3	39.0	44.2	48.9
102.5°	0.0	0.0	2.1	6.8	12.5	18.7	25.0	30.7	36.4	41.1	45.8
105°	0.0	0.0	1.0	5.2	10.9	16.6	22.4	28.1	33.3	38.0	42.7
107.5°	0.0	0.0	0.0	3.6	8.8	14.6	20.3	25.5	30.7	35.4	39.5
110°	0.0	0.0	0.0	2.6	7.3	12.5	17.7	22.9	27.6	32.3	36.9



TEST NUMBER: P231604

CATALOG NUMBER: S122-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0.0	0.0	0.0	1.0	5.7	10.4	15.6	20.3	25.0	29.7	33.8
115°	0.0	0.0	0.0	0.5	4.2	8.3	13.5	18.2	22.4	27.0	30.7
117.5°	0.0	0.0	0.0	0.0	2.6	6.8	10.9	15.6	19.8	23.9	28.1
120°	0.0	0.0	0.0	0.0	1.0	4.7	8.8	13.0	17.2	21.3	25.0
122.5°	0.0	0.0	0.0	0.0	0.0	3.1	7.3	10.9	15.1	18.7	22.4
125°	0.0	0.0	0.0	0.0	0.0	1.6	5.2	8.8	12.5	16.1	19.2
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	3.1	6.8	9.9	13.5	16.6
130°	0.0	0.0	0.0	0.0	0.0	0.0	1.6	4.7	7.8	10.9	14.0
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	5.7	8.3	11.4
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.6	6.2	8.3
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	3.6	6.2
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	3.6
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
145°	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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: P231604

CATALOG NUMBER: S122-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	321.5	321.5	321.5	321.5	321.5	321.5	321.5	321.5
2.5°	321.0	321.5	322.0	322.0	322.0	322.0	322.0	321.5
5°	320.4	321.5	322.0	322.0	322.0	322.0	321.5	321.0
7.5°	318.9	319.9	320.4	320.4	320.4	321.0	320.4	319.9
10°	316.8	317.3	317.8	318.4	318.4	318.4	317.8	317.3
12.5°	313.2	314.2	314.7	314.7	314.7	314.7	314.7	314.2
15°	308.5	309.0	310.0	310.0	310.0	310.6	309.5	309.5
17.5°	303.3	304.3	304.8	304.3	304.8	304.8	304.3	304.3
20°	297.5	298.1	298.6	298.6	299.1	299.1	298.6	298.1
22.5°	290.8	291.8	292.3	292.3	292.9	293.4	292.9	292.3
25°	284.0	285.1	286.1	286.1	286.6	287.1	286.6	286.1
27.5°	277.3	278.3	278.8	279.3	280.4	280.4	280.4	279.9
30°	269.5	271.0	271.5	272.6	273.6	274.1	274.1	273.6
32.5°	262.2	263.7	265.3	266.3	267.4	267.9	267.9	267.9
35°	254.4	256.5	258.5	260.1	261.1	261.7	262.2	261.7
37.5°	247.6	249.7	251.8	253.9	254.9	255.4	255.4	255.9
40°	240.3	242.9	245.0	246.6	248.1	249.2	249.2	249.7
42.5°	233.0	235.6	238.2	240.3	241.9	242.9	242.9	242.9
45°	225.2	228.9	231.0	233.0	235.1	236.2	236.7	236.7
47.5°	217.4	221.1	223.7	226.3	227.8	228.9	229.4	229.4
50°	209.6	213.3	216.4	219.0	220.6	221.6	222.6	222.6
52.5°	201.3	205.5	208.1	210.7	212.8	214.3	214.8	214.3
55°	193.5	197.2	200.3	202.9	205.0	206.5	207.0	207.0
57.5°	184.1	188.3	191.9	194.5	196.6	198.2	198.7	198.7
60°	175.8	179.5	183.1	185.7	188.3	189.9	190.4	190.4
62.5°	166.5	170.6	174.3	177.4	179.5	181.0	181.5	181.5
65°	157.1	161.3	164.9	168.0	169.6	171.1	172.2	172.7
67.5°	147.2	151.4	155.5	158.1	160.2	161.8	162.8	162.8
70°	137.8	142.0	145.7	148.3	150.3	152.4	152.9	153.5
72.5°	128.0	132.1	135.8	138.9	141.0	142.5	143.1	143.6
75°	117.6	122.2	125.9	128.5	131.1	133.2	133.7	133.7
77.5°	107.7	112.4	116.0	119.1	121.2	122.8	123.3	123.8
80°	98.8	103.0	106.6	109.2	111.3	112.9	114.4	114.4
82.5°	89.5	94.2	97.8	100.4	102.5	104.6	105.1	105.6
85°	81.7	85.8	89.5	92.1	94.2	96.2	96.8	96.8
87.5°	74.4	78.5	81.7	84.3	86.9	87.9	89.0	89.0
90°	68.1	72.3	75.4	78.5	80.6	82.2	82.7	83.2
92.5°	64.0	68.1	71.3	73.9	75.4	77.0	78.0	78.0
95°	59.8	64.0	67.1	69.7	71.8	73.3	73.9	73.9
97.5°	56.7	60.3	63.5	65.5	67.6	69.2	69.7	70.2
100°	53.1	56.7	59.8	61.9	64.0	65.0	66.1	66.6
102.5°	49.9	53.6	56.2	58.8	60.3	61.4	62.4	62.4
105°	46.8	49.9	53.1	55.1	57.2	58.3	58.8	59.3
107.5°	43.7	46.8	49.9	52.0	53.6	55.1	55.7	55.7
110°	40.6	43.7	46.3	48.9	50.5	51.5	52.0	52.5



TEST NUMBER: P231604

CATALOG NUMBER: S122-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	37.5	40.6	43.2	45.3	46.8	48.4	48.9	48.9
115°	34.3	37.5	40.1	42.1	43.7	44.7	45.3	45.8
117.5°	31.2	34.3	36.9	39.0	40.6	41.6	42.1	42.1
120°	28.1	31.2	33.3	35.9	36.9	38.5	39.0	39.0
122.5°	25.5	28.1	30.2	32.3	33.8	34.9	35.4	35.9
125°	22.4	25.0	27.0	29.1	30.7	31.7	32.3	32.3
127.5°	19.2	21.8	23.9	26.0	27.0	28.1	28.6	29.1
130°	16.6	19.2	20.8	22.9	23.9	25.0	25.5	25.5
132.5°	13.5	16.1	17.7	19.8	20.8	21.8	22.4	22.4
135°	10.9	13.0	14.6	16.1	17.7	18.2	18.7	18.7
137.5°	8.3	10.4	12.0	13.0	14.6	15.1	15.6	15.6
140°	5.7	7.3	8.8	10.4	11.4	12.0	12.5	12.5
142.5°	3.1	4.7	6.2	7.3	8.3	8.8	9.4	9.4
145°	0.5	2.1	3.6	4.7	5.2	5.7	6.2	6.8
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	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
172.5°	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
177.5°	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

(END OF REPORT)