

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: P231630

Luminaire Tested: **S124-DR-LO-40-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231630
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33916)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124-DR-LO-40-X-0048-1-U-DD-4-W
Description: DEFINE 4 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1346.3 lumens
Efficiency: N/A
Efficacy: 99.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.21 / 1.34
Luminous Opening: Rectangular w/ Sides (W: 0.31' x L: 3.92' x H: 0.08')
CIE Type: Direct

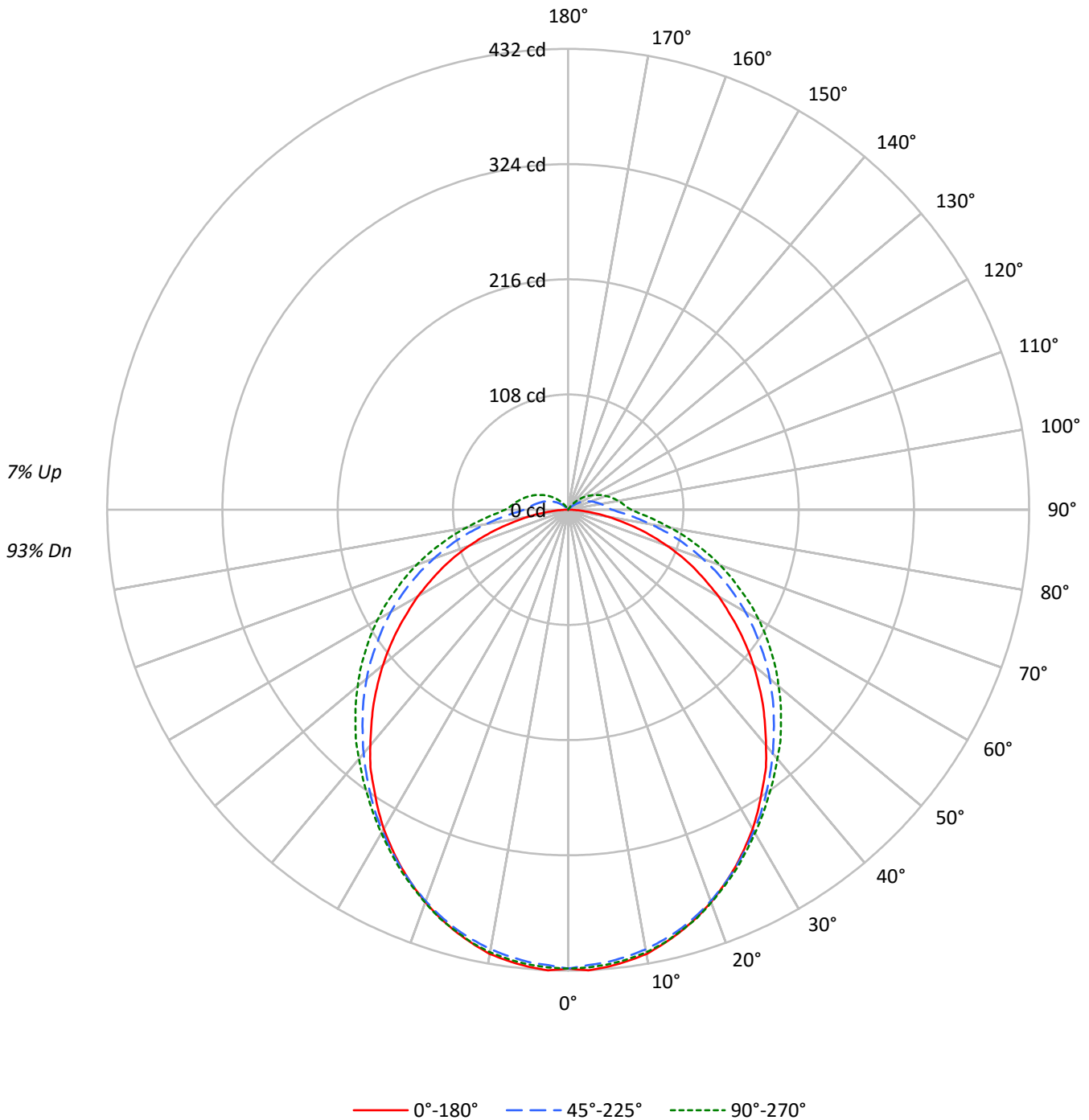
Input Watts (W): 13.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P231630

CATALOG NUMBER: S124-DR-LO-40-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	
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	117	117	117	117	114	114	114	114	107	107	107	101	101	101	96	96	96	93
1	106	101	96	92	103	98	93	90	92	89	86	87	84	82	82	80	78	76
2	96	87	80	74	93	85	78	72	80	75	70	76	71	67	72	68	65	62
3	87	76	68	61	84	74	66	60	70	64	58	67	61	56	63	58	54	52
4	80	67	58	51	77	66	57	51	62	55	49	59	53	48	56	51	47	44
5	73	60	51	44	71	59	50	44	56	48	43	53	47	41	51	45	40	38
6	68	54	45	38	65	53	44	38	50	43	37	48	41	36	46	40	35	33
7	63	49	40	34	61	48	40	34	46	38	33	44	37	32	42	36	31	29
8	58	45	36	30	56	44	36	30	42	35	29	40	34	29	38	33	28	26
9	55	41	33	27	53	40	32	27	39	31	26	37	31	26	35	30	25	24
10	51	38	30	25	50	37	30	24	36	29	24	34	28	24	33	27	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3854	3854	3854
5°	3861	3761	3760
10°	3834	3674	3658
15°	3774	3576	3533
20°	3705	3462	3402
25°	3622	3341	3266
30°	3533	3215	3131
35°	3423	3092	3010
40°	3314	2973	2905
45°	3203	2860	2808
50°	3081	2756	2712
55°	2950	2639	2613
60°	2812	2531	2513
65°	2650	2396	2386
70°	2428	2238	2267
75°	2139	2068	2115
80°	1727	1858	1970
85°	1183	1716	1879



TEST NUMBER: P231630

CATALOG NUMBER: S124-DR-LO-40-X-0048-1-U-DD-4-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.6	3.0
10°-20°	115.2	8.6
20°-30°	171.1	12.7
30°-40°	202.6	15.1
40°-50°	209.7	15.6
50°-60°	194.1	14.4
60°-70°	158.0	11.7
70°-80°	107.2	8.0
80°-90°	57.6	4.3
90°-100°	34.3	2.5
100°-110°	25.2	1.9
110°-120°	16.7	1.2
120°-130°	9.4	0.7
130°-140°	3.8	0.3
140°-150°	0.6	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	327.0	24.3
0°-40°	529.6	39.3
0°-60°	933.4	69.3
0°-90°	1256.2	93.3
90°-120°	76.3	5.7
90°-150°	90.1	6.7
90°-180°	90.0	6.7
0°-180°	1346.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	430	430	430	430	430	
5°	430	429	426	428	428	41
15°	409	409	407	410	409	115
25°	370	371	370	373	372	170
35°	318	321	324	327	328	199
45°	258	265	272	280	282	199
55°	195	206	219	229	232	174
65°	131	146	163	175	178	129
75°	67	85	106	119	123	71
85°	14	35	56	70	75	17
90°	0	20	41	54	59	1
95°	0	15	35	48	52	0
105°	0	9	26	38	42	0
115°	0	4	18	29	32	0
125°	0	0	10	19	23	0
135°	0	0	3	10	13	0
145°	0	0	0	1	3	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: P231630

CATALOG NUMBER: S124-DR-LO-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	430.1	430.1	430.1	430.1	430.1	430.1	430.1	430.1	430.1	430.1	430.1
2.5°	432.3	431.2	430.1	429.5	430.1	430.6	430.1	429.5	428.4	427.3	427.3
5°	430.1	429.0	427.9	427.9	429.0	429.0	428.4	427.9	426.8	425.7	425.7
7.5°	426.8	425.7	425.1	425.1	425.7	425.7	425.7	425.1	424.0	422.4	423.5
10°	422.9	421.8	420.7	420.7	421.3	421.3	421.3	420.7	419.6	418.5	419.1
12.5°	416.3	415.2	414.6	414.6	415.2	415.8	415.2	415.2	414.1	413.0	413.5
15°	409.1	408.6	407.5	408.0	408.6	409.1	409.1	408.6	407.5	406.9	407.5
17.5°	400.9	400.3	399.8	399.8	400.3	400.9	400.9	400.9	399.8	399.2	399.8
20°	391.5	390.4	390.4	390.9	391.5	392.0	392.0	391.5	390.9	390.4	391.5
22.5°	381.0	380.5	379.9	380.5	382.1	382.1	382.7	381.6	381.0	381.0	381.6
25°	370.0	369.4	368.9	370.0	371.1	371.6	371.6	371.6	371.1	370.5	371.6
27.5°	357.9	357.9	356.8	357.9	359.5	360.1	360.1	360.1	359.5	359.5	360.1
30°	345.7	345.2	344.1	345.7	346.8	348.5	348.5	348.5	347.9	347.9	349.0
32.5°	331.9	331.9	331.4	333.0	334.7	335.8	335.8	335.8	335.2	336.4	337.5
35°	317.6	317.1	317.6	318.7	320.4	322.0	322.6	322.6	322.6	323.7	324.8
37.5°	304.4	302.7	303.3	304.9	306.6	308.2	309.3	308.8	309.3	311.0	312.1
40°	288.4	287.8	288.9	291.1	292.8	294.4	295.0	295.5	296.7	298.3	300.0
42.5°	272.9	273.5	274.0	276.8	278.5	280.7	281.2	282.3	283.4	285.1	287.3
45°	258.1	257.5	259.2	260.8	263.6	265.8	267.4	268.0	270.2	272.4	274.0
47.5°	242.1	243.2	243.2	246.5	249.8	252.0	253.1	254.7	256.9	259.7	261.4
50°	226.6	226.6	228.8	231.6	234.3	237.1	238.8	241.0	243.7	246.5	248.7
52.5°	210.6	211.2	212.8	216.1	219.5	222.2	225.0	227.7	229.9	233.2	235.4
55°	194.6	195.2	198.0	201.3	204.6	207.9	210.6	213.4	216.7	218.9	221.7
57.5°	178.1	179.2	182.5	185.8	189.7	192.4	196.3	199.6	202.9	205.7	209.0
60°	162.7	163.2	166.0	170.4	173.1	177.5	181.4	184.7	188.0	191.9	194.6
62.5°	146.1	147.2	150.5	154.4	158.3	162.7	166.5	170.4	173.7	177.5	180.3
65°	130.7	131.8	134.5	138.4	143.4	148.3	152.2	155.5	159.4	163.2	166.0
67.5°	115.2	116.3	119.1	123.0	127.9	132.3	137.3	141.2	145.0	148.9	152.2
70°	98.1	99.8	103.1	108.1	112.5	117.4	121.9	126.3	130.1	134.0	137.3
72.5°	82.2	83.8	88.2	92.6	97.6	102.6	107.5	111.4	116.3	119.7	123.0
75°	66.7	68.9	72.8	77.2	82.2	87.7	92.1	97.6	102.0	105.9	108.6
77.5°	51.3	54.0	57.9	62.9	67.8	73.3	78.3	82.7	87.7	92.1	95.4
80°	37.5	39.7	44.1	49.1	55.1	60.1	65.1	70.0	74.4	78.3	82.7
82.5°	25.4	27.6	32.0	36.9	42.5	48.0	53.5	57.9	62.3	66.7	70.6
85°	14.3	17.1	21.5	26.5	32.5	37.5	42.5	47.4	51.8	56.2	60.1
87.5°	6.1	8.8	13.2	18.2	23.2	28.7	33.6	38.6	43.0	47.4	50.7
90°	0.0	2.8	6.6	11.6	17.1	22.1	27.0	32.0	36.4	40.8	44.1
92.5°	0.0	1.7	5.0	9.9	14.9	19.9	24.3	29.2	33.1	37.5	40.8
95°	0.0	1.1	3.9	8.3	13.2	17.6	22.6	27.0	31.4	35.3	38.6
97.5°	0.0	0.6	3.3	7.2	11.6	16.0	21.0	25.4	29.2	33.1	36.4
100°	0.0	0.0	2.2	6.1	9.9	14.3	18.7	23.2	27.0	30.9	34.2
102.5°	0.0	0.6	1.1	5.0	8.8	13.2	17.1	21.5	25.4	28.7	32.0
105°	0.0	0.0	0.6	3.3	7.2	11.6	15.4	19.3	23.2	26.5	29.8
107.5°	0.0	0.0	0.0	2.2	6.1	9.9	13.8	17.6	21.0	24.8	27.6
110°	0.0	0.0	0.0	1.1	4.4	8.3	12.1	15.4	19.3	22.6	25.4



TEST NUMBER: P231630

CATALOG NUMBER: S124-DR-LO-40-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	0.6	3.3	6.6	10.5	13.8	17.1	20.4	23.2
115°	0.0	0.6	0.6	0.0	2.2	5.5	8.8	12.1	15.4	18.2	21.0
117.5°	0.0	0.0	0.0	0.0	1.1	3.9	7.2	10.5	13.2	16.5	18.7
120°	0.0	0.0	0.0	0.0	0.6	2.8	5.5	8.8	11.6	14.3	17.1
122.5°	0.0	0.0	0.0	0.0	0.0	1.7	3.9	6.6	9.9	12.7	14.9
125°	0.0	0.0	0.0	0.0	0.0	0.6	2.8	5.0	7.7	10.5	12.7
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	3.9	6.1	8.3	10.5
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.2	4.4	6.6	8.8
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.8	5.0	6.6
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.1	3.3	5.0
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.7	3.3
140°	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.7
142.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
145°	0.0	0.6	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: P231630

CATALOG NUMBER: S124-DR-LO-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	430.1	430.1	430.1	430.1	430.1	430.1	430.1	430.1
2.5°	428.4	430.1	430.1	430.1	430.1	430.1	430.1	429.5
5°	427.3	428.4	428.4	428.4	428.4	428.4	428.4	427.9
7.5°	424.6	425.7	426.2	426.2	426.2	426.2	425.7	425.1
10°	420.7	421.3	421.8	421.8	421.8	421.8	421.3	421.3
12.5°	415.2	415.8	416.3	416.3	416.3	416.3	415.8	415.8
15°	408.6	409.1	409.7	409.7	409.7	409.7	409.1	408.6
17.5°	401.4	402.0	402.0	402.0	402.0	401.4	400.9	401.4
20°	392.0	392.6	393.1	393.1	393.1	393.1	392.0	392.0
22.5°	383.2	383.8	383.8	383.2	383.8	383.2	382.7	382.1
25°	372.2	372.7	373.3	373.3	373.8	373.3	372.2	372.2
27.5°	361.2	362.3	361.7	361.7	362.3	361.7	361.2	361.2
30°	350.1	350.7	350.7	350.7	351.2	351.2	350.1	350.1
32.5°	338.0	338.6	339.1	339.7	339.7	339.7	339.1	339.1
35°	325.9	326.4	327.0	327.0	328.1	328.6	328.1	327.5
37.5°	313.2	314.3	315.4	315.9	315.9	316.5	316.5	316.5
40°	301.6	302.2	303.3	304.4	304.4	305.5	304.9	304.9
42.5°	288.4	290.6	291.1	293.3	293.3	293.3	293.3	294.4
45°	276.2	277.4	279.0	280.1	281.2	281.2	281.2	281.8
47.5°	264.1	265.8	266.3	268.0	269.1	269.6	269.6	270.2
50°	250.9	252.5	254.7	255.8	256.4	256.9	257.5	257.5
52.5°	237.7	239.9	241.5	243.2	243.7	244.3	244.3	245.4
55°	224.4	226.6	228.3	229.9	231.6	232.1	232.1	232.1
57.5°	211.7	213.4	215.0	217.2	217.8	218.4	219.5	219.5
60°	197.4	199.6	202.4	203.5	205.1	205.7	205.7	206.2
62.5°	183.6	186.4	188.0	189.7	191.3	192.4	192.4	193.0
65°	168.7	171.5	174.2	175.3	177.0	178.1	178.7	178.1
67.5°	154.9	158.3	159.9	162.1	163.2	163.8	164.9	164.9
70°	141.2	143.4	146.1	147.2	148.9	149.4	150.5	151.1
72.5°	126.8	129.0	131.2	133.4	135.1	135.6	137.3	137.3
75°	112.5	115.8	117.4	119.7	121.3	122.4	123.0	123.0
77.5°	98.7	102.0	104.2	106.4	108.1	109.2	109.7	110.3
80°	85.5	88.8	91.5	93.7	94.8	95.9	96.5	97.0
82.5°	74.4	76.6	79.4	82.2	83.3	84.4	84.9	84.9
85°	63.4	66.7	69.5	71.1	72.8	73.9	74.4	75.0
87.5°	54.0	57.3	59.6	61.8	63.4	65.1	65.6	65.6
90°	47.4	50.7	52.9	55.1	56.8	57.9	58.4	59.0
92.5°	44.1	46.9	49.6	51.8	52.9	54.0	55.1	55.1
95°	41.9	44.7	47.4	49.1	50.7	51.8	52.4	52.4
97.5°	39.7	42.5	44.7	46.9	48.5	49.1	49.6	50.2
100°	37.5	39.7	42.5	44.1	45.8	46.9	47.4	47.4
102.5°	35.3	37.5	40.3	41.9	43.0	44.1	44.7	45.2
105°	32.5	35.3	37.5	39.1	40.8	41.9	42.5	42.5
107.5°	30.3	33.1	35.3	36.9	38.6	39.1	39.7	40.3
110°	28.1	30.3	33.1	34.7	35.8	36.9	37.5	37.5



TEST NUMBER: P231630

CATALOG NUMBER: S124-DR-LO-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	25.9	28.1	30.3	32.0	33.1	34.2	34.7	35.3
115°	23.7	25.9	28.1	29.8	30.9	32.0	32.5	32.5
117.5°	21.5	23.7	25.9	27.0	28.1	29.2	29.8	29.8
120°	19.3	21.5	23.2	24.8	25.9	27.0	27.0	27.6
122.5°	17.1	19.3	21.0	22.6	23.7	24.3	24.8	24.8
125°	14.9	17.1	18.7	19.9	21.0	22.1	22.1	22.6
127.5°	12.7	14.3	16.0	17.6	18.7	19.3	19.9	19.9
130°	10.5	12.1	13.8	15.4	16.0	16.5	17.1	17.6
132.5°	8.3	9.9	11.6	12.7	13.8	14.3	14.9	14.9
135°	6.6	8.3	9.4	10.5	11.6	12.1	12.1	12.7
137.5°	5.0	6.1	7.2	8.3	8.8	9.4	9.9	9.9
140°	2.8	3.9	5.0	6.1	6.6	7.2	7.7	7.7
142.5°	1.1	2.2	2.8	3.9	4.4	5.0	5.5	5.5
145°	0.0	0.6	1.1	1.7	2.2	2.8	3.3	3.3
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)