

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: P231628

Luminaire Tested: **S124-DR-LO-30-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231628
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-30-X-0048-1-U-DD-4-W
Description: DEFINE 4 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: 1270.0 lumens
Efficiency: N/A
Efficacy: 93.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.34
Luminous Opening: Rectangular w/ Sides (W: 0.31' x L: 3.92' x H: 0.08')
CIE Type: Direct

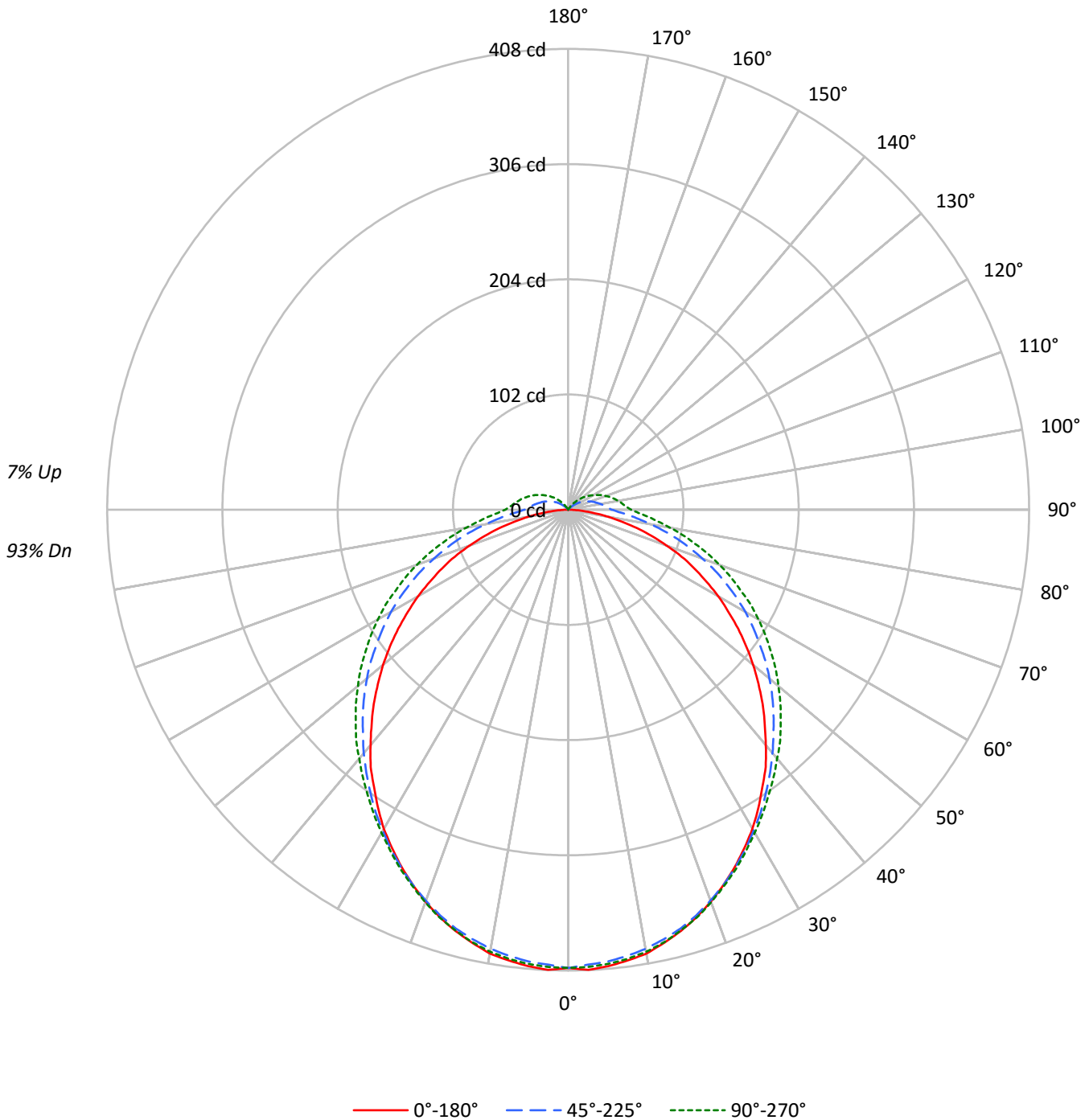
Input Watts (W): 13.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P231628

CATALOG NUMBER: S124-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	
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°	3635	3635	3635
5°	3642	3548	3547
10°	3617	3466	3451
15°	3561	3374	3334
20°	3494	3266	3210
25°	3417	3152	3081
30°	3334	3033	2954
35°	3229	2917	2840
40°	3127	2804	2741
45°	3020	2698	2649
50°	2907	2600	2558
55°	2784	2490	2465
60°	2653	2387	2371
65°	2500	2261	2251
70°	2292	2111	2138
75°	2018	1951	1994
80°	1630	1754	1861
85°	1117	1621	1771



TEST NUMBER: P231628

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.3	3.0
10°-20°	108.7	8.6
20°-30°	161.5	12.7
30°-40°	191.2	15.1
40°-50°	197.8	15.6
50°-60°	183.1	14.4
60°-70°	149.0	11.7
70°-80°	101.1	8.0
80°-90°	54.4	4.3
90°-100°	32.4	2.5
100°-110°	23.8	1.9
110°-120°	15.8	1.2
120°-130°	8.8	0.7
130°-140°	3.6	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°	308.4	24.3
0°-40°	499.6	39.3
0°-60°	880.6	69.3
0°-90°	1185.1	93.3
90°-120°	71.9	5.7
90°-150°	84.9	6.7
90°-180°	85.0	6.7
0°-180°	1270.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	406	406	406	406	406	
5°	406	405	402	404	404	39
15°	386	386	384	386	386	109
25°	349	350	350	352	351	161
35°	300	303	305	308	309	188
45°	243	250	257	264	266	188
55°	184	195	206	216	219	164
65°	123	138	154	165	168	122
75°	63	80	100	112	116	67
85°	14	33	53	66	71	16
90°	0	18	38	51	56	1
95°	0	15	33	46	49	0
105°	0	9	25	36	40	0
115°	0	4	17	27	31	0
125°	0	0	10	18	21	0
135°	0	0	3	9	12	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: P231628

CATALOG NUMBER: S124-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°	405.7	405.7	405.7	405.7	405.7	405.7	405.7	405.7	405.7	405.7	405.7
2.5°	407.8	406.8	405.7	405.2	405.7	406.3	405.7	405.2	404.2	403.1	403.1
5°	405.7	404.7	403.7	403.7	404.7	404.7	404.2	403.7	402.6	401.6	401.6
7.5°	402.6	401.6	401.1	401.1	401.6	401.6	401.6	401.1	400.0	398.5	399.5
10°	399.0	397.9	396.9	396.9	397.4	397.4	397.4	396.9	395.9	394.8	395.3
12.5°	392.7	391.7	391.2	391.2	391.7	392.2	391.7	391.7	390.7	389.6	390.1
15°	386.0	385.5	384.4	384.9	385.5	386.0	386.0	385.5	384.4	383.9	384.4
17.5°	378.2	377.7	377.1	377.1	377.7	378.2	378.2	378.2	377.1	376.6	377.1
20°	369.3	368.3	368.3	368.8	369.3	369.9	369.9	369.3	368.8	368.3	369.3
22.5°	359.4	358.9	358.4	358.9	360.5	360.5	361.0	360.0	359.4	359.4	360.0
25°	349.0	348.5	348.0	349.0	350.1	350.6	350.6	350.6	350.1	349.6	350.6
27.5°	337.6	337.6	336.6	337.6	339.2	339.7	339.7	339.7	339.2	339.2	339.7
30°	326.2	325.6	324.6	326.2	327.2	328.8	328.8	328.8	328.2	328.2	329.3
32.5°	313.2	313.2	312.6	314.2	315.8	316.8	316.8	316.8	316.3	317.3	318.4
35°	299.6	299.1	299.6	300.7	302.2	303.8	304.3	304.3	304.3	305.3	306.4
37.5°	287.1	285.6	286.1	287.7	289.2	290.8	291.8	291.3	291.8	293.4	294.4
40°	272.1	271.5	272.6	274.7	276.2	277.8	278.3	278.8	279.9	281.4	283.0
42.5°	257.5	258.0	258.5	261.1	262.7	264.8	265.3	266.3	267.4	268.9	271.0
45°	243.4	242.9	244.5	246.0	248.6	250.7	252.3	252.8	254.9	257.0	258.5
47.5°	228.4	229.4	229.4	232.5	235.6	237.7	238.8	240.3	242.4	245.0	246.6
50°	213.8	213.8	215.9	218.5	221.1	223.7	225.2	227.3	229.9	232.5	234.6
52.5°	198.7	199.2	200.8	203.9	207.0	209.6	212.2	214.8	216.9	220.0	222.1
55°	183.6	184.1	186.7	189.9	193.0	196.1	198.7	201.3	204.4	206.5	209.1
57.5°	168.0	169.1	172.2	175.3	178.9	181.5	185.2	188.3	191.4	194.0	197.1
60°	153.5	154.0	156.6	160.7	163.3	167.5	171.1	174.3	177.4	181.0	183.6
62.5°	137.8	138.9	142.0	145.7	149.3	153.5	157.1	160.7	163.9	167.5	170.1
65°	123.3	124.3	126.9	130.6	135.2	139.9	143.6	146.7	150.3	154.0	156.6
67.5°	108.7	109.8	112.4	116.0	120.7	124.8	129.5	133.2	136.8	140.4	143.6
70°	92.6	94.2	97.3	102.0	106.1	110.8	115.0	119.1	122.8	126.4	129.5
72.5°	77.5	79.1	83.2	87.4	92.1	96.8	101.4	105.1	109.8	112.9	116.0
75°	62.9	65.0	68.7	72.8	77.5	82.7	86.9	92.1	96.2	99.9	102.5
77.5°	48.4	51.0	54.6	59.3	64.0	69.2	73.9	78.0	82.7	86.9	90.0
80°	35.4	37.5	41.6	46.3	52.0	56.7	61.4	66.1	70.2	73.9	78.0
82.5°	23.9	26.0	30.2	34.9	40.1	45.3	50.5	54.6	58.8	62.9	66.6
85°	13.5	16.1	20.3	25.0	30.7	35.4	40.1	44.7	48.9	53.1	56.7
87.5°	5.7	8.3	12.5	17.2	21.8	27.0	31.7	36.4	40.6	44.7	47.9
90°	0.0	2.6	6.2	10.9	16.1	20.8	25.5	30.2	34.3	38.5	41.6
92.5°	0.0	1.6	4.7	9.4	14.0	18.7	22.9	27.6	31.2	35.4	38.5
95°	0.0	1.0	3.6	7.8	12.5	16.6	21.3	25.5	29.7	33.3	36.4
97.5°	0.0	0.5	3.1	6.8	10.9	15.1	19.8	23.9	27.6	31.2	34.3
100°	0.0	0.0	2.1	5.7	9.4	13.5	17.7	21.8	25.5	29.1	32.3
102.5°	0.0	0.5	1.0	4.7	8.3	12.5	16.1	20.3	23.9	27.0	30.2
105°	0.0	0.0	0.5	3.1	6.8	10.9	14.6	18.2	21.8	25.0	28.1
107.5°	0.0	0.0	0.0	2.1	5.7	9.4	13.0	16.6	19.8	23.4	26.0
110°	0.0	0.0	0.0	1.0	4.2	7.8	11.4	14.6	18.2	21.3	23.9



TEST NUMBER: P231628

CATALOG NUMBER: S124-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	0.5	3.1	6.2	9.9	13.0	16.1	19.2	21.8
115°	0.0	0.5	0.5	0.0	2.1	5.2	8.3	11.4	14.6	17.2	19.8
117.5°	0.0	0.0	0.0	0.0	1.0	3.6	6.8	9.9	12.5	15.6	17.7
120°	0.0	0.0	0.0	0.0	0.5	2.6	5.2	8.3	10.9	13.5	16.1
122.5°	0.0	0.0	0.0	0.0	0.0	1.6	3.6	6.2	9.4	12.0	14.0
125°	0.0	0.0	0.0	0.0	0.0	0.5	2.6	4.7	7.3	9.9	12.0
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.6	5.7	7.8	9.9
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	4.2	6.2	8.3
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.6	4.7	6.2
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	3.1	4.7
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.6	3.1
140°	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.6
142.5°	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
145°	0.0	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: P231628

CATALOG NUMBER: S124-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	405.7	405.7	405.7	405.7	405.7	405.7	405.7	405.7
2.5°	404.2	405.7	405.7	405.7	405.7	405.7	405.7	405.2
5°	403.1	404.2	404.2	404.2	404.2	404.2	404.2	403.7
7.5°	400.5	401.6	402.1	402.1	402.1	402.1	401.6	401.1
10°	396.9	397.4	397.9	397.9	397.9	397.9	397.4	397.4
12.5°	391.7	392.2	392.7	392.7	392.7	392.7	392.2	392.2
15°	385.5	386.0	386.5	386.5	386.5	386.5	386.0	385.5
17.5°	378.7	379.2	379.2	379.2	379.2	378.7	378.2	378.7
20°	369.9	370.4	370.9	370.9	370.9	370.9	369.9	369.9
22.5°	361.5	362.0	362.0	361.5	362.0	361.5	361.0	360.5
25°	351.1	351.6	352.2	352.2	352.7	352.2	351.1	351.1
27.5°	340.7	341.8	341.2	341.2	341.8	341.2	340.7	340.7
30°	330.3	330.8	330.8	330.8	331.4	331.4	330.3	330.3
32.5°	318.9	319.4	319.9	320.4	320.4	320.4	319.9	319.9
35°	307.4	307.9	308.5	308.5	309.5	310.0	309.5	309.0
37.5°	295.5	296.5	297.5	298.1	298.1	298.6	298.6	298.6
40°	284.5	285.1	286.1	287.1	287.1	288.2	287.7	287.7
42.5°	272.1	274.1	274.7	276.7	276.7	276.7	276.7	277.8
45°	260.6	261.7	263.2	264.3	265.3	265.3	265.3	265.8
47.5°	249.2	250.7	251.2	252.8	253.8	254.4	254.4	254.9
50°	236.7	238.2	240.3	241.4	241.9	242.4	242.9	242.9
52.5°	224.2	226.3	227.8	229.4	229.9	230.4	230.4	231.5
55°	211.7	213.8	215.4	216.9	218.5	219.0	219.0	219.0
57.5°	199.8	201.3	202.9	205.0	205.5	206.0	207.0	207.0
60°	186.2	188.3	190.9	191.9	193.5	194.0	194.0	194.5
62.5°	173.2	175.8	177.4	178.9	180.5	181.5	181.5	182.1
65°	159.2	161.8	164.4	165.4	167.0	168.0	168.5	168.0
67.5°	146.2	149.3	150.9	152.9	154.0	154.5	155.5	155.5
70°	133.2	135.2	137.8	138.9	140.4	141.0	142.0	142.5
72.5°	119.6	121.7	123.8	125.9	127.4	128.0	129.5	129.5
75°	106.1	109.2	110.8	112.9	114.4	115.5	116.0	116.0
77.5°	93.1	96.2	98.3	100.4	102.0	103.0	103.5	104.0
80°	80.6	83.7	86.4	88.4	89.5	90.5	91.0	91.6
82.5°	70.2	72.3	74.9	77.5	78.5	79.6	80.1	80.1
85°	59.8	62.9	65.5	67.1	68.7	69.7	70.2	70.7
87.5°	51.0	54.1	56.2	58.3	59.8	61.4	61.9	61.9
90°	44.7	47.9	49.9	52.0	53.6	54.6	55.1	55.7
92.5°	41.6	44.2	46.8	48.9	49.9	51.0	52.0	52.0
95°	39.5	42.1	44.7	46.3	47.9	48.9	49.4	49.4
97.5°	37.5	40.1	42.1	44.2	45.8	46.3	46.8	47.3
100°	35.4	37.5	40.1	41.6	43.2	44.2	44.7	44.7
102.5°	33.3	35.4	38.0	39.5	40.6	41.6	42.1	42.7
105°	30.7	33.3	35.4	36.9	38.5	39.5	40.1	40.1
107.5°	28.6	31.2	33.3	34.9	36.4	36.9	37.5	38.0
110°	26.5	28.6	31.2	32.8	33.8	34.9	35.4	35.4



TEST NUMBER: P231628

CATALOG NUMBER: S124-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	24.4	26.5	28.6	30.2	31.2	32.3	32.8	33.3
115°	22.4	24.4	26.5	28.1	29.1	30.2	30.7	30.7
117.5°	20.3	22.4	24.4	25.5	26.5	27.6	28.1	28.1
120°	18.2	20.3	21.8	23.4	24.4	25.5	25.5	26.0
122.5°	16.1	18.2	19.8	21.3	22.4	22.9	23.4	23.4
125°	14.0	16.1	17.7	18.7	19.8	20.8	20.8	21.3
127.5°	12.0	13.5	15.1	16.6	17.7	18.2	18.7	18.7
130°	9.9	11.4	13.0	14.6	15.1	15.6	16.1	16.6
132.5°	7.8	9.4	10.9	12.0	13.0	13.5	14.0	14.0
135°	6.2	7.8	8.8	9.9	10.9	11.4	11.4	12.0
137.5°	4.7	5.7	6.8	7.8	8.3	8.8	9.4	9.4
140°	2.6	3.6	4.7	5.7	6.2	6.8	7.3	7.3
142.5°	1.0	2.1	2.6	3.6	4.2	4.7	5.2	5.2
145°	0.0	0.5	1.0	1.6	2.1	2.6	3.1	3.1
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)