

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: P231623

Luminaire Tested: **S123-DR-2-27-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231623
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33913)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123-DR-2-27-X-0048-1-U-DD-4-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

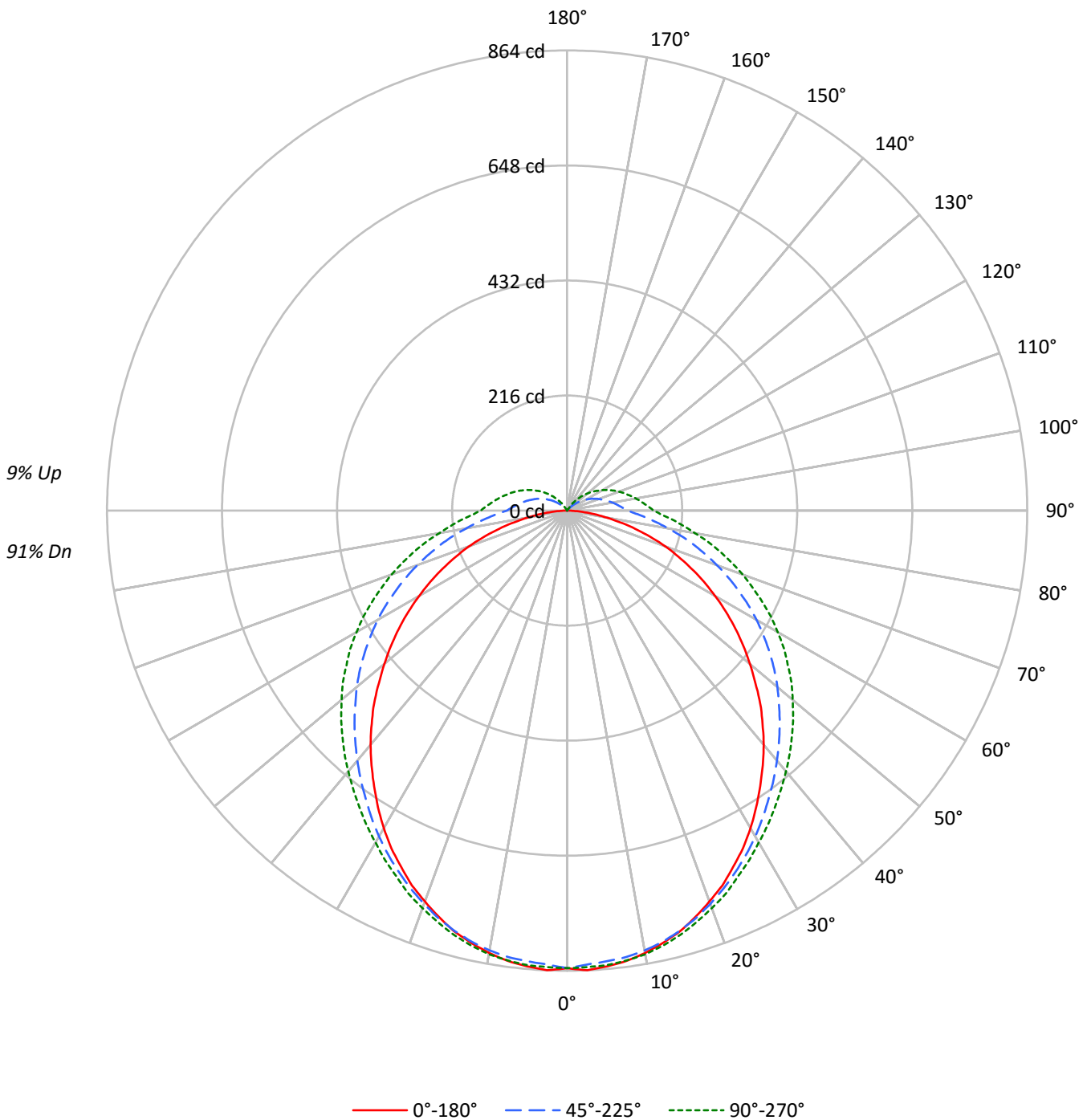
Lumens per Lamp: N/A
Luminaire Lumens: 2904.0 lumens
Efficiency: N/A
Efficacy: 68.2 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.22' x L: 3.92' x H: 0.08')
CIE Type: Direct

Input Watts (W): 42.6
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: P231623
CATALOG NUMBER: S123-DR-2-27-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	113	113	113	113	106	106	106	100	100	100	94	94	94	91
1	105	100	95	90	101	96	92	88	90	87	84	85	82	79	80	78	76	73
2	95	86	79	72	91	83	76	71	78	73	68	74	69	65	69	66	62	59
3	86	75	66	59	83	73	65	58	68	62	56	64	59	54	61	56	52	49
4	79	66	57	50	76	64	56	49	61	53	48	57	51	46	54	49	44	42
5	72	59	50	43	70	57	49	42	54	47	41	51	45	40	49	43	38	36
6	67	53	44	37	64	52	43	37	49	41	36	46	40	35	44	38	34	31
7	62	48	39	33	59	47	38	32	44	37	31	42	36	31	40	34	30	28
8	57	44	35	29	55	43	34	29	41	33	28	39	32	27	37	31	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	22
10	50	37	29	24	49	36	28	23	35	28	23	33	27	22	32	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	10573	10573	10573
5°	10594	10245	10249
10°	10501	9989	9918
15°	10366	9686	9547
20°	10150	9344	9158
25°	9919	8995	8769
30°	9666	8648	8415
35°	9356	8291	8101
40°	9065	7979	7821
45°	8743	7686	7569
50°	8369	7407	7326
55°	8032	7118	7081
60°	7616	6820	6828
65°	7161	6459	6531
70°	6657	6096	6234
75°	5824	5712	5900
80°	4712	5277	5548
85°	3272	4985	5349



TEST NUMBER: P231623

CATALOG NUMBER: S123-DR-2-27-X-0048-1-U-DD-4-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.3	2.8
10°-20°	231.4	8.0
20°-30°	345.8	11.9
30°-40°	413.2	14.2
40°-50°	433.2	14.9
50°-60°	408.5	14.1
60°-70°	342.1	11.8
70°-80°	245.9	8.5
80°-90°	148.4	5.1
90°-100°	95.7	3.3
100°-110°	70.3	2.4
110°-120°	47.2	1.6
120°-130°	27.1	0.9
130°-140°	11.7	0.4
140°-150°	2.2	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	658.5	22.7
0°-40°	1071.7	36.9
0°-60°	1913.4	65.9
0°-90°	2649.9	91.2
90°-120°	213.2	7.3
90°-150°	254.2	8.8
90°-180°	254.0	8.7
0°-180°	2904.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	859	859	859	859	859	
5°	859	856	850	857	857	82
15°	818	818	817	826	824	230
25°	738	744	748	759	758	340
35°	632	646	660	677	680	396
45°	513	536	565	590	597	395
55°	386	420	464	497	506	344
65°	257	302	354	393	404	255
75°	132	186	245	282	297	140
85°	29	86	148	186	199	34
90°	0	54	113	150	162	2
95°	0	44	98	135	145	0
105°	0	26	74	107	116	0
115°	0	12	53	80	90	0
125°	0	1	31	55	64	0
135°	0	0	12	30	37	0
145°	1	0	0	7	12	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: P231623

CATALOG NUMBER: S123-DR-2-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	859.1	859.1	859.1	859.1	859.1	859.1	859.1	859.1	859.1	859.1	859.1
2.5°	863.9	861.5	859.1	859.1	860.3	860.3	860.3	857.9	856.7	853.1	853.1
5°	859.1	856.7	854.3	855.5	855.5	856.7	856.7	855.5	853.1	849.5	851.9
7.5°	853.1	850.7	848.3	848.3	849.5	850.7	850.7	849.5	848.3	845.8	847.0
10°	843.4	841.0	838.6	838.6	839.8	842.2	843.4	842.2	841.0	838.6	839.8
12.5°	831.4	829.0	826.6	829.0	830.2	832.6	832.6	832.6	831.4	829.0	831.4
15°	818.2	814.6	813.4	814.6	817.0	819.4	820.6	819.4	819.4	817.0	819.4
17.5°	800.2	797.8	796.6	799.0	801.4	803.8	806.2	805.0	805.0	802.6	805.0
20°	781.0	778.6	778.6	781.0	783.4	787.0	788.2	788.2	788.2	785.8	789.4
22.5°	761.7	758.1	758.1	760.5	765.3	767.8	769.0	769.0	769.0	767.8	772.6
25°	737.7	735.3	736.5	738.9	742.5	746.1	748.5	748.5	748.5	748.5	752.1
27.5°	714.9	711.3	712.5	716.1	720.9	723.3	726.9	726.9	726.9	728.1	731.7
30°	688.5	686.0	688.5	692.1	696.9	700.5	702.9	705.3	705.3	706.5	711.3
32.5°	660.8	659.6	662.0	666.8	669.2	675.2	677.6	678.8	681.2	683.6	687.3
35°	632.0	630.8	634.4	639.2	644.0	648.8	652.4	653.6	657.2	659.6	665.6
37.5°	603.1	603.1	606.8	610.4	616.4	622.4	626.0	628.4	630.8	636.8	642.8
40°	574.3	573.1	576.7	581.5	587.5	594.7	598.3	601.9	605.5	612.8	618.8
42.5°	543.1	543.1	547.9	553.9	561.1	568.3	571.9	574.3	581.5	588.7	594.7
45°	513.0	513.0	517.8	525.1	532.3	539.5	545.5	550.3	557.5	564.7	570.7
47.5°	479.4	481.8	486.6	493.8	502.2	510.6	516.6	523.8	532.3	539.5	546.7
50°	448.2	449.4	457.8	465.0	473.4	483.0	490.2	497.4	507.0	515.4	523.8
52.5°	416.9	419.3	426.5	434.9	444.6	453.0	463.8	472.2	480.6	490.2	498.6
55°	385.7	386.9	396.5	406.1	414.5	425.3	434.9	445.8	455.4	463.8	472.2
57.5°	353.2	356.8	364.1	373.7	384.5	396.5	407.3	416.9	426.5	437.3	447.0
60°	320.8	325.6	334.0	343.6	354.4	367.7	379.7	390.5	400.1	410.9	420.5
62.5°	289.6	293.2	302.8	312.4	324.4	337.6	350.8	361.6	372.5	383.3	394.1
65°	257.1	264.3	271.5	282.3	295.6	308.8	322.0	334.0	344.8	354.4	365.3
67.5°	225.9	230.7	241.5	252.3	265.5	279.9	292.0	305.2	317.2	326.8	336.4
70°	195.8	200.6	210.3	222.3	236.7	251.1	264.3	275.1	288.4	299.2	310.0
72.5°	163.4	169.4	180.2	192.2	206.7	221.1	235.5	248.7	260.7	271.5	282.3
75°	132.2	139.4	150.2	163.4	179.0	192.2	206.7	219.9	233.1	245.1	254.7
77.5°	102.1	109.3	121.4	135.8	150.2	165.8	179.0	193.4	205.5	218.7	229.5
80°	74.5	82.9	94.9	109.3	123.8	139.4	153.8	167.0	180.2	192.2	204.3
82.5°	51.7	58.9	70.9	85.3	100.9	115.3	129.8	144.2	156.2	169.4	180.2
85°	28.8	37.2	50.5	63.7	79.3	93.7	108.1	122.6	134.6	147.8	158.6
87.5°	12.0	21.6	33.6	46.9	61.3	75.7	90.1	103.3	116.5	128.6	139.4
90°	0.0	8.4	19.2	32.4	46.9	61.3	74.5	87.7	100.9	112.9	122.6
92.5°	0.0	4.8	14.4	27.6	40.9	55.3	69.7	81.7	93.7	105.7	115.3
95°	0.0	2.4	12.0	24.0	37.2	50.5	63.7	75.7	87.7	98.5	108.1
97.5°	0.0	1.2	9.6	20.4	32.4	45.7	58.9	70.9	81.7	92.5	102.1
100°	0.0	0.0	7.2	16.8	28.8	40.9	52.9	64.9	75.7	86.5	96.1
102.5°	0.0	0.0	3.6	13.2	25.2	36.0	48.1	60.1	70.9	80.5	90.1
105°	0.0	0.0	2.4	10.8	20.4	32.4	43.3	54.1	64.9	74.5	84.1
107.5°	0.0	0.0	0.0	7.2	18.0	27.6	38.4	49.3	60.1	68.5	78.1
110°	0.0	0.0	0.0	4.8	14.4	24.0	34.8	44.5	54.1	63.7	72.1



TEST NUMBER: P231623

CATALOG NUMBER: S123-DR-2-27-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	2.4	10.8	20.4	30.0	39.6	49.3	57.7	66.1
115°	0.0	0.0	0.0	0.0	7.2	16.8	25.2	34.8	44.5	52.9	60.1
117.5°	0.0	0.0	0.0	0.0	4.8	13.2	21.6	30.0	38.4	46.9	54.1
120°	0.0	0.0	0.0	0.0	1.2	9.6	16.8	25.2	33.6	40.9	49.3
122.5°	0.0	0.0	0.0	0.0	0.0	6.0	13.2	21.6	28.8	36.0	43.3
125°	0.0	0.0	0.0	0.0	0.0	2.4	9.6	16.8	24.0	31.2	37.2
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	6.0	12.0	19.2	25.2	32.4
130°	0.0	0.0	0.0	0.0	0.0	0.0	2.4	8.4	14.4	20.4	26.4
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	10.8	15.6	21.6
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	6.0	12.0	16.8
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	7.2	12.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	7.2
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4
145°	1.2	0.0	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: P231623

CATALOG NUMBER: S123-DR-2-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	859.1	859.1	859.1	859.1	859.1	859.1	859.1	859.1
2.5°	856.7	857.9	859.1	859.1	859.1	859.1	857.9	857.9
5°	854.3	856.7	856.7	857.9	857.9	857.9	856.7	856.7
7.5°	850.7	851.9	853.1	853.1	854.3	854.3	853.1	851.9
10°	843.4	845.8	847.0	847.0	847.0	847.0	847.0	845.8
12.5°	835.0	836.2	837.4	837.4	837.4	838.6	837.4	836.2
15°	823.0	825.4	825.4	826.6	826.6	826.6	825.4	824.2
17.5°	808.6	811.0	812.2	812.2	812.2	812.2	811.0	809.8
20°	793.0	794.2	796.6	795.4	796.6	796.6	795.4	794.2
22.5°	775.0	776.2	778.6	777.4	779.8	779.8	778.6	778.6
25°	755.7	758.1	759.3	759.3	759.3	759.3	759.3	758.1
27.5°	735.3	736.5	738.9	740.1	740.1	740.1	740.1	740.1
30°	713.7	716.1	718.5	718.5	720.9	722.1	720.9	719.7
32.5°	690.9	694.5	696.9	698.1	700.5	701.7	700.5	700.5
35°	668.0	672.8	676.4	677.6	680.0	680.0	681.2	680.0
37.5°	646.4	651.2	653.6	657.2	659.6	662.0	660.8	659.6
40°	624.8	629.6	633.2	635.6	638.0	639.2	639.2	639.2
42.5°	600.7	606.8	610.4	614.0	617.6	618.8	618.8	618.8
45°	576.7	582.7	587.5	592.3	595.9	597.1	597.1	597.1
47.5°	553.9	559.9	564.7	569.5	573.1	574.3	575.5	575.5
50°	531.1	537.1	543.1	546.7	550.3	552.7	552.7	552.7
52.5°	505.8	511.8	517.8	522.6	527.5	528.7	531.1	531.1
55°	480.6	487.8	495.0	499.8	502.2	504.6	505.8	505.8
57.5°	455.4	461.4	467.4	474.6	478.2	480.6	481.8	483.0
60°	428.9	436.1	443.3	449.4	451.8	455.4	456.6	456.6
62.5°	401.3	408.5	416.9	421.7	426.5	428.9	430.1	431.3
65°	374.9	382.1	389.3	396.5	398.9	401.3	403.7	403.7
67.5°	347.2	354.4	361.6	367.7	371.3	374.9	377.3	376.1
70°	319.6	328.0	334.0	341.2	344.8	347.2	349.6	350.8
72.5°	292.0	300.4	307.6	313.6	317.2	319.6	322.0	323.2
75°	265.5	272.7	279.9	284.8	289.6	293.2	294.4	296.8
77.5°	237.9	247.5	253.5	260.7	263.1	266.7	267.9	270.3
80°	213.9	221.1	228.3	234.3	239.1	242.7	242.7	243.9
82.5°	189.8	197.0	204.3	211.5	215.1	218.7	219.9	219.9
85°	167.0	175.4	182.6	188.6	193.4	195.8	198.2	199.4
87.5°	149.0	156.2	163.4	168.2	173.0	175.4	177.8	177.8
90°	132.2	139.4	146.6	152.6	156.2	158.6	161.0	162.2
92.5°	125.0	132.2	139.4	144.2	149.0	151.4	152.6	153.8
95°	117.7	125.0	132.2	137.0	140.6	144.2	145.4	145.4
97.5°	110.5	117.7	125.0	129.8	133.4	135.8	138.2	138.2
100°	104.5	111.7	117.7	122.6	126.2	128.6	131.0	131.0
102.5°	97.3	104.5	110.5	115.3	118.9	121.4	123.8	123.8
105°	91.3	98.5	104.5	109.3	112.9	115.3	116.5	116.5
107.5°	85.3	92.5	98.5	102.1	105.7	108.1	110.5	110.5
110°	79.3	85.3	91.3	96.1	99.7	102.1	103.3	103.3



TEST NUMBER: P231623

CATALOG NUMBER: S123-DR-2-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	73.3	79.3	85.3	88.9	92.5	94.9	96.1	97.3
115°	67.3	73.3	78.1	82.9	86.5	87.7	90.1	90.1
117.5°	61.3	67.3	72.1	75.7	79.3	81.7	82.9	84.1
120°	55.3	60.1	66.1	69.7	73.3	74.5	76.9	76.9
122.5°	49.3	54.1	60.1	62.5	66.1	68.5	69.7	69.7
125°	43.3	49.3	52.9	56.5	60.1	61.3	62.5	63.7
127.5°	37.2	42.1	46.9	50.5	52.9	55.3	56.5	56.5
130°	31.2	36.0	40.9	44.5	46.9	48.1	49.3	50.5
132.5°	26.4	31.2	34.8	37.2	40.9	42.1	43.3	43.3
135°	20.4	25.2	28.8	31.2	33.6	36.0	36.0	37.2
137.5°	15.6	19.2	22.8	25.2	27.6	28.8	30.0	30.0
140°	10.8	14.4	16.8	19.2	21.6	22.8	24.0	24.0
142.5°	6.0	8.4	12.0	13.2	15.6	16.8	18.0	18.0
145°	1.2	3.6	6.0	8.4	9.6	10.8	12.0	12.0
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)