

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: P231626

Luminaire Tested: **S123-DR-2-40-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231626
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-2-40-X-0048-1-U-DD-4-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

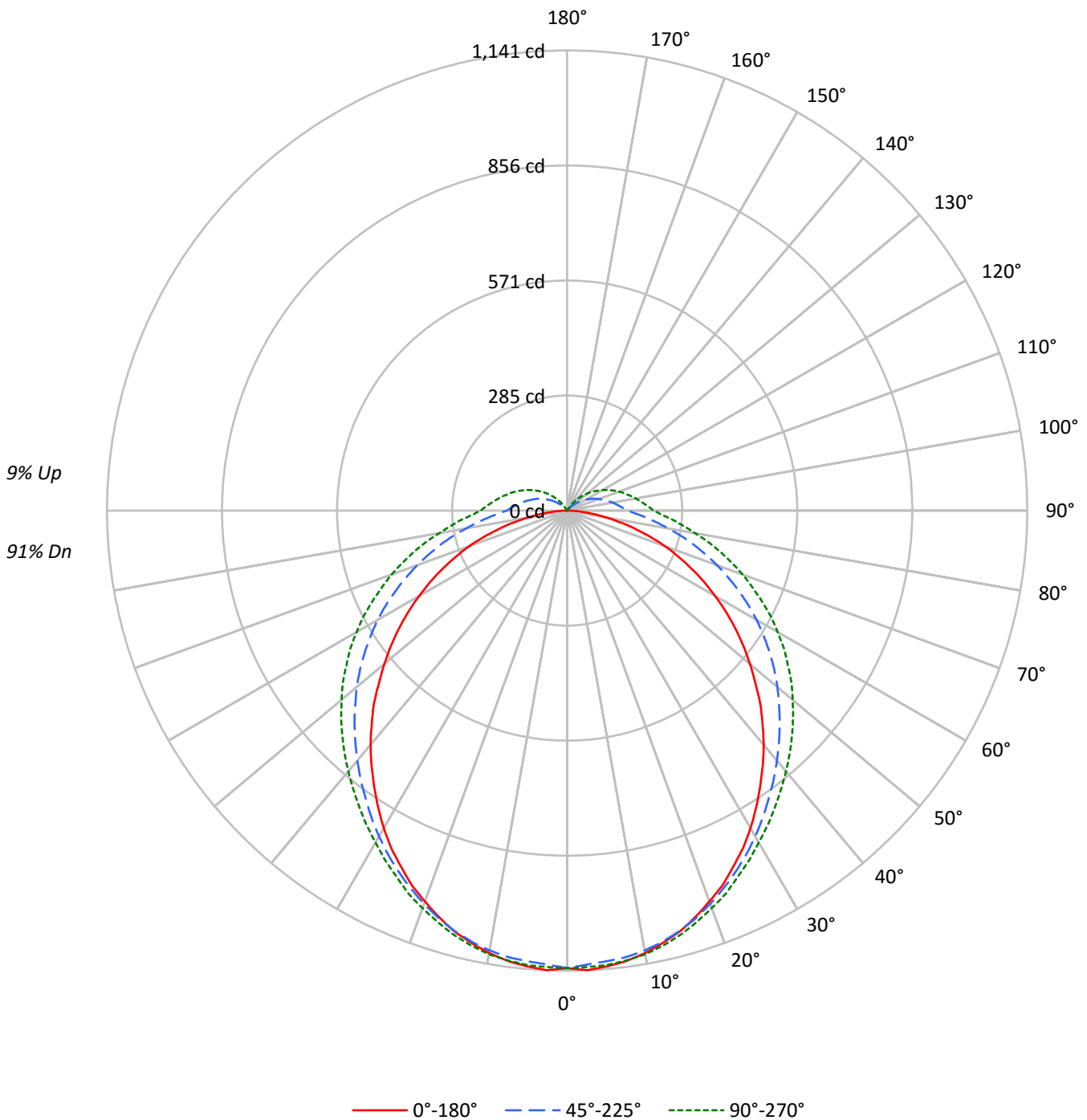
Lumens per Lamp: N/A
Luminaire Lumens: 3834.7 lumens
Efficiency: N/A
Efficacy: 90.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.22' x L: 3.92' x H: 0.08')
CIE Type: Direct

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



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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	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°	13961	13961	13961
5°	13989	13528	13533
10°	13867	13191	13097
15°	13688	12791	12608
20°	13403	12338	12093
25°	13098	11878	11580
30°	12763	11419	11112
35°	12354	10949	10698
40°	11971	10534	10327
45°	11546	10149	9995
50°	11051	9781	9673
55°	10606	9398	9350
60°	10056	9006	9015
65°	9455	8529	8625
70°	8792	8050	8233
75°	7688	7543	7790
80°	6223	6969	7327
85°	4328	6580	7066



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	107.3	2.8
10°-20°	305.5	8.0
20°-30°	456.6	11.9
30°-40°	545.6	14.2
40°-50°	572.0	14.9
50°-60°	539.5	14.1
60°-70°	451.7	11.8
70°-80°	324.8	8.5
80°-90°	196.0	5.1
90°-100°	126.4	3.3
100°-110°	92.8	2.4
110°-120°	62.3	1.6
120°-130°	35.7	0.9
130°-140°	15.5	0.4
140°-150°	2.9	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	869.5	22.7
0°-40°	1415.1	36.9
0°-60°	2526.6	65.9
0°-90°	3499.1	91.2
90°-120°	281.6	7.3
90°-150°	335.6	8.8
90°-180°	336.0	8.8
0°-180°	3834.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1134	1134	1134	1134	1134	
5°	1134	1130	1122	1132	1131	108
15°	1080	1080	1079	1091	1088	304
25°	974	983	988	1003	1001	449
35°	834	854	871	894	898	522
45°	678	708	746	779	788	522
55°	509	554	612	657	668	455
65°	340	399	468	519	533	337
75°	174	245	324	373	392	185
85°	38	114	195	245	263	44
90°	0	71	149	198	214	2
95°	0	58	130	178	192	0
105°	0	35	98	141	154	0
115°	0	16	70	106	119	0
125°	0	2	41	72	84	0
135°	0	0	16	40	49	0
145°	2	0	0	10	16	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



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4
2.5°	1140.7	1137.6	1134.4	1134.4	1136.0	1136.0	1136.0	1132.8	1131.2	1126.5	1126.5
5°	1134.4	1131.2	1128.0	1129.6	1129.6	1131.2	1131.2	1129.6	1126.5	1121.7	1124.9
7.5°	1126.5	1123.3	1120.1	1120.1	1121.7	1123.3	1123.3	1121.7	1120.1	1116.9	1118.5
10°	1113.8	1110.6	1107.4	1107.4	1109.0	1112.2	1113.8	1112.2	1110.6	1107.4	1109.0
12.5°	1097.9	1094.7	1091.6	1094.7	1096.3	1099.5	1099.5	1099.5	1097.9	1094.7	1097.9
15°	1080.4	1075.7	1074.1	1075.7	1078.9	1082.0	1083.6	1082.0	1082.0	1078.9	1082.0
17.5°	1056.6	1053.5	1051.9	1055.1	1058.2	1061.4	1064.6	1063.0	1063.0	1059.8	1063.0
20°	1031.3	1028.1	1028.1	1031.3	1034.4	1039.2	1040.8	1040.8	1040.8	1037.6	1042.4
22.5°	1005.9	1001.1	1001.1	1004.3	1010.6	1013.8	1015.4	1015.4	1015.4	1013.8	1020.2
25°	974.1	971.0	972.6	975.7	980.5	985.3	988.4	988.4	988.4	988.4	993.2
27.5°	944.0	939.2	940.8	945.6	951.9	955.1	959.9	959.9	959.9	961.5	966.2
30°	909.1	905.9	909.1	913.9	920.2	925.0	928.1	931.3	931.3	932.9	939.2
32.5°	872.6	871.0	874.2	880.5	883.7	891.6	894.8	896.4	899.6	902.8	907.5
35°	834.5	832.9	837.7	844.0	850.4	856.7	861.5	863.1	867.8	871.0	879.0
37.5°	796.5	796.5	801.2	806.0	813.9	821.8	826.6	829.8	832.9	840.9	848.8
40°	758.4	756.8	761.5	767.9	775.8	785.3	790.1	794.9	799.6	809.1	817.1
42.5°	717.1	717.1	723.5	731.4	740.9	750.4	755.2	758.4	767.9	777.4	785.3
45°	677.5	677.5	683.8	693.3	702.8	712.4	720.3	726.6	736.2	745.7	753.6
47.5°	633.0	636.2	642.6	652.1	663.2	674.3	682.2	691.7	702.8	712.4	721.9
50°	591.8	593.4	604.5	614.0	625.1	637.8	647.3	656.8	669.5	680.6	691.7
52.5°	550.5	553.7	563.2	574.3	587.0	598.1	612.4	623.5	634.6	647.3	658.4
55°	509.3	510.9	523.6	536.3	547.4	561.6	574.3	588.6	601.3	612.4	623.5
57.5°	466.4	471.2	480.7	493.4	507.7	523.6	537.8	550.5	563.2	577.5	590.2
60°	423.6	430.0	441.1	453.8	468.0	485.5	501.4	515.6	528.3	542.6	555.3
62.5°	382.4	387.1	399.8	412.5	428.4	445.8	463.3	477.6	491.8	506.1	520.4
65°	339.5	349.0	358.6	372.8	390.3	407.7	425.2	441.1	455.3	468.0	482.3
67.5°	298.3	304.6	318.9	333.2	350.6	369.7	385.5	403.0	418.9	431.5	444.2
70°	258.6	265.0	277.6	293.5	312.6	331.6	349.0	363.3	380.8	395.1	409.3
72.5°	215.8	223.7	238.0	253.8	272.9	291.9	311.0	328.4	344.3	358.6	372.8
75°	174.5	184.0	198.3	215.8	236.4	253.8	272.9	290.3	307.8	323.7	336.4
77.5°	134.9	144.4	160.2	179.3	198.3	218.9	236.4	255.4	271.3	288.8	303.0
80°	98.4	109.5	125.3	144.4	163.4	184.0	203.1	220.5	238.0	253.8	269.7
82.5°	68.2	77.7	93.6	112.6	133.3	152.3	171.3	190.4	206.3	223.7	238.0
85°	38.1	49.2	66.6	84.1	104.7	123.8	142.8	161.8	177.7	195.1	209.4
87.5°	15.9	28.6	44.4	61.9	80.9	100.0	119.0	136.4	153.9	169.8	184.0
90°	0.0	11.1	25.4	42.8	61.9	80.9	98.4	115.8	133.3	149.1	161.8
92.5°	0.0	6.3	19.0	36.5	53.9	73.0	92.0	107.9	123.8	139.6	152.3
95°	0.0	3.2	15.9	31.7	49.2	66.6	84.1	100.0	115.8	130.1	142.8
97.5°	0.0	1.6	12.7	27.0	42.8	60.3	77.7	93.6	107.9	122.2	134.9
100°	0.0	0.0	9.5	22.2	38.1	53.9	69.8	85.7	100.0	114.2	126.9
102.5°	0.0	0.0	4.8	17.5	33.3	47.6	63.5	79.3	93.6	106.3	119.0
105°	0.0	0.0	3.2	14.3	27.0	42.8	57.1	71.4	85.7	98.4	111.1
107.5°	0.0	0.0	0.0	9.5	23.8	36.5	50.8	65.0	79.3	90.4	103.1
110°	0.0	0.0	0.0	6.3	19.0	31.7	46.0	58.7	71.4	84.1	95.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0.0	0.0	0.0	3.2	14.3	27.0	39.7	52.4	65.0	76.2	87.3
115°	0.0	0.0	0.0	0.0	9.5	22.2	33.3	46.0	58.7	69.8	79.3
117.5°	0.0	0.0	0.0	0.0	6.3	17.5	28.6	39.7	50.8	61.9	71.4
120°	0.0	0.0	0.0	0.0	1.6	12.7	22.2	33.3	44.4	53.9	65.0
122.5°	0.0	0.0	0.0	0.0	0.0	7.9	17.5	28.6	38.1	47.6	57.1
125°	0.0	0.0	0.0	0.0	0.0	3.2	12.7	22.2	31.7	41.3	49.2
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	7.9	15.9	25.4	33.3	42.8
130°	0.0	0.0	0.0	0.0	0.0	0.0	3.2	11.1	19.0	27.0	34.9
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	14.3	20.6	28.6
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	7.9	15.9	22.2
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	9.5	15.9
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	9.5
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
145°	1.6	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4	1134.4
2.5°	1131.2	1132.8	1134.4	1134.4	1134.4	1134.4	1132.8	1132.8
5°	1128.0	1131.2	1131.2	1132.8	1132.8	1132.8	1131.2	1131.2
7.5°	1123.3	1124.9	1126.5	1126.5	1128.0	1128.0	1126.5	1124.9
10°	1113.8	1116.9	1118.5	1118.5	1118.5	1118.5	1118.5	1116.9
12.5°	1102.7	1104.2	1105.8	1105.8	1105.8	1107.4	1105.8	1104.2
15°	1086.8	1090.0	1090.0	1091.6	1091.6	1091.6	1090.0	1088.4
17.5°	1067.8	1070.9	1072.5	1072.5	1072.5	1072.5	1070.9	1069.3
20°	1047.1	1048.7	1051.9	1050.3	1051.9	1051.9	1050.3	1048.7
22.5°	1023.3	1024.9	1028.1	1026.5	1029.7	1029.7	1028.1	1028.1
25°	997.9	1001.1	1002.7	1002.7	1002.7	1002.7	1002.7	1001.1
27.5°	971.0	972.6	975.7	977.3	977.3	977.3	977.3	977.3
30°	942.4	945.6	948.8	948.8	951.9	953.5	951.9	950.3
32.5°	912.3	917.0	920.2	921.8	925.0	926.6	925.0	925.0
35°	882.1	888.5	893.2	894.8	898.0	898.0	899.6	898.0
37.5°	853.6	859.9	863.1	867.8	871.0	874.2	872.6	871.0
40°	825.0	831.4	836.1	839.3	842.5	844.0	844.0	844.0
42.5°	793.3	801.2	806.0	810.7	815.5	817.1	817.1	817.1
45°	761.5	769.5	775.8	782.2	786.9	788.5	788.5	788.5
47.5°	731.4	739.3	745.7	752.0	756.8	758.4	760.0	760.0
50°	701.3	709.2	717.1	721.9	726.6	729.8	729.8	729.8
52.5°	667.9	675.9	683.8	690.2	696.5	698.1	701.3	701.3
55°	634.6	644.1	653.7	660.0	663.2	666.4	667.9	667.9
57.5°	601.3	609.2	617.2	626.7	631.5	634.6	636.2	637.8
60°	566.4	575.9	585.4	593.4	596.5	601.3	602.9	602.9
62.5°	529.9	539.4	550.5	556.9	563.2	566.4	568.0	569.6
65°	495.0	504.5	514.0	523.6	526.7	529.9	533.1	533.1
67.5°	458.5	468.0	477.6	485.5	490.2	495.0	498.2	496.6
70°	422.0	433.1	441.1	450.6	455.3	458.5	461.7	463.3
72.5°	385.5	396.6	406.2	414.1	418.9	422.0	425.2	426.8
75°	350.6	360.1	369.7	376.0	382.4	387.1	388.7	391.9
77.5°	314.1	326.8	334.8	344.3	347.5	352.2	353.8	357.0
80°	282.4	291.9	301.4	309.4	315.7	320.5	320.5	322.1
82.5°	250.7	260.2	269.7	279.2	284.0	288.8	290.3	290.3
85°	220.5	231.6	241.2	249.1	255.4	258.6	261.8	263.4
87.5°	196.7	206.3	215.8	222.1	228.5	231.6	234.8	234.8
90°	174.5	184.0	193.6	201.5	206.3	209.4	212.6	214.2
92.5°	165.0	174.5	184.0	190.4	196.7	199.9	201.5	203.1
95°	155.5	165.0	174.5	180.9	185.6	190.4	192.0	192.0
97.5°	146.0	155.5	165.0	171.3	176.1	179.3	182.5	182.5
100°	138.0	147.5	155.5	161.8	166.6	169.8	172.9	172.9
102.5°	128.5	138.0	146.0	152.3	157.1	160.2	163.4	163.4
105°	120.6	130.1	138.0	144.4	149.1	152.3	153.9	153.9
107.5°	112.6	122.2	130.1	134.9	139.6	142.8	146.0	146.0
110°	104.7	112.6	120.6	126.9	131.7	134.9	136.4	136.4



TEST NUMBER: P231626

CATALOG NUMBER: S123-DR-2-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	96.8	104.7	112.6	117.4	122.2	125.3	126.9	128.5
115°	88.8	96.8	103.1	109.5	114.2	115.8	119.0	119.0
117.5°	80.9	88.8	95.2	100.0	104.7	107.9	109.5	111.1
120°	73.0	79.3	87.3	92.0	96.8	98.4	101.5	101.5
122.5°	65.0	71.4	79.3	82.5	87.3	90.4	92.0	92.0
125°	57.1	65.0	69.8	74.6	79.3	80.9	82.5	84.1
127.5°	49.2	55.5	61.9	66.6	69.8	73.0	74.6	74.6
130°	41.3	47.6	53.9	58.7	61.9	63.5	65.0	66.6
132.5°	34.9	41.3	46.0	49.2	53.9	55.5	57.1	57.1
135°	27.0	33.3	38.1	41.3	44.4	47.6	47.6	49.2
137.5°	20.6	25.4	30.1	33.3	36.5	38.1	39.7	39.7
140°	14.3	19.0	22.2	25.4	28.6	30.1	31.7	31.7
142.5°	7.9	11.1	15.9	17.5	20.6	22.2	23.8	23.8
145°	1.6	4.8	7.9	11.1	12.7	14.3	15.9	15.9
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)