

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: P231625

Luminaire Tested: **S123-DR-2-35-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231625
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-2-35-X-0048-1-U-DD-4-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

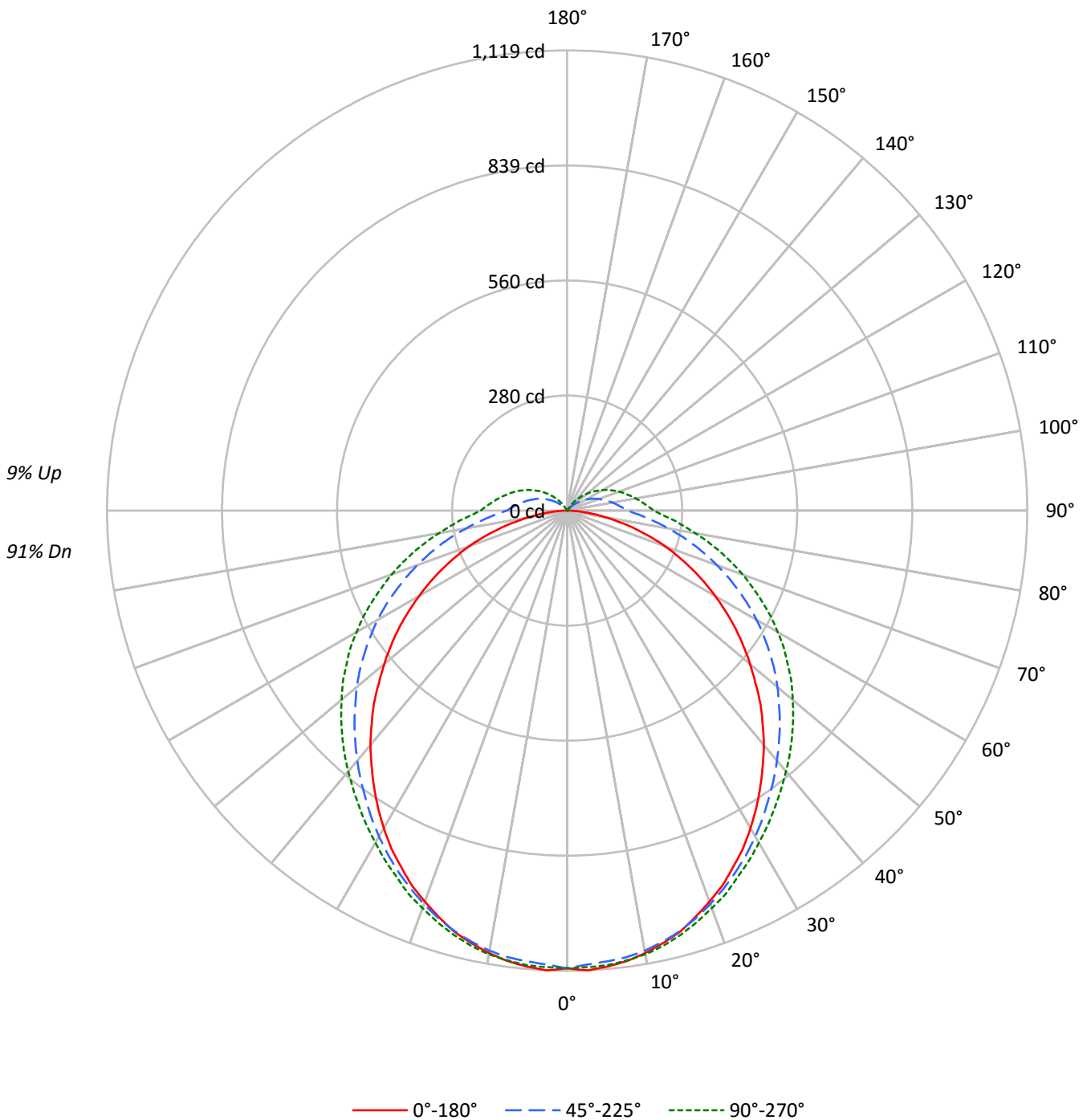
Lumens per Lamp: N/A
Luminaire Lumens: 3762.4 lumens
Efficiency: N/A
Efficacy: 88.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.22' x L: 3.92' x H: 0.08')
CIE Type: Direct

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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CATALOG NUMBER: S123-DR-2-35-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°	13698	13698	13698
5°	13725	13272	13279
10°	13605	12942	12850
15°	13431	12549	12369
20°	13150	12104	11865
25°	12852	11654	11361
30°	12521	11204	10902
35°	12121	10743	10495
40°	11745	10336	10133
45°	11328	9957	9806
50°	10842	9597	9490
55°	10406	9222	9174
60°	9866	8837	8845
65°	9277	8369	8461
70°	8625	7898	8077
75°	7542	7401	7643
80°	6103	6840	7188
85°	4248	6459	6932



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.3	2.8
10°-20°	299.8	8.0
20°-30°	448.0	11.9
30°-40°	535.3	14.2
40°-50°	561.2	14.9
50°-60°	529.3	14.1
60°-70°	443.2	11.8
70°-80°	318.6	8.5
80°-90°	192.3	5.1
90°-100°	124.0	3.3
100°-110°	91.1	2.4
110°-120°	61.1	1.6
120°-130°	35.0	0.9
130°-140°	15.2	0.4
140°-150°	2.8	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	853.1	22.7
0°-40°	1388.4	36.9
0°-60°	2479.0	65.9
0°-90°	3433.1	91.2
90°-120°	276.3	7.3
90°-150°	329.3	8.8
90°-180°	329.0	8.7
0°-180°	3762.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1113	1113	1113	1113	1113	
5°	1113	1109	1100	1111	1110	106
15°	1060	1060	1058	1070	1068	298
25°	956	964	970	984	982	440
35°	819	838	855	877	881	512
45°	665	694	732	764	774	512
55°	500	544	601	644	655	446
65°	333	392	459	509	523	330
75°	171	240	318	366	384	182
85°	37	112	192	240	258	44
90°	0	70	146	194	210	2
95°	0	57	128	174	188	0
105°	0	34	96	139	151	0
115°	0	16	68	104	117	0
125°	0	2	40	71	82	0
135°	0	0	16	39	48	0
145°	2	0	0	9	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



TEST NUMBER: P231625

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0
2.5°	1119.2	1116.1	1113.0	1113.0	1114.5	1114.5	1114.5	1111.4	1109.9	1105.2	1105.2
5°	1113.0	1109.9	1106.8	1108.3	1108.3	1109.9	1109.9	1108.3	1105.2	1100.5	1103.6
7.5°	1105.2	1102.1	1099.0	1099.0	1100.5	1102.1	1102.1	1100.5	1099.0	1095.9	1097.4
10°	1092.7	1089.6	1086.5	1086.5	1088.1	1091.2	1092.7	1091.2	1089.6	1086.5	1088.1
12.5°	1077.2	1074.1	1071.0	1074.1	1075.6	1078.7	1078.7	1078.7	1077.2	1074.1	1077.2
15°	1060.1	1055.4	1053.8	1055.4	1058.5	1061.6	1063.2	1061.6	1061.6	1058.5	1061.6
17.5°	1036.7	1033.6	1032.0	1035.2	1038.3	1041.4	1044.5	1042.9	1042.9	1039.8	1042.9
20°	1011.8	1008.7	1008.7	1011.8	1014.9	1019.6	1021.1	1021.1	1021.1	1018.0	1022.7
22.5°	986.9	982.2	982.2	985.3	991.6	994.7	996.2	996.2	996.2	994.7	1000.9
25°	955.8	952.7	954.2	957.3	962.0	966.7	969.8	969.8	969.8	969.8	974.4
27.5°	926.2	921.5	923.1	927.7	934.0	937.1	941.8	941.8	941.8	943.3	948.0
30°	891.9	888.8	891.9	896.6	902.8	907.5	910.6	913.7	913.7	915.3	921.5
32.5°	856.1	854.6	857.7	863.9	867.0	874.8	877.9	879.5	882.6	885.7	890.4
35°	818.8	817.2	821.9	828.1	834.4	840.6	845.2	846.8	851.5	854.6	862.4
37.5°	781.4	781.4	786.1	790.8	798.5	806.3	811.0	814.1	817.2	825.0	832.8
40°	744.1	742.5	747.2	753.4	761.2	770.5	775.2	779.9	784.5	793.9	801.7
42.5°	703.6	703.6	709.8	717.6	726.9	736.3	741.0	744.1	753.4	762.7	770.5
45°	664.7	664.7	670.9	680.2	689.6	698.9	706.7	712.9	722.3	731.6	739.4
47.5°	621.1	624.2	630.4	639.8	650.7	661.6	669.3	678.7	689.6	698.9	708.3
50°	580.6	582.2	593.1	602.4	613.3	625.8	635.1	644.4	656.9	667.8	678.7
52.5°	540.1	543.3	552.6	563.5	576.0	586.8	600.9	611.8	622.6	635.1	646.0
55°	499.7	501.2	513.7	526.1	537.0	551.0	563.5	577.5	590.0	600.9	611.8
57.5°	457.6	462.3	471.7	484.1	498.1	513.7	527.7	540.1	552.6	566.6	579.1
60°	415.6	421.8	432.7	445.2	459.2	476.3	491.9	505.9	518.4	532.4	544.8
62.5°	375.1	379.8	392.3	404.7	420.3	437.4	454.5	468.5	482.6	496.6	510.6
65°	333.1	342.5	351.8	365.8	382.9	400.1	417.2	432.7	446.8	459.2	473.2
67.5°	292.6	298.9	312.9	326.9	344.0	362.7	378.3	395.4	410.9	423.4	435.9
70°	253.7	260.0	272.4	288.0	306.7	325.3	342.5	356.5	373.6	387.6	401.6
72.5°	211.7	219.5	233.5	249.1	267.7	286.4	305.1	322.2	337.8	351.8	365.8
75°	171.2	180.6	194.6	211.7	231.9	249.1	267.7	284.9	302.0	317.6	330.0
77.5°	132.3	141.7	157.2	175.9	194.6	214.8	231.9	250.6	266.2	283.3	297.3
80°	96.5	107.4	123.0	141.7	160.3	180.6	199.2	216.4	233.5	249.1	264.6
82.5°	66.9	76.3	91.8	110.5	130.8	149.4	168.1	186.8	202.4	219.5	233.5
85°	37.4	48.3	65.4	82.5	102.7	121.4	140.1	158.8	174.3	191.5	205.5
87.5°	15.6	28.0	43.6	60.7	79.4	98.1	116.7	133.9	151.0	166.6	180.6
90°	0.0	10.9	24.9	42.0	60.7	79.4	96.5	113.6	130.8	146.3	158.8
92.5°	0.0	6.2	18.7	35.8	52.9	71.6	90.3	105.9	121.4	137.0	149.4
95°	0.0	3.1	15.6	31.1	48.3	65.4	82.5	98.1	113.6	127.6	140.1
97.5°	0.0	1.6	12.5	26.5	42.0	59.2	76.3	91.8	105.9	119.9	132.3
100°	0.0	0.0	9.3	21.8	37.4	52.9	68.5	84.1	98.1	112.1	124.5
102.5°	0.0	0.0	4.7	17.1	32.7	46.7	62.3	77.8	91.8	104.3	116.7
105°	0.0	0.0	3.1	14.0	26.5	42.0	56.0	70.0	84.1	96.5	109.0
107.5°	0.0	0.0	0.0	9.3	23.3	35.8	49.8	63.8	77.8	88.7	101.2
110°	0.0	0.0	0.0	6.2	18.7	31.1	45.1	57.6	70.0	82.5	93.4



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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	3.1	14.0	26.5	38.9	51.4	63.8	74.7	85.6
115°	0.0	0.0	0.0	0.0	9.3	21.8	32.7	45.1	57.6	68.5	77.8
117.5°	0.0	0.0	0.0	0.0	6.2	17.1	28.0	38.9	49.8	60.7	70.0
120°	0.0	0.0	0.0	0.0	1.6	12.5	21.8	32.7	43.6	52.9	63.8
122.5°	0.0	0.0	0.0	0.0	0.0	7.8	17.1	28.0	37.4	46.7	56.0
125°	0.0	0.0	0.0	0.0	0.0	3.1	12.5	21.8	31.1	40.5	48.3
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	7.8	15.6	24.9	32.7	42.0
130°	0.0	0.0	0.0	0.0	0.0	0.0	3.1	10.9	18.7	26.5	34.2
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	14.0	20.2	28.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	7.8	15.6	21.8
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	9.3	15.6
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	9.3
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
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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CATALOG NUMBER: S123-DR-2-35-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0	1113.0
2.5°	1109.9	1111.4	1113.0	1113.0	1113.0	1113.0	1111.4	1111.4
5°	1106.8	1109.9	1109.9	1111.4	1111.4	1111.4	1109.9	1109.9
7.5°	1102.1	1103.6	1105.2	1105.2	1106.8	1106.8	1105.2	1103.6
10°	1092.7	1095.9	1097.4	1097.4	1097.4	1097.4	1097.4	1095.9
12.5°	1081.9	1083.4	1085.0	1085.0	1085.0	1086.5	1085.0	1083.4
15°	1066.3	1069.4	1069.4	1071.0	1071.0	1071.0	1069.4	1067.8
17.5°	1047.6	1050.7	1052.3	1052.3	1052.3	1052.3	1050.7	1049.2
20°	1027.4	1028.9	1032.0	1030.5	1032.0	1032.0	1030.5	1028.9
22.5°	1004.0	1005.6	1008.7	1007.1	1010.2	1010.2	1008.7	1008.7
25°	979.1	982.2	983.8	983.8	983.8	983.8	983.8	982.2
27.5°	952.7	954.2	957.3	958.9	958.9	958.9	958.9	958.9
30°	924.6	927.7	930.9	930.9	934.0	935.5	934.0	932.4
32.5°	895.1	899.7	902.8	904.4	907.5	909.1	907.5	907.5
35°	865.5	871.7	876.4	877.9	881.0	881.0	882.6	881.0
37.5°	837.5	843.7	846.8	851.5	854.6	857.7	856.1	854.6
40°	809.4	815.7	820.3	823.5	826.6	828.1	828.1	828.1
42.5°	778.3	786.1	790.8	795.4	800.1	801.7	801.7	801.7
45°	747.2	755.0	761.2	767.4	772.1	773.6	773.6	773.6
47.5°	717.6	725.4	731.6	737.8	742.5	744.1	745.6	745.6
50°	688.0	695.8	703.6	708.3	712.9	716.0	716.0	716.0
52.5°	655.3	663.1	670.9	677.1	683.4	684.9	688.0	688.0
55°	622.6	632.0	641.3	647.6	650.7	653.8	655.3	655.3
57.5°	590.0	597.7	605.5	614.9	619.5	622.6	624.2	625.8
60°	555.7	565.1	574.4	582.2	585.3	590.0	591.5	591.5
62.5°	519.9	529.3	540.1	546.4	552.6	555.7	557.3	558.8
65°	485.7	495.0	504.3	513.7	516.8	519.9	523.0	523.0
67.5°	449.9	459.2	468.5	476.3	481.0	485.7	488.8	487.2
70°	414.1	425.0	432.7	442.1	446.8	449.9	453.0	454.5
72.5°	378.3	389.2	398.5	406.3	410.9	414.1	417.2	418.7
75°	344.0	353.4	362.7	368.9	375.1	379.8	381.4	384.5
77.5°	308.2	320.7	328.4	337.8	340.9	345.6	347.1	350.2
80°	277.1	286.4	295.8	303.5	309.8	314.4	314.4	316.0
82.5°	245.9	255.3	264.6	274.0	278.6	283.3	284.9	284.9
85°	216.4	227.3	236.6	244.4	250.6	253.7	256.8	258.4
87.5°	193.0	202.4	211.7	217.9	224.2	227.3	230.4	230.4
90°	171.2	180.6	189.9	197.7	202.4	205.5	208.6	210.1
92.5°	161.9	171.2	180.6	186.8	193.0	196.1	197.7	199.2
95°	152.5	161.9	171.2	177.5	182.1	186.8	188.4	188.4
97.5°	143.2	152.5	161.9	168.1	172.8	175.9	179.0	179.0
100°	135.4	144.8	152.5	158.8	163.4	166.6	169.7	169.7
102.5°	126.1	135.4	143.2	149.4	154.1	157.2	160.3	160.3
105°	118.3	127.6	135.4	141.7	146.3	149.4	151.0	151.0
107.5°	110.5	119.9	127.6	132.3	137.0	140.1	143.2	143.2
110°	102.7	110.5	118.3	124.5	129.2	132.3	133.9	133.9



TEST NUMBER: P231625

CATALOG NUMBER: S123-DR-2-35-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	95.0	102.7	110.5	115.2	119.9	123.0	124.5	126.1
115°	87.2	95.0	101.2	107.4	112.1	113.6	116.7	116.7
117.5°	79.4	87.2	93.4	98.1	102.7	105.9	107.4	109.0
120°	71.6	77.8	85.6	90.3	95.0	96.5	99.6	99.6
122.5°	63.8	70.0	77.8	80.9	85.6	88.7	90.3	90.3
125°	56.0	63.8	68.5	73.2	77.8	79.4	80.9	82.5
127.5°	48.3	54.5	60.7	65.4	68.5	71.6	73.2	73.2
130°	40.5	46.7	52.9	57.6	60.7	62.3	63.8	65.4
132.5°	34.2	40.5	45.1	48.3	52.9	54.5	56.0	56.0
135°	26.5	32.7	37.4	40.5	43.6	46.7	46.7	48.3
137.5°	20.2	24.9	29.6	32.7	35.8	37.4	38.9	38.9
140°	14.0	18.7	21.8	24.9	28.0	29.6	31.1	31.1
142.5°	7.8	10.9	15.6	17.1	20.2	21.8	23.3	23.3
145°	1.6	4.7	7.8	10.9	12.5	14.0	15.6	15.6
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)