

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: P231614

Luminaire Tested: **S122-DR-2-40-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231614
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33910)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122-DR-2-40-X-0048-1-U-DD-4-W
Description: DEFINE 2 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

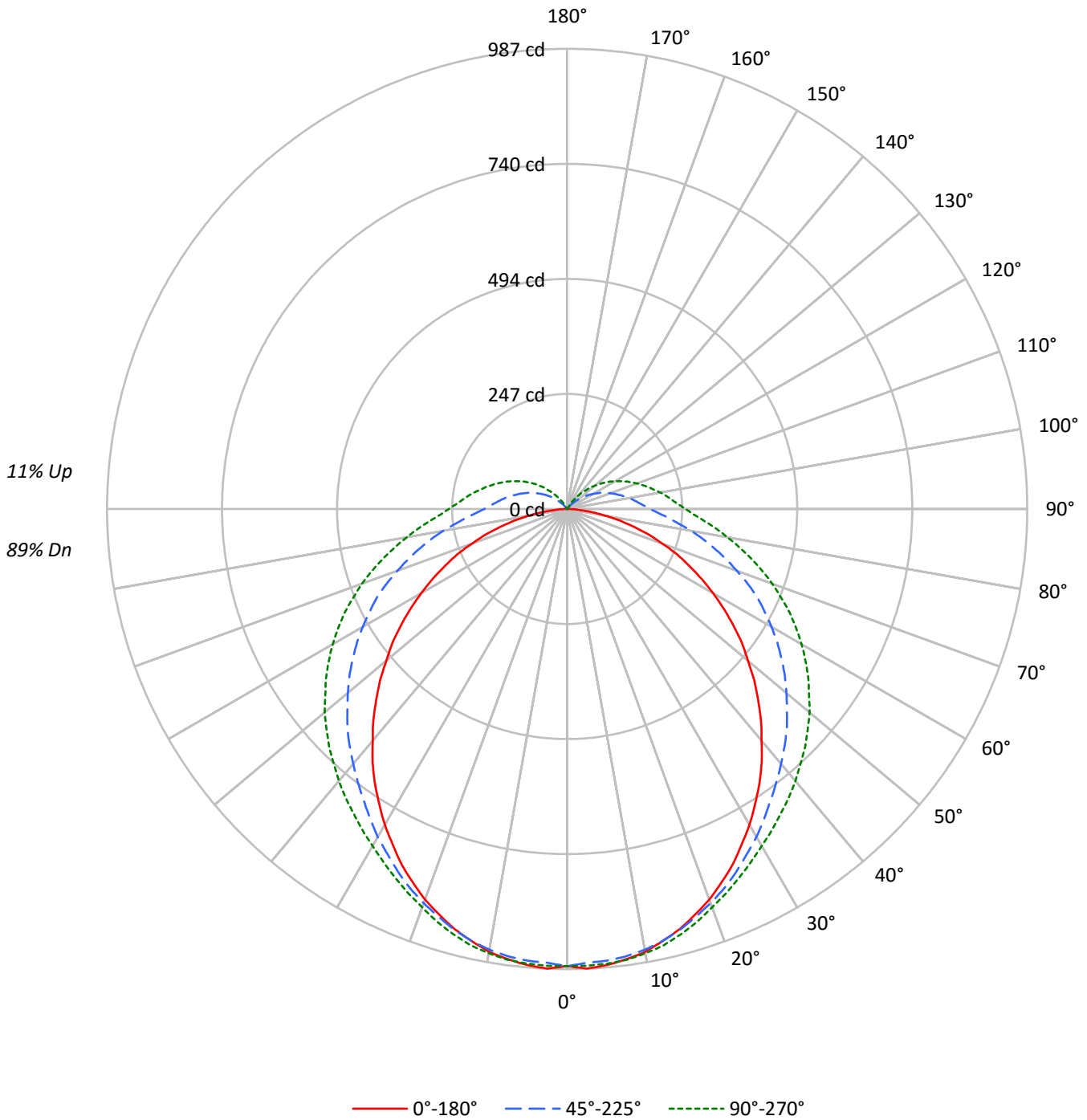
Lumens per Lamp: N/A
Luminaire Lumens: 3598.2 lumens
Efficiency: N/A
Efficacy: 84.5 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.27 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.14' x L: 3.92' x H: 0.08')
CIE Type: Semi-Direct

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: S122-DR-2-40-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	116	116	116	116	112	112	112	112	105	105	105	98	98	98	92	92	92	89
1	104	98	93	89	100	95	90	86	89	85	81	83	80	77	77	75	73	70
2	94	85	77	71	90	82	75	69	76	70	66	71	67	62	67	63	59	56
3	85	74	65	58	81	71	63	57	67	60	54	62	57	52	58	54	49	47
4	78	65	56	48	74	63	54	47	59	51	46	55	49	44	52	46	42	39
5	71	58	48	41	68	56	47	41	52	45	39	49	43	38	46	41	36	34
6	66	52	42	36	63	50	42	35	47	40	34	45	38	33	42	36	32	29
7	61	47	38	31	58	45	37	31	43	35	30	40	34	29	38	32	28	26
8	56	43	34	28	54	41	33	28	39	32	27	37	31	26	35	29	25	23
9	53	39	31	25	51	38	30	25	36	29	24	34	28	23	32	27	23	21
10	49	36	28	23	48	35	27	22	33	26	22	32	25	21	30	25	20	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	19247	19247	19247
5°	19316	18461	18335
10°	19155	17768	17459
15°	18851	17006	16546
20°	18482	16220	15610
25°	18035	15451	14795
30°	17515	14711	14079
35°	16970	13982	13499
40°	16337	13398	13015
45°	15742	12885	12565
50°	15074	12342	12133
55°	14439	11847	11684
60°	13696	11323	11228
65°	12829	10819	10749
70°	11789	10111	10195
75°	10477	9438	9601
80°	8322	8783	9019
85°	5454	8187	8520



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.0	2.6
10°-20°	264.6	7.4
20°-30°	396.3	11.0
30°-40°	477.7	13.3
40°-50°	509.5	14.2
50°-60°	492.0	13.7
60°-70°	427.3	11.9
70°-80°	325.2	9.0
80°-90°	215.9	6.0
90°-100°	149.3	4.2
100°-110°	109.1	3.0
110°-120°	73.5	2.0
120°-130°	42.5	1.2
130°-140°	18.6	0.5
140°-150°	3.5	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	753.9	21.0
0°-40°	1231.6	34.2
0°-60°	2233.2	62.1
0°-90°	3201.6	89.0
90°-120°	331.9	9.2
90°-150°	396.6	11.0
90°-180°	397.0	11.0
0°-180°	3598.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	980	980	980	980	980	
5°	982	979	973	982	979	93
15°	933	936	934	946	944	263
25°	841	851	858	873	873	387
35°	719	739	762	791	798	449
45°	579	616	666	708	722	447
55°	435	489	562	615	632	389
65°	289	361	451	508	527	287
75°	149	234	327	388	408	158
85°	30	121	217	277	295	36
90°	0	86	178	235	254	2
95°	0	69	154	209	225	0
105°	0	42	116	165	181	0
115°	0	19	82	125	140	0
125°	0	2	49	86	98	0
135°	0	0	19	47	57	0
145°	2	0	0	13	21	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: P231614

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	980.5	980.5	980.5	980.5	980.5	980.5	980.5	980.5	980.5	980.5	980.5
2.5°	986.8	983.7	978.9	980.5	982.1	982.1	980.5	980.5	977.3	974.1	974.1
5°	982.1	978.9	974.1	977.3	978.9	978.9	978.9	977.3	975.7	972.6	974.1
7.5°	974.1	971.0	967.8	969.4	971.0	974.1	972.6	972.6	971.0	967.8	969.4
10°	964.6	959.9	956.7	959.9	961.5	964.6	964.6	964.6	963.0	959.9	961.5
12.5°	948.8	947.2	944.0	948.8	950.3	953.5	953.5	953.5	950.3	948.8	951.9
15°	932.9	929.7	926.6	931.3	934.5	937.7	937.7	937.7	936.1	934.5	937.7
17.5°	912.3	909.1	909.1	912.3	917.0	920.2	920.2	921.8	918.6	917.0	920.2
20°	891.6	888.5	886.9	893.2	896.4	899.6	899.6	901.2	899.6	899.6	902.8
22.5°	866.3	864.7	864.7	869.4	872.6	875.8	879.0	879.0	879.0	880.5	882.1
25°	840.9	839.3	840.9	845.6	848.8	853.6	856.7	856.7	856.7	858.3	863.1
27.5°	810.7	810.7	812.3	818.7	823.4	828.2	831.4	832.9	832.9	834.5	840.9
30°	782.2	780.6	782.2	790.1	794.9	801.2	804.4	806.0	807.6	812.3	817.1
32.5°	750.4	748.9	752.0	760.0	766.3	771.1	777.4	780.6	782.2	786.9	793.3
35°	718.7	717.1	720.3	728.2	736.2	742.5	747.3	750.4	756.8	761.5	769.5
37.5°	685.4	685.4	690.2	698.1	706.0	712.4	718.7	723.5	729.8	737.8	745.7
40°	648.9	650.5	655.2	666.4	674.3	683.8	690.2	694.9	704.4	714.0	723.5
42.5°	615.6	615.6	621.9	633.0	641.0	652.1	661.6	666.4	679.0	690.2	701.3
45°	579.1	579.1	588.6	599.7	609.2	621.9	631.5	639.4	652.1	666.4	675.9
47.5°	544.2	545.8	555.3	566.4	577.5	591.8	601.3	612.4	626.7	639.4	652.1
50°	506.1	509.3	520.4	533.1	545.8	561.6	572.7	585.4	599.7	614.0	626.7
52.5°	472.8	474.4	485.5	499.8	512.5	528.3	544.2	558.5	574.3	588.6	601.3
55°	434.7	439.5	450.6	464.9	480.7	496.6	514.0	529.9	547.4	561.6	577.5
57.5°	398.2	404.6	417.3	430.0	447.4	466.4	483.9	499.8	517.2	534.7	548.9
60°	361.7	368.1	382.4	396.6	415.7	434.7	453.8	472.8	488.7	506.1	520.4
62.5°	325.2	333.2	345.9	361.7	383.9	404.6	423.6	442.7	460.1	477.6	493.4
65°	288.8	298.3	311.0	330.0	350.6	371.3	391.9	412.5	430.0	450.6	463.3
67.5°	255.4	261.8	276.1	296.7	318.9	341.1	361.7	380.8	399.8	418.9	436.3
70°	217.4	228.5	241.2	263.4	285.6	307.8	330.0	350.6	369.7	387.1	404.6
72.5°	184.0	192.0	206.3	230.1	252.3	276.1	298.3	320.5	339.5	357.0	374.4
75°	149.1	158.7	174.5	196.7	222.1	245.9	268.1	288.8	309.4	326.8	344.3
77.5°	115.8	125.3	144.4	168.2	190.4	214.2	238.0	258.6	279.2	298.3	315.7
80°	82.5	95.2	112.6	136.4	161.8	184.0	207.8	228.5	250.7	269.7	285.6
82.5°	55.5	66.6	85.7	107.9	133.3	157.1	180.9	201.5	223.7	241.2	258.6
85°	30.1	42.8	63.5	85.7	109.5	133.3	157.1	177.7	198.3	217.4	233.2
87.5°	12.7	23.8	42.8	66.6	88.8	112.6	136.4	157.1	176.1	195.1	212.6
90°	0.0	11.1	28.6	50.8	74.6	96.8	119.0	141.2	160.2	177.7	193.6
92.5°	0.0	7.9	22.2	42.8	65.0	87.3	109.5	128.5	147.6	165.0	180.9
95°	0.0	4.8	19.0	36.5	58.7	79.3	100.0	119.0	138.0	153.9	169.8
97.5°	0.0	1.6	14.3	31.7	50.8	71.4	92.0	111.1	128.5	144.4	158.7
100°	0.0	0.0	9.5	25.4	44.4	65.0	84.1	101.5	119.0	134.9	149.1
102.5°	0.0	0.0	6.3	20.6	38.1	57.1	76.2	93.6	111.1	125.3	139.6
105°	0.0	0.0	3.2	15.9	33.3	50.8	68.2	85.7	101.5	115.8	130.1
107.5°	0.0	0.0	0.0	11.1	27.0	44.4	61.9	77.7	93.6	107.9	120.6
110°	0.0	0.0	0.0	7.9	22.2	38.1	53.9	69.8	84.1	98.4	112.6



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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	17.5	31.7	47.6	61.9	76.2	90.4	103.1
115°	0.0	0.0	0.0	1.6	12.7	25.4	41.3	55.5	68.2	82.5	93.6
117.5°	0.0	0.0	0.0	0.0	7.9	20.6	33.3	47.6	60.3	73.0	85.7
120°	0.0	0.0	0.0	0.0	3.2	14.3	27.0	39.7	52.4	65.0	76.2
122.5°	0.0	0.0	0.0	0.0	0.0	9.5	22.2	33.3	46.0	57.1	68.2
125°	0.0	0.0	0.0	0.0	0.0	4.8	15.9	27.0	38.1	49.2	58.7
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	9.5	20.6	30.1	41.3	50.8
130°	0.0	0.0	0.0	0.0	0.0	0.0	4.8	14.3	23.8	33.3	42.8
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	17.5	25.4	34.9
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	11.1	19.0	25.4
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	11.1	19.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	11.1
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
145°	1.6	1.6	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: P231614

CATALOG NUMBER: S122-DR-2-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	980.5	980.5	980.5	980.5	980.5	980.5	980.5	980.5
2.5°	978.9	980.5	982.1	982.1	982.1	982.1	982.1	980.5
5°	977.3	980.5	982.1	982.1	982.1	982.1	980.5	978.9
7.5°	972.6	975.7	977.3	977.3	977.3	978.9	977.3	975.7
10°	966.2	967.8	969.4	971.0	971.0	971.0	969.4	967.8
12.5°	955.1	958.3	959.9	959.9	959.9	959.9	959.9	958.3
15°	940.8	942.4	945.6	945.6	945.6	947.2	944.0	944.0
17.5°	925.0	928.1	929.7	928.1	929.7	929.7	928.1	928.1
20°	907.5	909.1	910.7	910.7	912.3	912.3	910.7	909.1
22.5°	886.9	890.1	891.6	891.6	893.2	894.8	893.2	891.6
25°	866.3	869.4	872.6	872.6	874.2	875.8	874.2	872.6
27.5°	845.6	848.8	850.4	852.0	855.2	855.2	855.2	853.6
30°	821.8	826.6	828.2	831.4	834.5	836.1	836.1	834.5
32.5°	799.6	804.4	809.1	812.3	815.5	817.1	817.1	817.1
35°	775.8	782.2	788.5	793.3	796.5	798.0	799.6	798.0
37.5°	755.2	761.5	767.9	774.2	777.4	779.0	779.0	780.6
40°	733.0	740.9	747.3	752.0	756.8	760.0	760.0	761.5
42.5°	710.8	718.7	726.6	733.0	737.8	740.9	740.9	740.9
45°	687.0	698.1	704.4	710.8	717.1	720.3	721.9	721.9
47.5°	663.2	674.3	682.2	690.2	694.9	698.1	699.7	699.7
50°	639.4	650.5	660.0	667.9	672.7	675.9	679.0	679.0
52.5°	614.0	626.7	634.6	642.6	648.9	653.7	655.2	653.7
55°	590.2	601.3	610.8	618.8	625.1	629.9	631.5	631.5
57.5°	561.6	574.3	585.4	593.4	599.7	604.5	606.1	606.1
60°	536.3	547.4	558.5	566.4	574.3	579.1	580.7	580.7
62.5°	507.7	520.4	531.5	541.0	547.4	552.1	553.7	553.7
65°	479.1	491.8	502.9	512.5	517.2	522.0	525.2	526.7
67.5°	449.0	461.7	474.4	482.3	488.7	493.4	496.6	496.6
70°	420.4	433.1	444.2	452.2	458.5	464.9	466.4	468.0
72.5°	390.3	403.0	414.1	423.6	430.0	434.7	436.3	437.9
75°	358.6	372.8	383.9	391.9	399.8	406.2	407.7	407.7
77.5°	328.4	342.7	353.8	363.3	369.7	374.4	376.0	377.6
80°	301.4	314.1	325.2	333.2	339.5	344.3	349.0	349.0
82.5°	272.9	287.2	298.3	306.2	312.6	318.9	320.5	322.1
85°	249.1	261.8	272.9	280.8	287.2	293.5	295.1	295.1
87.5°	226.9	239.6	249.1	257.0	265.0	268.1	271.3	271.3
90°	207.8	220.5	230.1	239.6	245.9	250.7	252.3	253.8
92.5°	195.1	207.8	217.4	225.3	230.1	234.8	238.0	238.0
95°	182.5	195.1	204.7	212.6	218.9	223.7	225.3	225.3
97.5°	172.9	184.0	193.6	199.9	206.3	211.0	212.6	214.2
100°	161.8	172.9	182.5	188.8	195.1	198.3	201.5	203.1
102.5°	152.3	163.4	171.3	179.3	184.0	187.2	190.4	190.4
105°	142.8	152.3	161.8	168.2	174.5	177.7	179.3	180.9
107.5°	133.3	142.8	152.3	158.7	163.4	168.2	169.8	169.8
110°	123.8	133.3	141.2	149.1	153.9	157.1	158.7	160.2



TEST NUMBER: P231614

CATALOG NUMBER: S122-DR-2-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	114.2	123.8	131.7	138.0	142.8	147.6	149.1	149.1
115°	104.7	114.2	122.2	128.5	133.3	136.4	138.0	139.6
117.5°	95.2	104.7	112.6	119.0	123.8	126.9	128.5	128.5
120°	85.7	95.2	101.5	109.5	112.6	117.4	119.0	119.0
122.5°	77.7	85.7	92.0	98.4	103.1	106.3	107.9	109.5
125°	68.2	76.2	82.5	88.8	93.6	96.8	98.4	98.4
127.5°	58.7	66.6	73.0	79.3	82.5	85.7	87.3	88.8
130°	50.8	58.7	63.5	69.8	73.0	76.2	77.7	77.7
132.5°	41.3	49.2	53.9	60.3	63.5	66.6	68.2	68.2
135°	33.3	39.7	44.4	49.2	53.9	55.5	57.1	57.1
137.5°	25.4	31.7	36.5	39.7	44.4	46.0	47.6	47.6
140°	17.5	22.2	27.0	31.7	34.9	36.5	38.1	38.1
142.5°	9.5	14.3	19.0	22.2	25.4	27.0	28.6	28.6
145°	1.6	6.3	11.1	14.3	15.9	17.5	19.0	20.6
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)