

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: P231608

Luminaire Tested: **S122-DR-1-30-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231608  
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-1-30-X-0048-1-U-DD-4-W  
Description: DEFINE 2 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

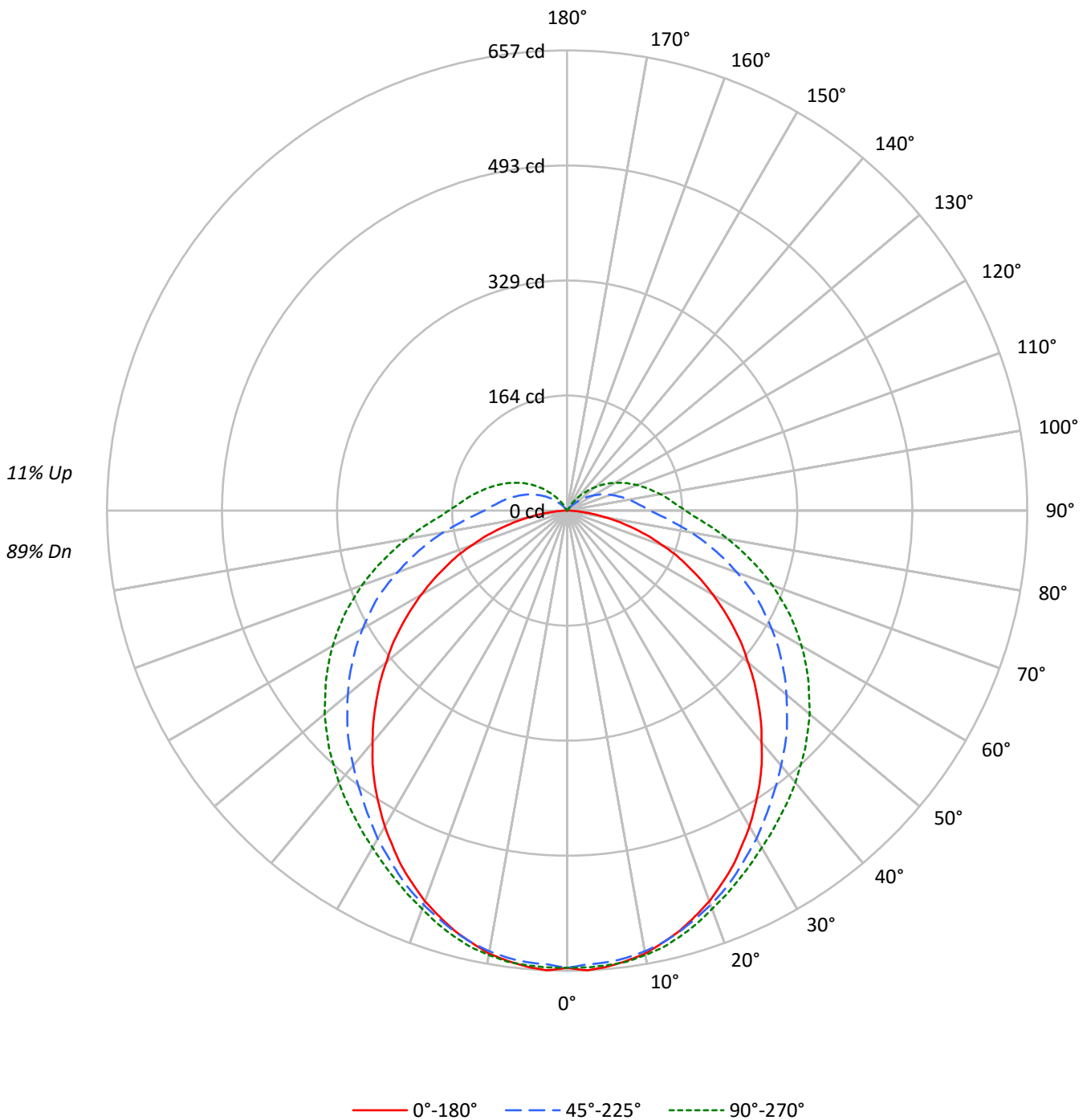
Lumens per Lamp: N/A  
Luminaire Lumens: 2395.6 lumens  
Efficiency: N/A  
Efficacy: 85.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.27 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.14' x L: 3.92' x H: 0.08')  
CIE Type: Semi-Direct

Input Watts (W): 27.9  
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: P231608  
CATALOG NUMBER: S122-DR-1-30-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	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°	12815	12815	12815
5°	12859	12290	12206
10°	12753	11828	11623
15°	12551	11321	11016
20°	12305	10798	10392
25°	12006	10286	9851
30°	11659	9794	9374
35°	11298	9309	8988
40°	10876	8919	8666
45°	10479	8577	8365
50°	10037	8217	8078
55°	9612	7888	7778
60°	9118	7540	7475
65°	8538	7203	7157
70°	7846	6731	6788
75°	6978	6284	6394
80°	5538	5849	6006
85°	3642	5449	5673



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	61.9	2.6
10°-20°	176.2	7.4
20°-30°	263.9	11.0
30°-40°	318.0	13.3
40°-50°	339.2	14.2
50°-60°	327.6	13.7
60°-70°	284.5	11.9
70°-80°	216.5	9.0
80°-90°	143.7	6.0
90°-100°	99.4	4.2
100°-110°	72.7	3.0
110°-120°	48.9	2.0
120°-130°	28.3	1.2
130°-140°	12.4	0.5
140°-150°	2.4	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	501.9	21.0
0°-40°	820.0	34.2
0°-60°	1486.8	62.1
0°-90°	2131.5	89.0
90°-120°	221.0	9.2
90°-150°	264.0	11.0
90°-180°	264.0	11.0
0°-180°	2395.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	653	653	653	653	653	
5°	654	652	648	654	652	62
15°	621	623	622	630	628	175
25°	560	567	571	581	581	257
35°	478	492	507	527	531	299
45°	386	410	444	471	481	298
55°	289	325	374	409	420	259
65°	192	240	300	338	351	191
75°	99	156	218	258	272	105
85°	20	81	145	184	196	24
90°	0	57	118	156	169	1
95°	0	46	102	139	150	0
105°	0	28	77	110	120	0
115°	0	13	55	83	93	0
125°	0	2	33	57	66	0
135°	0	0	13	31	38	0
145°	1	0	0	8	14	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: P231608

CATALOG NUMBER: S122-DR-1-30-X-0048-1-U-DD-4-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	652.8	652.8	652.8	652.8	652.8	652.8	652.8	652.8	652.8	652.8	652.8
2.5°	657.0	654.9	651.7	652.8	653.8	653.8	652.8	652.8	650.7	648.6	648.6
5°	653.8	651.7	648.6	650.7	651.7	651.7	651.7	650.7	649.6	647.5	648.6
7.5°	648.6	646.4	644.3	645.4	646.4	648.6	647.5	647.5	646.4	644.3	645.4
10°	642.2	639.0	636.9	639.0	640.1	642.2	642.2	642.2	641.2	639.0	640.1
12.5°	631.7	630.6	628.5	631.7	632.7	634.8	634.8	634.8	632.7	631.7	633.8
15°	621.1	619.0	616.9	620.0	622.1	624.3	624.3	624.3	623.2	622.1	624.3
17.5°	607.4	605.2	605.2	607.4	610.5	612.6	612.6	613.7	611.6	610.5	612.6
20°	593.6	591.5	590.5	594.7	596.8	598.9	598.9	600.0	598.9	598.9	601.0
22.5°	576.7	575.7	575.7	578.8	581.0	583.1	585.2	585.2	585.2	586.2	587.3
25°	559.8	558.8	559.8	563.0	565.1	568.3	570.4	570.4	570.4	571.4	574.6
27.5°	539.8	539.8	540.8	545.0	548.2	551.4	553.5	554.5	554.5	555.6	559.8
30°	520.7	519.7	520.7	526.0	529.2	533.4	535.5	536.6	537.6	540.8	544.0
32.5°	499.6	498.6	500.7	506.0	510.2	513.4	517.6	519.7	520.7	523.9	528.1
35°	478.5	477.4	479.6	484.8	490.1	494.3	497.5	499.6	503.8	507.0	512.3
37.5°	456.3	456.3	459.5	464.8	470.0	474.3	478.5	481.7	485.9	491.2	496.5
40°	432.0	433.1	436.2	443.6	448.9	455.3	459.5	462.7	469.0	475.3	481.7
42.5°	409.8	409.8	414.1	421.5	426.7	434.1	440.5	443.6	452.1	459.5	466.9
45°	385.5	385.5	391.9	399.3	405.6	414.1	420.4	425.7	434.1	443.6	450.0
47.5°	362.3	363.4	369.7	377.1	384.5	394.0	400.3	407.7	417.2	425.7	434.1
50°	337.0	339.1	346.5	354.9	363.4	373.9	381.3	389.8	399.3	408.8	417.2
52.5°	314.8	315.8	323.2	332.7	341.2	351.7	362.3	371.8	382.4	391.9	400.3
55°	289.4	292.6	300.0	309.5	320.1	330.6	342.2	352.8	364.4	373.9	384.5
57.5°	265.1	269.4	277.8	286.3	297.9	310.5	322.2	332.7	344.3	356.0	365.5
60°	240.8	245.1	254.6	264.1	276.7	289.4	302.1	314.8	325.3	337.0	346.5
62.5°	216.5	221.8	230.3	240.8	255.6	269.4	282.0	294.7	306.3	317.9	328.5
65°	192.2	198.6	207.0	219.7	233.4	247.2	260.9	274.6	286.3	300.0	308.4
67.5°	170.1	174.3	183.8	197.5	212.3	227.1	240.8	253.5	266.2	278.9	290.5
70°	144.7	152.1	160.6	175.3	190.1	204.9	219.7	233.4	246.1	257.7	269.4
72.5°	122.5	127.8	137.3	153.2	167.9	183.8	198.6	213.4	226.0	237.7	249.3
75°	99.3	105.6	116.2	131.0	147.9	163.7	178.5	192.2	206.0	217.6	229.2
77.5°	77.1	83.4	96.1	112.0	126.8	142.6	158.4	172.2	185.9	198.6	210.2
80°	54.9	63.4	75.0	90.8	107.7	122.5	138.4	152.1	166.9	179.6	190.1
82.5°	37.0	44.4	57.0	71.8	88.7	104.6	120.4	134.1	148.9	160.6	172.2
85°	20.1	28.5	42.3	57.0	72.9	88.7	104.6	118.3	132.0	144.7	155.3
87.5°	8.5	15.8	28.5	44.4	59.2	75.0	90.8	104.6	117.2	129.9	141.5
90°	0.0	7.4	19.0	33.8	49.6	64.4	79.2	94.0	106.7	118.3	128.9
92.5°	0.0	5.3	14.8	28.5	43.3	58.1	72.9	85.6	98.2	109.9	120.4
95°	0.0	3.2	12.7	24.3	39.1	52.8	66.5	79.2	91.9	102.5	113.0
97.5°	0.0	1.1	9.5	21.1	33.8	47.5	61.3	73.9	85.6	96.1	105.6
100°	0.0	0.0	6.3	16.9	29.6	43.3	56.0	67.6	79.2	89.8	99.3
102.5°	0.0	0.0	4.2	13.7	25.4	38.0	50.7	62.3	73.9	83.4	93.0
105°	0.0	0.0	2.1	10.6	22.2	33.8	45.4	57.0	67.6	77.1	86.6
107.5°	0.0	0.0	0.0	7.4	18.0	29.6	41.2	51.8	62.3	71.8	80.3
110°	0.0	0.0	0.0	5.3	14.8	25.4	35.9	46.5	56.0	65.5	75.0



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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	2.1	11.6	21.1	31.7	41.2	50.7	60.2	68.7
115°	0.0	0.0	0.0	1.1	8.5	16.9	27.5	37.0	45.4	54.9	62.3
117.5°	0.0	0.0	0.0	0.0	5.3	13.7	22.2	31.7	40.1	48.6	57.0
120°	0.0	0.0	0.0	0.0	2.1	9.5	18.0	26.4	34.9	43.3	50.7
122.5°	0.0	0.0	0.0	0.0	0.0	6.3	14.8	22.2	30.6	38.0	45.4
125°	0.0	0.0	0.0	0.0	0.0	3.2	10.6	18.0	25.4	32.7	39.1
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	6.3	13.7	20.1	27.5	33.8
130°	0.0	0.0	0.0	0.0	0.0	0.0	3.2	9.5	15.8	22.2	28.5
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	11.6	16.9	23.2
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	7.4	12.7	16.9
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	7.4	12.7
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	7.4
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°	1.1	1.1	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: P231608

CATALOG NUMBER: S122-DR-1-30-X-0048-1-U-DD-4-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	652.8	652.8	652.8	652.8	652.8	652.8	652.8	652.8
2.5°	651.7	652.8	653.8	653.8	653.8	653.8	653.8	652.8
5°	650.7	652.8	653.8	653.8	653.8	653.8	652.8	651.7
7.5°	647.5	649.6	650.7	650.7	650.7	651.7	650.7	649.6
10°	643.3	644.3	645.4	646.4	646.4	646.4	645.4	644.3
12.5°	635.9	638.0	639.0	639.0	639.0	639.0	639.0	638.0
15°	626.4	627.4	629.5	629.5	629.5	630.6	628.5	628.5
17.5°	615.8	617.9	619.0	617.9	619.0	619.0	617.9	617.9
20°	604.2	605.2	606.3	606.3	607.4	607.4	606.3	605.2
22.5°	590.5	592.6	593.6	593.6	594.7	595.7	594.7	593.6
25°	576.7	578.8	581.0	581.0	582.0	583.1	582.0	581.0
27.5°	563.0	565.1	566.2	567.2	569.3	569.3	569.3	568.3
30°	547.2	550.3	551.4	553.5	555.6	556.7	556.7	555.6
32.5°	532.4	535.5	538.7	540.8	542.9	544.0	544.0	544.0
35°	516.5	520.7	525.0	528.1	530.3	531.3	532.4	531.3
37.5°	502.8	507.0	511.2	515.5	517.6	518.6	518.6	519.7
40°	488.0	493.3	497.5	500.7	503.8	506.0	506.0	507.0
42.5°	473.2	478.5	483.8	488.0	491.2	493.3	493.3	493.3
45°	457.4	464.8	469.0	473.2	477.4	479.6	480.6	480.6
47.5°	441.5	448.9	454.2	459.5	462.7	464.8	465.8	465.8
50°	425.7	433.1	439.4	444.7	447.9	450.0	452.1	452.1
52.5°	408.8	417.2	422.5	427.8	432.0	435.2	436.2	435.2
55°	392.9	400.3	406.7	411.9	416.2	419.3	420.4	420.4
57.5°	373.9	382.4	389.8	395.0	399.3	402.4	403.5	403.5
60°	357.0	364.4	371.8	377.1	382.4	385.5	386.6	386.6
62.5°	338.0	346.5	353.9	360.2	364.4	367.6	368.6	368.6
65°	319.0	327.4	334.8	341.2	344.3	347.5	349.6	350.7
67.5°	298.9	307.4	315.8	321.1	325.3	328.5	330.6	330.6
70°	279.9	288.4	295.8	301.0	305.3	309.5	310.5	311.6
72.5°	259.8	268.3	275.7	282.0	286.3	289.4	290.5	291.5
75°	238.7	248.2	255.6	260.9	266.2	270.4	271.5	271.5
77.5°	218.7	228.2	235.6	241.9	246.1	249.3	250.3	251.4
80°	200.7	209.1	216.5	221.8	226.0	229.2	232.4	232.4
82.5°	181.7	191.2	198.6	203.9	208.1	212.3	213.4	214.4
85°	165.8	174.3	181.7	187.0	191.2	195.4	196.5	196.5
87.5°	151.0	159.5	165.8	171.1	176.4	178.5	180.6	180.6
90°	138.4	146.8	153.2	159.5	163.7	166.9	167.9	169.0
92.5°	129.9	138.4	144.7	150.0	153.2	156.3	158.4	158.4
95°	121.5	129.9	136.3	141.5	145.8	148.9	150.0	150.0
97.5°	115.1	122.5	128.9	133.1	137.3	140.5	141.5	142.6
100°	107.7	115.1	121.5	125.7	129.9	132.0	134.1	135.2
102.5°	101.4	108.8	114.1	119.4	122.5	124.6	126.8	126.8
105°	95.1	101.4	107.7	112.0	116.2	118.3	119.4	120.4
107.5°	88.7	95.1	101.4	105.6	108.8	112.0	113.0	113.0
110°	82.4	88.7	94.0	99.3	102.5	104.6	105.6	106.7





TEST NUMBER: P231608

CATALOG NUMBER: S122-DR-1-30-X-0048-1-U-DD-4-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	76.1	82.4	87.7	91.9	95.1	98.2	99.3	99.3
115°	69.7	76.1	81.3	85.6	88.7	90.8	91.9	93.0
117.5°	63.4	69.7	75.0	79.2	82.4	84.5	85.6	85.6
120°	57.0	63.4	67.6	72.9	75.0	78.2	79.2	79.2
122.5°	51.8	57.0	61.3	65.5	68.7	70.8	71.8	72.9
125°	45.4	50.7	54.9	59.2	62.3	64.4	65.5	65.5
127.5°	39.1	44.4	48.6	52.8	54.9	57.0	58.1	59.2
130°	33.8	39.1	42.3	46.5	48.6	50.7	51.8	51.8
132.5°	27.5	32.7	35.9	40.1	42.3	44.4	45.4	45.4
135°	22.2	26.4	29.6	32.7	35.9	37.0	38.0	38.0
137.5°	16.9	21.1	24.3	26.4	29.6	30.6	31.7	31.7
140°	11.6	14.8	18.0	21.1	23.2	24.3	25.4	25.4
142.5°	6.3	9.5	12.7	14.8	16.9	18.0	19.0	19.0
145°	1.1	4.2	7.4	9.5	10.6	11.6	12.7	13.7
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)