

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: P231610

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231610
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-1-40-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

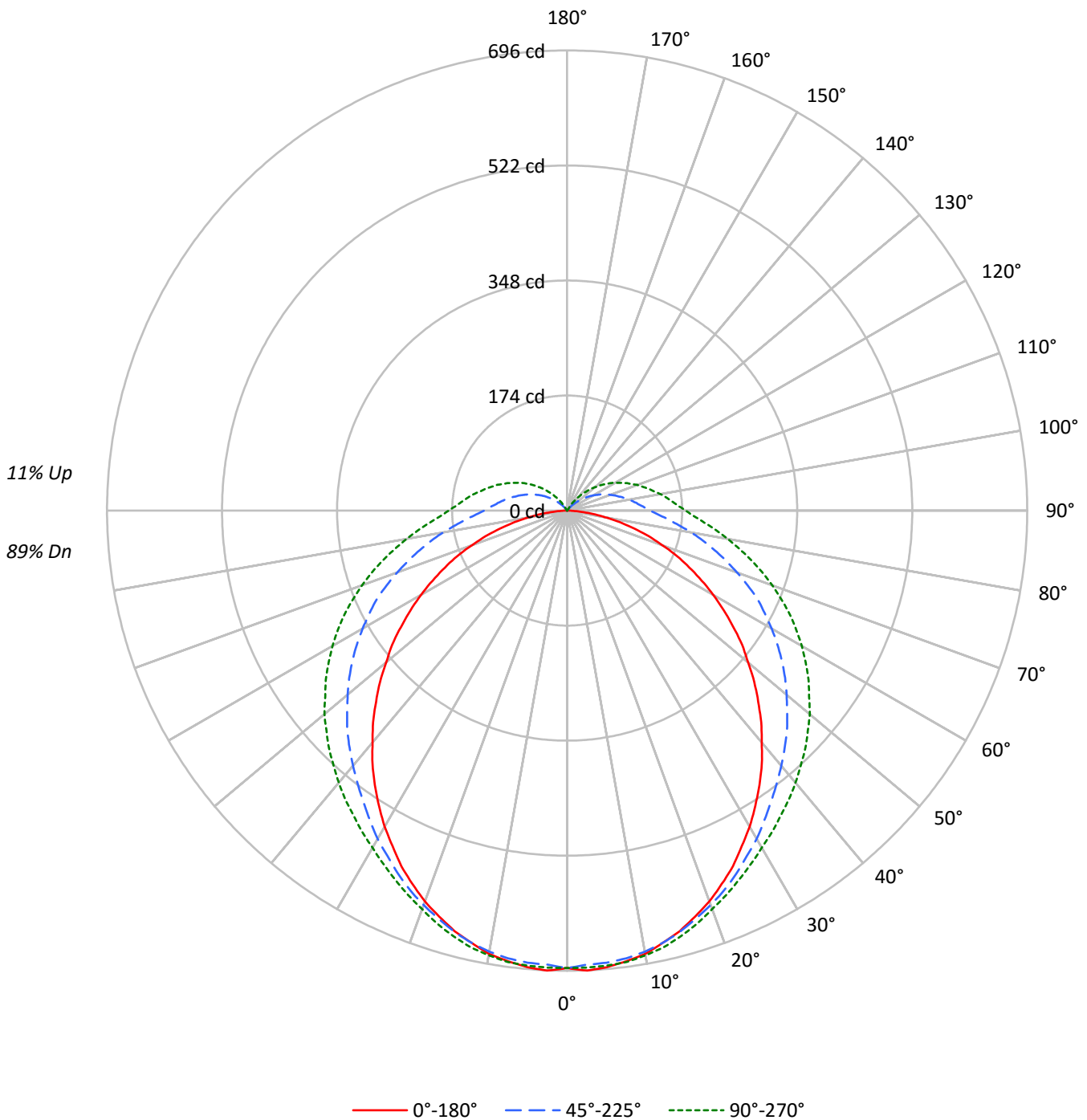
Lumens per Lamp: N/A
Luminaire Lumens: 2539.3 lumens
Efficiency: N/A
Efficacy: 91.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.27 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.14' x L: 3.92' x H: 0.08')
CIE Type: Semi-Direct

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: P231610
CATALOG NUMBER: S122-DR-1-40-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°	13582	13582	13582
5°	13632	13029	12939
10°	13520	12539	12321
15°	13305	12001	11677
20°	13043	11446	11017
25°	12726	10903	10441
30°	12360	10383	9935
35°	11976	9867	9527
40°	11528	9453	9185
45°	11110	9093	8866
50°	10639	8709	8563
55°	10190	8362	8244
60°	9667	7992	7923
65°	9053	7635	7586
70°	8318	7136	7195
75°	7392	6659	6778
80°	5871	6197	6365
85°	3859	5777	6014



TEST NUMBER: P231610

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.6	2.6
10°-20°	186.8	7.4
20°-30°	279.7	11.0
30°-40°	337.1	13.3
40°-50°	359.6	14.2
50°-60°	347.2	13.7
60°-70°	301.6	11.9
70°-80°	229.5	9.0
80°-90°	152.4	6.0
90°-100°	105.4	4.2
100°-110°	77.0	3.0
110°-120°	51.8	2.0
120°-130°	30.0	1.2
130°-140°	13.1	0.5
140°-150°	2.5	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	532.1	21.0
0°-40°	869.2	34.2
0°-60°	1576.0	62.1
0°-90°	2259.4	89.0
90°-120°	234.3	9.2
90°-150°	279.9	11.0
90°-180°	280.0	11.0
0°-180°	2539.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	692	692	692	692	692	
5°	693	691	686	693	691	66
15°	658	661	660	667	666	185
25°	593	601	606	616	616	273
35°	507	522	537	558	563	317
45°	409	434	470	499	509	315
55°	307	345	396	434	446	274
65°	204	255	318	358	372	202
75°	105	165	231	274	288	111
85°	21	86	153	195	208	26
90°	0	60	125	166	179	1
95°	0	49	109	147	159	0
105°	0	30	82	116	128	0
115°	0	13	58	88	98	0
125°	0	2	35	60	69	0
135°	0	0	13	33	40	0
145°	1	0	0	9	15	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: P231610

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

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	691.9	691.9	691.9	691.9	691.9	691.9	691.9	691.9	691.9	691.9	691.9
2.5°	696.4	694.2	690.8	691.9	693.1	693.1	691.9	691.9	689.7	687.5	687.5
5°	693.1	690.8	687.5	689.7	690.8	690.8	690.8	689.7	688.6	686.4	687.5
7.5°	687.5	685.2	683.0	684.1	685.2	687.5	686.4	686.4	685.2	683.0	684.1
10°	680.8	677.4	675.2	677.4	678.5	680.8	680.8	680.8	679.6	677.4	678.5
12.5°	669.6	668.4	666.2	669.6	670.7	672.9	672.9	672.9	670.7	669.6	671.8
15°	658.4	656.1	653.9	657.2	659.5	661.7	661.7	661.7	660.6	659.5	661.7
17.5°	643.8	641.6	641.6	643.8	647.2	649.4	649.4	650.5	648.3	647.2	649.4
20°	629.2	627.0	625.9	630.4	632.6	634.8	634.8	636.0	634.8	634.8	637.1
22.5°	611.3	610.2	610.2	613.6	615.8	618.1	620.3	620.3	620.3	621.4	622.5
25°	593.4	592.3	593.4	596.8	599.0	602.4	604.6	604.6	604.6	605.7	609.1
27.5°	572.1	572.1	573.3	577.7	581.1	584.5	586.7	587.8	587.8	588.9	593.4
30°	552.0	550.9	552.0	557.6	560.9	565.4	567.7	568.8	569.9	573.3	576.6
32.5°	529.6	528.5	530.7	536.3	540.8	544.2	548.6	550.9	552.0	555.4	559.8
35°	507.2	506.1	508.3	513.9	519.5	524.0	527.4	529.6	534.1	537.4	543.0
37.5°	483.7	483.7	487.1	492.6	498.2	502.7	507.2	510.6	515.0	520.6	526.2
40°	457.9	459.1	462.4	470.3	475.9	482.6	487.1	490.4	497.1	503.8	510.6
42.5°	434.4	434.4	438.9	446.7	452.3	460.2	466.9	470.3	479.2	487.1	494.9
45°	408.7	408.7	415.4	423.2	429.9	438.9	445.6	451.2	460.2	470.3	477.0
47.5°	384.0	385.2	391.9	399.7	407.6	417.6	424.4	432.2	442.3	451.2	460.2
50°	357.2	359.4	367.2	376.2	385.2	396.4	404.2	413.2	423.2	433.3	442.3
52.5°	333.7	334.8	342.6	352.7	361.6	372.8	384.0	394.1	405.3	415.4	424.4
55°	306.8	310.1	318.0	328.1	339.3	350.5	362.8	374.0	386.3	396.4	407.6
57.5°	281.0	285.5	294.5	303.4	315.7	329.2	341.5	352.7	365.0	377.3	387.4
60°	255.3	259.8	269.8	279.9	293.4	306.8	320.2	333.7	344.9	357.2	367.2
62.5°	229.5	235.1	244.1	255.3	271.0	285.5	298.9	312.4	324.7	337.0	348.2
65°	203.8	210.5	219.5	232.9	247.4	262.0	276.6	291.1	303.4	318.0	326.9
67.5°	180.3	184.7	194.8	209.4	225.1	240.7	255.3	268.7	282.2	295.6	307.9
70°	153.4	161.2	170.2	185.9	201.5	217.2	232.9	247.4	260.9	273.2	285.5
72.5°	129.9	135.5	145.6	162.4	178.0	194.8	210.5	226.2	239.6	251.9	264.2
75°	105.2	112.0	123.2	138.8	156.8	173.5	189.2	203.8	218.3	230.6	243.0
77.5°	81.7	88.5	101.9	118.7	134.4	151.2	167.9	182.5	197.1	210.5	222.8
80°	58.2	67.2	79.5	96.3	114.2	129.9	146.7	161.2	176.9	190.3	201.5
82.5°	39.2	47.0	60.5	76.1	94.1	110.8	127.6	142.2	157.9	170.2	182.5
85°	21.3	30.2	44.8	60.5	77.3	94.1	110.8	125.4	140.0	153.4	164.6
87.5°	9.0	16.8	30.2	47.0	62.7	79.5	96.3	110.8	124.3	137.7	150.0
90°	0.0	7.8	20.2	35.8	52.6	68.3	84.0	99.6	113.1	125.4	136.6
92.5°	0.0	5.6	15.7	30.2	45.9	61.6	77.3	90.7	104.1	116.4	127.6
95°	0.0	3.4	13.4	25.8	41.4	56.0	70.5	84.0	97.4	108.6	119.8
97.5°	0.0	1.1	10.1	22.4	35.8	50.4	64.9	78.4	90.7	101.9	112.0
100°	0.0	0.0	6.7	17.9	31.4	45.9	59.3	71.7	84.0	95.2	105.2
102.5°	0.0	0.0	4.5	14.6	26.9	40.3	53.7	66.1	78.4	88.5	98.5
105°	0.0	0.0	2.2	11.2	23.5	35.8	48.1	60.5	71.7	81.7	91.8
107.5°	0.0	0.0	0.0	7.8	19.0	31.4	43.7	54.9	66.1	76.1	85.1
110°	0.0	0.0	0.0	5.6	15.7	26.9	38.1	49.3	59.3	69.4	79.5



TEST NUMBER: P231610

CATALOG NUMBER: S122-DR-1-40-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	2.2	12.3	22.4	33.6	43.7	53.7	63.8	72.8
115°	0.0	0.0	0.0	1.1	9.0	17.9	29.1	39.2	48.1	58.2	66.1
117.5°	0.0	0.0	0.0	0.0	5.6	14.6	23.5	33.6	42.5	51.5	60.5
120°	0.0	0.0	0.0	0.0	2.2	10.1	19.0	28.0	36.9	45.9	53.7
122.5°	0.0	0.0	0.0	0.0	0.0	6.7	15.7	23.5	32.5	40.3	48.1
125°	0.0	0.0	0.0	0.0	0.0	3.4	11.2	19.0	26.9	34.7	41.4
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	6.7	14.6	21.3	29.1	35.8
130°	0.0	0.0	0.0	0.0	0.0	0.0	3.4	10.1	16.8	23.5	30.2
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	12.3	17.9	24.6
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	7.8	13.4	17.9
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	7.8	13.4
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	7.8
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4
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: P231610

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	691.9	691.9	691.9	691.9	691.9	691.9	691.9	691.9
2.5°	690.8	691.9	693.1	693.1	693.1	693.1	693.1	691.9
5°	689.7	691.9	693.1	693.1	693.1	693.1	691.9	690.8
7.5°	686.4	688.6	689.7	689.7	689.7	690.8	689.7	688.6
10°	681.9	683.0	684.1	685.2	685.2	685.2	684.1	683.0
12.5°	674.0	676.3	677.4	677.4	677.4	677.4	677.4	676.3
15°	664.0	665.1	667.3	667.3	667.3	668.4	666.2	666.2
17.5°	652.8	655.0	656.1	655.0	656.1	656.1	655.0	655.0
20°	640.4	641.6	642.7	642.7	643.8	643.8	642.7	641.6
22.5°	625.9	628.1	629.2	629.2	630.4	631.5	630.4	629.2
25°	611.3	613.6	615.8	615.8	616.9	618.1	616.9	615.8
27.5°	596.8	599.0	600.1	601.3	603.5	603.5	603.5	602.4
30°	580.0	583.3	584.5	586.7	588.9	590.1	590.1	588.9
32.5°	564.3	567.7	571.0	573.3	575.5	576.6	576.6	576.6
35°	547.5	552.0	556.5	559.8	562.1	563.2	564.3	563.2
37.5°	533.0	537.4	541.9	546.4	548.6	549.8	549.8	550.9
40°	517.3	522.9	527.4	530.7	534.1	536.3	536.3	537.4
42.5°	501.6	507.2	512.8	517.3	520.6	522.9	522.9	522.9
45°	484.8	492.6	497.1	501.6	506.1	508.3	509.4	509.4
47.5°	468.0	475.9	481.5	487.1	490.4	492.6	493.8	493.8
50°	451.2	459.1	465.8	471.4	474.7	477.0	479.2	479.2
52.5°	433.3	442.3	447.9	453.5	457.9	461.3	462.4	461.3
55°	416.5	424.4	431.1	436.7	441.1	444.5	445.6	445.6
57.5°	396.4	405.3	413.2	418.8	423.2	426.6	427.7	427.7
60°	378.4	386.3	394.1	399.7	405.3	408.7	409.8	409.8
62.5°	358.3	367.2	375.1	381.8	386.3	389.6	390.8	390.8
65°	338.1	347.1	354.9	361.6	365.0	368.4	370.6	371.7
67.5°	316.9	325.8	334.8	340.4	344.9	348.2	350.5	350.5
70°	296.7	305.7	313.5	319.1	323.6	328.1	329.2	330.3
72.5°	275.4	284.4	292.2	298.9	303.4	306.8	307.9	309.0
75°	253.0	263.1	271.0	276.6	282.2	286.6	287.8	287.8
77.5°	231.8	241.8	249.7	256.4	260.9	264.2	265.4	266.5
80°	212.7	221.7	229.5	235.1	239.6	243.0	246.3	246.3
82.5°	192.6	202.7	210.5	216.1	220.6	225.1	226.2	227.3
85°	175.8	184.7	192.6	198.2	202.7	207.1	208.3	208.3
87.5°	160.1	169.1	175.8	181.4	187.0	189.2	191.5	191.5
90°	146.7	155.6	162.4	169.1	173.5	176.9	178.0	179.1
92.5°	137.7	146.7	153.4	159.0	162.4	165.7	167.9	167.9
95°	128.8	137.7	144.4	150.0	154.5	157.9	159.0	159.0
97.5°	122.0	129.9	136.6	141.1	145.6	148.9	150.0	151.2
100°	114.2	122.0	128.8	133.2	137.7	140.0	142.2	143.3
102.5°	107.5	115.3	120.9	126.5	129.9	132.1	134.4	134.4
105°	100.8	107.5	114.2	118.7	123.2	125.4	126.5	127.6
107.5°	94.1	100.8	107.5	112.0	115.3	118.7	119.8	119.8
110°	87.3	94.1	99.6	105.2	108.6	110.8	112.0	113.1



TEST NUMBER: P231610

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	80.6	87.3	92.9	97.4	100.8	104.1	105.2	105.2
115°	73.9	80.6	86.2	90.7	94.1	96.3	97.4	98.5
117.5°	67.2	73.9	79.5	84.0	87.3	89.6	90.7	90.7
120°	60.5	67.2	71.7	77.3	79.5	82.9	84.0	84.0
122.5°	54.9	60.5	64.9	69.4	72.8	75.0	76.1	77.3
125°	48.1	53.7	58.2	62.7	66.1	68.3	69.4	69.4
127.5°	41.4	47.0	51.5	56.0	58.2	60.5	61.6	62.7
130°	35.8	41.4	44.8	49.3	51.5	53.7	54.9	54.9
132.5°	29.1	34.7	38.1	42.5	44.8	47.0	48.1	48.1
135°	23.5	28.0	31.4	34.7	38.1	39.2	40.3	40.3
137.5°	17.9	22.4	25.8	28.0	31.4	32.5	33.6	33.6
140°	12.3	15.7	19.0	22.4	24.6	25.8	26.9	26.9
142.5°	6.7	10.1	13.4	15.7	17.9	19.0	20.2	20.2
145°	1.1	4.5	7.8	10.1	11.2	12.3	13.4	14.6
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)