

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: P231613

Luminaire Tested: **S122-DR-2-35-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231613
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-2-35-X-0048-1-U-DD-4-W
Description: DEFINE 2 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

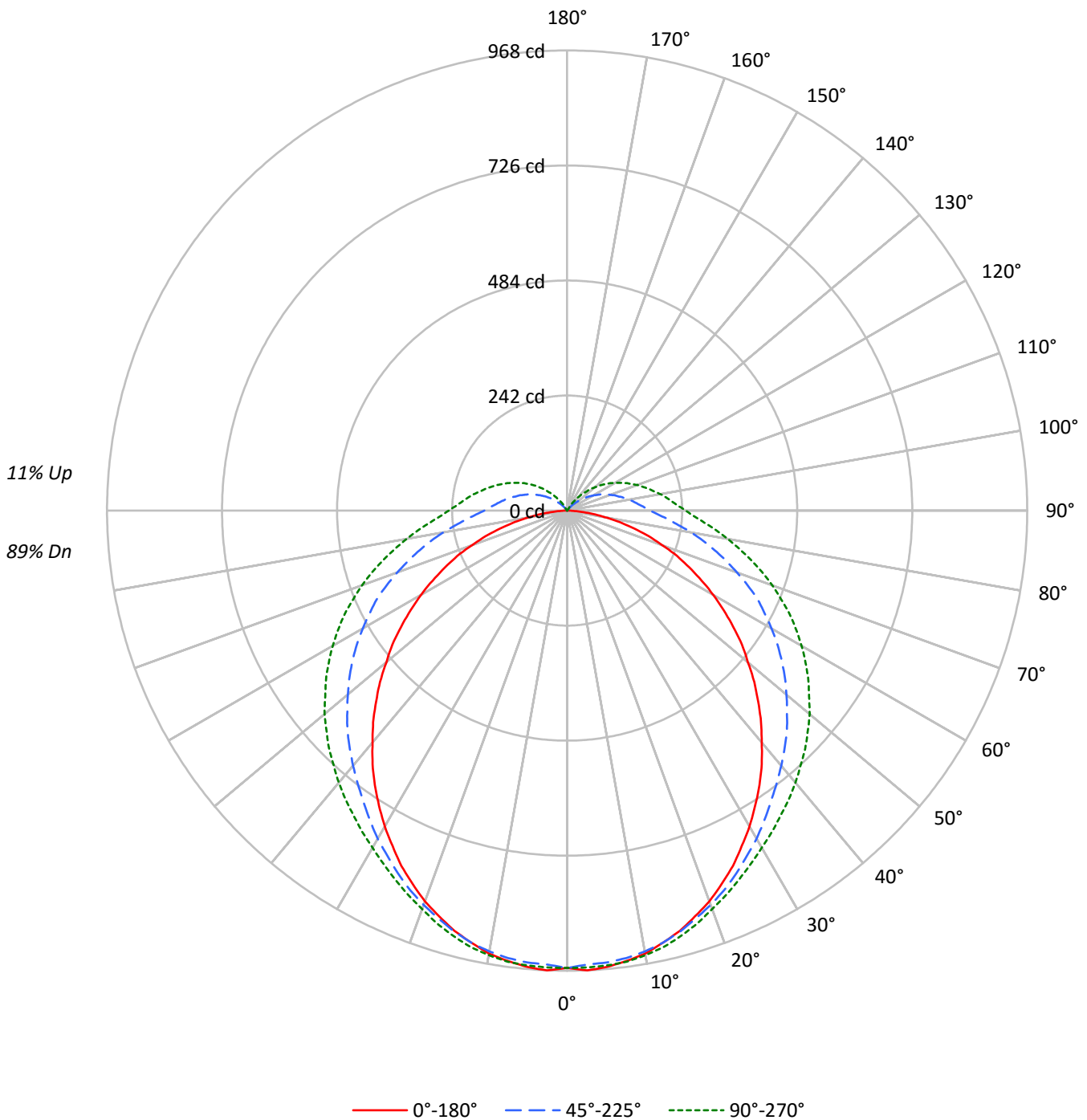
Lumens per Lamp: N/A
Luminaire Lumens: 3530.3 lumens
Efficiency: N/A
Efficacy: 82.9 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.27 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.14' x L: 3.92' x H: 0.08')
CIE Type: Semi-Direct

Input Watts (W): 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



TEST NUMBER: P231613
CATALOG NUMBER: S122-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	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°	18884	18884	18884
5°	18953	18112	17988
10°	18794	17433	17129
15°	18496	16685	16234
20°	18134	15913	15315
25°	17694	15159	14515
30°	17184	14434	13814
35°	16651	13720	13245
40°	16030	13144	12771
45°	15445	12641	12328
50°	14791	12108	11904
55°	14166	11624	11462
60°	13438	11111	11015
65°	12585	10615	10547
70°	11566	9921	10003
75°	10280	9261	9422
80°	8161	8617	8851
85°	5363	8033	8359



TEST NUMBER: P231613

CATALOG NUMBER: S122-DR-2-35-X-0048-1-U-DD-4-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	91.2	2.6
10°-20°	259.6	7.4
20°-30°	388.9	11.0
30°-40°	468.7	13.3
40°-50°	499.9	14.2
50°-60°	482.8	13.7
60°-70°	419.3	11.9
70°-80°	319.1	9.0
80°-90°	211.8	6.0
90°-100°	146.5	4.2
100°-110°	107.1	3.0
110°-120°	72.1	2.0
120°-130°	41.7	1.2
130°-140°	18.2	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°	739.7	21.0
0°-40°	1208.4	34.2
0°-60°	2191.1	62.1
0°-90°	3141.2	89.0
90°-120°	325.7	9.2
90°-150°	389.1	11.0
90°-180°	389.0	11.0
0°-180°	3530.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	962	962	962	962	962	
5°	964	960	954	964	960	91
15°	915	918	917	928	926	258
25°	825	835	842	856	856	379
35°	705	725	747	776	783	441
45°	568	604	654	694	708	439
55°	426	479	551	603	620	382
65°	283	354	442	498	517	281
75°	146	230	321	381	400	155
85°	30	119	213	272	290	36
90°	0	84	174	230	249	2
95°	0	68	151	205	221	0
105°	0	41	114	162	178	0
115°	0	19	81	123	137	0
125°	0	2	48	84	96	0
135°	0	0	19	46	56	0
145°	2	0	0	12	20	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: P231613

CATALOG NUMBER: S122-DR-2-35-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	962.0	962.0	962.0	962.0	962.0	962.0	962.0	962.0	962.0	962.0	962.0
2.5°	968.2	965.1	960.4	962.0	963.6	963.6	962.0	962.0	958.9	955.8	955.8
5°	963.6	960.4	955.8	958.9	960.4	960.4	960.4	958.9	957.3	954.2	955.8
7.5°	955.8	952.7	949.5	951.1	952.7	955.8	954.2	954.2	952.7	949.5	951.1
10°	946.4	941.8	938.6	941.8	943.3	946.4	946.4	946.4	944.9	941.8	943.3
12.5°	930.9	929.3	926.2	930.9	932.4	935.5	935.5	935.5	932.4	930.9	934.0
15°	915.3	912.2	909.1	913.7	916.9	920.0	920.0	920.0	918.4	916.9	920.0
17.5°	895.1	891.9	891.9	895.1	899.7	902.8	902.8	904.4	901.3	899.7	902.8
20°	874.8	871.7	870.2	876.4	879.5	882.6	882.6	884.2	882.6	882.6	885.7
22.5°	849.9	848.4	848.4	853.0	856.1	859.3	862.4	862.4	862.4	863.9	865.5
25°	825.0	823.5	825.0	829.7	832.8	837.5	840.6	840.6	840.6	842.1	846.8
27.5°	795.4	795.4	797.0	803.2	807.9	812.6	815.7	817.2	817.2	818.8	825.0
30°	767.4	765.9	767.4	775.2	779.9	786.1	789.2	790.8	792.3	797.0	801.7
32.5°	736.3	734.7	737.8	745.6	751.8	756.5	762.7	765.9	767.4	772.1	778.3
35°	705.2	703.6	706.7	714.5	722.3	728.5	733.2	736.3	742.5	747.2	755.0
37.5°	672.5	672.5	677.1	684.9	692.7	698.9	705.2	709.8	716.0	723.8	731.6
40°	636.7	638.2	642.9	653.8	661.6	670.9	677.1	681.8	691.1	700.5	709.8
42.5°	604.0	604.0	610.2	621.1	628.9	639.8	649.1	653.8	666.2	677.1	688.0
45°	568.2	568.2	577.5	588.4	597.7	610.2	619.5	627.3	639.8	653.8	663.1
47.5°	533.9	535.5	544.8	555.7	566.6	580.6	590.0	600.9	614.9	627.3	639.8
50°	496.6	499.7	510.6	523.0	535.5	551.0	561.9	574.4	588.4	602.4	614.9
52.5°	463.9	465.4	476.3	490.3	502.8	518.4	533.9	547.9	563.5	577.5	590.0
55°	426.5	431.2	442.1	456.1	471.7	487.2	504.3	519.9	537.0	551.0	566.6
57.5°	390.7	396.9	409.4	421.8	439.0	457.6	474.8	490.3	507.5	524.6	538.6
60°	354.9	361.1	375.1	389.2	407.8	426.5	445.2	463.9	479.4	496.6	510.6
62.5°	319.1	326.9	339.3	354.9	376.7	396.9	415.6	434.3	451.4	468.5	484.1
65°	283.3	292.6	305.1	323.8	344.0	364.3	384.5	404.7	421.8	442.1	454.5
67.5°	250.6	256.8	270.9	291.1	312.9	334.7	354.9	373.6	392.3	410.9	428.1
70°	213.3	224.2	236.6	258.4	280.2	302.0	323.8	344.0	362.7	379.8	396.9
72.5°	180.6	188.4	202.4	225.7	247.5	270.9	292.6	314.4	333.1	350.2	367.4
75°	146.3	155.7	171.2	193.0	217.9	241.3	263.1	283.3	303.5	320.7	337.8
77.5°	113.6	123.0	141.7	165.0	186.8	210.1	233.5	253.7	274.0	292.6	309.8
80°	80.9	93.4	110.5	133.9	158.8	180.6	203.9	224.2	245.9	264.6	280.2
82.5°	54.5	65.4	84.1	105.9	130.8	154.1	177.5	197.7	219.5	236.6	253.7
85°	29.6	42.0	62.3	84.1	107.4	130.8	154.1	174.3	194.6	213.3	228.8
87.5°	12.5	23.3	42.0	65.4	87.2	110.5	133.9	154.1	172.8	191.5	208.6
90°	0.0	10.9	28.0	49.8	73.2	95.0	116.7	138.5	157.2	174.3	189.9
92.5°	0.0	7.8	21.8	42.0	63.8	85.6	107.4	126.1	144.8	161.9	177.5
95°	0.0	4.7	18.7	35.8	57.6	77.8	98.1	116.7	135.4	151.0	166.6
97.5°	0.0	1.6	14.0	31.1	49.8	70.0	90.3	109.0	126.1	141.7	155.7
100°	0.0	0.0	9.3	24.9	43.6	63.8	82.5	99.6	116.7	132.3	146.3
102.5°	0.0	0.0	6.2	20.2	37.4	56.0	74.7	91.8	109.0	123.0	137.0
105°	0.0	0.0	3.1	15.6	32.7	49.8	66.9	84.1	99.6	113.6	127.6
107.5°	0.0	0.0	0.0	10.9	26.5	43.6	60.7	76.3	91.8	105.9	118.3
110°	0.0	0.0	0.0	7.8	21.8	37.4	52.9	68.5	82.5	96.5	110.5



TEST NUMBER: P231613

CATALOG NUMBER: S122-DR-2-35-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	3.1	17.1	31.1	46.7	60.7	74.7	88.7	101.2
115°	0.0	0.0	0.0	1.6	12.5	24.9	40.5	54.5	66.9	80.9	91.8
117.5°	0.0	0.0	0.0	0.0	7.8	20.2	32.7	46.7	59.2	71.6	84.1
120°	0.0	0.0	0.0	0.0	3.1	14.0	26.5	38.9	51.4	63.8	74.7
122.5°	0.0	0.0	0.0	0.0	0.0	9.3	21.8	32.7	45.1	56.0	66.9
125°	0.0	0.0	0.0	0.0	0.0	4.7	15.6	26.5	37.4	48.3	57.6
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	9.3	20.2	29.6	40.5	49.8
130°	0.0	0.0	0.0	0.0	0.0	0.0	4.7	14.0	23.3	32.7	42.0
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	17.1	24.9	34.2
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	10.9	18.7	24.9
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	10.9	18.7
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	10.9
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
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: P231613

CATALOG NUMBER: S122-DR-2-35-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	962.0	962.0	962.0	962.0	962.0	962.0	962.0	962.0
2.5°	960.4	962.0	963.6	963.6	963.6	963.6	963.6	962.0
5°	958.9	962.0	963.6	963.6	963.6	963.6	962.0	960.4
7.5°	954.2	957.3	958.9	958.9	958.9	960.4	958.9	957.3
10°	948.0	949.5	951.1	952.7	952.7	952.7	951.1	949.5
12.5°	937.1	940.2	941.8	941.8	941.8	941.8	941.8	940.2
15°	923.1	924.6	927.7	927.7	927.7	929.3	926.2	926.2
17.5°	907.5	910.6	912.2	910.6	912.2	912.2	910.6	910.6
20°	890.4	891.9	893.5	893.5	895.1	895.1	893.5	891.9
22.5°	870.2	873.3	874.8	874.8	876.4	877.9	876.4	874.8
25°	849.9	853.0	856.1	856.1	857.7	859.3	857.7	856.1
27.5°	829.7	832.8	834.4	835.9	839.0	839.0	839.0	837.5
30°	806.3	811.0	812.6	815.7	818.8	820.3	820.3	818.8
32.5°	784.5	789.2	793.9	797.0	800.1	801.7	801.7	801.7
35°	761.2	767.4	773.6	778.3	781.4	783.0	784.5	783.0
37.5°	741.0	747.2	753.4	759.6	762.7	764.3	764.3	765.9
40°	719.2	726.9	733.2	737.8	742.5	745.6	745.6	747.2
42.5°	697.4	705.2	712.9	719.2	723.8	726.9	726.9	726.9
45°	674.0	684.9	691.1	697.4	703.6	706.7	708.3	708.3
47.5°	650.7	661.6	669.3	677.1	681.8	684.9	686.5	686.5
50°	627.3	638.2	647.6	655.3	660.0	663.1	666.2	666.2
52.5°	602.4	614.9	622.6	630.4	636.7	641.3	642.9	641.3
55°	579.1	590.0	599.3	607.1	613.3	618.0	619.5	619.5
57.5°	551.0	563.5	574.4	582.2	588.4	593.1	594.6	594.6
60°	526.1	537.0	547.9	555.7	563.5	568.2	569.7	569.7
62.5°	498.1	510.6	521.5	530.8	537.0	541.7	543.3	543.3
65°	470.1	482.6	493.4	502.8	507.5	512.1	515.2	516.8
67.5°	440.5	453.0	465.4	473.2	479.4	484.1	487.2	487.2
70°	412.5	425.0	435.9	443.6	449.9	456.1	457.6	459.2
72.5°	382.9	395.4	406.3	415.6	421.8	426.5	428.1	429.6
75°	351.8	365.8	376.7	384.5	392.3	398.5	400.1	400.1
77.5°	322.2	336.2	347.1	356.5	362.7	367.4	368.9	370.5
80°	295.8	308.2	319.1	326.9	333.1	337.8	342.5	342.5
82.5°	267.7	281.7	292.6	300.4	306.7	312.9	314.4	316.0
85°	244.4	256.8	267.7	275.5	281.7	288.0	289.5	289.5
87.5°	222.6	235.1	244.4	252.2	260.0	263.1	266.2	266.2
90°	203.9	216.4	225.7	235.1	241.3	245.9	247.5	249.1
92.5°	191.5	203.9	213.3	221.0	225.7	230.4	233.5	233.5
95°	179.0	191.5	200.8	208.6	214.8	219.5	221.0	221.0
97.5°	169.7	180.6	189.9	196.1	202.4	207.0	208.6	210.1
100°	158.8	169.7	179.0	185.2	191.5	194.6	197.7	199.2
102.5°	149.4	160.3	168.1	175.9	180.6	183.7	186.8	186.8
105°	140.1	149.4	158.8	165.0	171.2	174.3	175.9	177.5
107.5°	130.8	140.1	149.4	155.7	160.3	165.0	166.6	166.6
110°	121.4	130.8	138.5	146.3	151.0	154.1	155.7	157.2



TEST NUMBER: P231613

CATALOG NUMBER: S122-DR-2-35-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	112.1	121.4	129.2	135.4	140.1	144.8	146.3	146.3
115°	102.7	112.1	119.9	126.1	130.8	133.9	135.4	137.0
117.5°	93.4	102.7	110.5	116.7	121.4	124.5	126.1	126.1
120°	84.1	93.4	99.6	107.4	110.5	115.2	116.7	116.7
122.5°	76.3	84.1	90.3	96.5	101.2	104.3	105.9	107.4
125°	66.9	74.7	80.9	87.2	91.8	95.0	96.5	96.5
127.5°	57.6	65.4	71.6	77.8	80.9	84.1	85.6	87.2
130°	49.8	57.6	62.3	68.5	71.6	74.7	76.3	76.3
132.5°	40.5	48.3	52.9	59.2	62.3	65.4	66.9	66.9
135°	32.7	38.9	43.6	48.3	52.9	54.5	56.0	56.0
137.5°	24.9	31.1	35.8	38.9	43.6	45.1	46.7	46.7
140°	17.1	21.8	26.5	31.1	34.2	35.8	37.4	37.4
142.5°	9.3	14.0	18.7	21.8	24.9	26.5	28.0	28.0
145°	1.6	6.2	10.9	14.0	15.6	17.1	18.7	20.2
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)