

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: P242304

Luminaire Tested: **S122DR-S290D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242304
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-19)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-S290D930-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1021.8 lumens
Efficiency: N/A
Efficacy: 88.1 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

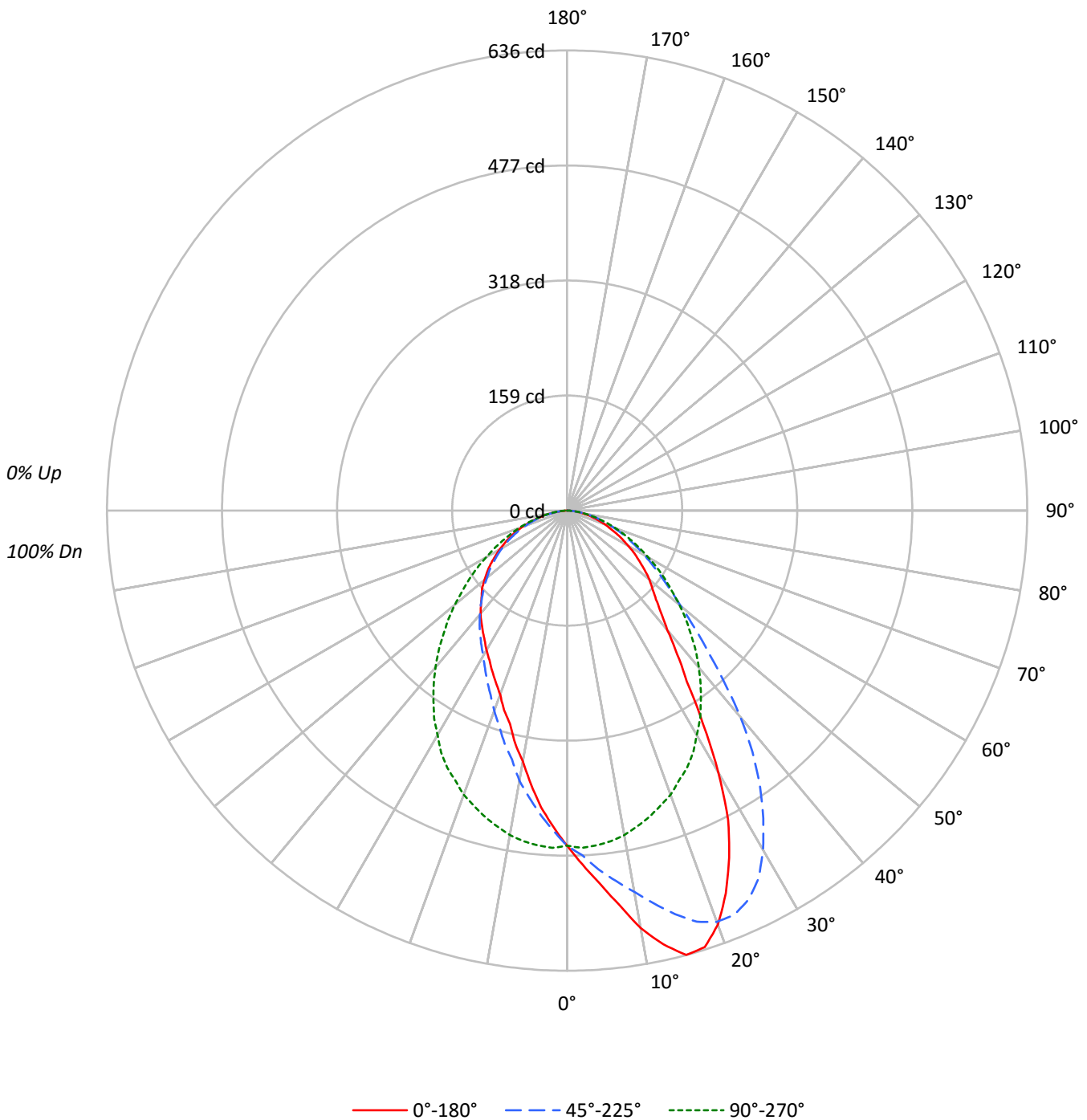
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242304

CATALOG NUMBER: S122DR-S290D930-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242304

CATALOG NUMBER: S122DR-S290D930-X4F0-XX-UDD-A-W

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8823	8823	8823
5°	9891	8880	7870
10°	11334	8806	6810
15°	12538	8645	6016
20°	12347	8473	5485
25°	11135	8243	5147
30°	9200	7874	4903
35°	6706	7487	4727
40°	5356	7034	4630
45°	4679	6508	4499
50°	4400	5998	4409
55°	4055	5479	4291
60°	3714	4930	4110
65°	3385	4435	3930
70°	3074	3954	3670
75°	2723	3422	3246
80°	2347	2830	2622
85°	2098	2098	1552



TEST NUMBER: P242304

CATALOG NUMBER: S122DR-S290D930-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.1	4.3
10°-20°	128.4	12.6
20°-30°	186.4	18.2
30°-40°	196.4	19.2
40°-50°	173.8	17.0
50°-60°	138.8	13.6
60°-70°	94.3	9.2
70°-80°	48.2	4.7
80°-90°	11.4	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	358.9	35.1
0°-40°	555.3	54.3
0°-60°	867.9	84.9
0°-90°	1021.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1021.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	463	463	463	463	463	
5°	517	498	464	422	412	51
15°	636	578	438	333	305	176
25°	530	593	392	261	245	240
35°	288	465	322	209	203	187
45°	174	275	242	166	167	136
55°	122	158	165	124	129	109
65°	75	94	98	82	87	75
75°	37	45	46	42	44	39
85°	10	10	10	8	7	11
90°	0	0	0	0	0	



TEST NUMBER: P242304

CATALOG NUMBER: S122DR-S290D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2
2.5°	489.9	490.1	490.4	487.6	487.2	487.2	484.7	482.6	480.1	476.7	477.1
5°	517.3	519.3	520.0	517.8	514.6	514.3	511.2	506.3	501.6	497.9	495.2
7.5°	549.0	549.7	548.3	545.8	543.6	539.5	534.6	529.8	522.6	516.2	511.6
10°	586.0	587.1	584.0	580.0	576.6	571.6	563.4	555.0	544.9	535.1	527.3
12.5°	614.1	617.2	613.1	613.4	607.0	599.7	589.6	586.4	571.1	556.5	547.9
15°	635.8	635.7	636.0	632.6	628.4	627.3	617.0	605.8	585.7	577.6	563.8
17.5°	632.6	635.1	636.6	635.5	634.8	633.2	628.7	620.4	609.3	595.8	579.2
20°	609.1	612.7	613.2	617.3	619.7	622.7	623.9	622.0	615.7	604.9	591.0
22.5°	572.8	573.2	575.1	582.1	587.8	596.5	601.1	609.9	608.4	604.5	593.5
25°	529.8	528.0	534.2	537.4	549.0	561.1	569.8	579.4	588.0	593.1	589.7
27.5°	482.0	478.3	487.7	496.1	504.3	516.0	529.2	544.9	556.8	573.0	576.9
30°	418.3	419.9	428.8	437.9	452.1	470.7	486.0	503.6	522.6	541.3	554.3
32.5°	349.6	356.9	361.7	376.8	389.0	410.1	434.3	457.5	482.4	504.3	526.2
35°	288.4	295.5	303.3	313.5	331.1	351.6	373.5	403.2	435.6	464.6	488.5
37.5°	249.6	248.3	253.1	260.6	275.7	293.4	319.3	349.6	388.4	420.6	452.7
40°	215.4	214.7	217.9	224.6	235.5	247.6	269.7	295.5	330.9	372.6	412.6
42.5°	191.9	192.6	194.0	198.3	204.9	214.3	229.5	250.5	282.1	320.8	364.6
45°	173.7	175.0	176.9	179.3	183.5	191.7	201.0	216.6	242.3	275.0	317.4
47.5°	159.5	159.9	162.0	164.1	166.6	171.6	179.8	189.8	209.3	237.3	275.2
50°	148.5	147.2	148.6	150.2	152.9	156.1	161.1	170.4	182.5	204.0	234.4
52.5°	134.9	135.3	136.5	136.9	139.2	142.4	146.9	152.6	163.2	178.9	202.6
55°	122.1	123.0	123.7	124.8	126.9	129.2	132.8	137.1	145.6	158.3	176.8
57.5°	110.0	110.4	110.9	113.2	114.5	116.6	120.2	124.1	129.8	139.6	154.2
60°	97.5	97.5	99.0	99.9	101.6	103.8	106.4	110.2	115.2	122.8	134.0
62.5°	86.2	86.0	86.3	87.9	89.2	91.1	93.8	96.8	101.5	108.1	116.8
65°	75.1	74.8	75.8	76.2	77.6	79.6	81.7	85.1	88.8	93.8	102.0
67.5°	64.1	64.6	65.3	66.0	66.8	69.1	70.5	73.0	76.2	80.5	86.2
70°	55.2	55.2	55.2	55.7	56.8	57.9	59.3	61.2	64.3	67.8	72.8
72.5°	45.2	45.9	46.6	46.1	47.5	48.1	49.8	50.7	53.6	55.5	59.8
75°	37.0	37.0	37.0	37.9	38.5	39.0	40.1	41.1	42.5	45.4	47.7
77.5°	29.2	29.0	29.2	29.4	30.1	30.8	31.2	32.0	33.5	34.9	37.0
80°	21.4	21.7	21.9	22.3	22.3	22.6	22.8	24.0	24.9	25.8	27.1
82.5°	15.3	15.3	15.3	15.3	15.5	15.7	16.2	16.4	16.6	17.3	18.2
85°	9.6	9.4	9.4	9.8	9.6	9.6	10.0	10.3	10.3	10.5	11.0
87.5°	4.6	4.6	4.8	4.6	4.6	4.8	4.8	4.6	4.8	5.0	5.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242304

CATALOG NUMBER: S122DR-S290D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2
2.5°	478.3	476.9	476.0	472.8	469.9	467.1	466.2	466.6	462.6	458.9	457.3
5°	493.8	490.2	486.9	482.0	476.4	470.1	466.9	464.4	458.2	451.4	447.5
7.5°	507.9	503.2	497.2	488.6	480.8	471.5	465.9	461.0	452.3	443.2	437.7
10°	520.5	513.6	505.2	494.2	484.0	472.1	463.7	455.3	444.7	433.3	426.2
12.5°	531.4	521.4	513.2	498.2	485.8	470.1	459.8	447.2	435.8	421.7	414.8
15°	549.9	532.6	516.9	500.9	486.1	465.3	454.3	438.4	423.7	406.9	398.9
17.5°	563.6	544.9	520.7	501.3	484.9	462.6	446.8	427.9	411.2	392.7	382.0
20°	575.0	552.7	526.2	502.0	481.3	455.0	437.4	418.0	397.5	376.0	364.2
22.5°	581.7	558.1	531.9	499.3	474.2	448.8	425.4	403.7	382.9	359.2	346.8
25°	582.1	560.7	533.0	498.1	468.5	439.5	412.8	392.2	367.1	345.3	327.4
27.5°	576.2	559.3	532.4	495.6	461.9	428.6	399.6	377.0	350.5	327.0	309.0
30°	563.2	554.3	528.3	491.3	453.7	417.3	384.5	358.0	331.6	307.8	289.3
32.5°	543.1	542.9	520.9	485.3	445.0	402.8	368.7	341.8	311.9	288.6	271.1
35°	515.5	524.1	509.6	475.6	433.6	389.3	352.6	322.0	291.8	269.3	252.8
37.5°	480.4	500.2	494.5	462.8	419.0	374.9	335.0	303.0	274.0	250.8	234.6
40°	444.0	471.0	474.9	447.7	403.4	357.6	314.7	282.9	254.7	234.1	217.7
42.5°	404.8	437.5	450.0	429.5	386.3	339.5	296.6	263.3	235.5	215.6	201.5
45°	360.1	401.9	421.3	408.9	366.9	319.2	275.0	241.6	216.3	197.4	186.2
47.5°	319.7	365.1	389.8	384.0	346.1	298.7	255.1	222.5	197.4	182.1	171.6
50°	276.3	323.3	354.8	356.2	323.3	276.4	232.7	202.4	179.8	165.7	157.5
52.5°	238.5	282.9	317.9	327.0	297.8	253.3	212.5	182.5	163.2	150.6	143.5
55°	206.7	244.6	282.7	296.6	272.5	229.8	191.5	165.0	146.3	137.4	131.0
57.5°	176.4	209.7	245.8	260.4	245.1	207.6	170.5	147.2	131.4	123.4	118.4
60°	153.4	178.4	209.7	228.0	215.2	182.6	151.3	129.4	117.0	110.0	105.4
62.5°	132.1	153.4	178.7	195.1	189.6	159.3	132.1	113.4	103.1	96.7	93.6
65°	112.5	129.9	150.4	165.9	161.3	138.0	115.0	98.4	89.9	84.7	82.1
67.5°	95.8	109.1	123.7	138.0	134.0	116.8	97.4	84.0	77.4	72.8	71.2
70°	80.1	89.7	102.4	113.2	110.2	96.7	82.1	71.0	65.5	61.8	60.2
72.5°	65.2	72.6	81.5	89.9	88.1	77.4	65.9	58.2	54.3	50.9	49.7
75°	51.4	57.5	63.4	69.2	68.7	60.0	52.9	46.5	43.1	40.4	39.9
77.5°	40.2	44.0	48.2	52.0	51.1	45.4	39.5	35.6	32.9	31.2	31.0
80°	29.0	31.0	33.8	36.3	35.1	32.9	28.5	25.8	24.0	22.3	21.5
82.5°	19.0	21.0	22.4	23.5	22.6	20.6	18.3	16.7	15.8	14.8	14.6
85°	11.0	12.1	12.8	13.2	12.8	11.6	10.3	9.6	8.7	8.2	8.0
87.5°	5.3	5.3	5.3	5.7	5.2	5.2	4.5	3.9	3.7	3.6	3.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242304

CATALOG NUMBER: S122DR-S290D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2
2.5°	455.5	454.5	450.7	448.8	445.6	442.5	440.6	441.5	442.2	441.8	441.3
5°	444.0	440.6	435.4	431.0	427.8	421.9	419.4	418.1	417.1	415.8	414.6
7.5°	431.1	426.3	419.0	413.3	407.6	400.2	396.4	394.3	392.0	389.3	386.8
10°	417.3	409.8	401.9	393.0	385.9	379.3	373.5	369.5	366.0	362.6	360.1
12.5°	402.7	393.8	383.6	370.6	362.6	352.5	352.8	345.2	339.1	337.3	334.3
15°	387.0	374.9	362.6	348.2	342.0	333.4	328.1	322.7	317.9	314.5	313.7
17.5°	369.9	353.7	341.8	331.1	321.0	312.2	307.6	303.3	299.2	294.2	294.1
20°	349.8	336.3	322.9	313.8	303.3	294.4	288.4	284.1	280.7	278.1	275.7
22.5°	330.7	315.6	303.7	293.5	283.2	276.4	272.0	267.9	265.2	262.2	260.1
25°	310.1	298.5	285.2	274.0	265.4	260.8	256.9	253.3	251.5	249.6	247.1
27.5°	292.5	279.7	266.5	257.8	249.9	245.8	242.8	240.1	238.5	237.3	235.7
30°	273.6	260.6	250.8	242.3	236.0	231.9	230.2	228.7	226.8	226.1	225.4
32.5°	255.4	244.1	236.0	228.9	223.0	220.7	219.1	217.9	216.5	215.7	214.1
35°	238.5	228.7	220.6	216.5	211.7	209.3	208.1	206.3	204.9	204.2	204.0
37.5°	222.3	213.4	207.9	202.4	200.1	198.8	197.1	195.8	195.3	195.1	194.9
40°	206.7	199.7	194.9	190.6	189.8	187.6	186.2	185.1	185.1	185.3	185.1
42.5°	192.4	186.4	182.3	178.7	177.7	176.6	175.2	175.3	175.7	176.4	175.7
45°	178.0	173.6	170.5	168.8	166.8	165.5	165.4	165.9	166.1	166.3	166.8
47.5°	164.5	161.6	158.8	156.6	155.8	155.6	155.2	156.1	157.0	157.2	158.1
50°	152.7	149.3	147.0	145.8	145.1	144.7	145.1	146.1	146.9	147.7	148.3
52.5°	139.6	137.4	136.0	135.1	134.9	135.3	135.3	136.5	137.8	138.0	138.1
55°	127.6	125.9	125.5	123.9	124.6	124.4	125.3	126.0	127.1	128.2	128.3
57.5°	115.5	113.9	112.9	113.0	113.2	113.9	114.6	115.9	117.1	118.4	118.4
60°	103.4	102.7	102.2	102.2	102.5	103.6	104.5	105.7	106.4	107.2	107.7
62.5°	92.4	91.7	91.1	91.5	92.6	93.1	94.2	94.7	95.4	96.1	96.3
65°	80.6	80.3	80.8	81.2	81.4	82.2	83.5	84.0	84.7	85.1	86.3
67.5°	70.0	70.0	69.8	70.3	71.4	71.6	72.8	74.2	74.2	74.9	75.8
70°	59.1	59.5	59.8	60.2	61.1	61.4	62.3	62.8	63.5	64.1	64.6
72.5°	49.1	49.1	49.5	49.3	50.0	50.9	51.6	52.2	52.9	53.6	54.1
75°	39.3	39.3	39.7	39.9	40.8	41.7	41.5	41.8	42.5	43.3	43.6
77.5°	30.4	30.1	30.4	30.6	31.0	31.7	31.9	32.4	33.3	33.1	33.5
80°	21.9	21.4	21.9	22.1	22.1	23.0	23.0	23.3	23.9	23.3	23.9
82.5°	14.1	13.9	14.2	14.2	14.6	14.4	14.8	14.8	15.3	15.1	15.3
85°	7.8	7.7	7.8	7.7	7.8	8.0	8.0	7.8	7.8	8.2	7.7
87.5°	3.0	2.8	2.7	2.7	2.5	2.3	2.1	2.1	2.1	1.8	1.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242304

CATALOG NUMBER: S122DR-S290D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	463.2	463.2	463.2	463.2
2.5°	439.5	439.1	439.1	437.5
5°	412.1	411.6	410.7	411.6
7.5°	386.1	383.8	383.4	381.7
10°	357.1	355.7	355.5	352.1
12.5°	335.0	331.1	332.0	330.4
15°	308.8	308.8	308.1	305.1
17.5°	290.2	290.0	288.4	289.4
20°	273.8	272.7	270.6	270.6
22.5°	258.3	258.5	256.2	257.0
25°	246.9	245.5	244.4	244.9
27.5°	235.2	234.6	234.4	232.8
30°	225.2	223.4	223.8	222.9
32.5°	213.8	213.4	212.9	212.2
35°	203.6	203.8	202.9	203.3
37.5°	194.6	195.3	194.7	194.7
40°	185.7	185.7	185.7	186.2
42.5°	177.1	176.8	176.4	176.2
45°	167.2	167.7	167.9	167.0
47.5°	158.4	158.6	158.4	159.5
50°	149.2	148.8	149.2	148.8
52.5°	139.4	139.6	139.2	139.2
55°	129.1	129.4	129.2	129.2
57.5°	118.6	118.7	119.1	118.2
60°	107.5	108.4	108.2	107.9
62.5°	97.4	97.5	97.5	97.5
65°	86.9	87.2	86.7	87.2
67.5°	75.5	75.7	76.0	76.2
70°	65.0	64.8	65.3	65.9
72.5°	53.9	54.5	54.1	54.5
75°	43.3	43.8	43.6	44.1
77.5°	33.1	33.3	33.3	33.5
80°	23.9	23.5	23.1	23.9
82.5°	14.8	15.1	14.8	14.6
85°	7.7	7.5	7.1	7.1
87.5°	1.8	1.6	1.6	1.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)