

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: P243154

Luminaire Tested: **S122DR-H290D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243154
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-H290D835-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1255.2 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

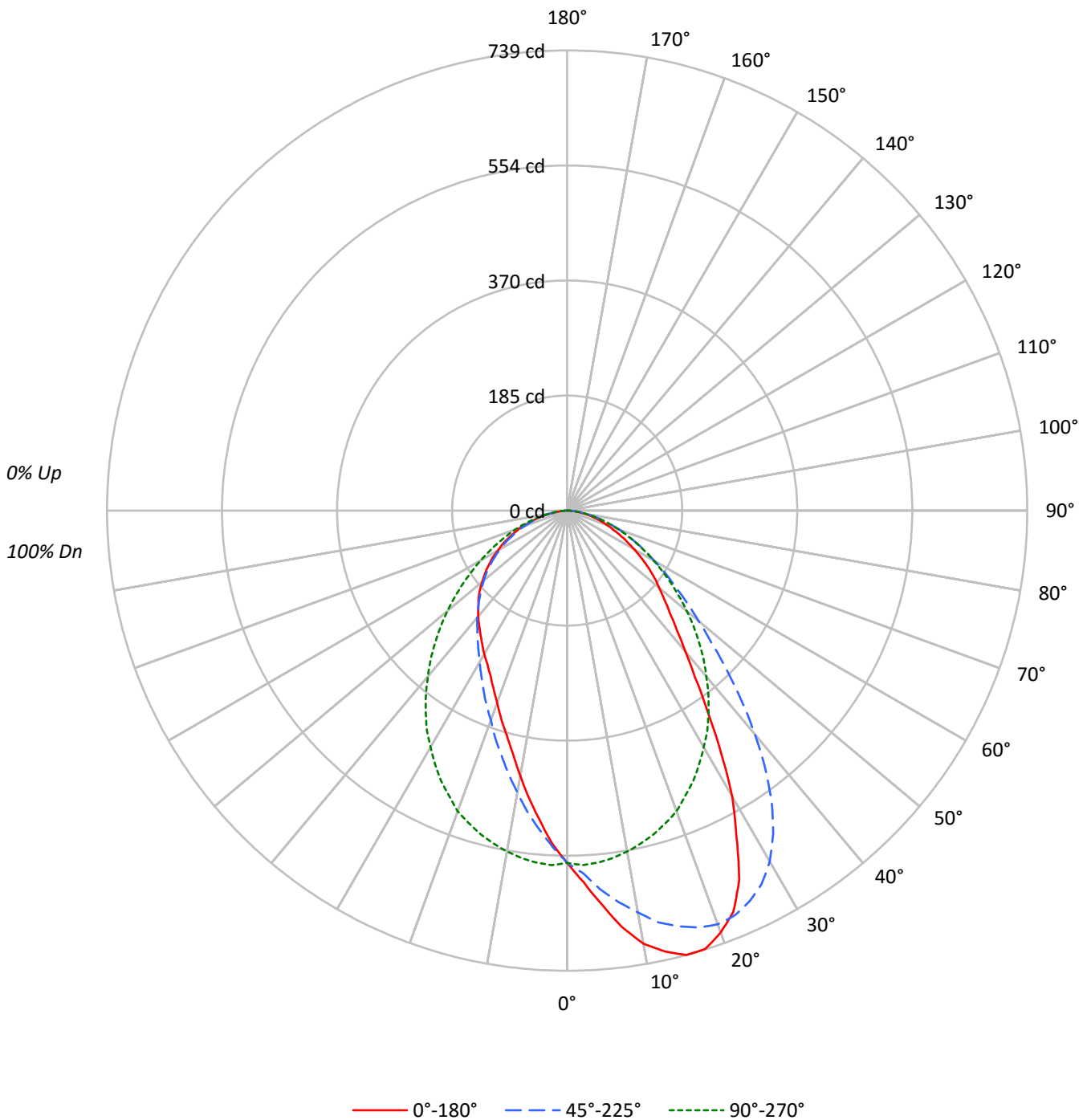
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243154

CATALOG NUMBER: S122DR-H290D835-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P243154

CATALOG NUMBER: S122DR-H290D835-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	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66	63
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40	39
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	10773	10773	10773
5°	12136	10851	9558
10°	13661	10754	8365
15°	14573	10609	7373
20°	14615	10417	6655
25°	13745	10071	6133
30°	11668	9651	5857
35°	9122	9201	5637
40°	7330	8646	5527
45°	6303	8076	5425
50°	5719	7432	5272
55°	5270	6771	5131
60°	4739	6099	4895
65°	4264	5481	4660
70°	3798	4873	4361
75°	3422	4188	3820
80°	2984	3378	2984
85°	2557	2513	1639



TEST NUMBER: P243154

CATALOG NUMBER: S122DR-H290D835-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.9	4.3
10°-20°	154.9	12.3
20°-30°	225.3	17.9
30°-40°	241.6	19.3
40°-50°	216.6	17.3
50°-60°	172.6	13.8
60°-70°	116.8	9.3
70°-80°	59.6	4.7
80°-90°	14.0	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°	434.0	34.6
0°-40°	675.7	53.8
0°-60°	1064.9	84.8
0°-90°	1255.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1255.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	566	566	566	566	566	
5°	635	610	568	514	500	63
15°	739	691	538	407	374	207
25°	654	693	479	318	292	294
35°	392	573	396	251	242	249
45°	234	363	300	199	201	183
55°	159	211	204	150	154	142
65°	95	122	122	99	103	94
75°	46	58	57	49	52	50
85°	12	13	12	9	8	14
90°	0	0	0	0	0	



TEST NUMBER: P243154

CATALOG NUMBER: S122DR-H290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6
2.5°	597.0	598.9	597.3	596.6	595.4	595.0	591.6	588.9	587.2	582.6	583.0
5°	634.7	638.9	636.6	636.4	631.8	628.9	625.9	621.8	615.5	610.4	606.5
7.5°	674.5	672.4	671.8	669.5	666.1	661.9	655.5	649.4	641.4	634.1	628.7
10°	706.3	705.7	706.7	700.9	698.8	692.3	686.6	677.2	667.0	655.5	648.3
12.5°	725.2	727.1	728.5	726.2	721.2	719.3	709.9	696.7	693.1	677.4	668.9
15°	739.0	739.8	740.0	737.5	735.0	730.2	724.5	716.2	704.7	691.0	684.6
17.5°	738.1	737.9	739.2	737.7	736.3	734.8	730.4	723.9	714.9	702.1	691.3
20°	721.0	724.7	727.7	728.3	728.1	728.9	726.8	722.7	716.2	707.0	694.6
22.5°	697.5	696.1	702.3	701.9	704.7	710.9	713.7	712.0	709.5	703.6	693.8
25°	654.0	655.5	659.9	664.5	675.1	678.9	687.1	693.3	694.2	692.7	686.6
27.5°	588.7	599.1	601.4	607.5	622.4	634.7	651.3	661.1	675.1	676.4	673.7
30°	530.5	530.1	533.6	544.5	558.1	576.7	598.1	623.4	639.5	650.6	654.6
32.5°	458.9	460.6	469.8	483.2	497.0	515.6	540.3	571.3	592.9	615.9	628.9
35°	392.3	397.5	406.3	415.5	430.6	456.2	483.6	509.3	542.4	573.2	594.1
37.5°	337.5	344.6	351.3	360.1	374.7	394.4	419.1	453.2	486.1	523.1	553.9
40°	294.8	297.5	302.1	310.7	320.5	340.2	365.1	390.6	426.2	468.7	509.1
42.5°	261.3	260.6	265.7	271.1	280.1	294.8	316.5	342.1	377.4	415.1	456.0
45°	234.0	234.3	236.3	242.0	249.1	257.5	274.2	298.3	325.1	362.6	405.9
47.5°	211.9	212.5	215.6	219.6	223.8	231.5	242.6	258.3	283.5	314.9	355.5
50°	193.0	194.1	196.2	199.1	202.2	207.7	216.0	228.4	248.3	274.9	311.7
52.5°	176.3	176.7	177.3	180.0	182.5	187.6	193.9	203.5	219.2	241.4	270.1
55°	158.7	158.3	159.7	162.0	164.3	167.9	174.4	182.1	193.2	210.8	234.5
57.5°	140.7	141.3	142.4	143.6	147.8	151.6	156.4	163.5	172.3	186.1	205.8
60°	124.4	124.4	125.6	127.3	130.0	132.5	137.1	143.6	151.4	162.0	178.6
62.5°	108.4	109.3	110.5	111.4	113.9	117.0	120.6	125.6	132.7	141.3	153.7
65°	94.6	94.2	95.5	97.1	99.0	101.1	105.1	109.3	114.7	122.5	132.7
67.5°	80.4	81.6	82.1	82.9	84.4	87.1	89.0	93.4	97.8	104.7	113.3
70°	68.2	69.1	69.7	70.8	72.0	73.3	75.2	78.7	83.1	87.9	94.0
72.5°	57.4	58.0	57.4	58.4	59.0	60.3	62.8	64.5	67.8	72.0	77.5
75°	46.5	46.9	46.7	47.7	47.9	49.2	50.5	51.9	55.7	58.0	61.8
77.5°	36.4	36.8	37.1	37.5	37.9	38.5	39.1	40.6	42.7	44.8	47.7
80°	27.2	27.2	27.8	28.1	28.3	28.7	29.7	30.1	31.6	32.2	34.5
82.5°	18.8	19.1	19.3	19.3	19.5	19.9	20.1	20.9	21.4	22.4	23.4
85°	11.7	11.9	11.9	11.9	12.6	12.4	12.4	12.8	13.4	13.4	13.8
87.5°	5.9	6.1	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.7	6.5
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: P243154

CATALOG NUMBER: S122DR-H290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6
2.5°	582.8	582.6	581.8	578.0	575.1	571.3	570.7	570.0	564.8	559.2	557.5
5°	603.3	599.6	594.3	588.0	581.8	574.9	570.9	567.5	559.6	550.8	545.8
7.5°	623.4	616.1	607.9	598.1	587.6	576.5	569.4	562.7	551.8	540.3	533.4
10°	640.6	630.8	619.4	606.5	592.0	577.0	566.5	556.0	542.2	528.2	519.0
12.5°	654.8	642.3	627.4	609.8	596.6	575.9	561.3	547.4	532.2	513.9	503.9
15°	665.7	653.4	633.3	615.5	598.1	570.5	552.7	538.0	517.5	499.7	483.8
17.5°	678.9	661.3	641.4	615.9	596.6	565.0	544.9	525.9	503.7	482.7	465.2
20°	684.8	666.3	645.0	616.5	592.0	559.2	532.4	513.9	487.1	463.1	443.2
22.5°	685.6	668.0	644.8	614.6	584.1	550.6	519.8	495.7	468.9	443.4	421.0
25°	682.0	665.3	641.2	611.3	575.3	541.4	507.0	479.2	448.2	421.8	399.0
27.5°	672.4	658.8	636.0	604.0	566.3	527.1	489.7	459.3	428.7	398.8	377.0
30°	656.9	647.9	628.2	594.3	554.8	511.6	474.2	438.8	405.7	377.7	354.2
32.5°	637.0	632.6	616.3	582.8	543.0	494.7	455.5	419.1	383.1	356.5	332.4
35°	611.7	614.0	600.2	569.8	528.2	477.5	433.8	395.7	360.5	332.2	310.0
37.5°	578.8	590.1	581.3	552.9	509.1	460.1	410.9	372.6	335.8	308.6	289.1
40°	542.0	561.9	557.7	533.8	488.6	439.8	389.0	347.7	311.7	286.0	267.3
42.5°	498.7	527.5	532.2	510.6	468.3	414.5	364.3	324.5	289.7	264.4	246.6
45°	450.1	485.9	501.4	484.4	444.6	390.0	338.9	299.8	265.4	243.9	229.0
47.5°	401.3	444.4	465.4	457.2	417.0	363.8	313.8	275.5	243.0	224.2	210.2
50°	353.2	399.4	430.0	424.5	389.8	338.9	288.5	250.8	221.1	203.7	191.8
52.5°	310.9	354.6	387.9	390.6	359.4	310.5	261.7	226.7	201.4	185.7	175.6
55°	269.2	309.8	346.3	353.0	327.6	280.5	237.0	203.9	180.9	167.9	159.7
57.5°	232.0	268.8	305.0	316.7	296.2	253.7	210.4	181.3	161.4	151.4	144.2
60°	200.3	233.6	264.8	276.8	262.7	224.0	186.1	160.1	143.6	134.6	129.0
62.5°	172.7	198.5	226.1	239.3	229.9	196.2	163.1	140.1	126.7	118.9	114.5
65°	147.8	167.7	189.5	204.7	194.3	169.1	141.5	121.6	110.3	103.2	100.1
67.5°	124.8	141.3	158.7	170.8	165.6	142.8	119.5	104.0	94.6	89.2	86.2
70°	103.8	116.2	130.2	139.6	135.9	118.3	99.9	87.5	79.6	75.8	73.3
72.5°	85.2	93.2	103.8	111.6	107.6	95.3	82.1	72.2	66.4	62.0	60.1
75°	67.6	74.5	82.1	87.3	84.2	74.9	64.5	56.9	53.0	50.2	49.0
77.5°	51.3	56.7	62.0	64.5	63.0	56.3	49.2	43.3	40.0	38.3	36.8
80°	36.8	40.0	43.5	45.8	45.0	40.4	35.4	30.8	29.3	27.2	26.8
82.5°	24.7	27.2	28.1	29.1	28.5	26.4	22.8	20.1	18.8	17.8	17.6
85°	14.7	15.3	16.3	16.3	15.7	14.2	12.4	11.5	10.3	10.0	9.4
87.5°	6.5	6.5	6.5	6.5	6.5	6.1	5.2	4.8	4.4	4.2	4.0
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: P243154

CATALOG NUMBER: S122DR-H290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6
2.5°	556.0	553.9	551.0	547.6	544.7	540.1	538.6	538.6	539.7	538.4	537.4
5°	541.6	537.4	533.2	526.7	521.3	513.9	511.8	509.8	509.5	507.4	504.7
7.5°	526.1	519.8	511.2	502.0	496.1	488.2	483.8	482.5	478.6	474.8	470.4
10°	508.1	498.4	488.2	479.4	470.2	459.9	454.7	451.1	447.2	442.6	439.4
12.5°	486.3	475.4	466.0	455.7	448.0	433.6	431.9	427.3	419.3	412.4	409.9
15°	472.9	453.9	443.2	433.8	422.0	407.2	401.7	396.7	389.2	384.8	381.2
17.5°	449.3	432.1	418.7	406.1	394.8	383.3	375.1	371.0	364.9	361.1	357.6
20°	427.7	409.1	395.0	380.4	368.7	358.2	351.3	346.0	342.9	339.1	335.6
22.5°	405.9	386.4	373.1	358.2	344.4	338.1	329.9	325.5	321.3	318.4	314.6
25°	380.6	365.1	348.3	336.8	324.7	318.2	310.5	306.3	302.9	299.6	297.7
27.5°	358.0	342.3	326.8	315.3	305.0	298.7	293.9	289.9	285.8	283.2	281.8
30°	334.5	320.1	306.5	295.4	287.4	280.5	277.6	273.8	270.7	269.6	267.3
32.5°	313.6	297.5	286.6	276.5	269.8	265.0	262.9	259.0	258.3	257.3	256.0
35°	292.7	278.8	268.4	259.8	254.1	250.6	247.9	246.8	245.8	244.7	243.7
37.5°	271.9	261.1	251.2	244.3	239.7	237.0	236.3	234.3	234.0	232.6	232.6
40°	253.3	242.2	235.3	229.9	226.1	224.8	223.2	222.7	222.1	221.7	222.5
42.5°	234.7	227.1	221.3	215.6	212.7	211.6	211.2	210.6	210.2	211.4	211.9
45°	217.3	210.8	205.8	201.8	200.1	198.9	198.9	199.5	199.3	199.9	199.9
47.5°	201.2	195.3	191.1	189.7	187.6	187.2	187.4	187.2	188.2	189.0	189.9
50°	185.9	180.7	177.3	175.8	175.4	174.8	175.6	176.1	176.7	177.5	177.9
52.5°	168.9	166.4	164.3	162.9	162.7	162.9	162.7	164.1	164.8	166.0	165.8
55°	154.5	152.6	151.1	149.5	149.3	149.9	150.3	151.6	152.4	153.4	153.2
57.5°	140.9	139.4	137.7	137.3	137.1	137.3	139.2	139.0	140.3	141.1	141.5
60°	126.0	125.0	123.5	123.5	124.1	124.6	125.2	126.2	127.5	127.3	128.7
62.5°	112.4	111.2	110.7	111.4	111.2	112.2	112.8	112.8	114.5	115.1	115.6
65°	98.8	98.4	97.8	97.8	98.4	98.6	99.6	100.3	100.9	102.2	103.2
67.5°	86.0	85.0	85.0	84.6	85.4	86.0	86.7	87.5	87.9	89.4	90.0
70°	72.6	72.2	72.0	72.4	72.4	73.1	74.1	75.2	76.0	76.2	77.5
72.5°	59.7	59.7	59.7	60.3	60.7	61.3	61.5	62.4	63.6	63.8	64.5
75°	47.9	48.1	47.9	48.1	48.4	49.0	49.4	50.2	51.1	51.3	51.7
77.5°	37.1	36.6	36.2	36.8	37.3	38.5	38.3	38.7	39.6	39.1	39.6
80°	26.0	26.6	25.7	27.0	27.0	26.8	27.2	27.8	27.6	28.1	27.6
82.5°	17.6	17.0	17.0	17.6	17.8	17.2	17.6	17.8	18.0	17.6	17.4
85°	9.6	9.4	9.8	9.2	9.4	9.0	9.0	8.6	9.0	8.6	8.2
87.5°	3.6	3.3	3.6	2.9	2.7	2.5	2.3	2.3	1.9	1.9	1.9
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: P243154

CATALOG NUMBER: S122DR-H290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	565.6	565.6	565.6	565.6
2.5°	538.9	536.5	535.5	536.3
5°	501.8	502.4	498.7	499.9
7.5°	469.8	467.0	467.9	466.4
10°	435.9	434.4	432.1	432.5
12.5°	413.0	403.2	402.6	400.7
15°	381.0	375.6	374.3	373.9
17.5°	355.5	350.9	352.5	351.3
20°	332.4	332.6	329.9	328.3
22.5°	312.1	311.7	310.7	309.0
25°	295.0	295.0	292.5	291.8
27.5°	279.3	279.7	277.6	277.6
30°	267.5	266.1	265.9	266.3
32.5°	255.8	254.1	254.4	254.1
35°	243.3	243.7	243.0	242.4
37.5°	232.6	232.6	232.6	232.0
40°	222.1	222.5	221.9	222.3
42.5°	211.6	211.9	211.9	211.0
45°	201.2	201.0	200.6	201.4
47.5°	190.3	190.3	190.1	190.5
50°	178.4	178.8	178.2	177.9
52.5°	166.2	166.4	166.2	166.6
55°	153.9	153.9	154.1	154.5
57.5°	141.1	142.6	141.5	142.4
60°	128.5	128.7	129.0	128.5
62.5°	116.6	116.4	116.6	117.2
65°	103.6	104.0	103.8	103.4
67.5°	90.9	90.4	91.1	90.4
70°	77.2	78.1	77.5	78.3
72.5°	64.9	64.7	65.1	64.1
75°	51.9	51.9	52.1	51.9
77.5°	39.8	39.4	39.1	38.5
80°	27.4	27.4	26.6	27.2
82.5°	16.7	17.0	17.2	15.9
85°	8.0	8.0	7.7	7.5
87.5°	1.7	1.7	1.9	2.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)