

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: P242294

Luminaire Tested: **S122DR-S290D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242294
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-S290D835-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1253.3 lumens
Efficiency: N/A
Efficacy: 108.0 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

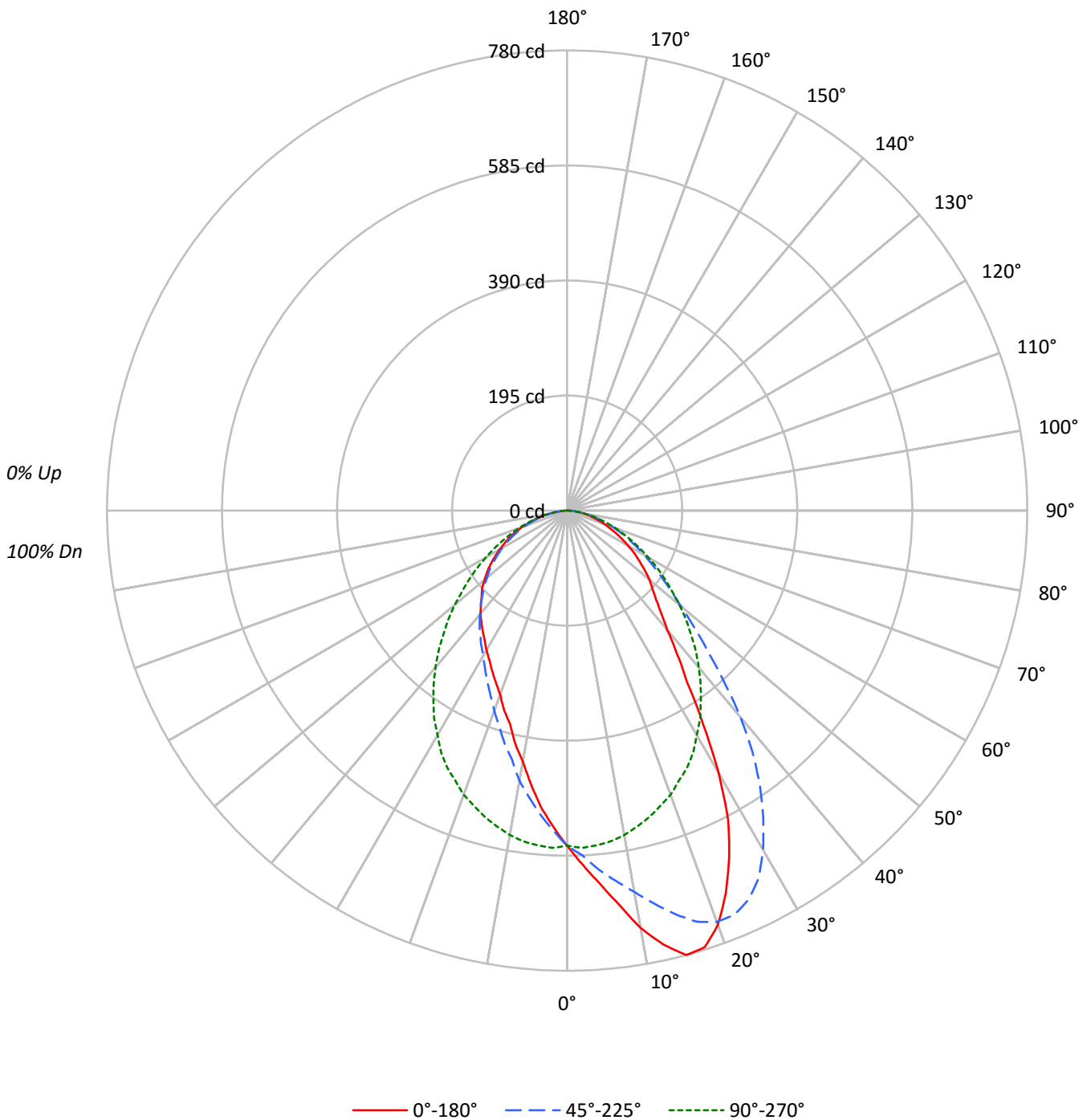
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	10821	10821	10821
5°	12132	10891	9652
10°	13903	10802	8354
15°	15379	10605	7379
20°	15144	10393	6728
25°	13657	10109	6313
30°	11285	9658	6013
35°	8225	9185	5797
40°	6569	8626	5679
45°	5740	7982	5517
50°	5396	7355	5408
55°	4975	6721	5264
60°	4556	6046	5040
65°	4151	5440	4823
70°	3770	4851	4500
75°	3341	4195	3981
80°	2874	3477	3214
85°	2579	2579	1901



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.1	4.3
10°-20°	157.5	12.6
20°-30°	228.6	18.2
30°-40°	241.0	19.2
40°-50°	213.2	17.0
50°-60°	170.2	13.6
60°-70°	115.6	9.2
70°-80°	59.2	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°	440.2	35.1
0°-40°	681.1	54.3
0°-60°	1064.5	84.9
0°-90°	1253.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1253.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	568	568	568	568	568	
5°	634	611	570	518	505	63
15°	780	708	538	409	374	216
25°	650	728	481	320	300	295
35°	354	570	395	257	249	229
45°	213	337	296	203	205	167
55°	150	194	202	153	158	134
65°	92	115	121	101	107	91
75°	45	56	57	51	54	48
85°	12	13	12	10	9	13
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1
2.5°	600.9	601.1	601.5	598.0	597.6	597.6	594.5	591.9	588.9	584.7	585.1
5°	634.5	636.9	637.8	635.1	631.2	630.8	627.1	620.9	615.3	610.7	607.4
7.5°	673.3	674.2	672.5	669.4	666.8	661.8	655.7	649.8	641.0	633.2	627.5
10°	718.8	720.1	716.4	711.3	707.2	701.1	691.0	680.8	668.3	656.3	646.7
12.5°	753.3	757.0	752.0	752.4	744.5	735.6	723.1	719.2	700.4	682.5	672.0
15°	779.9	779.7	780.1	776.0	770.7	769.4	756.8	743.0	718.3	708.5	691.5
17.5°	776.0	779.0	780.8	779.5	778.6	776.6	771.2	760.9	747.4	730.8	710.5
20°	747.1	751.5	752.2	757.2	760.0	763.7	765.3	762.9	755.2	741.9	724.9
22.5°	702.6	703.0	705.4	714.0	720.9	731.6	737.3	748.0	746.3	741.5	727.9
25°	649.8	647.6	655.2	659.2	673.3	688.2	698.9	710.7	721.2	727.5	723.3
27.5°	591.3	586.7	598.2	608.5	618.5	633.0	649.1	668.3	683.0	702.8	707.6
30°	513.1	515.1	526.0	537.1	554.6	577.3	596.1	617.7	641.0	664.0	679.9
32.5°	428.8	437.8	443.7	462.2	477.1	503.0	532.7	561.1	591.7	618.5	645.4
35°	353.7	362.4	372.0	384.5	406.1	431.2	458.1	494.5	534.3	569.9	599.1
37.5°	306.1	304.6	310.5	319.6	338.2	359.8	391.7	428.8	476.4	515.9	555.2
40°	264.2	263.3	267.2	275.5	288.9	303.7	330.8	362.4	405.9	457.0	506.1
42.5°	235.4	236.2	238.0	243.2	251.3	262.9	281.4	307.2	346.1	393.4	447.2
45°	213.1	214.6	217.0	219.9	225.1	235.1	246.5	265.7	297.2	337.3	389.3
47.5°	195.6	196.1	198.7	201.3	204.4	210.5	220.5	232.7	256.8	291.0	337.5
50°	182.1	180.6	182.3	184.3	187.6	191.5	197.6	208.9	223.8	250.2	287.5
52.5°	165.5	165.9	167.5	167.9	170.7	174.7	180.1	187.1	200.2	219.4	248.5
55°	149.8	150.9	151.7	153.1	155.7	158.5	162.9	168.1	178.6	194.1	216.8
57.5°	134.9	135.4	136.0	138.9	140.4	143.0	147.4	152.2	159.2	171.2	189.1
60°	119.6	119.6	121.4	122.5	124.7	127.3	130.6	135.2	141.3	150.7	164.4
62.5°	105.7	105.5	105.9	107.9	109.4	111.8	115.1	118.8	124.5	132.5	143.2
65°	92.1	91.7	93.0	93.4	95.2	97.6	100.2	104.4	108.9	115.1	125.1
67.5°	78.6	79.3	80.1	81.0	81.9	84.7	86.5	89.5	93.4	98.7	105.7
70°	67.7	67.7	67.7	68.3	69.6	71.0	72.7	75.1	78.8	83.2	89.3
72.5°	55.5	56.3	57.2	56.5	58.3	59.0	61.1	62.2	65.7	68.1	73.4
75°	45.4	45.4	45.4	46.5	47.2	47.8	49.1	50.4	52.2	55.7	58.5
77.5°	35.8	35.6	35.8	36.0	36.9	37.8	38.2	39.3	41.0	42.8	45.4
80°	26.2	26.6	26.9	27.3	27.3	27.7	27.9	29.5	30.6	31.7	33.2
82.5°	18.8	18.8	18.8	18.8	19.0	19.2	19.9	20.1	20.3	21.2	22.3
85°	11.8	11.6	11.6	12.0	11.8	11.8	12.2	12.7	12.7	12.9	13.5
87.5°	5.7	5.7	5.9	5.7	5.7	5.9	5.9	5.7	5.9	6.1	6.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1
2.5°	586.7	584.9	583.8	579.9	576.4	572.9	571.8	572.3	567.5	562.9	560.9
5°	605.7	601.3	597.1	591.3	584.3	576.6	572.7	569.6	562.0	553.7	548.9
7.5°	622.9	617.2	609.8	599.3	589.7	578.4	571.4	565.5	554.8	543.7	536.9
10°	638.4	629.9	619.6	606.1	593.7	579.0	568.8	558.5	545.4	531.4	522.7
12.5°	651.7	639.5	629.5	611.1	595.8	576.6	564.0	548.5	534.5	517.2	508.7
15°	674.4	653.3	634.0	614.4	596.3	570.7	557.2	537.8	519.6	499.1	489.3
17.5°	691.3	668.3	638.6	614.8	594.7	567.5	548.0	524.9	504.4	481.6	468.5
20°	705.2	677.9	645.4	615.7	590.4	558.1	536.5	512.7	487.5	461.1	446.7
22.5°	713.5	684.5	652.4	612.4	581.6	550.4	521.8	495.2	469.6	440.6	425.3
25°	714.0	687.8	653.7	610.9	574.7	539.1	506.3	481.0	450.2	423.6	401.5
27.5°	706.8	686.0	653.0	607.8	566.6	525.8	490.2	462.4	429.9	401.1	379.0
30°	690.8	679.9	648.0	602.6	556.5	511.8	471.6	439.1	406.8	377.5	354.8
32.5°	666.1	665.9	638.9	595.2	545.8	494.1	452.2	419.2	382.5	353.9	332.5
35°	632.3	642.8	625.1	583.4	531.9	477.5	432.5	395.0	357.9	330.3	310.0
37.5°	589.3	613.5	606.5	567.7	514.0	459.8	410.9	371.6	336.0	307.6	287.8
40°	544.5	577.7	582.5	549.1	494.7	438.6	386.0	346.9	312.4	287.1	267.0
42.5°	496.5	536.7	552.0	526.8	473.8	416.4	363.7	322.9	288.9	264.4	247.2
45°	441.7	493.0	516.8	501.5	450.0	391.5	337.3	296.3	265.3	242.1	228.4
47.5°	392.1	447.8	478.2	471.0	424.4	366.4	312.9	272.9	242.1	223.4	210.5
50°	338.9	396.5	435.1	436.9	396.5	339.1	285.4	248.2	220.5	203.3	193.2
52.5°	292.6	346.9	389.9	401.1	365.3	310.7	260.7	223.8	200.2	184.7	176.0
55°	253.5	300.0	346.7	363.7	334.3	281.9	234.9	202.4	179.5	168.6	160.7
57.5°	216.4	257.2	301.5	319.4	300.6	254.6	209.2	180.6	161.1	151.3	145.2
60°	188.2	218.8	257.2	279.7	264.0	224.0	185.6	158.7	143.4	134.9	129.3
62.5°	162.0	188.2	219.2	239.3	232.5	195.4	162.0	139.1	126.4	118.6	114.8
65°	138.0	159.4	184.5	203.5	197.8	169.2	141.0	120.7	110.3	103.9	100.7
67.5°	117.5	133.8	151.7	169.2	164.4	143.2	119.4	103.1	95.0	89.3	87.3
70°	98.3	110.0	125.5	138.9	135.2	118.6	100.7	87.1	80.3	75.8	73.8
72.5°	79.9	89.1	100.0	110.3	108.1	95.0	80.8	71.4	66.6	62.4	60.9
75°	63.1	70.5	77.7	84.9	84.3	73.6	64.8	57.0	52.8	49.6	48.9
77.5°	49.3	53.9	59.2	63.8	62.7	55.7	48.5	43.7	40.4	38.2	38.0
80°	35.6	38.0	41.5	44.5	43.0	40.4	34.9	31.7	29.5	27.3	26.4
82.5°	23.4	25.8	27.5	28.8	27.7	25.3	22.5	20.5	19.4	18.1	17.9
85°	13.5	14.8	15.7	16.2	15.7	14.2	12.7	11.8	10.7	10.0	9.8
87.5°	6.6	6.6	6.6	7.0	6.3	6.3	5.5	4.8	4.6	4.4	3.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1
2.5°	558.7	557.4	552.8	550.4	546.5	542.8	540.4	541.5	542.3	541.9	541.3
5°	544.5	540.4	534.1	528.6	524.7	517.5	514.4	512.9	511.6	510.0	508.5
7.5°	528.8	522.9	514.0	507.0	500.0	490.8	486.2	483.6	480.8	477.5	474.4
10°	511.8	502.6	493.0	482.1	473.4	465.3	458.1	453.3	448.9	444.8	441.7
12.5°	493.9	483.0	470.5	454.6	444.8	432.3	432.7	423.4	415.9	413.7	410.0
15°	474.7	459.8	444.8	427.1	419.4	408.9	402.4	395.8	389.9	385.8	384.7
17.5°	453.7	433.8	419.2	406.1	393.7	383.0	377.3	372.0	367.0	360.9	360.7
20°	429.0	412.4	396.1	384.9	372.0	361.1	353.7	348.5	344.3	341.0	338.2
22.5°	405.7	387.1	372.5	360.0	347.4	339.1	333.6	328.6	325.3	321.6	319.0
25°	380.3	366.1	349.8	336.0	325.5	319.9	315.1	310.7	308.5	306.1	303.1
27.5°	358.7	343.0	326.8	316.2	306.5	301.5	297.8	294.5	292.6	291.0	289.1
30°	335.6	319.6	307.6	297.2	289.5	284.5	282.3	280.6	278.2	277.3	276.4
32.5°	313.3	299.3	289.5	280.8	273.6	270.7	268.8	267.2	265.5	264.6	262.7
35°	292.6	280.6	270.5	265.5	259.6	256.8	255.2	253.1	251.3	250.4	250.2
37.5°	272.7	261.8	255.0	248.2	245.4	243.9	241.7	240.2	239.5	239.3	239.1
40°	253.5	245.0	239.1	233.8	232.7	230.1	228.4	227.1	227.1	227.3	227.1
42.5°	236.0	228.6	223.6	219.2	217.9	216.6	214.8	215.1	215.5	216.4	215.5
45°	218.3	212.9	209.2	207.0	204.6	203.1	202.8	203.5	203.7	203.9	204.6
47.5°	201.7	198.2	194.8	192.1	191.0	190.8	190.4	191.5	192.6	192.8	193.9
50°	187.3	183.2	180.3	178.8	177.9	177.5	177.9	179.3	180.1	181.2	181.9
52.5°	171.2	168.6	166.8	165.7	165.5	165.9	165.9	167.5	169.0	169.2	169.4
55°	156.5	154.4	153.9	152.0	152.8	152.6	153.7	154.6	155.9	157.2	157.4
57.5°	141.7	139.7	138.4	138.6	138.9	139.7	140.6	142.1	143.7	145.2	145.2
60°	126.9	126.0	125.3	125.3	125.8	127.1	128.2	129.7	130.6	131.4	132.1
62.5°	113.3	112.4	111.8	112.2	113.5	114.2	115.5	116.2	117.0	117.9	118.1
65°	98.9	98.5	99.1	99.6	99.8	100.9	102.4	103.1	103.9	104.4	105.9
67.5°	85.8	85.8	85.6	86.2	87.6	87.8	89.3	91.0	91.0	91.9	93.0
70°	72.5	72.9	73.4	73.8	74.9	75.3	76.4	77.1	77.9	78.6	79.3
72.5°	60.3	60.3	60.7	60.5	61.4	62.4	63.3	64.0	64.8	65.7	66.4
75°	48.3	48.3	48.7	48.9	50.0	51.1	50.9	51.3	52.2	53.1	53.5
77.5°	37.3	36.9	37.3	37.6	38.0	38.9	39.1	39.7	40.8	40.6	41.0
80°	26.9	26.2	26.9	27.1	27.1	28.2	28.2	28.6	29.3	28.6	29.3
82.5°	17.2	17.0	17.5	17.5	17.9	17.7	18.1	18.1	18.8	18.6	18.8
85°	9.6	9.4	9.6	9.4	9.6	9.8	9.8	9.6	9.6	10.0	9.4
87.5°	3.7	3.5	3.3	3.3	3.1	2.8	2.6	2.6	2.6	2.2	2.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CATALOG NUMBER: S122DR-S290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	568.1	568.1	568.1	568.1
2.5°	539.1	538.6	538.6	536.7
5°	505.4	504.8	503.7	504.8
7.5°	473.6	470.7	470.3	468.1
10°	438.0	436.2	436.0	431.9
12.5°	410.9	406.1	407.2	405.2
15°	378.8	378.8	377.9	374.2
17.5°	355.9	355.7	353.7	355.0
20°	335.8	334.5	331.9	331.9
22.5°	316.8	317.0	314.2	315.3
25°	302.8	301.1	299.8	300.4
27.5°	288.4	287.8	287.5	285.6
30°	276.2	274.0	274.4	273.4
32.5°	262.2	261.8	261.1	260.3
35°	249.8	250.0	248.9	249.3
37.5°	238.6	239.5	238.9	238.9
40°	227.7	227.7	227.7	228.4
42.5°	217.2	216.8	216.4	216.2
45°	205.0	205.7	205.9	204.8
47.5°	194.3	194.5	194.3	195.6
50°	183.0	182.5	183.0	182.5
52.5°	171.0	171.2	170.7	170.7
55°	158.3	158.7	158.5	158.5
57.5°	145.4	145.6	146.1	145.0
60°	131.9	133.0	132.7	132.3
62.5°	119.4	119.6	119.6	119.6
65°	106.5	107.0	106.3	107.0
67.5°	92.6	92.8	93.2	93.4
70°	79.7	79.5	80.1	80.8
72.5°	66.2	66.8	66.4	66.8
75°	53.1	53.7	53.5	54.1
77.5°	40.6	40.8	40.8	41.0
80°	29.3	28.8	28.4	29.3
82.5°	18.1	18.6	18.1	17.9
85°	9.4	9.2	8.7	8.7
87.5°	2.2	2.0	2.0	1.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)