

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: P243169

Luminaire Tested: **S122DR-H290D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243169
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-H290D935-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1080.7 lumens
Efficiency: N/A
Efficacy: 96.5 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

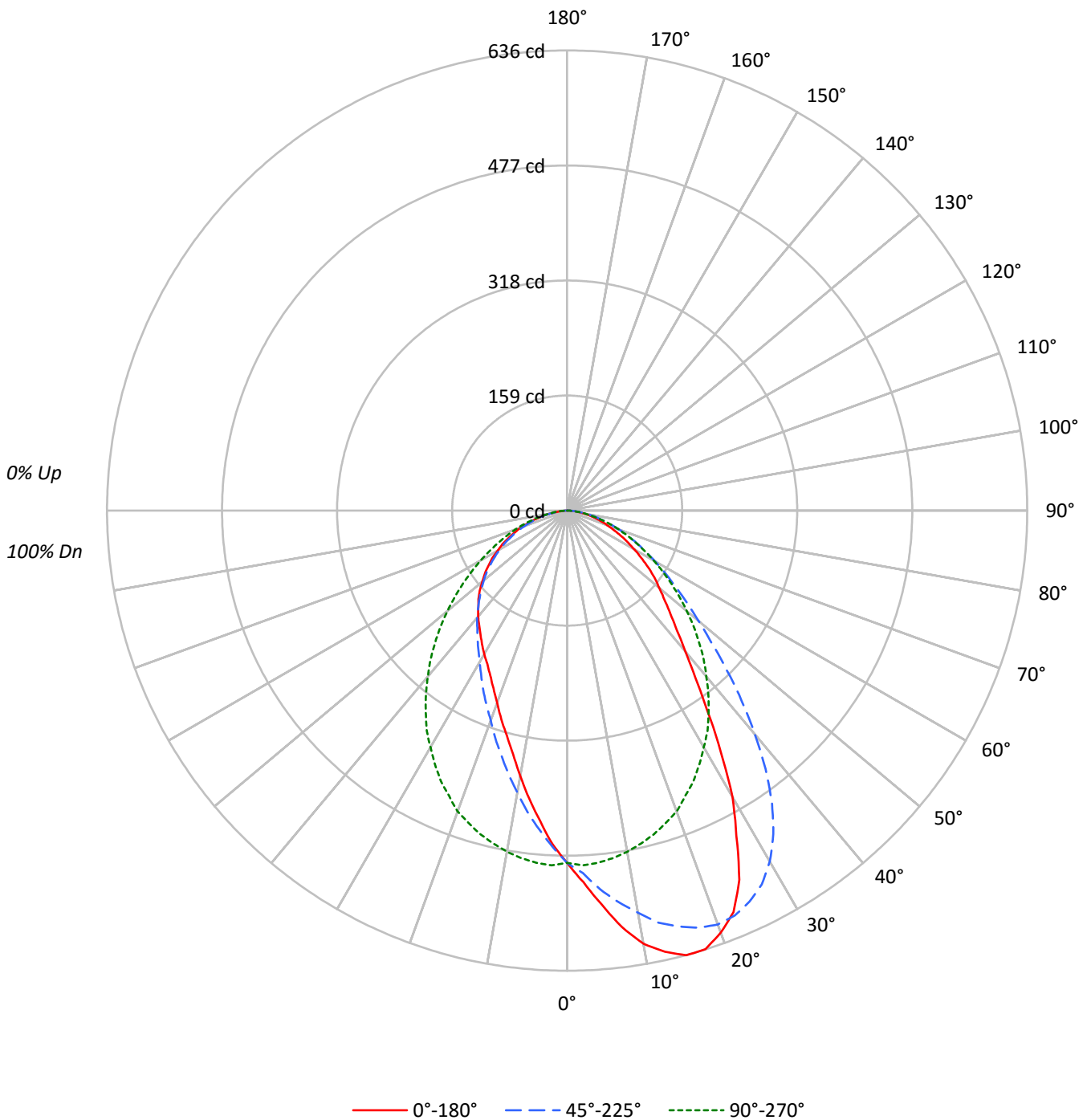
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	9276	9276	9276
5°	10449	9342	8229
10°	11762	9259	7203
15°	12548	9134	6348
20°	12584	8970	5728
25°	11835	8672	5282
30°	10045	8309	5043
35°	7855	7922	4853
40°	6311	7445	4759
45°	5428	6953	4671
50°	4925	6398	4540
55°	4536	5831	4417
60°	4080	5253	4217
65°	3673	4719	4011
70°	3275	4194	3754
75°	2944	3606	3290
80°	2567	2907	2567
85°	2207	2164	1421



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.4	4.3
10°-20°	133.4	12.3
20°-30°	193.9	17.9
30°-40°	208.0	19.3
40°-50°	186.5	17.3
50°-60°	148.6	13.8
60°-70°	100.6	9.3
70°-80°	51.3	4.7
80°-90°	12.0	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°	373.7	34.6
0°-40°	581.7	53.8
0°-60°	916.8	84.8
0°-90°	1080.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1080.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	487	487	487	487	487	
5°	546	526	489	442	430	54
15°	636	595	463	351	322	178
25°	563	596	413	274	251	253
35°	338	494	341	216	209	214
45°	202	312	258	171	173	158
55°	137	182	176	129	133	122
65°	82	105	105	85	89	81
75°	40	50	49	42	45	43
85°	10	12	10	8	6	12
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°	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0
2.5°	514.1	515.7	514.2	513.7	512.6	512.3	509.4	507.0	505.6	501.6	502.0
5°	546.5	550.1	548.1	547.9	544.0	541.5	538.9	535.3	529.9	525.6	522.2
7.5°	580.7	578.9	578.4	576.4	573.5	569.9	564.3	559.1	552.3	546.0	541.3
10°	608.1	607.6	608.5	603.5	601.7	596.1	591.2	583.1	574.3	564.3	558.2
12.5°	624.4	626.0	627.3	625.3	620.9	619.3	611.2	599.9	596.8	583.3	575.9
15°	636.3	637.0	637.2	635.0	632.8	628.7	623.8	616.6	606.7	595.0	589.4
17.5°	635.5	635.4	636.4	635.2	633.9	632.7	628.9	623.3	615.5	604.5	595.2
20°	620.8	624.0	626.5	627.1	626.9	627.6	625.8	622.2	616.6	608.7	598.1
22.5°	600.6	599.3	604.7	604.4	606.7	612.1	614.5	613.0	610.8	605.8	597.3
25°	563.1	564.3	568.1	572.1	581.3	584.5	591.6	597.0	597.7	596.4	591.2
27.5°	506.8	515.9	517.8	523.1	535.9	546.5	560.7	569.2	581.3	582.4	580.0
30°	456.7	456.4	459.4	468.8	480.5	496.6	515.0	536.8	550.6	560.2	563.6
32.5°	395.1	396.5	404.5	416.0	427.9	443.9	465.2	491.9	510.5	530.3	541.5
35°	337.8	342.3	349.9	357.8	370.8	392.8	416.4	438.5	467.0	493.5	511.5
37.5°	290.6	296.7	302.5	310.0	322.6	339.6	360.9	390.2	418.5	450.4	476.9
40°	253.8	256.1	260.1	267.5	276.0	292.9	314.3	336.3	367.0	403.6	438.4
42.5°	224.9	224.4	228.7	233.4	241.2	253.8	272.5	294.5	325.0	357.4	392.6
45°	201.5	201.7	203.5	208.4	214.5	221.7	236.1	256.8	279.9	312.2	349.5
47.5°	182.4	182.9	185.7	189.1	192.7	199.4	208.9	222.4	244.1	271.1	306.1
50°	166.2	167.1	168.9	171.4	174.1	178.8	186.0	196.6	213.8	236.7	268.4
52.5°	151.8	152.1	152.7	155.0	157.2	161.5	166.9	175.2	188.7	207.8	232.5
55°	136.6	136.3	137.5	139.5	141.5	144.6	150.1	156.8	166.4	181.5	201.9
57.5°	121.1	121.7	122.6	123.6	127.3	130.5	134.6	140.8	148.3	160.2	177.2
60°	107.1	107.1	108.1	109.6	111.9	114.1	118.1	123.6	130.3	139.5	153.7
62.5°	93.4	94.1	95.2	95.9	98.1	100.8	103.8	108.1	114.3	121.7	132.3
65°	81.5	81.1	82.2	83.6	85.3	87.1	90.5	94.1	98.8	105.4	114.3
67.5°	69.2	70.3	70.7	71.4	72.6	75.0	76.6	80.4	84.2	90.1	97.5
70°	58.8	59.5	60.0	60.9	62.0	63.1	64.7	67.8	71.6	75.7	80.9
72.5°	49.4	49.9	49.4	50.3	50.8	51.9	54.1	55.5	58.4	62.0	66.7
75°	40.0	40.4	40.2	41.1	41.3	42.4	43.4	44.7	47.9	49.9	53.2
77.5°	31.4	31.7	31.9	32.3	32.6	33.2	33.7	35.0	36.8	38.6	41.1
80°	23.4	23.4	24.0	24.2	24.3	24.7	25.6	26.0	27.2	27.8	29.7
82.5°	16.2	16.4	16.6	16.6	16.8	17.1	17.3	18.0	18.4	19.3	20.2
85°	10.1	10.3	10.3	10.3	10.8	10.6	10.6	11.0	11.5	11.5	11.9
87.5°	5.0	5.2	5.2	5.2	5.4	5.4	5.4	5.4	5.4	5.8	5.6
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°	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0
2.5°	501.8	501.6	500.9	497.7	495.1	491.9	491.3	490.8	486.3	481.4	480.0
5°	519.5	516.2	511.7	506.3	500.9	495.0	491.5	488.6	481.8	474.2	469.9
7.5°	536.8	530.5	523.4	515.0	505.9	496.4	490.3	484.5	475.1	465.2	459.3
10°	551.5	543.1	533.3	522.2	509.7	496.8	487.7	478.7	466.8	454.8	446.8
12.5°	563.8	553.0	540.2	525.1	513.7	495.9	483.2	471.3	458.2	442.5	433.8
15°	573.2	562.5	545.2	529.9	515.0	491.2	475.8	463.2	445.6	430.2	416.5
17.5°	584.5	569.4	552.3	530.3	513.7	486.5	469.2	452.8	433.7	415.6	400.5
20°	589.6	573.7	555.3	530.8	509.7	481.4	458.4	442.5	419.4	398.7	381.6
22.5°	590.3	575.2	555.2	529.2	502.9	474.0	447.5	426.8	403.7	381.8	362.5
25°	587.2	572.8	552.1	526.3	495.3	466.1	436.6	412.6	385.9	363.2	343.5
27.5°	578.9	567.2	547.6	520.0	487.6	453.9	421.6	395.5	369.1	343.4	324.6
30°	565.6	557.9	540.9	511.7	477.6	440.5	408.3	377.8	349.3	325.2	305.0
32.5°	548.5	544.7	530.6	501.8	467.6	425.9	392.2	360.9	329.8	307.0	286.2
35°	526.7	528.7	516.8	490.6	454.8	411.1	373.5	340.7	310.4	286.0	266.9
37.5°	498.4	508.1	500.5	476.0	438.4	396.2	353.8	320.8	289.1	265.7	248.9
40°	466.7	483.8	480.2	459.6	420.7	378.7	334.9	299.4	268.4	246.2	230.2
42.5°	429.3	454.2	458.2	439.6	403.2	356.9	313.6	279.4	249.5	227.6	212.3
45°	387.5	418.3	431.7	417.1	382.8	335.8	291.8	258.1	228.6	210.0	197.2
47.5°	345.5	382.7	400.7	393.7	359.0	313.3	270.2	237.2	209.3	193.0	181.0
50°	304.1	343.9	370.2	365.5	335.6	291.8	248.4	215.9	190.3	175.4	165.1
52.5°	267.7	305.3	334.0	336.3	309.5	267.3	225.3	195.2	173.4	159.9	151.2
55°	231.8	266.8	298.1	303.9	282.1	241.5	204.0	175.6	155.7	144.6	137.5
57.5°	199.7	231.4	262.6	272.7	255.0	218.5	181.1	156.1	139.0	130.3	124.2
60°	172.5	201.2	228.0	238.3	226.2	192.9	160.2	137.9	123.6	115.9	111.0
62.5°	148.7	170.9	194.7	206.0	197.9	168.9	140.4	120.6	109.0	102.4	98.6
65°	127.3	144.4	163.1	176.3	167.3	145.6	121.8	104.7	95.0	88.9	86.2
67.5°	107.4	121.7	136.6	147.1	142.6	122.9	102.9	89.6	81.5	76.8	74.3
70°	89.4	100.0	112.1	120.2	117.0	101.8	86.0	75.3	68.5	65.2	63.1
72.5°	73.4	80.2	89.4	96.1	92.6	82.0	70.7	62.2	57.1	53.4	51.7
75°	58.2	64.2	70.7	75.2	72.5	64.5	55.5	49.0	45.6	43.3	42.2
77.5°	44.2	48.8	53.4	55.5	54.3	48.5	42.4	37.3	34.4	33.0	31.7
80°	31.7	34.4	37.5	39.5	38.8	34.8	30.5	26.5	25.2	23.4	23.1
82.5°	21.3	23.4	24.2	25.1	24.5	22.7	19.6	17.3	16.2	15.3	15.1
85°	12.6	13.2	14.1	14.1	13.5	12.3	10.6	9.9	8.8	8.7	8.1
87.5°	5.6	5.6	5.6	5.6	5.6	5.2	4.5	4.1	3.8	3.6	3.4
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°	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0
2.5°	478.7	476.9	474.4	471.5	469.0	465.0	463.8	463.8	464.7	463.6	462.7
5°	466.3	462.7	459.1	453.5	448.8	442.5	440.7	438.9	438.7	436.9	434.6
7.5°	453.0	447.5	440.2	432.2	427.2	420.3	416.5	415.5	412.0	408.8	405.0
10°	437.5	429.2	420.3	412.8	404.8	396.0	391.5	388.4	385.0	381.0	378.3
12.5°	418.7	409.3	401.2	392.4	385.7	373.3	371.8	367.9	361.0	355.1	352.9
15°	407.2	390.8	381.6	373.5	363.4	350.6	345.9	341.6	335.1	331.3	328.2
17.5°	386.8	372.0	360.5	349.7	339.9	330.0	323.0	319.4	314.2	310.9	307.9
20°	368.2	352.2	340.1	327.5	317.4	308.4	302.5	297.9	295.2	292.0	288.9
22.5°	349.5	332.7	321.2	308.4	296.5	291.1	284.1	280.3	276.7	274.2	270.9
25°	327.7	314.3	299.9	290.0	279.6	274.0	267.3	263.7	260.8	257.9	256.3
27.5°	308.2	294.7	281.4	271.4	262.6	257.2	253.1	249.6	246.0	243.9	242.6
30°	288.0	275.6	263.9	254.3	247.5	241.5	239.0	235.8	233.1	232.2	230.2
32.5°	270.0	256.1	246.8	238.1	232.3	228.2	226.4	223.0	222.4	221.5	220.4
35°	252.0	240.1	231.1	223.7	218.8	215.8	213.4	212.5	211.6	210.7	209.8
37.5°	234.1	224.8	216.3	210.3	206.4	204.0	203.5	201.7	201.5	200.3	200.3
40°	218.1	208.5	202.6	197.9	194.7	193.6	192.1	191.8	191.2	190.9	191.6
42.5°	202.1	195.6	190.5	185.7	183.1	182.2	181.9	181.3	181.0	182.0	182.4
45°	187.1	181.5	177.2	173.8	172.3	171.2	171.2	171.8	171.6	172.1	172.1
47.5°	173.2	168.2	164.6	163.3	161.5	161.1	161.3	161.1	162.0	162.8	163.5
50°	160.1	155.6	152.7	151.4	151.0	150.5	151.2	151.6	152.1	152.8	153.2
52.5°	145.5	143.3	141.5	140.2	140.1	140.2	140.1	141.3	141.9	142.9	142.8
55°	133.0	131.4	130.1	128.7	128.5	129.1	129.4	130.5	131.2	132.1	131.9
57.5°	121.3	120.0	118.6	118.2	118.1	118.2	119.9	119.7	120.8	121.5	121.8
60°	108.5	107.6	106.3	106.3	106.9	107.2	107.8	108.7	109.8	109.6	110.9
62.5°	96.8	95.7	95.3	95.9	95.7	96.6	97.2	97.2	98.6	99.1	99.5
65°	85.1	84.7	84.2	84.2	84.7	84.9	85.8	86.3	86.9	88.0	88.9
67.5°	74.1	73.2	73.2	72.8	73.5	74.1	74.6	75.3	75.7	77.0	77.5
70°	62.5	62.2	62.0	62.4	62.4	62.9	63.8	64.7	65.4	65.6	66.7
72.5°	51.4	51.4	51.4	51.9	52.3	52.8	53.0	53.7	54.8	55.0	55.5
75°	41.3	41.5	41.3	41.5	41.6	42.2	42.5	43.3	44.0	44.2	44.5
77.5°	31.9	31.5	31.2	31.7	32.1	33.2	33.0	33.3	34.1	33.7	34.1
80°	22.4	22.9	22.2	23.3	23.3	23.1	23.4	24.0	23.8	24.2	23.8
82.5°	15.1	14.6	14.6	15.1	15.3	14.8	15.1	15.3	15.5	15.1	15.0
85°	8.3	8.1	8.5	7.9	8.1	7.8	7.8	7.4	7.8	7.4	7.0
87.5°	3.1	2.9	3.1	2.5	2.3	2.2	2.0	2.0	1.6	1.6	1.6
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):

	165°	170°	175°	180°
0°	487.0	487.0	487.0	487.0
2.5°	464.0	462.0	461.1	461.8
5°	432.0	432.6	429.3	430.4
7.5°	404.5	402.1	402.8	401.6
10°	375.3	374.0	372.0	372.4
12.5°	355.6	347.2	346.6	345.0
15°	328.0	323.4	322.3	321.9
17.5°	306.1	302.1	303.5	302.5
20°	286.2	286.4	284.1	282.6
22.5°	268.7	268.4	267.5	266.0
25°	254.0	254.0	251.8	251.3
27.5°	240.4	240.8	239.0	239.0
30°	230.4	229.1	228.9	229.3
32.5°	220.3	218.8	219.0	218.8
35°	209.4	209.8	209.3	208.7
37.5°	200.3	200.3	200.3	199.7
40°	191.2	191.6	191.1	191.4
42.5°	182.2	182.4	182.4	181.7
45°	173.2	173.0	172.7	173.4
47.5°	163.8	163.8	163.7	164.0
50°	153.6	153.9	153.4	153.2
52.5°	143.1	143.3	143.1	143.5
55°	132.5	132.5	132.7	133.0
57.5°	121.5	122.7	121.8	122.6
60°	110.7	110.9	111.0	110.7
62.5°	100.4	100.2	100.4	100.9
65°	89.2	89.6	89.4	89.0
67.5°	78.2	77.9	78.4	77.9
70°	66.5	67.2	66.7	67.4
72.5°	55.9	55.7	56.1	55.2
75°	44.7	44.7	44.9	44.7
77.5°	34.2	33.9	33.7	33.2
80°	23.6	23.6	22.9	23.4
82.5°	14.4	14.6	14.8	13.7
85°	6.8	6.8	6.7	6.5
87.5°	1.4	1.4	1.6	1.8
90°	0.0	0.0	0.0	0.0

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