

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: P242653

Luminaire Tested: **S124DR-S350D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242653
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-S350D935-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1252.1 lumens
Efficiency: N/A
Efficacy: 107.9 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

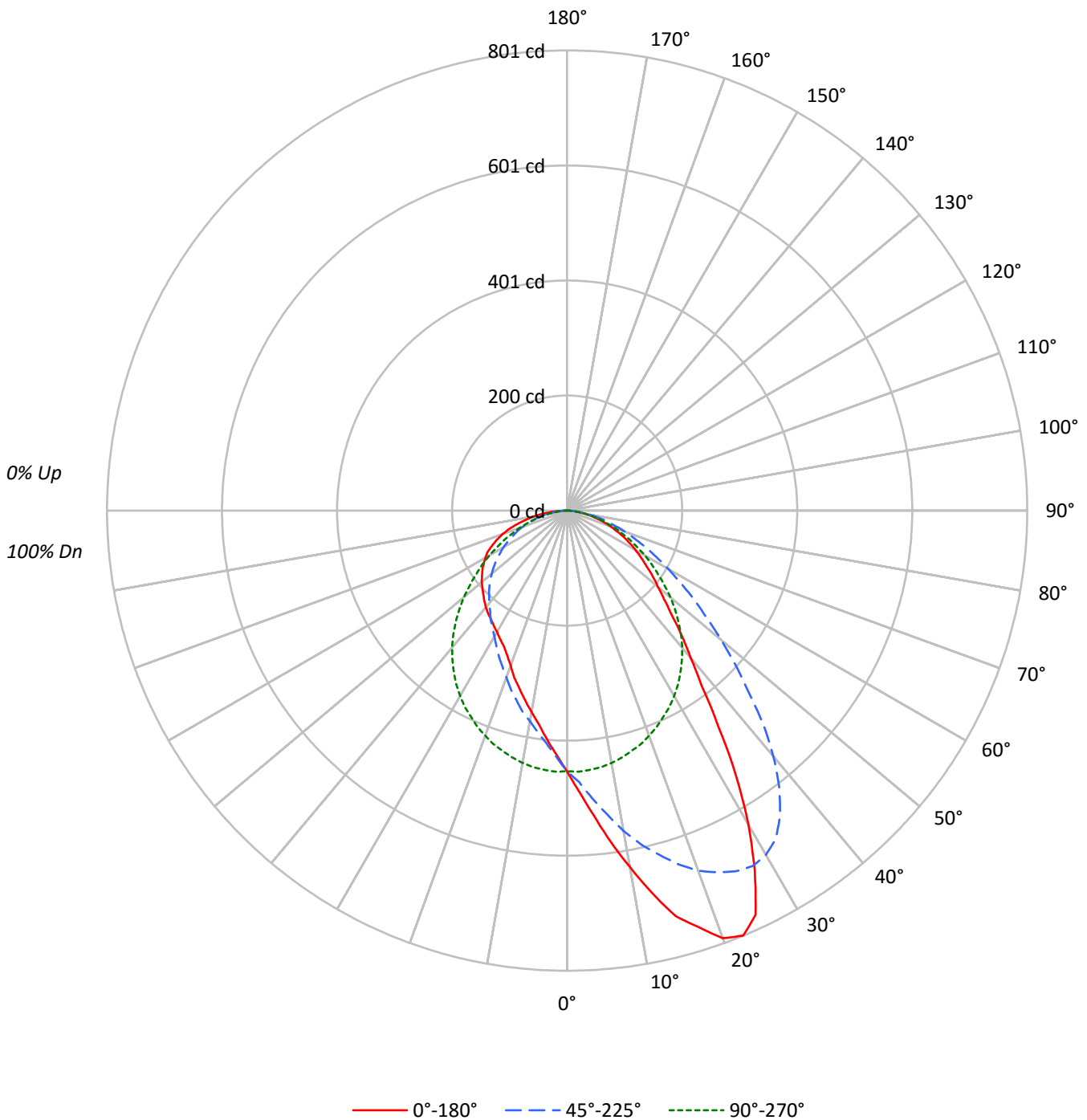
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4034	4034	4034
5°	4750	4044	3569
10°	5687	4026	3213
15°	6729	3986	2951
20°	7493	3944	2717
25°	7614	3883	2555
30°	6479	3824	2504
35°	4981	3729	2504
40°	3883	3617	2552
45°	3237	3447	2595
50°	2849	3241	2683
55°	2610	2994	2791
60°	2446	2773	2921
65°	2278	2526	3029
70°	2082	2282	3098
75°	1858	2009	3060
80°	1561	1643	2964
85°	1152	1193	2835



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.2	3.5
10°-20°	136.3	10.9
20°-30°	216.5	17.3
30°-40°	240.6	19.2
40°-50°	218.8	17.5
50°-60°	178.8	14.3
60°-70°	127.6	10.2
70°-80°	70.2	5.6
80°-90°	19.0	1.5
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°	397.0	31.7
0°-40°	637.6	50.9
0°-60°	1035.2	82.7
0°-90°	1252.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1252.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	454	454	454	454	454	
5°	532	503	453	407	400	54
15°	731	620	433	341	321	207
25°	776	693	396	281	260	344
35°	459	646	344	232	231	291
45°	258	446	274	192	206	202
55°	168	269	193	150	180	152
65°	108	150	120	104	144	107
75°	54	70	58	58	89	57
85°	11	14	12	16	28	14
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°	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8
2.5°	490.2	490.0	488.2	487.8	486.5	484.8	484.4	481.4	475.4	472.6	471.8
5°	532.3	536.1	531.2	530.3	529.7	523.5	520.3	516.5	507.9	502.8	498.9
7.5°	581.6	581.8	579.7	577.6	574.1	568.8	561.6	553.4	543.4	533.3	526.1
10°	630.1	631.6	629.1	628.8	619.2	613.2	601.1	591.0	579.3	566.3	554.5
12.5°	681.2	678.2	677.2	667.3	667.5	655.3	640.8	630.3	610.7	595.3	578.6
15°	731.2	727.1	724.4	713.3	707.9	692.7	677.8	666.3	642.8	620.5	603.6
17.5°	760.1	765.2	758.4	753.9	739.1	729.1	714.3	690.8	673.3	645.5	626.1
20°	792.1	792.5	789.1	784.4	773.3	759.8	743.2	716.9	694.9	667.3	638.0
22.5°	800.7	800.7	799.8	795.5	787.8	777.4	760.7	739.8	712.0	681.4	652.1
25°	776.3	775.6	777.2	782.1	778.9	775.6	766.0	749.6	724.8	693.0	661.5
27.5°	707.1	712.0	722.2	734.2	742.8	750.6	750.0	743.0	725.4	697.9	664.3
30°	631.2	637.6	644.7	656.8	680.1	693.4	708.1	719.2	713.0	692.1	661.3
32.5°	547.7	548.1	559.6	573.7	594.5	623.3	648.7	674.1	685.0	676.5	652.1
35°	459.0	461.6	473.1	486.6	512.8	544.2	579.1	610.3	636.1	646.4	633.3
37.5°	384.6	392.9	401.5	416.9	440.8	469.2	506.8	545.7	583.5	606.4	608.8
40°	334.6	339.3	345.1	356.2	375.7	403.6	434.8	481.0	521.8	558.6	570.7
42.5°	295.1	297.4	300.4	310.1	323.9	351.5	379.3	418.6	459.6	505.4	527.6
45°	257.5	260.3	266.4	272.2	283.5	302.6	329.1	362.6	403.8	446.2	483.5
47.5°	229.3	231.2	235.0	241.4	251.5	264.5	287.0	315.4	355.6	396.8	436.6
50°	206.0	207.5	210.3	216.0	223.3	234.6	252.3	278.4	308.3	349.8	388.7
52.5°	187.6	188.0	189.8	193.2	198.7	207.7	221.4	241.9	269.2	305.1	343.8
55°	168.4	169.2	171.1	173.9	178.9	185.0	196.1	212.2	236.5	268.6	302.3
57.5°	152.6	153.4	154.9	156.0	160.5	165.6	174.6	186.3	205.3	233.8	264.5
60°	137.6	137.2	139.1	140.0	142.9	147.0	153.6	164.7	180.6	202.6	230.3
62.5°	122.9	122.4	123.9	125.2	126.5	129.9	135.0	143.0	155.3	174.6	197.6
65°	108.3	107.5	108.5	110.0	111.5	113.3	117.3	125.0	135.3	149.6	167.9
67.5°	93.2	94.2	94.2	95.1	96.1	98.7	101.5	107.5	114.8	126.5	142.7
70°	80.1	80.3	81.0	81.0	81.6	83.8	86.1	89.3	96.4	107.0	119.5
72.5°	66.9	67.9	67.3	68.0	68.4	69.7	71.2	74.2	80.1	87.2	97.4
75°	54.1	54.7	54.7	54.9	55.5	56.0	57.3	59.6	63.9	69.7	77.1
77.5°	41.7	41.7	42.1	42.9	42.9	43.8	44.9	46.6	49.1	53.4	58.1
80°	30.5	30.8	30.6	31.0	31.0	31.8	32.1	34.4	35.3	38.0	41.5
82.5°	20.3	20.7	20.7	21.2	21.6	21.6	22.2	22.7	23.7	25.9	26.9
85°	11.3	11.7	11.3	11.7	12.2	12.4	13.0	13.2	13.9	14.5	15.8
87.5°	4.1	4.7	4.7	4.9	5.3	5.5	5.6	5.5	6.2	6.4	7.1
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°	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8
2.5°	472.0	469.4	467.5	466.0	461.8	459.4	457.5	454.9	451.9	448.7	444.7
5°	494.9	488.5	483.8	476.7	469.9	464.3	458.5	453.2	446.8	439.8	434.8
7.5°	518.4	509.6	497.7	488.5	477.4	467.9	459.4	450.6	441.2	432.1	423.7
10°	540.6	528.4	514.8	498.9	483.8	470.5	458.1	446.0	434.4	422.7	412.8
12.5°	564.5	548.5	526.9	507.5	490.2	471.2	455.6	440.2	425.6	413.2	401.1
15°	585.3	563.3	540.2	515.2	493.0	472.2	451.7	433.1	417.3	401.1	389.8
17.5°	598.5	571.2	546.4	520.3	494.7	468.6	447.4	426.5	406.9	391.2	377.1
20°	611.5	584.4	551.5	525.4	493.4	466.3	440.8	416.9	396.2	379.1	364.5
22.5°	622.7	590.4	557.5	521.0	489.3	460.1	431.6	407.5	386.3	368.0	354.1
25°	625.4	589.5	553.8	519.5	483.5	449.4	424.1	395.9	373.3	354.3	339.3
27.5°	626.3	588.3	548.7	511.5	474.2	443.2	410.1	385.5	362.2	342.1	327.8
30°	624.2	584.2	540.8	499.6	462.2	427.8	400.0	372.6	348.7	328.8	313.7
32.5°	617.7	575.6	530.6	486.5	447.4	413.9	385.0	359.2	336.1	316.5	300.6
35°	603.8	562.6	515.0	469.7	430.1	396.0	370.1	343.6	320.3	301.7	286.5
37.5°	585.1	546.8	498.5	451.3	413.2	378.6	352.4	328.0	307.0	287.8	272.0
40°	559.2	526.5	478.0	432.3	390.2	357.7	333.6	311.7	290.8	272.9	258.1
42.5°	529.3	501.9	458.1	409.0	368.8	336.1	312.8	293.6	274.2	258.1	243.2
45°	492.7	473.9	431.8	387.0	344.7	313.9	291.5	274.2	257.7	241.5	229.1
47.5°	451.9	441.3	404.7	361.8	321.2	290.4	271.0	254.5	239.5	225.4	214.3
50°	410.7	406.2	375.6	334.6	296.2	267.7	248.1	234.4	222.0	210.0	199.6
52.5°	370.1	371.0	344.2	307.5	272.7	245.5	226.1	213.5	203.2	194.0	185.0
55°	328.6	333.8	312.2	278.8	247.0	222.2	204.7	193.2	185.7	177.6	170.7
57.5°	290.4	299.2	280.4	249.8	222.9	199.2	183.8	175.0	166.7	161.5	156.0
60°	253.2	261.5	247.6	222.7	197.7	178.2	163.7	156.0	149.1	145.7	142.1
62.5°	220.1	227.3	217.9	195.3	174.4	155.8	144.2	136.8	132.7	128.9	126.9
65°	188.9	195.1	186.3	169.5	150.9	135.9	125.9	120.1	115.6	114.1	111.5
67.5°	158.1	163.7	159.0	144.4	128.6	116.7	108.8	102.6	100.0	98.5	96.8
70°	131.2	136.8	131.8	119.4	107.9	98.3	91.0	87.8	85.0	84.4	81.8
72.5°	108.5	111.8	106.8	97.7	88.3	80.6	75.4	72.0	70.9	69.7	68.6
75°	84.8	88.2	84.8	77.3	70.3	64.7	59.8	58.5	56.8	56.2	55.3
77.5°	63.5	66.7	64.1	59.0	53.6	48.9	46.1	44.2	44.0	42.9	43.2
80°	45.9	47.7	45.3	42.1	38.0	35.0	33.1	32.1	31.0	30.6	31.4
82.5°	29.7	30.3	29.3	27.4	24.6	22.9	21.8	20.7	20.7	20.9	20.7
85°	17.1	16.9	16.7	14.8	13.9	12.6	11.8	11.7	11.5	11.8	12.2
87.5°	7.1	7.3	7.1	6.4	5.8	5.3	5.1	4.9	5.1	5.3	5.5
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°	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8	453.8
2.5°	442.9	441.2	438.7	435.3	432.5	429.5	428.8	427.6	429.9	428.0	427.4
5°	430.4	426.5	421.4	415.6	412.2	407.3	406.4	404.5	402.6	402.4	400.6
7.5°	417.5	412.0	405.6	399.6	394.4	389.1	385.7	385.3	382.3	380.8	378.9
10°	405.1	397.9	390.2	384.6	378.2	372.6	368.6	366.3	364.5	362.4	360.5
12.5°	390.4	382.7	376.7	370.5	362.6	358.6	351.5	347.2	347.2	347.7	342.1
15°	379.7	372.2	362.4	353.8	349.6	341.3	337.8	333.3	330.4	327.6	325.4
17.5°	366.5	357.3	349.8	340.0	332.3	326.1	321.2	318.8	314.3	310.1	307.3
20°	354.3	344.4	336.3	325.7	317.1	309.0	305.1	301.3	298.1	294.7	291.5
22.5°	341.9	331.4	321.0	310.9	303.0	294.4	290.6	285.1	282.1	280.6	277.4
25°	328.8	317.5	306.2	296.4	288.2	280.6	275.6	271.6	268.2	266.7	264.7
27.5°	314.5	303.4	292.7	281.4	271.8	266.4	262.2	259.0	257.0	254.7	253.8
30°	300.9	289.3	277.6	267.3	258.6	253.2	249.4	247.4	245.9	244.9	244.0
32.5°	287.2	275.7	263.3	254.1	246.6	241.9	239.3	237.2	236.7	236.5	236.3
35°	272.4	260.7	249.4	241.0	233.6	231.8	229.3	228.2	227.8	229.1	229.7
37.5°	258.1	247.2	236.7	228.2	223.3	220.3	219.4	219.2	220.5	221.6	222.9
40°	244.4	233.8	224.1	216.9	212.4	210.7	210.3	211.3	212.8	214.1	215.6
42.5°	231.0	220.7	212.0	205.4	202.6	201.1	201.5	202.4	204.7	206.4	208.8
45°	217.1	208.5	199.8	194.4	191.7	192.1	192.1	193.8	195.9	198.3	200.7
47.5°	204.1	195.3	188.0	183.3	182.0	181.4	182.3	184.6	187.4	190.2	193.6
50°	191.0	182.7	176.5	172.4	170.9	171.4	172.9	175.0	178.6	182.3	185.9
52.5°	177.6	170.3	164.7	160.9	160.0	161.1	162.6	166.2	169.2	173.3	177.8
55°	163.7	157.3	152.8	150.0	149.6	150.2	151.9	155.4	160.0	165.0	169.2
57.5°	150.0	144.5	140.2	138.2	138.3	138.7	141.4	145.7	150.2	155.6	160.9
60°	136.1	131.2	127.8	126.3	126.5	127.6	131.0	135.0	141.0	146.2	151.9
62.5°	122.9	118.8	115.6	114.3	113.9	116.7	119.9	124.1	130.1	136.1	142.3
65°	108.6	105.3	102.6	101.9	102.4	104.3	108.5	113.9	119.0	125.2	131.6
67.5°	94.7	91.9	90.0	90.4	91.0	93.6	97.2	101.9	107.5	113.9	120.5
70°	81.6	78.9	77.4	77.6	78.8	82.1	85.1	89.8	96.1	102.6	107.9
72.5°	68.0	66.5	65.2	66.2	67.3	69.4	73.3	78.0	83.3	89.3	94.9
75°	54.3	54.3	53.6	54.1	55.8	58.1	60.9	65.8	71.2	76.1	80.6
77.5°	42.7	42.1	42.5	43.0	44.2	47.0	50.2	53.8	58.1	63.2	66.9
80°	30.8	31.0	32.0	33.1	33.5	35.5	38.9	42.1	45.3	49.4	53.0
82.5°	21.2	21.4	21.8	23.3	23.7	25.9	27.8	31.0	33.8	36.3	39.1
85°	12.6	12.6	13.5	14.1	15.0	16.5	17.9	19.7	22.4	24.2	27.1
87.5°	6.0	6.0	6.8	7.1	7.7	8.6	9.0	11.1	11.8	12.8	14.5
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°	453.8	453.8	453.8	453.8
2.5°	427.1	426.7	425.4	425.2
5°	399.4	398.5	397.9	400.0
7.5°	378.6	377.8	376.1	375.6
10°	358.6	357.9	356.4	356.0
12.5°	339.5	337.8	337.8	338.3
15°	322.9	322.2	320.1	320.7
17.5°	306.0	305.3	302.4	305.3
20°	290.2	288.7	287.4	287.2
22.5°	275.2	273.9	274.1	272.6
25°	263.2	261.8	261.5	260.5
27.5°	253.4	252.6	251.9	252.3
30°	244.5	244.4	244.0	244.0
32.5°	237.2	237.2	237.6	237.6
35°	230.4	231.0	231.4	230.8
37.5°	224.4	224.8	225.4	225.9
40°	217.3	218.6	219.0	219.9
42.5°	210.5	212.0	213.2	213.2
45°	203.6	205.1	206.4	206.4
47.5°	196.4	198.5	199.8	200.0
50°	189.1	191.7	193.0	194.0
52.5°	182.0	184.6	186.5	186.8
55°	173.5	177.3	179.3	180.1
57.5°	166.0	169.4	171.6	172.2
60°	157.0	160.7	163.7	164.3
62.5°	147.7	151.7	154.3	156.0
65°	136.8	140.8	143.4	144.0
67.5°	125.4	129.5	131.2	132.3
70°	113.2	116.4	118.2	119.2
72.5°	99.2	102.6	104.9	104.9
75°	85.0	88.0	89.1	89.1
77.5°	70.1	71.8	73.3	73.7
80°	55.8	56.8	57.9	57.9
82.5°	41.2	41.9	43.0	42.9
85°	26.7	28.4	28.2	27.8
87.5°	15.0	15.2	15.8	16.2
90°	0.0	0.0	0.0	0.0

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