

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: P332095-935

Luminaire Tested: **S123DIW-S340D460U935-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332095-935  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S340D460U935-4F0-1E-UDD-F1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 460 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2591.7 lumens  
Efficiency: N/A  
Efficacy: 112.7 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: General Diffuse

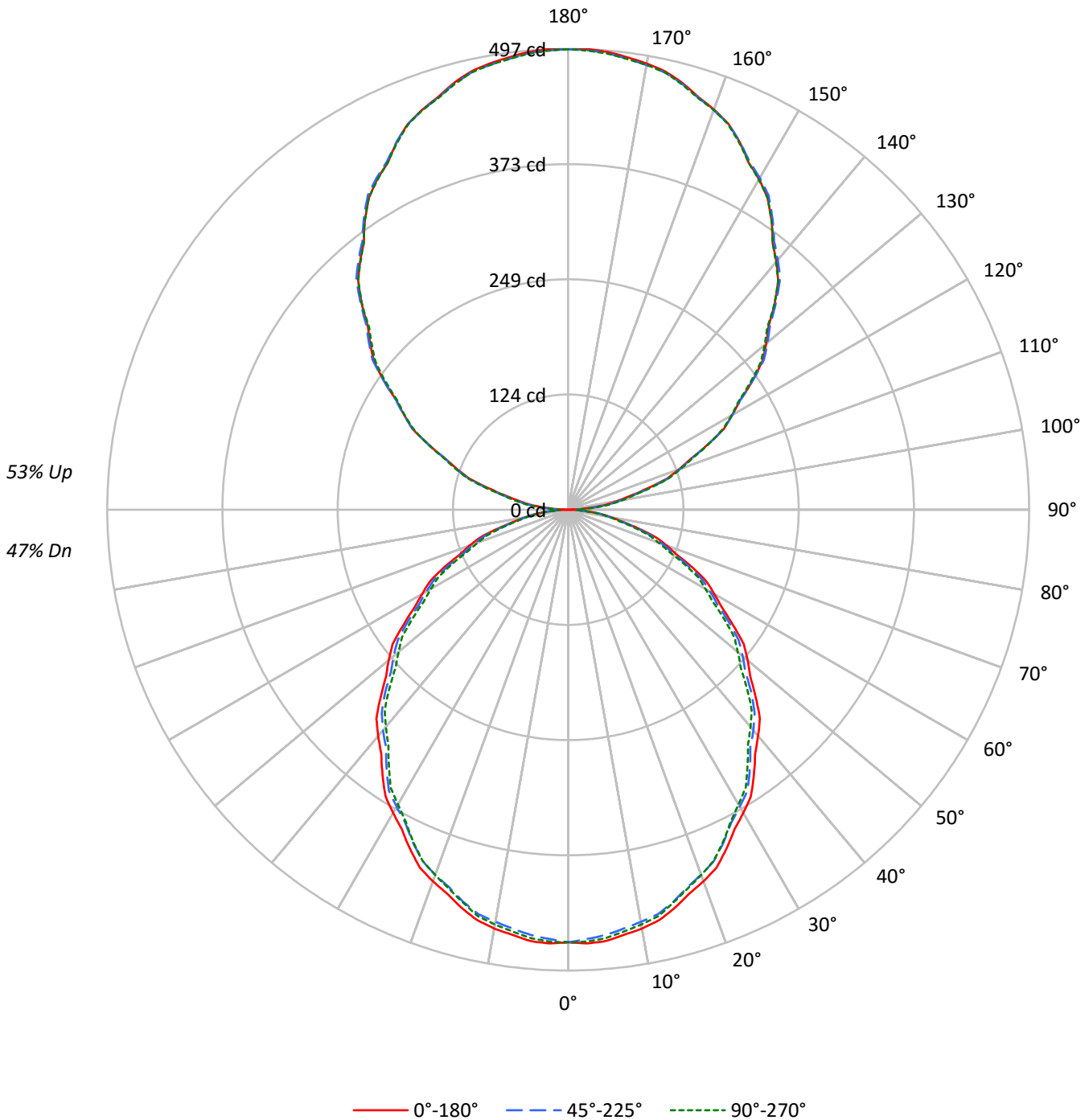
Input Watts (W): 23  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53	47
1	97	93	89	85	89	85	82	79	71	69	67	59	57	56	47	46	45	39
2	88	81	75	70	81	75	69	65	63	59	55	52	49	46	41	39	38	33
3	81	71	64	58	74	66	59	54	55	50	46	46	42	39	37	34	32	28
4	74	63	55	49	67	58	51	46	49	44	40	41	37	33	33	30	28	24
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24	21
6	62	50	42	36	57	46	39	34	39	34	30	33	29	25	27	24	21	18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	22	24	21	19	16
8	53	41	33	28	49	38	31	26	33	27	23	27	23	20	22	19	17	14
9	50	37	30	25	46	35	28	24	30	24	21	25	21	18	21	17	15	13
10	46	34	27	22	43	32	25	21	27	22	19	23	19	16	19	16	14	12

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	5022	5022	5022
5°	5046	4976	5010
10°	5012	4933	4964
15°	4953	4878	4886
20°	4885	4798	4802
25°	4793	4703	4694
30°	4692	4598	4561
35°	4586	4486	4428
40°	4477	4363	4295
45°	4354	4250	4147
50°	4232	4113	3997
55°	4074	3969	3847
60°	3914	3800	3679
65°	3769	3617	3505
70°	3559	3408	3257
75°	3256	3136	3003
80°	2938	2814	2783
85°	2569	2482	2384



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	44.0	1.7
10°-20°	124.1	4.8
20°-30°	183.3	7.1
30°-40°	214.1	8.3
40°-50°	215.3	8.3
50°-60°	189.1	7.3
60°-70°	140.9	5.4
70°-80°	80.3	3.1
80°-90°	24.5	0.9
90°-100°	32.4	1.2
100°-110°	96.8	3.7
110°-120°	164.7	6.4
120°-130°	216.7	8.4
130°-140°	243.5	9.4
140°-150°	239.4	9.2
150°-160°	201.5	7.8
160°-170°	134.2	5.2
170°-180°	47.0	1.8
0°-30°	351.4	13.6
0°-40°	565.5	21.8
0°-60°	969.9	37.4
0°-90°	1215.6	46.9
90°-120°	293.9	11.3
90°-150°	993.5	38.3
90°-180°	1376.0	53.1
0°-180°	2591.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	467	467	467	467	467	
5°	467	465	460	464	464	44
15°	444	443	438	441	438	125
25°	404	401	396	396	395	186
35°	349	346	341	339	337	218
45°	286	284	279	275	272	221
55°	217	216	212	207	205	194
65°	148	146	142	139	138	146
75°	78	77	75	73	72	84
85°	21	20	20	19	19	23
90°	0	4	9	11	12	3
95°	23	26	29	30	30	26
105°	88	89	92	92	93	94
115°	166	167	166	167	166	164
125°	243	244	243	242	240	216
135°	315	317	317	315	314	243
145°	382	383	384	384	382	239
155°	437	437	438	439	437	201
165°	476	475	475	477	475	134
175°	496	494	494	496	494	47
180°	497	497	497	497	497	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	466.6	466.6	466.6	466.6	466.6	466.6	466.6	466.6	466.6	466.6	466.6
2.5°	468.2	467.9	467.6	467.4	467.0	466.5	465.7	464.9	464.2	463.4	464.1
5°	467.0	466.5	466.1	465.6	465.2	464.5	463.5	462.5	461.5	460.5	461.4
7.5°	462.4	461.9	461.5	461.1	460.6	459.9	458.9	457.9	456.8	455.8	456.6
10°	458.6	458.1	457.6	457.2	456.8	456.0	454.8	453.7	452.5	451.3	452.1
12.5°	453.4	453.1	452.6	452.3	451.9	451.2	450.1	449.0	447.9	446.9	447.5
15°	444.5	444.2	443.8	443.4	443.1	442.3	441.2	440.0	438.9	437.7	438.4
17.5°	434.1	433.7	433.3	432.7	432.3	431.5	430.3	429.2	428.0	426.9	427.3
20°	426.5	425.9	425.4	424.8	424.3	423.4	422.3	421.1	420.0	418.9	419.2
22.5°	417.8	417.2	416.7	416.2	415.7	414.8	413.6	412.5	411.3	410.2	410.4
25°	403.6	403.0	402.5	402.0	401.5	400.6	399.4	398.3	397.1	396.0	396.1
27.5°	388.4	387.9	387.4	386.8	386.3	385.5	384.3	383.0	381.8	380.5	380.6
30°	377.5	377.0	376.6	376.2	375.7	374.9	373.7	372.4	371.2	369.9	369.9
32.5°	366.6	366.0	365.4	364.8	364.3	363.4	362.5	361.5	360.6	359.6	359.1
35°	349.0	348.5	347.9	347.4	346.9	346.0	344.9	343.7	342.6	341.4	340.9
37.5°	331.1	330.4	329.7	329.0	328.4	327.4	326.2	325.0	323.9	322.7	322.1
40°	318.6	318.0	317.5	316.9	316.4	315.5	314.3	313.0	311.8	310.5	309.8
42.5°	306.0	305.4	304.8	304.2	303.6	302.6	301.4	300.1	298.9	297.6	297.0
45°	286.0	285.7	285.3	285.0	284.6	283.9	282.7	281.5	280.3	279.2	278.2
47.5°	266.2	265.7	265.2	264.7	264.2	263.4	262.3	261.1	260.1	259.0	258.0
50°	252.7	252.3	251.8	251.4	251.0	250.1	249.0	247.9	246.7	245.6	244.5
52.5°	238.6	238.3	238.0	237.7	237.4	236.6	235.4	234.2	233.0	231.7	230.9
55°	217.1	217.0	216.9	216.8	216.7	216.0	214.9	213.7	212.6	211.5	210.4
57.5°	196.5	196.2	195.9	195.6	195.3	194.7	193.7	192.8	191.9	191.0	190.1
60°	181.8	181.7	181.6	181.5	181.4	180.8	179.7	178.7	177.6	176.5	175.7
62.5°	168.6	168.3	168.2	167.9	167.6	167.0	165.9	164.9	163.8	162.7	162.0
65°	148.0	147.6	147.1	146.7	146.3	145.6	144.7	143.8	142.9	142.0	141.3
67.5°	126.3	125.9	125.5	125.1	124.8	124.2	123.6	122.9	122.2	121.5	120.9
70°	113.1	112.6	112.1	111.5	111.0	110.5	109.9	109.3	108.8	108.3	107.7
72.5°	99.4	98.9	98.6	98.2	97.7	97.3	96.7	96.1	95.5	94.9	94.3
75°	78.3	77.8	77.5	77.1	76.8	76.5	76.2	75.9	75.7	75.4	75.0
77.5°	59.5	59.3	59.2	59.0	58.7	58.5	58.2	57.9	57.5	57.2	56.9
80°	47.4	47.1	46.8	46.6	46.2	46.1	45.9	45.7	45.5	45.4	45.2
82.5°	35.5	35.4	35.4	35.3	35.2	35.2	35.1	35.1	35.1	35.0	34.9
85°	20.8	20.7	20.5	20.3	20.1	20.1	20.1	20.1	20.1	20.1	19.9
87.5°	8.4	8.4	8.4	8.3	8.3	8.4	8.4	8.6	8.8	9.0	9.0
90°	0.4	1.3	2.2	3.0	3.9	4.8	5.9	7.1	8.3	9.4	9.7
92.5°	9.5	10.1	10.6	11.2	11.8	12.4	13.1	13.7	14.4	15.0	15.2
95°	23.0	23.6	24.2	24.9	25.5	26.1	26.8	27.5	28.2	28.8	29.2
97.5°	40.9	41.3	41.8	42.3	42.7	43.1	43.7	44.2	44.7	45.2	45.5
100°	53.0	53.6	54.1	54.6	55.1	55.6	56.1	56.5	56.9	57.3	57.6
102.5°	67.1	67.4	67.8	68.0	68.4	68.8	69.4	69.9	70.5	71.1	71.4
105°	87.8	88.0	88.2	88.3	88.5	88.9	89.7	90.5	91.3	92.0	92.0
107.5°	111.8	111.9	112.0	112.1	112.3	112.4	112.8	113.0	113.4	113.7	114.0
110°	126.8	127.0	127.2	127.3	127.5	127.7	127.9	128.0	128.2	128.4	128.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	142.4	142.5	142.7	142.8	142.8	142.9	142.9	143.0	143.0	143.0	143.4
115°	165.8	166.1	166.3	166.6	166.9	166.9	166.8	166.6	166.4	166.3	166.3
117.5°	189.4	189.6	189.8	189.9	190.1	190.0	189.9	189.6	189.4	189.2	189.2
120°	204.1	204.6	205.1	205.6	206.1	206.2	205.8	205.3	204.9	204.5	204.4
122.5°	219.4	219.7	220.2	220.5	220.8	220.9	220.8	220.5	220.3	220.1	219.8
125°	242.7	243.0	243.2	243.5	243.7	243.7	243.6	243.4	243.2	243.1	242.7
127.5°	264.2	264.8	265.4	265.9	266.5	266.7	266.5	266.2	266.0	265.9	265.4
130°	278.6	279.3	280.0	280.7	281.4	281.5	281.3	281.0	280.8	280.5	280.2
132.5°	292.9	293.6	294.4	295.1	295.8	296.0	295.8	295.6	295.4	295.2	294.8
135°	314.9	315.4	315.9	316.4	316.9	317.2	317.1	317.0	316.9	316.8	316.5
137.5°	335.2	335.6	336.0	336.5	336.9	337.3	337.4	337.7	337.9	338.1	337.8
140°	349.2	349.7	350.1	350.5	350.9	351.2	351.3	351.4	351.5	351.5	351.5
142.5°	362.1	362.5	362.9	363.3	363.8	364.0	364.2	364.4	364.5	364.6	364.5
145°	382.0	382.2	382.4	382.5	382.7	382.9	383.1	383.4	383.7	383.9	383.8
147.5°	399.5	399.8	400.1	400.4	400.7	401.0	401.2	401.5	401.7	402.0	402.0
150°	411.6	411.8	412.0	412.2	412.3	412.5	412.7	412.8	413.0	413.2	413.2
152.5°	421.6	421.9	422.1	422.3	422.6	422.8	422.8	423.0	423.1	423.2	423.4
155°	437.4	437.4	437.4	437.4	437.4	437.5	437.6	437.6	437.7	437.8	438.2
157.5°	450.8	450.7	450.6	450.5	450.4	450.4	450.5	450.6	450.6	450.6	451.0
160°	459.3	459.1	458.9	458.7	458.6	458.5	458.5	458.5	458.5	458.5	458.9
162.5°	466.7	466.5	466.2	466.0	465.8	465.7	465.7	465.8	465.9	466.0	466.4
165°	476.4	476.1	475.9	475.6	475.4	475.3	475.3	475.3	475.3	475.3	475.8
167.5°	484.1	483.8	483.5	483.1	482.8	482.6	482.7	482.8	482.8	482.8	483.5
170°	488.5	488.2	487.8	487.5	487.2	487.0	487.0	487.0	487.0	487.0	487.6
172.5°	492.0	491.6	491.3	490.9	490.5	490.3	490.3	490.3	490.3	490.3	490.9
175°	495.5	495.2	494.8	494.5	494.1	494.0	494.0	494.0	494.0	494.0	494.5
177.5°	497.1	496.7	496.5	496.2	495.9	495.8	495.8	495.8	495.8	495.8	496.2
180°	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	466.6	466.6	466.6	466.6	466.6	466.6	466.6	466.6
2.5°	464.8	465.5	466.2	466.6	466.5	466.4	466.3	466.2
5°	462.4	463.2	464.2	464.5	464.3	464.2	463.9	463.7
7.5°	457.4	458.2	459.0	459.3	459.3	459.2	459.1	458.9
10°	453.0	453.7	454.5	454.9	454.7	454.5	454.3	454.2
12.5°	448.0	448.6	449.2	449.4	449.4	449.2	449.1	449.0
15°	439.1	439.8	440.6	440.7	440.1	439.5	439.0	438.5
17.5°	427.8	428.3	428.9	429.0	428.8	428.6	428.4	428.3
20°	419.6	419.9	420.3	420.3	420.0	419.7	419.5	419.2
22.5°	410.7	411.0	411.3	411.3	411.0	410.6	410.3	409.9
25°	396.1	396.2	396.3	396.2	396.0	395.7	395.5	395.2
27.5°	380.6	380.7	380.7	380.6	380.3	380.0	379.6	379.3
30°	369.9	369.9	369.9	369.5	368.9	368.3	367.7	367.0
32.5°	358.6	358.1	357.7	357.2	356.9	356.5	356.2	355.9
35°	340.4	339.8	339.2	338.8	338.4	337.9	337.4	337.0
37.5°	321.4	320.8	320.1	319.7	319.4	319.1	318.8	318.6
40°	309.1	308.4	307.6	307.1	306.8	306.4	306.1	305.7
42.5°	296.3	295.5	294.8	294.3	293.9	293.6	293.3	292.8
45°	277.1	276.0	274.9	274.2	273.7	273.3	272.9	272.4
47.5°	256.9	255.9	254.8	254.1	253.7	253.3	252.9	252.5
50°	243.6	242.5	241.6	240.8	240.3	239.8	239.3	238.7
52.5°	230.1	229.2	228.3	227.6	227.1	226.6	226.1	225.6
55°	209.5	208.4	207.5	206.8	206.4	205.9	205.4	205.0
57.5°	189.2	188.3	187.4	186.8	186.2	185.7	185.2	184.7
60°	175.0	174.1	173.3	172.7	172.2	171.8	171.3	170.9
62.5°	161.1	160.3	159.5	158.9	158.7	158.3	158.1	157.7
65°	140.6	139.9	139.1	138.7	138.4	138.1	137.8	137.6
67.5°	120.2	119.6	119.0	118.5	118.1	117.7	117.4	117.0
70°	107.1	106.4	105.8	105.3	104.9	104.4	103.9	103.5
72.5°	93.8	93.2	92.6	92.2	92.0	91.8	91.5	91.3
75°	74.6	74.0	73.6	73.3	73.0	72.8	72.5	72.2
77.5°	56.6	56.3	56.0	55.9	55.9	55.9	55.9	55.9
80°	45.1	45.0	44.9	44.9	44.9	44.9	44.9	44.9
82.5°	34.8	34.6	34.4	34.3	34.3	34.2	34.1	34.0
85°	19.7	19.5	19.4	19.3	19.3	19.3	19.3	19.3
87.5°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
90°	10.1	10.4	10.8	11.0	11.2	11.4	11.5	11.7
92.5°	15.5	15.8	16.1	16.2	16.1	15.9	15.8	15.8
95°	29.5	29.9	30.2	30.4	30.4	30.4	30.4	30.4
97.5°	46.0	46.4	46.8	46.9	46.9	46.9	46.8	46.8
100°	57.9	58.1	58.4	58.6	58.8	59.0	59.2	59.3
102.5°	71.6	71.9	72.2	72.2	72.2	72.2	72.2	72.1
105°	92.0	92.0	92.0	92.1	92.4	92.6	92.7	92.9
107.5°	114.3	114.5	114.8	114.9	114.8	114.7	114.6	114.5
110°	129.1	129.4	129.8	129.8	129.7	129.5	129.3	129.2





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	143.9	144.3	144.7	144.9	144.8	144.8	144.8	144.7
115°	166.4	166.5	166.6	166.6	166.5	166.4	166.3	166.3
117.5°	189.2	189.1	189.1	189.0	188.7	188.5	188.2	188.0
120°	204.3	204.2	204.1	204.0	203.8	203.6	203.5	203.3
122.5°	219.6	219.4	219.1	219.0	218.7	218.4	218.2	217.9
125°	242.4	242.0	241.7	241.3	241.0	240.6	240.3	240.0
127.5°	264.9	264.4	263.9	263.5	263.1	262.7	262.3	261.9
130°	279.8	279.5	279.1	278.7	278.1	277.5	276.9	276.2
132.5°	294.4	293.9	293.5	293.1	292.7	292.1	291.7	291.2
135°	316.2	315.8	315.5	315.2	315.0	314.9	314.7	314.5
137.5°	337.4	337.1	336.7	336.3	336.0	335.7	335.4	335.0
140°	351.4	351.3	351.2	350.9	350.3	349.7	349.0	348.4
142.5°	364.5	364.4	364.3	364.0	363.6	363.1	362.7	362.1
145°	383.7	383.7	383.6	383.4	383.1	382.7	382.4	382.0
147.5°	402.0	402.0	402.0	401.7	401.2	400.6	400.1	399.6
150°	413.2	413.2	413.2	412.9	412.4	411.9	411.4	410.9
152.5°	423.4	423.6	423.8	423.6	423.2	422.7	422.2	421.8
155°	438.5	438.9	439.2	439.0	438.4	437.8	437.2	436.6
157.5°	451.4	451.8	452.1	452.0	451.6	451.1	450.6	450.1
160°	459.3	459.8	460.2	460.2	459.9	459.5	459.2	458.8
162.5°	466.8	467.3	467.7	467.6	467.1	466.5	466.0	465.4
165°	476.3	476.8	477.3	477.3	476.6	476.0	475.4	474.8
167.5°	484.0	484.5	485.0	485.0	484.5	484.0	483.5	482.8
170°	488.2	488.8	489.4	489.4	488.8	488.2	487.6	487.0
172.5°	491.5	492.0	492.5	492.5	491.9	491.3	490.7	490.1
175°	495.0	495.5	496.0	496.0	495.4	494.8	494.2	493.6
177.5°	496.6	497.1	497.4	497.4	496.9	496.5	495.9	495.4
180°	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7

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