

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: P332095-840

Luminaire Tested: **S123DIW-S340D460U840-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332095-840  
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-S340D460U840-4F0-1E-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: 3039.8 lumens  
Efficiency: N/A  
Efficacy: 132.2 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

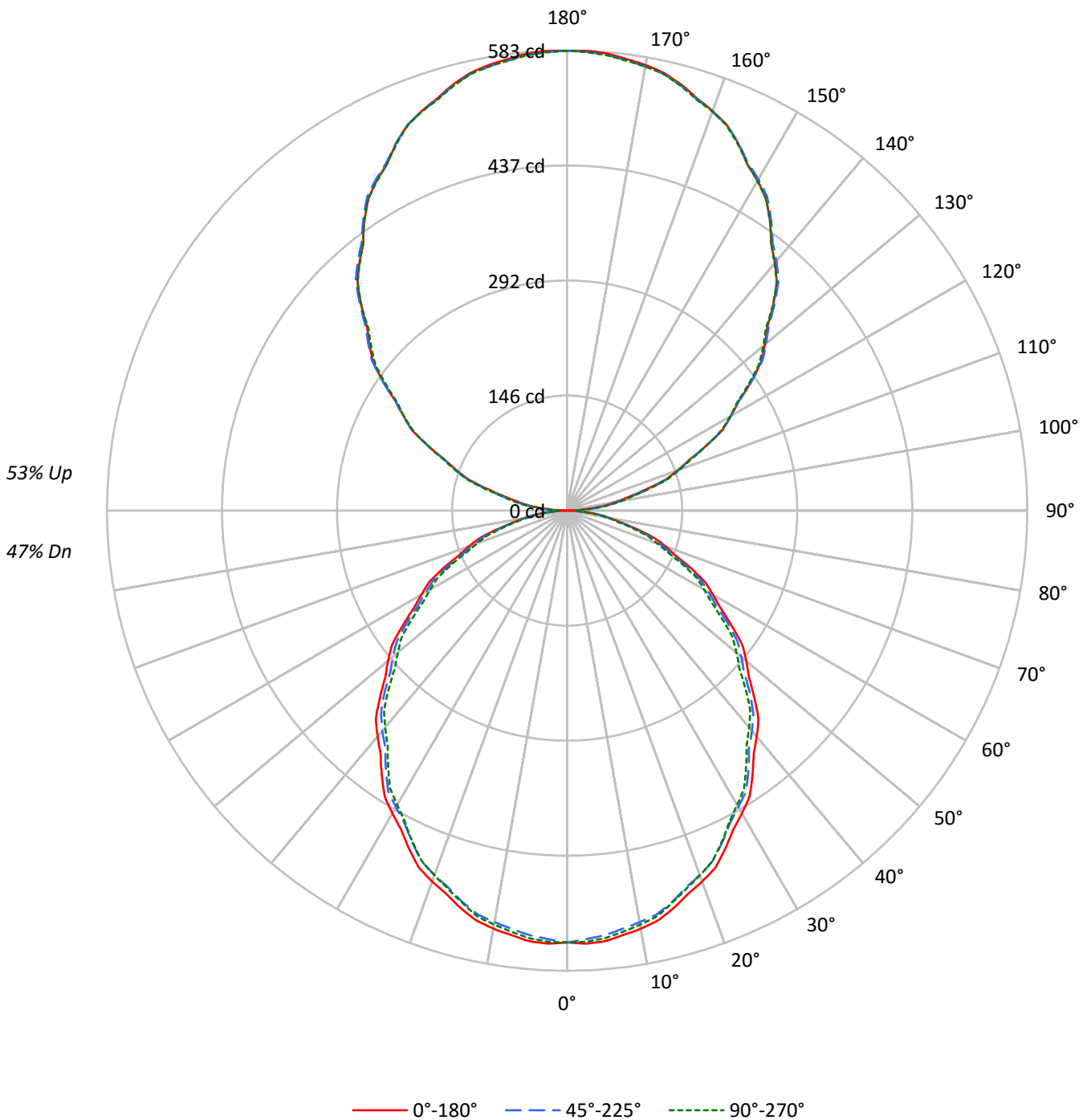
Input Watts (W): 23  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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					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°	5890	5890	5890
5°	5919	5837	5877
10°	5879	5786	5822
15°	5810	5721	5731
20°	5730	5628	5632
25°	5621	5516	5505
30°	5504	5392	5351
35°	5380	5261	5194
40°	5251	5117	5039
45°	5107	4985	4864
50°	4963	4823	4687
55°	4778	4654	4511
60°	4590	4456	4316
65°	4422	4241	4111
70°	4176	3997	3821
75°	3818	3681	3523
80°	3440	3298	3267
85°	3013	2902	2791



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	51.5	1.7
10°-20°	145.6	4.8
20°-30°	215.0	7.1
30°-40°	251.2	8.3
40°-50°	252.5	8.3
50°-60°	221.8	7.3
60°-70°	165.2	5.4
70°-80°	94.1	3.1
80°-90°	28.7	0.9
90°-100°	37.9	1.2
100°-110°	113.6	3.7
110°-120°	193.2	6.4
120°-130°	254.1	8.4
130°-140°	285.6	9.4
140°-150°	280.8	9.2
150°-160°	236.4	7.8
160°-170°	157.3	5.2
170°-180°	55.1	1.8
0°-30°	412.1	13.6
0°-40°	663.3	21.8
0°-60°	1137.6	37.4
0°-90°	1425.7	46.9
90°-120°	344.8	11.3
90°-150°	1165.3	38.3
90°-180°	1614.0	53.1
0°-180°	3039.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	547	547	547	547	547	
5°	548	545	540	545	544	52
15°	521	519	513	517	514	147
25°	473	470	464	465	464	218
35°	409	406	400	398	395	256
45°	336	333	328	322	320	259
55°	255	254	248	243	240	228
65°	174	171	166	163	161	171
75°	92	90	88	86	85	98
85°	24	24	24	23	23	27
90°	0	5	11	13	14	3
95°	27	30	34	36	36	30
105°	103	104	108	108	109	110
115°	194	196	195	195	195	192
125°	285	286	285	283	281	254
135°	369	372	372	370	369	284
145°	448	449	450	450	448	280
155°	513	513	514	515	512	236
165°	559	557	557	560	557	157
175°	581	580	579	582	579	55
180°	583	583	583	583	583	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2
2.5°	549.2	548.8	548.5	548.2	547.8	547.1	546.2	545.3	544.4	543.5	544.3
5°	547.8	547.1	546.6	546.1	545.6	544.8	543.6	542.5	541.3	540.2	541.2
7.5°	542.4	541.8	541.3	540.8	540.3	539.4	538.3	537.0	535.8	534.6	535.5
10°	537.9	537.3	536.7	536.2	535.7	534.8	533.4	532.1	530.7	529.4	530.3
12.5°	531.8	531.4	530.9	530.5	530.1	529.2	528.0	526.6	525.3	524.1	524.8
15°	521.4	521.0	520.5	520.1	519.7	518.8	517.5	516.0	514.7	513.4	514.2
17.5°	509.2	508.7	508.2	507.6	507.1	506.1	504.7	503.4	502.0	500.7	501.2
20°	500.2	499.6	499.0	498.3	497.7	496.7	495.3	493.9	492.6	491.3	491.7
22.5°	490.0	489.4	488.8	488.2	487.6	486.6	485.1	483.8	482.4	481.1	481.4
25°	473.3	472.7	472.1	471.5	470.9	469.9	468.5	467.2	465.7	464.4	464.5
27.5°	455.6	454.9	454.3	453.7	453.1	452.1	450.7	449.2	447.8	446.3	446.4
30°	442.8	442.2	441.7	441.2	440.7	439.7	438.3	436.8	435.4	433.8	433.8
32.5°	430.0	429.3	428.6	427.9	427.3	426.3	425.2	424.0	422.9	421.8	421.2
35°	409.4	408.8	408.1	407.5	406.9	405.9	404.6	403.1	401.8	400.4	399.8
37.5°	388.3	387.5	386.7	385.9	385.2	384.1	382.6	381.2	379.9	378.5	377.8
40°	373.7	372.9	372.3	371.7	371.1	370.0	368.6	367.1	365.7	364.2	363.3
42.5°	358.9	358.2	357.5	356.8	356.1	355.0	353.6	352.0	350.6	349.1	348.3
45°	335.5	335.1	334.7	334.3	333.9	333.0	331.5	330.2	328.8	327.5	326.3
47.5°	312.3	311.6	311.0	310.4	309.8	308.9	307.6	306.3	305.1	303.8	302.6
50°	296.4	295.9	295.4	294.9	294.4	293.4	292.1	290.7	289.3	288.0	286.8
52.5°	279.8	279.5	279.1	278.8	278.4	277.5	276.1	274.7	273.3	271.8	270.8
55°	254.6	254.5	254.4	254.3	254.2	253.4	252.1	250.6	249.3	248.0	246.8
57.5°	230.5	230.1	229.7	229.4	229.0	228.3	227.2	226.1	225.1	224.0	223.0
60°	213.2	213.1	213.0	212.9	212.8	212.1	210.8	209.5	208.3	207.0	206.1
62.5°	197.7	197.4	197.2	196.9	196.6	195.9	194.6	193.4	192.1	190.9	190.0
65°	173.6	173.1	172.6	172.1	171.6	170.8	169.8	168.6	167.6	166.5	165.7
67.5°	148.1	147.6	147.2	146.7	146.3	145.6	144.9	144.1	143.3	142.5	141.8
70°	132.7	132.1	131.5	130.8	130.2	129.6	129.0	128.3	127.6	127.0	126.3
72.5°	116.5	116.0	115.6	115.1	114.6	114.1	113.4	112.7	112.0	111.3	110.6
75°	91.8	91.3	90.9	90.5	90.1	89.7	89.4	89.1	88.8	88.5	88.0
77.5°	69.8	69.6	69.4	69.2	68.9	68.6	68.3	67.9	67.5	67.1	66.8
80°	55.5	55.2	54.9	54.6	54.2	54.0	53.8	53.6	53.4	53.2	53.0
82.5°	41.6	41.5	41.5	41.4	41.3	41.3	41.2	41.2	41.2	41.1	40.9
85°	24.4	24.2	24.0	23.8	23.6	23.5	23.5	23.5	23.5	23.5	23.3
87.5°	9.9	9.8	9.8	9.7	9.7	9.8	9.9	10.1	10.3	10.5	10.5
90°	0.5	1.5	2.5	3.5	4.5	5.7	7.0	8.4	9.7	11.0	11.4
92.5°	11.1	11.8	12.4	13.1	13.8	14.5	15.3	16.1	16.9	17.6	17.9
95°	27.0	27.7	28.4	29.2	29.9	30.6	31.4	32.2	33.0	33.8	34.2
97.5°	48.0	48.5	49.0	49.6	50.1	50.6	51.2	51.8	52.4	53.0	53.4
100°	62.2	62.8	63.4	64.0	64.6	65.2	65.7	66.2	66.8	67.3	67.6
102.5°	78.7	79.1	79.5	79.8	80.2	80.7	81.4	82.0	82.7	83.4	83.7
105°	103.0	103.2	103.4	103.6	103.8	104.3	105.2	106.1	107.0	108.0	108.0
107.5°	131.2	131.3	131.4	131.5	131.7	131.9	132.3	132.6	133.0	133.4	133.7
110°	148.8	149.0	149.2	149.4	149.6	149.8	150.0	150.2	150.4	150.6	151.0



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	167.0	167.1	167.3	167.4	167.5	167.6	167.6	167.7	167.7	167.7	168.2
115°	194.5	194.8	195.1	195.4	195.7	195.8	195.6	195.4	195.2	195.0	195.1
117.5°	222.2	222.4	222.6	222.8	223.0	222.9	222.7	222.4	222.2	221.9	221.9
120°	239.3	239.9	240.5	241.2	241.8	241.9	241.4	240.9	240.3	239.8	239.7
122.5°	257.3	257.7	258.2	258.6	259.0	259.1	258.9	258.6	258.4	258.1	257.8
125°	284.7	285.0	285.3	285.6	285.9	285.9	285.7	285.5	285.3	285.1	284.7
127.5°	309.9	310.5	311.2	311.8	312.6	312.8	312.6	312.3	312.0	311.8	311.2
130°	326.8	327.6	328.4	329.2	330.0	330.2	329.9	329.6	329.3	329.0	328.6
132.5°	343.6	344.4	345.3	346.1	346.9	347.2	346.9	346.7	346.5	346.3	345.8
135°	369.3	369.9	370.5	371.1	371.7	372.0	371.9	371.8	371.7	371.6	371.2
137.5°	393.1	393.6	394.2	394.7	395.2	395.6	395.8	396.1	396.4	396.6	396.2
140°	409.6	410.1	410.6	411.1	411.6	411.9	412.0	412.1	412.2	412.3	412.2
142.5°	424.6	425.2	425.7	426.2	426.7	427.0	427.2	427.4	427.6	427.7	427.6
145°	448.1	448.3	448.5	448.7	448.9	449.1	449.4	449.7	450.0	450.3	450.2
147.5°	468.6	468.9	469.3	469.6	470.0	470.3	470.6	470.9	471.2	471.5	471.5
150°	482.8	483.0	483.2	483.4	483.6	483.8	484.0	484.2	484.4	484.6	484.6
152.5°	494.5	494.8	495.1	495.3	495.6	495.8	495.9	496.1	496.2	496.3	496.6
155°	513.0	513.0	513.0	513.0	513.0	513.1	513.2	513.3	513.4	513.5	513.9
157.5°	528.8	528.7	528.6	528.4	528.3	528.3	528.4	528.5	528.5	528.6	529.0
160°	538.7	538.5	538.3	538.1	537.9	537.8	537.8	537.8	537.8	537.8	538.3
162.5°	547.4	547.1	546.8	546.5	546.3	546.2	546.2	546.3	546.4	546.5	547.0
165°	558.8	558.5	558.2	557.8	557.5	557.4	557.4	557.4	557.4	557.4	558.1
167.5°	567.8	567.4	567.0	566.6	566.2	566.0	566.1	566.2	566.3	566.3	567.0
170°	573.0	572.6	572.2	571.8	571.4	571.2	571.2	571.2	571.2	571.2	571.9
172.5°	577.0	576.6	576.2	575.8	575.3	575.1	575.1	575.1	575.1	575.1	575.8
175°	581.2	580.8	580.4	580.0	579.6	579.4	579.4	579.4	579.4	579.4	580.0
177.5°	583.0	582.6	582.3	582.0	581.7	581.5	581.5	581.5	581.5	581.5	582.0
180°	582.6	582.6	582.6	582.6	582.6	582.6	582.6	582.6	582.6	582.6	582.6



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2
2.5°	545.1	546.0	546.8	547.2	547.1	547.0	546.9	546.8
5°	542.3	543.3	544.4	544.8	544.6	544.4	544.1	543.9
7.5°	536.5	537.5	538.4	538.8	538.7	538.6	538.5	538.3
10°	531.3	532.2	533.1	533.5	533.3	533.1	532.9	532.7
12.5°	525.4	526.1	526.8	527.1	527.0	526.8	526.7	526.6
15°	515.0	515.8	516.7	516.8	516.1	515.5	514.9	514.3
17.5°	501.8	502.4	503.0	503.2	502.9	502.7	502.5	502.3
20°	492.1	492.5	492.9	493.0	492.6	492.3	492.0	491.7
22.5°	481.7	482.1	482.4	482.4	482.0	481.6	481.2	480.8
25°	464.6	464.7	464.8	464.7	464.4	464.1	463.8	463.5
27.5°	446.5	446.6	446.6	446.5	446.1	445.7	445.2	444.8
30°	433.8	433.8	433.8	433.4	432.7	432.0	431.3	430.5
32.5°	420.6	420.0	419.5	419.0	418.6	418.2	417.8	417.4
35°	399.2	398.6	397.9	397.4	396.9	396.3	395.8	395.3
37.5°	377.0	376.3	375.5	375.0	374.7	374.3	374.0	373.7
40°	362.5	361.7	360.8	360.2	359.8	359.4	359.0	358.6
42.5°	347.5	346.6	345.8	345.2	344.8	344.4	344.0	343.5
45°	325.0	323.8	322.4	321.6	321.0	320.5	320.0	319.5
47.5°	301.3	300.1	298.8	298.0	297.5	297.1	296.6	296.2
50°	285.7	284.5	283.4	282.5	281.9	281.2	280.6	279.9
52.5°	269.8	268.8	267.8	267.0	266.4	265.8	265.2	264.6
55°	245.7	244.5	243.4	242.6	242.1	241.5	241.0	240.4
57.5°	222.0	220.9	219.8	219.0	218.4	217.8	217.2	216.6
60°	205.2	204.2	203.3	202.6	202.0	201.5	201.0	200.5
62.5°	188.9	188.0	187.1	186.4	186.1	185.7	185.4	185.0
65°	164.9	164.1	163.2	162.7	162.4	162.0	161.7	161.4
67.5°	141.0	140.3	139.6	139.0	138.6	138.0	137.6	137.2
70°	125.6	124.8	124.1	123.5	123.0	122.5	121.9	121.4
72.5°	110.0	109.3	108.7	108.2	108.0	107.7	107.3	107.0
75°	87.5	86.8	86.3	85.9	85.6	85.3	85.0	84.7
77.5°	66.3	66.0	65.6	65.5	65.5	65.5	65.5	65.5
80°	52.9	52.8	52.7	52.7	52.7	52.7	52.7	52.7
82.5°	40.8	40.6	40.4	40.2	40.2	40.1	40.0	39.9
85°	23.1	22.9	22.7	22.6	22.6	22.6	22.6	22.6
87.5°	10.5	10.5	10.5	10.5	10.5	10.6	10.6	10.6
90°	11.8	12.2	12.6	12.9	13.1	13.3	13.5	13.7
92.5°	18.2	18.6	18.9	19.0	18.9	18.7	18.6	18.5
95°	34.6	35.0	35.4	35.6	35.6	35.6	35.6	35.6
97.5°	53.9	54.4	54.8	55.0	55.0	55.0	54.9	54.9
100°	67.9	68.2	68.5	68.8	69.0	69.2	69.4	69.6
102.5°	84.0	84.3	84.6	84.7	84.7	84.6	84.6	84.5
105°	108.0	108.0	108.0	108.1	108.4	108.6	108.8	109.0
107.5°	134.0	134.3	134.6	134.7	134.6	134.5	134.4	134.3
110°	151.4	151.8	152.2	152.3	152.1	151.9	151.7	151.5





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	168.7	169.3	169.8	170.0	169.9	169.9	169.9	169.8
115°	195.2	195.3	195.4	195.4	195.3	195.2	195.1	195.0
117.5°	221.9	221.8	221.8	221.7	221.4	221.1	220.8	220.5
120°	239.6	239.5	239.4	239.2	239.0	238.8	238.6	238.4
122.5°	257.6	257.3	257.0	256.8	256.5	256.2	255.9	255.6
125°	284.3	283.9	283.5	283.1	282.7	282.3	281.9	281.4
127.5°	310.7	310.1	309.5	309.0	308.6	308.1	307.6	307.2
130°	328.2	327.8	327.4	326.9	326.2	325.5	324.8	324.0
132.5°	345.3	344.8	344.3	343.8	343.3	342.6	342.1	341.5
135°	370.8	370.4	370.0	369.7	369.5	369.3	369.1	368.9
137.5°	395.8	395.4	394.9	394.5	394.0	393.7	393.3	392.9
140°	412.1	412.0	411.9	411.5	410.8	410.1	409.4	408.7
142.5°	427.5	427.4	427.3	427.0	426.5	425.9	425.4	424.7
145°	450.1	450.0	449.9	449.7	449.3	448.9	448.5	448.1
147.5°	471.5	471.5	471.5	471.2	470.6	469.9	469.3	468.7
150°	484.6	484.6	484.6	484.3	483.7	483.1	482.5	481.9
152.5°	496.7	496.9	497.1	496.9	496.3	495.7	495.2	494.7
155°	514.3	514.7	515.1	514.9	514.2	513.5	512.8	512.1
157.5°	529.5	529.9	530.3	530.2	529.7	529.1	528.5	528.0
160°	538.8	539.3	539.8	539.8	539.4	539.0	538.6	538.2
162.5°	547.5	548.1	548.6	548.5	547.9	547.1	546.5	545.8
165°	558.7	559.3	559.9	559.8	559.1	558.4	557.6	556.9
167.5°	567.6	568.3	568.9	568.9	568.3	567.6	567.0	566.3
170°	572.6	573.3	574.0	574.0	573.3	572.6	571.9	571.2
172.5°	576.4	577.0	577.6	577.6	576.9	576.2	575.5	574.8
175°	580.6	581.2	581.8	581.8	581.1	580.4	579.7	579.0
177.5°	582.5	583.0	583.4	583.4	582.8	582.3	581.7	581.1
180°	582.6	582.6	582.6	582.6	582.6	582.6	582.6	582.6

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