

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: P332094-940

Luminaire Tested: **S123DIW-S340D460U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332094-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S340D460U940-4F0-1E-UDD-F  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 460 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2903.3 lumens  
Efficiency: N/A  
Efficacy: 126.2 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

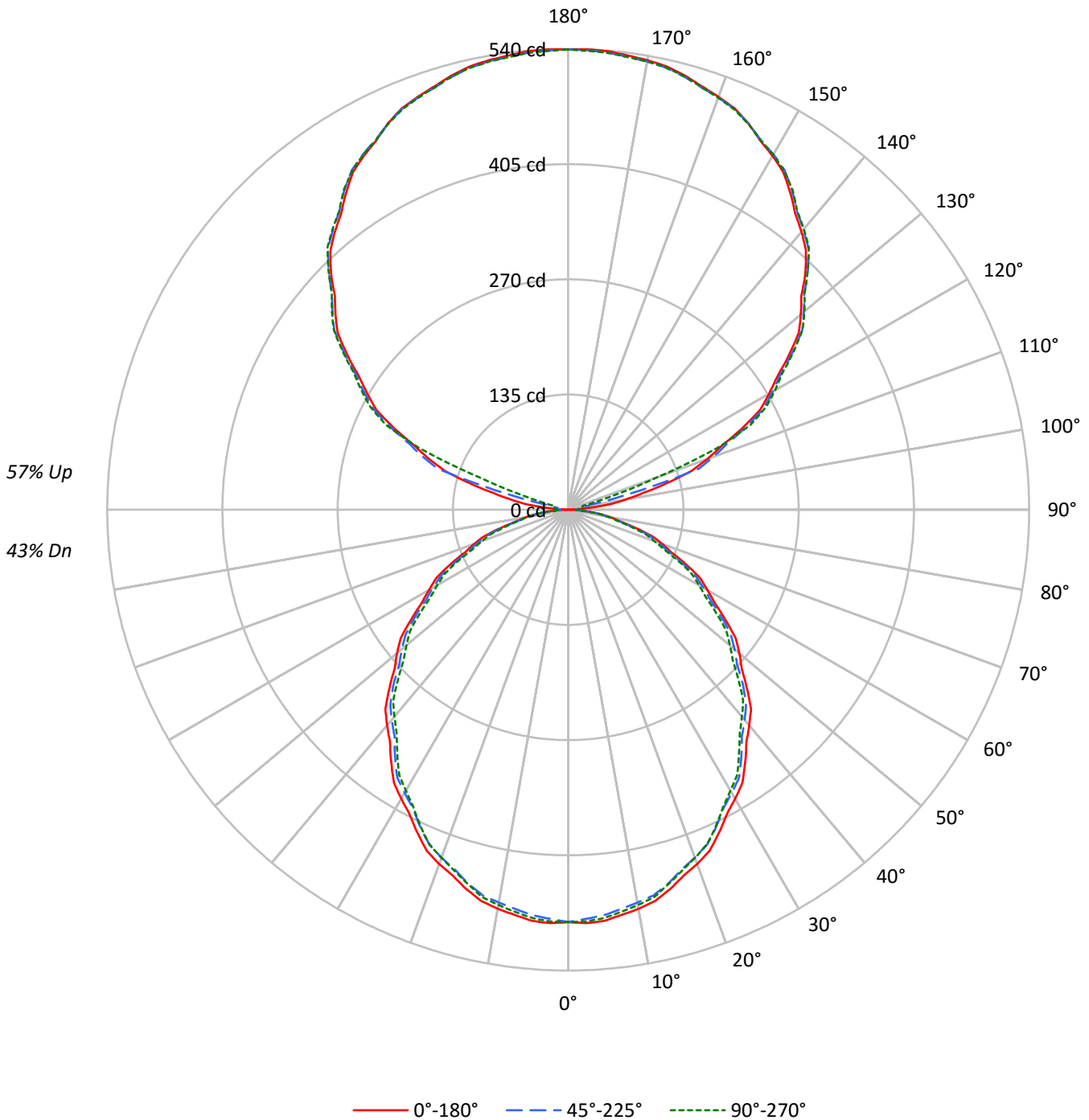
Input Watts (W): 23  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	97	97	97	97	80	80	80	64	64	64	50	50	50	43
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42	36
2	88	80	74	69	80	74	68	64	61	57	54	49	47	44	39	37	35	30
3	80	70	63	57	73	65	58	53	54	49	45	44	40	38	34	32	30	26
4	73	62	54	48	66	57	50	45	48	43	39	39	35	32	31	28	26	22
5	67	55	47	41	61	51	44	39	43	37	33	35	31	28	28	25	23	19
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20	17
7	57	45	37	31	52	41	34	29	35	29	25	29	25	21	23	20	18	15
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16	13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	12
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13	11

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

	0°	45°	90°
0°	5201	5201	5201
5°	5226	5154	5190
10°	5191	5109	5141
15°	5131	5051	5060
20°	5060	4969	4974
25°	4963	4871	4861
30°	4860	4762	4724
35°	4750	4646	4586
40°	4636	4519	4449
45°	4509	4402	4294
50°	4382	4258	4140
55°	4219	4110	3984
60°	4052	3935	3810
65°	3904	3744	3629
70°	3688	3531	3374
75°	3373	3248	3111
80°	3037	2913	2882
85°	2668	2569	2470



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	45.5	1.6
10°-20°	128.5	4.4
20°-30°	189.9	6.5
30°-40°	221.8	7.6
40°-50°	223.0	7.7
50°-60°	195.8	6.7
60°-70°	145.9	5.0
70°-80°	83.1	2.9
80°-90°	25.4	0.9
90°-100°	19.6	0.7
100°-110°	93.4	3.2
110°-120°	224.4	7.7
120°-130°	285.8	9.8
130°-140°	305.4	10.5
140°-150°	285.5	9.8
150°-160°	230.3	7.9
160°-170°	148.7	5.1
170°-180°	51.2	1.8
0°-30°	363.9	12.5
0°-40°	585.7	20.2
0°-60°	1004.5	34.6
0°-90°	1258.9	43.4
90°-120°	337.5	11.6
90°-150°	1214.2	41.8
90°-180°	1644.0	56.6
0°-180°	2903.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	483	483	483	483	483	
5°	484	481	477	481	480	46
15°	460	458	453	456	454	130
25°	418	415	410	410	409	192
35°	362	359	354	351	349	226
45°	296	294	289	284	282	229
55°	225	224	219	215	212	201
65°	153	151	147	144	142	151
75°	81	79	78	76	75	87
85°	22	21	21	20	20	24
90°	0	4	10	11	12	2
95°	24	9	12	15	15	30
105°	119	122	88	21	18	127
115°	224	226	230	234	236	221
125°	316	319	320	321	322	282
135°	393	395	397	398	397	302
145°	454	456	457	458	458	284
155°	500	499	499	501	499	230
165°	527	526	525	528	526	149
175°	539	537	538	540	537	51
180°	539	539	539	539	539	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2
2.5°	484.9	484.6	484.3	484.0	483.7	483.1	482.3	481.5	480.7	479.9	480.6
5°	483.7	483.1	482.7	482.2	481.8	481.1	480.0	479.0	478.0	477.0	477.9
7.5°	478.9	478.4	478.0	477.5	477.1	476.3	475.3	474.2	473.1	472.1	472.9
10°	474.9	474.5	473.9	473.5	473.1	472.3	471.0	469.8	468.6	467.4	468.2
12.5°	469.6	469.2	468.8	468.4	468.1	467.3	466.2	465.0	463.9	462.8	463.4
15°	460.4	460.0	459.6	459.2	458.9	458.1	456.9	455.7	454.5	453.3	454.1
17.5°	449.6	449.2	448.7	448.2	447.7	446.9	445.7	444.5	443.3	442.1	442.6
20°	441.7	441.1	440.6	440.0	439.4	438.5	437.4	436.1	435.0	433.8	434.2
22.5°	432.7	432.1	431.6	431.1	430.5	429.6	428.4	427.2	426.0	424.8	425.1
25°	417.9	417.4	416.9	416.3	415.8	414.9	413.7	412.5	411.3	410.1	410.2
27.5°	402.3	401.7	401.2	400.6	400.1	399.2	398.0	396.6	395.4	394.0	394.1
30°	391.0	390.5	390.0	389.6	389.1	388.3	387.0	385.7	384.4	383.1	383.1
32.5°	379.7	379.1	378.4	377.8	377.3	376.4	375.4	374.4	373.4	372.5	371.9
35°	361.5	361.0	360.3	359.8	359.3	358.4	357.2	356.0	354.8	353.6	353.0
37.5°	342.9	342.1	341.4	340.7	340.1	339.1	337.9	336.6	335.5	334.2	333.6
40°	329.9	329.3	328.8	328.2	327.7	326.7	325.5	324.1	322.9	321.6	320.8
42.5°	316.9	316.3	315.7	315.0	314.4	313.4	312.2	310.9	309.6	308.3	307.6
45°	296.2	295.9	295.5	295.2	294.8	294.0	292.7	291.6	290.3	289.2	288.1
47.5°	275.7	275.2	274.6	274.1	273.6	272.8	271.6	270.5	269.4	268.2	267.2
50°	261.7	261.3	260.8	260.4	259.9	259.0	257.9	256.7	255.5	254.3	253.2
52.5°	247.1	246.8	246.5	246.2	245.8	245.0	243.8	242.5	241.3	240.0	239.2
55°	224.8	224.7	224.6	224.5	224.4	223.7	222.6	221.3	220.2	219.0	217.9
57.5°	203.5	203.2	202.9	202.6	202.2	201.6	200.6	199.7	198.8	197.8	196.9
60°	188.2	188.2	188.1	188.0	187.9	187.3	186.1	185.0	184.0	182.8	182.0
62.5°	174.6	174.3	174.2	173.9	173.6	173.0	171.8	170.8	169.6	168.5	167.7
65°	153.3	152.8	152.4	151.9	151.5	150.8	149.9	148.9	148.0	147.0	146.3
67.5°	130.8	130.4	130.0	129.6	129.2	128.6	128.0	127.2	126.5	125.8	125.2
70°	117.2	116.6	116.1	115.5	114.9	114.4	113.9	113.2	112.7	112.2	111.6
72.5°	102.9	102.5	102.1	101.7	101.2	100.8	100.1	99.5	98.9	98.3	97.6
75°	81.1	80.6	80.3	79.9	79.5	79.2	78.9	78.6	78.4	78.1	77.7
77.5°	61.6	61.4	61.3	61.1	60.8	60.5	60.3	59.9	59.6	59.2	58.9
80°	49.0	48.8	48.5	48.2	47.9	47.7	47.5	47.3	47.2	47.0	46.8
82.5°	36.7	36.6	36.6	36.6	36.5	36.5	36.4	36.4	36.4	36.3	36.1
85°	21.6	21.4	21.2	21.0	20.9	20.8	20.8	20.8	20.8	20.8	20.6
87.5°	8.7	8.6	8.6	8.6	8.6	8.6	8.7	8.9	9.1	9.3	9.3
90°	0.4	1.2	2.1	3.0	3.9	5.0	6.2	7.3	8.5	9.6	10.0
92.5°	7.5	7.2	7.0	6.7	6.4	6.8	7.7	8.5	9.4	10.3	10.8
95°	24.4	20.8	17.1	13.5	9.8	8.5	9.5	10.4	11.4	12.4	13.0
97.5°	49.1	47.4	45.8	44.2	42.5	38.5	32.1	25.7	19.4	12.9	13.6
100°	67.7	69.5	71.2	73.0	74.8	68.8	54.9	41.0	27.1	13.2	13.9
102.5°	88.8	90.2	91.4	92.7	94.0	87.0	71.9	56.7	41.6	26.4	24.2
105°	119.4	120.4	121.4	122.3	123.3	119.8	111.7	103.8	95.8	87.7	72.0
107.5°	151.6	152.4	153.2	153.9	154.7	155.8	157.0	158.3	159.5	160.8	149.3
110°	173.1	173.8	174.5	175.2	175.9	176.7	177.7	178.7	179.7	180.7	177.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	193.6	194.2	194.8	195.5	196.2	197.0	198.0	198.9	199.9	200.9	200.9
115°	223.9	224.4	225.0	225.5	226.0	226.8	227.6	228.4	229.2	230.0	230.9
117.5°	253.3	254.0	254.7	255.3	256.0	256.5	256.9	257.3	257.8	258.2	258.9
120°	271.6	272.4	273.2	274.0	274.8	275.4	275.6	275.9	276.2	276.4	277.1
122.5°	290.3	290.9	291.5	292.2	292.8	293.4	293.7	294.0	294.4	294.7	295.2
125°	315.7	316.4	317.1	317.8	318.5	319.1	319.4	319.8	320.1	320.5	320.7
127.5°	340.4	341.1	341.8	342.5	343.2	343.8	344.2	344.6	345.1	345.5	345.8
130°	355.8	356.5	357.2	357.9	358.6	359.2	359.5	359.9	360.3	360.5	360.9
132.5°	370.5	371.2	371.9	372.6	373.4	373.8	374.2	374.4	374.7	375.0	375.3
135°	393.0	393.5	394.0	394.6	395.1	395.6	395.9	396.3	396.6	397.0	397.3
137.5°	412.2	413.0	413.6	414.3	414.9	415.4	415.6	415.8	416.0	416.2	416.6
140°	425.1	425.6	426.1	426.7	427.2	427.6	427.8	428.1	428.4	428.6	429.0
142.5°	436.9	437.5	438.0	438.5	439.1	439.4	439.7	440.0	440.2	440.5	440.8
145°	453.5	454.1	454.8	455.4	456.0	456.4	456.6	456.7	456.9	457.1	457.3
147.5°	469.1	469.6	469.9	470.4	470.7	471.1	471.3	471.4	471.6	471.8	472.0
150°	478.8	479.0	479.3	479.6	479.8	480.0	480.2	480.4	480.5	480.7	480.9
152.5°	487.4	487.5	487.7	487.8	487.9	488.0	488.1	488.2	488.3	488.5	488.7
155°	499.5	499.4	499.2	499.1	498.9	498.8	498.9	499.0	499.1	499.2	499.6
157.5°	509.1	509.0	509.0	509.0	509.0	508.9	508.8	508.7	508.6	508.5	509.1
160°	514.8	514.7	514.6	514.5	514.4	514.3	514.2	514.2	514.1	514.0	514.5
162.5°	520.2	520.0	519.8	519.6	519.3	519.2	519.1	519.0	518.9	518.8	519.4
165°	526.8	526.6	526.3	526.0	525.8	525.6	525.5	525.4	525.3	525.2	525.9
167.5°	532.0	531.6	531.3	530.9	530.6	530.4	530.4	530.4	530.4	530.4	531.1
170°	534.8	534.5	534.1	533.8	533.4	533.2	533.2	533.2	533.2	533.2	534.0
172.5°	536.7	536.4	535.9	535.5	535.0	534.8	534.9	535.0	535.1	535.1	535.8
175°	539.2	538.8	538.3	537.9	537.4	537.3	537.3	537.4	537.5	537.6	538.2
177.5°	539.8	539.5	539.1	538.8	538.4	538.3	538.4	538.4	538.5	538.6	539.1
180°	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2
2.5°	481.3	482.1	482.9	483.2	483.1	483.0	483.0	482.9
5°	478.8	479.7	480.7	481.1	480.9	480.7	480.5	480.3
7.5°	473.8	474.6	475.4	475.7	475.6	475.5	475.5	475.3
10°	469.1	469.9	470.7	471.1	470.9	470.7	470.6	470.4
12.5°	464.0	464.6	465.2	465.5	465.4	465.2	465.1	465.0
15°	454.8	455.5	456.3	456.4	455.8	455.2	454.7	454.1
17.5°	443.1	443.6	444.2	444.3	444.1	443.9	443.7	443.5
20°	434.5	434.9	435.2	435.3	435.0	434.7	434.4	434.2
22.5°	425.3	425.7	426.0	426.0	425.6	425.3	424.9	424.5
25°	410.3	410.4	410.5	410.4	410.1	409.8	409.6	409.3
27.5°	394.2	394.3	394.3	394.2	393.9	393.5	393.2	392.8
30°	383.1	383.1	383.1	382.7	382.1	381.5	380.8	380.1
32.5°	371.4	370.9	370.4	370.0	369.6	369.3	368.9	368.5
35°	352.5	352.0	351.3	350.9	350.4	349.9	349.5	349.0
37.5°	332.9	332.3	331.5	331.1	330.8	330.5	330.2	329.9
40°	320.1	319.4	318.6	318.1	317.7	317.4	317.0	316.6
42.5°	306.8	306.0	305.3	304.8	304.4	304.1	303.7	303.3
45°	287.0	285.9	284.7	284.0	283.5	283.0	282.6	282.1
47.5°	266.1	265.0	263.9	263.1	262.7	262.3	261.9	261.5
50°	252.3	251.2	250.2	249.4	248.9	248.3	247.8	247.2
52.5°	238.3	237.4	236.5	235.8	235.2	234.7	234.2	233.6
55°	217.0	215.9	214.9	214.2	213.7	213.2	212.8	212.3
57.5°	196.0	195.0	194.1	193.4	192.9	192.3	191.8	191.3
60°	181.2	180.3	179.5	178.9	178.3	177.9	177.5	177.0
62.5°	166.8	166.0	165.2	164.6	164.3	164.0	163.7	163.4
65°	145.6	144.9	144.1	143.7	143.4	143.0	142.8	142.5
67.5°	124.5	123.9	123.2	122.7	122.3	121.9	121.5	121.2
70°	110.9	110.2	109.6	109.1	108.6	108.2	107.6	107.2
72.5°	97.1	96.5	95.9	95.5	95.3	95.1	94.8	94.5
75°	77.2	76.7	76.2	75.9	75.6	75.3	75.1	74.8
77.5°	58.6	58.3	58.0	57.9	57.9	57.9	57.9	57.9
80°	46.7	46.6	46.5	46.5	46.5	46.5	46.5	46.5
82.5°	36.0	35.8	35.7	35.5	35.5	35.4	35.3	35.2
85°	20.4	20.2	20.1	20.0	20.0	20.0	20.0	20.0
87.5°	9.3	9.2	9.2	9.3	9.3	9.3	9.4	9.4
90°	10.3	10.7	11.1	11.3	11.5	11.7	11.9	12.0
92.5°	11.4	11.9	12.6	12.8	13.0	13.1	13.2	13.3
95°	13.6	14.3	14.9	15.2	15.2	15.2	15.2	15.2
97.5°	14.4	15.1	15.8	16.1	16.2	16.3	16.4	16.5
100°	14.6	15.3	16.1	16.5	16.6	16.7	16.8	16.9
102.5°	21.9	19.7	17.6	16.5	16.7	16.9	16.9	17.1
105°	56.2	40.5	24.7	16.9	17.1	17.3	17.5	17.7
107.5°	137.7	126.2	114.6	102.9	91.0	79.1	67.2	55.4
110°	174.8	171.8	168.9	161.1	148.4	135.6	122.9	110.2





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	201.0	201.0	201.1	199.7	197.1	194.4	191.7	189.0
115°	231.8	232.6	233.5	234.2	234.5	234.9	235.2	235.6
117.5°	259.6	260.3	261.0	261.4	261.4	261.5	261.6	261.7
120°	277.9	278.6	279.3	279.6	279.6	279.6	279.6	279.6
122.5°	295.7	296.2	296.7	296.9	297.0	297.1	297.2	297.3
125°	320.8	321.0	321.2	321.4	321.6	321.7	321.9	322.1
127.5°	346.1	346.3	346.6	346.7	346.5	346.3	346.2	346.0
130°	361.2	361.6	361.9	362.0	361.9	361.7	361.5	361.3
132.5°	375.7	376.0	376.4	376.5	376.2	375.9	375.7	375.5
135°	397.5	397.8	398.1	398.1	397.8	397.5	397.3	397.0
137.5°	417.1	417.4	417.9	418.0	417.9	417.7	417.5	417.3
140°	429.4	429.7	430.1	430.2	430.0	429.8	429.6	429.4
142.5°	441.1	441.4	441.7	441.7	441.4	441.2	441.0	440.7
145°	457.4	457.6	457.8	457.9	457.9	457.9	457.9	457.9
147.5°	472.2	472.3	472.5	472.3	472.0	471.5	471.2	470.7
150°	481.1	481.3	481.4	481.4	481.2	480.9	480.6	480.4
152.5°	489.1	489.4	489.7	489.6	489.3	488.8	488.5	488.0
155°	500.1	500.5	501.0	500.9	500.3	499.8	499.3	498.8
157.5°	509.6	510.1	510.7	510.6	509.9	509.3	508.5	507.8
160°	515.1	515.6	516.1	516.1	515.5	514.9	514.2	513.6
162.5°	520.0	520.7	521.2	521.3	520.7	520.1	519.6	519.1
165°	526.6	527.4	528.1	528.1	527.4	526.9	526.3	525.7
167.5°	531.8	532.4	533.2	533.2	532.4	531.8	531.1	530.4
170°	534.7	535.4	536.1	536.1	535.4	534.7	534.0	533.2
172.5°	536.5	537.3	538.0	538.0	537.2	536.4	535.7	534.8
175°	538.9	539.5	540.1	540.1	539.4	538.7	538.0	537.3
177.5°	539.8	540.3	540.9	540.8	540.1	539.4	538.7	538.0
180°	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2

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