

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: P332719-930

Luminaire Tested: **S124DIW-S350D470U930-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332719-930  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIW-S350D470U930-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 470 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2765.5 lumens  
Efficiency: N/A  
Efficacy: 120.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: General Diffuse

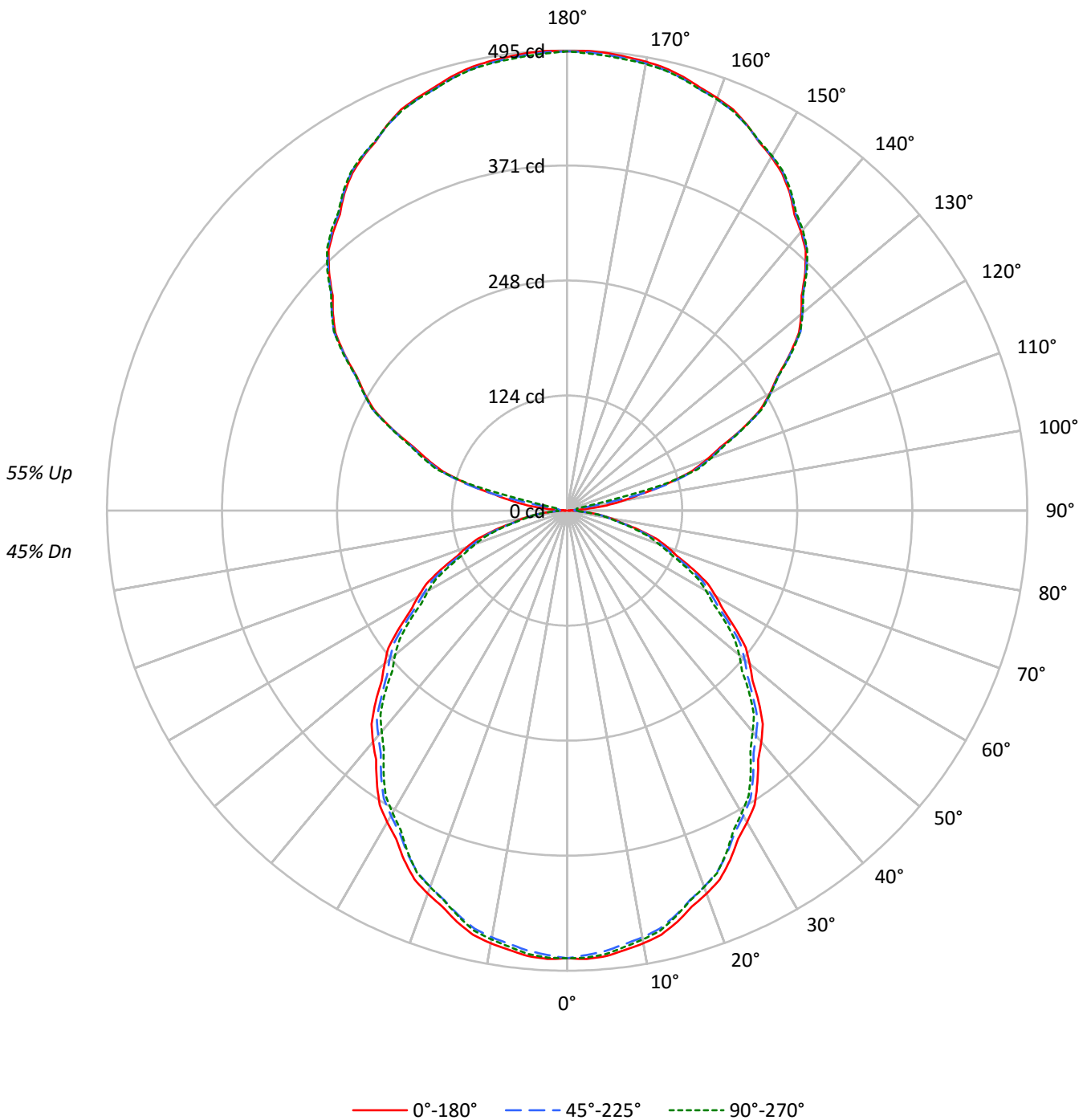
Input Watts (W): 23  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	65	65	65	51	51	51	45
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43	38
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36	31
3	80	71	63	58	73	65	59	54	54	50	46	44	41	38	35	33	31	27
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	32	29	27	23
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	28	26	23	20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20	17
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	20	18	15
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14
9	49	37	30	25	45	35	28	23	29	24	20	25	20	18	20	17	15	12
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13	11

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

	0°	45°	90°
0°	3888	3888	3888
5°	3900	3853	3881
10°	3875	3822	3841
15°	3828	3768	3777
20°	3766	3699	3703
25°	3695	3624	3613
30°	3608	3533	3500
35°	3517	3438	3392
40°	3424	3331	3270
45°	3327	3225	3164
50°	3218	3131	3034
55°	3102	3009	2911
60°	2984	2872	2785
65°	2854	2743	2632
70°	2705	2568	2469
75°	2480	2361	2299
80°	2208	2120	2064
85°	1936	1862	1815



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	45.4	1.6
10°-20°	127.8	4.6
20°-30°	188.1	6.8
30°-40°	218.7	7.9
40°-50°	218.7	7.9
50°-60°	191.3	6.9
60°-70°	142.1	5.1
70°-80°	80.7	2.9
80°-90°	24.7	0.9
90°-100°	16.9	0.6
100°-110°	107.7	3.9
110°-120°	206.1	7.5
120°-130°	261.6	9.5
130°-140°	279.9	10.1
140°-150°	261.7	9.5
150°-160°	211.1	7.6
160°-170°	136.1	4.9
170°-180°	46.9	1.7
0°-30°	361.2	13.1
0°-40°	579.9	21.0
0°-60°	989.8	35.8
0°-90°	1237.3	44.7
90°-120°	330.7	12.0
90°-150°	1134.0	41.0
90°-180°	1528.0	55.3
0°-180°	2765.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	482	482	482	482	482	
5°	481	480	475	479	479	46
15°	458	456	451	453	452	129
25°	415	412	407	407	406	191
35°	357	354	349	346	344	223
45°	291	288	282	278	277	225
55°	220	219	214	209	207	197
65°	149	147	144	140	138	148
75°	80	78	76	74	74	84
85°	21	21	20	20	20	23
90°	1	5	8	10	11	2
95°	20	8	8	10	11	26
105°	111	113	115	118	105	116
115°	208	209	208	209	209	204
125°	292	293	293	294	294	261
135°	362	362	363	364	365	279
145°	418	419	419	419	420	261
155°	458	458	457	458	458	211
165°	483	481	481	484	481	136
175°	494	492	492	495	491	47
180°	494	494	494	494	494	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6
2.5°	482.8	482.7	482.4	482.2	482.0	481.5	480.8	480.0	479.3	478.5	479.2
5°	481.2	480.9	480.5	480.2	479.9	479.2	478.3	477.4	476.4	475.4	476.4
7.5°	476.8	476.4	476.1	475.7	475.4	474.7	473.6	472.6	471.6	470.5	471.2
10°	472.7	472.4	472.1	471.7	471.4	470.7	469.5	468.4	467.3	466.2	466.8
12.5°	467.5	467.2	466.8	466.4	466.1	465.4	464.1	463.0	461.8	460.6	461.4
15°	458.0	457.7	457.4	457.1	456.7	455.9	454.6	453.3	452.0	450.8	451.3
17.5°	446.7	446.3	445.9	445.5	445.0	444.2	443.0	441.7	440.5	439.3	439.6
20°	438.4	438.0	437.6	437.1	436.7	435.9	434.6	433.3	431.9	430.6	431.0
22.5°	429.4	428.8	428.3	427.7	427.1	426.2	424.9	423.7	422.4	421.1	421.6
25°	414.8	414.3	413.7	413.0	412.5	411.6	410.3	409.1	408.0	406.8	406.8
27.5°	398.2	397.5	397.0	396.3	395.7	394.8	393.7	392.6	391.5	390.4	390.2
30°	387.1	386.4	385.7	385.0	384.3	383.4	382.3	381.2	380.1	379.0	378.6
32.5°	375.4	374.7	374.1	373.5	372.8	371.9	370.8	369.6	368.4	367.2	366.8
35°	356.9	356.4	355.8	355.1	354.6	353.7	352.5	351.2	350.1	348.9	348.3
37.5°	337.6	337.0	336.5	336.0	335.4	334.5	333.2	331.9	330.6	329.3	328.6
40°	324.9	324.2	323.6	322.9	322.2	321.2	319.9	318.6	317.3	316.1	315.2
42.5°	311.4	311.0	310.5	310.1	309.7	308.8	307.4	305.9	304.5	303.1	302.1
45°	291.4	290.7	290.2	289.6	288.9	288.0	286.6	285.2	283.9	282.5	281.5
47.5°	270.4	270.0	269.6	269.2	268.8	268.0	266.7	265.4	264.2	262.9	261.8
50°	256.2	255.9	255.6	255.2	254.9	254.1	252.9	251.7	250.5	249.3	248.1
52.5°	242.4	241.9	241.5	241.1	240.7	239.9	238.6	237.3	236.0	234.8	233.7
55°	220.4	220.1	219.8	219.6	219.3	218.6	217.4	216.2	215.0	213.8	212.8
57.5°	199.3	199.1	198.8	198.5	198.2	197.5	196.2	195.1	193.9	192.7	191.8
60°	184.8	184.4	184.0	183.5	183.1	182.4	181.2	180.1	179.0	177.9	177.2
62.5°	170.6	170.3	169.9	169.6	169.2	168.4	167.2	166.1	164.9	163.7	163.0
65°	149.4	149.0	148.5	148.1	147.7	147.0	146.1	145.3	144.4	143.6	142.7
67.5°	127.9	127.5	127.1	126.7	126.3	125.7	124.9	124.1	123.3	122.4	121.6
70°	114.6	114.0	113.4	112.8	112.2	111.5	110.9	110.2	109.5	108.8	108.1
72.5°	100.4	99.8	99.2	98.7	98.0	97.4	96.9	96.4	95.8	95.2	94.7
75°	79.5	79.1	78.7	78.2	77.8	77.4	77.0	76.5	76.1	75.7	75.3
77.5°	59.5	59.4	59.1	58.9	58.8	58.5	58.1	57.7	57.3	57.0	56.8
80°	47.5	47.2	47.0	46.7	46.5	46.2	46.1	45.9	45.7	45.6	45.3
82.5°	35.7	35.6	35.5	35.4	35.2	35.1	35.1	35.1	35.1	35.1	35.0
85°	20.9	20.9	20.9	20.9	20.9	20.8	20.5	20.4	20.2	20.1	20.1
87.5°	8.2	8.4	8.5	8.6	8.7	8.8	8.9	8.9	9.0	9.0	9.1
90°	1.1	2.0	2.9	3.8	4.7	5.5	6.2	6.8	7.5	8.2	8.6
92.5°	4.6	4.7	4.7	4.8	4.9	5.2	5.9	6.5	7.2	7.8	8.3
95°	20.3	17.5	14.8	12.0	9.1	7.8	7.9	8.0	8.1	8.2	8.6
97.5°	43.1	44.9	46.6	48.3	50.1	46.4	37.3	28.0	18.9	9.8	9.8
100°	60.6	62.0	63.6	65.1	66.5	61.6	50.2	38.9	27.6	16.2	14.8
102.5°	80.1	81.2	82.3	83.3	84.5	84.2	82.8	81.3	79.8	78.4	63.3
105°	111.2	111.7	112.2	112.7	113.2	113.7	114.1	114.5	114.9	115.3	116.0
107.5°	140.1	140.4	140.6	140.9	141.1	141.5	142.0	142.6	143.2	143.7	144.1
110°	159.6	159.9	160.1	160.4	160.6	160.9	161.4	162.0	162.5	163.0	163.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	178.6	179.0	179.4	179.9	180.3	180.7	180.9	181.1	181.3	181.6	181.6
115°	207.7	207.9	208.1	208.4	208.6	208.7	208.6	208.6	208.5	208.4	208.6
117.5°	233.9	234.2	234.6	234.9	235.2	235.5	235.6	235.8	236.0	236.2	236.1
120°	251.6	251.9	252.3	252.6	252.9	253.1	253.0	252.9	252.8	252.7	252.9
122.5°	268.2	268.4	268.6	268.8	269.0	269.1	269.2	269.4	269.5	269.6	269.7
125°	291.9	292.2	292.5	292.9	293.2	293.3	293.1	292.9	292.8	292.6	292.9
127.5°	314.4	314.5	314.5	314.6	314.7	315.0	315.3	315.7	316.1	316.4	316.4
130°	328.8	328.9	329.1	329.1	329.2	329.4	329.6	329.9	330.1	330.4	330.4
132.5°	342.2	342.3	342.4	342.6	342.8	343.0	343.3	343.6	343.9	344.2	344.3
135°	362.1	362.0	361.9	361.8	361.7	361.9	362.2	362.6	362.9	363.2	363.4
137.5°	379.8	379.8	379.8	379.8	379.9	380.1	380.4	380.8	381.2	381.6	381.7
140°	391.3	391.4	391.6	391.8	391.9	392.1	392.2	392.5	392.6	392.8	393.1
142.5°	401.6	401.9	402.3	402.5	402.8	403.0	403.1	403.2	403.3	403.4	403.6
145°	417.5	417.8	418.0	418.2	418.5	418.7	418.7	418.7	418.7	418.7	418.7
147.5°	430.2	430.6	431.0	431.5	432.0	432.2	432.1	432.0	431.9	431.9	431.9
150°	439.4	439.7	440.0	440.3	440.7	440.8	440.7	440.6	440.5	440.4	440.4
152.5°	447.0	447.3	447.5	447.8	448.1	448.1	448.0	447.8	447.7	447.5	447.7
155°	457.8	457.9	458.0	458.0	458.1	458.0	457.8	457.5	457.3	457.1	457.4
157.5°	466.9	466.8	466.8	466.8	466.7	466.5	466.3	465.9	465.7	465.5	465.9
160°	472.2	472.0	471.7	471.5	471.2	471.1	471.0	470.9	470.8	470.8	471.2
162.5°	477.0	476.6	476.3	476.0	475.7	475.5	475.4	475.3	475.2	475.2	475.6
165°	482.9	482.5	482.1	481.7	481.3	481.1	481.1	481.1	481.1	481.1	481.8
167.5°	487.6	487.2	486.8	486.4	485.9	485.7	485.7	485.6	485.6	485.5	486.2
170°	490.3	489.8	489.3	488.9	488.4	488.1	488.2	488.3	488.4	488.4	489.1
172.5°	492.1	491.6	491.1	490.6	490.2	489.9	490.0	490.1	490.2	490.2	490.9
175°	494.0	493.5	493.0	492.5	492.0	491.9	492.0	492.0	492.1	492.2	492.9
177.5°	494.9	494.5	494.0	493.5	493.1	492.9	493.0	493.2	493.3	493.4	493.9
180°	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6
2.5°	479.9	480.6	481.3	481.6	481.5	481.4	481.4	481.3
5°	477.4	478.3	479.2	479.6	479.4	479.2	479.1	478.9
7.5°	472.0	472.8	473.5	473.9	473.8	473.6	473.5	473.4
10°	467.6	468.2	469.0	469.2	469.0	468.8	468.6	468.5
12.5°	462.1	462.8	463.7	463.9	463.7	463.4	463.2	462.9
15°	451.8	452.2	452.8	452.9	452.7	452.4	452.2	451.9
17.5°	439.9	440.3	440.6	440.7	440.5	440.3	440.2	440.0
20°	431.2	431.5	431.7	431.8	431.5	431.4	431.2	431.0
22.5°	422.0	422.5	423.0	423.1	422.7	422.4	422.1	421.8
25°	406.9	407.0	407.1	407.0	406.6	406.3	405.9	405.6
27.5°	390.0	389.8	389.6	389.2	388.8	388.4	387.9	387.5
30°	378.3	378.0	377.6	377.2	376.7	376.3	375.9	375.5
32.5°	366.4	366.0	365.6	365.2	364.8	364.3	363.9	363.5
35°	347.6	347.1	346.4	345.9	345.5	345.1	344.6	344.2
37.5°	328.0	327.3	326.7	326.1	325.5	325.0	324.4	323.8
40°	314.4	313.5	312.7	312.0	311.5	311.1	310.7	310.3
42.5°	301.1	300.1	299.1	298.5	298.2	297.9	297.6	297.3
45°	280.6	279.6	278.8	278.1	277.9	277.6	277.4	277.1
47.5°	260.7	259.7	258.6	257.8	257.1	256.5	255.8	255.2
50°	246.9	245.7	244.5	243.6	243.1	242.6	242.1	241.6
52.5°	232.7	231.6	230.6	229.7	229.0	228.4	227.7	227.1
55°	211.7	210.7	209.7	208.9	208.4	207.9	207.3	206.8
57.5°	190.8	189.8	188.8	188.1	187.6	187.1	186.6	186.1
60°	176.3	175.6	174.8	174.2	173.8	173.3	172.9	172.5
62.5°	162.3	161.6	160.9	160.3	159.9	159.5	159.1	158.6
65°	141.9	141.0	140.1	139.5	139.1	138.6	138.2	137.8
67.5°	120.7	119.9	119.1	118.6	118.5	118.4	118.3	118.1
70°	107.5	106.8	106.1	105.6	105.3	105.1	104.8	104.6
72.5°	94.2	93.6	93.0	92.6	92.4	92.1	91.9	91.6
75°	74.9	74.6	74.3	74.0	73.9	73.9	73.8	73.7
77.5°	56.7	56.7	56.6	56.4	56.2	55.9	55.7	55.5
80°	45.2	45.0	44.8	44.8	44.6	44.5	44.4	44.4
82.5°	34.8	34.7	34.7	34.6	34.5	34.3	34.2	34.2
85°	20.1	20.1	20.1	20.1	20.0	19.9	19.7	19.6
87.5°	9.2	9.3	9.5	9.5	9.5	9.5	9.6	9.6
90°	9.1	9.6	10.1	10.4	10.6	10.8	10.9	11.1
92.5°	8.8	9.3	9.8	10.0	10.1	10.1	10.2	10.2
95°	9.1	9.6	10.1	10.4	10.4	10.5	10.6	10.7
97.5°	9.9	9.9	9.9	10.0	10.1	10.2	10.3	10.4
100°	13.5	12.1	10.7	10.0	10.1	10.2	10.3	10.4
102.5°	48.2	33.2	18.1	10.6	10.6	10.6	10.6	10.7
105°	116.8	117.5	118.2	117.2	114.1	111.2	108.3	105.3
107.5°	144.5	144.8	145.2	145.5	145.9	146.1	146.4	146.8
110°	163.3	163.5	163.6	163.8	164.0	164.3	164.5	164.8





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	181.5	181.5	181.4	181.6	181.9	182.2	182.5	182.8
115°	208.7	208.9	209.0	209.1	209.1	209.1	209.1	209.1
117.5°	236.1	236.1	236.0	236.0	235.9	235.9	235.9	235.9
120°	253.1	253.2	253.4	253.4	253.2	253.1	252.9	252.7
122.5°	269.8	269.9	269.9	269.9	269.8	269.6	269.5	269.3
125°	293.1	293.3	293.6	293.8	293.8	293.9	294.0	294.1
127.5°	316.3	316.3	316.3	316.2	316.1	316.0	316.0	315.9
130°	330.5	330.6	330.7	330.7	330.7	330.7	330.7	330.7
132.5°	344.4	344.5	344.5	344.5	344.5	344.5	344.4	344.3
135°	363.5	363.7	363.9	364.0	364.2	364.4	364.5	364.7
137.5°	381.9	382.0	382.3	382.3	382.3	382.2	382.2	382.1
140°	393.3	393.5	393.8	394.0	394.0	394.1	394.2	394.3
142.5°	403.7	404.0	404.1	404.2	404.2	404.3	404.3	404.3
145°	418.8	418.9	419.0	419.1	419.2	419.4	419.6	419.7
147.5°	432.0	432.0	432.1	432.2	432.3	432.4	432.4	432.5
150°	440.4	440.4	440.4	440.5	440.6	440.7	440.8	440.8
152.5°	447.8	447.9	448.1	448.1	448.1	448.0	447.9	447.9
155°	457.7	458.0	458.4	458.4	458.2	458.0	457.7	457.5
157.5°	466.3	466.7	467.1	467.1	466.7	466.3	465.9	465.5
160°	471.7	472.2	472.7	472.7	472.2	471.7	471.2	470.8
162.5°	476.1	476.6	477.1	477.1	476.5	476.0	475.4	474.9
165°	482.4	483.1	483.7	483.6	482.9	482.2	481.4	480.7
167.5°	487.0	487.7	488.4	488.4	487.5	486.7	485.9	485.1
170°	489.8	490.4	491.1	491.1	490.2	489.3	488.5	487.7
172.5°	491.5	492.2	492.8	492.8	491.9	491.0	490.1	489.2
175°	493.7	494.4	495.1	495.0	494.0	493.0	492.0	491.1
177.5°	494.5	495.0	495.5	495.4	494.6	493.8	493.0	492.3
180°	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0

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