

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: P331468-940

Luminaire Tested: **S122DIW-S290D435U940-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331468-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-8,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DIW-S290D435U940-4F0-1E-UDD-D1  
Description: DEFINE 2 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 435 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2406.9 lumens  
Efficiency: N/A  
Efficacy: 104.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect

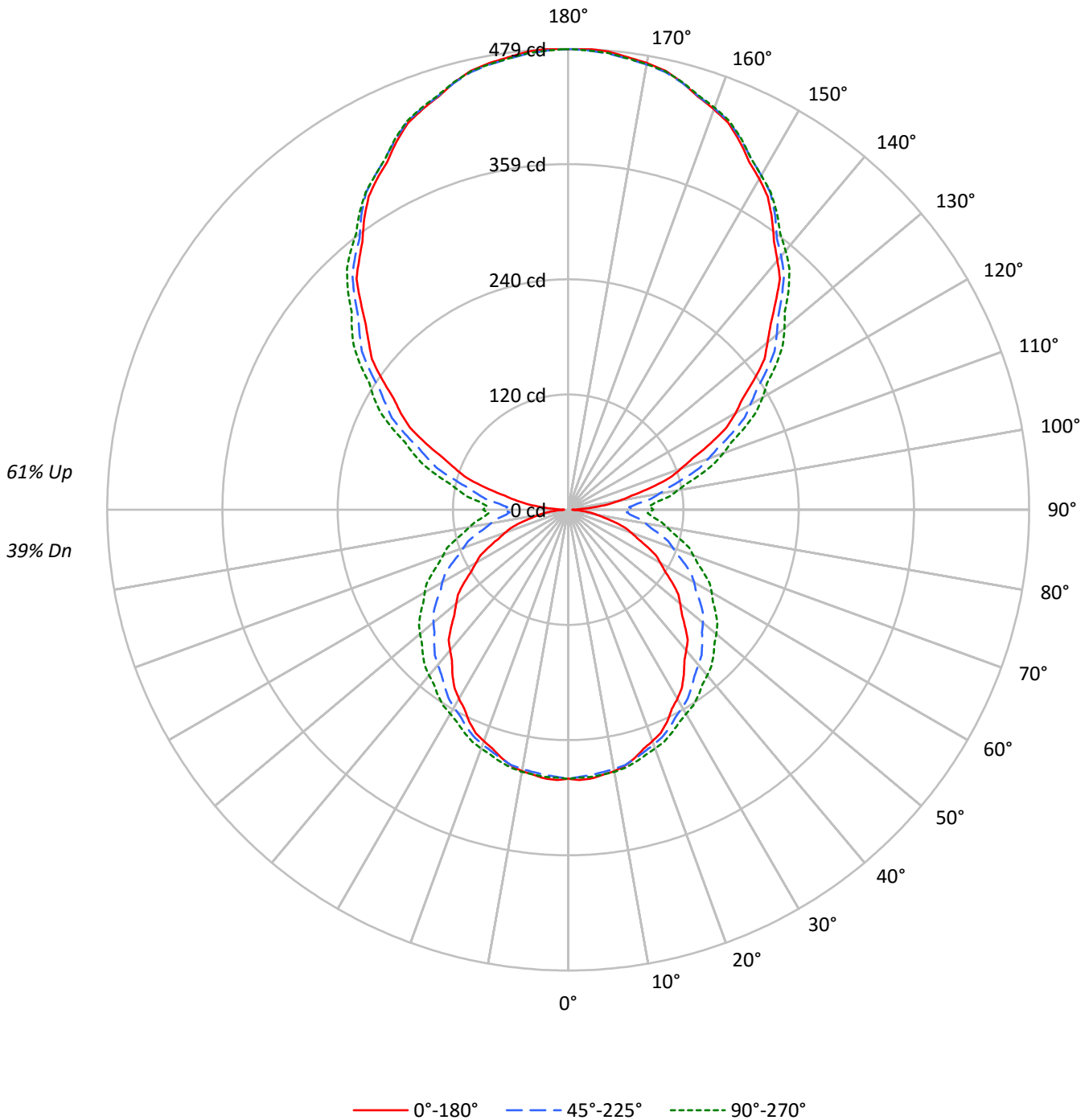
Input Watts (W): 23  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39
1	94	89	85	81	85	81	78	74	66	63	61	52	50	49	39	38	37	31
2	85	77	71	65	77	70	65	60	57	53	50	45	42	40	34	32	30	25
3	77	68	60	54	70	62	55	50	50	45	41	39	36	33	29	27	25	20
4	71	60	51	45	64	54	47	42	44	39	35	35	31	28	26	23	21	17
5	65	53	44	38	58	48	41	35	39	34	30	31	27	24	23	21	18	15
6	59	47	39	33	54	43	36	30	35	30	26	28	24	21	21	18	16	13
7	55	42	34	29	50	39	32	27	32	26	22	25	21	18	19	16	14	11
8	51	38	31	25	46	35	28	23	29	24	20	23	19	16	18	15	12	10
9	47	35	27	22	43	32	25	21	26	21	17	21	17	14	16	13	11	9
10	44	32	25	20	40	29	23	18	24	19	16	19	16	13	15	12	10	8

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

	0°	45°	90°
0°	4514	4514	4514
5°	4536	4345	4328
10°	4507	4215	4169
15°	4443	4079	4001
20°	4366	3935	3839
25°	4289	3793	3693
30°	4180	3650	3544
35°	4070	3510	3442
40°	3952	3391	3338
45°	3841	3286	3250
50°	3723	3189	3162
55°	3597	3086	3074
60°	3447	2979	2980
65°	3288	2854	2867
70°	3108	2717	2746
75°	2883	2585	2636
80°	2528	2450	2524
85°	2185	2333	2436



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	26.5	1.1
10°-20°	75.9	3.2
20°-30°	115.1	4.8
30°-40°	140.2	5.8
40°-50°	150.8	6.3
50°-60°	146.5	6.1
60°-70°	127.9	5.3
70°-80°	98.4	4.1
80°-90°	68.0	2.8
90°-100°	75.9	3.2
100°-110°	127.5	5.3
110°-120°	183.0	7.6
120°-130°	224.0	9.3
130°-140°	242.8	10.1
140°-150°	234.0	9.7
150°-160°	195.5	8.1
160°-170°	129.7	5.4
170°-180°	45.3	1.9
0°-30°	217.5	9.0
0°-40°	357.7	14.9
0°-60°	654.9	27.2
0°-90°	949.2	39.4
90°-120°	386.3	16.1
90°-150°	1087.2	45.2
90°-180°	1458.0	60.6
0°-180°	2406.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	280	280	280	280	280	
5°	280	279	277	279	279	27
15°	267	268	268	272	271	75
25°	243	246	250	254	256	112
35°	210	216	224	233	236	131
45°	172	183	197	209	214	133
55°	132	147	167	181	187	118
65°	90	110	134	150	156	89
75°	50	73	98	115	121	53
85°	15	40	66	82	88	16
90°	4	33	68	82	88	4
95°	24	47	72	87	92	27
105°	89	102	124	138	143	94
115°	163	171	188	199	202	161
125°	236	240	251	261	264	211
135°	305	309	314	322	324	235
145°	369	372	374	377	378	231
155°	422	423	425	426	425	194
165°	459	459	459	462	460	129
175°	478	477	476	478	476	45
180°	479	479	479	479	479	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	279.6	279.6	279.6	279.6	279.6	279.6	279.6	279.6	279.6	279.6	279.6
2.5°	281.2	280.9	280.7	280.4	280.3	279.9	279.4	278.9	278.4	277.9	278.2
5°	280.4	280.1	279.8	279.6	279.2	278.8	278.3	277.8	277.2	276.7	277.2
7.5°	277.8	277.6	277.4	277.2	277.1	276.8	276.3	276.0	275.5	275.1	275.8
10°	275.9	275.7	275.5	275.4	275.2	274.9	274.6	274.4	274.1	273.8	274.6
12.5°	272.6	272.7	272.7	272.8	272.8	272.7	272.5	272.3	272.1	271.9	272.6
15°	267.3	267.5	267.7	267.9	268.0	268.1	268.1	268.1	268.1	268.1	268.9
17.5°	260.6	260.9	261.3	261.7	262.1	262.4	262.7	263.0	263.2	263.6	264.4
20°	256.0	256.5	256.9	257.3	257.8	258.2	258.6	259.0	259.3	259.7	260.6
22.5°	251.2	251.6	252.2	252.7	253.2	253.8	254.2	254.8	255.3	255.7	256.7
25°	243.1	243.7	244.3	245.0	245.6	246.3	247.1	247.9	248.7	249.5	250.6
27.5°	233.4	234.3	235.4	236.4	237.5	238.4	239.3	240.3	241.3	242.3	243.6
30°	226.9	228.0	229.2	230.3	231.5	232.7	233.9	235.1	236.2	237.4	238.8
32.5°	219.7	221.1	222.3	223.6	225.0	226.3	227.7	229.1	230.5	231.8	233.5
35°	209.5	211.0	212.5	214.0	215.5	217.1	218.9	220.6	222.3	224.0	226.0
37.5°	198.2	200.0	201.8	203.6	205.3	207.3	209.6	211.7	213.9	216.2	218.4
40°	190.8	192.8	194.7	196.7	198.7	200.9	203.3	205.8	208.2	210.6	212.9
42.5°	183.7	185.7	187.6	189.6	191.6	193.9	196.8	199.6	202.3	205.1	207.7
45°	171.7	174.2	176.6	179.1	181.5	184.2	187.4	190.6	193.7	196.9	199.7
47.5°	160.0	162.6	165.3	167.9	170.6	173.8	177.5	181.1	184.9	188.5	191.5
50°	151.9	154.7	157.5	160.2	163.1	166.5	170.6	174.6	178.6	182.7	185.7
52.5°	144.1	147.0	150.0	152.9	155.9	159.4	163.7	168.0	172.3	176.6	179.7
55°	131.6	134.9	138.1	141.3	144.6	148.6	153.3	157.9	162.6	167.3	170.6
57.5°	119.3	123.0	126.6	130.3	133.9	138.1	142.9	147.7	152.5	157.3	160.8
60°	110.6	114.5	118.3	122.2	126.1	130.5	135.7	140.8	146.0	151.1	154.5
62.5°	102.8	106.8	110.8	114.9	118.9	123.4	128.6	133.7	138.8	144.0	147.6
65°	89.9	94.3	98.7	103.2	107.5	112.4	117.7	123.1	128.4	133.7	137.4
67.5°	78.1	82.8	87.3	91.9	96.6	101.6	107.0	112.4	117.9	123.3	127.1
70°	69.6	74.4	79.0	83.7	88.4	93.5	99.1	104.7	110.3	115.8	119.8
72.5°	61.9	66.7	71.5	76.3	81.2	86.4	92.1	97.7	103.4	109.1	112.9
75°	49.8	54.8	59.9	64.9	70.0	75.3	81.1	86.9	92.6	98.4	102.3
77.5°	38.2	43.4	48.7	53.9	59.3	64.8	70.7	76.5	82.4	88.2	92.1
80°	30.4	35.8	41.4	46.8	52.3	58.1	63.8	69.7	75.5	81.4	85.2
82.5°	23.9	29.3	34.8	40.1	45.6	51.3	57.2	63.1	69.0	74.9	78.7
85°	14.6	20.2	25.8	31.3	36.9	42.5	48.3	54.1	59.8	65.6	69.4
87.5°	8.0	13.6	19.2	24.8	30.3	36.2	42.4	48.5	54.7	60.8	64.5
90°	4.5	10.8	17.0	23.4	29.6	36.6	44.4	52.2	59.8	67.6	71.1
92.5°	10.9	16.6	22.2	27.9	33.5	39.3	45.4	51.4	57.4	63.4	67.0
95°	24.3	29.3	34.5	39.6	44.8	50.1	55.7	61.3	66.9	72.4	75.9
97.5°	41.2	45.7	50.3	54.8	59.4	64.5	70.0	75.5	81.1	86.6	89.9
100°	54.1	58.2	62.2	66.3	70.4	75.0	80.3	85.6	91.0	96.2	99.6
102.5°	67.4	71.0	74.6	78.2	81.9	86.3	91.5	96.8	102.0	107.3	110.6
105°	88.9	91.8	94.6	97.6	100.4	104.2	109.1	114.0	118.9	123.7	127.1
107.5°	110.9	113.4	115.9	118.4	120.9	124.4	128.9	133.3	137.8	142.3	145.3
110°	124.8	127.2	129.5	131.9	134.2	137.6	142.0	146.4	150.8	155.2	158.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	140.4	142.4	144.5	146.5	148.6	151.7	155.8	159.9	164.0	168.2	170.8
115°	163.2	164.8	166.3	167.8	169.3	172.0	175.9	179.8	183.7	187.5	190.1
117.5°	185.6	187.0	188.3	189.7	191.1	193.4	196.6	199.8	203.1	206.3	208.7
120°	200.8	201.9	203.0	204.0	205.1	207.1	210.0	212.9	215.7	218.6	221.1
122.5°	214.7	215.7	216.7	217.7	218.7	220.7	223.6	226.4	229.3	232.2	234.4
125°	235.9	236.7	237.6	238.4	239.2	240.9	243.5	246.1	248.7	251.3	253.5
127.5°	257.0	258.0	258.9	259.8	260.7	262.3	264.2	266.3	268.2	270.2	272.2
130°	270.3	271.3	272.4	273.5	274.6	276.0	277.7	279.4	281.1	282.9	284.8
132.5°	285.2	286.0	286.9	287.8	288.6	289.8	291.2	292.7	294.3	295.8	297.5
135°	304.6	305.6	306.6	307.6	308.5	309.6	310.7	311.7	312.8	313.9	315.8
137.5°	325.6	326.4	327.1	327.9	328.7	329.4	330.0	330.6	331.3	331.9	333.5
140°	338.1	338.9	339.6	340.3	341.0	341.7	342.3	343.0	343.6	344.2	345.6
142.5°	351.1	351.8	352.5	353.2	353.9	354.5	354.8	355.2	355.5	355.9	357.0
145°	369.3	369.9	370.5	371.1	371.8	372.4	372.9	373.4	374.0	374.5	375.1
147.5°	385.8	386.6	387.4	388.1	388.9	389.4	389.8	390.1	390.5	390.8	391.1
150°	397.2	397.7	398.2	398.8	399.3	399.8	400.1	400.5	400.8	401.2	401.4
152.5°	407.2	407.7	408.2	408.8	409.3	409.8	410.2	410.6	411.1	411.5	411.9
155°	422.1	422.4	422.7	423.0	423.3	423.6	423.8	424.1	424.4	424.6	425.1
157.5°	435.1	435.2	435.4	435.6	435.8	435.9	436.0	436.2	436.4	436.6	437.2
160°	442.8	443.0	443.2	443.4	443.5	443.6	443.7	443.8	443.9	444.0	444.5
162.5°	449.9	450.0	450.0	450.0	450.0	450.1	450.2	450.3	450.4	450.5	451.0
165°	459.3	459.2	459.1	459.1	459.0	459.0	459.0	459.0	459.0	459.0	459.6
167.5°	467.3	467.0	466.7	466.5	466.2	466.0	466.0	466.0	466.0	466.0	466.6
170°	471.4	471.2	470.9	470.6	470.4	470.2	470.1	470.0	469.9	469.8	470.5
172.5°	474.4	474.1	473.9	473.6	473.3	473.1	473.1	473.0	472.9	472.8	473.4
175°	478.0	477.7	477.4	477.2	476.9	476.6	476.4	476.3	476.1	475.9	476.5
177.5°	479.4	479.2	478.9	478.8	478.5	478.3	478.2	478.0	477.9	477.8	478.2
180°	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	279.6	279.6	279.6	279.6	279.6	279.6	279.6	279.6
2.5°	278.6	278.9	279.3	279.5	279.3	279.1	279.0	278.8
5°	277.8	278.3	278.8	279.0	278.9	278.8	278.7	278.7
7.5°	276.4	277.1	277.8	278.0	277.9	277.9	277.8	277.7
10°	275.3	276.0	276.7	277.1	277.0	276.9	276.8	276.7
12.5°	273.3	274.0	274.7	275.1	275.0	274.9	274.8	274.7
15°	269.7	270.6	271.4	271.8	271.7	271.6	271.5	271.4
17.5°	265.3	266.1	266.9	267.3	267.3	267.3	267.3	267.3
20°	261.6	262.6	263.6	264.1	264.1	264.1	264.1	264.1
22.5°	257.8	258.8	259.8	260.3	260.5	260.6	260.7	260.9
25°	251.7	252.8	253.9	254.5	254.8	255.0	255.3	255.6
27.5°	245.0	246.4	247.7	248.5	248.7	248.9	249.1	249.3
30°	240.2	241.7	243.2	244.0	244.2	244.5	244.8	245.0
32.5°	235.1	236.8	238.5	239.6	240.0	240.6	241.0	241.5
35°	228.0	230.0	231.9	233.3	233.9	234.5	235.1	235.8
37.5°	220.5	222.7	225.0	226.4	227.0	227.7	228.4	229.0
40°	215.3	217.7	220.0	221.6	222.4	223.2	224.0	224.8
42.5°	210.3	212.8	215.3	217.0	217.8	218.6	219.5	220.3
45°	202.4	205.3	208.0	209.9	210.8	211.7	212.6	213.5
47.5°	194.4	197.2	200.2	202.2	203.1	204.1	205.1	206.1
50°	188.8	191.9	194.9	197.0	198.0	198.9	199.9	200.9
52.5°	182.8	185.9	189.0	191.2	192.3	193.3	194.4	195.4
55°	173.8	177.0	180.3	182.4	183.6	184.9	186.0	187.2
57.5°	164.3	167.7	171.2	173.5	174.8	175.9	177.1	178.3
60°	157.9	161.4	164.8	167.1	168.4	169.6	170.9	172.2
62.5°	151.2	154.9	158.5	161.0	162.1	163.3	164.5	165.7
65°	141.1	144.7	148.5	150.9	152.0	153.2	154.4	155.5
67.5°	130.7	134.5	138.2	140.7	141.9	143.1	144.4	145.6
70°	123.6	127.4	131.3	133.8	134.9	136.0	137.1	138.1
72.5°	116.6	120.5	124.2	126.8	128.0	129.4	130.7	132.0
75°	106.2	110.0	114.0	116.5	117.6	118.8	119.9	121.1
77.5°	95.9	99.8	103.6	106.2	107.5	108.7	109.9	111.2
80°	89.0	92.7	96.6	99.1	100.3	101.6	102.8	104.1
82.5°	82.5	86.3	90.1	92.6	93.7	95.0	96.1	97.3
85°	73.2	77.0	80.8	83.3	84.5	85.8	87.0	88.3
87.5°	68.1	71.8	75.3	77.8	78.9	80.2	81.3	82.5
90°	74.5	77.8	81.3	83.6	84.8	86.0	87.1	88.3
92.5°	70.5	74.1	77.7	80.0	81.1	82.2	83.3	84.4
95°	79.3	82.7	86.1	88.3	89.2	90.1	91.0	91.8
97.5°	93.3	96.6	99.9	102.1	103.1	104.2	105.2	106.3
100°	102.9	106.3	109.6	111.7	112.6	113.5	114.4	115.3
102.5°	113.9	117.3	120.6	122.7	123.6	124.5	125.4	126.3
105°	130.4	133.7	137.1	139.2	140.2	141.2	142.1	143.1
107.5°	148.5	151.6	154.7	156.5	157.1	157.7	158.3	158.8
110°	161.0	163.9	166.7	168.5	169.2	170.0	170.7	171.4





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	173.4	176.1	178.8	180.5	181.3	182.1	182.9	183.7
115°	192.7	195.4	198.0	199.7	200.4	201.1	201.8	202.5
117.5°	211.2	213.7	216.2	217.7	218.3	219.0	219.6	220.3
120°	223.6	226.1	228.7	230.3	231.0	231.8	232.5	233.2
122.5°	236.7	238.9	241.1	242.5	243.2	243.9	244.5	245.1
125°	255.7	257.8	259.9	261.4	262.2	262.9	263.6	264.3
127.5°	274.0	276.0	277.9	279.1	279.6	280.1	280.6	281.1
130°	286.8	288.7	290.8	291.9	292.3	292.7	293.0	293.4
132.5°	299.2	300.9	302.6	303.5	304.0	304.4	304.9	305.3
135°	317.5	319.3	321.1	322.3	322.7	323.2	323.6	324.0
137.5°	335.1	336.7	338.2	339.2	339.5	339.7	339.9	340.2
140°	347.1	348.6	350.0	350.8	351.0	351.2	351.3	351.5
142.5°	358.3	359.5	360.7	361.4	361.5	361.6	361.8	361.9
145°	375.8	376.4	377.0	377.4	377.5	377.6	377.6	377.7
147.5°	391.4	391.6	391.9	392.0	391.8	391.7	391.6	391.5
150°	401.7	402.0	402.3	402.3	402.0	401.7	401.4	401.2
152.5°	412.1	412.5	412.9	412.9	412.5	412.1	411.9	411.5
155°	425.5	426.0	426.4	426.5	426.2	426.0	425.7	425.4
157.5°	437.7	438.4	439.0	439.1	438.6	438.2	437.8	437.4
160°	445.1	445.6	446.1	446.2	445.9	445.5	445.1	444.8
162.5°	451.7	452.3	452.9	453.0	452.5	452.1	451.7	451.3
165°	460.2	460.8	461.5	461.5	461.1	460.7	460.2	459.8
167.5°	467.3	467.9	468.5	468.6	468.1	467.6	467.2	466.7
170°	471.1	471.7	472.3	472.4	471.9	471.4	470.8	470.3
172.5°	474.0	474.7	475.3	475.3	474.7	474.2	473.7	473.1
175°	477.2	477.8	478.4	478.5	478.0	477.4	476.9	476.4
177.5°	478.7	479.0	479.5	479.5	479.0	478.7	478.2	477.8
180°	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8

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