

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: P332718-935

Luminaire Tested: **S124DIW-S350D470U935-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332718-935  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIW-S350D470U935-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 470 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2641.7 lumens  
Efficiency: N/A  
Efficacy: 114.9 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

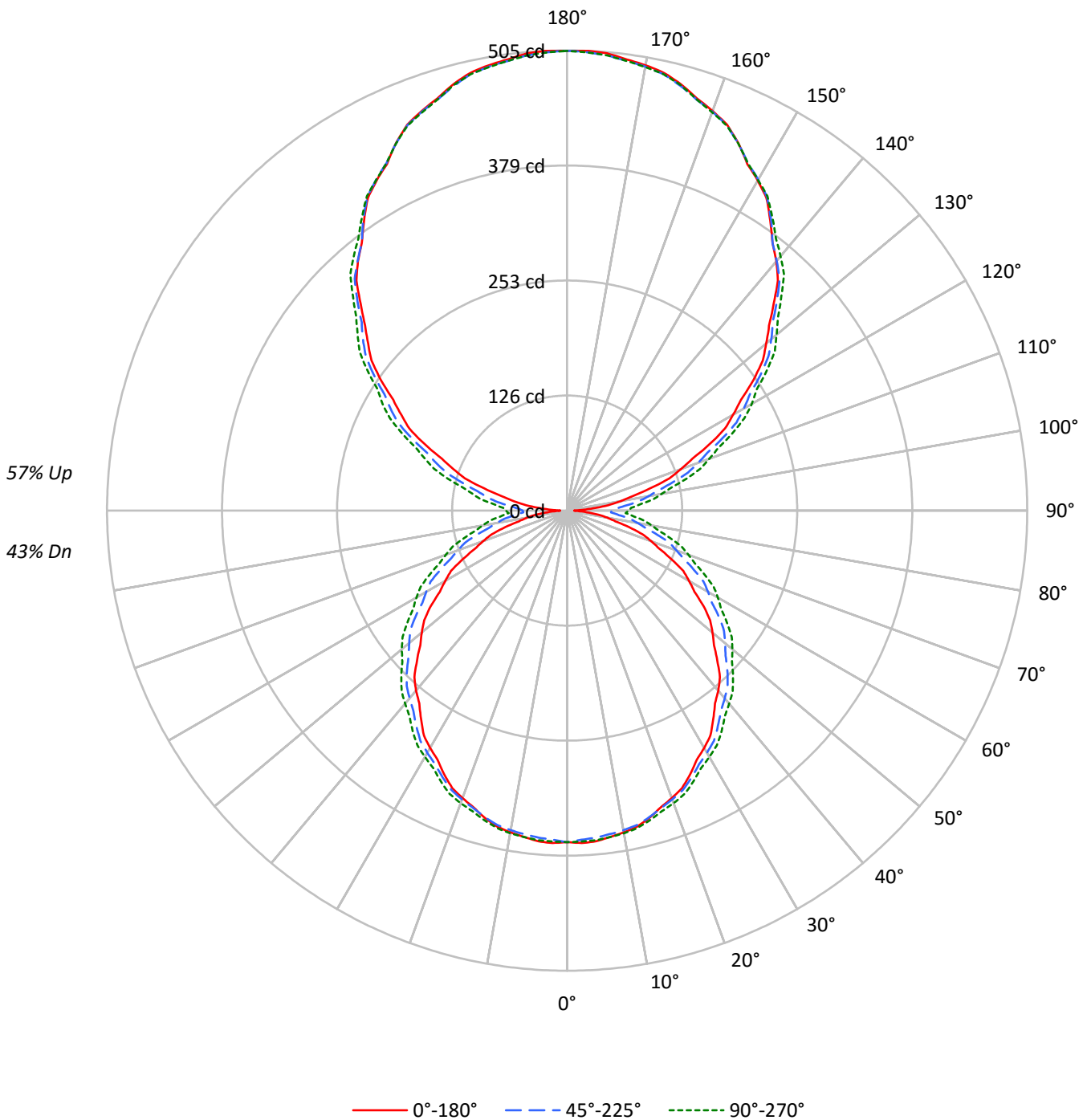
Input Watts (W): 23  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	95	91	87	83	87	83	79	76	69	66	64	55	53	52	43	42	41	35
2	87	79	72	67	79	72	66	62	59	55	52	48	45	42	37	35	33	28
3	79	69	61	55	71	63	56	51	52	47	43	42	38	35	33	30	28	24
4	72	61	53	46	65	56	49	43	46	41	36	37	33	30	29	26	24	20
5	66	54	46	39	60	49	42	37	41	35	31	33	29	26	26	23	21	17
6	60	48	40	34	55	44	37	32	37	31	27	30	26	22	23	20	18	15
7	56	43	35	30	51	40	33	28	33	28	24	27	23	20	21	18	16	13
8	52	39	31	26	47	36	29	24	30	25	21	25	21	18	20	16	14	12
9	48	36	28	23	44	33	26	22	28	22	19	23	19	16	18	15	13	11
10	45	33	25	21	41	30	24	19	25	20	17	21	17	14	17	14	12	10

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

	0°	45°	90°
0°	2938	2938	2938
5°	2948	2871	2880
10°	2929	2825	2823
15°	2902	2770	2755
20°	2863	2710	2690
25°	2819	2643	2617
30°	2770	2576	2543
35°	2716	2507	2478
40°	2672	2442	2410
45°	2607	2382	2352
50°	2553	2313	2291
55°	2496	2248	2220
60°	2408	2164	2153
65°	2309	2076	2073
70°	2192	1973	1979
75°	2029	1861	1894
80°	1846	1754	1809
85°	1616	1659	1762



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	34.5	1.3
10°-20°	98.7	3.7
20°-30°	149.3	5.7
30°-40°	180.7	6.8
40°-50°	191.0	7.2
50°-60°	179.7	6.8
60°-70°	149.1	5.6
70°-80°	104.7	4.0
80°-90°	60.7	2.3
90°-100°	68.4	2.6
100°-110°	124.6	4.7
110°-120°	184.8	7.0
120°-130°	230.4	8.7
130°-140°	252.0	9.5
140°-150°	244.3	9.2
150°-160°	204.8	7.8
160°-170°	136.2	5.2
170°-180°	47.7	1.8
0°-30°	282.5	10.7
0°-40°	463.2	17.5
0°-60°	833.9	31.6
0°-90°	1148.5	43.5
90°-120°	377.8	14.3
90°-150°	1104.5	41.8
90°-180°	1493.0	56.5
0°-180°	2641.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	364	364	364	364	364	
5°	364	363	360	363	363	35
15°	349	350	348	352	352	98
25°	320	322	323	327	328	147
35°	280	284	288	294	296	175
45°	233	241	249	255	258	180
55°	183	191	203	211	214	163
65°	126	139	153	163	167	125
75°	70	85	102	113	117	75
85°	22	39	57	69	73	23
90°	8	28	49	62	67	6
95°	29	46	65	77	81	30
105°	94	104	120	131	136	101
115°	172	177	188	197	200	170
125°	249	250	259	265	267	222
135°	320	323	326	331	332	248
145°	389	390	390	392	393	243
155°	445	445	444	446	444	205
165°	484	483	482	484	483	136
175°	504	502	501	504	501	48
180°	504	504	504	504	504	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	363.9	363.9	363.9	363.9	363.9	363.9	363.9	363.9	363.9	363.9	363.9
2.5°	365.2	365.0	364.8	364.5	364.4	363.9	363.4	362.8	362.2	361.6	362.1
5°	364.4	364.0	363.8	363.5	363.3	362.8	362.1	361.5	360.9	360.2	361.0
7.5°	361.3	361.1	360.9	360.8	360.6	360.2	359.7	359.2	358.7	358.2	359.0
10°	358.6	358.5	358.4	358.3	358.3	358.0	357.6	357.1	356.6	356.2	357.0
12.5°	355.1	355.0	355.0	355.0	355.0	354.8	354.5	354.2	353.9	353.6	354.3
15°	349.2	349.4	349.5	349.6	349.7	349.6	349.2	349.0	348.7	348.4	349.2
17.5°	341.4	341.6	341.9	342.2	342.4	342.6	342.5	342.4	342.4	342.3	343.2
20°	335.8	336.0	336.4	336.7	336.9	337.1	337.2	337.3	337.3	337.4	338.4
22.5°	329.6	329.9	330.3	330.6	331.0	331.2	331.4	331.6	331.7	331.9	332.8
25°	319.5	320.0	320.6	321.2	321.7	322.1	322.4	322.6	322.9	323.2	324.2
27.5°	308.2	309.1	309.9	310.6	311.4	312.0	312.5	312.9	313.3	313.7	314.6
30°	300.7	301.5	302.2	302.9	303.7	304.4	305.0	305.6	306.3	306.9	307.9
32.5°	292.7	293.5	294.4	295.2	296.1	296.9	297.6	298.3	299.0	299.7	300.8
35°	279.6	280.7	281.7	282.8	284.0	284.9	285.9	286.7	287.7	288.5	289.8
37.5°	266.5	267.7	269.0	270.2	271.5	272.6	273.8	274.9	276.0	277.2	278.4
40°	258.0	259.2	260.4	261.5	262.7	263.9	265.2	266.5	267.7	269.0	270.4
42.5°	248.2	249.5	250.8	252.2	253.5	254.9	256.4	257.9	259.3	260.8	262.3
45°	233.1	234.8	236.5	238.2	240.0	241.7	243.4	245.1	246.8	248.6	250.1
47.5°	218.7	220.5	222.2	224.0	225.8	227.6	229.6	231.7	233.7	235.7	237.2
50°	208.3	210.3	212.2	214.2	216.2	218.2	220.2	222.2	224.2	226.2	228.0
52.5°	197.9	199.8	201.8	203.8	205.8	207.9	210.2	212.5	214.7	217.1	218.9
55°	182.6	184.5	186.4	188.3	190.2	192.5	195.2	197.9	200.6	203.4	205.2
57.5°	165.6	167.9	170.2	172.6	175.0	177.5	180.2	182.9	185.5	188.3	190.5
60°	154.5	156.8	159.2	161.5	163.8	166.5	169.5	172.5	175.5	178.5	180.6
62.5°	143.7	146.3	148.9	151.4	153.9	156.8	159.7	162.7	165.7	168.8	170.8
65°	126.3	129.2	132.2	135.0	137.9	140.9	144.0	147.1	150.2	153.3	155.5
67.5°	109.6	112.7	115.8	118.9	121.9	125.1	128.5	131.7	135.0	138.3	140.6
70°	98.2	101.3	104.4	107.5	110.6	113.8	117.3	120.7	124.2	127.6	130.0
72.5°	87.1	90.3	93.4	96.6	99.7	103.1	106.8	110.5	114.1	117.8	120.1
75°	70.1	73.4	76.8	80.2	83.5	87.0	90.9	94.7	98.5	102.3	104.9
77.5°	54.2	57.8	61.3	64.8	68.4	72.2	76.1	80.2	84.1	88.1	90.7
80°	44.4	48.0	51.7	55.3	58.9	62.7	66.7	70.7	74.6	78.7	81.4
82.5°	34.6	38.4	42.2	46.0	49.7	53.6	57.6	61.6	65.5	69.6	72.3
85°	21.6	25.4	29.2	33.0	36.9	40.7	44.9	48.9	53.0	57.1	59.8
87.5°	12.3	16.2	20.1	23.9	27.8	31.9	35.9	40.0	44.2	48.2	51.0
90°	7.7	12.2	16.9	21.4	26.0	30.6	35.1	39.8	44.3	48.9	52.1
92.5°	14.6	18.9	23.2	27.6	31.9	36.3	40.7	45.1	49.4	53.8	56.7
95°	28.7	32.5	36.2	40.0	43.8	47.8	52.2	56.5	60.8	65.1	67.8
97.5°	45.7	48.9	52.1	55.3	58.5	62.3	66.6	71.0	75.4	79.8	82.5
100°	59.1	61.8	64.5	67.2	69.9	73.4	77.7	82.1	86.4	90.7	93.2
102.5°	73.4	75.7	77.8	80.1	82.3	85.5	89.6	93.8	98.0	102.1	104.8
105°	94.5	96.4	98.4	100.3	102.2	105.0	108.7	112.4	116.1	119.8	122.3
107.5°	117.5	119.1	120.7	122.3	123.9	126.3	129.5	132.7	136.0	139.1	141.6
110°	132.8	134.2	135.7	137.2	138.5	140.9	143.9	147.0	150.1	153.2	155.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	148.7	149.8	151.0	152.1	153.3	155.3	158.2	161.1	163.9	166.8	168.8
115°	172.5	173.4	174.2	175.0	175.8	177.6	180.3	183.0	185.7	188.5	190.4
117.5°	195.4	196.0	196.6	197.1	197.7	199.2	201.8	204.4	207.0	209.5	211.1
120°	210.3	211.0	211.6	212.2	212.8	214.4	216.7	219.0	221.4	223.8	225.2
122.5°	226.3	226.5	226.7	226.9	227.0	228.3	230.7	233.1	235.4	237.8	239.3
125°	249.3	249.3	249.2	249.1	249.0	250.0	252.3	254.4	256.6	258.7	260.3
127.5°	270.6	270.8	271.0	271.1	271.3	272.2	273.8	275.3	277.0	278.5	280.0
130°	285.2	285.4	285.6	285.8	285.9	286.7	288.2	289.6	291.1	292.6	294.0
132.5°	300.6	300.7	300.7	300.8	300.9	301.5	302.6	303.8	304.8	305.9	307.3
135°	320.4	320.9	321.4	321.9	322.4	323.0	323.6	324.3	324.9	325.5	326.8
137.5°	342.3	342.5	342.7	342.9	342.9	343.3	343.7	344.1	344.6	345.1	346.1
140°	357.1	357.1	357.2	357.3	357.3	357.4	357.6	357.7	357.7	357.8	358.9
142.5°	370.1	370.3	370.4	370.6	370.7	370.7	370.7	370.5	370.4	370.2	371.3
145°	388.6	388.8	389.1	389.3	389.6	389.8	389.9	389.9	390.0	390.1	390.6
147.5°	407.0	407.3	407.7	408.0	408.3	408.5	408.4	408.3	408.3	408.2	408.2
150°	418.3	418.5	418.8	419.0	419.3	419.4	419.4	419.4	419.4	419.4	419.4
152.5°	428.5	428.8	429.0	429.1	429.3	429.5	429.5	429.6	429.6	429.7	429.9
155°	444.8	444.8	444.8	444.8	444.8	444.7	444.6	444.5	444.4	444.4	444.7
157.5°	458.5	458.3	458.2	458.1	457.9	457.8	457.8	457.8	457.7	457.7	458.0
160°	466.7	466.6	466.5	466.4	466.3	466.2	466.1	466.1	466.0	465.9	466.1
162.5°	474.2	473.9	473.6	473.5	473.2	473.0	472.9	472.9	472.8	472.7	473.2
165°	484.1	483.9	483.6	483.4	483.1	482.9	482.8	482.6	482.4	482.2	482.8
167.5°	491.9	491.5	491.2	490.9	490.4	490.3	490.3	490.3	490.3	490.3	490.9
170°	496.3	495.8	495.4	495.0	494.6	494.4	494.5	494.6	494.6	494.7	495.2
172.5°	499.4	499.0	498.7	498.3	497.9	497.7	497.7	497.8	497.8	497.8	498.4
175°	503.7	503.3	502.8	502.4	502.0	501.7	501.6	501.5	501.4	501.4	502.0
177.5°	505.1	504.7	504.4	504.0	503.7	503.5	503.5	503.5	503.5	503.5	504.0
180°	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	363.9	363.9	363.9	363.9	363.9	363.9	363.9	363.9
2.5°	362.7	363.2	363.7	363.9	363.9	363.8	363.7	363.6
5°	361.7	362.4	363.2	363.5	363.4	363.3	363.2	363.1
7.5°	359.8	360.6	361.4	361.8	361.7	361.6	361.5	361.4
10°	357.8	358.6	359.5	359.8	359.7	359.6	359.6	359.5
12.5°	355.1	355.9	356.5	356.9	356.9	356.9	356.9	356.8
15°	350.1	350.9	351.7	352.1	352.0	351.9	351.8	351.7
17.5°	344.0	344.8	345.7	346.0	345.9	345.9	345.9	345.8
20°	339.2	340.2	341.0	341.6	341.6	341.6	341.6	341.6
22.5°	333.7	334.6	335.5	336.0	336.2	336.3	336.5	336.7
25°	325.2	326.1	327.2	327.7	327.8	327.9	328.0	328.0
27.5°	315.6	316.5	317.5	318.0	318.1	318.1	318.2	318.4
30°	308.8	309.9	310.8	311.4	311.6	311.9	312.0	312.2
32.5°	302.0	303.2	304.3	305.0	305.1	305.3	305.5	305.7
35°	291.1	292.3	293.6	294.4	294.6	294.9	295.2	295.5
37.5°	279.7	280.9	282.2	283.1	283.4	283.6	284.0	284.2
40°	271.7	273.0	274.4	275.3	275.6	276.0	276.4	276.7
42.5°	263.8	265.4	266.8	267.8	268.0	268.3	268.6	268.9
45°	251.7	253.2	254.8	255.7	256.2	256.7	257.1	257.5
47.5°	238.8	240.4	242.0	243.1	243.7	244.2	244.7	245.3
50°	229.8	231.6	233.4	234.6	235.1	235.7	236.3	236.8
52.5°	220.7	222.5	224.3	225.5	226.0	226.5	227.1	227.6
55°	207.0	208.8	210.6	211.8	212.3	212.8	213.4	214.0
57.5°	192.6	194.8	196.9	198.2	198.7	199.2	199.8	200.3
60°	182.7	184.8	186.8	188.2	189.0	189.7	190.5	191.1
62.5°	172.9	175.0	177.0	178.5	179.2	179.9	180.6	181.3
65°	157.7	160.1	162.3	163.8	164.5	165.2	166.0	166.7
67.5°	142.9	145.3	147.5	149.0	149.7	150.4	151.1	151.9
70°	132.4	134.9	137.3	138.9	139.5	140.2	140.8	141.4
72.5°	122.5	124.9	127.3	128.8	129.5	130.2	131.0	131.6
75°	107.4	109.9	112.4	114.1	114.9	115.7	116.6	117.4
77.5°	93.2	95.8	98.4	100.1	101.0	101.9	102.7	103.6
80°	84.1	86.8	89.5	91.3	92.0	92.7	93.4	94.1
82.5°	75.1	77.9	80.7	82.5	83.3	84.0	84.9	85.7
85°	62.5	65.2	67.9	69.7	70.6	71.5	72.4	73.4
87.5°	53.7	56.5	59.2	61.0	61.8	62.6	63.5	64.3
90°	55.2	58.4	61.5	63.5	64.4	65.3	66.2	67.2
92.5°	59.6	62.4	65.3	67.2	68.0	68.8	69.7	70.4
95°	70.5	73.2	75.9	77.7	78.5	79.3	80.2	80.9
97.5°	85.2	87.9	90.6	92.3	93.1	93.8	94.6	95.4
100°	95.9	98.5	101.2	102.8	103.4	104.0	104.7	105.3
102.5°	107.4	109.9	112.6	114.3	115.1	115.9	116.7	117.4
105°	124.8	127.3	129.8	131.6	132.6	133.5	134.6	135.5
107.5°	144.1	146.5	149.0	150.6	151.2	151.9	152.5	153.2
110°	157.0	158.9	160.7	162.2	163.2	164.2	165.2	166.2





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	170.7	172.7	174.7	176.1	176.8	177.6	178.4	179.2
115°	192.3	194.2	196.1	197.3	197.9	198.5	199.0	199.5
117.5°	212.7	214.3	215.9	217.0	217.5	218.1	218.6	219.1
120°	226.5	227.9	229.3	230.5	231.4	232.3	233.2	234.0
122.5°	240.8	242.4	243.8	244.8	245.1	245.5	245.8	246.2
125°	261.8	263.4	264.9	265.9	266.3	266.7	267.0	267.4
127.5°	281.5	282.9	284.4	285.3	285.9	286.3	286.8	287.2
130°	295.4	296.9	298.3	299.2	299.4	299.6	299.8	300.0
132.5°	308.7	310.0	311.4	312.4	312.7	313.1	313.6	313.9
135°	328.1	329.3	330.6	331.4	331.7	332.0	332.3	332.5
137.5°	347.2	348.4	349.5	350.3	350.8	351.3	351.7	352.2
140°	360.0	361.1	362.1	362.9	363.3	363.6	364.0	364.4
142.5°	372.3	373.3	374.4	375.1	375.4	375.7	376.1	376.4
145°	391.1	391.5	392.0	392.3	392.4	392.4	392.5	392.7
147.5°	408.2	408.2	408.2	408.3	408.5	408.7	408.9	409.1
150°	419.4	419.4	419.4	419.4	419.3	419.2	419.1	419.0
152.5°	430.2	430.3	430.6	430.5	430.3	430.1	429.9	429.6
155°	445.1	445.4	445.7	445.7	445.4	445.1	444.7	444.4
157.5°	458.2	458.5	458.7	458.7	458.5	458.1	457.9	457.5
160°	466.4	466.7	466.9	466.8	466.4	466.0	465.5	465.0
162.5°	473.6	474.2	474.6	474.6	474.2	473.7	473.3	472.9
165°	483.3	483.8	484.3	484.4	484.1	483.7	483.4	483.0
167.5°	491.4	491.9	492.4	492.4	491.9	491.4	490.8	490.3
170°	495.8	496.3	496.8	496.7	496.1	495.5	494.9	494.3
172.5°	499.0	499.6	500.2	500.2	499.6	498.9	498.3	497.7
175°	502.6	503.2	503.8	503.8	503.2	502.6	502.0	501.4
177.5°	504.5	505.0	505.5	505.4	504.9	504.4	503.8	503.3
180°	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5

(END OF REPORT)