

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: P332724-840

Luminaire Tested: **S124DIW-S350D770U840-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332724-840  
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-S350D770U840-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 770 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4146.8 lumens  
Efficiency: N/A  
Efficacy: 136.4 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: Semi-Indirect

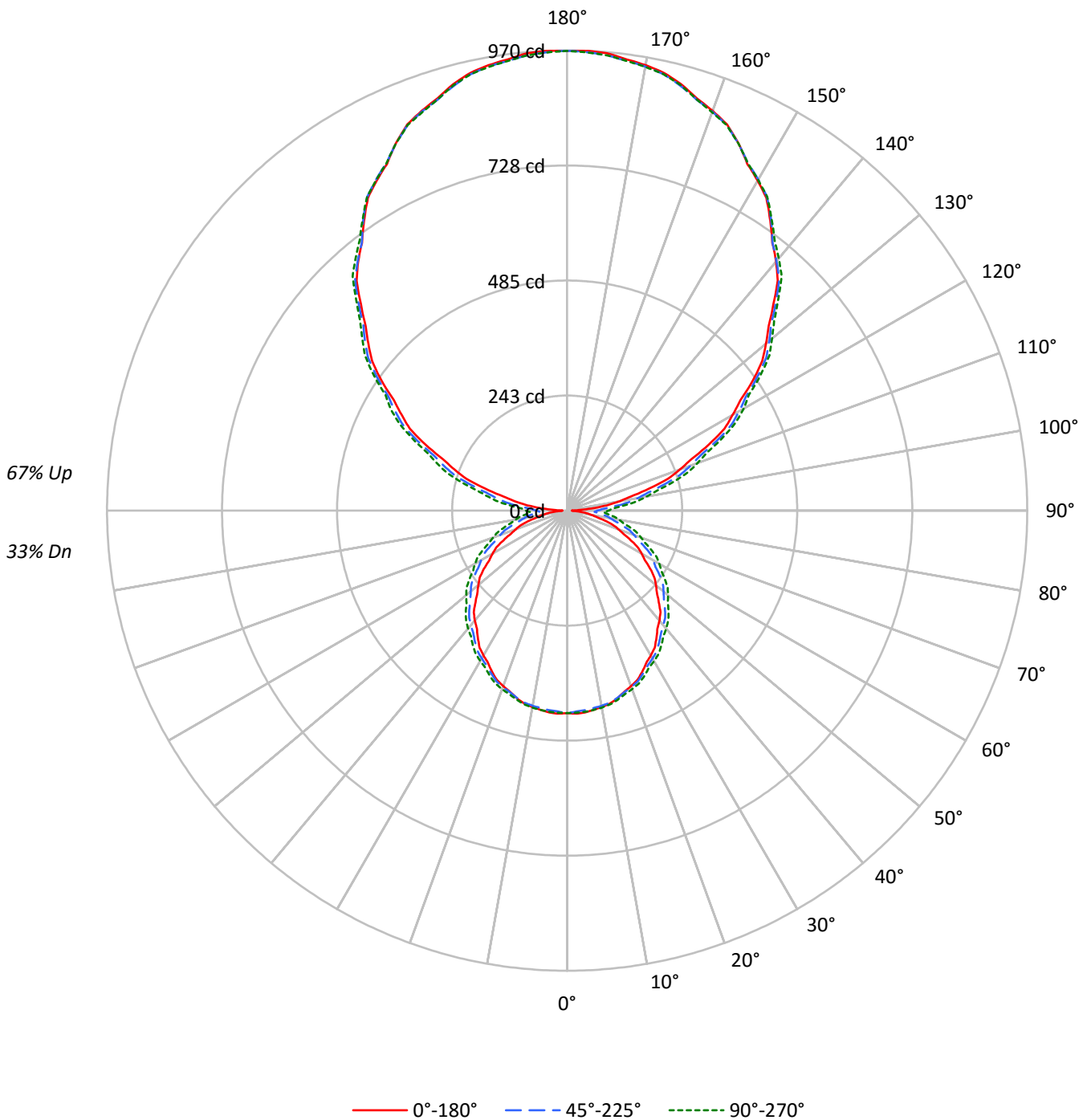
Input Watts (W): 30.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0	
RCR																						
0	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40	33				
1	93	89	85	81	84	80	76	73	63	61	59	48	47	45	34	33	32	26				
2	85	77	71	66	76	69	64	60	55	51	48	42	39	37	30	28	27	21				
3	77	67	60	54	69	61	54	49	48	44	40	37	34	31	26	24	22	18				
4	70	59	52	45	63	54	47	42	43	38	34	33	29	26	23	21	19	15				
5	64	53	45	39	57	48	41	35	38	33	29	29	26	23	21	18	17	13				
6	59	47	39	33	53	43	36	31	34	29	25	26	23	20	19	16	14	11				
7	54	42	34	29	49	38	31	27	31	26	22	24	20	17	17	15	13	10				
8	50	38	31	25	45	35	28	23	28	23	19	22	18	15	16	13	11	9				
9	47	35	27	22	42	32	25	21	26	21	17	20	16	14	14	12	10	8				
10	44	32	25	20	39	29	23	18	23	19	15	18	15	12	13	11	9	7				

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

	0°	45°	90°
0°	3446	3446	3446
5°	3457	3367	3378
10°	3435	3313	3310
15°	3404	3249	3231
20°	3358	3179	3155
25°	3306	3100	3070
30°	3249	3021	2983
35°	3185	2941	2907
40°	3134	2865	2828
45°	3058	2793	2759
50°	2994	2713	2687
55°	2928	2636	2603
60°	2824	2538	2526
65°	2708	2435	2431
70°	2572	2315	2320
75°	2379	2183	2220
80°	2166	2057	2123
85°	1893	1946	2065



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.4	1.0
10°-20°	115.8	2.8
20°-30°	175.1	4.2
30°-40°	211.9	5.1
40°-50°	224.0	5.4
50°-60°	210.8	5.1
60°-70°	174.9	4.2
70°-80°	122.9	3.0
80°-90°	72.3	1.7
90°-100°	105.2	2.5
100°-110°	219.9	5.3
110°-120°	341.9	8.2
120°-130°	435.3	10.5
130°-140°	480.9	11.6
140°-150°	468.7	11.3
150°-160°	393.4	9.5
160°-170°	261.7	6.3
170°-180°	91.6	2.2
0°-30°	331.4	8.0
0°-40°	543.2	13.1
0°-60°	978.1	23.6
0°-90°	1348.2	32.5
90°-120°	666.9	16.1
90°-150°	2051.9	49.5
90°-180°	2799.0	67.5
0°-180°	4146.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	427	427	427	427	427	
5°	427	426	422	426	426	41
15°	410	410	409	413	412	115
25°	375	378	379	384	385	173
35°	328	334	338	345	347	205
45°	273	282	292	299	302	211
55°	214	224	238	248	251	191
65°	148	164	180	191	196	147
75°	82	100	120	133	138	87
85°	25	46	67	81	86	27
90°	10	37	64	81	88	8
95°	51	74	99	113	118	55
105°	179	190	210	224	230	190
115°	330	334	348	357	360	325
125°	478	478	489	496	498	426
135°	615	619	623	628	629	476
145°	746	749	750	751	751	467
155°	854	854	854	856	854	393
165°	930	928	926	930	928	262
175°	968	964	963	968	963	92
180°	969	969	969	969	969	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9
2.5°	428.4	428.1	427.9	427.6	427.4	426.9	426.3	425.6	424.9	424.1	424.7
5°	427.4	427.0	426.7	426.4	426.1	425.6	424.7	424.0	423.3	422.5	423.4
7.5°	423.7	423.5	423.3	423.1	422.9	422.5	421.9	421.3	420.7	420.1	421.0
10°	420.6	420.5	420.4	420.3	420.2	419.9	419.4	418.8	418.3	417.8	418.7
12.5°	416.5	416.4	416.4	416.4	416.4	416.2	415.8	415.5	415.1	414.8	415.6
15°	409.6	409.8	409.9	410.0	410.1	410.0	409.6	409.3	409.0	408.7	409.6
17.5°	400.4	400.7	401.0	401.3	401.6	401.8	401.7	401.6	401.6	401.5	402.5
20°	393.8	394.2	394.6	394.9	395.2	395.4	395.5	395.6	395.7	395.8	396.9
22.5°	386.6	387.0	387.4	387.8	388.2	388.5	388.7	388.9	389.1	389.3	390.3
25°	374.8	375.4	376.1	376.7	377.3	377.8	378.1	378.4	378.7	379.1	380.2
27.5°	361.5	362.5	363.5	364.4	365.3	366.0	366.5	367.0	367.5	368.0	369.0
30°	352.7	353.7	354.5	355.3	356.2	357.0	357.7	358.4	359.2	359.9	361.1
32.5°	343.3	344.3	345.3	346.3	347.3	348.2	349.0	349.8	350.7	351.5	352.8
35°	327.9	329.2	330.4	331.7	333.1	334.2	335.3	336.3	337.4	338.4	339.9
37.5°	312.6	314.0	315.5	316.9	318.4	319.7	321.1	322.4	323.8	325.1	326.6
40°	302.6	304.0	305.4	306.7	308.1	309.5	311.0	312.6	314.0	315.5	317.1
42.5°	291.1	292.7	294.2	295.8	297.3	298.9	300.7	302.5	304.2	305.9	307.7
45°	273.4	275.4	277.4	279.4	281.4	283.5	285.5	287.5	289.5	291.5	293.4
47.5°	256.5	258.6	260.6	262.8	264.8	267.0	269.3	271.8	274.1	276.4	278.2
50°	244.3	246.6	248.9	251.3	253.6	255.9	258.3	260.6	263.0	265.3	267.4
52.5°	232.1	234.4	236.7	239.0	241.4	243.9	246.5	249.2	251.9	254.6	256.7
55°	214.2	216.4	218.6	220.9	223.1	225.8	228.9	232.2	235.3	238.5	240.7
57.5°	194.2	196.9	199.7	202.5	205.2	208.1	211.4	214.5	217.6	220.9	223.4
60°	181.2	183.9	186.7	189.5	192.2	195.3	198.8	202.4	205.8	209.3	211.8
62.5°	168.5	171.6	174.6	177.6	180.6	183.9	187.3	190.9	194.4	197.9	200.4
65°	148.1	151.6	155.0	158.3	161.8	165.3	168.8	172.5	176.1	179.8	182.4
67.5°	128.6	132.2	135.8	139.5	143.0	146.7	150.7	154.5	158.3	162.2	164.9
70°	115.2	118.8	122.4	126.0	129.7	133.5	137.5	141.6	145.6	149.7	152.5
72.5°	102.2	105.9	109.6	113.3	116.9	121.0	125.2	129.6	133.8	138.1	140.9
75°	82.2	86.1	90.1	94.0	98.0	102.1	106.6	111.1	115.5	120.0	123.0
77.5°	63.6	67.8	71.9	76.0	80.2	84.6	89.3	94.0	98.7	103.3	106.3
80°	52.1	56.4	60.6	64.8	69.1	73.5	78.3	82.9	87.6	92.3	95.4
82.5°	40.6	45.0	49.5	53.9	58.3	62.8	67.6	72.2	76.9	81.6	84.8
85°	25.3	29.8	34.2	38.7	43.2	47.8	52.6	57.4	62.1	67.0	70.1
87.5°	14.6	19.3	24.0	28.7	33.4	38.2	43.1	48.1	52.9	57.9	61.2
90°	9.9	16.0	22.0	28.2	34.2	40.2	46.2	52.0	57.9	63.8	67.9
92.5°	23.3	29.2	35.1	41.1	47.0	52.7	58.2	63.7	69.2	74.7	78.3
95°	51.2	56.1	61.2	66.2	71.2	76.4	82.0	87.6	93.0	98.6	101.9
97.5°	84.2	88.4	92.6	96.8	101.1	106.0	111.7	117.3	123.0	128.8	132.1
100°	110.2	113.6	117.0	120.5	123.9	128.5	134.1	139.8	145.3	151.0	154.2
102.5°	137.7	140.5	143.1	145.8	148.6	152.6	158.0	163.4	168.8	174.3	177.5
105°	178.9	181.3	183.5	185.8	188.1	191.6	196.1	200.8	205.3	210.0	213.1
107.5°	223.1	225.0	226.9	228.9	230.9	233.7	237.5	241.4	245.2	248.9	252.1
110°	252.7	254.5	256.3	258.1	259.9	262.7	266.2	269.7	273.3	276.8	278.9



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	283.5	284.9	286.2	287.6	289.0	291.3	294.6	297.8	301.0	304.3	306.6
115°	329.6	330.6	331.5	332.5	333.5	335.5	338.5	341.6	344.7	347.8	349.9
117.5°	373.7	374.4	375.1	375.8	376.5	378.3	381.2	384.2	387.1	390.0	391.6
120°	402.6	403.6	404.6	405.6	406.6	408.4	410.9	413.5	416.1	418.7	420.0
122.5°	433.2	433.5	433.8	434.2	434.5	436.1	438.7	441.4	444.0	446.8	448.3
125°	477.9	477.8	477.7	477.6	477.5	478.6	481.1	483.6	486.0	488.6	490.3
127.5°	518.7	519.1	519.5	519.9	520.3	521.3	523.1	524.9	526.6	528.5	530.0
130°	547.0	547.4	547.9	548.3	548.7	549.7	551.4	553.1	554.8	556.5	558.1
132.5°	576.4	576.7	576.9	577.2	577.5	578.2	579.5	580.7	581.9	583.2	584.6
135°	614.8	615.8	616.8	617.8	618.8	619.7	620.5	621.2	621.9	622.7	624.0
137.5°	657.1	657.4	657.8	658.1	658.5	659.0	659.6	660.2	660.9	661.6	662.7
140°	685.3	685.5	685.7	685.9	686.2	686.3	686.4	686.5	686.6	686.7	688.0
142.5°	710.6	710.9	711.2	711.6	712.0	712.0	711.8	711.6	711.3	711.1	712.4
145°	746.2	746.8	747.4	747.9	748.5	748.8	749.0	749.2	749.3	749.5	750.0
147.5°	781.6	782.3	783.0	783.7	784.4	784.7	784.6	784.4	784.3	784.2	784.1
150°	803.2	803.8	804.4	804.9	805.5	805.8	805.8	805.8	805.8	805.8	805.8
152.5°	823.2	823.5	823.9	824.4	824.8	825.0	825.1	825.3	825.4	825.5	825.9
155°	854.4	854.4	854.4	854.4	854.4	854.3	854.1	854.0	853.8	853.7	854.3
157.5°	880.8	880.5	880.2	879.9	879.6	879.5	879.4	879.4	879.4	879.3	879.8
160°	896.5	896.3	896.1	896.0	895.8	895.5	895.4	895.2	895.0	894.9	895.4
162.5°	910.8	910.4	909.9	909.5	909.1	908.8	908.6	908.5	908.3	908.1	909.0
165°	930.2	929.7	929.2	928.7	928.2	927.8	927.4	927.1	926.8	926.3	927.4
167.5°	944.9	944.3	943.6	942.9	942.2	941.8	941.9	941.9	941.9	942.0	943.0
170°	953.4	952.5	951.7	950.9	950.1	949.7	949.9	950.1	950.2	950.4	951.4
172.5°	959.4	958.7	958.0	957.3	956.5	956.2	956.2	956.3	956.3	956.3	957.6
175°	967.7	966.7	965.9	965.1	964.3	963.8	963.6	963.4	963.3	963.1	964.3
177.5°	970.3	969.7	969.0	968.4	967.7	967.3	967.3	967.3	967.3	967.3	968.3
180°	969.1	969.1	969.1	969.1	969.1	969.1	969.1	969.1	969.1	969.1	969.1



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9
2.5°	425.4	426.0	426.6	426.8	426.8	426.7	426.6	426.5
5°	424.2	425.1	426.0	426.4	426.3	426.1	426.0	425.9
7.5°	422.0	422.9	423.9	424.3	424.2	424.1	424.0	423.9
10°	419.7	420.6	421.6	422.0	421.9	421.8	421.7	421.6
12.5°	416.5	417.4	418.2	418.6	418.6	418.6	418.6	418.5
15°	410.6	411.5	412.5	412.9	412.8	412.7	412.6	412.5
17.5°	403.4	404.5	405.5	405.9	405.8	405.7	405.7	405.6
20°	397.9	399.0	400.0	400.6	400.6	400.6	400.6	400.6
22.5°	391.4	392.4	393.5	394.2	394.4	394.5	394.7	394.9
25°	381.4	382.5	383.7	384.4	384.5	384.6	384.7	384.8
27.5°	370.1	371.2	372.3	372.9	373.0	373.1	373.2	373.4
30°	362.2	363.5	364.6	365.3	365.5	365.8	366.0	366.2
32.5°	354.2	355.6	356.9	357.7	357.9	358.1	358.3	358.5
35°	341.4	342.8	344.4	345.3	345.6	345.9	346.3	346.6
37.5°	328.1	329.5	331.0	332.0	332.3	332.6	333.1	333.4
40°	318.7	320.2	321.8	322.9	323.3	323.8	324.2	324.6
42.5°	309.4	311.2	313.0	314.1	314.4	314.7	315.1	315.4
45°	295.2	297.0	298.8	299.9	300.5	301.0	301.5	302.1
47.5°	280.1	282.0	283.9	285.1	285.8	286.4	287.0	287.7
50°	269.5	271.7	273.8	275.2	275.8	276.4	277.1	277.7
52.5°	258.8	260.9	263.1	264.5	265.1	265.7	266.4	267.0
55°	242.8	244.9	247.0	248.4	249.0	249.6	250.3	251.0
57.5°	225.9	228.4	231.0	232.5	233.1	233.7	234.3	234.9
60°	214.3	216.7	219.1	220.8	221.7	222.5	223.4	224.2
62.5°	202.8	205.2	207.6	209.3	210.2	211.0	211.9	212.7
65°	185.0	187.7	190.4	192.1	193.0	193.8	194.7	195.5
67.5°	167.6	170.4	173.0	174.8	175.6	176.4	177.2	178.1
70°	155.3	158.2	161.1	162.9	163.6	164.4	165.1	165.8
72.5°	143.7	146.5	149.3	151.1	151.9	152.7	153.6	154.4
75°	125.9	128.9	131.9	133.8	134.8	135.7	136.7	137.6
77.5°	109.4	112.4	115.4	117.4	118.5	119.5	120.5	121.5
80°	98.7	101.8	105.0	107.0	107.9	108.8	109.6	110.4
82.5°	88.1	91.4	94.6	96.7	97.7	98.6	99.6	100.5
85°	73.3	76.4	79.7	81.8	82.8	83.9	84.9	86.0
87.5°	64.4	67.8	71.0	73.1	74.1	75.1	76.1	77.2
90°	72.0	76.0	80.1	82.8	83.9	85.1	86.3	87.5
92.5°	81.9	85.5	89.1	91.4	92.5	93.5	94.5	95.6
95°	105.3	108.7	112.0	114.2	115.1	116.1	117.0	118.1
97.5°	135.5	138.9	142.3	144.4	145.3	146.2	147.1	148.0
100°	157.4	160.6	163.8	165.8	166.5	167.2	168.0	168.7
102.5°	180.8	184.0	187.2	189.3	190.4	191.3	192.3	193.2
105°	216.2	219.4	222.6	224.8	226.1	227.5	228.8	230.2
107.5°	255.1	258.2	261.3	263.2	264.0	264.7	265.4	266.1
110°	281.0	283.2	285.3	287.0	288.3	289.7	291.0	292.4





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	308.9	311.1	313.5	315.1	316.1	317.0	317.9	318.9
115°	352.1	354.3	356.5	357.8	358.4	359.0	359.5	360.1
117.5°	393.2	395.0	396.6	397.7	398.2	398.7	399.2	399.7
120°	421.2	422.5	423.8	425.1	426.3	427.5	428.6	429.8
122.5°	449.9	451.4	452.9	453.8	454.0	454.1	454.3	454.5
125°	491.9	493.6	495.3	496.3	496.7	497.0	497.3	497.6
127.5°	531.6	533.2	534.7	535.7	536.2	536.6	537.1	537.6
130°	559.7	561.2	562.8	563.6	563.6	563.5	563.5	563.5
132.5°	586.1	587.6	589.2	590.1	590.5	590.8	591.2	591.6
135°	625.4	626.7	628.1	628.8	629.0	629.1	629.2	629.4
137.5°	663.8	664.9	666.0	666.9	667.5	668.1	668.7	669.4
140°	689.2	690.4	691.7	692.4	692.8	693.2	693.5	693.9
142.5°	713.6	714.7	715.9	716.7	717.1	717.5	717.9	718.3
145°	750.4	750.9	751.4	751.5	751.5	751.4	751.3	751.3
147.5°	784.1	784.0	784.0	784.0	784.2	784.4	784.6	784.7
150°	805.8	805.8	805.8	805.7	805.5	805.3	805.2	805.0
152.5°	826.3	826.7	827.1	827.1	826.7	826.3	825.8	825.4
155°	855.1	855.7	856.4	856.4	855.7	855.1	854.3	853.7
157.5°	880.3	880.8	881.3	881.3	880.7	880.2	879.6	879.0
160°	896.0	896.5	897.0	896.8	896.0	895.0	894.2	893.4
162.5°	909.9	910.8	911.7	911.7	910.9	910.1	909.3	908.4
165°	928.4	929.4	930.4	930.6	929.9	929.2	928.6	927.9
167.5°	944.0	944.9	945.9	945.9	944.9	943.9	942.9	941.8
170°	952.4	953.4	954.4	954.3	953.1	952.0	950.8	949.7
172.5°	958.7	959.8	960.9	960.9	959.7	958.6	957.4	956.2
175°	965.4	966.6	967.8	967.8	966.6	965.4	964.3	963.1
177.5°	969.2	970.1	971.1	971.0	969.9	968.9	967.8	966.7
180°	969.1	969.1	969.1	969.1	969.1	969.1	969.1	969.1

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