

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: P331482-840

Luminaire Tested: **S122DIW-S290D970U840-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331482-840  
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-S290D970U840-4F0-1E-UDD-F1  
Description: DEFINE 2 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 970 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4607.8 lumens  
Efficiency: N/A  
Efficacy: 121.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.3  
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

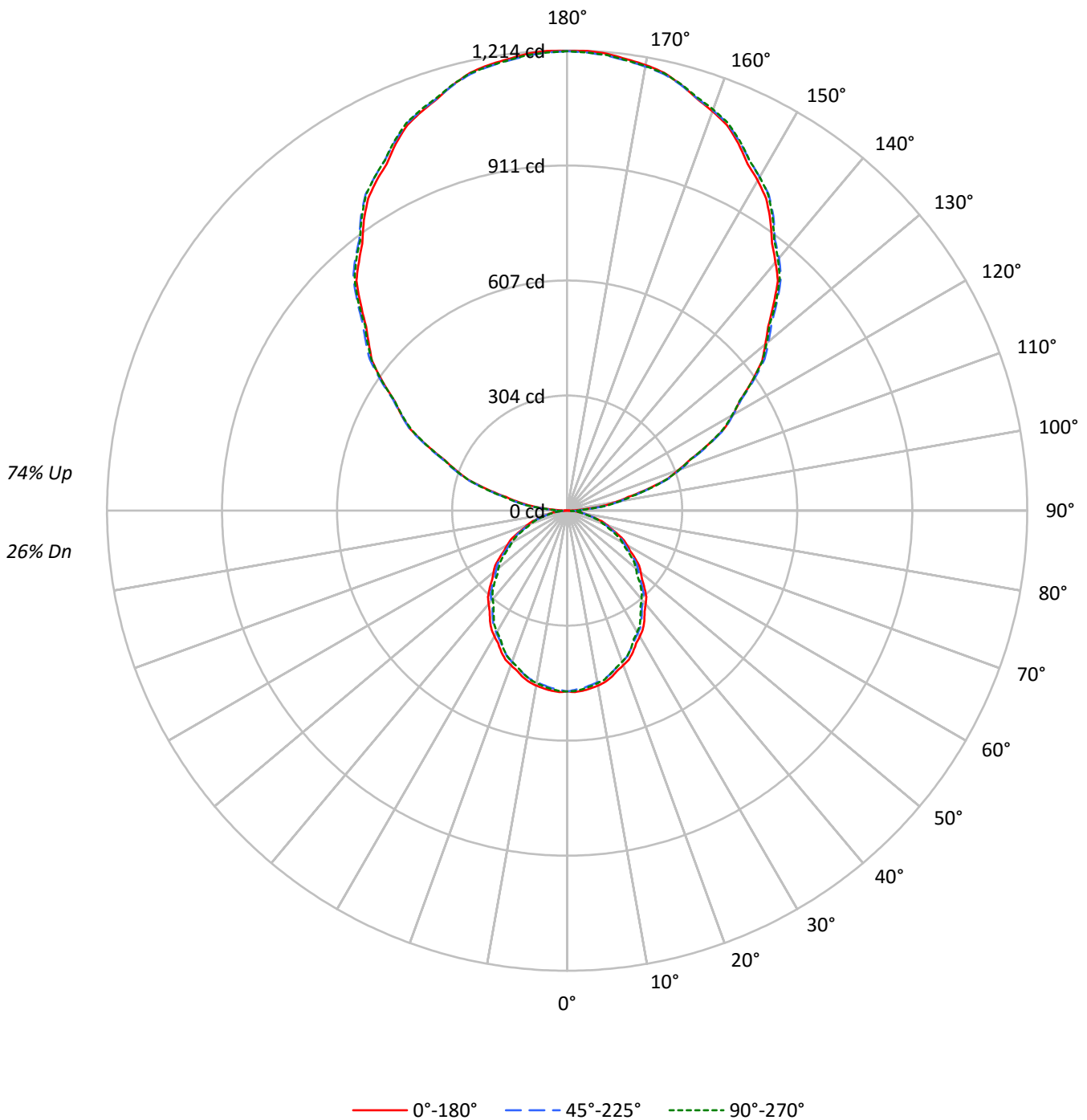
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	102	102	102	102	91	91	91	91	70	70	70	52	52	52	34	34	34	26
1	92	88	85	81	82	79	76	73	61	59	57	45	44	43	30	30	29	22
2	84	77	71	66	75	69	64	60	54	50	47	40	38	36	27	25	24	19
3	77	68	61	55	68	61	55	50	47	43	40	35	32	30	24	22	21	16
4	70	60	52	46	62	54	47	42	42	37	34	31	28	26	21	19	18	14
5	64	53	45	40	57	48	41	36	37	33	29	28	25	22	19	17	16	12
6	59	47	40	34	52	43	36	31	34	29	25	25	22	19	17	15	14	10
7	54	43	35	30	48	38	32	27	30	26	22	23	19	17	16	14	12	9
8	50	39	31	26	45	35	28	24	28	23	19	21	17	15	14	12	11	8
9	47	35	28	23	42	32	25	21	25	21	17	19	16	13	13	11	10	7
10	44	32	25	20	39	29	23	19	23	19	15	18	14	12	12	10	9	7

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

	0°	45°	90°
0°	7703	7703	7703
5°	7733	7621	7666
10°	7688	7543	7581
15°	7590	7447	7438
20°	7455	7301	7290
25°	7322	7119	7119
30°	7150	6952	6893
35°	6991	6753	6654
40°	6787	6555	6431
45°	6588	6357	6202
50°	6373	6154	5935
55°	6145	5917	5695
60°	5896	5628	5422
65°	5624	5349	5100
70°	5282	4999	4763
75°	4810	4604	4492
80°	4258	4138	3924
85°	3483	3316	2983



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	44.9	1.0
10°-20°	126.2	2.7
20°-30°	185.5	4.0
30°-40°	215.5	4.7
40°-50°	215.3	4.7
50°-60°	187.7	4.1
60°-70°	138.8	3.0
70°-80°	78.6	1.7
80°-90°	26.0	0.6
90°-100°	76.8	1.7
100°-110°	238.5	5.2
110°-120°	407.7	8.8
120°-130°	536.2	11.6
130°-140°	601.8	13.1
140°-150°	590.1	12.8
150°-160°	494.9	10.7
160°-170°	328.3	7.1
170°-180°	114.7	2.5
0°-30°	356.6	7.7
0°-40°	572.2	12.4
0°-60°	975.2	21.2
0°-90°	1218.6	26.4
90°-120°	723.1	15.7
90°-150°	2451.2	53.2
90°-180°	3389.0	73.5
0°-180°	4607.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	477	477	477	477	477	
5°	477	475	470	474	473	45
15°	454	451	446	447	445	128
25°	411	407	400	400	400	189
35°	355	350	343	340	338	221
45°	288	285	278	274	272	223
55°	218	215	210	205	202	195
65°	147	144	140	136	134	146
75°	77	76	74	71	72	82
85°	19	18	18	17	16	22
90°	1	14	36	34	35	4
95°	53	63	65	65	63	61
105°	220	223	225	227	227	232
115°	409	415	413	412	409	405
125°	595	604	602	598	597	532
135°	770	781	784	782	779	595
145°	935	942	948	949	945	584
155°	1069	1072	1075	1080	1077	492
165°	1163	1162	1162	1168	1164	328
175°	1210	1207	1205	1211	1206	115
180°	1212	1212	1212	1212	1212	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	477.1	477.1	477.1	477.1	477.1	477.1	477.1	477.1	477.1	477.1	477.1
2.5°	479.3	478.9	478.5	478.1	477.7	477.1	476.2	475.2	474.3	473.4	474.2
5°	477.1	476.7	476.3	475.8	475.4	474.7	473.6	472.5	471.3	470.2	471.0
7.5°	472.9	472.2	471.6	471.0	470.4	469.5	468.4	467.2	466.1	464.9	465.7
10°	468.9	468.2	467.5	466.8	466.0	465.0	463.8	462.6	461.4	460.1	460.9
12.5°	463.3	462.7	462.1	461.4	460.8	459.9	458.7	457.5	456.3	455.0	455.6
15°	454.1	453.5	452.9	452.3	451.7	450.8	449.4	448.1	446.8	445.5	445.9
17.5°	442.4	441.8	441.2	440.6	440.0	439.0	437.7	436.3	434.9	433.6	434.0
20°	433.9	433.3	432.7	432.1	431.5	430.5	429.1	427.7	426.3	424.9	425.2
22.5°	425.6	424.6	423.8	422.9	422.1	421.0	419.7	418.3	417.0	415.7	415.7
25°	411.0	410.2	409.4	408.6	407.8	406.5	404.8	403.0	401.3	399.6	399.8
27.5°	394.6	393.8	393.0	392.3	391.6	390.5	389.2	387.8	386.5	385.1	384.8
30°	383.5	382.7	381.9	381.1	380.2	379.1	377.6	376.1	374.5	372.9	372.6
32.5°	371.7	371.1	370.5	369.8	369.2	368.0	366.4	364.9	363.2	361.6	361.0
35°	354.7	353.6	352.5	351.5	350.5	349.2	347.6	346.0	344.4	342.6	342.0
37.5°	335.3	334.4	333.5	332.5	331.6	330.4	328.8	327.2	325.5	323.9	323.2
40°	322.0	321.2	320.4	319.6	318.8	317.6	315.9	314.3	312.7	311.0	310.1
42.5°	309.2	308.4	307.6	306.8	306.0	304.7	303.1	301.4	299.8	298.2	297.2
45°	288.5	287.8	287.1	286.4	285.7	284.6	283.1	281.6	280.0	278.4	277.3
47.5°	268.0	267.3	266.7	266.0	265.3	264.2	262.6	261.1	259.4	257.8	256.6
50°	253.7	253.2	252.7	252.2	251.7	250.6	249.2	247.8	246.4	245.0	243.6
52.5°	239.7	239.0	238.4	237.7	237.0	236.0	234.7	233.4	232.0	230.7	229.4
55°	218.3	217.7	217.1	216.5	215.9	215.0	213.8	212.6	211.4	210.2	208.8
57.5°	196.9	196.4	195.9	195.4	194.9	194.0	192.7	191.4	190.0	188.6	187.4
60°	182.6	182.2	181.8	181.4	181.0	180.1	178.6	177.2	175.7	174.3	173.2
62.5°	168.6	167.9	167.3	166.7	166.0	165.1	164.0	163.0	161.9	160.8	159.7
65°	147.2	146.6	146.0	145.4	144.8	144.0	143.0	142.0	141.0	140.0	139.0
67.5°	125.5	125.0	124.5	124.0	123.6	122.9	121.9	121.0	120.1	119.2	118.5
70°	111.9	111.5	111.1	110.7	110.3	109.7	108.8	107.9	106.8	105.9	105.2
72.5°	98.0	97.6	97.1	96.7	96.3	95.8	95.2	94.7	94.1	93.5	92.8
75°	77.1	76.9	76.6	76.4	76.2	75.9	75.4	74.8	74.3	73.8	73.2
77.5°	58.4	58.0	57.7	57.4	57.0	56.7	56.5	56.2	56.0	55.8	55.5
80°	45.8	45.7	45.6	45.5	45.4	45.3	45.1	44.9	44.7	44.5	44.2
82.5°	34.1	34.1	34.1	34.0	34.0	33.9	33.8	33.7	33.6	33.5	33.1
85°	18.8	18.7	18.6	18.5	18.4	18.3	18.2	18.1	18.0	17.9	17.6
87.5°	6.8	7.2	7.6	8.0	8.4	9.0	9.8	10.6	11.4	12.3	11.9
90°	1.0	3.7	6.5	9.2	11.9	15.8	20.8	25.8	30.8	35.7	35.3
92.5°	18.2	20.2	22.2	24.2	26.3	27.8	29.0	30.2	31.3	32.5	32.6
95°	53.2	55.4	57.8	60.0	62.3	63.6	64.1	64.5	65.0	65.4	65.4
97.5°	97.1	99.2	101.2	103.2	105.1	106.6	107.4	108.4	109.2	110.1	110.1
100°	129.9	131.7	133.5	135.3	137.1	138.5	139.1	139.8	140.5	141.2	141.2
102.5°	164.3	165.7	167.1	168.6	170.1	171.3	172.1	173.0	173.8	174.7	174.9
105°	219.9	220.6	221.3	222.0	222.7	223.2	223.7	224.1	224.6	225.0	225.5
107.5°	276.0	277.0	277.9	278.9	279.9	280.4	280.4	280.4	280.4	280.4	280.6
110°	311.9	313.4	314.7	316.1	317.4	318.1	318.1	318.1	318.1	318.1	318.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	351.2	352.6	354.0	355.4	356.7	357.3	357.1	356.9	356.8	356.6	356.0
115°	409.1	410.5	411.8	413.2	414.5	415.1	414.5	414.1	413.6	413.2	413.0
117.5°	466.9	468.7	470.5	472.3	474.1	474.3	473.1	471.8	470.6	469.3	468.8
120°	505.3	507.2	509.0	510.8	512.6	512.6	510.8	509.0	507.2	505.3	505.3
122.5°	540.5	542.7	544.8	547.0	549.2	549.7	548.4	547.1	545.8	544.5	544.0
125°	595.3	597.3	599.4	601.5	603.5	604.2	603.5	602.8	602.1	601.5	600.8
127.5°	648.7	651.3	653.9	656.5	659.0	659.9	659.1	658.3	657.5	656.7	655.8
130°	682.3	685.2	688.1	691.2	694.1	695.3	694.9	694.4	694.0	693.5	693.1
132.5°	719.8	722.3	724.7	727.1	729.5	730.7	730.8	730.9	731.0	731.1	730.1
135°	770.2	772.7	775.2	777.7	780.2	781.6	782.1	782.5	783.0	783.5	783.3
137.5°	823.1	825.3	827.3	829.3	831.3	832.7	833.2	833.8	834.5	835.1	834.9
140°	855.1	857.2	859.2	861.2	863.2	864.8	866.1	867.2	868.3	869.4	869.4
142.5°	887.9	889.9	891.9	893.9	896.1	897.5	898.2	899.0	899.8	900.5	900.7
145°	934.8	936.4	938.1	939.7	941.3	942.7	944.1	945.4	946.8	948.2	948.4
147.5°	976.8	978.8	980.7	982.5	984.4	985.8	986.7	987.6	988.6	989.5	990.0
150°	1005.4	1006.8	1008.1	1009.6	1010.9	1012.1	1013.0	1013.9	1014.8	1015.7	1016.3
152.5°	1030.9	1032.2	1033.6	1034.9	1036.3	1037.5	1038.6	1039.7	1040.8	1041.9	1042.7
155°	1068.8	1069.5	1070.3	1071.0	1071.6	1072.3	1073.0	1073.7	1074.3	1075.0	1076.1
157.5°	1101.4	1101.9	1102.3	1102.8	1103.2	1103.7	1104.1	1104.5	1104.9	1105.3	1106.8
160°	1121.1	1121.5	1122.0	1122.4	1122.9	1123.2	1123.5	1123.7	1123.9	1124.1	1125.5
162.5°	1139.0	1139.1	1139.2	1139.3	1139.4	1139.5	1139.8	1140.0	1140.2	1140.4	1142.1
165°	1163.0	1162.8	1162.6	1162.3	1162.1	1162.0	1162.0	1162.0	1162.0	1162.0	1163.6
167.5°	1183.1	1182.3	1181.6	1180.9	1180.3	1179.9	1179.9	1179.8	1179.8	1179.7	1181.3
170°	1193.7	1193.0	1192.3	1191.6	1190.9	1190.5	1190.2	1190.0	1189.8	1189.6	1191.1
172.5°	1201.0	1200.3	1199.6	1199.0	1198.3	1197.8	1197.6	1197.4	1197.2	1196.9	1198.5
175°	1210.0	1209.3	1208.7	1208.0	1207.3	1206.7	1206.3	1205.8	1205.4	1204.9	1206.5
177.5°	1213.8	1213.2	1212.6	1212.0	1211.5	1211.0	1210.7	1210.3	1210.0	1209.6	1210.7
180°	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	477.1	477.1	477.1	477.1	477.1	477.1	477.1	477.1
2.5°	475.0	475.8	476.7	477.1	476.9	476.7	476.6	476.4
5°	471.9	472.7	473.5	473.8	473.6	473.4	473.2	473.0
7.5°	466.6	467.4	468.2	468.5	468.3	468.0	467.8	467.6
10°	461.8	462.6	463.4	463.6	463.3	463.0	462.7	462.4
12.5°	456.2	456.7	457.3	457.5	457.3	457.0	456.8	456.6
15°	446.3	446.7	447.1	447.1	446.6	446.1	445.6	445.0
17.5°	434.5	435.0	435.5	435.5	434.9	434.5	434.0	433.5
20°	425.5	425.8	426.1	426.0	425.6	425.2	424.7	424.3
22.5°	415.8	415.9	415.9	415.8	415.6	415.3	415.1	414.9
25°	400.0	400.2	400.4	400.4	400.2	400.0	399.8	399.6
27.5°	384.5	384.2	383.8	383.4	382.9	382.4	382.0	381.5
30°	372.3	372.0	371.7	371.4	371.0	370.6	370.2	369.7
32.5°	360.5	359.9	359.4	358.9	358.5	358.1	357.7	357.3
35°	341.4	340.8	340.2	339.7	339.2	338.7	338.2	337.6
37.5°	322.3	321.6	320.8	320.2	319.7	319.2	318.8	318.3
40°	309.2	308.3	307.4	306.7	306.3	305.9	305.5	305.1
42.5°	296.2	295.2	294.2	293.4	292.9	292.3	291.8	291.1
45°	276.2	275.1	274.0	273.2	272.8	272.4	272.0	271.6
47.5°	255.5	254.3	253.1	252.2	251.7	251.1	250.4	249.8
50°	242.2	240.7	239.2	238.3	237.8	237.3	236.8	236.3
52.5°	228.3	227.1	225.9	225.0	224.3	223.7	223.0	222.3
55°	207.6	206.4	205.2	204.4	203.9	203.3	202.8	202.3
57.5°	186.2	185.0	183.8	183.0	182.7	182.3	181.9	181.5
60°	172.1	171.0	169.9	169.2	168.8	168.5	168.2	167.9
62.5°	158.6	157.6	156.6	155.9	155.5	155.1	154.7	154.3
65°	138.0	137.1	136.2	135.5	135.0	134.5	134.0	133.5
67.5°	117.8	117.0	116.3	115.7	115.3	114.9	114.5	114.1
70°	104.5	103.8	103.1	102.6	102.2	101.7	101.3	100.9
72.5°	92.1	91.4	90.7	90.1	89.8	89.5	89.2	88.8
75°	72.6	72.0	71.4	71.2	71.4	71.6	71.8	72.0
77.5°	55.2	54.9	54.6	54.3	54.0	53.8	53.5	53.2
80°	43.9	43.6	43.3	43.0	42.8	42.6	42.4	42.2
82.5°	32.7	32.3	31.9	31.7	31.7	31.6	31.6	31.6
85°	17.3	17.0	16.7	16.5	16.4	16.3	16.2	16.1
87.5°	11.6	11.3	10.9	10.8	10.7	10.7	10.7	10.6
90°	34.8	34.4	33.9	33.8	34.1	34.3	34.5	34.7
92.5°	32.7	32.8	32.9	32.9	33.0	33.0	33.1	33.1
95°	65.4	65.4	65.4	65.2	64.7	64.3	63.8	63.4
97.5°	110.1	110.1	110.1	110.1	110.0	110.0	109.9	109.9
100°	141.2	141.2	141.2	141.1	140.8	140.6	140.4	140.2
102.5°	175.1	175.2	175.4	175.4	175.2	174.9	174.7	174.5
105°	225.9	226.4	226.8	227.1	227.1	227.1	227.1	227.1
107.5°	280.8	281.0	281.1	280.7	279.7	278.6	277.6	276.6
110°	318.1	318.1	318.1	317.8	317.1	316.4	315.7	315.1





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	355.5	355.0	354.4	353.9	353.4	352.8	352.3	351.8
115°	412.7	412.5	412.3	411.8	411.2	410.5	409.8	409.1
117.5°	468.2	467.7	467.1	466.5	465.9	465.1	464.4	463.7
120°	505.3	505.3	505.3	504.9	504.2	503.6	502.9	502.2
122.5°	543.5	542.9	542.4	541.9	541.4	540.9	540.4	539.9
125°	600.1	599.4	598.7	598.2	598.0	597.8	597.5	597.3
127.5°	655.0	654.2	653.4	652.6	651.9	651.2	650.5	649.7
130°	692.6	692.2	691.7	690.9	690.0	689.1	688.2	687.3
132.5°	729.1	728.1	727.1	726.3	725.6	724.8	724.1	723.4
135°	783.0	782.8	782.5	782.1	781.4	780.7	780.1	779.4
137.5°	834.7	834.6	834.4	833.7	832.8	831.9	831.0	830.1
140°	869.4	869.4	869.4	869.0	868.1	867.2	866.3	865.4
142.5°	900.9	901.1	901.2	900.9	900.0	899.1	898.2	897.3
145°	948.7	948.9	949.1	948.8	947.9	947.0	946.0	945.1
147.5°	990.5	991.0	991.5	991.3	990.5	989.6	988.8	987.8
150°	1017.0	1017.7	1018.4	1018.4	1017.7	1017.0	1016.3	1015.7
152.5°	1043.6	1044.5	1045.3	1045.3	1044.5	1043.6	1042.7	1041.9
155°	1077.3	1078.4	1079.5	1079.7	1079.1	1078.4	1077.7	1077.0
157.5°	1108.4	1109.9	1111.5	1111.7	1110.6	1109.5	1108.4	1107.3
160°	1126.8	1128.2	1129.5	1129.8	1128.9	1128.0	1127.1	1126.2
162.5°	1143.6	1145.1	1146.7	1146.9	1145.8	1144.7	1143.6	1142.6
165°	1165.2	1166.7	1168.3	1168.5	1167.4	1166.3	1165.2	1164.0
167.5°	1183.0	1184.6	1186.1	1186.3	1185.2	1184.0	1182.8	1181.6
170°	1192.8	1194.4	1196.0	1196.1	1194.7	1193.4	1191.9	1190.6
172.5°	1200.1	1201.7	1203.3	1203.5	1202.0	1200.7	1199.3	1198.0
175°	1208.1	1209.7	1211.2	1211.4	1210.0	1208.7	1207.3	1206.0
177.5°	1211.8	1212.8	1214.0	1214.0	1212.8	1211.8	1210.7	1209.6
180°	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0	1212.0

(END OF REPORT)