

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: P332113-927

Luminaire Tested: **S123DIW-S340D1320U927-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332113-927
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DIW-S340D1320U927-4F0-1E-UDD-F1
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 1320 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4744.7 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')
CIE Type: Semi-Indirect

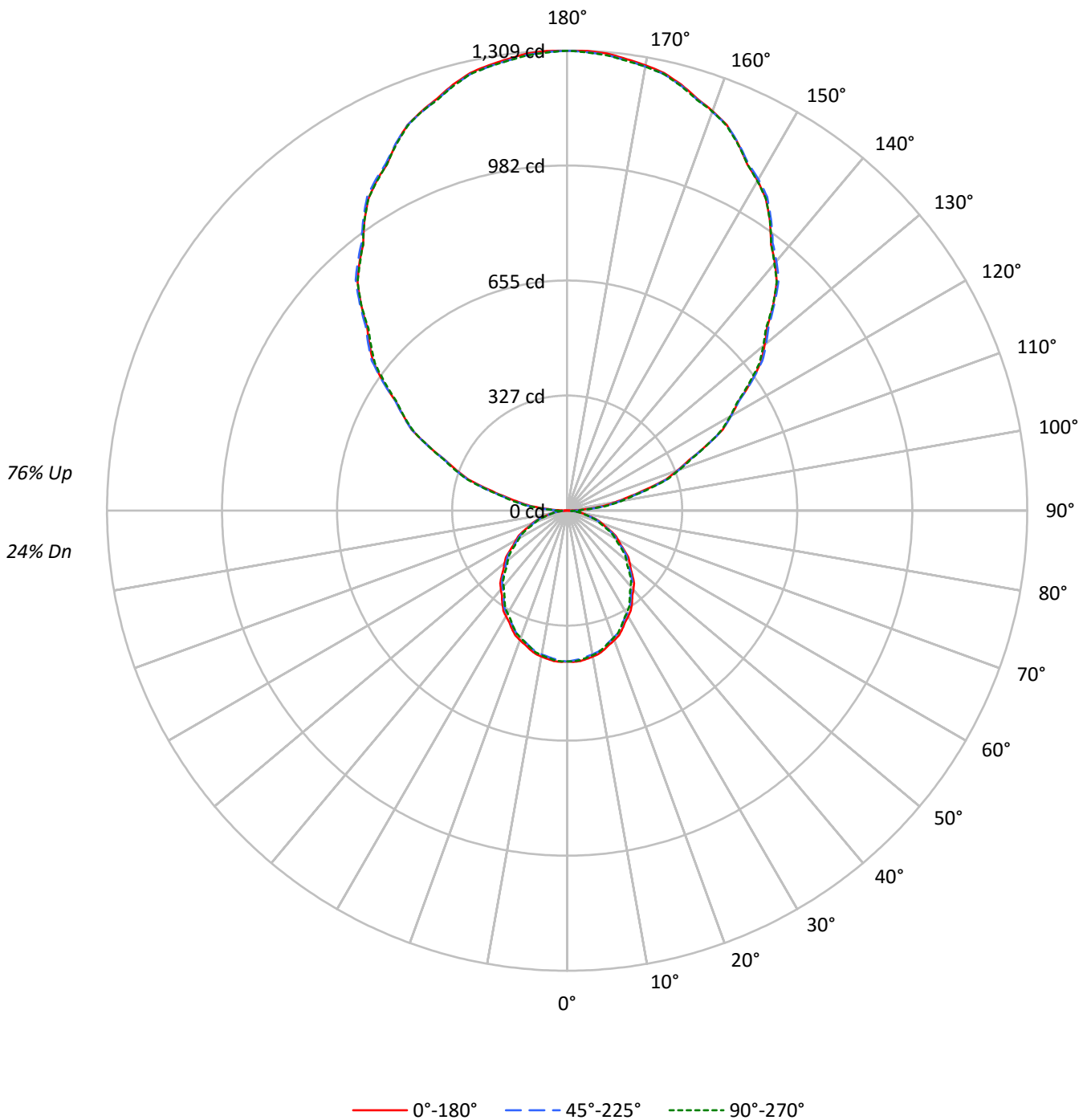
Input Watts (W): 46.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	32	32	32	24
1	92	88	84	81	81	78	75	72	60	58	56	43	42	41	28	27	27	20
2	84	76	71	66	74	68	63	59	52	49	46	38	36	34	25	24	22	17
3	76	67	60	55	67	60	54	49	46	42	39	34	31	29	22	20	19	14
4	70	59	52	46	62	53	46	42	41	36	33	30	27	25	19	18	16	12
5	64	53	45	39	56	47	40	35	36	32	28	27	24	21	17	16	14	10
6	59	47	39	34	52	42	35	31	33	28	24	24	21	18	16	14	12	9
7	54	42	35	29	48	38	31	27	30	25	21	22	19	16	14	13	11	8
8	50	38	31	26	44	34	28	23	27	22	19	20	17	14	13	11	10	7
9	46	35	28	23	41	31	25	21	24	20	17	18	15	13	12	10	9	7
10	43	32	25	20	38	28	22	18	22	18	15	17	14	11	11	9	8	6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4621	4621	4621
5°	4643	4578	4611
10°	4611	4539	4568
15°	4558	4488	4496
20°	4495	4415	4418
25°	4410	4327	4318
30°	4318	4230	4197
35°	4221	4127	4075
40°	4118	4014	3953
45°	4007	3911	3815
50°	3893	3783	3677
55°	3748	3652	3539
60°	3599	3496	3384
65°	3469	3326	3224
70°	3276	3138	2996
75°	2994	2886	2766
80°	2703	2585	2566
85°	2371	2285	2186



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.4	0.9
10°-20°	114.2	2.4
20°-30°	168.7	3.6
30°-40°	197.0	4.2
40°-50°	198.1	4.2
50°-60°	174.0	3.7
60°-70°	129.6	2.7
70°-80°	73.8	1.6
80°-90°	25.1	0.5
90°-100°	85.2	1.8
100°-110°	255.0	5.4
110°-120°	433.8	9.1
120°-130°	570.5	12.0
130°-140°	641.3	13.5
140°-150°	630.4	13.3
150°-160°	530.7	11.2
160°-170°	353.3	7.4
170°-180°	123.7	2.6
0°-30°	323.3	6.8
0°-40°	520.3	11.0
0°-60°	892.4	18.8
0°-90°	1120.9	23.6
90°-120°	774.0	16.3
90°-150°	2616.2	55.1
90°-180°	3624.0	76.4
0°-180°	4744.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	429	429	429	429	429	
5°	430	428	424	427	427	41
15°	409	407	403	405	404	115
25°	371	369	364	365	364	171
35°	321	319	314	312	310	201
45°	263	262	257	253	251	203
55°	200	199	195	191	189	179
65°	136	134	131	128	127	134
75°	72	70	69	68	66	77
85°	19	18	18	18	18	21
90°	1	11	25	29	31	5
95°	61	68	76	80	80	68
105°	231	234	242	243	244	248
115°	437	439	438	439	438	432
125°	639	642	640	636	632	570
135°	829	835	834	830	828	639
145°	1006	1008	1011	1010	1006	628
155°	1152	1152	1153	1156	1150	530
165°	1254	1252	1251	1257	1250	354
175°	1305	1301	1301	1306	1300	124
180°	1308	1308	1308	1308	1308	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	429.3	429.3	429.3	429.3	429.3	429.3	429.3	429.3	429.3	429.3	429.3
2.5°	430.8	430.5	430.2	430.0	429.7	429.2	428.5	427.8	427.1	426.4	427.0
5°	429.7	429.2	428.8	428.4	428.0	427.4	426.4	425.6	424.6	423.7	424.5
7.5°	425.5	425.0	424.6	424.2	423.8	423.1	422.2	421.3	420.3	419.4	420.1
10°	421.9	421.5	421.0	420.6	420.3	419.5	418.4	417.4	416.3	415.3	416.0
12.5°	417.2	416.8	416.5	416.1	415.8	415.1	414.2	413.1	412.1	411.1	411.7
15°	409.0	408.7	408.3	408.0	407.7	406.9	405.9	404.8	403.8	402.7	403.4
17.5°	399.4	399.0	398.6	398.2	397.8	397.0	395.9	394.9	393.8	392.8	393.2
20°	392.4	391.9	391.4	390.9	390.4	389.6	388.6	387.5	386.4	385.4	385.7
22.5°	384.4	383.9	383.4	382.9	382.5	381.7	380.6	379.5	378.4	377.4	377.6
25°	371.3	370.8	370.3	369.9	369.4	368.6	367.5	366.5	365.4	364.3	364.4
27.5°	357.4	356.9	356.4	355.9	355.5	354.7	353.6	352.4	351.3	350.1	350.1
30°	347.4	346.9	346.5	346.1	345.7	344.9	343.8	342.6	341.5	340.3	340.3
32.5°	337.3	336.8	336.2	335.6	335.2	334.4	333.5	332.6	331.8	330.9	330.4
35°	321.2	320.7	320.1	319.6	319.2	318.4	317.3	316.2	315.2	314.1	313.6
37.5°	304.6	304.0	303.3	302.7	302.1	301.3	300.2	299.0	298.0	296.9	296.4
40°	293.1	292.6	292.1	291.6	291.1	290.3	289.1	288.0	286.8	285.7	285.0
42.5°	281.5	281.0	280.4	279.9	279.3	278.5	277.3	276.2	275.0	273.9	273.2
45°	263.2	262.8	262.5	262.2	261.9	261.2	260.1	259.0	257.9	256.9	256.0
47.5°	244.9	244.5	244.0	243.5	243.0	242.3	241.3	240.3	239.3	238.3	237.3
50°	232.5	232.1	231.7	231.3	230.9	230.1	229.1	228.1	227.0	225.9	225.0
52.5°	219.5	219.3	219.0	218.7	218.4	217.7	216.6	215.5	214.4	213.2	212.5
55°	199.7	199.6	199.6	199.5	199.4	198.8	197.7	196.6	195.6	194.6	193.6
57.5°	180.8	180.5	180.2	180.0	179.7	179.1	178.2	177.4	176.6	175.7	174.9
60°	167.2	167.2	167.1	167.0	166.9	166.4	165.3	164.4	163.4	162.4	161.7
62.5°	155.1	154.9	154.7	154.5	154.2	153.7	152.7	151.7	150.7	149.7	149.0
65°	136.2	135.8	135.4	135.0	134.6	134.0	133.2	132.3	131.5	130.6	130.0
67.5°	116.2	115.8	115.5	115.1	114.8	114.2	113.7	113.0	112.4	111.8	111.2
70°	104.1	103.6	103.1	102.6	102.1	101.6	101.2	100.6	100.1	99.7	99.1
72.5°	91.4	91.0	90.7	90.3	89.9	89.5	89.0	88.4	87.9	87.3	86.7
75°	72.0	71.6	71.3	71.0	70.7	70.3	70.1	69.9	69.6	69.4	69.0
77.5°	54.7	54.6	54.4	54.3	54.0	53.8	53.6	53.2	52.9	52.6	52.4
80°	43.6	43.3	43.1	42.9	42.5	42.4	42.2	42.1	41.9	41.7	41.6
82.5°	32.6	32.6	32.6	32.5	32.4	32.4	32.3	32.3	32.3	32.2	32.1
85°	19.2	19.0	18.9	18.7	18.5	18.5	18.5	18.5	18.5	18.5	18.3
87.5°	7.9	8.2	8.4	8.6	9.0	9.3	9.8	10.4	10.9	11.4	11.6
90°	1.0	3.3	5.6	7.8	10.1	12.8	15.8	18.7	21.7	24.6	25.6
92.5°	24.9	26.4	28.0	29.5	31.1	32.7	34.4	36.0	37.8	39.5	40.2
95°	60.6	62.2	63.8	65.4	67.0	68.8	70.6	72.4	74.2	76.0	76.9
97.5°	107.7	108.8	110.0	111.2	112.4	113.7	115.0	116.3	117.6	119.0	120.0
100°	139.7	141.1	142.4	143.9	145.2	146.5	147.6	148.8	149.9	151.1	151.7
102.5°	176.7	177.5	178.4	179.2	180.0	181.2	182.7	184.2	185.7	187.2	187.9
105°	231.2	231.6	232.1	232.5	233.0	234.2	236.3	238.4	240.4	242.5	242.5
107.5°	294.5	294.8	295.0	295.3	295.6	296.1	296.9	297.8	298.6	299.4	300.2
110°	333.9	334.4	334.9	335.3	335.7	336.2	336.7	337.2	337.5	338.0	339.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	375.0	375.3	375.6	375.8	376.1	376.3	376.4	376.4	376.6	376.7	377.8
115°	436.7	437.4	438.0	438.7	439.4	439.5	439.0	438.6	438.2	437.7	437.9
117.5°	498.8	499.2	499.6	500.1	500.6	500.5	499.9	499.3	498.7	498.1	498.0
120°	537.3	538.7	540.1	541.5	542.8	543.0	541.8	540.7	539.6	538.4	538.1
122.5°	577.7	578.6	579.6	580.7	581.6	581.9	581.2	580.7	580.0	579.5	578.8
125°	639.1	639.8	640.4	641.1	641.8	641.9	641.4	641.0	640.6	640.1	639.2
127.5°	695.8	697.3	698.7	700.1	701.6	702.1	701.6	701.1	700.6	700.1	698.8
130°	733.6	735.4	737.3	739.1	740.9	741.5	740.8	740.1	739.4	738.7	737.8
132.5°	771.4	773.2	775.1	776.9	778.7	779.3	778.9	778.4	777.8	777.4	776.3
135°	829.2	830.5	831.9	833.2	834.6	835.2	835.0	834.7	834.5	834.2	833.4
137.5°	882.6	883.7	884.9	886.0	887.2	888.0	888.6	889.2	889.8	890.4	889.4
140°	919.6	920.7	921.9	923.0	924.2	924.8	925.0	925.3	925.5	925.7	925.5
142.5°	953.2	954.4	955.5	956.7	957.8	958.6	959.0	959.4	959.8	960.3	960.0
145°	1005.8	1006.3	1006.8	1007.3	1007.7	1008.3	1008.9	1009.6	1010.3	1011.0	1010.7
147.5°	1051.9	1052.7	1053.5	1054.4	1055.2	1055.9	1056.5	1057.2	1057.8	1058.4	1058.4
150°	1083.9	1084.4	1084.9	1085.3	1085.8	1086.2	1086.7	1087.1	1087.6	1088.1	1088.1
152.5°	1110.2	1110.9	1111.5	1112.1	1112.8	1113.3	1113.6	1113.8	1114.1	1114.4	1114.8
155°	1151.8	1151.8	1151.8	1151.8	1151.8	1151.9	1152.1	1152.3	1152.5	1152.8	1153.7
157.5°	1187.1	1186.8	1186.5	1186.3	1186.0	1186.0	1186.1	1186.3	1186.5	1186.7	1187.6
160°	1209.3	1208.9	1208.4	1207.9	1207.4	1207.2	1207.2	1207.2	1207.2	1207.2	1208.4
162.5°	1229.0	1228.4	1227.7	1227.1	1226.5	1226.2	1226.5	1226.6	1226.8	1226.9	1228.1
165°	1254.5	1253.8	1253.2	1252.4	1251.8	1251.4	1251.4	1251.4	1251.4	1251.4	1252.8
167.5°	1274.9	1273.9	1273.0	1272.1	1271.2	1270.8	1271.0	1271.2	1271.4	1271.5	1273.0
170°	1286.3	1285.5	1284.5	1283.7	1282.7	1282.2	1282.2	1282.2	1282.2	1282.2	1283.8
172.5°	1295.4	1294.5	1293.6	1292.7	1291.7	1291.3	1291.3	1291.3	1291.3	1291.3	1292.7
175°	1304.9	1303.9	1303.1	1302.1	1301.2	1300.8	1300.8	1300.8	1300.8	1300.8	1302.1
177.5°	1308.8	1308.1	1307.3	1306.5	1305.8	1305.4	1305.4	1305.4	1305.4	1305.4	1306.5
180°	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	429.3	429.3	429.3	429.3	429.3	429.3	429.3	429.3
2.5°	427.6	428.3	429.0	429.3	429.2	429.1	429.0	429.0
5°	425.4	426.2	427.1	427.4	427.2	427.1	426.8	426.7
7.5°	420.9	421.6	422.3	422.6	422.6	422.5	422.4	422.2
10°	416.8	417.5	418.2	418.5	418.4	418.2	418.0	417.9
12.5°	412.2	412.7	413.3	413.5	413.4	413.3	413.2	413.1
15°	404.0	404.6	405.4	405.4	404.9	404.4	403.9	403.5
17.5°	393.6	394.1	394.6	394.7	394.5	394.3	394.2	394.0
20°	386.0	386.3	386.7	386.7	386.4	386.2	386.0	385.7
22.5°	377.9	378.2	378.4	378.4	378.1	377.8	377.5	377.2
25°	364.5	364.6	364.6	364.6	364.3	364.1	363.8	363.6
27.5°	350.2	350.3	350.3	350.2	349.9	349.6	349.3	349.0
30°	340.3	340.3	340.3	340.0	339.5	338.9	338.3	337.7
32.5°	329.9	329.5	329.1	328.7	328.4	328.0	327.7	327.4
35°	313.1	312.7	312.1	311.7	311.3	310.9	310.5	310.1
37.5°	295.7	295.2	294.5	294.1	293.9	293.6	293.3	293.1
40°	284.4	283.8	283.0	282.6	282.3	281.9	281.6	281.3
42.5°	272.6	271.9	271.2	270.8	270.5	270.1	269.8	269.4
45°	254.9	254.0	252.9	252.3	251.8	251.4	251.0	250.6
47.5°	236.4	235.4	234.4	233.8	233.4	233.1	232.7	232.3
50°	224.1	223.2	222.3	221.6	221.1	220.6	220.1	219.6
52.5°	211.7	210.9	210.1	209.5	209.0	208.5	208.0	207.6
55°	192.7	191.8	190.9	190.3	189.9	189.4	189.0	188.6
57.5°	174.1	173.3	172.5	171.8	171.3	170.9	170.4	169.9
60°	161.0	160.2	159.5	158.9	158.4	158.0	157.6	157.2
62.5°	148.2	147.5	146.8	146.2	146.0	145.7	145.4	145.1
65°	129.4	128.7	128.0	127.6	127.4	127.1	126.8	126.6
67.5°	110.6	110.0	109.5	109.0	108.7	108.3	108.0	107.7
70°	98.5	97.9	97.4	96.9	96.5	96.1	95.6	95.2
72.5°	86.3	85.7	85.2	84.8	84.7	84.4	84.2	84.0
75°	68.6	68.1	67.7	67.4	67.2	66.9	66.7	66.5
77.5°	52.0	51.8	51.5	51.4	51.4	51.4	51.4	51.4
80°	41.5	41.4	41.4	41.4	41.4	41.4	41.4	41.4
82.5°	32.0	31.8	31.7	31.5	31.5	31.4	31.4	31.3
85°	18.1	18.0	17.8	17.7	17.7	17.7	17.7	17.7
87.5°	11.6	11.8	11.9	12.0	12.1	12.2	12.3	12.4
90°	26.5	27.4	28.3	29.0	29.5	29.9	30.3	30.8
92.5°	40.9	41.7	42.4	42.6	42.3	42.1	41.7	41.5
95°	77.9	78.7	79.7	80.2	80.2	80.2	80.2	80.2
97.5°	121.0	122.2	123.2	123.7	123.6	123.5	123.4	123.3
100°	152.4	153.0	153.8	154.3	154.8	155.3	155.7	156.1
102.5°	188.5	189.3	190.0	190.2	190.1	190.0	190.0	189.9
105°	242.5	242.5	242.5	242.7	243.2	243.6	244.1	244.5
107.5°	300.9	301.6	302.3	302.5	302.3	302.0	301.7	301.4
110°	339.8	340.8	341.7	341.9	341.4	341.0	340.6	340.1



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	378.8	379.9	381.0	381.5	381.4	381.4	381.3	381.2
115°	438.2	438.4	438.6	438.6	438.4	438.2	437.9	437.7
117.5°	498.0	498.0	497.9	497.6	496.9	496.3	495.7	495.0
120°	537.9	537.7	537.5	537.1	536.7	536.2	535.8	535.3
122.5°	578.3	577.7	577.1	576.5	575.8	575.2	574.6	573.9
125°	638.3	637.4	636.4	635.6	634.6	633.7	632.8	631.8
127.5°	697.5	696.2	695.0	693.8	692.8	691.7	690.7	689.6
130°	736.9	736.0	735.1	733.8	732.2	730.6	729.0	727.5
132.5°	775.2	774.0	773.0	771.8	770.6	769.4	768.1	766.9
135°	832.4	831.6	830.6	830.0	829.5	829.0	828.5	828.1
137.5°	888.4	887.5	886.5	885.7	884.8	883.9	883.0	882.2
140°	925.3	925.0	924.8	923.9	922.3	920.7	919.1	917.5
142.5°	959.8	959.6	959.3	958.6	957.4	956.2	954.9	953.7
145°	1010.5	1010.3	1010.1	1009.6	1008.6	1007.7	1006.8	1005.8
147.5°	1058.4	1058.4	1058.4	1057.8	1056.5	1055.0	1053.7	1052.3
150°	1088.1	1088.1	1088.1	1087.3	1086.0	1084.7	1083.2	1081.9
152.5°	1115.1	1115.5	1115.8	1115.4	1114.2	1113.0	1111.8	1110.6
155°	1154.6	1155.6	1156.4	1156.1	1154.5	1152.9	1151.3	1149.7
157.5°	1188.6	1189.5	1190.6	1190.3	1189.1	1187.8	1186.5	1185.3
160°	1209.5	1210.7	1211.8	1212.0	1211.0	1210.1	1209.2	1208.2
162.5°	1229.2	1230.4	1231.5	1231.4	1229.9	1228.4	1227.0	1225.5
165°	1254.2	1255.5	1256.9	1256.8	1255.2	1253.6	1252.0	1250.4
167.5°	1274.4	1275.8	1277.2	1277.2	1275.8	1274.4	1273.0	1271.5
170°	1285.5	1287.1	1288.6	1288.6	1287.1	1285.5	1283.8	1282.2
172.5°	1294.1	1295.5	1297.0	1296.9	1295.3	1293.6	1292.0	1290.5
175°	1303.5	1304.9	1306.2	1306.1	1304.5	1302.9	1301.3	1299.7
177.5°	1307.7	1308.8	1309.9	1309.8	1308.4	1307.2	1305.9	1304.6
180°	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0	1308.0

(END OF REPORT)