

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: P332808-940

Luminaire Tested: **S124DIW-S1020D470U940-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332808-940
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-S1020D470U940-4F0-1E-UDD-D1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 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: 5204.1 lumens
Efficiency: N/A
Efficacy: 112.6 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-Direct

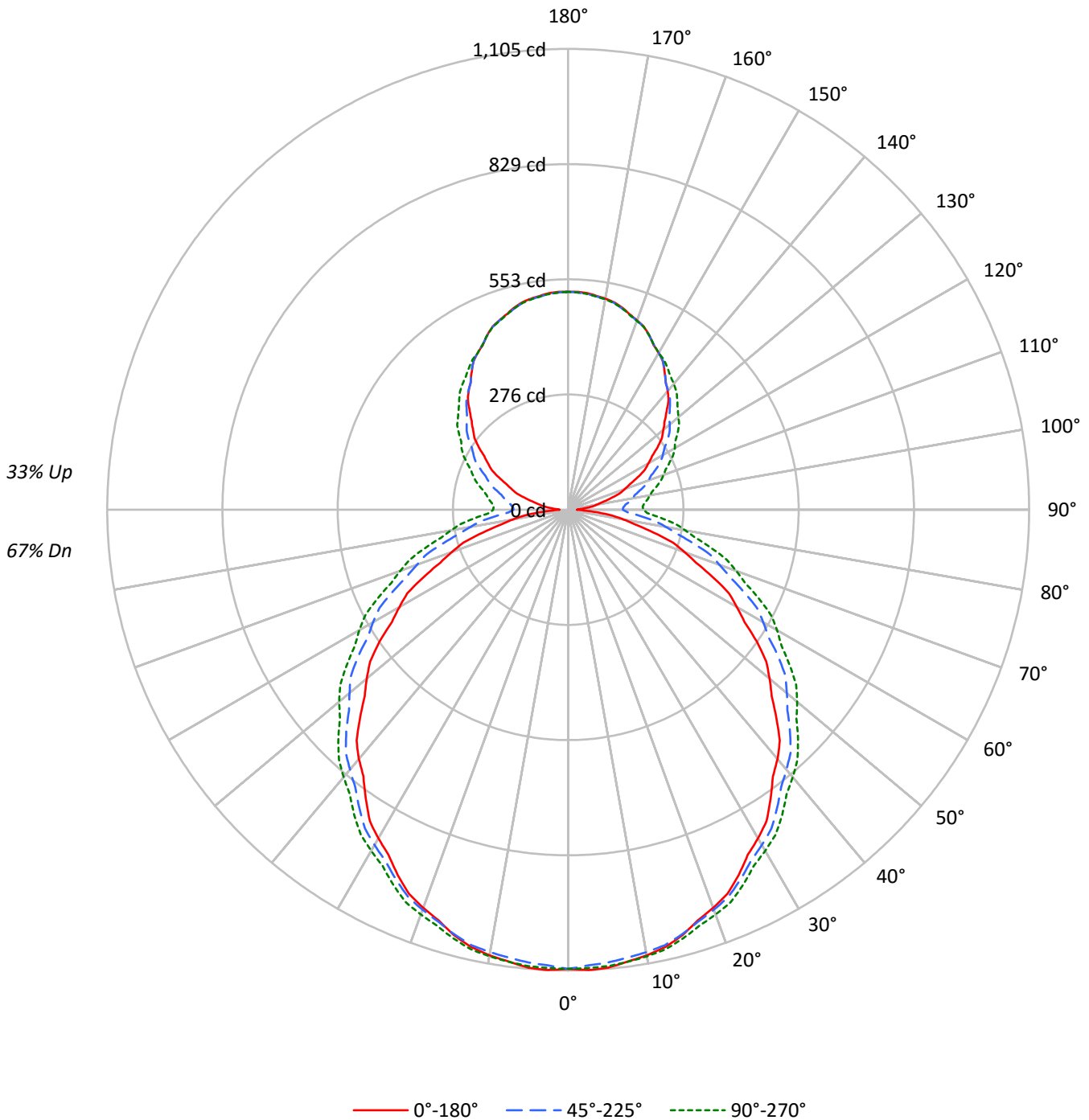
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67
1	100	95	91	87	94	90	86	82	79	76	73	70	67	65	61	59	58	53
2	91	82	75	70	85	78	71	66	69	64	60	61	57	53	53	50	48	44
3	82	72	64	57	77	68	61	55	60	54	50	53	48	45	46	43	40	36
4	75	63	55	48	70	60	52	46	53	47	42	47	42	38	41	37	34	31
5	69	56	48	41	65	53	45	39	47	41	36	42	37	33	37	33	29	26
6	63	51	42	36	59	48	40	34	43	36	31	38	33	28	33	29	26	23
7	59	46	37	31	55	43	35	30	39	32	27	34	29	25	30	26	23	20
8	55	41	33	28	51	39	32	26	35	29	24	32	26	22	28	24	20	18
9	51	38	30	25	48	36	29	24	32	26	22	29	24	20	26	21	18	16
10	47	35	27	22	45	33	26	21	30	24	20	27	22	18	24	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8888	8888	8888
5°	8916	8686	8711
10°	8861	8544	8538
15°	8782	8380	8334
20°	8662	8198	8135
25°	8527	7995	7918
30°	8381	7793	7693
35°	8216	7585	7497
40°	8083	7388	7292
45°	7887	7207	7117
50°	7721	6996	6931
55°	7549	6799	6714
60°	7282	6547	6515
65°	6989	6278	6271
70°	6633	5968	5986
75°	6136	5628	5730
80°	5588	5302	5476
85°	4893	5013	5328



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.3	2.0
10°-20°	298.7	5.7
20°-30°	451.7	8.7
30°-40°	546.5	10.5
40°-50°	577.7	11.1
50°-60°	543.7	10.4
60°-70°	451.1	8.7
70°-80°	316.9	6.1
80°-90°	180.7	3.5
90°-100°	140.8	2.7
100°-110°	180.8	3.5
110°-120°	226.1	4.3
120°-130°	258.3	5.0
130°-140°	269.5	5.2
140°-150°	254.7	4.9
150°-160°	212.1	4.1
160°-170°	141.1	2.7
170°-180°	49.4	0.9
0°-30°	854.6	16.4
0°-40°	1401.1	26.9
0°-60°	2522.6	48.5
0°-90°	3471.3	66.7
90°-120°	547.8	10.5
90°-150°	1330.2	25.6
90°-180°	1733.0	33.3
0°-180°	5204.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1101	1101	1101	1101	1101	
5°	1102	1098	1090	1099	1098	105
15°	1057	1058	1054	1065	1064	298
25°	967	974	978	991	992	445
35°	846	860	873	889	894	529
45°	705	729	752	772	779	545
55°	552	579	615	639	647	492
65°	382	422	464	493	504	379
75°	212	258	309	343	355	226
85°	65	117	173	208	222	70
90°	21	75	131	168	180	15
95°	40	85	138	171	184	40
105°	105	132	178	208	221	112
115°	184	196	233	259	268	181
125°	262	262	291	312	320	233
135°	333	336	344	363	370	258
145°	403	404	404	411	415	252
155°	461	461	460	462	460	212
165°	501	500	499	502	500	141
175°	522	520	519	522	519	49
180°	522	522	522	522	522	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1104.9	1104.3	1103.6	1103.0	1102.2	1101.1	1099.3	1097.6	1095.8	1094.0	1095.6
5°	1102.2	1101.4	1100.5	1099.7	1098.9	1097.5	1095.6	1093.7	1091.8	1089.8	1092.1
7.5°	1092.8	1092.3	1091.8	1091.4	1090.8	1089.8	1088.2	1086.6	1085.0	1083.4	1085.9
10°	1084.9	1084.7	1084.4	1084.1	1083.9	1083.0	1081.6	1080.3	1078.9	1077.5	1080.0
12.5°	1074.1	1074.1	1074.0	1073.9	1073.9	1073.4	1072.5	1071.5	1070.6	1069.6	1071.9
15°	1056.6	1056.9	1057.1	1057.4	1057.7	1057.4	1056.6	1055.8	1054.9	1054.1	1056.6
17.5°	1032.7	1033.5	1034.3	1035.1	1036.0	1036.3	1036.1	1036.0	1035.8	1035.6	1038.1
20°	1015.9	1016.7	1017.5	1018.3	1019.2	1019.8	1020.0	1020.3	1020.6	1020.8	1023.6
22.5°	997.1	998.2	999.3	1000.3	1001.3	1002.1	1002.6	1003.1	1003.5	1004.1	1006.8
25°	966.6	968.2	969.8	971.5	973.1	974.4	975.2	976.1	976.9	977.7	980.7
27.5°	932.6	935.0	937.4	939.8	942.2	944.1	945.3	946.6	947.8	949.0	951.9
30°	909.9	912.0	914.3	916.4	918.6	920.7	922.6	924.5	926.4	928.4	931.4
32.5°	885.2	887.9	890.5	893.1	895.7	898.1	900.3	902.4	904.6	906.7	910.1
35°	845.8	849.1	852.3	855.6	858.9	861.9	864.7	867.4	870.1	872.9	876.7
37.5°	806.0	809.9	813.6	817.4	821.2	824.7	828.1	831.5	835.0	838.4	842.2
40°	780.4	784.0	787.6	791.1	794.7	798.3	802.2	806.0	809.9	813.7	817.8
42.5°	750.8	754.8	758.8	762.9	766.8	771.1	775.5	780.1	784.5	789.1	793.6
45°	705.2	710.4	715.6	720.9	726.0	731.2	736.5	741.6	746.8	752.1	756.7
47.5°	661.6	666.9	672.3	677.7	683.1	688.8	694.7	700.8	706.9	712.8	717.6
50°	630.0	636.1	642.0	648.1	654.1	660.1	666.2	672.2	678.2	684.2	689.7
52.5°	598.4	604.5	610.5	616.5	622.6	629.0	635.9	642.8	649.7	656.7	662.1
55°	552.3	558.1	563.8	569.6	575.3	582.3	590.6	598.8	607.0	615.2	620.7
57.5°	500.8	507.9	515.1	522.2	529.3	536.9	545.1	553.3	561.4	569.6	576.1
60°	467.3	474.4	481.5	488.7	495.8	503.8	512.9	521.9	530.9	540.0	546.3
62.5°	434.7	442.5	450.3	458.1	465.8	474.2	483.3	492.3	501.4	510.4	516.7
65°	382.2	390.9	399.8	408.5	417.2	426.3	435.6	445.0	454.2	463.6	470.4
67.5°	331.6	341.0	350.3	359.6	368.9	378.5	388.5	398.5	408.5	418.5	425.4
70°	297.1	306.5	315.8	325.0	334.4	344.3	354.6	365.1	375.5	385.9	393.3
72.5°	263.6	273.1	282.7	292.2	301.8	312.0	323.1	334.1	345.3	356.3	363.5
75°	212.0	222.2	232.3	242.5	252.6	263.4	274.9	286.4	297.9	309.4	317.1
77.5°	164.0	174.7	185.5	196.2	207.0	218.3	230.4	242.5	254.5	266.5	274.3
80°	134.4	145.3	156.3	167.3	178.3	189.8	201.8	213.8	225.9	237.9	246.2
82.5°	104.8	116.2	127.6	139.0	150.3	162.1	174.2	186.2	198.3	210.4	218.7
85°	65.4	76.9	88.4	99.9	111.4	123.3	135.6	147.9	160.2	172.6	180.8
87.5°	36.7	48.2	59.5	70.9	82.2	94.0	106.1	118.3	130.5	142.6	150.6
90°	21.0	32.9	44.9	56.8	68.8	81.0	93.5	105.9	118.4	130.9	139.5
92.5°	27.4	38.3	49.4	60.4	71.3	83.0	95.3	107.5	119.8	132.2	140.2
95°	40.3	50.1	60.0	69.8	79.6	90.5	102.4	114.2	126.1	137.9	145.6
97.5°	56.9	65.4	73.7	82.2	90.6	100.8	112.6	124.5	136.3	148.2	155.7
100°	70.1	77.6	85.1	92.6	100.0	109.6	121.0	132.5	144.0	155.5	163.1
102.5°	85.0	91.4	97.8	104.2	110.6	119.4	130.5	141.8	152.9	164.2	171.6
105°	105.2	110.8	116.4	122.0	127.5	135.5	146.1	156.6	167.0	177.5	184.7
107.5°	128.9	133.4	138.0	142.7	147.2	154.4	164.0	173.6	183.3	193.0	199.9
110°	144.0	148.0	152.0	156.0	160.1	166.8	176.3	185.8	195.4	204.8	211.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	159.8	163.3	166.7	170.1	173.5	179.8	188.8	197.8	206.8	215.7	221.8
115°	183.6	186.0	188.5	191.0	193.4	198.9	207.6	216.2	224.7	233.3	239.2
117.5°	207.1	208.7	210.2	211.8	213.3	218.1	226.1	234.2	242.2	250.2	255.7
120°	221.9	223.1	224.3	225.5	226.7	231.1	238.8	246.5	254.1	261.8	266.8
122.5°	238.4	238.7	239.1	239.3	239.7	243.5	250.8	258.2	265.6	273.0	278.2
125°	261.5	261.3	261.0	260.7	260.4	263.7	270.5	277.1	283.9	290.7	295.7
127.5°	283.3	283.3	283.3	283.3	283.3	285.9	291.0	296.1	301.2	306.3	311.1
130°	297.8	297.8	297.8	297.8	297.8	300.1	304.4	308.8	313.2	317.5	322.4
132.5°	313.7	313.6	313.5	313.4	313.4	315.0	318.5	321.9	325.4	328.8	333.3
135°	333.4	333.9	334.5	335.0	335.6	336.8	338.7	340.6	342.5	344.5	348.7
137.5°	356.1	356.1	356.1	356.1	356.1	356.6	357.7	358.7	359.9	361.0	364.7
140°	371.4	371.3	371.2	371.1	371.0	371.1	371.4	371.7	371.9	372.2	375.7
142.5°	384.3	384.4	384.5	384.7	384.8	384.8	384.5	384.2	384.1	383.8	386.9
145°	403.3	403.4	403.4	403.5	403.6	403.7	403.8	403.9	403.9	404.0	405.6
147.5°	422.3	422.5	422.7	422.8	423.0	423.0	422.9	422.8	422.8	422.8	422.8
150°	434.0	434.1	434.2	434.3	434.4	434.4	434.4	434.4	434.4	434.4	434.4
152.5°	444.0	444.2	444.3	444.5	444.6	444.8	444.8	444.9	445.0	445.1	445.2
155°	460.7	460.7	460.7	460.7	460.7	460.6	460.5	460.4	460.3	460.2	460.6
157.5°	474.8	474.7	474.6	474.4	474.2	474.1	474.1	474.1	474.0	474.0	474.3
160°	483.3	483.2	483.1	483.0	483.0	482.9	482.8	482.7	482.6	482.5	482.8
162.5°	491.1	490.8	490.5	490.4	490.1	489.9	489.8	489.7	489.6	489.5	490.1
165°	501.4	501.1	500.9	500.6	500.3	500.2	500.0	499.8	499.6	499.4	500.0
167.5°	509.4	509.1	508.7	508.4	507.9	507.7	507.7	507.8	507.8	507.8	508.4
170°	514.0	513.5	513.1	512.6	512.2	512.0	512.1	512.2	512.3	512.4	512.9
172.5°	517.2	516.8	516.5	516.1	515.7	515.5	515.5	515.6	515.6	515.6	516.2
175°	521.7	521.2	520.8	520.3	519.9	519.6	519.5	519.4	519.3	519.2	519.9
177.5°	523.1	522.7	522.4	522.0	521.7	521.5	521.5	521.5	521.5	521.5	522.0
180°	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1097.2	1098.7	1100.2	1100.8	1100.6	1100.4	1100.2	1100.0
5°	1094.2	1096.4	1098.7	1099.6	1099.3	1099.0	1098.8	1098.5
7.5°	1088.4	1090.8	1093.3	1094.4	1094.1	1093.9	1093.6	1093.3
10°	1082.4	1084.9	1087.4	1088.5	1088.2	1088.0	1087.7	1087.4
12.5°	1074.2	1076.4	1078.6	1079.8	1079.7	1079.6	1079.6	1079.5
15°	1059.1	1061.5	1064.0	1065.1	1064.8	1064.5	1064.3	1064.0
17.5°	1040.6	1043.2	1045.7	1046.9	1046.6	1046.4	1046.2	1046.0
20°	1026.3	1029.0	1031.8	1033.1	1033.1	1033.1	1033.1	1033.1
22.5°	1009.5	1012.3	1015.0	1016.6	1017.1	1017.4	1017.9	1018.3
25°	983.7	986.7	989.7	991.4	991.7	991.9	992.2	992.5
27.5°	954.7	957.4	960.3	961.8	962.2	962.5	962.8	963.1
30°	934.4	937.4	940.4	942.2	942.7	943.3	943.9	944.4
32.5°	913.6	917.0	920.5	922.5	923.0	923.5	924.1	924.7
35°	880.6	884.4	888.2	890.6	891.4	892.2	893.0	893.9
37.5°	846.1	850.1	853.9	856.3	857.2	858.1	858.9	859.8
40°	821.9	826.0	830.2	832.8	833.8	834.9	836.1	837.1
42.5°	798.2	802.7	807.3	809.9	810.8	811.7	812.6	813.4
45°	761.3	766.1	770.7	773.7	775.1	776.4	777.8	779.2
47.5°	722.5	727.3	732.2	735.4	737.0	738.7	740.3	742.0
50°	695.2	700.7	706.1	709.7	711.4	713.0	714.6	716.3
52.5°	667.6	673.1	678.6	682.1	683.8	685.4	687.1	688.7
55°	626.2	631.7	637.1	640.7	642.3	644.0	645.6	647.3
57.5°	582.6	589.2	595.7	599.7	601.2	602.8	604.3	605.8
60°	552.6	558.9	565.2	569.4	571.7	573.8	576.0	578.2
62.5°	523.0	529.3	535.7	539.8	542.1	544.2	546.4	548.7
65°	477.2	484.1	491.0	495.5	497.7	499.9	502.0	504.3
67.5°	432.4	439.3	446.3	450.8	453.0	455.1	457.3	459.4
70°	400.6	408.0	415.4	420.2	422.0	424.0	425.9	427.8
72.5°	370.7	377.8	385.0	389.7	391.8	394.0	396.1	398.2
75°	324.8	332.4	340.1	345.2	347.7	350.2	352.6	355.1
77.5°	282.1	289.9	297.7	302.9	305.5	308.2	310.8	313.4
80°	254.4	262.6	270.8	276.0	278.2	280.4	282.6	284.8
82.5°	227.2	235.7	244.1	249.5	251.9	254.3	256.7	259.1
85°	189.0	197.2	205.5	211.0	213.7	216.4	219.2	221.9
87.5°	158.6	166.7	174.8	180.0	182.4	184.9	187.3	189.8
90°	147.9	156.4	164.9	170.3	172.7	175.0	177.5	179.8
92.5°	148.2	156.3	164.3	169.5	171.8	174.2	176.4	178.7
95°	153.3	161.0	168.6	173.7	176.2	178.6	181.1	183.6
97.5°	163.2	170.7	178.2	183.2	185.5	187.8	190.2	192.5
100°	170.7	178.3	185.8	190.6	192.5	194.4	196.4	198.2
102.5°	179.1	186.5	193.9	198.7	200.9	203.1	205.4	207.5
105°	191.8	198.9	206.0	210.8	213.3	215.7	218.2	220.6
107.5°	206.9	213.9	220.9	225.3	227.3	229.3	231.2	233.2
110°	217.0	223.2	229.3	233.6	236.0	238.5	241.0	243.4



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	227.8	233.9	240.0	244.1	246.3	248.5	250.8	253.1
115°	245.2	251.1	257.1	260.9	262.8	264.6	266.4	268.2
117.5°	261.0	266.4	271.8	275.5	277.5	279.6	281.5	283.6
120°	271.9	276.9	282.0	285.6	288.0	290.3	292.7	295.1
122.5°	283.4	288.6	293.7	297.1	298.8	300.4	302.1	303.7
125°	300.8	305.8	310.8	314.1	315.5	317.0	318.4	319.9
127.5°	315.8	320.6	325.4	328.6	330.3	332.0	333.8	335.5
130°	327.1	331.8	336.5	339.6	340.9	342.1	343.5	344.7
132.5°	337.9	342.4	347.0	350.0	351.4	352.9	354.5	356.0
135°	352.8	357.0	361.2	364.1	365.4	366.8	368.2	369.5
137.5°	368.5	372.2	376.0	378.6	380.0	381.5	382.9	384.2
140°	379.2	382.6	386.1	388.4	389.8	391.0	392.3	393.6
142.5°	390.0	393.1	396.2	398.3	399.5	400.6	401.7	402.9
145°	407.2	408.8	410.3	411.4	412.3	413.1	413.9	414.8
147.5°	423.0	423.2	423.3	423.8	424.5	425.3	426.1	427.0
150°	434.4	434.4	434.4	434.4	434.3	434.2	434.1	434.0
152.5°	445.5	445.7	445.9	445.9	445.7	445.4	445.2	445.0
155°	460.9	461.3	461.6	461.6	461.3	460.9	460.6	460.2
157.5°	474.6	474.8	475.1	475.1	474.8	474.5	474.2	473.9
160°	483.0	483.3	483.6	483.5	483.0	482.6	482.1	481.6
162.5°	490.5	491.1	491.5	491.5	491.1	490.6	490.2	489.7
165°	500.5	501.1	501.6	501.7	501.3	501.0	500.6	500.2
167.5°	508.9	509.4	510.0	510.0	509.4	508.9	508.3	507.7
170°	513.4	514.0	514.5	514.4	513.8	513.2	512.6	511.9
172.5°	516.8	517.5	518.0	518.0	517.4	516.7	516.1	515.5
175°	520.5	521.1	521.7	521.7	521.1	520.5	519.9	519.2
177.5°	522.5	523.0	523.5	523.4	522.9	522.4	521.7	521.2
180°	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5

(END OF REPORT)