

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: P332113-940

Luminaire Tested: **S123DIW-S340D1320U940-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332113-940
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-S340D1320U940-4F0-1E-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: 5340.8 lumens
Efficiency: N/A
Efficacy: 114.6 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

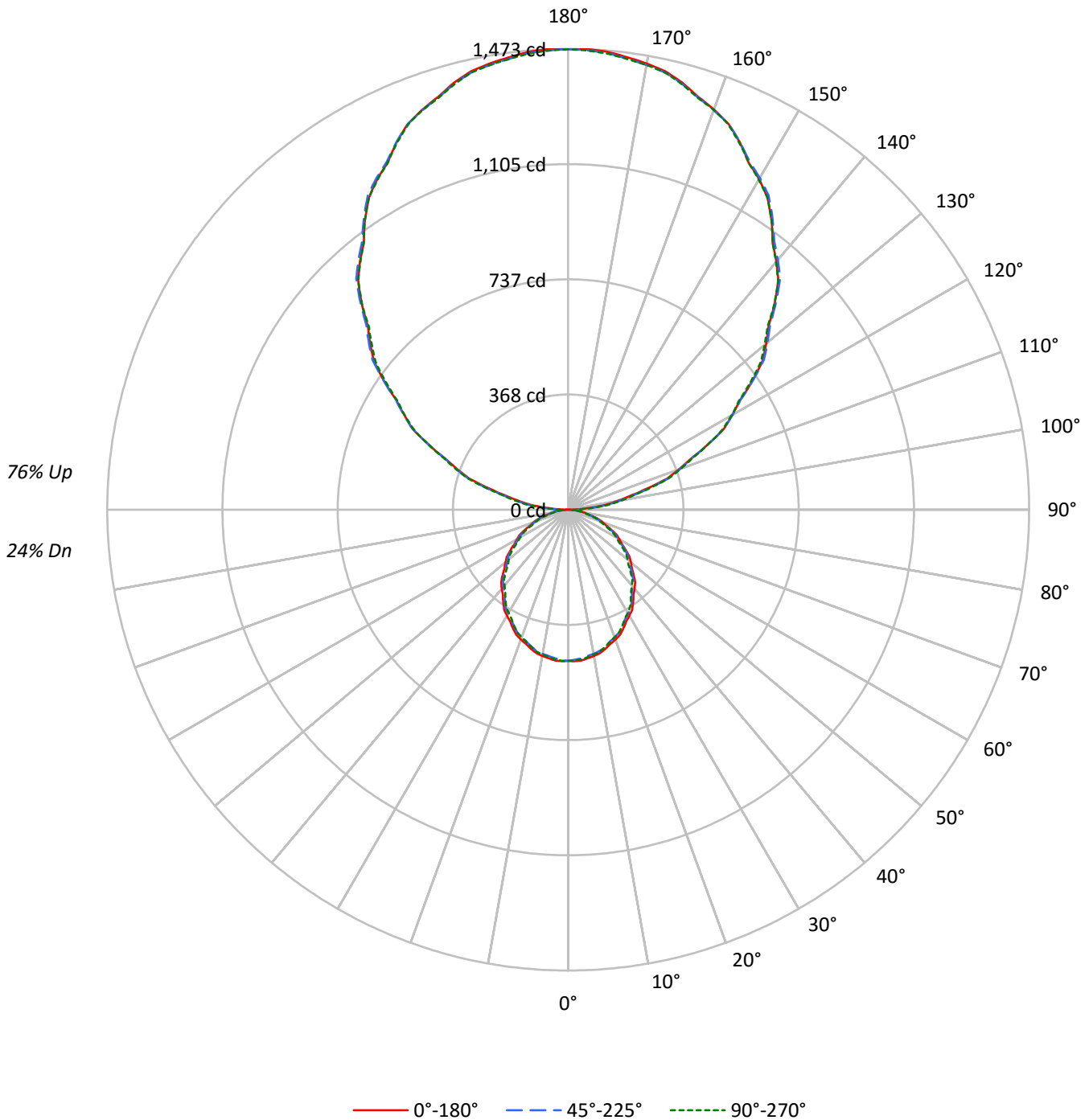
Input Watts (W): 46.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	5201	5201	5201
5°	5226	5154	5190
10°	5191	5109	5141
15°	5131	5051	5060
20°	5060	4969	4974
25°	4963	4871	4861
30°	4860	4762	4724
35°	4750	4646	4586
40°	4636	4519	4449
45°	4509	4402	4294
50°	4382	4258	4140
55°	4219	4110	3984
60°	4052	3935	3810
65°	3904	3744	3629
70°	3688	3531	3374
75°	3373	3248	3111
80°	3037	2913	2882
85°	2668	2569	2470



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.5	0.9
10°-20°	128.5	2.4
20°-30°	189.9	3.6
30°-40°	221.8	4.2
40°-50°	223.0	4.2
50°-60°	195.8	3.7
60°-70°	145.9	2.7
70°-80°	83.1	1.6
80°-90°	28.2	0.5
90°-100°	95.9	1.8
100°-110°	287.1	5.4
110°-120°	488.2	9.1
120°-130°	642.2	12.0
130°-140°	721.9	13.5
140°-150°	709.6	13.3
150°-160°	597.3	11.2
160°-170°	397.6	7.4
170°-180°	139.2	2.6
0°-30°	363.9	6.8
0°-40°	585.7	11.0
0°-60°	1004.5	18.8
0°-90°	1261.7	23.6
90°-120°	871.3	16.3
90°-150°	2944.9	55.1
90°-180°	4079.0	76.4
0°-180°	5340.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	483	483	483	483	483	
5°	484	481	477	481	480	46
15°	460	458	453	456	454	130
25°	418	415	410	410	409	192
35°	362	359	354	351	349	226
45°	296	294	289	284	282	229
55°	225	224	219	215	212	201
65°	153	151	147	144	142	151
75°	81	79	78	76	75	87
85°	22	21	21	20	20	24
90°	1	13	28	32	35	5
95°	68	76	86	90	90	77
105°	260	263	273	273	275	279
115°	492	495	493	494	493	486
125°	719	723	720	716	711	641
135°	933	940	939	935	932	719
145°	1132	1135	1138	1137	1132	707
155°	1296	1297	1298	1302	1294	597
165°	1412	1409	1409	1415	1408	398
175°	1469	1464	1464	1470	1463	139
180°	1472	1472	1472	1472	1472	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2
2.5°	484.9	484.6	484.3	484.0	483.7	483.1	482.3	481.5	480.7	479.9	480.6
5°	483.7	483.1	482.7	482.2	481.8	481.1	480.0	479.0	478.0	477.0	477.9
7.5°	478.9	478.4	478.0	477.5	477.1	476.3	475.3	474.2	473.1	472.1	472.9
10°	474.9	474.5	473.9	473.5	473.1	472.3	471.0	469.8	468.6	467.4	468.2
12.5°	469.6	469.2	468.8	468.4	468.1	467.3	466.2	465.0	463.9	462.8	463.4
15°	460.4	460.0	459.6	459.2	458.9	458.1	456.9	455.7	454.5	453.3	454.1
17.5°	449.6	449.2	448.7	448.2	447.7	446.9	445.7	444.5	443.3	442.1	442.6
20°	441.7	441.1	440.6	440.0	439.4	438.5	437.4	436.1	435.0	433.8	434.2
22.5°	432.7	432.1	431.6	431.1	430.5	429.6	428.4	427.2	426.0	424.8	425.1
25°	417.9	417.4	416.9	416.3	415.8	414.9	413.7	412.5	411.3	410.1	410.2
27.5°	402.3	401.7	401.2	400.6	400.1	399.2	398.0	396.6	395.4	394.0	394.1
30°	391.0	390.5	390.0	389.6	389.1	388.3	387.0	385.7	384.4	383.1	383.1
32.5°	379.7	379.1	378.4	377.8	377.3	376.4	375.4	374.4	373.4	372.5	371.9
35°	361.5	361.0	360.3	359.8	359.3	358.4	357.2	356.0	354.8	353.6	353.0
37.5°	342.9	342.1	341.4	340.7	340.1	339.1	337.9	336.6	335.5	334.2	333.6
40°	329.9	329.3	328.8	328.2	327.7	326.7	325.5	324.1	322.9	321.6	320.8
42.5°	316.9	316.3	315.7	315.0	314.4	313.4	312.2	310.9	309.6	308.3	307.6
45°	296.2	295.9	295.5	295.2	294.8	294.0	292.7	291.6	290.3	289.2	288.1
47.5°	275.7	275.2	274.6	274.1	273.6	272.8	271.6	270.5	269.4	268.2	267.2
50°	261.7	261.3	260.8	260.4	259.9	259.0	257.9	256.7	255.5	254.3	253.2
52.5°	247.1	246.8	246.5	246.2	245.8	245.0	243.8	242.5	241.3	240.0	239.2
55°	224.8	224.7	224.6	224.5	224.4	223.7	222.6	221.3	220.2	219.0	217.9
57.5°	203.5	203.2	202.9	202.6	202.2	201.6	200.6	199.7	198.8	197.8	196.9
60°	188.2	188.2	188.1	188.0	187.9	187.3	186.1	185.0	184.0	182.8	182.0
62.5°	174.6	174.3	174.2	173.9	173.6	173.0	171.8	170.8	169.6	168.5	167.7
65°	153.3	152.8	152.4	151.9	151.5	150.8	149.9	148.9	148.0	147.0	146.3
67.5°	130.8	130.4	130.0	129.6	129.2	128.6	128.0	127.2	126.5	125.8	125.2
70°	117.2	116.6	116.1	115.5	114.9	114.4	113.9	113.2	112.7	112.2	111.6
72.5°	102.9	102.5	102.1	101.7	101.2	100.8	100.1	99.5	98.9	98.3	97.6
75°	81.1	80.6	80.3	79.9	79.5	79.2	78.9	78.6	78.4	78.1	77.7
77.5°	61.6	61.4	61.3	61.1	60.8	60.5	60.3	59.9	59.6	59.2	58.9
80°	49.0	48.8	48.5	48.2	47.9	47.7	47.5	47.3	47.2	47.0	46.8
82.5°	36.7	36.6	36.6	36.6	36.5	36.5	36.4	36.4	36.4	36.3	36.1
85°	21.6	21.4	21.2	21.0	20.9	20.8	20.8	20.8	20.8	20.8	20.6
87.5°	8.9	9.2	9.5	9.7	10.1	10.5	11.1	11.7	12.3	12.8	13.0
90°	1.2	3.7	6.3	8.8	11.4	14.4	17.7	21.0	24.4	27.7	28.8
92.5°	28.0	29.7	31.5	33.3	35.0	36.8	38.7	40.6	42.5	44.4	45.2
95°	68.2	70.0	71.9	73.7	75.4	77.4	79.5	81.5	83.6	85.6	86.6
97.5°	121.2	122.5	123.9	125.2	126.5	128.0	129.5	130.9	132.4	133.9	135.1
100°	157.3	158.8	160.3	161.9	163.5	164.9	166.1	167.5	168.7	170.0	170.8
102.5°	198.9	199.8	200.8	201.7	202.6	203.9	205.6	207.3	209.0	210.7	211.5
105°	260.2	260.7	261.3	261.7	262.3	263.7	266.0	268.3	270.6	273.0	273.0
107.5°	331.4	331.8	332.1	332.4	332.7	333.3	334.2	335.2	336.1	337.0	337.9
110°	375.9	376.4	376.9	377.4	377.9	378.4	379.0	379.5	380.0	380.5	381.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	422.1	422.4	422.8	423.0	423.4	423.6	423.7	423.7	423.9	424.0	425.3
115°	491.5	492.3	493.0	493.8	494.6	494.7	494.2	493.7	493.2	492.7	492.9
117.5°	561.4	561.9	562.4	562.9	563.5	563.4	562.7	562.0	561.3	560.7	560.6
120°	604.8	606.4	608.0	609.5	611.0	611.2	609.8	608.6	607.3	606.0	605.7
122.5°	650.2	651.3	652.5	653.6	654.7	655.0	654.2	653.6	652.9	652.3	651.6
125°	719.3	720.1	720.9	721.7	722.5	722.6	722.0	721.6	721.0	720.5	719.5
127.5°	783.2	784.9	786.5	788.1	789.8	790.3	789.8	789.2	788.6	788.1	786.6
130°	825.7	827.8	829.9	832.0	834.0	834.6	833.8	833.1	832.3	831.5	830.5
132.5°	868.3	870.4	872.4	874.5	876.6	877.3	876.7	876.2	875.6	875.0	873.8
135°	933.4	934.9	936.4	937.9	939.5	940.1	939.9	939.6	939.3	939.1	938.1
137.5°	993.5	994.7	996.0	997.3	998.6	999.6	1000.2	1000.9	1001.6	1002.3	1001.1
140°	1035.1	1036.3	1037.7	1038.9	1040.3	1041.0	1041.3	1041.5	1041.8	1042.1	1041.8
142.5°	1073.0	1074.3	1075.6	1076.9	1078.2	1079.1	1079.5	1080.0	1080.4	1080.9	1080.7
145°	1132.2	1132.7	1133.3	1133.8	1134.3	1135.0	1135.7	1136.5	1137.3	1138.0	1137.7
147.5°	1184.0	1185.0	1185.9	1186.9	1187.8	1188.6	1189.3	1190.0	1190.7	1191.4	1191.4
150°	1220.1	1220.7	1221.2	1221.6	1222.2	1222.7	1223.2	1223.7	1224.2	1224.8	1224.8
152.5°	1249.7	1250.4	1251.2	1251.9	1252.6	1253.1	1253.5	1253.7	1254.1	1254.4	1254.8
155°	1296.5	1296.5	1296.5	1296.5	1296.5	1296.6	1296.8	1297.1	1297.4	1297.6	1298.7
157.5°	1336.2	1336.0	1335.6	1335.3	1335.0	1335.0	1335.2	1335.3	1335.6	1335.8	1336.9
160°	1361.2	1360.8	1360.2	1359.7	1359.1	1358.9	1358.9	1358.9	1358.9	1358.9	1360.2
162.5°	1383.4	1382.7	1382.0	1381.3	1380.5	1380.3	1380.5	1380.7	1380.9	1381.1	1382.4
165°	1412.1	1411.3	1410.6	1409.8	1409.1	1408.6	1408.6	1408.6	1408.6	1408.6	1410.2
167.5°	1435.0	1434.0	1433.0	1431.9	1430.9	1430.5	1430.7	1430.9	1431.1	1431.3	1432.9
170°	1448.0	1447.0	1445.9	1444.9	1443.9	1443.3	1443.3	1443.3	1443.3	1443.3	1445.1
172.5°	1458.1	1457.1	1456.1	1455.1	1454.0	1453.5	1453.5	1453.5	1453.5	1453.5	1455.1
175°	1468.8	1467.8	1466.8	1465.7	1464.6	1464.2	1464.2	1464.2	1464.2	1464.2	1465.7
177.5°	1473.2	1472.4	1471.5	1470.7	1469.9	1469.5	1469.5	1469.5	1469.5	1469.5	1470.7
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	483.2	483.2	483.2	483.2	483.2	483.2	483.2	483.2
2.5°	481.3	482.1	482.9	483.2	483.1	483.0	483.0	482.9
5°	478.8	479.7	480.7	481.1	480.9	480.7	480.5	480.3
7.5°	473.8	474.6	475.4	475.7	475.6	475.5	475.5	475.3
10°	469.1	469.9	470.7	471.1	470.9	470.7	470.6	470.4
12.5°	464.0	464.6	465.2	465.5	465.4	465.2	465.1	465.0
15°	454.8	455.5	456.3	456.4	455.8	455.2	454.7	454.1
17.5°	443.1	443.6	444.2	444.3	444.1	443.9	443.7	443.5
20°	434.5	434.9	435.2	435.3	435.0	434.7	434.4	434.2
22.5°	425.3	425.7	426.0	426.0	425.6	425.3	424.9	424.5
25°	410.3	410.4	410.5	410.4	410.1	409.8	409.6	409.3
27.5°	394.2	394.3	394.3	394.2	393.9	393.5	393.2	392.8
30°	383.1	383.1	383.1	382.7	382.1	381.5	380.8	380.1
32.5°	371.4	370.9	370.4	370.0	369.6	369.3	368.9	368.5
35°	352.5	352.0	351.3	350.9	350.4	349.9	349.5	349.0
37.5°	332.9	332.3	331.5	331.1	330.8	330.5	330.2	329.9
40°	320.1	319.4	318.6	318.1	317.7	317.4	317.0	316.6
42.5°	306.8	306.0	305.3	304.8	304.4	304.1	303.7	303.3
45°	287.0	285.9	284.7	284.0	283.5	283.0	282.6	282.1
47.5°	266.1	265.0	263.9	263.1	262.7	262.3	261.9	261.5
50°	252.3	251.2	250.2	249.4	248.9	248.3	247.8	247.2
52.5°	238.3	237.4	236.5	235.8	235.2	234.7	234.2	233.6
55°	217.0	215.9	214.9	214.2	213.7	213.2	212.8	212.3
57.5°	196.0	195.0	194.1	193.4	192.9	192.3	191.8	191.3
60°	181.2	180.3	179.5	178.9	178.3	177.9	177.5	177.0
62.5°	166.8	166.0	165.2	164.6	164.3	164.0	163.7	163.4
65°	145.6	144.9	144.1	143.7	143.4	143.0	142.8	142.5
67.5°	124.5	123.9	123.2	122.7	122.3	121.9	121.5	121.2
70°	110.9	110.2	109.6	109.1	108.6	108.2	107.6	107.2
72.5°	97.1	96.5	95.9	95.5	95.3	95.1	94.8	94.5
75°	77.2	76.7	76.2	75.9	75.6	75.3	75.1	74.8
77.5°	58.6	58.3	58.0	57.9	57.9	57.9	57.9	57.9
80°	46.7	46.6	46.5	46.5	46.5	46.5	46.5	46.5
82.5°	36.0	35.8	35.7	35.5	35.5	35.4	35.3	35.2
85°	20.4	20.2	20.1	20.0	20.0	20.0	20.0	20.0
87.5°	13.1	13.3	13.4	13.5	13.6	13.7	13.8	13.9
90°	29.8	30.9	31.8	32.6	33.2	33.7	34.2	34.7
92.5°	46.0	46.9	47.7	48.0	47.6	47.3	47.0	46.7
95°	87.7	88.6	89.7	90.2	90.2	90.2	90.2	90.2
97.5°	136.3	137.5	138.7	139.2	139.1	139.0	138.9	138.8
100°	171.6	172.3	173.1	173.7	174.2	174.8	175.3	175.8
102.5°	212.2	213.0	213.8	214.1	214.0	213.9	213.8	213.7
105°	273.0	273.0	273.0	273.2	273.8	274.2	274.7	275.3
107.5°	338.7	339.5	340.3	340.5	340.3	339.9	339.7	339.3
110°	382.5	383.6	384.6	384.9	384.3	383.9	383.3	382.8



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	426.4	427.7	428.9	429.4	429.4	429.3	429.2	429.1
115°	493.2	493.5	493.7	493.7	493.5	493.2	492.9	492.7
117.5°	560.6	560.5	560.4	560.1	559.4	558.7	557.9	557.2
120°	605.5	605.3	605.0	604.6	604.1	603.6	603.1	602.5
122.5°	650.9	650.2	649.6	648.9	648.2	647.5	646.8	646.0
125°	718.5	717.5	716.4	715.4	714.3	713.3	712.3	711.2
127.5°	785.2	783.7	782.3	781.0	779.8	778.6	777.5	776.2
130°	829.5	828.5	827.4	826.0	824.2	822.4	820.6	818.9
132.5°	872.5	871.3	870.1	868.8	867.4	866.0	864.6	863.3
135°	937.0	936.0	935.0	934.2	933.7	933.2	932.6	932.2
137.5°	1000.1	999.0	997.9	996.9	996.0	995.0	994.0	993.0
140°	1041.5	1041.3	1041.0	1040.0	1038.2	1036.3	1034.6	1032.8
142.5°	1080.4	1080.1	1079.9	1079.1	1077.6	1076.3	1074.9	1073.5
145°	1137.5	1137.3	1137.0	1136.4	1135.3	1134.3	1133.3	1132.2
147.5°	1191.4	1191.4	1191.4	1190.7	1189.2	1187.6	1186.1	1184.5
150°	1224.8	1224.8	1224.8	1224.0	1222.4	1220.9	1219.3	1217.8
152.5°	1255.2	1255.6	1256.0	1255.5	1254.2	1252.9	1251.5	1250.2
155°	1299.7	1300.7	1301.7	1301.4	1299.6	1297.8	1295.9	1294.1
157.5°	1337.9	1339.0	1340.2	1339.9	1338.5	1337.0	1335.6	1334.2
160°	1361.5	1362.8	1364.1	1364.2	1363.2	1362.2	1361.1	1360.0
162.5°	1383.7	1385.0	1386.3	1386.1	1384.5	1382.8	1381.2	1379.5
165°	1411.8	1413.3	1414.8	1414.7	1412.9	1411.1	1409.3	1407.5
167.5°	1434.5	1436.1	1437.7	1437.7	1436.1	1434.5	1432.9	1431.3
170°	1447.0	1448.8	1450.5	1450.5	1448.8	1447.0	1445.1	1443.3
172.5°	1456.7	1458.3	1459.9	1459.8	1458.0	1456.2	1454.4	1452.6
175°	1467.2	1468.8	1470.3	1470.2	1468.4	1466.6	1464.8	1463.0
177.5°	1471.9	1473.2	1474.4	1474.4	1472.8	1471.4	1470.0	1468.6
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3

(END OF REPORT)