

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: P332742-840

Luminaire Tested: **S124DIW-S350D1560U840-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332742-840
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-S350D1560U840-4F0-1E-UDD-D1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 350 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6923.5 lumens
Efficiency: N/A
Efficacy: 129.7 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

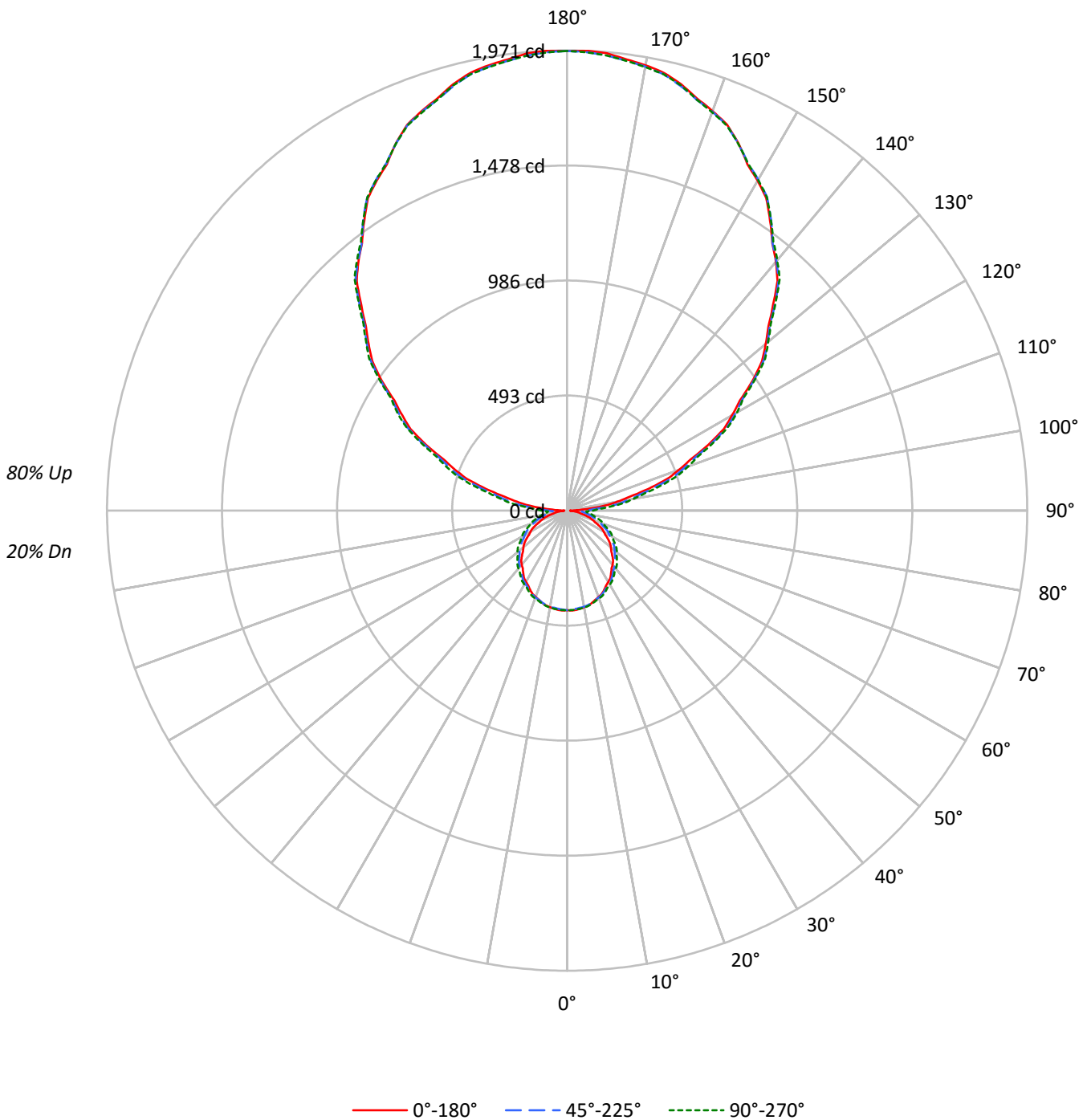
Input Watts (W): 53.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	100	100	100	100	88	88	88	88	66	66	66	46	46	46	28	28	28	20
1	91	86	82	79	80	76	73	70	57	55	53	40	39	38	24	23	23	16
2	82	75	69	64	72	66	61	57	50	47	44	35	33	31	21	20	19	13
3	75	66	59	53	66	58	52	47	44	40	36	31	28	26	18	17	16	11
4	68	58	50	44	60	51	45	40	39	34	31	27	24	22	16	15	14	9
5	62	51	43	38	55	45	39	34	34	30	26	24	21	19	15	13	12	8
6	57	46	38	32	50	41	34	29	31	26	23	22	19	16	13	11	10	7
7	53	41	33	28	46	36	30	25	28	23	20	20	17	14	12	10	9	6
8	49	37	30	25	43	33	27	22	25	21	17	18	15	13	11	9	8	5
9	45	34	26	22	40	30	24	20	23	18	15	16	13	11	10	8	7	5
10	42	31	24	19	37	27	21	17	21	17	14	15	12	10	9	8	6	4

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	0.6
10°-20°	115.8	1.7
20°-30°	175.1	2.5
30°-40°	211.9	3.1
40°-50°	224.0	3.2
50°-60°	210.8	3.0
60°-70°	174.9	2.5
70°-80°	122.9	1.8
80°-90°	75.3	1.1
90°-100°	171.1	2.5
100°-110°	415.2	6.0
110°-120°	673.4	9.7
120°-130°	872.5	12.6
130°-140°	971.9	14.0
140°-150°	951.2	13.7
150°-160°	799.1	11.5
160°-170°	531.7	7.7
170°-180°	186.2	2.7
0°-30°	331.4	4.8
0°-40°	543.2	7.8
0°-60°	978.1	14.1
0°-90°	1351.1	19.5
90°-120°	1259.8	18.2
90°-150°	4055.3	58.6
90°-180°	5572.0	80.5
0°-180°	6923.5	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°	12	48	81	103	111	11
95°	98	127	157	174	179	107
105°	359	371	394	410	419	381
115°	667	672	683	692	694	657
125°	969	969	979	984	985	863
135°	1248	1257	1260	1265	1263	965
145°	1516	1521	1523	1524	1521	948
155°	1736	1736	1734	1740	1734	798
165°	1890	1885	1882	1890	1885	532
175°	1966	1958	1957	1966	1957	187
180°	1969	1969	1969	1969	1969	



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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°	15.0	20.1	25.2	30.3	35.3	40.5	45.7	50.9	56.0	61.3	64.7
90°	12.2	20.2	28.2	36.2	44.1	51.7	59.0	66.2	73.5	80.8	85.9
92.5°	39.9	48.0	56.0	64.1	72.2	79.5	85.9	92.4	98.9	105.3	109.6
95°	97.6	104.1	110.7	117.2	123.8	130.4	137.1	143.9	150.6	157.3	161.2
97.5°	165.2	170.7	176.1	181.6	187.0	193.3	200.4	207.5	214.6	221.7	225.6
100°	218.4	222.6	226.7	230.8	234.9	240.5	247.7	254.9	262.2	269.3	272.9
102.5°	274.5	277.4	280.4	283.4	286.3	291.2	298.0	304.9	311.7	318.5	322.2
105°	359.1	361.5	364.1	366.5	368.9	372.8	378.1	383.3	388.7	393.9	397.6
107.5°	448.9	451.0	453.1	455.2	457.5	460.5	464.3	468.3	472.2	476.2	479.7
110°	509.4	511.5	513.7	515.8	518.1	520.8	524.2	527.6	530.9	534.3	536.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	572.3	573.8	575.2	576.7	578.1	580.4	583.3	586.2	589.2	592.1	594.3
115°	666.8	667.7	668.7	669.6	670.6	672.5	675.2	677.9	680.6	683.3	685.3
117.5°	756.2	757.1	757.9	758.7	759.6	761.3	764.1	766.7	769.4	772.1	773.2
120°	815.6	817.2	818.9	820.5	822.2	824.0	826.2	828.2	830.3	832.3	832.7
122.5°	877.7	878.3	878.9	879.5	880.1	881.6	884.0	886.5	888.9	891.3	892.3
125°	968.9	968.8	968.7	968.6	968.4	969.5	971.8	974.1	976.4	978.8	980.2
127.5°	1051.9	1052.8	1053.7	1054.6	1055.5	1056.7	1058.2	1059.8	1061.2	1062.7	1064.0
130°	1109.9	1110.9	1111.8	1112.7	1113.6	1114.9	1116.6	1118.3	1120.0	1121.7	1123.0
132.5°	1169.6	1170.3	1170.9	1171.5	1172.3	1173.1	1174.2	1175.3	1176.4	1177.4	1178.6
135°	1248.1	1250.1	1252.1	1254.2	1256.2	1257.6	1258.3	1259.1	1259.8	1260.5	1261.5
137.5°	1333.9	1334.7	1335.6	1336.5	1337.3	1338.2	1339.1	1340.0	1340.9	1341.8	1342.4
140°	1391.2	1391.8	1392.3	1392.9	1393.5	1393.8	1393.9	1394.0	1394.1	1394.2	1395.3
142.5°	1443.2	1443.8	1444.5	1445.1	1445.8	1445.9	1445.6	1445.3	1445.0	1444.6	1445.8
145°	1515.6	1516.8	1518.0	1519.3	1520.6	1521.4	1521.7	1522.1	1522.4	1522.7	1523.0
147.5°	1587.4	1588.9	1590.4	1592.1	1593.6	1594.2	1593.9	1593.6	1593.4	1593.1	1592.9
150°	1631.3	1632.5	1633.8	1635.1	1636.3	1636.9	1636.9	1636.9	1636.9	1636.9	1636.9
152.5°	1672.3	1673.1	1674.0	1674.8	1675.5	1676.1	1676.3	1676.6	1676.9	1677.1	1677.9
155°	1735.9	1735.9	1735.9	1735.9	1735.9	1735.8	1735.4	1735.0	1734.7	1734.3	1735.8
157.5°	1789.5	1788.9	1788.3	1787.7	1787.1	1786.8	1786.7	1786.6	1786.6	1786.5	1787.5
160°	1821.2	1820.8	1820.5	1820.2	1819.8	1819.5	1819.2	1818.8	1818.5	1818.2	1819.2
162.5°	1850.4	1849.6	1848.7	1847.8	1846.8	1846.2	1845.9	1845.6	1845.2	1844.9	1846.7
165°	1889.7	1888.6	1887.6	1886.6	1885.6	1884.8	1884.1	1883.4	1882.8	1882.1	1884.1
167.5°	1919.9	1918.4	1917.0	1915.6	1914.2	1913.5	1913.6	1913.6	1913.7	1913.8	1915.8
170°	1936.9	1935.2	1933.5	1931.8	1930.2	1929.4	1929.8	1930.2	1930.5	1930.8	1932.8
172.5°	1949.0	1947.6	1946.2	1944.8	1943.4	1942.7	1942.8	1942.9	1942.9	1943.0	1945.3
175°	1965.8	1964.1	1962.5	1960.8	1959.0	1958.0	1957.7	1957.3	1957.0	1956.7	1959.0
177.5°	1971.3	1969.9	1968.6	1967.2	1965.9	1965.2	1965.2	1965.2	1965.2	1965.2	1967.1
180°	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8



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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°	68.3	71.7	75.2	77.6	78.6	79.7	80.7	81.8
90°	91.1	96.1	101.3	104.6	106.1	107.7	109.2	110.7
92.5°	113.7	118.0	122.2	124.9	126.1	127.4	128.7	130.0
95°	165.1	169.0	172.9	175.3	176.2	177.1	178.1	179.0
97.5°	229.6	233.7	237.6	240.1	241.1	242.0	242.9	243.8
100°	276.4	279.9	283.5	285.6	286.4	287.1	287.8	288.6
102.5°	326.0	329.7	333.5	335.9	337.0	338.1	339.2	340.3
105°	401.3	405.0	408.6	411.4	413.2	415.2	417.0	418.9
107.5°	483.2	486.9	490.4	492.5	493.2	493.9	494.6	495.3
110°	537.9	539.6	541.4	543.2	545.0	546.9	548.8	550.7



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	596.5	598.7	601.0	602.6	603.7	604.7	605.8	606.8
115°	687.3	689.3	691.4	692.6	693.0	693.4	693.8	694.2
117.5°	774.3	775.3	776.4	777.0	777.2	777.3	777.5	777.7
120°	833.2	833.6	834.0	835.1	836.6	838.1	839.6	841.1
122.5°	893.3	894.2	895.2	895.4	895.0	894.5	894.1	893.6
125°	981.5	982.8	984.1	984.8	984.7	984.7	984.7	984.6
127.5°	1065.2	1066.4	1067.6	1068.3	1068.5	1068.7	1068.9	1069.0
130°	1124.2	1125.4	1126.6	1126.9	1126.2	1125.5	1124.8	1124.1
132.5°	1179.7	1180.8	1182.0	1182.7	1182.8	1182.9	1183.0	1183.1
135°	1262.6	1263.6	1264.7	1265.0	1264.6	1264.1	1263.8	1263.4
137.5°	1343.1	1343.8	1344.4	1345.1	1345.9	1346.7	1347.4	1348.1
140°	1396.3	1397.4	1398.4	1399.1	1399.3	1399.4	1399.6	1399.8
142.5°	1446.9	1448.0	1449.3	1450.0	1450.4	1450.8	1451.1	1451.5
145°	1523.3	1523.6	1523.9	1523.8	1523.2	1522.6	1522.0	1521.4
147.5°	1592.7	1592.5	1592.4	1592.3	1592.3	1592.3	1592.3	1592.3
150°	1636.9	1636.9	1636.9	1636.8	1636.4	1636.1	1635.8	1635.4
152.5°	1678.7	1679.5	1680.3	1680.3	1679.4	1678.6	1677.7	1676.8
155°	1737.1	1738.4	1739.8	1739.8	1738.4	1737.1	1735.8	1734.3
157.5°	1788.5	1789.5	1790.5	1790.4	1789.3	1788.2	1787.0	1785.8
160°	1820.2	1821.2	1822.2	1821.8	1820.2	1818.5	1816.7	1815.0
162.5°	1848.6	1850.4	1852.2	1852.3	1850.6	1849.0	1847.2	1845.5
165°	1886.1	1888.1	1890.2	1890.6	1889.2	1887.8	1886.4	1885.1
167.5°	1917.8	1919.9	1921.9	1921.9	1919.8	1917.6	1915.5	1913.4
170°	1934.9	1936.9	1938.9	1938.7	1936.4	1934.0	1931.7	1929.2
172.5°	1947.6	1949.8	1952.2	1952.2	1949.7	1947.4	1945.0	1942.7
175°	1961.5	1963.8	1966.2	1966.2	1963.8	1961.5	1959.0	1956.7
177.5°	1969.0	1970.9	1972.8	1972.7	1970.4	1968.3	1966.2	1964.0
180°	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8

(END OF REPORT)