

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: P332832-940

Luminaire Tested: **S124DIW-S1020D1560U940-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332832-940
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-S1020D1560U940-4F0-1E-UDD-D1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 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: 8581.6 lumens
Efficiency: N/A
Efficacy: 112.0 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: General Diffuse

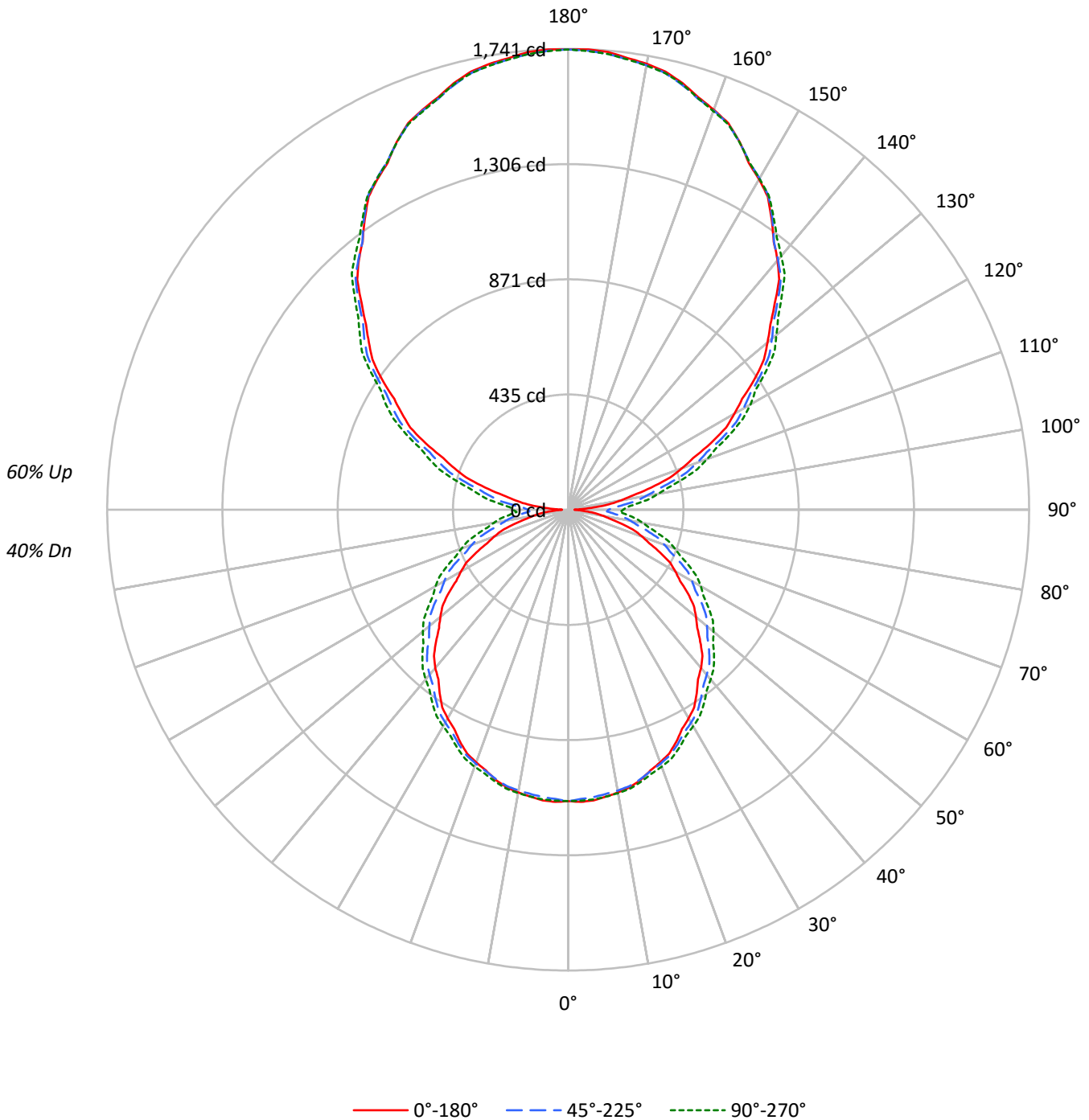
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	47	47	47	40
1	95	90	86	82	86	82	79	75	67	65	62	53	52	50	41	39	38	32
2	86	78	72	66	78	71	66	61	58	54	51	46	43	41	35	33	32	26
3	78	68	61	55	71	62	56	51	51	46	42	41	37	34	31	29	27	22
4	71	60	52	46	65	55	48	43	45	40	36	36	32	29	27	25	23	19
5	65	54	45	39	59	49	42	36	40	35	31	32	28	25	25	22	20	16
6	60	48	40	34	54	44	37	31	36	31	26	29	25	22	22	19	17	14
7	55	43	35	29	50	39	32	27	33	27	23	26	22	19	20	17	15	12
8	51	39	31	26	47	36	29	24	30	24	20	24	20	17	19	16	13	11
9	48	35	28	23	43	33	26	21	27	22	18	22	18	15	17	14	12	10
10	45	32	25	20	40	30	23	19	25	20	16	20	16	14	16	13	11	9

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	1.2
10°-20°	298.7	3.5
20°-30°	451.7	5.3
30°-40°	546.5	6.4
40°-50°	577.7	6.7
50°-60°	543.7	6.3
60°-70°	451.1	5.3
70°-80°	316.9	3.7
80°-90°	184.3	2.1
90°-100°	221.0	2.6
100°-110°	418.4	4.9
110°-120°	629.4	7.3
120°-130°	790.0	9.2
130°-140°	866.7	10.1
140°-150°	841.6	9.8
150°-160°	705.6	8.2
160°-170°	469.5	5.5
170°-180°	164.4	1.9
0°-30°	854.6	10.0
0°-40°	1401.1	16.3
0°-60°	2522.6	29.4
0°-90°	3475.0	40.5
90°-120°	1268.9	14.8
90°-150°	3767.1	43.9
90°-180°	5107.0	59.5
0°-180°	8581.6	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°	24	88	152	194	208	18
95°	97	150	210	245	258	102
105°	324	352	401	435	450	345
115°	594	606	642	666	675	586
125°	859	859	887	907	912	765
135°	1104	1112	1120	1137	1141	854
145°	1339	1343	1344	1350	1352	838
155°	1533	1533	1531	1536	1531	705
165°	1669	1665	1662	1669	1665	470
175°	1736	1729	1728	1736	1728	165
180°	1738	1738	1738	1738	1738	



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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°	37.3	49.1	61.0	72.8	84.6	96.8	109.2	121.7	134.2	146.7	155.0
90°	23.7	38.0	52.3	66.5	80.7	95.0	109.1	123.3	137.5	151.7	161.4
92.5°	47.5	61.2	74.7	88.4	102.0	115.6	129.0	142.5	156.0	169.4	178.2
95°	96.7	108.4	120.2	131.9	143.7	156.1	169.5	182.8	196.1	209.5	217.8
97.5°	155.4	165.4	175.3	185.3	195.2	207.0	220.5	234.1	247.6	261.3	269.5
100°	201.8	210.1	218.5	226.8	235.1	245.9	259.3	272.7	286.1	299.4	307.4
102.5°	251.3	258.0	264.7	271.4	278.2	288.0	301.0	313.8	326.7	339.7	347.7
105°	324.4	330.1	335.9	341.7	347.5	356.1	367.4	378.7	390.0	401.4	409.1
107.5°	403.5	408.3	413.1	418.0	422.8	430.2	440.0	449.7	459.5	469.2	476.8
110°	456.3	460.7	465.1	469.6	473.9	480.8	490.2	499.4	508.7	518.0	523.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	511.2	514.7	518.3	521.7	525.3	531.4	539.9	548.6	557.1	565.8	571.8
115°	593.6	596.1	598.5	601.0	603.5	608.8	617.0	625.2	633.3	641.5	647.2
117.5°	672.4	674.1	675.9	677.6	679.3	684.0	691.8	699.5	707.3	715.1	719.7
120°	724.2	726.2	728.2	730.2	732.2	736.7	743.8	750.8	757.9	764.9	768.9
122.5°	779.0	779.6	780.3	781.0	781.6	785.4	792.6	799.6	806.7	813.8	818.2
125°	858.7	858.4	858.2	857.9	857.6	860.8	867.3	873.9	880.4	887.0	891.5
127.5°	931.9	932.6	933.2	933.8	934.4	937.1	941.8	946.6	951.5	956.2	960.6
130°	982.6	983.2	983.8	984.4	985.0	987.6	991.9	996.3	1000.7	1005.0	1009.4
132.5°	1035.3	1035.6	1036.0	1036.4	1036.8	1038.6	1041.9	1045.2	1048.4	1051.7	1055.8
135°	1103.7	1105.5	1107.2	1109.0	1110.8	1112.7	1114.6	1116.5	1118.5	1120.3	1124.2
137.5°	1179.5	1180.1	1180.6	1181.2	1181.8	1182.8	1184.1	1185.5	1187.0	1188.4	1191.6
140°	1230.0	1230.4	1230.7	1231.0	1231.4	1231.6	1231.9	1232.2	1232.4	1232.7	1236.0
142.5°	1275.3	1275.9	1276.4	1276.9	1277.5	1277.6	1277.1	1276.8	1276.3	1275.9	1279.0
145°	1339.1	1340.0	1340.9	1341.8	1342.7	1343.4	1343.6	1344.0	1344.3	1344.5	1345.9
147.5°	1402.6	1403.7	1404.9	1406.0	1407.2	1407.7	1407.4	1407.1	1406.9	1406.7	1406.7
150°	1441.3	1442.2	1443.1	1444.0	1444.9	1445.4	1445.4	1445.4	1445.4	1445.4	1445.4
152.5°	1476.9	1477.5	1478.2	1478.8	1479.5	1480.0	1480.2	1480.4	1480.7	1480.9	1481.6
155°	1532.8	1532.8	1532.8	1532.8	1532.8	1532.7	1532.3	1532.0	1531.8	1531.4	1532.7
157.5°	1580.1	1579.6	1579.0	1578.5	1578.0	1577.7	1577.6	1577.5	1577.5	1577.4	1578.3
160°	1608.1	1607.8	1607.5	1607.2	1606.9	1606.6	1606.3	1606.0	1605.7	1605.4	1606.3
162.5°	1633.9	1633.2	1632.4	1631.6	1630.8	1630.2	1630.0	1629.7	1629.3	1629.1	1630.7
165°	1668.6	1667.7	1666.8	1665.9	1665.0	1664.3	1663.7	1663.0	1662.5	1661.9	1663.7
167.5°	1695.2	1694.0	1692.7	1691.5	1690.2	1689.6	1689.7	1689.7	1689.8	1689.9	1691.7
170°	1710.3	1708.8	1707.3	1705.8	1704.3	1703.7	1704.0	1704.3	1704.6	1704.9	1706.6
172.5°	1721.0	1719.8	1718.5	1717.3	1716.0	1715.4	1715.5	1715.6	1715.6	1715.7	1717.7
175°	1735.8	1734.3	1732.9	1731.3	1729.8	1728.9	1728.7	1728.3	1728.0	1727.8	1729.8
177.5°	1740.6	1739.5	1738.3	1737.1	1735.9	1735.3	1735.3	1735.3	1735.3	1735.3	1737.0
180°	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5



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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°	163.4	171.7	179.9	185.4	187.9	190.4	193.0	195.5
90°	171.1	180.8	190.6	196.9	199.7	202.4	205.2	208.0
92.5°	187.0	195.8	204.6	210.3	212.9	215.3	217.9	220.4
95°	226.0	234.3	242.6	248.0	250.5	252.9	255.4	257.9
97.5°	277.8	286.0	294.3	299.5	301.9	304.3	306.7	309.0
100°	315.4	323.4	331.4	336.4	338.2	340.2	342.1	344.0
102.5°	355.7	363.7	371.8	376.9	379.3	381.7	384.1	386.4
105°	416.9	424.6	432.4	437.7	440.9	444.0	447.0	450.1
107.5°	484.4	492.0	499.5	504.3	506.2	508.1	510.1	511.9
110°	529.4	535.1	540.8	545.2	548.3	551.4	554.5	557.6



TEST NUMBER: P332832-940

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	577.7	583.7	589.6	593.8	596.2	598.5	600.9	603.3
115°	652.9	658.7	664.4	668.1	669.7	671.3	672.9	674.6
117.5°	724.4	729.1	733.8	736.9	738.5	740.1	741.6	743.2
120°	772.9	776.9	780.9	784.3	787.1	789.9	792.6	795.4
122.5°	822.7	827.2	831.7	834.4	835.3	836.2	837.0	837.9
125°	896.2	900.8	905.4	908.2	909.3	910.3	911.3	912.4
127.5°	964.9	969.2	973.6	976.4	977.8	979.2	980.5	982.0
130°	1013.7	1018.1	1022.4	1024.8	1025.2	1025.6	1026.1	1026.6
132.5°	1059.9	1064.0	1068.1	1070.8	1071.9	1073.1	1074.2	1075.4
135°	1127.9	1131.7	1135.5	1137.7	1138.5	1139.2	1140.0	1140.8
137.5°	1194.8	1198.0	1201.2	1203.6	1205.2	1206.8	1208.3	1209.9
140°	1239.3	1242.5	1245.8	1247.9	1249.0	1250.1	1251.2	1252.2
142.5°	1282.1	1285.1	1288.2	1290.3	1291.4	1292.4	1293.5	1294.7
145°	1347.3	1348.6	1350.0	1350.7	1350.9	1351.1	1351.3	1351.5
147.5°	1406.7	1406.6	1406.6	1406.9	1407.5	1408.0	1408.6	1409.2
150°	1445.4	1445.4	1445.4	1445.3	1444.9	1444.7	1444.4	1444.0
152.5°	1482.3	1483.0	1483.7	1483.7	1482.9	1482.2	1481.4	1480.6
155°	1533.8	1535.0	1536.2	1536.2	1535.0	1533.8	1532.7	1531.4
157.5°	1579.2	1580.1	1581.0	1580.9	1579.9	1579.0	1577.9	1576.9
160°	1607.2	1608.1	1609.0	1608.6	1607.2	1605.7	1604.2	1602.7
162.5°	1632.3	1633.9	1635.5	1635.6	1634.1	1632.6	1631.1	1629.6
165°	1665.4	1667.2	1669.0	1669.4	1668.1	1667.0	1665.7	1664.6
167.5°	1693.4	1695.2	1697.0	1697.0	1695.1	1693.3	1691.4	1689.5
170°	1708.5	1710.3	1712.1	1711.9	1709.9	1707.7	1705.7	1703.5
172.5°	1719.8	1721.7	1723.8	1723.8	1721.6	1719.6	1717.4	1715.4
175°	1732.0	1734.0	1736.2	1736.2	1734.0	1732.0	1729.8	1727.8
177.5°	1738.7	1740.3	1742.0	1741.9	1739.9	1738.0	1736.2	1734.2
180°	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5

(END OF REPORT)