

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: P332230-930

Luminaire Tested: **S123DIW-S1165D1320U930-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332230-930  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1165D1320U930-4F0-1E-UDD-D  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8260.5 lumens  
Efficiency: N/A  
Efficacy: 108.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

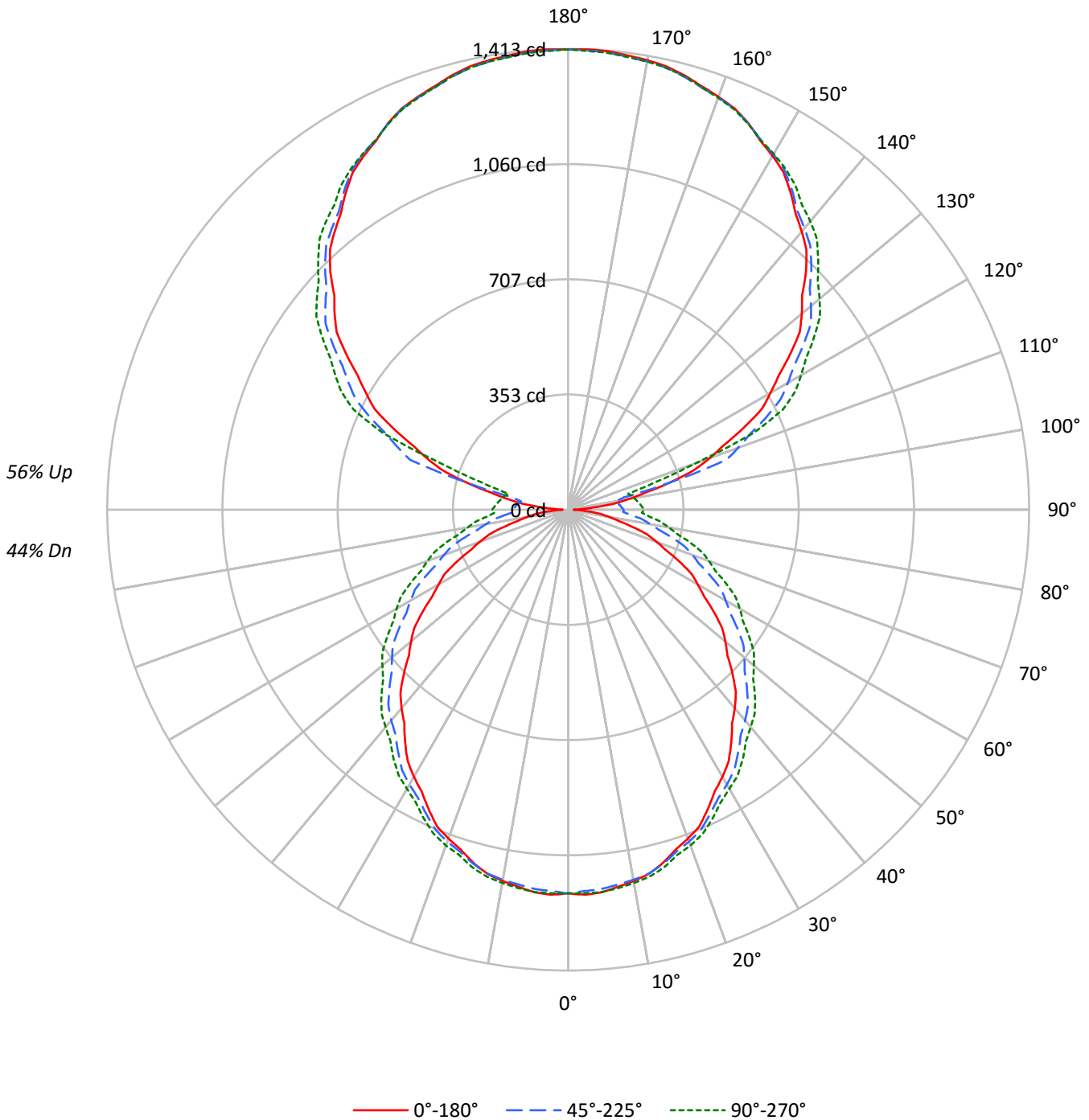
Input Watts (W): 76.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44				
1	95	91	87	83	87	83	79	76	69	66	64	55	54	52	43	42	41	35				
2	87	79	72	67	79	72	67	62	60	55	52	48	45	43	37	35	34	29				
3	79	69	61	55	72	63	56	51	52	47	43	42	39	36	33	30	28	24				
4	72	61	53	46	65	56	49	43	46	41	37	37	33	30	29	26	24	20				
5	66	54	46	40	60	50	42	37	41	36	31	33	29	26	26	23	21	17				
6	61	48	40	34	55	44	37	32	37	31	27	30	26	23	24	21	18	15				
7	56	43	35	30	51	40	33	28	33	28	24	27	23	20	22	18	16	13				
8	52	39	32	26	47	36	29	24	30	25	21	25	21	18	20	17	14	12				
9	48	36	28	23	44	33	26	22	28	23	19	23	19	16	18	15	13	11				
10	45	33	26	21	41	30	24	19	26	20	17	21	17	14	17	14	12	10				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	12664	12664	12664
5°	12703	12344	12352
10°	12589	12060	12000
15°	12427	11738	11616
20°	12195	11369	11194
25°	11908	10944	10750
30°	11616	10563	10299
35°	11287	10159	9939
40°	10973	9792	9555
45°	10626	9438	9247
50°	10281	9090	8908
55°	9903	8734	8603
60°	9533	8371	8291
65°	9155	7984	7918
70°	8585	7551	7537
75°	7860	7053	7148
80°	7035	6564	6706
85°	6264	6229	6450



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	111.5	1.4
10°-20°	317.9	3.8
20°-30°	475.5	5.8
30°-40°	567.9	6.9
40°-50°	594.1	7.2
50°-60°	557.5	6.7
60°-70°	465.7	5.6
70°-80°	333.2	4.0
80°-90°	202.6	2.5
90°-100°	176.0	2.1
100°-110°	336.1	4.1
110°-120°	648.5	7.9
120°-130°	782.8	9.5
130°-140°	814.8	9.9
140°-150°	750.6	9.1
150°-160°	602.8	7.3
160°-170°	389.0	4.7
170°-180°	134.1	1.6
0°-30°	905.0	11.0
0°-40°	1472.8	17.8
0°-60°	2624.5	31.8
0°-90°	3626.0	43.9
90°-120°	1160.5	14.0
90°-150°	3508.7	42.5
90°-180°	4635.0	56.1
0°-180°	8260.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1176	1176	1176	1176	1176	
5°	1178	1175	1168	1177	1176	112
15°	1121	1125	1124	1136	1136	316
25°	1012	1025	1029	1045	1046	466
35°	872	892	909	927	933	545
45°	713	743	775	799	810	549
55°	543	586	632	665	677	486
65°	376	426	482	519	533	371
75°	204	264	328	369	386	218
85°	63	127	195	237	251	66
90°	18	91	170	216	233	14
95°	78	89	159	205	219	90
105°	323	360	326	185	190	342
115°	592	616	670	709	725	585
125°	830	840	880	908	920	741
135°	1031	1037	1054	1079	1084	793
145°	1188	1194	1196	1208	1214	743
155°	1307	1305	1306	1311	1305	602
165°	1379	1376	1374	1382	1375	389
175°	1411	1406	1407	1413	1406	134
180°	1411	1411	1411	1411	1411	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5
2.5°	1181.6	1181.0	1180.2	1179.6	1178.8	1177.6	1175.8	1173.9	1172.2	1170.4	1172.2
5°	1177.8	1177.2	1176.6	1176.1	1175.5	1174.4	1172.6	1170.9	1169.2	1167.5	1169.8
7.5°	1166.2	1166.4	1166.4	1166.6	1166.7	1166.0	1164.2	1162.6	1161.0	1159.3	1162.1
10°	1156.0	1156.6	1157.2	1157.7	1158.3	1157.8	1156.4	1155.0	1153.6	1152.1	1155.0
12.5°	1143.7	1144.4	1145.3	1146.1	1146.9	1146.8	1145.8	1144.8	1143.9	1142.9	1145.5
15°	1121.4	1122.3	1123.1	1124.0	1124.8	1125.1	1124.8	1124.5	1124.2	1124.0	1126.8
17.5°	1093.2	1094.9	1096.6	1098.3	1100.0	1100.8	1100.7	1100.6	1100.5	1100.3	1102.9
20°	1072.7	1074.4	1076.1	1077.8	1079.5	1080.7	1081.2	1081.8	1082.4	1083.0	1085.5
22.5°	1051.2	1052.9	1054.6	1056.3	1058.0	1059.2	1060.1	1060.9	1061.6	1062.4	1065.7
25°	1012.4	1015.3	1018.1	1021.0	1023.9	1025.6	1026.5	1027.4	1028.3	1029.1	1032.8
27.5°	973.5	976.7	980.0	983.3	986.4	989.0	990.8	992.6	994.5	996.3	999.5
30°	945.8	949.5	953.2	956.9	960.6	963.6	965.9	968.2	970.5	972.7	976.2
32.5°	915.0	919.2	923.3	927.5	931.6	935.2	938.2	941.2	944.1	947.1	950.7
35°	871.5	876.0	880.6	885.2	889.7	893.8	897.6	901.2	904.9	908.7	912.9
37.5°	825.3	830.5	835.6	840.7	845.9	850.7	855.2	859.8	864.4	868.9	873.8
40°	794.6	799.7	804.9	809.9	815.1	820.5	826.2	831.8	837.6	843.3	848.2
42.5°	760.8	767.0	773.3	779.5	785.8	791.9	797.9	803.7	809.7	815.6	820.9
45°	712.6	719.4	726.2	733.0	739.9	746.9	754.0	761.1	768.3	775.3	780.7
47.5°	662.0	669.8	677.5	685.3	693.1	701.0	709.1	717.3	725.5	733.6	739.6
50°	629.2	637.2	645.2	653.1	661.1	669.5	678.4	687.2	696.0	704.8	711.4
52.5°	594.4	602.8	611.2	619.7	628.1	637.2	646.9	656.6	666.4	676.1	683.0
55°	543.4	552.8	562.1	571.6	581.0	590.8	601.0	611.3	621.6	631.9	639.5
57.5°	493.7	503.4	513.2	523.0	532.9	543.4	554.6	565.8	577.0	588.2	596.0
60°	458.8	469.0	479.3	489.6	499.8	510.8	522.4	534.1	545.8	557.5	565.5
62.5°	426.0	436.5	446.9	457.5	467.9	479.3	491.7	504.0	516.4	528.8	536.7
65°	375.5	386.6	397.7	408.8	420.0	431.8	444.3	456.8	469.4	481.8	490.4
67.5°	324.2	336.1	347.8	359.6	371.4	383.7	396.4	409.2	421.9	434.7	444.0
70°	288.4	300.6	312.8	325.1	337.4	350.3	363.9	377.6	391.3	405.0	414.1
72.5°	255.5	267.8	280.1	292.3	304.5	317.7	331.8	345.9	360.1	374.2	383.6
75°	203.7	217.2	230.6	243.9	257.3	271.1	285.4	299.6	313.8	328.1	337.5
77.5°	158.7	172.2	185.6	199.2	212.6	226.6	240.9	255.3	269.6	284.0	293.9
80°	126.9	140.8	154.8	168.8	182.7	197.1	211.9	226.7	241.5	256.3	266.0
82.5°	99.2	113.4	127.6	141.8	155.9	170.6	185.6	200.6	215.6	230.6	240.4
85°	62.8	77.0	91.3	105.5	119.8	134.4	149.5	164.6	179.7	194.8	204.5
87.5°	34.3	48.9	63.6	78.3	92.9	107.8	122.9	138.0	153.2	168.3	178.1
90°	17.7	34.0	50.3	66.5	82.8	99.8	117.3	134.9	152.5	170.0	180.6
92.5°	35.1	47.0	59.0	70.9	82.9	97.1	113.7	130.3	146.8	163.5	174.4
95°	78.0	79.6	81.1	82.8	84.3	93.3	109.8	126.4	142.8	159.4	169.8
97.5°	141.0	146.8	152.5	158.3	164.0	165.2	161.8	158.3	154.8	151.4	161.8
100°	188.7	202.4	216.2	230.0	243.8	239.0	215.8	192.6	169.3	146.1	156.2
102.5°	243.0	254.6	266.1	277.7	289.3	281.6	254.8	228.0	201.1	174.3	176.6
105°	322.7	332.1	341.4	350.8	360.3	360.6	351.9	343.2	334.4	325.7	292.4
107.5°	405.4	413.3	421.1	429.0	436.8	448.3	463.2	478.1	493.0	507.9	485.3
110°	460.6	467.6	474.6	481.5	488.5	499.0	513.0	526.9	540.9	554.8	554.6



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	514.2	520.2	526.0	531.9	537.9	547.5	561.0	574.5	588.0	601.5	608.8
115°	592.4	597.2	602.0	606.9	611.7	620.3	632.6	645.0	657.3	669.7	678.8
117.5°	669.1	672.9	676.8	680.6	684.4	691.7	702.4	713.1	723.8	734.5	743.1
120°	715.9	719.4	722.9	726.4	730.0	736.8	746.9	757.0	767.1	777.1	785.6
122.5°	764.5	767.0	769.5	771.9	774.4	780.6	790.4	800.2	810.0	819.9	827.4
125°	829.9	831.8	833.6	835.5	837.4	842.9	852.1	861.3	870.5	879.7	886.1
127.5°	894.5	896.1	897.6	899.3	900.8	905.6	913.5	921.5	929.4	937.4	943.8
130°	934.7	936.4	937.9	939.5	941.1	945.2	951.8	958.5	965.1	971.7	978.0
132.5°	972.3	974.1	975.9	977.7	979.6	983.1	988.4	993.7	999.0	1004.3	1010.4
135°	1030.9	1032.1	1033.2	1034.3	1035.4	1038.0	1042.1	1046.1	1050.2	1054.3	1060.1
137.5°	1081.0	1082.6	1084.1	1085.7	1087.2	1089.2	1091.4	1093.6	1095.9	1098.2	1103.8
140°	1113.5	1114.9	1116.4	1117.8	1119.2	1120.6	1122.2	1123.7	1125.3	1126.8	1132.0
142.5°	1144.6	1145.7	1147.0	1148.1	1149.2	1150.3	1151.2	1152.0	1152.9	1153.8	1158.3
145°	1188.0	1189.4	1190.7	1192.0	1193.4	1194.3	1194.7	1195.2	1195.7	1196.1	1198.9
147.5°	1227.6	1228.7	1229.7	1230.8	1231.9	1232.7	1233.1	1233.5	1234.0	1234.5	1235.7
150°	1252.8	1253.4	1254.2	1254.8	1255.6	1256.1	1256.6	1257.0	1257.5	1258.0	1258.5
152.5°	1275.4	1275.7	1276.0	1276.4	1276.7	1277.0	1277.3	1277.6	1277.8	1278.1	1279.0
155°	1307.3	1306.8	1306.4	1305.9	1305.4	1305.3	1305.5	1305.8	1306.0	1306.2	1307.4
157.5°	1332.0	1332.0	1332.0	1331.9	1331.8	1331.7	1331.5	1331.2	1331.0	1330.7	1332.1
160°	1347.1	1346.9	1346.6	1346.4	1346.1	1346.0	1345.7	1345.5	1345.2	1345.0	1346.4
162.5°	1361.4	1360.7	1360.2	1359.5	1358.9	1358.5	1358.3	1358.0	1357.8	1357.6	1359.2
165°	1378.6	1377.9	1377.1	1376.5	1375.7	1375.3	1375.1	1374.8	1374.6	1374.4	1376.2
167.5°	1392.0	1391.1	1390.1	1389.2	1388.2	1387.8	1387.8	1387.8	1387.8	1387.8	1389.7
170°	1399.5	1398.6	1397.7	1396.8	1395.8	1395.3	1395.3	1395.3	1395.3	1395.3	1397.2
172.5°	1404.6	1403.5	1402.3	1401.2	1400.1	1399.6	1399.8	1400.0	1400.2	1400.4	1402.2
175°	1411.0	1409.9	1408.8	1407.5	1406.4	1405.9	1406.1	1406.4	1406.6	1406.9	1408.5
177.5°	1412.8	1411.8	1410.9	1410.0	1409.0	1408.7	1408.8	1409.0	1409.2	1409.4	1410.9
180°	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5	1176.5
2.5°	1173.9	1175.8	1177.6	1178.4	1178.2	1177.9	1177.7	1177.5
5°	1172.1	1174.4	1176.6	1177.6	1177.4	1177.0	1176.8	1176.5
7.5°	1165.0	1167.8	1170.7	1172.0	1171.6	1171.3	1170.9	1170.6
10°	1157.8	1160.7	1163.5	1164.7	1164.1	1163.5	1162.9	1162.4
12.5°	1148.2	1150.8	1153.4	1154.4	1153.8	1153.2	1152.7	1152.1
15°	1129.6	1132.5	1135.3	1136.6	1136.4	1136.0	1135.8	1135.5
17.5°	1105.5	1108.1	1110.6	1111.7	1111.3	1110.9	1110.5	1110.1
20°	1088.0	1090.6	1093.2	1094.6	1094.9	1095.2	1095.4	1095.8
22.5°	1068.9	1072.2	1075.4	1076.9	1076.8	1076.6	1076.4	1076.3
25°	1036.5	1040.2	1043.9	1045.8	1045.8	1045.8	1045.8	1045.8
27.5°	1002.7	1005.8	1009.0	1010.7	1011.0	1011.2	1011.5	1011.7
30°	979.6	983.0	986.3	988.1	988.1	988.1	988.1	988.1
32.5°	954.4	958.1	961.6	963.8	964.5	965.2	965.9	966.5
35°	917.2	921.5	925.7	928.5	929.6	930.7	931.9	932.9
37.5°	878.6	883.5	888.3	891.1	892.1	893.0	893.9	894.8
40°	853.0	857.8	862.7	865.6	866.7	867.9	869.0	870.2
42.5°	826.2	831.5	836.8	840.2	841.8	843.4	845.0	846.6
45°	786.2	791.6	797.0	800.9	803.2	805.4	807.7	809.9
47.5°	745.8	751.9	758.0	761.9	763.6	765.4	767.2	768.9
50°	718.0	724.6	731.1	735.3	737.4	739.3	741.4	743.3
52.5°	689.7	696.5	703.3	707.9	710.4	712.8	715.3	717.7
55°	647.2	654.8	662.6	667.6	669.8	672.1	674.4	676.7
57.5°	603.7	611.5	619.2	624.4	627.1	629.8	632.5	635.1
60°	573.4	581.4	589.4	594.9	598.1	601.2	604.3	607.5
62.5°	544.7	552.7	560.7	566.1	569.0	571.9	574.9	577.7
65°	499.0	507.5	516.1	521.7	524.6	527.4	530.3	533.1
67.5°	453.4	462.8	472.1	477.9	480.4	482.7	485.1	487.5
70°	423.2	432.4	441.4	447.4	450.3	453.1	455.9	458.8
72.5°	392.9	402.3	411.6	417.7	420.5	423.4	426.2	429.1
75°	346.9	356.3	365.7	372.1	375.5	379.0	382.4	385.7
77.5°	303.8	313.7	323.7	329.9	332.6	335.2	337.8	340.4
80°	275.7	285.4	295.1	301.3	304.2	307.0	309.9	312.7
82.5°	250.1	259.8	269.4	275.7	278.5	281.4	284.2	287.1
85°	214.2	223.9	233.5	239.8	242.6	245.5	248.3	251.2
87.5°	188.0	197.9	207.8	214.2	217.1	220.0	223.0	225.9
90°	191.2	201.8	212.5	219.4	222.7	226.0	229.3	232.7
92.5°	185.3	196.3	207.2	214.2	217.0	220.0	222.8	225.8
95°	180.3	190.8	201.2	207.9	210.7	213.5	216.4	219.2
97.5°	172.1	182.5	192.8	199.5	202.6	205.7	208.8	211.8
100°	166.3	176.4	186.6	193.1	196.2	199.3	202.4	205.5
102.5°	178.8	181.1	183.4	186.1	189.4	192.7	195.9	199.2
105°	259.2	225.9	192.7	177.6	180.6	183.6	186.6	189.6
107.5°	462.8	440.1	417.5	391.9	363.4	334.8	306.2	277.7
110°	554.2	554.0	553.7	538.0	507.0	476.0	444.9	413.8





TEST NUMBER: P332230-930

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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	616.1	623.5	630.8	632.2	627.6	623.1	618.6	614.1
115°	688.0	697.2	706.3	712.5	715.8	718.9	722.1	725.4
117.5°	751.8	760.4	769.1	774.6	777.0	779.4	781.8	784.2
120°	794.0	802.4	810.8	816.0	818.0	820.0	822.0	824.0
122.5°	835.1	842.8	850.4	855.2	857.5	859.7	861.8	864.0
125°	892.6	899.0	905.5	910.0	912.4	914.8	917.3	919.7
127.5°	950.1	956.6	963.0	966.9	968.3	969.8	971.3	972.7
130°	984.4	990.8	997.0	1000.9	1002.1	1003.3	1004.6	1005.8
132.5°	1016.5	1022.6	1028.7	1032.5	1033.7	1035.0	1036.3	1037.6
135°	1065.9	1071.8	1077.6	1080.8	1081.6	1082.3	1083.0	1083.8
137.5°	1109.5	1115.1	1120.7	1124.0	1124.9	1125.9	1126.9	1127.8
140°	1137.3	1142.5	1147.7	1150.7	1151.7	1152.7	1153.6	1154.5
142.5°	1162.9	1167.4	1172.0	1174.7	1175.5	1176.2	1177.0	1177.8
145°	1201.7	1204.4	1207.1	1209.1	1210.2	1211.4	1212.5	1213.7
147.5°	1236.8	1238.0	1239.1	1239.7	1239.6	1239.6	1239.5	1239.5
150°	1258.9	1259.4	1259.9	1260.0	1259.9	1259.8	1259.6	1259.6
152.5°	1279.8	1280.7	1281.5	1281.4	1280.4	1279.5	1278.6	1277.6
155°	1308.6	1309.7	1310.9	1310.8	1309.4	1308.0	1306.6	1305.2
157.5°	1333.6	1335.0	1336.4	1336.1	1334.3	1332.5	1330.6	1328.9
160°	1347.8	1349.2	1350.6	1350.5	1348.8	1347.2	1345.6	1343.9
162.5°	1360.7	1362.4	1363.9	1364.0	1362.5	1361.1	1359.7	1358.2
165°	1378.1	1380.0	1381.9	1381.9	1380.3	1378.7	1377.0	1375.4
167.5°	1391.6	1393.3	1395.2	1395.2	1393.3	1391.6	1389.7	1387.8
170°	1399.1	1400.9	1402.8	1402.8	1400.9	1399.1	1397.2	1395.3
172.5°	1404.1	1406.0	1407.9	1407.7	1405.7	1403.6	1401.6	1399.5
175°	1410.1	1411.8	1413.4	1413.2	1411.4	1409.6	1407.7	1405.8
177.5°	1412.3	1413.9	1415.4	1415.2	1413.3	1411.4	1409.6	1407.7
180°	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0

(END OF REPORT)