

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: P332231

Luminaire Tested: **S123DIW-S1165D1320U835-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332231  
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-S1165D1320U835-4F0-1E-UDD-D1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, DROP 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: 9428.5 lumens  
Efficiency: N/A  
Efficacy: 123.7 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

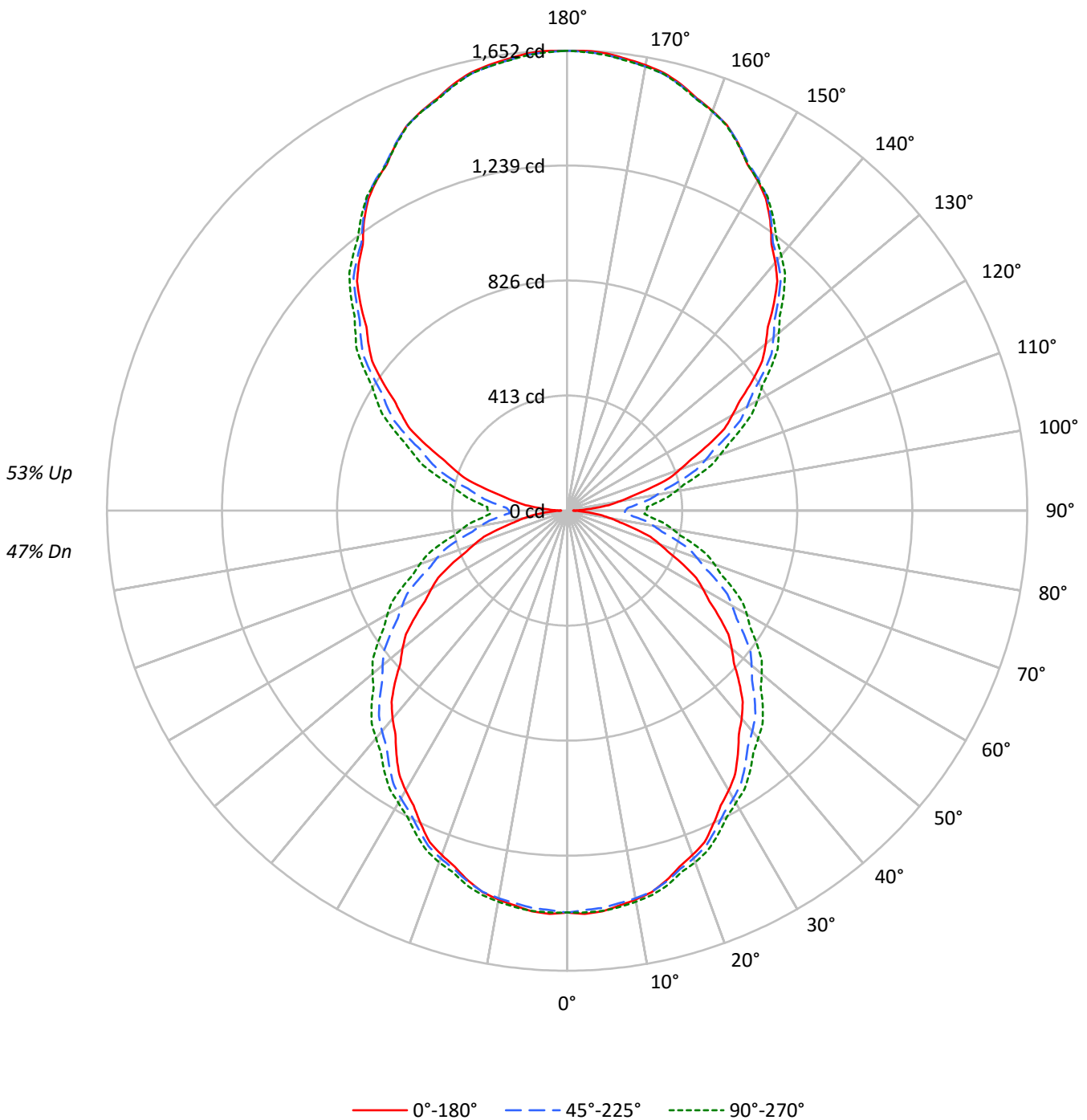
Input Watts (W): 76.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20										
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	50	30	10	0														
RCR																																						
0	106	106	106	106	98	98	98	98	82	82	82	67	67	67	54	54	54	47						47														
1	96	91	87	83	88	84	80	77	70	67	65	57	56	54	46	44	43	38						38														
2	87	79	73	67	80	73	67	62	61	57	53	50	47	44	40	38	36	31						31														
3	79	69	62	56	72	64	57	52	53	48	44	44	40	37	35	32	30	26						26														
4	72	61	53	47	66	56	49	44	47	42	37	39	35	31	31	28	25	22						22														
5	66	54	46	40	61	50	43	37	42	36	32	35	30	27	28	25	22	19						19														
6	61	49	40	34	56	45	37	32	38	32	28	31	27	23	25	22	19	16						16														
7	56	44	36	30	51	40	33	28	34	29	24	28	24	21	23	20	17	14						14														
8	52	40	32	26	48	37	30	25	31	26	22	26	22	18	21	18	15	13						13														
9	49	36	29	23	45	34	27	22	29	23	19	24	20	16	19	16	14	11						11														
10	45	33	26	21	42	31	24	20	26	21	17	22	18	15	18	15	12	10						10														

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

	0°	45°	90°
0°	15532	15532	15532
5°	15581	15141	15150
10°	15441	14792	14718
15°	15242	14397	14247
20°	14958	13944	13729
25°	14607	13423	13185
30°	14248	12956	12632
35°	13844	12460	12191
40°	13459	12010	11719
45°	13033	11577	11342
50°	12611	11149	10926
55°	12146	10713	10553
60°	11692	10267	10169
65°	11230	9793	9712
70°	10529	9260	9244
75°	9643	8650	8768
80°	8626	8052	8224
85°	7681	7639	7911



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	136.8	1.5
10°-20°	390.0	4.1
20°-30°	583.2	6.2
30°-40°	696.5	7.4
40°-50°	728.7	7.7
50°-60°	683.9	7.3
60°-70°	571.2	6.1
70°-80°	408.7	4.3
80°-90°	248.6	2.6
90°-100°	260.5	2.8
100°-110°	434.3	4.6
110°-120°	622.6	6.6
120°-130°	763.1	8.1
130°-140°	828.8	8.8
140°-150°	799.8	8.5
150°-160°	669.9	7.1
160°-170°	445.9	4.7
170°-180°	156.2	1.7
0°-30°	1110.0	11.8
0°-40°	1806.5	19.2
0°-60°	3219.1	34.1
0°-90°	4447.5	47.2
90°-120°	1317.4	14.0
90°-150°	3709.1	39.3
90°-180°	4981.0	52.8
0°-180°	9428.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1443	1443	1443	1443	1443	
5°	1445	1441	1432	1444	1443	137
15°	1375	1380	1379	1393	1393	387
25°	1242	1257	1262	1282	1283	572
35°	1069	1094	1114	1137	1144	668
45°	874	912	951	980	993	674
55°	666	719	775	816	830	597
65°	461	522	591	636	654	455
75°	250	324	402	452	473	267
85°	77	156	239	290	308	81
90°	22	112	209	265	286	19
95°	94	165	252	303	321	99
105°	304	347	424	466	485	325
115°	559	584	636	673	686	553
125°	811	818	858	885	892	724
135°	1050	1057	1072	1094	1100	809
145°	1271	1272	1276	1287	1289	793
155°	1454	1454	1455	1460	1451	669
165°	1584	1580	1580	1587	1578	446
175°	1647	1642	1642	1649	1641	156
180°	1651	1651	1651	1651	1651	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0
2.5°	1449.3	1448.5	1447.6	1446.8	1445.9	1444.4	1442.2	1439.9	1437.7	1435.5	1437.7
5°	1444.6	1443.9	1443.2	1442.5	1441.8	1440.4	1438.3	1436.2	1434.1	1432.0	1434.8
7.5°	1430.4	1430.6	1430.7	1430.9	1431.0	1430.1	1428.0	1426.0	1424.0	1421.9	1425.4
10°	1417.9	1418.6	1419.3	1420.0	1420.7	1420.1	1418.4	1416.6	1414.9	1413.1	1416.6
12.5°	1402.8	1403.7	1404.7	1405.7	1406.7	1406.6	1405.4	1404.2	1403.0	1401.8	1405.0
15°	1375.4	1376.5	1377.5	1378.6	1379.6	1380.0	1379.6	1379.3	1378.9	1378.6	1382.1
17.5°	1340.8	1342.9	1345.0	1347.1	1349.2	1350.2	1350.1	1349.9	1349.8	1349.6	1352.8
20°	1315.7	1317.8	1319.9	1322.0	1324.1	1325.5	1326.2	1326.9	1327.6	1328.3	1331.4
22.5°	1289.3	1291.4	1293.5	1295.6	1297.7	1299.2	1300.2	1301.2	1302.1	1303.1	1307.1
25°	1241.8	1245.3	1248.8	1252.3	1255.8	1258.0	1259.1	1260.1	1261.2	1262.2	1266.8
27.5°	1194.0	1198.0	1202.0	1206.0	1209.9	1213.1	1215.3	1217.5	1219.8	1222.0	1225.9
30°	1160.1	1164.6	1169.1	1173.7	1178.2	1181.9	1184.7	1187.5	1190.3	1193.1	1197.3
32.5°	1122.3	1127.4	1132.5	1137.6	1142.7	1147.1	1150.7	1154.4	1158.0	1161.6	1166.1
35°	1068.9	1074.5	1080.1	1085.7	1091.3	1096.3	1100.9	1105.4	1109.9	1114.5	1119.7
37.5°	1012.3	1018.6	1024.9	1031.2	1037.5	1043.4	1049.0	1054.6	1060.2	1065.8	1071.7
40°	974.6	980.9	987.2	993.4	999.7	1006.4	1013.4	1020.3	1027.3	1034.3	1040.3
42.5°	933.1	940.8	948.5	956.1	963.8	971.3	978.6	985.8	993.1	1000.4	1006.9
45°	874.0	882.4	890.7	899.1	907.5	916.1	924.8	933.5	942.3	951.0	957.6
47.5°	812.0	821.5	831.0	840.6	850.1	859.8	869.8	879.8	889.8	899.8	907.2
50°	771.8	781.6	791.4	801.1	810.9	821.2	832.1	842.9	853.7	864.5	872.6
52.5°	729.1	739.4	749.7	760.1	770.4	781.6	793.5	805.4	817.4	829.3	837.7
55°	666.5	678.0	689.5	701.1	712.6	724.6	737.2	749.8	762.4	775.0	784.4
57.5°	605.5	617.5	629.5	641.5	653.6	666.5	680.2	694.0	707.7	721.5	731.0
60°	562.7	575.3	587.9	600.5	613.0	626.5	640.8	655.1	669.5	683.8	693.6
62.5°	522.5	535.4	548.2	561.1	573.9	587.9	603.1	618.2	633.4	648.6	658.3
65°	460.6	474.2	487.8	501.4	515.1	529.6	544.9	560.3	575.7	591.0	601.5
67.5°	397.7	412.2	426.6	441.1	455.5	470.6	486.2	501.9	517.5	533.2	544.6
70°	353.7	368.7	383.7	398.7	413.8	429.7	446.4	463.2	480.0	496.7	507.9
72.5°	313.4	328.5	343.5	358.5	373.5	389.7	407.0	424.3	441.7	459.0	470.5
75°	249.9	266.4	282.8	299.2	315.6	332.5	350.0	367.5	384.9	402.4	413.9
77.5°	194.6	211.2	227.7	244.3	260.8	277.9	295.5	313.1	330.7	348.3	360.5
80°	155.6	172.7	189.9	207.0	224.1	241.7	259.9	278.1	296.2	314.4	326.3
82.5°	121.7	139.1	156.5	173.9	191.2	209.2	227.6	246.1	264.5	282.9	294.8
85°	77.0	94.5	112.0	129.4	146.9	164.9	183.4	201.9	220.4	238.9	250.8
87.5°	42.1	60.0	78.0	96.0	114.0	132.2	150.8	169.4	187.9	206.5	218.6
90°	21.7	41.7	61.7	81.7	101.7	122.5	144.1	165.6	187.2	208.8	221.8
92.5°	50.6	68.0	85.4	102.8	120.2	138.7	158.4	178.0	197.7	217.4	229.9
95°	93.8	109.5	125.1	140.7	156.4	173.9	193.3	212.8	232.2	251.6	263.6
97.5°	151.3	165.1	178.9	192.7	206.5	222.4	240.4	258.5	276.5	294.5	306.2
100°	190.5	203.4	216.4	229.3	242.2	257.4	274.9	292.4	309.9	327.4	338.4
102.5°	236.0	247.1	258.2	269.3	280.4	294.8	312.4	330.1	347.8	365.5	376.2
105°	304.4	313.4	322.3	331.3	340.2	353.5	371.1	388.8	406.4	424.0	433.8
107.5°	382.4	389.9	397.3	404.8	412.3	423.7	439.0	454.2	469.5	484.8	495.1
110°	430.9	437.8	444.7	451.5	458.4	469.1	483.7	498.2	512.8	527.3	537.5



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	482.8	488.3	493.9	499.4	504.9	514.4	527.9	541.5	555.0	568.5	578.7
115°	559.1	564.1	569.2	574.2	579.3	587.8	599.8	611.8	623.8	635.8	644.5
117.5°	637.1	640.3	643.4	646.6	649.7	656.9	667.9	679.0	690.0	701.1	709.3
120°	684.6	688.1	691.6	695.0	698.5	705.3	715.4	725.5	735.5	745.6	753.4
122.5°	735.4	737.6	739.8	742.0	744.2	750.4	760.6	770.8	781.0	791.2	798.2
125°	811.4	812.3	813.2	814.0	814.9	820.1	829.7	839.2	848.8	858.3	864.5
127.5°	883.0	884.5	886.0	887.5	889.0	893.6	901.4	909.1	916.9	924.6	929.9
130°	930.8	932.7	934.7	936.6	938.6	942.6	948.7	954.9	961.0	967.1	972.6
132.5°	977.2	979.5	981.7	983.9	986.2	989.8	994.7	999.7	1004.6	1009.6	1014.6
135°	1049.8	1051.2	1052.6	1053.9	1055.3	1057.8	1061.3	1064.9	1068.5	1072.0	1077.1
137.5°	1116.9	1118.1	1119.3	1120.4	1121.6	1123.6	1126.5	1129.4	1132.4	1135.3	1139.6
140°	1162.4	1163.8	1165.2	1166.7	1168.1	1169.5	1170.9	1172.2	1173.5	1174.9	1179.8
142.5°	1204.9	1206.1	1207.2	1208.4	1209.6	1210.5	1211.2	1212.0	1212.7	1213.4	1217.8
145°	1271.3	1271.5	1271.8	1272.0	1272.2	1272.8	1273.6	1274.5	1275.4	1276.2	1278.7
147.5°	1327.8	1328.9	1329.9	1331.0	1332.0	1332.9	1333.7	1334.5	1335.3	1336.1	1337.0
150°	1368.3	1368.9	1369.5	1370.0	1370.6	1371.2	1371.8	1372.3	1372.9	1373.5	1373.5
152.5°	1401.5	1402.3	1403.1	1403.9	1404.7	1405.3	1405.7	1406.0	1406.4	1406.7	1407.2
155°	1453.9	1453.9	1453.9	1453.9	1453.9	1454.1	1454.3	1454.6	1454.9	1455.2	1456.4
157.5°	1498.5	1498.2	1497.8	1497.5	1497.1	1497.1	1497.3	1497.5	1497.8	1498.0	1499.2
160°	1526.5	1526.0	1525.4	1524.8	1524.2	1523.9	1523.9	1523.9	1523.9	1523.9	1525.4
162.5°	1551.4	1550.6	1549.8	1549.0	1548.2	1547.9	1548.2	1548.4	1548.6	1548.8	1550.3
165°	1583.6	1582.7	1581.9	1581.0	1580.2	1579.7	1579.7	1579.7	1579.7	1579.7	1581.4
167.5°	1609.3	1608.1	1607.0	1605.8	1604.7	1604.2	1604.4	1604.7	1604.9	1605.1	1606.9
170°	1623.8	1622.7	1621.5	1620.4	1619.2	1618.6	1618.6	1618.6	1618.6	1618.6	1620.6
172.5°	1635.2	1634.1	1632.9	1631.8	1630.6	1630.0	1630.0	1630.0	1630.0	1630.0	1631.8
175°	1647.2	1646.0	1644.9	1643.7	1642.5	1642.0	1642.0	1642.0	1642.0	1642.0	1643.7
177.5°	1652.1	1651.2	1650.2	1649.3	1648.4	1647.9	1647.9	1647.9	1647.9	1647.9	1649.3
180°	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0	1443.0
2.5°	1439.9	1442.2	1444.4	1445.4	1445.1	1444.8	1444.5	1444.3
5°	1437.6	1440.4	1443.2	1444.4	1444.1	1443.7	1443.4	1443.0
7.5°	1428.9	1432.4	1435.9	1437.5	1437.0	1436.6	1436.2	1435.8
10°	1420.1	1423.6	1427.1	1428.5	1427.8	1427.1	1426.4	1425.7
12.5°	1408.3	1411.5	1414.7	1415.9	1415.2	1414.5	1413.8	1413.1
15°	1385.5	1389.0	1392.5	1394.1	1393.8	1393.4	1393.1	1392.7
17.5°	1355.9	1359.1	1362.2	1363.5	1363.1	1362.6	1362.1	1361.6
20°	1334.5	1337.7	1340.8	1342.6	1342.9	1343.3	1343.6	1344.0
22.5°	1311.1	1315.1	1319.0	1320.9	1320.7	1320.5	1320.3	1320.1
25°	1271.3	1275.9	1280.4	1282.7	1282.7	1282.7	1282.7	1282.7
27.5°	1229.8	1233.7	1237.6	1239.7	1240.0	1240.3	1240.6	1240.9
30°	1201.5	1205.7	1209.8	1211.9	1211.9	1211.9	1211.9	1211.9
32.5°	1170.6	1175.1	1179.5	1182.2	1183.0	1183.9	1184.7	1185.5
35°	1125.0	1130.2	1135.4	1138.8	1140.2	1141.6	1143.0	1144.3
37.5°	1077.6	1083.6	1089.5	1093.0	1094.2	1095.3	1096.4	1097.5
40°	1046.2	1052.1	1058.1	1061.7	1063.1	1064.5	1065.9	1067.3
42.5°	1013.4	1019.9	1026.4	1030.6	1032.5	1034.5	1036.4	1038.4
45°	964.3	970.9	977.6	982.3	985.1	987.9	990.7	993.4
47.5°	914.7	922.2	929.7	934.5	936.6	938.8	941.0	943.1
50°	880.6	888.7	896.7	901.9	904.4	906.8	909.3	911.7
52.5°	846.0	854.3	862.6	868.3	871.3	874.3	877.3	880.3
55°	793.8	803.2	812.7	818.8	821.6	824.4	827.2	830.0
57.5°	740.5	750.0	759.5	765.9	769.2	772.5	775.8	779.0
60°	703.3	713.1	722.9	729.7	733.6	737.4	741.2	745.1
62.5°	668.1	677.9	687.7	694.4	697.9	701.5	705.1	708.6
65°	612.0	622.5	633.0	639.9	643.4	646.9	650.4	653.9
67.5°	556.1	567.6	579.0	586.2	589.2	592.1	595.0	598.0
70°	519.1	530.3	541.4	548.8	552.3	555.8	559.2	562.7
72.5°	481.9	493.4	504.8	512.3	515.8	519.3	522.8	526.3
75°	425.5	437.0	448.5	456.4	460.6	464.8	469.0	473.1
77.5°	372.6	384.8	397.0	404.6	407.9	411.1	414.3	417.5
80°	338.1	350.0	361.9	369.6	373.1	376.6	380.1	383.5
82.5°	306.7	318.6	330.4	338.1	341.6	345.1	348.6	352.1
85°	262.7	274.6	286.4	294.1	297.6	301.1	304.6	308.1
87.5°	230.7	242.8	254.9	262.8	266.4	270.0	273.6	277.2
90°	234.8	247.8	260.9	269.4	273.5	277.6	281.6	285.7
92.5°	242.4	254.9	267.4	275.1	278.0	280.9	283.7	286.6
95°	275.6	287.5	299.5	307.3	310.8	314.2	317.7	321.2
97.5°	318.0	329.7	341.4	349.0	352.4	355.7	359.1	362.5
100°	349.4	360.4	371.4	378.9	383.0	387.1	391.1	395.2
102.5°	387.0	397.7	408.4	415.4	418.8	422.2	425.6	428.9
105°	443.5	453.3	463.1	469.9	473.6	477.3	481.0	484.7
107.5°	505.4	515.7	526.0	532.5	535.2	537.9	540.7	543.4
110°	547.8	558.0	568.2	574.5	576.7	578.9	581.1	583.3





TEST NUMBER: P332231

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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	588.9	599.1	609.3	615.8	618.8	621.8	624.7	627.7
115°	653.2	661.8	670.5	676.1	678.6	681.1	683.6	686.1
117.5°	717.6	725.9	734.1	739.2	741.1	743.0	744.9	746.9
120°	761.1	768.9	776.6	781.4	783.3	785.2	787.0	788.9
122.5°	805.2	812.2	819.2	823.6	825.2	826.8	828.5	830.1
125°	870.7	876.9	883.0	886.8	888.1	889.4	890.7	892.0
127.5°	935.2	940.5	945.8	949.0	950.1	951.1	952.2	953.2
130°	978.1	983.6	989.0	991.8	991.9	992.0	992.1	992.1
132.5°	1019.5	1024.5	1029.5	1032.4	1033.2	1034.0	1034.8	1035.7
135°	1082.3	1087.4	1092.5	1095.7	1096.9	1098.0	1099.2	1100.4
137.5°	1143.9	1148.2	1152.5	1155.0	1155.6	1156.3	1156.9	1157.6
140°	1184.8	1189.7	1194.7	1197.0	1196.7	1196.5	1196.2	1195.9
142.5°	1222.2	1226.6	1231.0	1233.3	1233.5	1233.7	1233.8	1234.0
145°	1281.2	1283.7	1286.3	1287.6	1287.9	1288.1	1288.4	1288.6
147.5°	1337.8	1338.7	1339.5	1339.7	1339.2	1338.7	1338.3	1337.8
150°	1373.5	1373.5	1373.5	1373.0	1372.0	1370.9	1369.9	1368.9
152.5°	1407.6	1408.1	1408.5	1408.1	1406.7	1405.4	1404.0	1402.7
155°	1457.5	1458.7	1459.8	1459.4	1457.4	1455.4	1453.3	1451.3
157.5°	1500.4	1501.6	1502.9	1502.6	1501.0	1499.4	1497.8	1496.2
160°	1526.8	1528.3	1529.7	1529.9	1528.7	1527.6	1526.4	1525.2
162.5°	1551.7	1553.2	1554.6	1554.4	1552.6	1550.7	1548.9	1547.0
165°	1583.2	1584.9	1586.6	1586.5	1584.5	1582.5	1580.4	1578.4
167.5°	1608.7	1610.5	1612.3	1612.3	1610.5	1608.7	1606.9	1605.1
170°	1622.7	1624.7	1626.7	1626.7	1624.7	1622.7	1620.6	1618.6
172.5°	1633.6	1635.4	1637.2	1637.1	1635.1	1633.0	1631.0	1629.0
175°	1645.4	1647.2	1648.9	1648.7	1646.7	1644.7	1642.7	1640.7
177.5°	1650.7	1652.1	1653.5	1653.4	1651.7	1650.1	1648.5	1646.9
180°	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1	1651.1

(END OF REPORT)