

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: P332828-935

Luminaire Tested: **S124DIW-S1020D1340U935-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332828-935
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-S1020D1340U935-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 1340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7822.4 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: General Diffuse

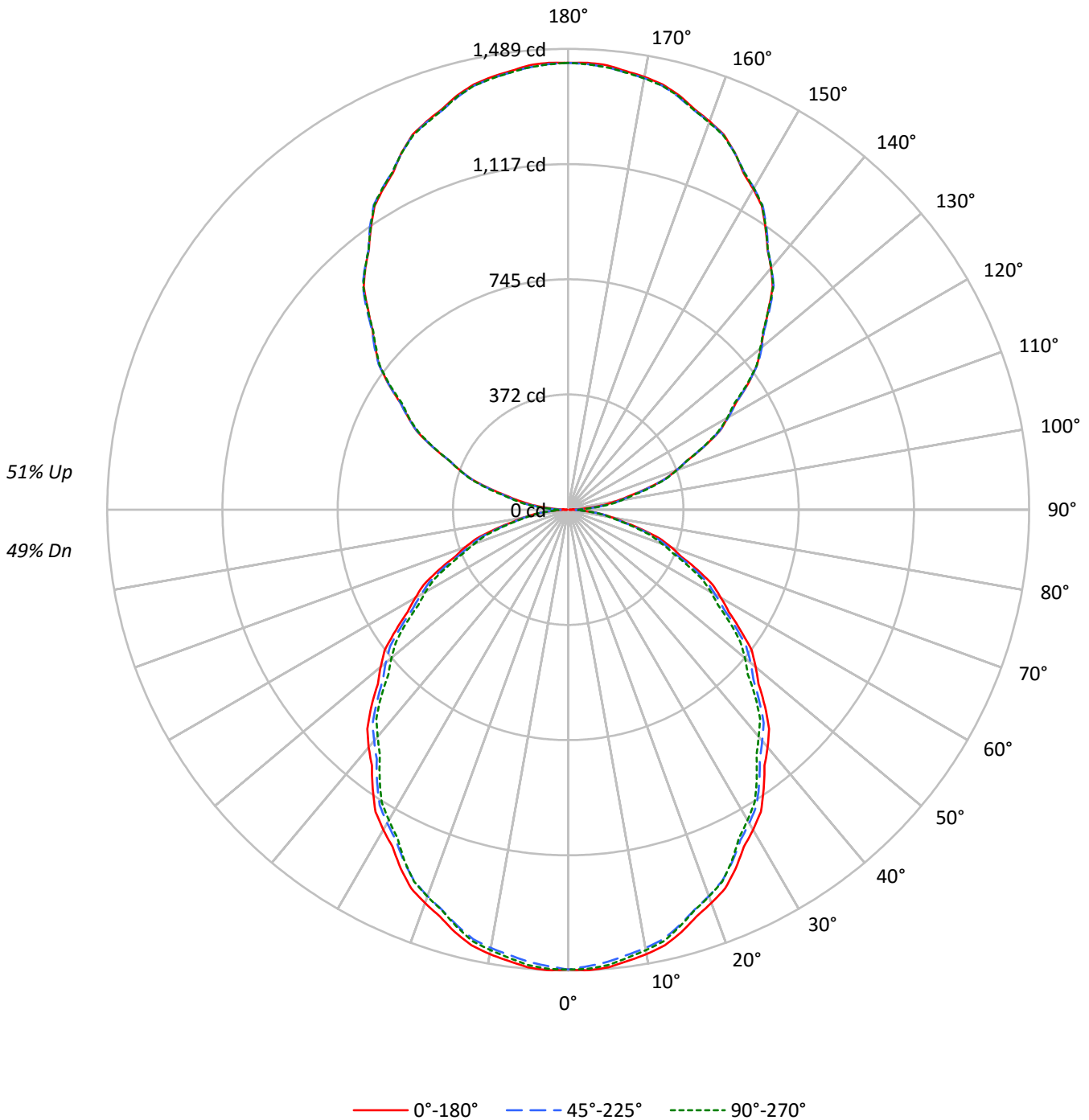
Input Watts (W): 69.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49
1	97	93	89	86	90	86	83	80	72	70	68	60	58	57	49	47	46	41
2	89	81	75	70	81	75	70	65	63	59	56	53	50	47	43	41	39	34
3	81	71	64	58	74	66	60	54	56	51	47	47	43	40	38	35	33	29
4	74	63	55	49	68	59	52	46	50	44	40	41	38	34	34	31	29	25
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25	22
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	28	24	22	19
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20	17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	17	15
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	14
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	11994	11994	11994
5°	12030	11885	11972
10°	11954	11788	11847
15°	11810	11621	11651
20°	11618	11413	11424
25°	11399	11176	11144
30°	11130	10897	10797
35°	10852	10606	10465
40°	10564	10275	10086
45°	10261	9949	9758
50°	9928	9658	9359
55°	9568	9282	8981
60°	9206	8861	8591
65°	8800	8458	8118
70°	8344	7924	7615
75°	7648	7277	7093
80°	6811	6527	6365
85°	5956	5734	5622



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.9	1.8
10°-20°	394.2	5.0
20°-30°	580.2	7.4
30°-40°	674.5	8.6
40°-50°	674.5	8.6
50°-60°	590.0	7.5
60°-70°	438.2	5.6
70°-80°	248.9	3.2
80°-90°	76.2	1.0
90°-100°	95.2	1.2
100°-110°	282.1	3.6
110°-120°	478.8	6.1
120°-130°	631.3	8.1
130°-140°	709.0	9.1
140°-150°	696.7	8.9
150°-160°	586.0	7.5
160°-170°	389.9	5.0
170°-180°	136.5	1.7
0°-30°	1114.3	14.2
0°-40°	1788.8	22.9
0°-60°	3053.4	39.0
0°-90°	3816.7	48.8
90°-120°	856.1	10.9
90°-150°	2893.2	37.0
90°-180°	4006.0	51.2
0°-180°	7822.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1486	1486	1486	1486	1486	
5°	1484	1479	1467	1479	1477	141
15°	1413	1408	1390	1397	1394	398
25°	1280	1271	1255	1256	1251	588
35°	1101	1092	1076	1068	1062	688
45°	899	890	871	859	855	693
55°	680	675	660	646	638	609
65°	461	454	443	431	425	456
75°	245	239	233	229	227	261
85°	64	64	62	62	61	71
90°	3	15	24	31	34	8
95°	67	77	85	88	88	75
105°	260	261	266	269	272	276
115°	487	487	485	484	482	480
125°	709	709	708	706	703	632
135°	914	921	921	919	916	707
145°	1111	1115	1117	1115	1112	695
155°	1273	1273	1272	1276	1272	585
165°	1386	1382	1380	1386	1382	390
175°	1442	1436	1435	1442	1435	137
180°	1444	1444	1444	1444	1444	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7
2.5°	1489.4	1488.8	1488.2	1487.5	1486.9	1485.4	1483.1	1480.7	1478.4	1476.1	1478.3
5°	1484.5	1483.4	1482.4	1481.3	1480.2	1478.3	1475.3	1472.4	1469.6	1466.6	1469.6
7.5°	1470.7	1469.6	1468.5	1467.5	1466.5	1464.3	1461.0	1457.8	1454.6	1451.4	1453.7
10°	1458.3	1457.2	1456.1	1455.1	1454.1	1451.8	1448.4	1444.9	1441.5	1438.0	1440.1
12.5°	1442.1	1441.1	1439.9	1438.9	1437.9	1435.5	1431.8	1428.2	1424.5	1420.9	1423.2
15°	1413.1	1412.0	1410.9	1409.9	1408.8	1406.3	1402.3	1398.4	1394.4	1390.4	1392.0
17.5°	1378.0	1376.7	1375.4	1374.1	1372.8	1370.2	1366.4	1362.7	1358.9	1355.2	1356.2
20°	1352.3	1351.0	1349.7	1348.3	1347.0	1344.4	1340.4	1336.4	1332.5	1328.5	1329.3
22.5°	1324.7	1322.9	1321.2	1319.5	1317.8	1314.8	1310.9	1306.9	1303.0	1299.0	1300.5
25°	1279.7	1277.9	1276.0	1274.1	1272.3	1269.5	1265.8	1262.1	1258.4	1254.7	1255.0
27.5°	1228.3	1226.4	1224.4	1222.5	1220.6	1218.0	1214.5	1211.1	1207.6	1204.2	1203.6
30°	1194.0	1191.9	1189.7	1187.7	1185.5	1182.8	1179.3	1175.9	1172.4	1169.0	1167.9
32.5°	1157.8	1155.9	1154.0	1152.1	1150.2	1147.4	1143.8	1140.1	1136.4	1132.8	1131.5
35°	1101.1	1099.3	1097.4	1095.6	1093.7	1091.0	1087.3	1083.6	1079.9	1076.2	1074.3
37.5°	1041.4	1039.7	1038.0	1036.3	1034.6	1031.8	1027.8	1023.8	1019.9	1015.9	1013.9
40°	1002.4	1000.2	998.1	996.0	993.9	990.8	986.9	982.9	979.0	975.0	972.3
42.5°	960.4	959.2	957.9	956.7	955.4	952.5	948.1	943.7	939.4	935.0	931.9
45°	898.8	896.9	895.1	893.2	891.4	888.3	884.1	879.9	875.6	871.4	868.5
47.5°	834.2	833.0	831.7	830.4	829.1	826.6	822.7	818.7	814.9	810.9	807.6
50°	790.5	789.4	788.3	787.3	786.2	783.9	780.2	776.4	772.7	769.0	765.3
52.5°	747.6	746.3	745.0	743.8	742.5	739.9	736.0	732.1	728.1	724.3	721.0
55°	679.8	678.9	678.1	677.3	676.6	674.3	670.6	666.9	663.2	659.5	656.3
57.5°	615.0	614.1	613.2	612.3	611.4	609.1	605.5	601.8	598.1	594.5	591.5
60°	570.2	568.9	567.6	566.3	564.9	562.6	559.1	555.7	552.2	548.8	546.4
62.5°	526.4	525.3	524.2	523.1	521.9	519.6	515.9	512.3	508.6	505.0	502.8
65°	460.7	459.3	458.1	456.8	455.4	453.4	450.7	448.2	445.5	442.8	440.2
67.5°	394.5	393.3	392.1	390.9	389.6	387.8	385.2	382.7	380.1	377.6	375.1
70°	353.5	351.7	349.8	348.0	346.1	344.1	342.1	339.9	337.9	335.7	333.6
72.5°	309.8	307.9	306.1	304.2	302.4	300.6	298.9	297.2	295.5	293.8	292.1
75°	245.2	243.9	242.5	241.3	240.0	238.6	237.3	236.0	234.6	233.3	232.3
77.5°	183.6	183.0	182.4	181.8	181.2	180.4	179.2	178.1	176.8	175.7	175.4
80°	146.5	145.6	144.8	144.0	143.3	142.6	142.1	141.5	141.0	140.4	139.9
82.5°	110.2	109.9	109.5	109.1	108.7	108.5	108.4	108.3	108.2	108.1	107.8
85°	64.3	64.3	64.3	64.3	64.3	64.1	63.5	62.9	62.4	61.9	61.9
87.5°	25.4	25.7	26.1	26.4	26.8	27.0	27.2	27.4	27.6	27.8	28.1
90°	3.4	6.1	8.8	11.5	14.3	16.6	18.6	20.6	22.6	24.5	26.1
92.5°	23.9	27.0	30.1	33.2	36.4	38.7	40.0	41.4	42.8	44.3	45.1
95°	67.0	69.2	71.5	73.7	75.9	77.9	79.6	81.4	83.1	84.9	85.6
97.5°	117.0	118.8	120.6	122.3	124.2	126.1	128.1	130.2	132.2	134.2	135.1
100°	156.4	157.3	158.3	159.3	160.3	161.9	164.1	166.3	168.6	170.8	171.3
102.5°	197.4	197.9	198.2	198.6	199.0	200.2	202.2	204.3	206.3	208.4	209.1
105°	260.2	260.5	260.7	260.9	261.1	261.7	262.8	263.8	264.8	265.8	266.5
107.5°	326.1	326.3	326.7	326.9	327.3	327.4	327.6	327.8	328.0	328.0	328.7
110°	370.7	371.2	371.7	372.2	372.7	372.8	372.6	372.3	372.1	371.9	371.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	417.2	417.2	417.3	417.5	417.6	417.4	417.0	416.5	416.0	415.6	415.5
115°	486.8	486.8	486.8	486.8	486.8	486.6	486.1	485.6	485.1	484.6	484.4
117.5°	552.5	552.7	552.9	553.1	553.3	553.2	552.8	552.5	552.2	551.8	551.0
120°	596.2	597.3	598.2	599.3	600.2	600.4	599.6	598.9	598.1	597.4	596.2
122.5°	641.8	642.2	642.7	643.0	643.4	643.4	643.1	642.7	642.4	642.0	641.2
125°	709.0	709.0	709.0	709.0	709.0	708.9	708.7	708.4	708.2	707.9	707.4
127.5°	770.0	770.8	771.5	772.2	773.0	773.2	772.7	772.4	772.0	771.5	771.1
130°	812.9	813.6	814.4	815.1	815.9	816.2	816.2	816.2	816.2	816.2	815.7
132.5°	856.7	857.2	857.7	858.3	858.8	859.0	858.8	858.6	858.4	858.2	857.7
135°	914.5	916.0	917.5	918.9	920.5	921.2	921.2	921.2	921.2	921.2	920.8
137.5°	977.5	978.2	978.9	979.6	980.2	980.9	981.2	981.6	982.0	982.4	981.7
140°	1019.5	1019.9	1020.5	1021.0	1021.5	1021.7	1021.7	1021.7	1021.7	1021.7	1021.5
142.5°	1057.9	1058.3	1058.9	1059.4	1059.9	1060.0	1059.8	1059.6	1059.5	1059.2	1059.2
145°	1111.0	1112.1	1113.0	1114.0	1115.0	1115.6	1115.9	1116.1	1116.4	1116.6	1116.4
147.5°	1163.7	1164.9	1166.1	1167.3	1168.5	1169.0	1168.8	1168.6	1168.4	1168.2	1168.0
150°	1195.9	1196.9	1197.9	1198.9	1199.9	1200.3	1200.3	1200.3	1200.3	1200.3	1200.3
152.5°	1226.2	1226.8	1227.4	1228.0	1228.6	1229.1	1229.2	1229.4	1229.7	1229.9	1230.5
155°	1272.9	1272.9	1272.9	1272.9	1272.9	1272.8	1272.6	1272.3	1272.0	1271.9	1272.8
157.5°	1312.3	1311.8	1311.4	1310.9	1310.4	1310.2	1310.2	1310.1	1310.1	1310.0	1310.8
160°	1335.5	1335.2	1335.0	1334.7	1334.5	1334.2	1333.9	1333.8	1333.5	1333.3	1333.9
162.5°	1356.9	1356.2	1355.6	1355.0	1354.4	1353.9	1353.7	1353.4	1353.1	1352.9	1354.3
165°	1385.7	1385.0	1384.2	1383.5	1382.8	1382.2	1381.6	1381.1	1380.6	1380.1	1381.6
167.5°	1407.8	1406.8	1405.8	1404.7	1403.7	1403.2	1403.3	1403.3	1403.3	1403.3	1404.9
170°	1420.3	1419.1	1417.9	1416.6	1415.4	1414.9	1415.1	1415.4	1415.7	1415.8	1417.4
172.5°	1429.3	1428.2	1427.2	1426.2	1425.1	1424.6	1424.7	1424.7	1424.8	1424.8	1426.5
175°	1441.6	1440.3	1439.1	1437.9	1436.6	1435.8	1435.6	1435.4	1435.1	1434.9	1436.6
177.5°	1445.5	1444.6	1443.6	1442.6	1441.6	1441.1	1441.1	1441.1	1441.1	1441.1	1442.5
180°	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7
2.5°	1480.3	1482.5	1484.6	1485.6	1485.3	1485.1	1484.9	1484.7
5°	1472.4	1475.3	1478.3	1479.5	1478.9	1478.3	1477.8	1477.3
7.5°	1456.0	1458.4	1460.7	1461.7	1461.4	1461.0	1460.7	1460.4
10°	1442.3	1444.4	1446.5	1447.3	1446.7	1446.2	1445.7	1445.2
12.5°	1425.6	1427.9	1430.2	1431.0	1430.3	1429.5	1428.7	1428.1
15°	1393.6	1395.2	1396.8	1397.1	1396.4	1395.6	1394.8	1394.0
17.5°	1357.2	1358.2	1359.2	1359.4	1358.9	1358.4	1357.9	1357.3
20°	1330.1	1330.9	1331.7	1331.8	1331.3	1330.8	1330.2	1329.7
22.5°	1301.8	1303.3	1304.7	1304.9	1304.0	1303.0	1302.1	1301.1
25°	1255.3	1255.5	1255.8	1255.3	1254.3	1253.3	1252.2	1251.1
27.5°	1203.0	1202.3	1201.7	1200.8	1199.4	1198.1	1196.7	1195.4
30°	1166.9	1165.8	1164.8	1163.6	1162.3	1160.9	1159.6	1158.3
32.5°	1130.2	1129.0	1127.7	1126.4	1125.1	1123.8	1122.5	1121.1
35°	1072.5	1070.6	1068.8	1067.1	1065.8	1064.5	1063.2	1061.9
37.5°	1011.8	1009.9	1007.9	1006.0	1004.3	1002.5	1000.7	999.0
40°	969.7	967.0	964.4	962.4	961.0	959.8	958.5	957.1
42.5°	928.8	925.7	922.6	920.7	919.8	918.9	918.0	917.1
45°	865.6	862.6	859.7	857.9	857.1	856.4	855.5	854.7
47.5°	804.3	801.1	797.8	795.1	793.2	791.1	789.1	787.1
50°	761.6	757.9	754.2	751.6	749.9	748.4	746.8	745.2
52.5°	717.7	714.4	711.1	708.5	706.5	704.5	702.5	700.4
55°	653.2	650.0	646.8	644.5	642.8	641.3	639.6	638.1
57.5°	588.5	585.5	582.5	580.1	578.6	577.1	575.6	574.0
60°	544.1	541.7	539.2	537.4	536.1	534.8	533.5	532.1
62.5°	500.7	498.4	496.3	494.6	493.3	491.9	490.6	489.3
65°	437.6	434.9	432.2	430.2	429.0	427.7	426.3	425.0
67.5°	372.6	370.0	367.5	366.0	365.6	365.2	364.9	364.5
70°	331.5	329.3	327.3	325.8	325.0	324.2	323.4	322.6
72.5°	290.4	288.7	287.1	285.8	285.0	284.2	283.4	282.6
75°	231.2	230.1	229.1	228.4	228.2	227.9	227.6	227.4
77.5°	175.0	174.8	174.4	173.9	173.2	172.5	171.9	171.2
80°	139.4	138.9	138.4	137.9	137.7	137.4	137.2	136.9
82.5°	107.5	107.1	106.9	106.5	106.2	106.0	105.7	105.5
85°	61.9	61.9	61.9	61.7	61.5	61.2	61.0	60.7
87.5°	28.3	28.7	28.9	29.2	29.3	29.4	29.4	29.5
90°	27.6	29.0	30.5	31.5	32.0	32.5	33.0	33.5
92.5°	46.0	46.9	47.8	48.4	48.6	49.0	49.2	49.6
95°	86.4	87.1	87.8	88.3	88.3	88.3	88.3	88.3
97.5°	136.0	136.9	137.8	138.3	138.3	138.3	138.3	138.3
100°	171.9	172.4	172.8	173.1	173.1	173.1	173.1	173.1
102.5°	209.7	210.4	211.1	211.5	211.8	212.0	212.2	212.4
105°	267.3	268.0	268.7	269.5	270.2	271.0	271.7	272.4
107.5°	329.4	330.1	330.9	331.1	331.1	331.1	331.1	331.0
110°	370.8	370.3	369.9	370.0	370.7	371.4	372.2	373.0



TEST NUMBER: P332828-935

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	415.4	415.3	415.2	415.3	415.3	415.5	415.7	415.9
115°	484.1	483.9	483.6	483.4	483.1	482.8	482.6	482.4
117.5°	550.2	549.3	548.5	547.8	547.3	546.8	546.3	545.8
120°	595.0	593.7	592.5	592.0	592.5	593.1	593.6	594.0
122.5°	640.3	639.6	638.7	637.8	636.9	636.0	635.2	634.2
125°	707.0	706.5	705.9	705.4	705.0	704.5	704.0	703.4
127.5°	770.6	770.1	769.6	769.1	768.8	768.4	767.9	767.6
130°	815.3	814.8	814.2	813.6	812.5	811.5	810.5	809.5
132.5°	857.2	856.8	856.3	855.8	855.4	855.0	854.6	854.2
135°	920.2	919.7	919.2	918.6	917.8	917.1	916.4	915.6
137.5°	981.1	980.5	979.8	979.6	979.7	979.9	980.0	980.2
140°	1021.2	1021.0	1020.7	1020.5	1020.2	1019.9	1019.7	1019.5
142.5°	1059.1	1059.1	1059.0	1058.9	1058.9	1058.9	1058.9	1058.8
145°	1116.1	1115.9	1115.6	1115.2	1114.4	1113.6	1112.9	1112.2
147.5°	1167.8	1167.6	1167.4	1167.2	1166.9	1166.7	1166.5	1166.2
150°	1200.3	1200.3	1200.3	1200.2	1200.0	1199.7	1199.5	1199.3
152.5°	1231.1	1231.7	1232.3	1232.2	1231.6	1230.9	1230.3	1229.6
155°	1273.8	1274.8	1275.8	1275.8	1274.8	1273.8	1272.8	1271.9
157.5°	1311.5	1312.3	1313.0	1312.9	1312.1	1311.2	1310.4	1309.6
160°	1334.7	1335.5	1336.2	1335.9	1334.7	1333.5	1332.2	1331.0
162.5°	1355.6	1356.9	1358.2	1358.3	1357.0	1355.8	1354.6	1353.3
165°	1383.1	1384.6	1386.1	1386.4	1385.3	1384.3	1383.4	1382.3
167.5°	1406.4	1407.8	1409.3	1409.3	1407.7	1406.2	1404.7	1403.2
170°	1418.8	1420.3	1421.9	1421.7	1420.0	1418.2	1416.5	1414.8
172.5°	1428.1	1429.9	1431.6	1431.5	1429.8	1428.1	1426.3	1424.6
175°	1438.3	1440.0	1441.8	1441.8	1440.0	1438.3	1436.6	1434.9
177.5°	1443.9	1445.3	1446.7	1446.6	1445.0	1443.4	1441.8	1440.2
180°	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8	1443.8

(END OF REPORT)