

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: P333082-930

Luminaire Tested: **S124RDIW-S1020D770U930-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333082-930
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: S124RDIW-S1020D770U930-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 770 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

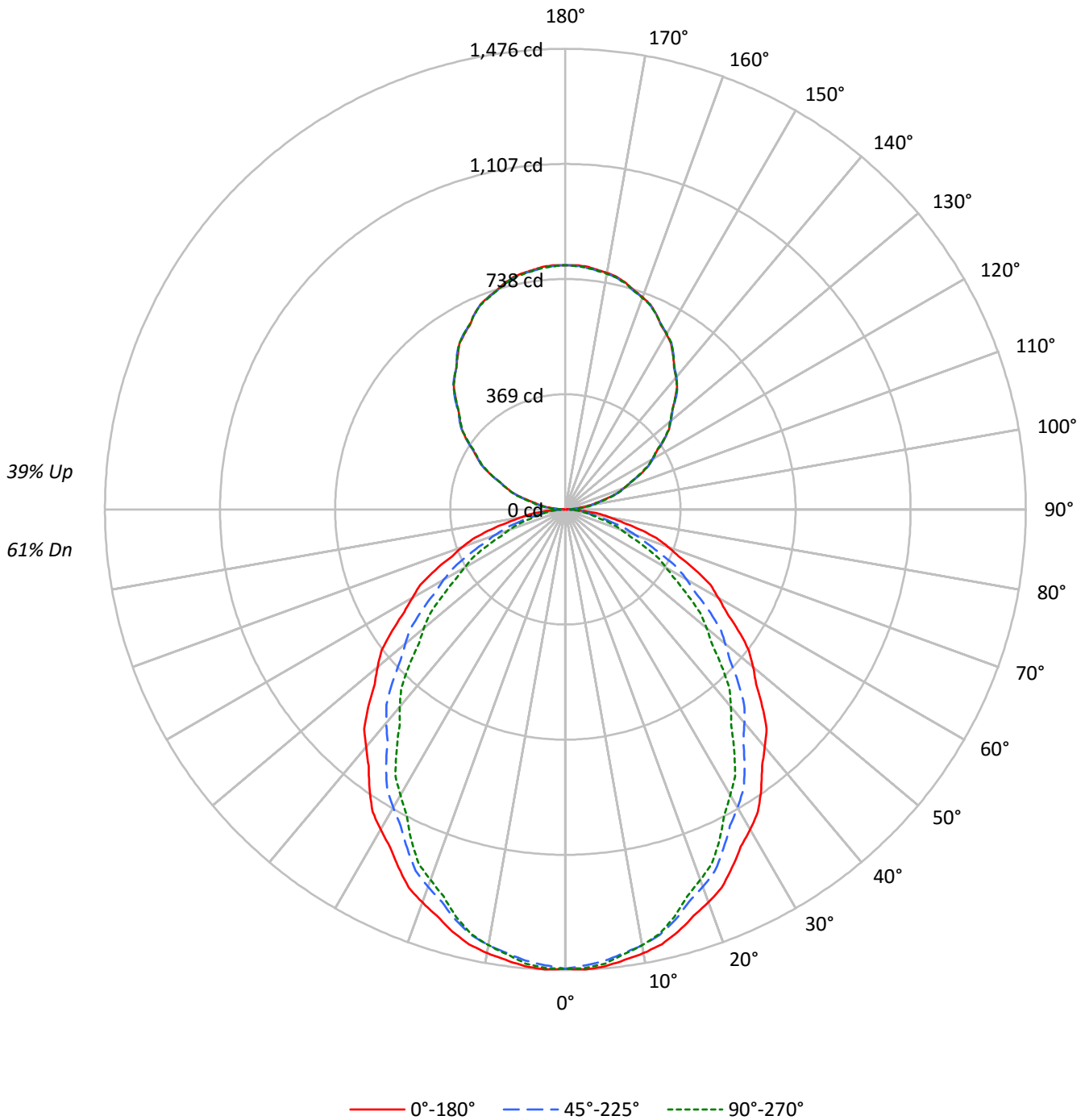
Lumens per Lamp: N/A
Luminaire Lumens: 5574.4 lumens
Efficiency: N/A
Efficacy: 104.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 53.6
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	50	30	10	0	
RCR																						
0	110	110	110	110	103	103	103	103	89	89	89	77	77	77	66	66	66	66	66	66	61	
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	59	58	57	57	57	57	52	
2	92	85	78	73	86	79	74	69	70	66	62	61	58	55	52	50	48	48	48	48	44	
3	84	75	67	61	78	70	64	58	62	57	53	54	50	47	47	44	41	41	41	41	38	
4	77	66	58	52	72	62	55	50	55	49	45	48	44	40	42	39	36	36	36	36	33	
5	71	59	51	45	66	56	49	43	49	44	39	43	39	35	38	34	31	31	31	31	29	
6	65	53	45	39	61	50	43	38	45	39	34	39	35	31	35	31	28	28	28	28	25	
7	61	48	40	35	57	46	38	33	41	35	30	36	31	28	32	28	25	25	25	25	22	
8	56	44	36	31	53	42	35	30	37	31	27	33	28	25	29	25	22	22	22	22	20	
9	53	40	33	28	49	38	31	27	34	28	24	30	26	22	27	23	20	20	20	20	18	
10	49	37	30	25	46	35	28	24	32	26	22	28	24	20	25	21	19	19	19	19	17	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	11885	11885	11885
5°	11912	11766	11839
10°	11837	11625	11625
15°	11701	11381	11295
20°	11515	11059	10856
25°	11276	10684	10413
30°	11044	10288	9857
35°	10787	9876	9298
40°	10478	9409	8696
45°	10193	8944	8082
50°	9868	8410	7433
55°	9520	7854	6726
60°	9137	7245	6006
65°	8785	6481	5297
70°	8275	5641	4497
75°	7629	4676	3656
80°	6657	3561	3357
85°	5641	3242	3029



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.3	2.5
10°-20°	385.6	6.9
20°-30°	556.9	10.0
30°-40°	631.2	11.3
40°-50°	609.5	10.9
50°-60°	506.9	9.1
60°-70°	350.0	6.3
70°-80°	177.4	3.2
80°-90°	47.8	0.9
90°-100°	51.6	0.9
100°-110°	152.9	2.7
110°-120°	259.5	4.7
120°-130°	342.1	6.1
130°-140°	384.2	6.9
140°-150°	377.6	6.8
150°-160°	317.6	5.7
160°-170°	211.3	3.8
170°-180°	74.0	1.3
0°-30°	1080.8	19.4
0°-40°	1712.0	30.7
0°-60°	2828.4	50.7
0°-90°	3403.6	61.1
90°-120°	463.9	8.3
90°-150°	1567.9	28.1
90°-180°	2171.0	38.9
0°-180°	5574.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1472	1472	1472	1472	1472	
5°	1470	1465	1452	1462	1461	139
15°	1400	1389	1362	1359	1352	394
25°	1266	1244	1199	1181	1169	583
35°	1094	1057	1002	965	944	684
45°	893	850	783	730	708	688
55°	676	630	558	501	478	605
65°	460	410	339	293	277	454
75°	245	202	150	125	117	258
85°	61	39	35	33	33	69
90°	2	8	13	17	18	5
95°	36	42	46	48	48	40
105°	141	142	144	146	148	150
115°	264	264	263	262	261	260
125°	384	384	384	382	381	342
135°	496	499	499	498	496	383
145°	602	604	605	604	603	377
155°	690	690	689	691	689	317
165°	751	749	748	751	749	212
175°	781	778	778	781	778	74
180°	782	782	782	782	782	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2
2.5°	1475.8	1475.0	1474.1	1473.4	1472.6	1471.0	1468.8	1466.6	1464.4	1462.2	1464.4
5°	1469.9	1468.9	1467.9	1466.9	1465.9	1463.9	1460.9	1457.9	1454.9	1451.9	1454.4
7.5°	1456.6	1455.6	1454.5	1453.4	1452.4	1449.9	1446.0	1442.1	1438.2	1434.3	1435.9
10°	1444.0	1442.8	1441.4	1440.2	1439.0	1436.1	1431.6	1427.1	1422.5	1418.1	1419.0
12.5°	1427.8	1426.3	1424.8	1423.4	1422.0	1418.5	1413.2	1407.9	1402.6	1397.3	1397.9
15°	1400.0	1397.7	1395.5	1393.3	1391.0	1386.7	1380.5	1374.2	1368.0	1361.7	1361.2
17.5°	1366.4	1363.2	1359.9	1356.7	1353.4	1348.0	1340.5	1333.0	1325.5	1317.9	1316.5
20°	1340.3	1337.0	1333.7	1330.5	1327.2	1321.4	1312.9	1304.3	1295.8	1287.3	1285.3
22.5°	1311.4	1307.7	1304.1	1300.5	1296.8	1290.4	1281.3	1272.2	1263.1	1253.9	1250.9
25°	1265.9	1261.3	1256.9	1252.4	1247.8	1240.5	1230.2	1219.9	1209.7	1199.4	1195.1
27.5°	1218.1	1212.4	1206.8	1201.1	1195.5	1187.2	1176.2	1165.2	1154.2	1143.2	1138.0
30°	1184.7	1178.4	1172.2	1166.0	1159.7	1150.6	1138.9	1127.1	1115.3	1103.6	1097.3
32.5°	1149.6	1142.5	1135.4	1128.4	1121.3	1111.7	1099.5	1087.4	1075.1	1063.0	1055.7
35°	1094.5	1086.5	1078.5	1070.5	1062.5	1052.2	1039.7	1027.2	1014.6	1002.1	993.6
37.5°	1035.7	1027.4	1019.2	1010.9	1002.7	991.6	977.7	963.8	949.9	936.0	926.5
40°	994.3	985.9	977.7	969.4	961.2	949.9	935.6	921.3	907.0	892.8	882.2
42.5°	954.6	945.9	937.2	928.5	919.9	908.1	893.2	878.3	863.5	848.6	837.9
45°	892.8	883.5	874.2	865.0	855.7	843.5	828.5	813.5	798.4	783.4	771.2
47.5°	829.0	819.4	809.8	800.3	790.7	778.1	762.5	746.8	731.2	715.6	702.9
50°	785.7	775.9	766.1	756.4	746.6	733.7	717.7	701.6	685.6	669.6	657.0
52.5°	741.5	731.9	722.4	712.8	703.2	690.2	673.8	657.4	640.9	624.5	611.8
55°	676.4	666.3	656.3	646.3	636.3	623.1	606.8	590.5	574.3	558.0	544.9
57.5°	611.9	601.4	591.0	580.6	570.2	556.9	541.0	524.9	508.8	492.8	479.6
60°	565.9	555.9	545.8	535.8	525.8	512.7	496.8	480.7	464.6	448.7	435.6
62.5°	524.4	514.0	503.5	493.1	482.7	469.3	452.8	436.4	420.0	403.6	391.5
65°	459.9	449.1	438.4	427.6	416.9	403.4	387.4	371.4	355.3	339.3	328.6
67.5°	393.0	382.6	372.3	362.0	351.6	339.1	324.2	309.3	294.4	279.6	270.3
70°	350.6	340.1	329.5	319.0	308.5	296.1	281.8	267.5	253.2	239.0	230.7
72.5°	305.5	296.0	286.4	277.0	267.4	255.9	242.5	228.9	215.5	202.0	194.9
75°	244.6	235.4	226.1	216.8	207.6	197.0	185.2	173.5	161.7	149.9	144.1
77.5°	182.9	175.0	167.1	159.2	151.4	142.7	133.1	123.7	114.1	104.6	101.3
80°	143.2	135.9	128.7	121.4	114.1	106.7	99.2	91.7	84.1	76.6	75.9
82.5°	108.9	102.2	95.6	88.9	82.3	76.7	72.5	68.2	63.8	59.5	58.9
85°	60.9	55.8	50.9	45.8	40.8	37.9	37.2	36.4	35.7	35.0	34.4
87.5°	21.1	19.8	18.5	17.2	15.9	15.2	15.2	15.2	15.2	15.3	15.2
90°	1.8	3.3	4.8	6.3	7.7	9.0	10.1	11.2	12.2	13.3	14.1
92.5°	13.0	14.7	16.3	18.0	19.7	21.0	21.7	22.4	23.2	24.0	24.5
95°	36.3	37.5	38.7	39.9	41.2	42.2	43.1	44.1	45.1	46.0	46.4
97.5°	63.4	64.4	65.4	66.3	67.3	68.3	69.5	70.5	71.7	72.7	73.2
100°	84.7	85.3	85.8	86.3	86.8	87.7	88.9	90.2	91.4	92.6	92.9
102.5°	107.0	107.2	107.4	107.6	107.9	108.5	109.6	110.7	111.8	112.9	113.3
105°	141.0	141.1	141.3	141.4	141.5	141.9	142.4	142.9	143.5	144.0	144.4
107.5°	176.7	176.8	177.0	177.2	177.3	177.5	177.6	177.7	177.7	177.8	178.1
110°	200.9	201.1	201.5	201.7	201.9	202.0	201.9	201.8	201.6	201.5	201.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	226.1	226.1	226.2	226.2	226.2	226.2	225.9	225.7	225.4	225.2	225.2
115°	263.8	263.8	263.8	263.8	263.8	263.7	263.4	263.2	262.9	262.6	262.4
117.5°	299.4	299.5	299.6	299.7	299.9	299.8	299.6	299.5	299.2	299.1	298.6
120°	323.1	323.7	324.2	324.7	325.3	325.3	325.0	324.6	324.2	323.8	323.0
122.5°	347.8	348.1	348.2	348.5	348.7	348.7	348.5	348.3	348.1	348.0	347.5
125°	384.3	384.3	384.3	384.3	384.3	384.2	384.0	383.9	383.8	383.6	383.4
127.5°	417.3	417.7	418.1	418.5	418.9	419.0	418.7	418.6	418.3	418.2	417.8
130°	440.5	440.9	441.3	441.7	442.1	442.3	442.3	442.3	442.3	442.3	442.1
132.5°	464.2	464.6	464.8	465.1	465.5	465.5	465.4	465.3	465.2	465.0	464.8
135°	495.6	496.4	497.2	498.0	498.8	499.2	499.2	499.2	499.2	499.2	499.0
137.5°	529.7	530.1	530.4	530.8	531.2	531.5	531.7	531.9	532.1	532.4	532.0
140°	552.4	552.7	553.0	553.3	553.5	553.7	553.7	553.7	553.7	553.7	553.5
142.5°	573.2	573.6	573.8	574.1	574.4	574.5	574.3	574.2	574.1	574.0	574.0
145°	602.1	602.6	603.2	603.7	604.2	604.5	604.7	604.9	605.0	605.1	605.0
147.5°	630.6	631.3	631.9	632.6	633.2	633.5	633.4	633.2	633.2	633.1	632.9
150°	648.1	648.6	649.1	649.7	650.2	650.5	650.5	650.5	650.5	650.5	650.5
152.5°	664.6	664.9	665.2	665.5	665.9	666.0	666.1	666.3	666.3	666.4	666.8
155°	689.8	689.8	689.8	689.8	689.8	689.7	689.6	689.5	689.3	689.3	689.7
157.5°	711.1	710.9	710.6	710.4	710.1	710.0	710.0	710.0	710.0	709.9	710.3
160°	723.7	723.6	723.4	723.3	723.2	723.0	722.9	722.8	722.6	722.5	722.9
162.5°	735.3	735.0	734.6	734.3	733.9	733.7	733.5	733.4	733.3	733.1	733.9
165°	751.0	750.6	750.2	749.7	749.3	749.0	748.7	748.4	748.2	747.9	748.7
167.5°	762.9	762.4	761.8	761.2	760.7	760.3	760.4	760.4	760.4	760.5	761.3
170°	769.7	769.0	768.3	767.7	767.0	766.7	766.9	767.0	767.1	767.3	768.1
172.5°	774.5	774.0	773.4	772.8	772.3	772.0	772.0	772.1	772.1	772.1	773.1
175°	781.2	780.5	779.8	779.2	778.5	778.1	778.0	777.8	777.7	777.6	778.5
177.5°	783.3	782.9	782.3	781.8	781.2	781.0	781.0	781.0	781.0	781.0	781.7
180°	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2
2.5°	1466.6	1468.8	1471.0	1472.1	1471.9	1471.7	1471.5	1471.3
5°	1456.9	1459.4	1461.9	1462.9	1462.4	1461.9	1461.4	1460.9
7.5°	1437.5	1439.1	1440.7	1441.1	1440.3	1439.5	1438.7	1437.9
10°	1420.1	1421.1	1422.0	1422.0	1421.1	1420.1	1419.0	1418.1
12.5°	1398.5	1399.1	1399.7	1399.3	1397.9	1396.5	1395.1	1393.8
15°	1360.7	1360.2	1359.7	1358.5	1356.8	1355.0	1353.3	1351.5
17.5°	1315.2	1313.8	1312.4	1310.3	1307.7	1305.0	1302.4	1299.7
20°	1283.3	1281.3	1279.3	1276.7	1273.4	1270.2	1266.9	1263.6
22.5°	1247.9	1244.9	1241.9	1239.1	1236.4	1233.8	1231.1	1228.5
25°	1190.8	1186.6	1182.3	1178.9	1176.5	1173.9	1171.4	1169.0
27.5°	1132.7	1127.5	1122.2	1117.8	1114.2	1110.5	1106.9	1103.3
30°	1091.0	1084.8	1078.5	1073.3	1069.3	1065.4	1061.4	1057.4
32.5°	1048.5	1041.2	1034.0	1028.4	1024.6	1020.8	1017.0	1013.2
35°	985.0	976.6	968.0	961.6	957.0	952.5	948.0	943.5
37.5°	917.0	907.5	898.0	891.0	886.5	881.9	877.4	872.9
40°	871.7	861.2	850.7	843.2	838.7	834.1	829.6	825.2
42.5°	827.1	816.4	805.7	798.0	793.3	788.6	783.8	779.2
45°	758.9	746.6	734.3	725.9	721.5	716.9	712.4	707.9
47.5°	690.2	677.4	664.6	655.8	650.9	645.9	640.9	636.0
50°	644.5	632.0	619.5	610.8	606.1	601.3	596.6	591.8
52.5°	599.0	586.3	573.6	564.8	559.8	554.8	549.8	544.9
55°	531.9	518.9	505.9	497.0	492.2	487.5	482.7	477.9
57.5°	466.4	453.1	439.9	431.5	427.9	424.3	420.7	417.1
60°	422.6	409.5	396.6	388.0	384.0	380.0	376.0	372.0
62.5°	379.5	367.5	355.5	347.8	344.6	341.4	338.2	335.0
65°	317.7	307.0	296.2	289.3	286.3	283.3	280.3	277.3
67.5°	261.0	251.8	242.5	236.2	232.8	229.6	226.2	223.0
70°	222.4	214.2	205.9	200.5	198.0	195.5	193.0	190.5
72.5°	187.8	180.8	173.7	169.1	166.7	164.4	162.2	159.9
75°	138.4	132.6	126.9	123.3	121.7	120.3	118.7	117.2
77.5°	97.9	94.6	91.2	89.3	88.8	88.4	87.9	87.5
80°	75.2	74.4	73.6	73.1	72.9	72.6	72.4	72.2
82.5°	58.4	57.9	57.3	56.9	56.7	56.4	56.2	55.9
85°	33.9	33.4	32.9	32.7	32.7	32.7	32.7	32.7
87.5°	15.2	15.2	15.2	15.2	15.5	15.7	16.0	16.2
90°	14.9	15.7	16.6	17.0	17.4	17.6	17.9	18.2
92.5°	24.9	25.4	25.9	26.3	26.4	26.6	26.7	26.9
95°	46.8	47.2	47.6	47.8	47.8	47.8	47.8	47.8
97.5°	73.7	74.2	74.7	74.9	74.9	74.9	74.9	74.9
100°	93.1	93.4	93.7	93.8	93.8	93.8	93.8	93.8
102.5°	113.7	114.1	114.4	114.6	114.8	114.9	115.0	115.1
105°	144.8	145.2	145.6	146.0	146.4	146.8	147.2	147.7
107.5°	178.6	178.9	179.3	179.4	179.4	179.4	179.4	179.4
110°	201.0	200.7	200.4	200.5	200.9	201.3	201.7	202.1



TEST NUMBER: P333082-930

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	225.1	225.0	225.0	225.0	225.1	225.2	225.3	225.3
115°	262.4	262.2	262.0	262.0	261.8	261.7	261.5	261.4
117.5°	298.2	297.7	297.2	296.9	296.6	296.3	296.0	295.8
120°	322.4	321.7	321.1	320.8	321.1	321.4	321.6	321.9
122.5°	347.0	346.6	346.1	345.6	345.1	344.6	344.2	343.7
125°	383.1	382.9	382.5	382.3	382.0	381.7	381.5	381.2
127.5°	417.6	417.4	417.0	416.8	416.6	416.4	416.1	416.0
130°	441.8	441.5	441.2	440.8	440.3	439.8	439.2	438.7
132.5°	464.6	464.3	464.0	463.7	463.6	463.3	463.1	462.9
135°	498.6	498.4	498.1	497.8	497.4	497.0	496.6	496.2
137.5°	531.7	531.3	531.0	530.8	530.9	531.0	531.1	531.2
140°	553.4	553.3	553.1	553.0	552.9	552.7	552.6	552.4
142.5°	574.0	573.9	573.9	573.9	573.8	573.8	573.8	573.7
145°	604.9	604.7	604.5	604.3	603.9	603.5	603.1	602.7
147.5°	632.8	632.8	632.6	632.5	632.3	632.3	632.1	631.9
150°	650.5	650.5	650.5	650.4	650.3	650.1	650.0	649.9
152.5°	667.1	667.4	667.7	667.7	667.4	667.1	666.7	666.3
155°	690.3	690.8	691.4	691.4	690.8	690.3	689.7	689.3
157.5°	710.7	711.1	711.5	711.5	711.0	710.6	710.1	709.6
160°	723.3	723.7	724.1	724.0	723.3	722.6	721.9	721.3
162.5°	734.6	735.3	736.1	736.1	735.4	734.7	734.1	733.4
165°	749.5	750.3	751.1	751.3	750.7	750.2	749.7	749.1
167.5°	762.1	762.9	763.7	763.7	762.9	762.1	761.2	760.3
170°	768.9	769.7	770.5	770.5	769.5	768.6	767.6	766.7
172.5°	774.0	774.9	775.8	775.8	774.8	773.9	772.9	772.0
175°	779.4	780.4	781.3	781.3	780.4	779.4	778.5	777.6
177.5°	782.4	783.2	784.0	783.9	783.0	782.2	781.3	780.5
180°	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4

(END OF REPORT)