

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: P332971-830

Luminaire Tested: **SA4XXRDIP-C1020D810U830-4F0-1E-UDD-F1**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332971-830
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA4XXRDIP-C1020D810U830-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 810 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

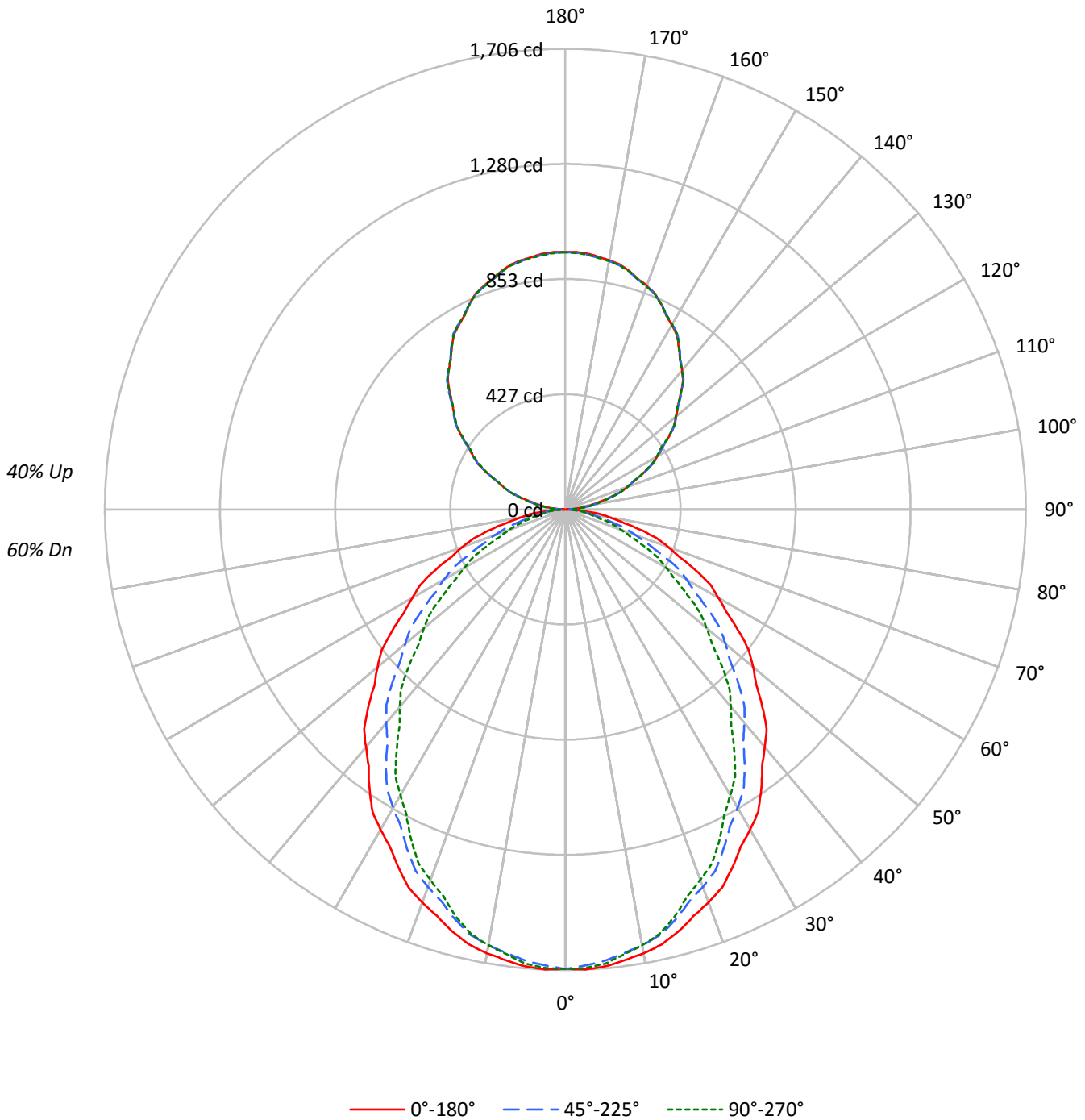
Lumens per Lamp: N/A
Luminaire Lumens: 6578.4 lumens
Efficiency: N/A
Efficacy: 120.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: General Diffuse

Input Watts (W): 54.4
Input Voltage (V): 120
Input Current (A_{in}): 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	109	109	109	109	102	102	102	102	89	89	89	76	76	76	65	65	65	60				
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56	51				
2	92	84	78	73	85	79	74	69	69	65	62	60	57	54	52	49	47	43				
3	84	74	67	61	78	70	63	58	61	56	52	53	49	46	46	43	41	37				
4	77	66	58	52	72	62	55	50	55	49	45	48	43	40	41	38	35	32				
5	71	59	51	45	66	56	48	43	49	43	39	43	38	35	37	34	31	28				
6	65	53	45	39	61	50	43	37	44	38	34	39	34	31	34	30	27	25				
7	60	48	40	35	56	45	38	33	40	34	30	36	31	27	31	27	24	22				
8	56	44	36	31	52	41	34	29	37	31	27	33	28	24	29	25	22	20				
9	52	40	33	27	49	38	31	26	34	28	24	30	25	22	26	23	20	18				
10	49	37	30	25	46	35	28	24	31	26	22	28	23	20	25	21	18	16				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13739	13739	13739
5°	13771	13602	13686
10°	13684	13439	13439
15°	13527	13157	13059
20°	13311	12785	12550
25°	13036	12351	12038
30°	12767	11893	11395
35°	12471	11417	10749
40°	12113	10877	10053
45°	11783	10340	9344
50°	11408	9722	8593
55°	11005	9080	7776
60°	10563	8375	6944
65°	10157	7494	6124
70°	9567	6522	5200
75°	8821	5405	4226
80°	7694	4119	3877
85°	6521	3742	3501



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.9	2.4
10°-20°	445.8	6.8
20°-30°	643.8	9.8
30°-40°	729.7	11.1
40°-50°	704.7	10.7
50°-60°	586.0	8.9
60°-70°	404.6	6.2
70°-80°	205.1	3.1
80°-90°	55.5	0.8
90°-100°	62.8	1.0
100°-110°	186.2	2.8
110°-120°	316.0	4.8
120°-130°	416.6	6.3
130°-140°	467.9	7.1
140°-150°	459.8	7.0
150°-160°	386.7	5.9
160°-170°	257.3	3.9
170°-180°	90.1	1.4
0°-30°	1249.5	19.0
0°-40°	1979.2	30.1
0°-60°	3269.8	49.7
0°-90°	3935.0	59.8
90°-120°	565.0	8.6
90°-150°	1909.3	29.0
90°-180°	2643.0	40.2
0°-180°	6578.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1702	1702	1702	1702	1702	
5°	1699	1694	1678	1691	1689	161
15°	1618	1606	1574	1571	1562	456
25°	1464	1438	1387	1365	1351	674
35°	1265	1222	1158	1115	1091	790
45°	1032	982	906	844	818	795
55°	782	728	645	580	552	699
65°	532	474	392	338	321	525
75°	283	234	173	145	136	299
85°	70	46	40	38	38	79
90°	2	10	16	20	22	6
95°	44	51	56	58	58	49
105°	172	173	175	178	180	182
115°	321	321	320	319	318	317
125°	468	468	467	466	464	417
135°	604	608	608	606	604	467
145°	733	736	737	736	734	459
155°	840	840	839	842	839	386
165°	914	912	911	915	912	258
175°	951	948	947	952	947	90
180°	953	953	953	953	953	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1706.1	1705.2	1704.2	1703.4	1702.4	1700.6	1698.1	1695.5	1693.0	1690.5	1693.0
5°	1699.3	1698.2	1697.0	1695.8	1694.7	1692.3	1688.9	1685.5	1682.0	1678.5	1681.4
7.5°	1683.9	1682.7	1681.5	1680.3	1679.0	1676.2	1671.7	1667.2	1662.6	1658.1	1660.0
10°	1669.3	1667.9	1666.4	1665.0	1663.6	1660.2	1655.0	1649.8	1644.5	1639.4	1640.5
12.5°	1650.6	1648.9	1647.2	1645.6	1643.9	1639.9	1633.8	1627.7	1621.6	1615.4	1616.1
15°	1618.5	1615.9	1613.4	1610.7	1608.1	1603.2	1595.9	1588.7	1581.5	1574.2	1573.7
17.5°	1579.7	1575.9	1572.2	1568.4	1564.6	1558.4	1549.7	1541.1	1532.4	1523.6	1522.0
20°	1549.4	1545.7	1541.9	1538.1	1534.4	1527.6	1517.8	1507.9	1498.1	1488.2	1485.9
22.5°	1516.1	1511.8	1507.6	1503.4	1499.2	1491.8	1481.3	1470.7	1460.2	1449.6	1446.1
25°	1463.5	1458.2	1453.0	1447.8	1442.6	1434.1	1422.2	1410.3	1398.5	1386.6	1381.7
27.5°	1408.2	1401.7	1395.2	1388.6	1382.1	1372.4	1359.7	1347.1	1334.4	1321.6	1315.6
30°	1369.6	1362.4	1355.2	1347.9	1340.7	1330.2	1316.6	1303.0	1289.4	1275.8	1268.6
32.5°	1329.0	1320.8	1312.6	1304.5	1296.3	1285.2	1271.1	1257.1	1242.9	1228.9	1220.5
35°	1265.4	1256.1	1246.8	1237.6	1228.3	1216.4	1201.9	1187.5	1173.0	1158.5	1148.7
37.5°	1197.3	1187.8	1178.3	1168.7	1159.1	1146.3	1130.3	1114.3	1098.2	1082.1	1071.1
40°	1149.4	1139.8	1130.3	1120.7	1111.2	1098.2	1081.7	1065.1	1048.6	1032.1	1019.9
42.5°	1103.5	1093.5	1083.5	1073.5	1063.5	1049.8	1032.6	1015.4	998.2	981.0	968.7
45°	1032.1	1021.4	1010.7	999.9	989.2	975.2	957.8	940.5	923.0	905.7	891.6
47.5°	958.4	947.3	936.2	925.2	914.1	899.6	881.5	863.4	845.3	827.3	812.6
50°	908.3	897.0	885.7	874.4	863.1	848.2	829.7	811.2	792.6	774.1	759.6
52.5°	857.2	846.1	835.1	824.1	812.9	798.0	778.9	760.0	740.9	722.0	707.3
55°	781.9	770.3	758.7	747.2	735.6	720.4	701.5	682.7	663.9	645.1	630.0
57.5°	707.4	695.3	683.2	671.2	659.2	643.9	625.4	606.8	588.2	569.8	554.5
60°	654.2	642.6	631.0	619.4	607.8	592.8	574.3	555.7	537.2	518.7	503.6
62.5°	606.2	594.2	582.1	570.0	558.1	542.5	523.5	504.5	485.5	466.6	452.6
65°	531.7	519.2	506.8	494.4	481.9	466.4	447.9	429.3	410.8	392.3	379.8
67.5°	454.3	442.3	430.5	418.5	406.5	392.0	374.8	357.6	340.4	323.2	312.5
70°	405.3	393.1	381.0	368.8	356.7	342.3	325.8	309.2	292.8	276.3	266.7
72.5°	353.2	342.1	331.1	320.2	309.2	295.9	280.3	264.7	249.1	233.6	225.4
75°	282.8	272.1	261.4	250.6	240.0	227.7	214.1	200.6	186.9	173.3	166.6
77.5°	211.4	202.3	193.2	184.1	175.0	164.9	153.9	143.0	132.0	120.9	117.1
80°	165.5	157.1	148.7	140.3	132.0	123.4	114.7	106.0	97.3	88.6	87.8
82.5°	125.9	118.2	110.5	102.7	95.1	88.7	83.8	78.8	73.8	68.8	68.1
85°	70.4	64.6	58.8	53.0	47.2	43.8	43.0	42.1	41.3	40.4	39.8
87.5°	24.4	22.9	21.4	20.0	18.5	17.7	17.7	17.8	17.8	17.8	17.8
90°	2.2	4.1	5.8	7.6	9.4	10.9	12.3	13.6	14.9	16.2	17.2
92.5°	15.7	17.8	19.9	22.0	24.0	25.5	26.4	27.3	28.3	29.2	29.8
95°	44.2	45.7	47.1	48.6	50.1	51.5	52.6	53.7	54.9	56.0	56.5
97.5°	77.2	78.4	79.6	80.8	81.9	83.2	84.5	85.9	87.2	88.6	89.2
100°	103.2	103.8	104.4	105.1	105.8	106.9	108.3	109.8	111.2	112.7	113.1
102.5°	130.3	130.5	130.8	131.1	131.3	132.1	133.5	134.8	136.2	137.5	138.0
105°	171.7	171.8	172.0	172.2	172.4	172.8	173.4	174.1	174.7	175.4	175.9
107.5°	215.2	215.4	215.6	215.7	215.9	216.1	216.2	216.3	216.4	216.5	217.0
110°	244.7	245.0	245.2	245.6	245.9	246.0	245.9	245.7	245.5	245.3	245.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	275.3	275.3	275.4	275.5	275.6	275.4	275.1	274.8	274.6	274.3	274.2
115°	321.3	321.3	321.3	321.3	321.3	321.1	320.7	320.5	320.1	319.8	319.6
117.5°	364.6	364.8	364.9	365.0	365.1	365.0	364.9	364.6	364.4	364.2	363.6
120°	393.5	394.2	394.8	395.5	396.2	396.2	395.7	395.2	394.7	394.3	393.4
122.5°	423.6	423.8	424.0	424.3	424.6	424.6	424.4	424.1	424.0	423.7	423.1
125°	467.9	467.9	467.9	467.9	467.9	467.8	467.7	467.5	467.3	467.2	466.8
127.5°	508.1	508.6	509.2	509.6	510.1	510.2	509.9	509.7	509.4	509.2	508.9
130°	536.4	537.0	537.4	537.9	538.4	538.7	538.7	538.7	538.7	538.7	538.3
132.5°	565.3	565.7	566.1	566.4	566.8	566.8	566.8	566.7	566.5	566.4	566.0
135°	603.5	604.5	605.5	606.4	607.5	607.9	607.9	607.9	607.9	607.9	607.6
137.5°	645.1	645.5	645.9	646.4	646.9	647.2	647.5	647.8	648.0	648.3	647.9
140°	672.8	673.1	673.4	673.7	674.1	674.2	674.2	674.2	674.2	674.2	674.1
142.5°	698.1	698.4	698.8	699.1	699.5	699.6	699.4	699.3	699.1	699.0	699.0
145°	733.2	733.9	734.5	735.2	735.8	736.2	736.4	736.5	736.7	736.9	736.7
147.5°	768.0	768.7	769.5	770.3	771.1	771.5	771.3	771.2	771.0	770.9	770.8
150°	789.2	789.9	790.5	791.2	791.8	792.1	792.1	792.1	792.1	792.1	792.1
152.5°	809.3	809.6	810.0	810.4	810.8	811.1	811.2	811.3	811.4	811.6	812.0
155°	840.0	840.0	840.0	840.0	840.0	839.9	839.8	839.6	839.4	839.3	839.9
157.5°	866.0	865.6	865.3	865.1	864.8	864.6	864.6	864.6	864.5	864.5	865.0
160°	881.3	881.1	881.0	880.8	880.6	880.4	880.3	880.1	880.0	879.9	880.3
162.5°	895.4	895.0	894.6	894.2	893.7	893.4	893.2	893.2	893.0	892.8	893.7
165°	914.5	914.0	913.5	912.9	912.5	912.1	911.7	911.4	911.1	910.8	911.7
167.5°	929.1	928.3	927.7	927.0	926.3	926.0	926.0	926.0	926.0	926.0	927.1
170°	937.3	936.5	935.7	934.8	934.1	933.7	933.9	934.1	934.2	934.3	935.3
172.5°	943.2	942.5	941.8	941.1	940.5	940.1	940.2	940.2	940.2	940.3	941.3
175°	951.3	950.5	949.6	948.9	948.0	947.5	947.3	947.2	947.1	946.9	948.0
177.5°	953.9	953.3	952.6	952.0	951.3	951.0	951.0	951.0	951.0	951.0	951.9
180°	952.7	952.7	952.7	952.7	952.7	952.7	952.7	952.7	952.7	952.7	952.7



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1695.5	1698.1	1700.6	1701.9	1701.6	1701.4	1701.1	1700.9
5°	1684.2	1687.2	1690.1	1691.2	1690.6	1690.1	1689.5	1688.9
7.5°	1661.9	1663.7	1665.6	1666.0	1665.1	1664.2	1663.2	1662.3
10°	1641.7	1642.9	1644.0	1644.0	1642.9	1641.7	1640.5	1639.4
12.5°	1616.7	1617.5	1618.2	1617.7	1616.1	1614.5	1612.9	1611.3
15°	1573.1	1572.4	1571.9	1570.6	1568.6	1566.5	1564.5	1562.5
17.5°	1520.4	1518.8	1517.2	1514.9	1511.7	1508.7	1505.6	1502.5
20°	1483.6	1481.3	1478.9	1475.9	1472.2	1468.4	1464.6	1460.8
22.5°	1442.7	1439.2	1435.8	1432.5	1429.4	1426.3	1423.2	1420.2
25°	1376.7	1371.8	1366.9	1362.9	1360.1	1357.2	1354.2	1351.4
27.5°	1309.5	1303.4	1297.3	1292.2	1288.1	1283.8	1279.7	1275.5
30°	1261.3	1254.1	1246.8	1240.9	1236.2	1231.6	1227.0	1222.4
32.5°	1212.1	1203.7	1195.3	1188.9	1184.5	1180.1	1175.7	1171.3
35°	1138.8	1129.0	1119.1	1111.6	1106.4	1101.2	1096.0	1090.7
37.5°	1060.2	1049.1	1038.1	1030.0	1024.8	1019.5	1014.4	1009.2
40°	1007.8	995.6	983.4	974.8	969.6	964.3	959.1	953.9
42.5°	956.2	943.9	931.4	922.6	917.1	911.6	906.2	900.8
45°	877.3	863.1	848.9	839.2	834.1	828.8	823.6	818.4
47.5°	797.9	783.2	768.4	758.2	752.4	746.7	740.9	735.3
50°	745.1	730.7	716.1	706.2	700.7	695.1	689.7	684.2
52.5°	692.5	677.8	663.1	652.9	647.1	641.4	635.7	630.0
55°	614.9	599.9	584.8	574.6	569.0	563.5	558.1	552.5
57.5°	539.1	523.9	508.6	498.9	494.6	490.5	486.4	482.2
60°	488.5	473.4	458.5	448.6	443.9	439.3	434.7	430.1
62.5°	438.8	424.8	410.9	402.1	398.4	394.7	391.0	387.3
65°	367.3	354.9	342.4	334.5	331.0	327.5	324.0	320.6
67.5°	301.7	291.1	280.3	273.1	269.2	265.4	261.6	257.8
70°	257.1	247.6	238.1	231.8	228.9	226.0	223.1	220.3
72.5°	217.2	209.1	200.9	195.5	192.7	190.1	187.5	184.8
75°	160.0	153.4	146.7	142.5	140.7	139.0	137.2	135.5
77.5°	113.2	109.3	105.4	103.2	102.6	102.2	101.6	101.1
80°	86.9	86.1	85.1	84.5	84.3	84.0	83.7	83.4
82.5°	67.5	66.9	66.3	65.8	65.5	65.2	64.9	64.7
85°	39.2	38.6	38.1	37.8	37.8	37.8	37.8	37.8
87.5°	17.8	17.7	17.7	17.8	18.1	18.4	18.8	19.0
90°	18.2	19.1	20.2	20.8	21.1	21.5	21.8	22.1
92.5°	30.3	30.9	31.6	32.0	32.1	32.3	32.5	32.7
95°	57.0	57.5	58.0	58.2	58.2	58.2	58.2	58.2
97.5°	89.7	90.3	91.0	91.2	91.2	91.2	91.2	91.2
100°	113.4	113.8	114.0	114.2	114.2	114.2	114.2	114.2
102.5°	138.5	138.8	139.3	139.6	139.8	139.9	140.1	140.2
105°	176.3	176.8	177.3	177.9	178.3	178.8	179.3	179.8
107.5°	217.4	217.8	218.3	218.6	218.5	218.5	218.5	218.4
110°	244.7	244.4	244.0	244.1	244.7	245.2	245.6	246.1



TEST NUMBER: P332971-830

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	274.1	274.1	274.0	274.0	274.1	274.2	274.3	274.4
115°	319.4	319.3	319.1	319.0	318.9	318.7	318.5	318.3
117.5°	363.1	362.5	361.9	361.5	361.2	360.8	360.5	360.1
120°	392.6	391.7	391.0	390.7	391.1	391.3	391.7	392.0
122.5°	422.5	422.1	421.5	420.9	420.3	419.7	419.1	418.6
125°	466.6	466.2	465.9	465.5	465.2	464.9	464.6	464.2
127.5°	508.5	508.2	507.8	507.6	507.3	507.1	506.8	506.5
130°	538.0	537.6	537.3	536.9	536.2	535.6	534.9	534.2
132.5°	565.7	565.3	565.1	564.8	564.5	564.2	563.9	563.7
135°	607.3	606.9	606.6	606.1	605.7	605.2	604.7	604.3
137.5°	647.4	647.1	646.6	646.4	646.5	646.6	646.7	646.9
140°	673.9	673.7	673.5	673.4	673.3	673.1	672.9	672.8
142.5°	698.9	698.9	698.9	698.8	698.8	698.8	698.7	698.7
145°	736.5	736.4	736.2	735.8	735.4	734.9	734.4	734.0
147.5°	770.6	770.5	770.3	770.2	770.1	769.9	769.8	769.6
150°	792.1	792.1	792.1	792.0	791.9	791.7	791.5	791.4
152.5°	812.4	812.8	813.1	813.1	812.8	812.3	811.9	811.4
155°	840.6	841.2	841.9	841.9	841.2	840.6	839.9	839.3
157.5°	865.4	866.0	866.5	866.4	865.9	865.3	864.8	864.2
160°	880.8	881.3	881.7	881.7	880.8	880.0	879.2	878.4
162.5°	894.6	895.4	896.4	896.4	895.5	894.8	893.9	893.1
165°	912.8	913.7	914.7	914.8	914.2	913.5	912.9	912.3
167.5°	928.0	929.1	930.0	930.0	929.0	927.9	927.0	926.0
170°	936.3	937.3	938.3	938.2	937.1	935.9	934.7	933.6
172.5°	942.4	943.6	944.7	944.7	943.6	942.4	941.2	940.1
175°	949.1	950.3	951.5	951.5	950.3	949.1	948.0	946.9
177.5°	952.8	953.8	954.7	954.6	953.6	952.5	951.5	950.4
180°	952.7	952.7	952.7	952.7	952.7	952.7	952.7	952.7

(END OF REPORT)