

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: P333094-830

Luminaire Tested: **S124RDIW-S1020D1560U830-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333094-830
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-S1020D1560U830-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9036.0 lumens
Efficiency: N/A
Efficacy: 118.0 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: General Diffuse

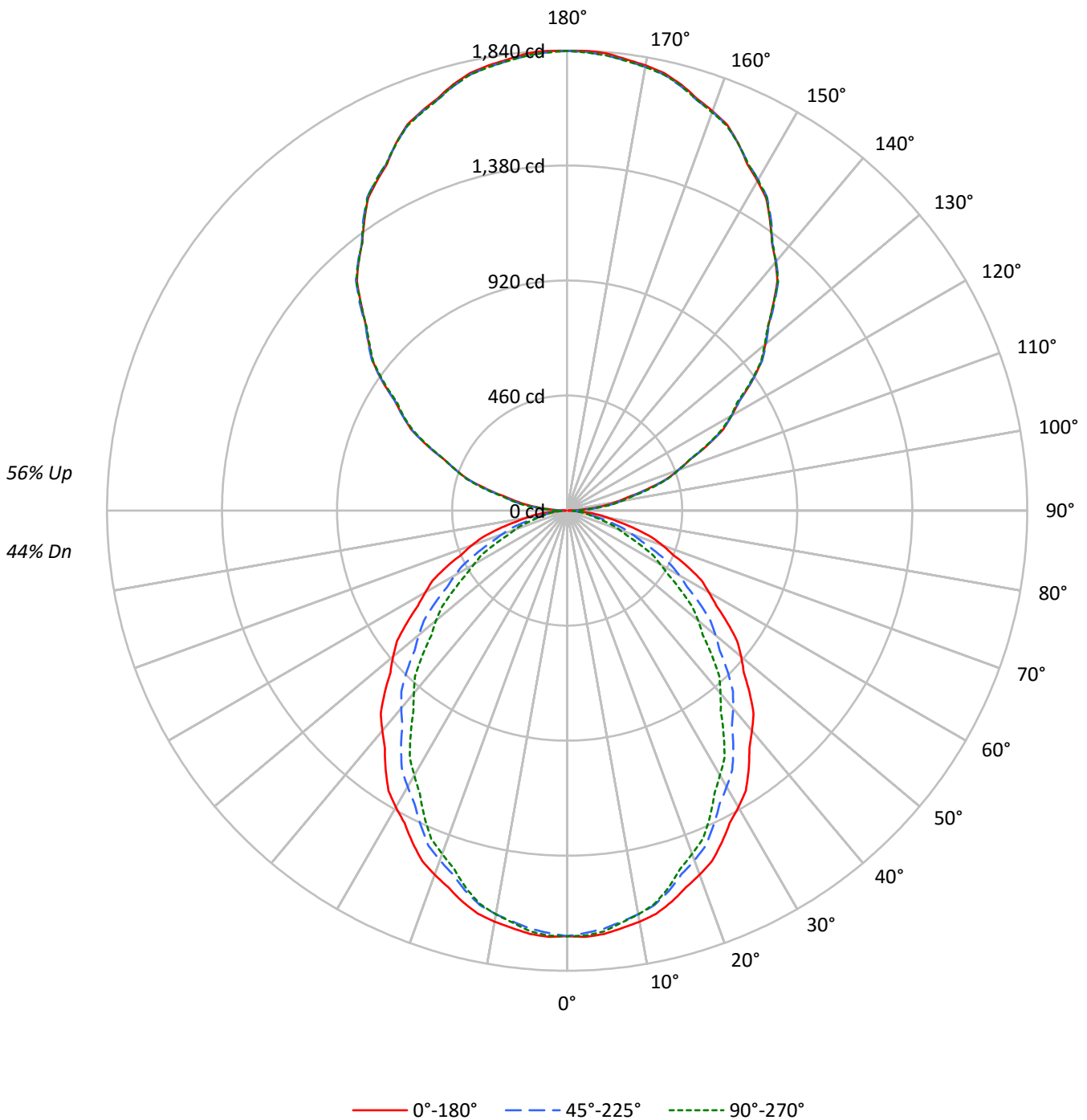
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																				
0	106	106	106	106	97	97	97	97	80	80	80		64	64	64		50	50	50	44
1	97	92	89	85	88	85	81	79	70	68	66		57	55	54		45	44	43	37
2	88	81	75	70	80	74	69	65	62	58	55		50	48	45		40	38	36	31
3	80	71	64	58	73	66	59	54	55	50	46		45	41	39		35	33	31	27
4	74	63	55	50	67	58	51	46	49	44	40		40	36	33		32	29	27	23
5	68	56	48	43	62	52	45	40	44	38	34		36	32	29		29	26	24	20
6	62	51	43	37	57	47	40	35	39	34	30		32	28	25		26	23	21	18
7	58	46	38	32	53	42	35	30	36	30	26		30	26	23		24	21	19	16
8	54	41	34	29	49	38	32	27	33	27	24		27	23	20		22	19	17	14
9	50	38	31	26	46	35	29	24	30	25	21		25	21	18		20	17	15	13
10	47	35	28	23	43	32	26	22	27	22	19		23	19	16		19	16	14	12

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	1.8
10°-20°	445.8	4.9
20°-30°	643.8	7.1
30°-40°	729.7	8.1
40°-50°	704.7	7.8
50°-60°	586.0	6.5
60°-70°	404.6	4.5
70°-80°	205.1	2.3
80°-90°	58.1	0.6
90°-100°	121.2	1.3
100°-110°	359.1	4.0
110°-120°	609.4	6.7
120°-130°	803.6	8.9
130°-140°	902.4	10.0
140°-150°	886.8	9.8
150°-160°	745.9	8.3
160°-170°	496.2	5.5
170°-180°	173.8	1.9
0°-30°	1249.5	13.8
0°-40°	1979.2	21.9
0°-60°	3269.8	36.2
0°-90°	3937.7	43.6
90°-120°	1089.7	12.1
90°-150°	3682.5	40.8
90°-180°	5098.0	56.4
0°-180°	9036.0	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°	4	20	31	40	43	9
95°	85	98	108	112	112	95
105°	331	333	338	342	347	351
115°	620	619	617	615	614	611
125°	902	902	901	898	895	804
135°	1164	1172	1172	1170	1165	900
145°	1414	1420	1421	1420	1416	885
155°	1620	1620	1619	1624	1619	745
165°	1764	1760	1757	1764	1759	497
175°	1835	1828	1826	1835	1826	174
180°	1838	1838	1838	1838	1838	



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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°	24.8	23.7	22.5	21.4	20.2	19.8	20.0	20.3	20.5	20.8	21.0
90°	4.2	7.7	11.2	14.7	18.2	21.2	23.7	26.2	28.7	31.3	33.2
92.5°	30.4	34.4	38.4	42.3	46.4	49.2	51.0	52.8	54.5	56.3	57.4
95°	85.3	88.1	91.0	93.8	96.6	99.2	101.4	103.6	105.8	108.0	109.0
97.5°	148.9	151.2	153.4	155.8	158.1	160.5	163.1	165.6	168.2	170.8	171.9
100°	199.0	200.2	201.5	202.7	204.1	206.0	209.0	211.8	214.6	217.4	218.1
102.5°	251.3	251.8	252.3	252.8	253.3	254.9	257.4	260.0	262.6	265.2	266.1
105°	331.1	331.5	331.8	332.1	332.4	333.2	334.4	335.7	337.0	338.3	339.2
107.5°	415.0	415.4	415.8	416.1	416.5	416.8	417.0	417.2	417.4	417.5	418.4
110°	471.8	472.5	473.1	473.7	474.4	474.6	474.2	473.9	473.5	473.3	472.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	530.9	531.1	531.2	531.3	531.5	531.2	530.7	530.1	529.5	529.0	528.9
115°	619.6	619.6	619.6	619.6	619.6	619.3	618.7	618.0	617.5	616.8	616.5
117.5°	703.2	703.4	703.7	704.0	704.3	704.2	703.7	703.2	702.8	702.4	701.3
120°	758.9	760.2	761.5	762.7	763.9	764.1	763.2	762.2	761.3	760.3	758.7
122.5°	816.9	817.4	817.9	818.4	818.9	819.0	818.5	818.0	817.7	817.2	816.1
125°	902.5	902.5	902.5	902.5	902.5	902.3	902.0	901.6	901.4	901.1	900.4
127.5°	980.1	981.0	981.9	982.9	983.8	984.1	983.5	983.1	982.6	982.0	981.4
130°	1034.6	1035.6	1036.5	1037.5	1038.4	1038.9	1038.9	1038.9	1038.9	1038.9	1038.3
132.5°	1090.3	1091.1	1091.7	1092.4	1093.2	1093.3	1093.1	1092.9	1092.6	1092.3	1091.7
135°	1163.9	1165.8	1167.7	1169.7	1171.6	1172.5	1172.5	1172.5	1172.5	1172.5	1171.9
137.5°	1244.2	1245.0	1245.9	1246.8	1247.6	1248.4	1248.9	1249.3	1249.9	1250.4	1249.5
140°	1297.6	1298.2	1298.8	1299.5	1300.0	1300.4	1300.4	1300.4	1300.4	1300.4	1300.0
142.5°	1346.4	1347.1	1347.7	1348.3	1349.0	1349.2	1348.9	1348.7	1348.4	1348.1	1348.1
145°	1414.1	1415.3	1416.6	1417.9	1419.2	1419.9	1420.2	1420.6	1420.9	1421.2	1420.9
147.5°	1481.2	1482.7	1484.2	1485.7	1487.2	1487.9	1487.6	1487.3	1487.1	1486.9	1486.6
150°	1522.1	1523.3	1524.7	1525.9	1527.2	1527.8	1527.8	1527.8	1527.8	1527.8	1527.8
152.5°	1560.8	1561.5	1562.3	1563.0	1563.8	1564.3	1564.5	1564.8	1565.1	1565.3	1566.0
155°	1620.1	1620.1	1620.1	1620.1	1620.1	1620.0	1619.7	1619.4	1619.1	1618.7	1620.0
157.5°	1670.2	1669.6	1669.1	1668.5	1667.9	1667.6	1667.5	1667.5	1667.5	1667.4	1668.3
160°	1699.8	1699.4	1699.1	1698.8	1698.5	1698.2	1697.9	1697.5	1697.2	1697.0	1697.9
162.5°	1727.0	1726.3	1725.4	1724.6	1723.7	1723.2	1722.9	1722.6	1722.2	1721.9	1723.6
165°	1763.7	1762.7	1761.8	1760.9	1759.9	1759.2	1758.5	1757.8	1757.3	1756.6	1758.5
167.5°	1791.9	1790.5	1789.2	1787.9	1786.6	1785.9	1786.0	1786.0	1786.1	1786.2	1788.1
170°	1807.8	1806.2	1804.6	1803.0	1801.5	1800.8	1801.1	1801.5	1801.8	1802.0	1803.9
172.5°	1819.1	1817.8	1816.5	1815.1	1813.8	1813.2	1813.3	1813.4	1813.4	1813.5	1815.6
175°	1834.8	1833.2	1831.6	1830.0	1828.4	1827.5	1827.2	1826.8	1826.6	1826.3	1828.4
177.5°	1839.8	1838.6	1837.4	1836.1	1834.8	1834.2	1834.2	1834.2	1834.2	1834.2	1836.0
180°	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6



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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°	21.1	21.3	21.4	21.7	22.1	22.4	22.8	23.1
90°	35.1	36.9	38.8	40.2	40.7	41.4	42.0	42.6
92.5°	58.5	59.7	60.8	61.5	61.9	62.3	62.7	63.1
95°	109.9	110.8	111.8	112.3	112.3	112.3	112.3	112.3
97.5°	173.1	174.3	175.4	176.0	176.0	176.0	176.0	176.0
100°	218.7	219.3	220.0	220.3	220.3	220.3	220.3	220.3
102.5°	266.9	267.9	268.7	269.3	269.6	269.8	270.0	270.3
105°	340.2	341.1	342.0	343.0	343.9	344.9	345.8	346.8
107.5°	419.3	420.2	421.1	421.5	421.4	421.4	421.3	421.2
110°	472.0	471.4	470.7	470.9	471.8	472.8	473.7	474.7



TEST NUMBER: P333094-830

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	528.7	528.6	528.5	528.5	528.7	528.9	529.0	529.2
115°	616.1	615.9	615.6	615.2	614.9	614.6	614.3	614.0
117.5°	700.2	699.2	698.0	697.2	696.5	696.0	695.3	694.7
120°	757.1	755.6	754.0	753.6	754.2	754.8	755.4	756.1
122.5°	815.0	814.0	812.9	811.8	810.7	809.5	808.4	807.3
125°	899.8	899.2	898.5	897.9	897.2	896.6	896.0	895.3
127.5°	980.8	980.1	979.5	978.9	978.5	978.0	977.4	976.9
130°	1037.6	1037.0	1036.3	1035.4	1034.2	1032.9	1031.6	1030.4
132.5°	1091.1	1090.4	1089.8	1089.2	1088.7	1088.3	1087.7	1087.2
135°	1171.2	1170.6	1170.0	1169.1	1168.2	1167.2	1166.3	1165.4
137.5°	1248.8	1247.9	1247.1	1246.8	1247.0	1247.2	1247.4	1247.5
140°	1299.8	1299.5	1299.1	1298.8	1298.5	1298.2	1297.9	1297.6
142.5°	1348.0	1347.9	1347.9	1347.8	1347.7	1347.7	1347.6	1347.6
145°	1420.6	1420.2	1419.9	1419.3	1418.3	1417.4	1416.5	1415.5
147.5°	1486.4	1486.1	1485.8	1485.5	1485.3	1485.0	1484.6	1484.3
150°	1527.8	1527.8	1527.8	1527.7	1527.3	1527.0	1526.7	1526.4
152.5°	1566.8	1567.5	1568.3	1568.3	1567.4	1566.7	1565.8	1565.0
155°	1621.3	1622.5	1623.8	1623.8	1622.5	1621.3	1620.0	1618.7
157.5°	1669.2	1670.2	1671.1	1671.0	1670.0	1669.0	1667.8	1666.8
160°	1698.8	1699.8	1700.7	1700.3	1698.8	1697.2	1695.6	1694.0
162.5°	1725.3	1727.0	1728.7	1728.8	1727.2	1725.7	1724.1	1722.5
165°	1760.4	1762.3	1764.2	1764.5	1763.2	1762.0	1760.7	1759.4
167.5°	1790.0	1791.9	1793.8	1793.8	1791.8	1789.8	1787.8	1785.8
170°	1805.9	1807.8	1809.7	1809.5	1807.3	1805.1	1802.9	1800.6
172.5°	1817.8	1819.9	1822.0	1822.0	1819.8	1817.6	1815.3	1813.2
175°	1830.7	1832.9	1835.1	1835.1	1832.9	1830.7	1828.4	1826.3
177.5°	1837.8	1839.5	1841.3	1841.2	1839.1	1837.1	1835.1	1833.1
180°	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6

(END OF REPORT)