

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: P332834-830

Luminaire Tested: **S124DIW-S1020D1560U830-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332834-830
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: S124DIW-S1020D1560U830-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9277.3 lumens
Efficiency: N/A
Efficacy: 121.1 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

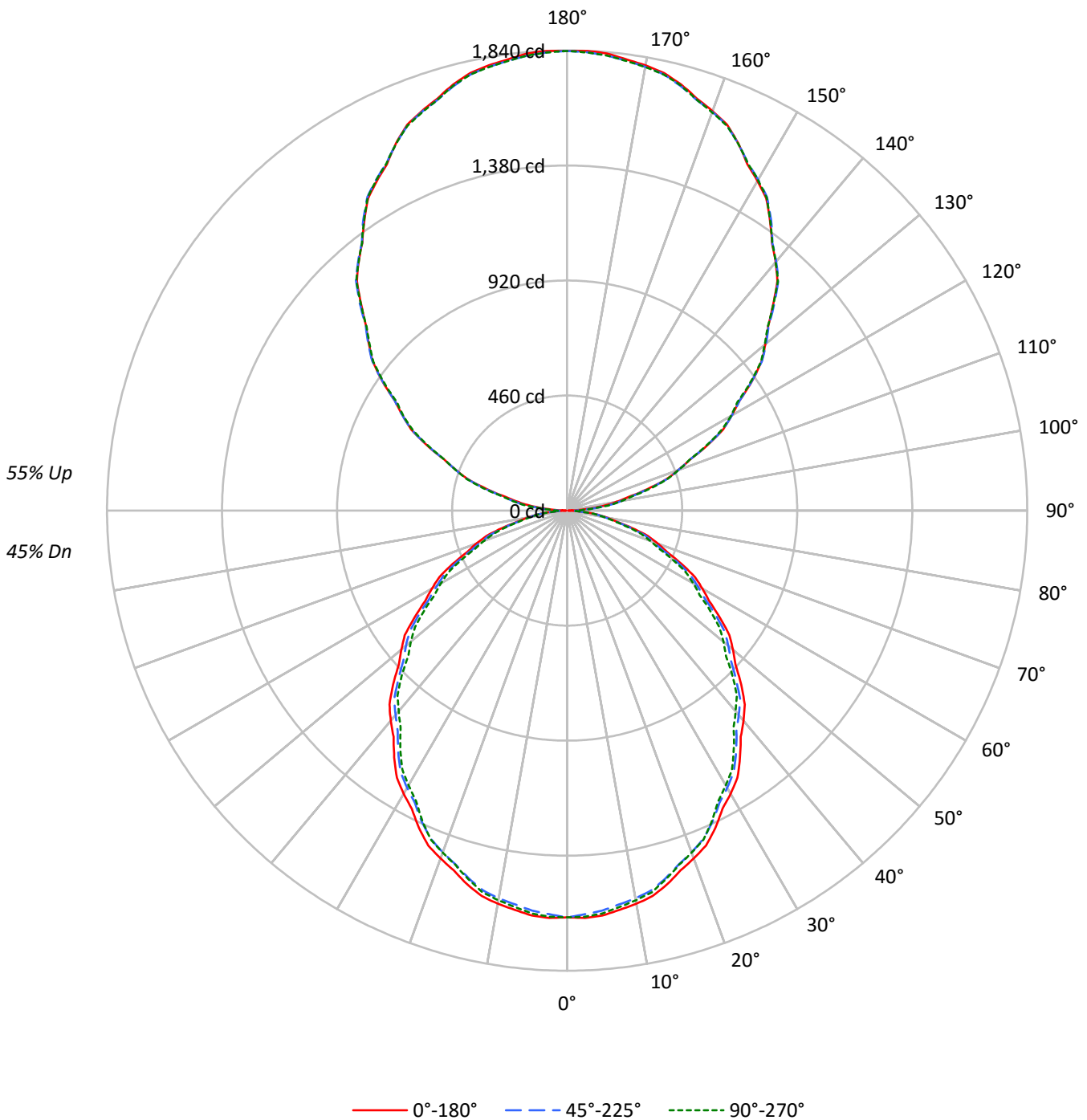
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	106	106	106	106	97	97	97	97	81	81	81	65	65	65	52	52	52	45				
1	97	92	88	85	88	85	81	78	71	68	66	58	56	54	45	44	43	38				
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	37	32				
3	80	71	64	58	73	65	59	54	54	50	46	45	41	38	35	33	31	27				
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23				
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23	20				
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21	18				
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16				
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14				
9	49	37	30	25	45	35	28	23	29	24	20	25	21	18	20	17	15	13				
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13130	13130	13130
5°	13169	13011	13105
10°	13086	12904	12969
15°	12929	12721	12754
20°	12718	12494	12506
25°	12479	12235	12200
30°	12185	11929	11820
35°	11880	11610	11456
40°	11564	11248	11041
45°	11233	10891	10683
50°	10868	10574	10246
55°	10473	10162	9831
60°	10078	9700	9405
65°	9635	9259	8886
70°	9135	8674	8337
75°	8372	7966	7764
80°	7452	7146	6969
85°	6521	6280	6150



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.2	1.7
10°-20°	431.5	4.7
20°-30°	635.2	6.8
30°-40°	738.4	8.0
40°-50°	738.4	8.0
50°-60°	645.9	7.0
60°-70°	479.7	5.2
70°-80°	272.5	2.9
80°-90°	84.1	0.9
90°-100°	121.2	1.3
100°-110°	359.1	3.9
110°-120°	609.4	6.6
120°-130°	803.6	8.7
130°-140°	902.4	9.7
140°-150°	886.8	9.6
150°-160°	745.9	8.0
160°-170°	496.2	5.3
170°-180°	173.8	1.9
0°-30°	1219.8	13.1
0°-40°	1958.2	21.1
0°-60°	3342.6	36.0
0°-90°	4178.9	45.0
90°-120°	1089.7	11.7
90°-150°	3682.5	39.7
90°-180°	5098.0	55.0
0°-180°	9277.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1626	1626	1626	1626	1626	
5°	1625	1619	1606	1619	1617	154
15°	1547	1541	1522	1529	1526	436
25°	1401	1391	1374	1374	1370	644
35°	1205	1196	1178	1169	1162	753
45°	984	974	954	940	936	758
55°	744	739	722	707	698	666
65°	504	497	485	472	465	499
75°	268	262	255	250	249	285
85°	70	70	68	68	66	78
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°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1630.5	1629.8	1629.1	1628.4	1627.8	1626.1	1623.5	1621.0	1618.4	1615.9	1618.3
5°	1625.0	1623.9	1622.8	1621.6	1620.4	1618.3	1615.0	1611.8	1608.7	1605.5	1608.7
7.5°	1610.0	1608.7	1607.6	1606.5	1605.3	1603.0	1599.4	1595.9	1592.3	1588.8	1591.4
10°	1596.4	1595.3	1594.0	1592.9	1591.8	1589.3	1585.5	1581.8	1578.0	1574.2	1576.5
12.5°	1578.7	1577.5	1576.3	1575.2	1574.0	1571.4	1567.4	1563.5	1559.4	1555.5	1558.0
15°	1546.9	1545.7	1544.5	1543.4	1542.2	1539.5	1535.1	1530.8	1526.4	1522.1	1523.8
17.5°	1508.5	1507.1	1505.6	1504.2	1502.8	1500.0	1495.8	1491.8	1487.6	1483.6	1484.6
20°	1480.4	1478.9	1477.5	1476.0	1474.6	1471.7	1467.4	1463.0	1458.7	1454.3	1455.2
22.5°	1450.2	1448.2	1446.3	1444.4	1442.6	1439.4	1435.0	1430.7	1426.3	1422.0	1423.6
25°	1400.9	1398.9	1396.8	1394.8	1392.8	1389.8	1385.7	1381.7	1377.6	1373.6	1373.9
27.5°	1344.6	1342.6	1340.4	1338.3	1336.2	1333.3	1329.6	1325.8	1322.0	1318.2	1317.6
30°	1307.1	1304.8	1302.4	1300.1	1297.8	1294.8	1291.0	1287.2	1283.5	1279.7	1278.6
32.5°	1267.4	1265.4	1263.3	1261.2	1259.1	1256.0	1252.1	1248.1	1244.1	1240.1	1238.7
35°	1205.4	1203.4	1201.4	1199.4	1197.3	1194.3	1190.2	1186.2	1182.1	1178.1	1176.0
37.5°	1140.0	1138.1	1136.3	1134.4	1132.6	1129.5	1125.1	1120.8	1116.4	1112.1	1109.9
40°	1097.3	1095.0	1092.6	1090.3	1088.0	1084.7	1080.3	1076.0	1071.7	1067.3	1064.4
42.5°	1051.4	1050.0	1048.6	1047.3	1045.8	1042.7	1037.9	1033.1	1028.3	1023.5	1020.1
45°	983.9	981.8	979.9	977.8	975.8	972.4	967.8	963.2	958.6	953.9	950.7
47.5°	913.2	911.9	910.5	909.1	907.7	904.8	900.6	896.3	892.0	887.7	884.1
50°	865.3	864.1	863.0	861.9	860.6	858.1	854.0	850.0	845.9	841.9	837.8
52.5°	818.4	817.0	815.6	814.3	812.8	810.0	805.7	801.4	797.1	792.9	789.3
55°	744.1	743.2	742.3	741.5	740.6	738.2	734.1	730.1	726.0	722.0	718.5
57.5°	673.3	672.2	671.3	670.2	669.3	666.8	662.8	658.8	654.8	650.8	647.5
60°	624.2	622.7	621.3	619.9	618.4	615.9	612.1	608.3	604.5	600.8	598.1
62.5°	576.3	575.0	573.8	572.6	571.4	568.8	564.8	560.8	556.8	552.8	550.4
65°	504.4	502.8	501.4	500.0	498.5	496.3	493.4	490.6	487.7	484.7	481.9
67.5°	431.9	430.6	429.2	427.9	426.5	424.5	421.7	419.0	416.1	413.4	410.6
70°	387.0	385.0	383.0	381.0	378.9	376.7	374.5	372.1	369.9	367.5	365.1
72.5°	339.1	337.1	335.1	333.0	331.0	329.0	327.2	325.4	323.5	321.6	319.8
75°	268.4	267.0	265.5	264.1	262.7	261.2	259.8	258.4	256.8	255.4	254.3
77.5°	201.0	200.3	199.6	199.1	198.4	197.5	196.1	194.9	193.6	192.4	192.0
80°	160.3	159.4	158.5	157.7	156.8	156.1	155.5	155.0	154.4	153.7	153.2
82.5°	120.6	120.3	119.9	119.4	119.0	118.8	118.7	118.6	118.5	118.3	118.0
85°	70.4	70.4	70.4	70.4	70.4	70.1	69.5	68.9	68.3	67.8	67.8
87.5°	28.0	28.5	28.8	29.3	29.8	30.2	30.4	30.7	31.0	31.3	31.7
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°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1620.5	1622.9	1625.2	1626.3	1626.0	1625.8	1625.5	1625.3
5°	1611.8	1615.0	1618.3	1619.6	1619.0	1618.3	1617.8	1617.2
7.5°	1593.9	1596.5	1599.0	1600.2	1599.8	1599.4	1599.0	1598.7
10°	1578.9	1581.2	1583.5	1584.3	1583.8	1583.2	1582.6	1582.1
12.5°	1560.6	1563.1	1565.7	1566.5	1565.8	1564.9	1564.1	1563.3
15°	1525.6	1527.3	1529.1	1529.5	1528.6	1527.8	1526.9	1526.0
17.5°	1485.7	1486.9	1487.9	1488.2	1487.6	1487.0	1486.5	1485.8
20°	1456.0	1457.0	1457.8	1457.9	1457.4	1456.8	1456.2	1455.7
22.5°	1425.1	1426.7	1428.2	1428.5	1427.5	1426.4	1425.4	1424.4
25°	1374.1	1374.4	1374.7	1374.2	1373.1	1372.0	1370.7	1369.6
27.5°	1316.9	1316.2	1315.5	1314.5	1313.0	1311.5	1310.0	1308.6
30°	1277.4	1276.2	1275.1	1273.8	1272.3	1270.8	1269.4	1268.0
32.5°	1237.3	1236.0	1234.5	1233.1	1231.6	1230.2	1228.8	1227.3
35°	1174.0	1172.0	1170.0	1168.2	1166.8	1165.4	1163.9	1162.4
37.5°	1107.7	1105.5	1103.3	1101.3	1099.4	1097.4	1095.5	1093.6
40°	1061.5	1058.6	1055.7	1053.6	1052.1	1050.7	1049.2	1047.7
42.5°	1016.8	1013.4	1010.0	1007.9	1006.9	1005.9	1004.9	1004.0
45°	947.5	944.3	941.1	939.1	938.3	937.5	936.5	935.7
47.5°	880.5	876.9	873.4	870.4	868.3	866.0	863.8	861.7
50°	833.8	829.7	825.7	822.7	821.0	819.3	817.6	815.8
52.5°	785.7	782.0	778.4	775.6	773.4	771.2	769.0	766.8
55°	715.0	711.5	708.0	705.5	703.7	702.0	700.2	698.5
57.5°	644.2	640.9	637.6	635.1	633.4	631.8	630.1	628.4
60°	595.6	593.0	590.3	588.3	586.8	585.4	584.0	582.5
62.5°	548.1	545.6	543.3	541.4	540.0	538.5	537.1	535.6
65°	479.0	476.1	473.2	471.0	469.6	468.2	466.7	465.2
67.5°	407.8	405.0	402.3	400.7	400.2	399.8	399.4	399.1
70°	362.9	360.5	358.3	356.7	355.8	354.9	354.0	353.2
72.5°	317.9	316.0	314.2	312.8	312.0	311.1	310.3	309.3
75°	253.1	251.9	250.8	250.1	249.8	249.5	249.2	248.9
77.5°	191.6	191.3	191.0	190.4	189.6	188.9	188.1	187.4
80°	152.6	152.0	151.5	151.0	150.7	150.4	150.1	149.9
82.5°	117.6	117.3	117.0	116.6	116.3	116.0	115.7	115.5
85°	67.8	67.8	67.8	67.6	67.3	67.0	66.7	66.4
87.5°	32.0	32.4	32.8	33.1	33.2	33.3	33.5	33.6
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: P332834-830

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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)