

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: P332958

Luminaire Tested: **S124RDIP-S1020D365U835-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332958  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124RDIP-S1020D365U835-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 365 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5634.9 lumens  
Efficiency: N/A  
Efficacy: 129.5 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

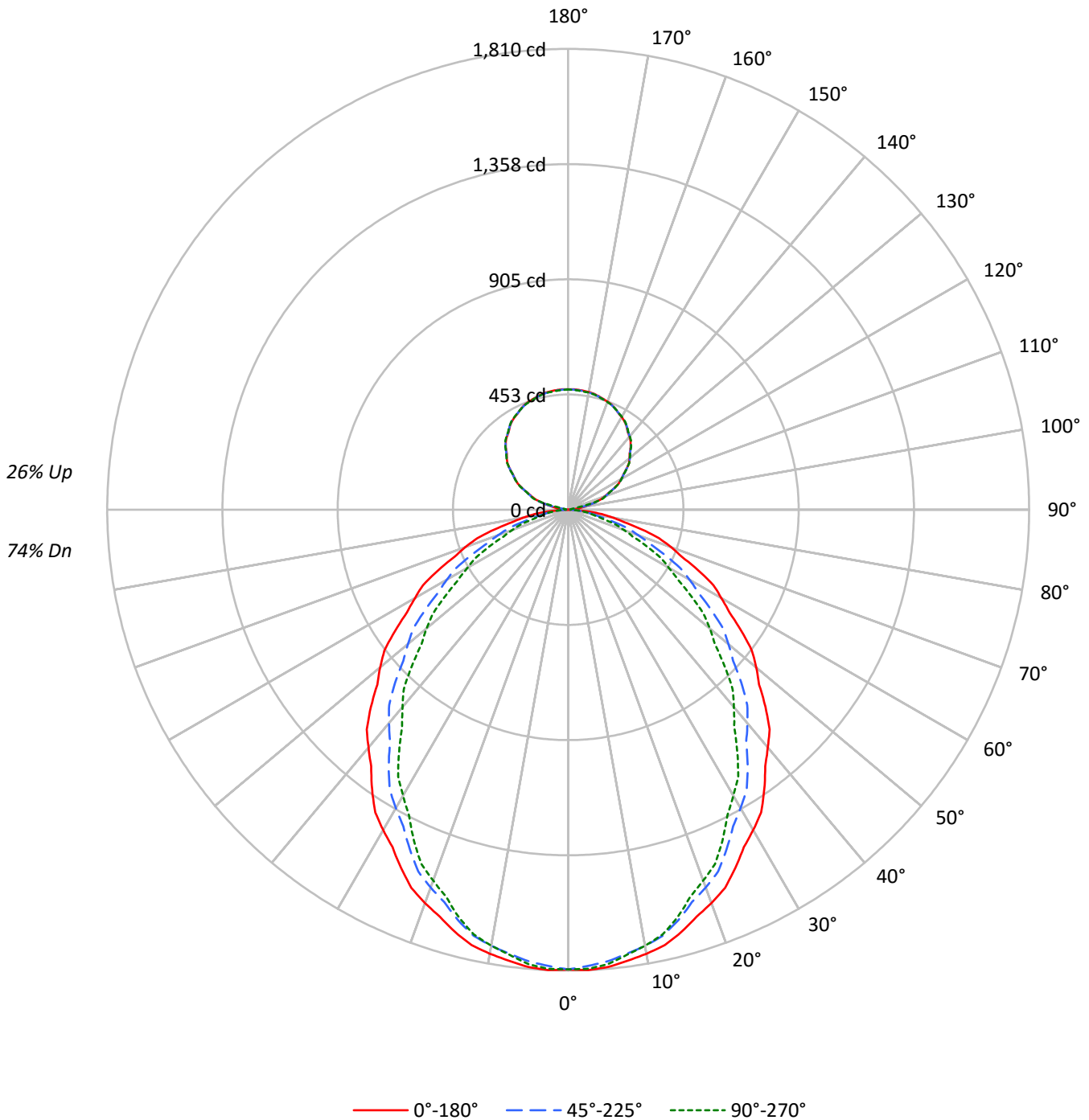
Input Watts (W): 43.5  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	74	74	74	74	74	74	74		
1	104	99	95	92	98	95	91	88	86	83	81	77	75	74	70	68	67	63	63	63	63	63	63	63		
2	95	87	81	76	90	83	78	73	75	71	67	68	65	62	62	59	57	54	54	54	54	54	54	54		
3	87	77	70	64	82	74	67	61	67	62	57	61	57	53	55	52	49	46	46	46	46	46	46	46		
4	80	69	60	54	75	65	58	53	60	54	49	55	50	46	50	46	42	40	40	40	40	40	40	40		
5	73	61	53	47	69	59	51	46	54	48	43	49	44	40	45	41	37	35	35	35	35	35	35	35		
6	68	55	47	41	64	53	45	40	49	42	38	45	39	35	41	36	33	31	31	31	31	31	31	31		
7	63	50	42	36	60	48	41	35	44	38	33	41	35	31	37	33	29	27	27	27	27	27	27	27		
8	58	46	38	32	55	44	37	32	41	34	30	37	32	28	34	30	27	24	24	24	24	24	24	24		
9	55	42	34	29	52	40	33	28	37	31	27	35	29	26	32	27	24	22	22	22	22	22	22	22		
10	51	39	31	26	49	37	30	26	35	29	24	32	27	23	30	25	22	20	20	20	20	20	20	20		

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	14577	14577	14577
5°	14610	14431	14521
10°	14519	14258	14258
15°	14352	13959	13855
20°	14123	13564	13315
25°	13831	13104	12772
30°	13546	12618	12089
35°	13231	12113	11404
40°	12852	11540	10666
45°	12501	10970	9913
50°	12103	10315	9117
55°	11676	9633	8251
60°	11207	8885	7367
65°	10776	7950	6497
70°	10150	6918	5516
75°	9357	5736	4485
80°	8164	4370	4114
85°	6919	3974	3714



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	169.6	3.0
10°-20°	473.0	8.4
20°-30°	683.0	12.1
30°-40°	774.2	13.7
40°-50°	747.6	13.3
50°-60°	621.7	11.0
60°-70°	429.3	7.6
70°-80°	217.6	3.9
80°-90°	57.2	1.0
90°-100°	16.2	0.3
100°-110°	103.0	1.8
110°-120°	197.1	3.5
120°-130°	250.2	4.4
130°-140°	267.7	4.8
140°-150°	250.4	4.4
150°-160°	201.9	3.6
160°-170°	130.2	2.3
170°-180°	44.9	0.8
0°-30°	1325.6	23.5
0°-40°	2099.9	37.3
0°-60°	3469.2	61.6
0°-90°	4173.2	74.1
90°-120°	316.3	5.6
90°-150°	1084.6	19.2
90°-180°	1462.0	25.9
0°-180°	5634.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1806	1806	1806	1806	1806	
5°	1803	1797	1781	1794	1792	171
15°	1717	1704	1670	1667	1658	484
25°	1553	1526	1471	1448	1434	715
35°	1342	1297	1229	1183	1157	839
45°	1095	1042	961	896	868	844
55°	830	772	684	615	586	742
65°	564	503	416	359	340	557
75°	300	248	184	153	144	317
85°	75	48	43	40	40	84
90°	1	5	8	10	11	4
95°	19	8	8	10	10	25
105°	106	108	110	113	101	111
115°	199	200	199	200	200	195
125°	279	280	280	281	281	249
135°	346	346	347	348	349	267
145°	399	400	400	401	402	249
155°	438	438	437	438	438	202
165°	462	460	460	463	460	130
175°	472	470	471	474	470	45
180°	472	472	472	472	472	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1810.1	1809.1	1808.1	1807.2	1806.2	1804.3	1801.6	1798.9	1796.2	1793.5	1796.2
5°	1802.9	1801.7	1800.5	1799.2	1798.0	1795.5	1791.9	1788.2	1784.5	1780.8	1783.9
7.5°	1786.6	1785.3	1784.0	1782.7	1781.4	1778.4	1773.6	1768.8	1764.0	1759.2	1761.2
10°	1771.1	1769.6	1768.0	1766.5	1765.0	1761.4	1755.9	1750.4	1744.8	1739.3	1740.5
12.5°	1751.2	1749.4	1747.6	1745.9	1744.1	1739.9	1733.4	1726.9	1720.4	1713.9	1714.6
15°	1717.2	1714.4	1711.7	1708.9	1706.1	1700.9	1693.2	1685.5	1677.9	1670.2	1669.6
17.5°	1676.0	1672.0	1668.0	1664.0	1660.0	1653.4	1644.2	1635.0	1625.8	1616.5	1614.8
20°	1643.9	1639.9	1635.9	1631.9	1627.9	1620.7	1610.3	1599.8	1589.4	1578.9	1576.5
22.5°	1608.5	1604.0	1599.5	1595.1	1590.6	1582.7	1571.6	1560.4	1549.2	1538.0	1534.3
25°	1552.7	1547.1	1541.6	1536.1	1530.5	1521.5	1508.9	1496.3	1483.7	1471.1	1465.9
27.5°	1494.0	1487.1	1480.2	1473.2	1466.3	1456.1	1442.6	1429.2	1415.7	1402.2	1395.8
30°	1453.1	1445.4	1437.8	1430.1	1422.4	1411.3	1396.9	1382.4	1368.0	1353.6	1345.9
32.5°	1410.0	1401.3	1392.6	1384.0	1375.3	1363.5	1348.6	1333.7	1318.7	1303.8	1294.9
35°	1342.5	1332.7	1322.8	1313.0	1303.2	1290.6	1275.2	1259.9	1244.5	1229.1	1218.7
37.5°	1270.3	1260.2	1250.1	1239.9	1229.8	1216.2	1199.2	1182.2	1165.1	1148.1	1136.4
40°	1219.5	1209.3	1199.2	1189.0	1178.9	1165.1	1147.6	1130.0	1112.5	1095.0	1082.1
42.5°	1170.8	1160.2	1149.5	1138.9	1128.3	1113.8	1095.6	1077.3	1059.1	1040.8	1027.7
45°	1095.0	1083.7	1072.3	1060.9	1049.5	1034.6	1016.2	997.8	979.3	960.9	945.9
47.5°	1016.8	1005.0	993.3	981.6	969.8	954.4	935.2	916.0	896.8	877.7	862.1
50°	963.7	951.7	939.7	927.7	915.7	899.9	880.3	860.6	840.9	821.3	805.9
52.5°	909.5	897.7	886.0	874.3	862.5	846.6	826.4	806.3	786.1	766.0	750.4
55°	829.6	817.3	805.0	792.7	780.4	764.3	744.3	724.3	704.4	684.4	668.4
57.5°	750.5	737.7	724.9	712.1	699.4	683.1	663.5	643.8	624.1	604.5	588.3
60°	694.1	681.8	669.5	657.2	644.9	628.9	609.3	589.6	569.9	550.3	534.3
62.5°	643.2	630.4	617.6	604.8	592.1	575.6	555.4	535.3	515.1	495.0	480.2
65°	564.1	550.9	537.7	524.5	511.3	494.8	475.2	455.5	435.8	416.2	403.0
67.5°	482.0	469.3	456.7	444.0	431.3	415.9	397.6	379.4	361.1	342.9	331.5
70°	430.0	417.1	404.2	391.3	378.4	363.2	345.7	328.1	310.6	293.1	283.0
72.5°	374.7	363.0	351.3	339.7	328.0	313.9	297.4	280.8	264.3	247.8	239.1
75°	300.0	288.7	277.3	265.9	254.6	241.6	227.2	212.8	198.3	183.9	176.8
77.5°	224.3	214.6	205.0	195.3	185.7	175.0	163.3	151.7	140.0	128.3	124.2
80°	175.6	166.7	157.8	148.9	140.0	130.9	121.7	112.5	103.2	94.0	93.1
82.5°	133.6	125.4	117.2	109.0	100.9	94.1	88.9	83.6	78.3	73.0	72.3
85°	74.7	68.5	62.4	56.2	50.1	46.5	45.6	44.7	43.8	42.9	42.2
87.5°	25.7	23.9	22.1	20.3	18.5	17.5	17.4	17.3	17.2	17.0	16.9
90°	1.1	1.9	2.8	3.7	4.5	5.3	5.9	6.5	7.1	7.8	8.2
92.5°	4.5	4.5	4.5	4.6	4.6	5.0	5.6	6.2	6.9	7.5	8.0
95°	19.4	16.8	14.1	11.4	8.8	7.5	7.5	7.6	7.7	7.8	8.2
97.5°	41.3	42.9	44.6	46.3	47.9	44.4	35.6	26.9	18.1	9.3	9.4
100°	58.0	59.4	60.8	62.2	63.6	58.9	48.1	37.2	26.4	15.6	14.2
102.5°	76.6	77.7	78.7	79.7	80.8	80.6	79.2	77.8	76.3	74.9	60.5
105°	106.4	106.8	107.3	107.8	108.3	108.7	109.1	109.5	109.9	110.3	111.0
107.5°	134.0	134.2	134.5	134.7	135.0	135.3	135.9	136.4	136.9	137.5	137.8
110°	152.7	152.9	153.1	153.4	153.6	154.0	154.4	154.9	155.4	155.9	156.0



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	170.8	171.2	171.6	172.0	172.5	172.8	173.0	173.2	173.4	173.7	173.6
115°	198.6	198.9	199.1	199.3	199.6	199.6	199.6	199.5	199.4	199.3	199.5
117.5°	223.7	224.0	224.3	224.7	225.0	225.2	225.4	225.6	225.7	225.9	225.9
120°	240.7	241.0	241.3	241.6	241.9	242.0	242.0	241.9	241.8	241.7	241.9
122.5°	256.5	256.7	256.9	257.1	257.3	257.4	257.5	257.6	257.7	257.9	257.9
125°	279.2	279.5	279.8	280.1	280.5	280.5	280.4	280.2	280.1	279.9	280.1
127.5°	300.7	300.8	300.8	300.9	301.0	301.2	301.6	301.9	302.3	302.7	302.6
130°	314.5	314.6	314.7	314.8	314.9	315.0	315.2	315.5	315.7	316.0	316.0
132.5°	327.3	327.4	327.5	327.7	327.8	328.0	328.3	328.6	328.9	329.2	329.3
135°	346.3	346.3	346.2	346.1	346.0	346.1	346.5	346.8	347.1	347.4	347.6
137.5°	363.2	363.3	363.3	363.3	363.4	363.6	363.9	364.2	364.6	364.9	365.1
140°	374.3	374.4	374.6	374.7	374.9	375.0	375.2	375.4	375.5	375.7	375.9
142.5°	384.2	384.4	384.7	385.0	385.3	385.5	385.6	385.7	385.8	385.9	386.0
145°	399.4	399.6	399.8	400.1	400.3	400.4	400.4	400.4	400.4	400.4	400.5
147.5°	411.4	411.9	412.3	412.8	413.2	413.4	413.3	413.2	413.1	413.1	413.1
150°	420.2	420.5	420.8	421.2	421.5	421.6	421.5	421.4	421.3	421.3	421.3
152.5°	427.6	427.8	428.1	428.3	428.6	428.6	428.5	428.3	428.2	428.1	428.2
155°	437.9	438.0	438.0	438.1	438.2	438.1	437.9	437.6	437.4	437.2	437.5
157.5°	446.6	446.5	446.5	446.4	446.4	446.2	446.0	445.7	445.4	445.2	445.6
160°	451.7	451.4	451.2	451.0	450.7	450.6	450.5	450.4	450.3	450.2	450.7
162.5°	456.2	455.9	455.6	455.3	455.0	454.8	454.7	454.6	454.6	454.5	455.0
165°	461.9	461.5	461.1	460.7	460.3	460.1	460.1	460.1	460.1	460.1	460.8
167.5°	466.4	466.0	465.6	465.2	464.8	464.6	464.5	464.5	464.4	464.4	465.1
170°	469.0	468.5	468.0	467.6	467.1	466.9	467.0	467.1	467.1	467.2	467.8
172.5°	470.7	470.2	469.7	469.3	468.8	468.6	468.7	468.8	468.8	468.9	469.5
175°	472.5	472.0	471.6	471.1	470.6	470.4	470.5	470.6	470.7	470.7	471.5
177.5°	473.4	472.9	472.5	472.0	471.6	471.4	471.6	471.7	471.8	471.9	472.5
180°	472.5	472.5	472.5	472.5	472.5	472.5	472.5	472.5	472.5	472.5	472.5



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1798.9	1801.6	1804.3	1805.6	1805.3	1805.1	1804.8	1804.6
5°	1786.9	1790.0	1793.1	1794.3	1793.7	1793.1	1792.5	1791.9
7.5°	1763.2	1765.1	1767.1	1767.6	1766.6	1765.6	1764.6	1763.6
10°	1741.8	1743.0	1744.2	1744.2	1743.0	1741.8	1740.5	1739.3
12.5°	1715.3	1716.1	1716.8	1716.3	1714.6	1712.9	1711.2	1709.5
15°	1669.0	1668.3	1667.7	1666.3	1664.2	1662.0	1659.9	1657.7
17.5°	1613.1	1611.4	1609.7	1607.2	1603.9	1600.7	1597.4	1594.1
20°	1574.0	1571.6	1569.1	1565.9	1561.9	1557.9	1553.9	1549.9
22.5°	1530.6	1526.9	1523.3	1519.8	1516.5	1513.3	1510.0	1506.8
25°	1460.6	1455.4	1450.2	1446.0	1443.0	1439.9	1436.8	1433.8
27.5°	1389.3	1382.9	1376.4	1371.0	1366.6	1362.1	1357.7	1353.3
30°	1338.2	1330.5	1322.8	1316.5	1311.6	1306.7	1301.8	1296.9
32.5°	1286.0	1277.1	1268.2	1261.4	1256.7	1252.0	1247.4	1242.7
35°	1208.2	1197.8	1187.3	1179.4	1173.8	1168.3	1162.8	1157.2
37.5°	1124.8	1113.1	1101.4	1092.8	1087.3	1081.7	1076.2	1070.7
40°	1069.2	1056.3	1043.4	1034.2	1028.7	1023.1	1017.6	1012.1
42.5°	1014.5	1001.4	988.2	978.8	973.0	967.2	961.4	955.7
45°	930.8	915.7	900.7	890.4	884.9	879.3	873.8	868.3
47.5°	846.5	830.9	815.2	804.4	798.3	792.2	786.1	780.1
50°	790.5	775.2	759.8	749.2	743.4	737.5	731.7	725.9
52.5°	734.7	719.1	703.5	692.7	686.6	680.5	674.4	668.4
55°	652.4	636.5	620.5	609.6	603.7	597.9	592.1	586.2
57.5°	572.0	555.8	539.6	529.3	524.8	520.4	516.0	511.6
60°	518.3	502.3	486.4	475.9	471.0	466.1	461.2	456.3
62.5°	465.5	450.7	436.0	426.6	422.7	418.8	414.8	410.9
65°	389.7	376.5	363.3	354.9	351.2	347.5	343.8	340.1
67.5°	320.1	308.8	297.4	289.7	285.6	281.6	277.5	273.5
70°	272.8	262.7	252.6	245.9	242.9	239.8	236.7	233.7
72.5°	230.4	221.8	213.1	207.4	204.5	201.7	198.9	196.1
75°	169.8	162.7	155.6	151.2	149.3	147.5	145.6	143.8
77.5°	120.1	116.0	111.8	109.5	108.9	108.4	107.8	107.3
80°	92.2	91.3	90.3	89.7	89.4	89.1	88.8	88.5
82.5°	71.6	71.0	70.3	69.8	69.5	69.2	68.9	68.6
85°	41.6	41.0	40.4	40.1	40.1	40.1	40.1	40.1
87.5°	16.7	16.6	16.4	16.5	16.8	17.1	17.3	17.6
90°	8.7	9.2	9.7	10.0	10.1	10.3	10.4	10.6
92.5°	8.4	8.9	9.4	9.6	9.7	9.7	9.7	9.8
95°	8.7	9.2	9.7	9.9	10.0	10.1	10.2	10.2
97.5°	9.4	9.5	9.5	9.6	9.7	9.7	9.8	9.9
100°	12.9	11.5	10.2	9.6	9.7	9.7	9.8	9.9
102.5°	46.1	31.7	17.3	10.1	10.1	10.1	10.2	10.2
105°	111.7	112.4	113.1	112.0	109.2	106.4	103.5	100.7
107.5°	138.2	138.5	138.9	139.2	139.5	139.8	140.1	140.4
110°	156.2	156.3	156.5	156.7	156.9	157.2	157.4	157.6





TEST NUMBER: P332958

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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	173.6	173.6	173.5	173.7	174.0	174.3	174.6	174.9
115°	199.6	199.8	200.0	200.0	200.0	200.0	200.0	200.0
117.5°	225.8	225.8	225.8	225.7	225.7	225.7	225.7	225.6
120°	242.0	242.2	242.4	242.4	242.2	242.0	241.9	241.7
122.5°	258.0	258.1	258.2	258.2	258.0	257.9	257.7	257.6
125°	280.4	280.6	280.8	281.0	281.1	281.2	281.2	281.3
127.5°	302.6	302.5	302.5	302.4	302.4	302.3	302.2	302.2
130°	316.1	316.2	316.3	316.3	316.3	316.3	316.3	316.3
132.5°	329.4	329.5	329.6	329.6	329.5	329.4	329.4	329.3
135°	347.7	347.9	348.0	348.2	348.3	348.5	348.7	348.8
137.5°	365.3	365.5	365.6	365.7	365.6	365.6	365.5	365.5
140°	376.1	376.4	376.6	376.8	376.9	376.9	377.0	377.1
142.5°	386.2	386.4	386.5	386.6	386.7	386.7	386.7	386.7
145°	400.6	400.7	400.7	400.8	401.0	401.2	401.3	401.5
147.5°	413.2	413.3	413.3	413.4	413.5	413.5	413.6	413.7
150°	421.3	421.3	421.3	421.3	421.4	421.5	421.5	421.6
152.5°	428.3	428.4	428.6	428.6	428.5	428.5	428.5	428.4
155°	437.8	438.1	438.4	438.5	438.2	438.0	437.8	437.5
157.5°	446.0	446.4	446.8	446.8	446.4	446.0	445.6	445.2
160°	451.2	451.7	452.1	452.1	451.7	451.2	450.7	450.2
162.5°	455.4	455.9	456.4	456.3	455.8	455.3	454.7	454.2
165°	461.4	462.0	462.7	462.6	461.9	461.2	460.5	459.8
167.5°	465.8	466.5	467.1	467.1	466.3	465.5	464.7	464.0
170°	468.5	469.1	469.7	469.6	468.9	468.1	467.3	466.5
172.5°	470.2	470.8	471.4	471.3	470.5	469.6	468.8	467.9
175°	472.2	472.9	473.6	473.5	472.5	471.6	470.6	469.7
177.5°	473.0	473.5	474.0	473.8	473.1	472.3	471.6	470.8
180°	472.5	472.5	472.5	472.5	472.5	472.5	472.5	472.5

(END OF REPORT)