

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: P332978-840

Luminaire Tested: **S124RDIP-S1020D1035U840-4F0-1E-UDD-F4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332978-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDIP-S1020D1035U840-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 1035 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7948.0 lumens
Efficiency: N/A
Efficacy: 131.4 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

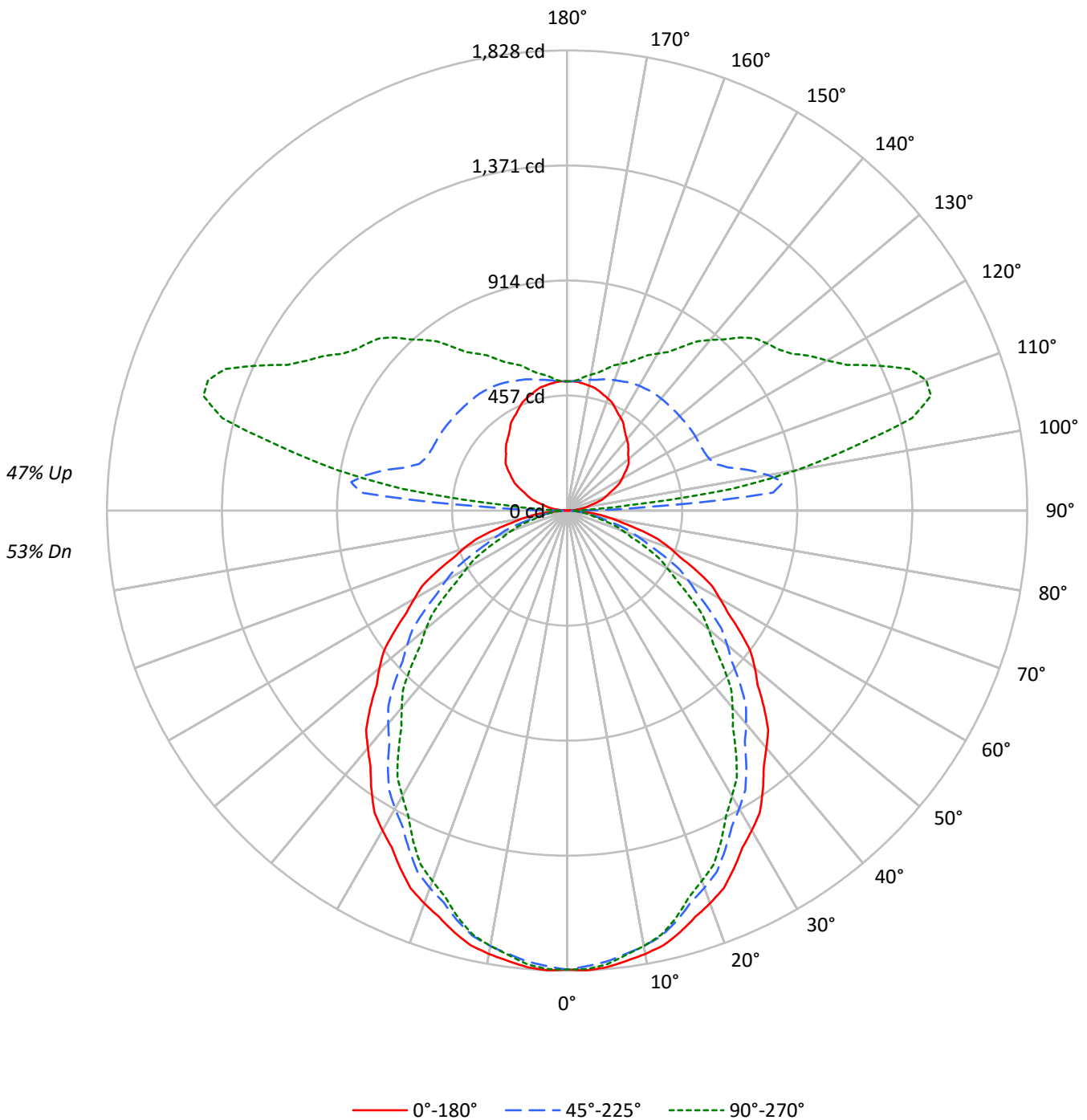
Input Watts (W): 60.5
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	53
1	99	95	91	87	91	88	84	82	75	73	70	63	62	60	53	51	50	45
2	90	83	77	72	83	77	72	67	66	62	59	56	53	51	47	45	43	38
3	82	73	66	60	76	68	62	57	58	54	50	50	46	43	41	39	37	33
4	76	65	57	51	70	60	54	48	52	47	43	44	40	37	37	34	32	28
5	69	58	50	44	64	54	47	42	47	41	37	40	36	32	34	30	28	25
6	64	52	44	38	59	49	41	36	42	37	32	36	32	28	31	27	25	22
7	59	47	39	34	55	44	37	32	38	33	29	33	29	25	28	25	22	19
8	55	43	35	30	51	40	33	28	35	29	25	30	26	23	26	22	20	18
9	51	39	32	27	48	37	30	25	32	27	23	28	24	20	24	20	18	16
10	48	36	29	24	45	34	27	23	30	24	21	26	22	19	22	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	14721	14721	14721
5°	14755	14574	14665
10°	14662	14399	14399
15°	14493	14097	13992
20°	14262	13698	13447
25°	13967	13233	12897
30°	13679	12743	12209
35°	13361	12232	11517
40°	12978	11653	10771
45°	12625	11079	10011
50°	12223	10417	9207
55°	11792	9728	8332
60°	11317	8972	7440
65°	10883	8029	6562
70°	10249	6987	5570
75°	9451	5792	4529
80°	8243	4412	4156
85°	6984	4011	3751



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.3	2.2
10°-20°	477.7	6.0
20°-30°	689.8	8.7
30°-40°	781.8	9.8
40°-50°	755.0	9.5
50°-60°	627.8	7.9
60°-70°	433.5	5.5
70°-80°	219.7	2.8
80°-90°	59.2	0.7
90°-100°	370.6	4.7
100°-110°	771.4	9.7
110°-120°	690.9	8.7
120°-130°	581.2	7.3
130°-140°	484.6	6.1
140°-150°	370.2	4.7
150°-160°	260.2	3.3
160°-170°	153.1	1.9
170°-180°	49.8	0.6
0°-30°	1338.7	16.8
0°-40°	2120.6	26.7
0°-60°	3503.4	44.1
0°-90°	4215.9	53.0
90°-120°	1833.0	23.1
90°-150°	3269.0	41.1
90°-180°	3732.0	47.0
0°-180°	7948.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1824	1824	1824	1824	1824	
5°	1821	1814	1798	1811	1810	173
15°	1734	1720	1687	1683	1674	488
25°	1568	1541	1486	1462	1448	722
35°	1356	1310	1241	1195	1169	847
45°	1106	1052	970	904	877	852
55°	838	780	691	621	592	749
65°	570	508	420	363	344	562
75°	303	251	186	155	145	320
85°	75	49	43	41	40	85
90°	1	8	18	20	21	5
95°	33	105	822	407	246	37
105°	118	171	661	1424	1418	126
115°	208	261	590	1133	1362	206
125°	289	344	587	964	1087	258
135°	344	409	582	856	972	266
145°	396	454	579	722	794	249
155°	451	486	563	637	664	208
165°	491	506	539	571	580	139
175°	512	513	517	524	522	49
180°	513	513	513	513	513	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5
2.5°	1828.0	1826.9	1825.9	1825.0	1824.0	1822.1	1819.4	1816.6	1813.9	1811.2	1813.9
5°	1820.7	1819.5	1818.3	1816.9	1815.7	1813.2	1809.6	1805.8	1802.1	1798.4	1801.5
7.5°	1804.2	1802.9	1801.6	1800.3	1799.0	1795.9	1791.1	1786.2	1781.4	1776.6	1778.6
10°	1788.6	1787.1	1785.4	1783.9	1782.4	1778.8	1773.2	1767.7	1762.0	1756.5	1757.7
12.5°	1768.5	1766.7	1764.8	1763.1	1761.3	1757.1	1750.5	1743.9	1737.4	1730.8	1731.5
15°	1734.1	1731.3	1728.6	1725.8	1722.9	1717.7	1709.9	1702.1	1694.5	1686.7	1686.1
17.5°	1692.5	1688.5	1684.5	1680.4	1676.4	1669.7	1660.4	1651.1	1641.8	1632.4	1630.7
20°	1660.1	1656.1	1652.0	1648.0	1644.0	1636.7	1626.2	1615.6	1605.1	1594.5	1592.1
22.5°	1624.4	1619.8	1615.3	1610.8	1606.3	1598.3	1587.1	1575.8	1564.5	1553.2	1549.4
25°	1568.0	1562.4	1556.8	1551.3	1545.6	1536.5	1523.8	1511.1	1498.3	1485.6	1480.4
27.5°	1508.7	1501.8	1494.8	1487.7	1480.8	1470.5	1456.8	1443.3	1429.7	1416.0	1409.6
30°	1467.4	1459.7	1452.0	1444.2	1436.4	1425.2	1410.7	1396.0	1381.5	1367.0	1359.2
32.5°	1423.9	1415.1	1406.3	1397.7	1388.9	1377.0	1361.9	1346.9	1331.7	1316.7	1307.7
35°	1355.7	1345.8	1335.8	1326.0	1316.1	1303.3	1287.8	1272.3	1256.8	1241.2	1230.7
37.5°	1282.8	1272.6	1262.4	1252.1	1241.9	1228.2	1211.0	1193.9	1176.6	1159.4	1147.6
40°	1231.5	1221.2	1211.0	1200.7	1190.5	1176.6	1158.9	1141.1	1123.5	1105.8	1092.8
42.5°	1182.3	1171.6	1160.8	1150.1	1139.4	1124.8	1106.4	1087.9	1069.5	1051.1	1037.8
45°	1105.8	1094.4	1082.9	1071.4	1059.9	1044.8	1026.2	1007.6	989.0	970.4	955.2
47.5°	1026.8	1014.9	1003.1	991.3	979.4	963.8	944.4	925.0	905.6	886.4	870.6
50°	973.2	961.1	949.0	936.9	924.7	908.8	889.0	869.1	849.2	829.4	813.9
52.5°	918.5	906.6	894.7	882.9	871.0	855.0	834.6	814.3	793.9	773.6	757.8
55°	837.8	825.4	812.9	800.5	788.1	771.8	751.6	731.4	711.3	691.2	675.0
57.5°	757.9	745.0	732.1	719.1	706.3	689.8	670.0	650.2	630.3	610.5	594.1
60°	700.9	688.5	676.1	663.7	651.3	635.1	615.3	595.4	575.5	555.7	539.6
62.5°	649.5	636.6	623.7	610.8	597.9	581.3	560.9	540.6	520.2	499.9	484.9
65°	569.7	556.3	543.0	529.7	516.3	499.7	479.9	460.0	440.1	420.3	407.0
67.5°	486.8	473.9	461.2	448.4	435.6	420.0	401.5	383.1	364.7	346.3	334.8
70°	434.2	421.2	408.2	395.2	382.1	366.8	349.1	331.3	313.7	296.0	285.8
72.5°	378.4	366.6	354.8	343.1	331.2	317.0	300.3	283.6	266.9	250.2	241.5
75°	303.0	291.5	280.0	268.5	257.1	244.0	229.4	214.9	200.3	185.7	178.5
77.5°	226.5	216.7	207.0	197.2	187.5	176.7	164.9	153.2	141.4	129.6	125.4
80°	177.3	168.3	159.4	150.4	141.4	132.2	122.9	113.6	104.2	94.9	94.0
82.5°	134.9	126.6	118.4	110.1	101.9	95.0	89.8	84.4	79.1	73.7	73.0
85°	75.4	69.2	63.0	56.8	50.6	47.0	46.0	45.1	44.2	43.3	42.6
87.5°	25.9	24.3	22.9	21.1	19.4	18.3	19.2	19.0	19.1	19.3	18.8
90°	1.0	3.0	6.1	7.1	8.1	8.1	14.1	14.1	16.2	18.2	17.2
92.5°	11.5	16.8	26.3	38.5	53.2	74.2	125.4	203.7	279.8	319.8	266.4
95°	33.2	36.3	46.4	59.5	83.7	126.0	213.7	379.1	620.1	821.6	844.9
97.5°	59.7	59.7	68.4	80.5	101.2	136.7	204.3	340.7	580.3	865.4	1061.4
100°	76.6	76.6	83.7	95.7	114.9	147.2	206.7	320.6	526.2	810.5	1068.6
102.5°	92.7	94.3	100.6	111.9	130.3	160.9	214.7	315.0	490.0	742.0	1008.1
105°	118.0	121.0	126.0	138.1	156.2	185.5	233.9	317.6	458.7	661.4	898.3
107.5°	145.8	147.8	152.8	165.7	183.1	211.9	256.3	332.4	453.0	616.2	809.5
110°	164.3	166.3	171.4	183.5	201.7	228.8	273.2	343.8	454.6	600.9	765.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	182.1	184.1	190.0	201.3	219.3	246.6	289.3	355.9	459.5	593.6	740.2
115°	207.7	210.7	217.7	227.8	247.0	274.2	314.6	375.1	468.8	589.8	716.8
117.5°	234.3	237.1	243.4	254.5	272.4	300.6	338.9	394.6	478.7	588.8	706.3
120°	252.1	254.1	261.2	272.2	289.3	317.6	355.9	408.3	485.9	588.8	700.6
122.5°	268.2	270.1	277.2	287.5	306.3	333.7	372.0	421.2	493.2	587.9	694.2
125°	289.3	293.4	299.4	310.5	329.6	357.9	394.2	440.6	504.1	586.7	683.6
127.5°	308.1	311.3	318.6	331.2	351.2	379.7	414.8	457.3	512.7	584.5	669.2
130°	318.6	322.7	330.6	345.8	365.0	394.2	428.5	467.8	519.2	583.7	660.4
132.5°	329.0	332.2	342.7	357.1	377.9	405.5	439.8	478.3	524.8	582.9	652.3
135°	343.8	347.8	357.9	375.1	396.2	422.4	455.7	492.0	533.3	581.7	640.2
137.5°	358.5	362.3	373.4	389.7	411.7	436.8	467.8	501.7	538.4	581.5	629.7
140°	369.0	372.0	383.1	400.2	421.4	445.7	475.8	508.1	542.4	580.7	624.1
142.5°	380.3	383.3	393.5	409.9	430.3	453.6	483.1	512.9	545.6	580.7	619.2
145°	396.2	399.2	409.3	423.4	442.6	464.7	491.0	518.2	547.4	578.7	611.0
147.5°	414.1	415.2	424.0	438.6	454.4	474.4	499.1	522.8	548.5	575.0	603.5
150°	425.5	426.5	434.5	446.7	461.7	480.9	503.1	525.2	548.5	572.6	597.8
152.5°	436.0	436.2	444.2	455.4	469.0	486.6	506.3	526.8	546.8	568.6	591.4
155°	450.6	451.6	457.7	467.8	478.9	494.0	511.1	528.3	544.4	562.6	581.7
157.5°	464.9	464.9	470.6	478.5	488.2	500.1	514.5	528.3	541.8	556.3	571.8
160°	473.8	473.8	477.9	484.9	493.0	504.1	516.1	528.3	539.4	551.5	564.6
162.5°	481.9	481.1	484.3	490.6	497.9	506.5	517.8	528.3	536.9	546.6	558.2
165°	491.0	491.0	493.0	498.1	503.1	509.1	518.2	526.2	532.3	539.4	547.4
167.5°	500.1	499.1	500.1	503.9	506.8	511.3	518.0	523.8	527.5	532.1	537.8
170°	504.1	503.1	504.1	507.2	509.1	512.1	517.2	522.2	524.2	527.3	531.3
172.5°	508.1	507.2	507.3	509.5	510.7	512.9	516.3	520.6	521.0	522.4	525.6
175°	512.1	511.1	511.1	512.1	513.1	513.1	515.1	518.2	517.2	517.2	519.2
177.5°	513.9	513.1	512.3	513.1	513.1	513.1	513.9	515.5	513.9	513.9	514.7
180°	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5
2.5°	1816.6	1819.4	1822.1	1823.4	1823.1	1822.9	1822.6	1822.4
5°	1804.5	1807.7	1810.8	1812.0	1811.4	1810.8	1810.2	1809.6
7.5°	1780.6	1782.5	1784.5	1785.0	1784.0	1783.0	1782.0	1781.0
10°	1759.0	1760.2	1761.4	1761.4	1760.2	1759.0	1757.7	1756.5
12.5°	1732.2	1733.0	1733.7	1733.2	1731.5	1729.8	1728.1	1726.4
15°	1685.5	1684.8	1684.2	1682.7	1680.6	1678.4	1676.3	1674.1
17.5°	1629.0	1627.3	1625.6	1623.1	1619.7	1616.5	1613.2	1609.8
20°	1589.5	1587.1	1584.6	1581.3	1577.3	1573.3	1569.2	1565.2
22.5°	1545.7	1542.0	1538.3	1534.8	1531.5	1528.2	1524.9	1521.7
25°	1475.0	1469.8	1464.5	1460.3	1457.2	1454.1	1451.0	1447.9
27.5°	1403.0	1396.5	1390.0	1384.5	1380.1	1375.5	1371.1	1366.7
30°	1351.4	1343.6	1335.8	1329.5	1324.5	1319.6	1314.6	1309.7
32.5°	1298.7	1289.7	1280.7	1273.8	1269.1	1264.4	1259.7	1255.0
35°	1220.1	1209.6	1199.0	1191.0	1185.4	1179.8	1174.3	1168.6
37.5°	1135.9	1124.1	1112.3	1103.6	1098.0	1092.4	1086.8	1081.3
40°	1079.7	1066.7	1053.7	1044.4	1038.8	1033.2	1027.6	1022.1
42.5°	1024.5	1011.3	997.9	988.5	982.6	976.7	970.9	965.1
45°	940.0	924.7	909.6	899.2	893.6	888.0	882.4	876.9
47.5°	854.9	839.1	823.2	812.3	806.2	800.0	793.9	787.8
50°	798.3	782.8	767.3	756.6	750.7	744.8	738.9	733.1
52.5°	741.9	726.2	710.4	699.5	693.4	687.2	681.1	675.0
55°	658.8	642.8	626.6	615.6	609.7	603.8	597.9	592.0
57.5°	577.6	561.3	544.9	534.5	530.0	525.5	521.1	516.6
60°	523.4	507.3	491.2	480.6	475.6	470.7	465.7	460.8
62.5°	470.1	455.1	440.3	430.8	426.9	422.9	418.9	415.0
65°	393.5	380.2	366.9	358.4	354.7	350.9	347.2	343.5
67.5°	323.3	311.8	300.3	292.6	288.4	284.4	280.2	276.2
70°	275.5	265.3	255.1	248.3	245.3	242.2	239.0	236.0
72.5°	232.7	224.0	215.2	209.4	206.5	203.7	200.9	198.0
75°	171.5	164.3	157.1	152.7	150.8	149.0	147.0	145.2
77.5°	121.3	117.1	112.9	110.6	110.0	109.5	108.9	108.4
80°	93.1	92.2	91.2	90.6	90.3	90.0	89.7	89.4
82.5°	72.3	71.7	71.0	70.5	70.2	69.9	69.6	69.3
85°	42.0	41.4	40.8	40.5	40.5	40.5	40.5	40.5
87.5°	18.8	18.7	18.7	18.7	19.1	19.6	19.6	19.9
90°	18.2	19.2	20.2	20.2	21.2	22.2	21.2	21.2
92.5°	198.0	149.1	118.6	98.4	86.5	81.1	77.7	77.7
95°	747.0	590.8	455.7	357.9	308.5	277.2	259.1	246.0
97.5°	1103.8	1045.6	947.1	841.8	769.4	708.7	678.5	657.5
100°	1215.9	1236.0	1186.6	1112.0	1024.3	962.8	932.5	924.5
102.5°	1210.2	1310.2	1324.5	1293.4	1239.6	1195.1	1163.3	1156.8
105°	1129.1	1303.5	1403.3	1444.7	1446.7	1438.7	1424.5	1418.5
107.5°	1014.0	1199.7	1340.3	1430.2	1480.0	1503.0	1513.1	1515.7
110°	944.6	1119.0	1265.3	1376.1	1447.7	1490.1	1508.2	1517.3



TEST NUMBER: P332978-840

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	893.8	1048.0	1186.2	1297.1	1378.4	1429.6	1455.0	1469.7
115°	842.8	966.8	1084.8	1181.5	1261.2	1321.7	1353.9	1362.0
117.5°	817.8	920.5	1013.2	1095.3	1163.3	1214.1	1246.7	1252.9
120°	806.5	900.3	981.0	1052.5	1109.9	1154.4	1180.5	1191.6
122.5°	796.9	887.4	960.8	1023.5	1072.1	1109.9	1132.2	1143.3
125°	780.3	867.0	936.5	992.0	1032.4	1061.6	1080.8	1086.8
127.5°	760.1	843.0	912.4	965.0	1005.5	1031.6	1047.6	1053.7
130°	744.1	823.6	892.2	945.6	986.9	1012.2	1028.3	1034.4
132.5°	727.1	801.9	868.8	922.3	962.8	991.2	1006.5	1012.6
135°	703.7	769.2	830.7	881.1	921.5	949.7	965.8	971.9
137.5°	682.6	738.0	789.8	835.4	873.0	900.9	914.2	921.5
140°	670.4	717.8	763.2	805.5	840.8	863.0	877.1	885.1
142.5°	659.1	700.8	739.8	776.5	807.7	828.3	840.8	846.5
145°	643.2	677.5	707.7	736.0	761.1	778.3	788.4	793.5
147.5°	630.1	657.3	681.6	703.7	722.3	737.0	744.7	746.4
150°	622.1	645.2	665.4	683.6	699.6	712.8	718.8	719.8
152.5°	613.2	633.1	651.7	666.6	680.3	690.9	694.6	695.6
155°	599.9	616.0	631.1	643.2	653.3	661.4	664.4	664.4
157.5°	585.5	599.1	611.8	621.5	629.0	635.1	636.9	636.9
160°	576.6	587.7	598.8	606.9	613.0	619.0	620.1	620.1
162.5°	567.7	577.2	585.9	593.2	597.6	603.7	604.7	603.9
165°	555.5	561.6	568.6	573.6	577.6	581.7	580.7	579.7
167.5°	543.6	548.3	553.9	556.9	559.0	561.6	561.4	560.6
170°	536.3	539.4	543.4	546.4	548.5	549.5	548.5	548.5
172.5°	529.9	532.1	534.5	536.7	538.0	539.0	538.0	536.3
175°	521.2	522.2	524.2	524.2	524.2	526.2	524.2	522.2
177.5°	515.5	516.3	516.3	517.2	516.3	517.2	515.5	513.9
180°	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1

(END OF REPORT)