

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: P332959-840

Luminaire Tested: **SA4XXRDIP-C1020D365U840-4F0-1E-UDD-F1**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332959-840
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-C1020D365U840-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 365 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5494.6 lumens
Efficiency: N/A
Efficacy: 126.3 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

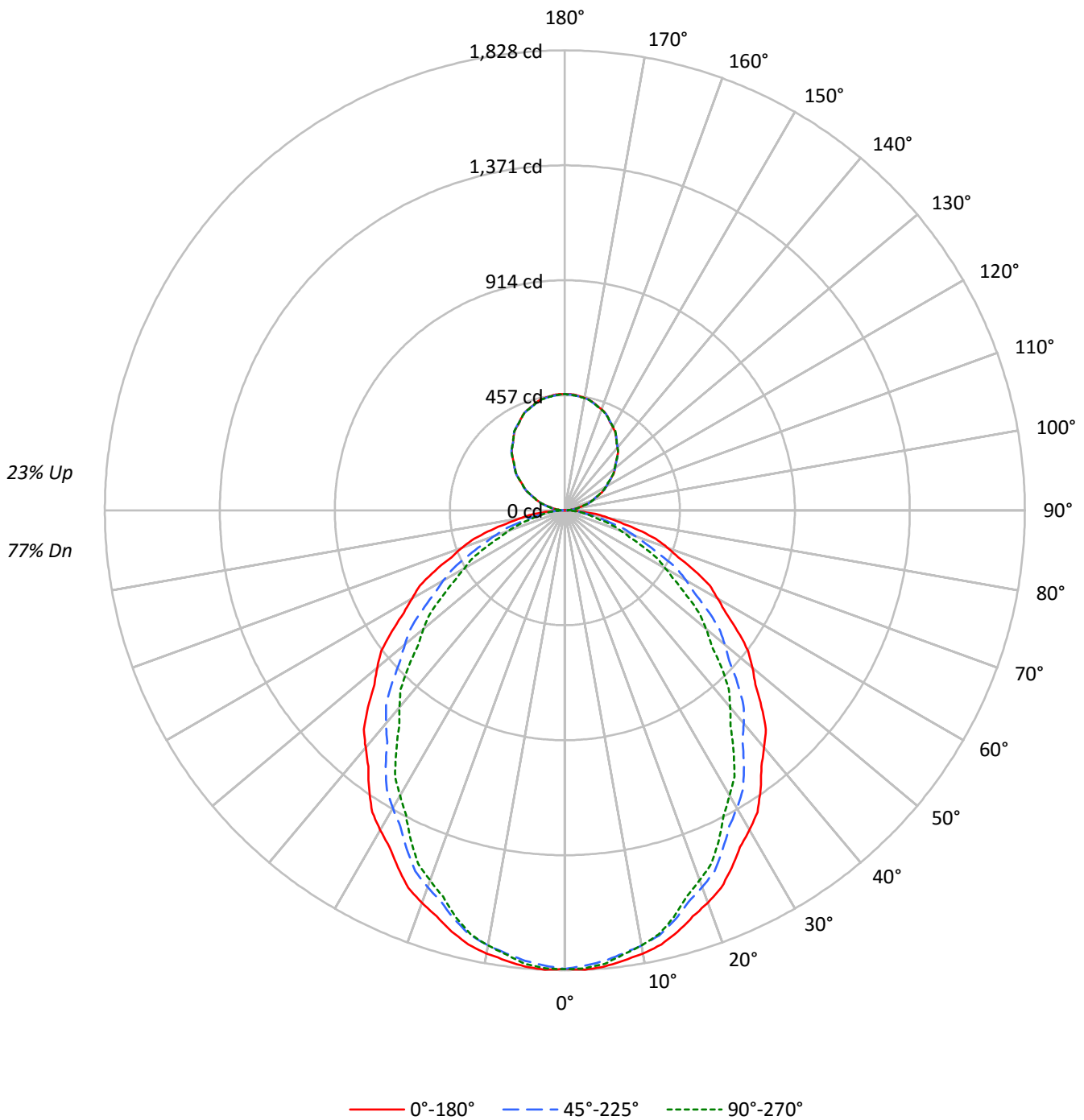
Input Watts (W): 43.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81	77				77
1	104	100	96	92	99	95	92	89	87	84	82	79	77	75	72	70	69				65	
2	95	88	81	76	91	84	78	74	77	72	68	70	67	63	64	61	59				55	
3	87	78	70	64	83	74	67	62	68	63	58	62	58	54	57	53	50				47	
4	80	69	61	55	76	66	59	53	61	55	50	56	51	47	51	47	44				41	
5	74	62	53	47	70	59	52	46	55	48	43	50	45	41	46	42	38				36	
6	68	56	47	41	65	54	46	40	50	43	38	46	40	36	42	38	34				32	
7	63	51	42	37	60	49	41	36	45	39	34	42	36	32	39	34	30				28	
8	59	46	38	33	56	45	37	32	41	35	30	38	33	29	36	31	27				25	
9	55	42	35	29	52	41	34	29	38	32	27	35	30	26	33	28	25				23	
10	52	39	32	27	49	38	31	26	35	29	25	33	28	24	31	26	23				21	

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	3.1
10°-20°	477.7	8.7
20°-30°	689.8	12.6
30°-40°	781.8	14.2
40°-50°	755.0	13.7
50°-60°	627.8	11.4
60°-70°	433.5	7.9
70°-80°	219.7	4.0
80°-90°	57.8	1.1
90°-100°	30.4	0.6
100°-110°	90.2	1.6
110°-120°	153.0	2.8
120°-130°	201.8	3.7
130°-140°	226.6	4.1
140°-150°	222.7	4.1
150°-160°	187.3	3.4
160°-170°	124.6	2.3
170°-180°	43.6	0.8
0°-30°	1338.7	24.4
0°-40°	2120.6	38.6
0°-60°	3503.4	63.8
0°-90°	4214.4	76.7
90°-120°	273.6	5.0
90°-150°	924.6	16.8
90°-180°	1280.0	23.3
0°-180°	5494.6	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	5	8	10	11	5
95°	21	25	27	28	28	24
105°	83	84	85	86	87	88
115°	156	156	155	154	154	153
125°	227	227	226	226	225	202
135°	292	294	294	294	293	226
145°	355	356	357	356	356	222
155°	407	407	406	408	406	187
165°	443	442	441	443	442	125
175°	461	459	459	461	459	44
180°	461	461	461	461	461	



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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°	26.0	24.1	22.3	20.5	18.7	17.7	17.6	17.5	17.4	17.2	17.1
90°	1.1	1.9	2.8	3.7	4.5	5.4	6.0	6.6	7.2	7.9	8.3
92.5°	7.7	8.7	9.6	10.6	11.6	12.3	12.8	13.2	13.7	14.1	14.4
95°	21.4	22.1	22.8	23.5	24.2	24.9	25.4	26.1	26.6	27.2	27.4
97.5°	37.4	38.0	38.6	39.1	39.7	40.3	40.9	41.6	42.2	42.9	43.2
100°	50.0	50.3	50.6	50.9	51.2	51.7	52.4	53.2	53.9	54.6	54.7
102.5°	63.1	63.2	63.3	63.5	63.6	64.0	64.6	65.3	65.9	66.6	66.9
105°	83.1	83.2	83.3	83.4	83.4	83.6	84.0	84.3	84.6	84.9	85.1
107.5°	104.2	104.3	104.4	104.5	104.6	104.6	104.7	104.7	104.8	104.8	105.0
110°	118.5	118.7	118.8	119.0	119.1	119.2	119.1	119.0	118.9	118.9	118.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	133.3	133.3	133.4	133.4	133.4	133.4	133.2	133.1	133.0	132.8	132.8
115°	155.6	155.6	155.6	155.6	155.6	155.5	155.3	155.2	155.0	154.9	154.8
117.5°	176.5	176.6	176.7	176.7	176.8	176.8	176.7	176.6	176.4	176.3	176.1
120°	190.6	190.9	191.2	191.5	191.9	191.9	191.7	191.4	191.2	191.0	190.6
122.5°	205.1	205.2	205.4	205.5	205.6	205.6	205.5	205.4	205.3	205.2	204.9
125°	226.6	226.6	226.6	226.6	226.6	226.5	226.5	226.4	226.3	226.2	226.1
127.5°	246.1	246.3	246.6	246.8	247.0	247.1	247.0	246.8	246.7	246.6	246.4
130°	259.8	260.0	260.2	260.5	260.7	260.8	260.8	260.8	260.8	260.8	260.7
132.5°	273.8	274.0	274.1	274.3	274.5	274.5	274.5	274.4	274.4	274.3	274.1
135°	292.3	292.8	293.2	293.7	294.2	294.4	294.4	294.4	294.4	294.4	294.3
137.5°	312.4	312.7	312.9	313.1	313.3	313.5	313.6	313.7	313.9	314.0	313.8
140°	325.8	326.0	326.1	326.3	326.5	326.5	326.5	326.5	326.5	326.5	326.5
142.5°	338.1	338.2	338.4	338.5	338.7	338.8	338.7	338.6	338.6	338.5	338.5
145°	355.1	355.4	355.7	356.0	356.4	356.6	356.6	356.7	356.8	356.9	356.8
147.5°	371.9	372.3	372.6	373.0	373.4	373.5	373.5	373.4	373.4	373.3	373.2
150°	382.2	382.5	382.8	383.1	383.4	383.6	383.6	383.6	383.6	383.6	383.6
152.5°	391.9	392.1	392.2	392.4	392.6	392.7	392.8	392.9	392.9	393.0	393.2
155°	406.8	406.8	406.8	406.8	406.8	406.8	406.7	406.6	406.6	406.5	406.8
157.5°	419.4	419.2	419.1	419.0	418.8	418.7	418.7	418.7	418.7	418.7	418.9
160°	426.8	426.7	426.7	426.6	426.5	426.4	426.4	426.3	426.2	426.1	426.4
162.5°	433.6	433.4	433.2	433.0	432.8	432.7	432.6	432.5	432.4	432.3	432.8
165°	442.8	442.6	442.4	442.1	441.9	441.7	441.5	441.4	441.2	441.1	441.5
167.5°	449.9	449.6	449.3	448.9	448.6	448.4	448.5	448.5	448.5	448.5	449.0
170°	453.9	453.5	453.1	452.7	452.3	452.2	452.2	452.3	452.4	452.5	452.9
172.5°	456.8	456.5	456.1	455.8	455.4	455.2	455.2	455.3	455.3	455.3	455.9
175°	460.7	460.3	459.9	459.5	459.1	458.9	458.8	458.7	458.7	458.6	459.1
177.5°	462.0	461.7	461.3	461.0	460.7	460.6	460.6	460.6	460.6	460.6	461.0
180°	461.4	461.4	461.4	461.4	461.4	461.4	461.4	461.4	461.4	461.4	461.4



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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°	16.9	16.8	16.6	16.7	17.0	17.3	17.5	17.8
90°	8.8	9.3	9.8	10.1	10.2	10.4	10.5	10.7
92.5°	14.7	14.9	15.2	15.5	15.6	15.7	15.8	15.9
95°	27.6	27.9	28.1	28.2	28.2	28.2	28.2	28.2
97.5°	43.4	43.7	44.0	44.1	44.1	44.1	44.1	44.1
100°	54.9	55.0	55.2	55.3	55.3	55.3	55.3	55.3
102.5°	67.1	67.3	67.5	67.7	67.7	67.8	67.8	67.9
105°	85.4	85.6	85.8	86.1	86.3	86.6	86.8	87.1
107.5°	105.3	105.5	105.7	105.8	105.8	105.8	105.8	105.7
110°	118.6	118.4	118.2	118.3	118.5	118.8	119.0	119.2



TEST NUMBER: P332959-840

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	132.8	132.7	132.7	132.7	132.8	132.8	132.8	132.9
115°	154.7	154.6	154.5	154.5	154.4	154.3	154.2	154.2
117.5°	175.8	175.5	175.3	175.1	174.9	174.7	174.6	174.4
120°	190.2	189.8	189.3	189.2	189.3	189.6	189.7	189.9
122.5°	204.7	204.4	204.1	203.8	203.6	203.3	203.0	202.7
125°	225.9	225.8	225.6	225.4	225.3	225.1	225.0	224.8
127.5°	246.3	246.1	245.9	245.8	245.7	245.6	245.4	245.3
130°	260.5	260.3	260.2	259.9	259.6	259.3	259.0	258.7
132.5°	274.0	273.8	273.7	273.5	273.4	273.3	273.2	273.0
135°	294.1	294.0	293.8	293.6	293.4	293.1	292.9	292.7
137.5°	313.6	313.4	313.2	313.1	313.1	313.2	313.2	313.3
140°	326.4	326.3	326.2	326.1	326.1	326.0	325.9	325.8
142.5°	338.5	338.5	338.4	338.4	338.4	338.4	338.4	338.4
145°	356.7	356.6	356.6	356.4	356.2	355.9	355.7	355.5
147.5°	373.2	373.1	373.0	373.0	372.9	372.8	372.7	372.7
150°	383.6	383.6	383.6	383.5	383.5	383.4	383.3	383.2
152.5°	393.4	393.6	393.8	393.7	393.5	393.3	393.1	392.9
155°	407.1	407.4	407.7	407.7	407.4	407.1	406.8	406.5
157.5°	419.1	419.4	419.6	419.6	419.3	419.1	418.8	418.5
160°	426.6	426.8	427.1	427.0	426.6	426.2	425.8	425.4
162.5°	433.2	433.6	434.0	434.0	433.7	433.3	432.9	432.5
165°	442.0	442.5	442.9	443.0	442.7	442.4	442.1	441.8
167.5°	449.5	449.9	450.4	450.4	449.9	449.4	448.9	448.4
170°	453.4	453.9	454.4	454.3	453.8	453.2	452.7	452.1
172.5°	456.5	457.0	457.5	457.5	457.0	456.4	455.9	455.2
175°	459.7	460.2	460.8	460.8	460.2	459.7	459.1	458.6
177.5°	461.4	461.9	462.3	462.3	461.8	461.3	460.8	460.3
180°	461.4	461.4	461.4	461.4	461.4	461.4	461.4	461.4

(END OF REPORT)