

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: P332958-830

Luminaire Tested: **SA4XXRDIP-C1020D365U830-4F0-1E-UDD-F**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332958-830
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA4XXRDIP-C1020D365U830-4F0-1E-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

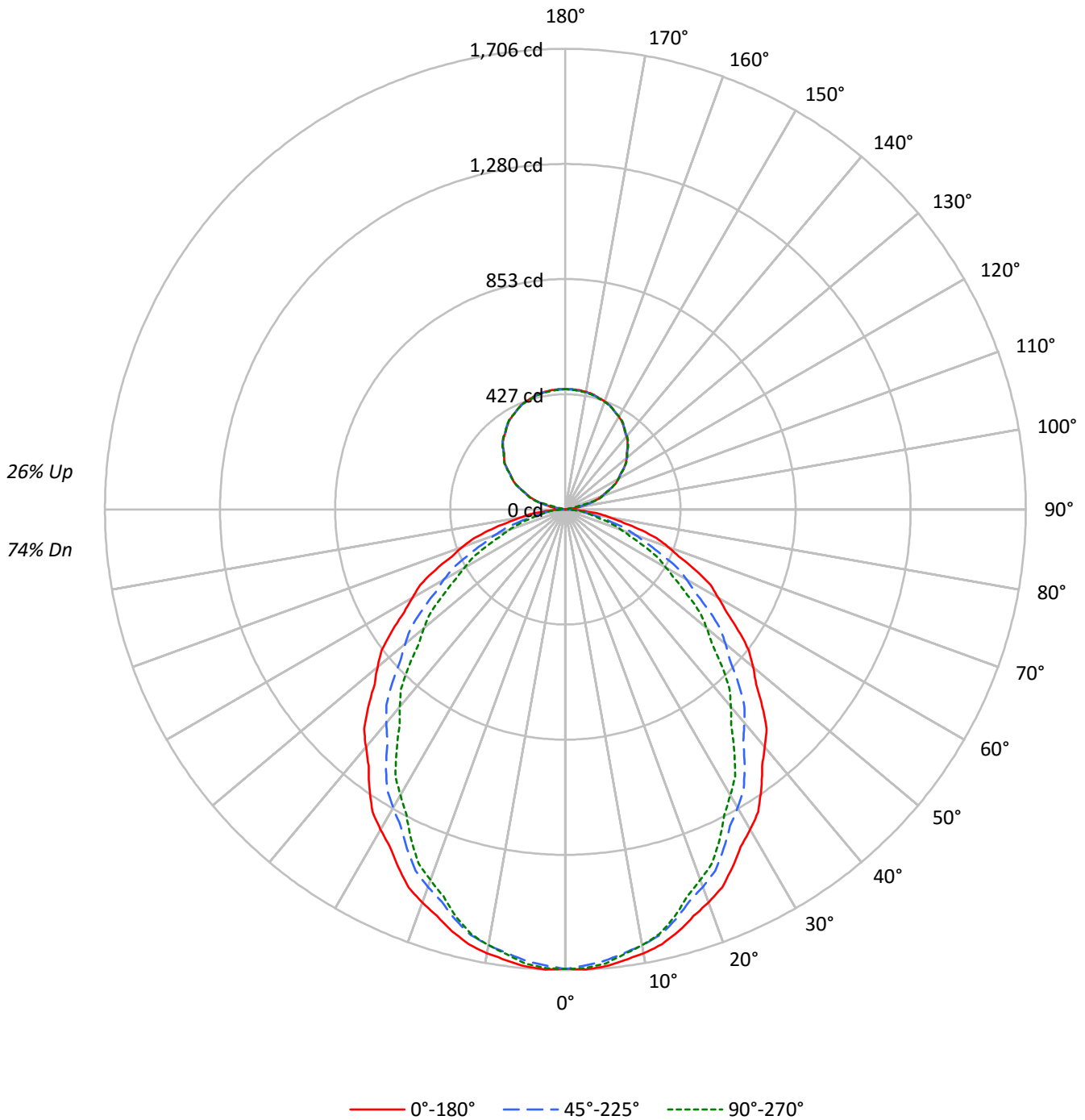
Lumens per Lamp: N/A
Luminaire Lumens: 5311.1 lumens
Efficiency: N/A
Efficacy: 122.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Direct

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

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	3.0
10°-20°	445.8	8.4
20°-30°	643.8	12.1
30°-40°	729.7	13.7
40°-50°	704.7	13.3
50°-60°	586.0	11.0
60°-70°	404.6	7.6
70°-80°	205.1	3.9
80°-90°	53.9	1.0
90°-100°	15.2	0.3
100°-110°	97.1	1.8
110°-120°	185.8	3.5
120°-130°	235.8	4.4
130°-140°	252.3	4.8
140°-150°	236.0	4.4
150°-160°	190.3	3.6
160°-170°	122.7	2.3
170°-180°	42.3	0.8
0°-30°	1249.5	23.5
0°-40°	1979.2	37.3
0°-60°	3269.8	61.6
0°-90°	3933.5	74.1
90°-120°	298.1	5.6
90°-150°	1022.3	19.2
90°-180°	1378.0	25.9
0°-180°	5311.1	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°	1	5	7	9	10	4
95°	18	8	7	9	10	24
105°	100	102	104	106	95	105
115°	187	188	188	188	188	184
125°	263	264	264	265	265	235
135°	326	326	327	328	329	251
145°	376	377	377	378	378	235
155°	413	413	412	413	412	190
165°	435	434	434	436	433	123
175°	445	444	444	446	443	42
180°	445	445	445	445	445	



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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°	24.2	22.5	20.8	19.1	17.4	16.5	16.4	16.3	16.2	16.0	15.9
90°	1.0	1.8	2.6	3.5	4.2	5.0	5.6	6.1	6.7	7.4	7.7
92.5°	4.2	4.2	4.2	4.3	4.3	4.7	5.3	5.8	6.5	7.1	7.5
95°	18.3	15.8	13.3	10.7	8.3	7.1	7.1	7.2	7.3	7.4	7.7
97.5°	38.9	40.4	42.0	43.6	45.1	41.8	33.6	25.4	17.1	8.8	8.9
100°	54.7	56.0	57.3	58.6	59.9	55.5	45.3	35.1	24.9	14.7	13.4
102.5°	72.2	73.2	74.2	75.1	76.2	76.0	74.6	73.3	71.9	70.6	57.0
105°	100.3	100.7	101.1	101.6	102.1	102.5	102.8	103.2	103.6	104.0	104.6
107.5°	126.3	126.5	126.8	127.0	127.2	127.5	128.1	128.6	129.0	129.6	129.9
110°	143.9	144.1	144.3	144.6	144.8	145.2	145.5	146.0	146.5	146.9	147.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	161.0	161.4	161.7	162.1	162.6	162.9	163.1	163.2	163.4	163.7	163.6
115°	187.2	187.5	187.7	187.8	188.1	188.1	188.1	188.0	187.9	187.8	188.0
117.5°	210.8	211.1	211.4	211.8	212.1	212.3	212.4	212.6	212.7	212.9	212.9
120°	226.9	227.2	227.4	227.7	228.0	228.1	228.1	228.0	227.9	227.8	228.0
122.5°	241.8	242.0	242.1	242.3	242.5	242.6	242.7	242.8	242.9	243.1	243.1
125°	263.2	263.4	263.7	264.0	264.4	264.4	264.3	264.1	264.0	263.8	264.0
127.5°	283.4	283.5	283.5	283.6	283.7	283.9	284.3	284.6	284.9	285.3	285.2
130°	296.4	296.5	296.6	296.7	296.8	296.9	297.1	297.4	297.6	297.8	297.8
132.5°	308.5	308.6	308.7	308.9	309.0	309.2	309.4	309.7	310.0	310.3	310.4
135°	326.4	326.4	326.3	326.2	326.1	326.2	326.6	326.9	327.2	327.4	327.6
137.5°	342.3	342.4	342.4	342.4	342.5	342.7	343.0	343.3	343.7	343.9	344.1
140°	352.8	352.9	353.1	353.2	353.4	353.5	353.6	353.8	353.9	354.1	354.3
142.5°	362.1	362.3	362.6	362.9	363.2	363.4	363.4	363.5	363.6	363.7	363.8
145°	376.5	376.6	376.8	377.1	377.3	377.4	377.4	377.4	377.4	377.4	377.5
147.5°	387.8	388.2	388.6	389.1	389.5	389.6	389.6	389.5	389.4	389.4	389.4
150°	396.1	396.3	396.6	397.0	397.3	397.4	397.3	397.2	397.1	397.1	397.1
152.5°	403.0	403.2	403.5	403.7	404.0	404.0	403.9	403.7	403.6	403.5	403.6
155°	412.7	412.8	412.8	412.9	413.0	412.9	412.7	412.5	412.3	412.1	412.4
157.5°	420.9	420.8	420.8	420.8	420.8	420.6	420.4	420.1	419.8	419.6	420.0
160°	425.7	425.5	425.3	425.1	424.8	424.7	424.6	424.5	424.4	424.3	424.8
162.5°	430.0	429.7	429.4	429.1	428.9	428.7	428.6	428.5	428.5	428.4	428.9
165°	435.4	435.0	434.6	434.2	433.9	433.7	433.7	433.7	433.7	433.7	434.3
167.5°	439.6	439.2	438.8	438.5	438.1	437.9	437.8	437.8	437.7	437.7	438.4
170°	442.1	441.6	441.1	440.7	440.3	440.1	440.2	440.3	440.3	440.4	440.9
172.5°	443.7	443.2	442.7	442.3	441.9	441.7	441.8	441.9	441.9	442.0	442.5
175°	445.4	444.9	444.5	444.0	443.6	443.4	443.5	443.6	443.7	443.7	444.4
177.5°	446.2	445.7	445.4	444.9	444.5	444.3	444.5	444.6	444.7	444.8	445.4
180°	445.4	445.4	445.4	445.4	445.4	445.4	445.4	445.4	445.4	445.4	445.4



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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°	15.7	15.6	15.5	15.6	15.8	16.1	16.3	16.6
90°	8.2	8.7	9.1	9.4	9.5	9.7	9.8	10.0
92.5°	7.9	8.4	8.9	9.0	9.1	9.1	9.1	9.2
95°	8.2	8.7	9.1	9.3	9.4	9.5	9.6	9.6
97.5°	8.9	9.0	9.0	9.0	9.1	9.1	9.2	9.3
100°	12.2	10.8	9.6	9.0	9.1	9.1	9.2	9.3
102.5°	43.5	29.9	16.3	9.5	9.5	9.5	9.6	9.6
105°	105.3	105.9	106.6	105.6	102.9	100.3	97.6	94.9
107.5°	130.3	130.5	130.9	131.2	131.5	131.8	132.1	132.3
110°	147.2	147.3	147.5	147.7	147.9	148.2	148.4	148.5



TEST NUMBER: P332958-830

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	163.6	163.6	163.5	163.7	164.0	164.3	164.6	164.9
115°	188.1	188.3	188.5	188.5	188.5	188.5	188.5	188.5
117.5°	212.8	212.8	212.8	212.7	212.7	212.7	212.7	212.6
120°	228.1	228.3	228.5	228.5	228.3	228.1	228.0	227.8
122.5°	243.2	243.3	243.4	243.4	243.2	243.1	242.9	242.8
125°	264.3	264.5	264.7	264.9	264.9	265.0	265.0	265.1
127.5°	285.2	285.1	285.1	285.0	285.0	284.9	284.8	284.8
130°	297.9	298.0	298.1	298.1	298.1	298.1	298.1	298.1
132.5°	310.5	310.6	310.7	310.7	310.6	310.5	310.5	310.4
135°	327.7	327.9	328.0	328.2	328.3	328.5	328.7	328.8
137.5°	344.3	344.5	344.6	344.7	344.6	344.6	344.5	344.5
140°	354.5	354.8	355.0	355.2	355.2	355.2	355.3	355.4
142.5°	364.0	364.2	364.3	364.4	364.5	364.5	364.5	364.5
145°	377.6	377.7	377.7	377.8	378.0	378.1	378.2	378.4
147.5°	389.5	389.6	389.6	389.6	389.7	389.7	389.8	389.9
150°	397.1	397.1	397.1	397.1	397.2	397.3	397.3	397.4
152.5°	403.7	403.8	404.0	404.0	403.9	403.9	403.9	403.8
155°	412.6	412.9	413.2	413.3	413.0	412.8	412.6	412.4
157.5°	420.4	420.8	421.1	421.1	420.8	420.4	420.0	419.6
160°	425.3	425.7	426.1	426.1	425.7	425.3	424.8	424.3
162.5°	429.2	429.7	430.2	430.1	429.6	429.1	428.6	428.1
165°	434.9	435.5	436.1	436.0	435.4	434.7	434.0	433.4
167.5°	439.0	439.7	440.3	440.3	439.5	438.8	438.0	437.3
170°	441.6	442.1	442.7	442.6	442.0	441.2	440.5	439.7
172.5°	443.2	443.7	444.3	444.2	443.5	442.6	441.9	441.0
175°	445.1	445.7	446.4	446.3	445.4	444.5	443.6	442.7
177.5°	445.8	446.3	446.8	446.6	445.9	445.2	444.5	443.7
180°	445.4	445.4	445.4	445.4	445.4	445.4	445.4	445.4

(END OF REPORT)