

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: P332972-830

Luminaire Tested: **SA4XXRDIP-C1020D810U830-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332972-830
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA4XXRDIP-C1020D810U830-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 810 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6662.5 lumens
Efficiency: N/A
Efficacy: 122.5 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: General Diffuse

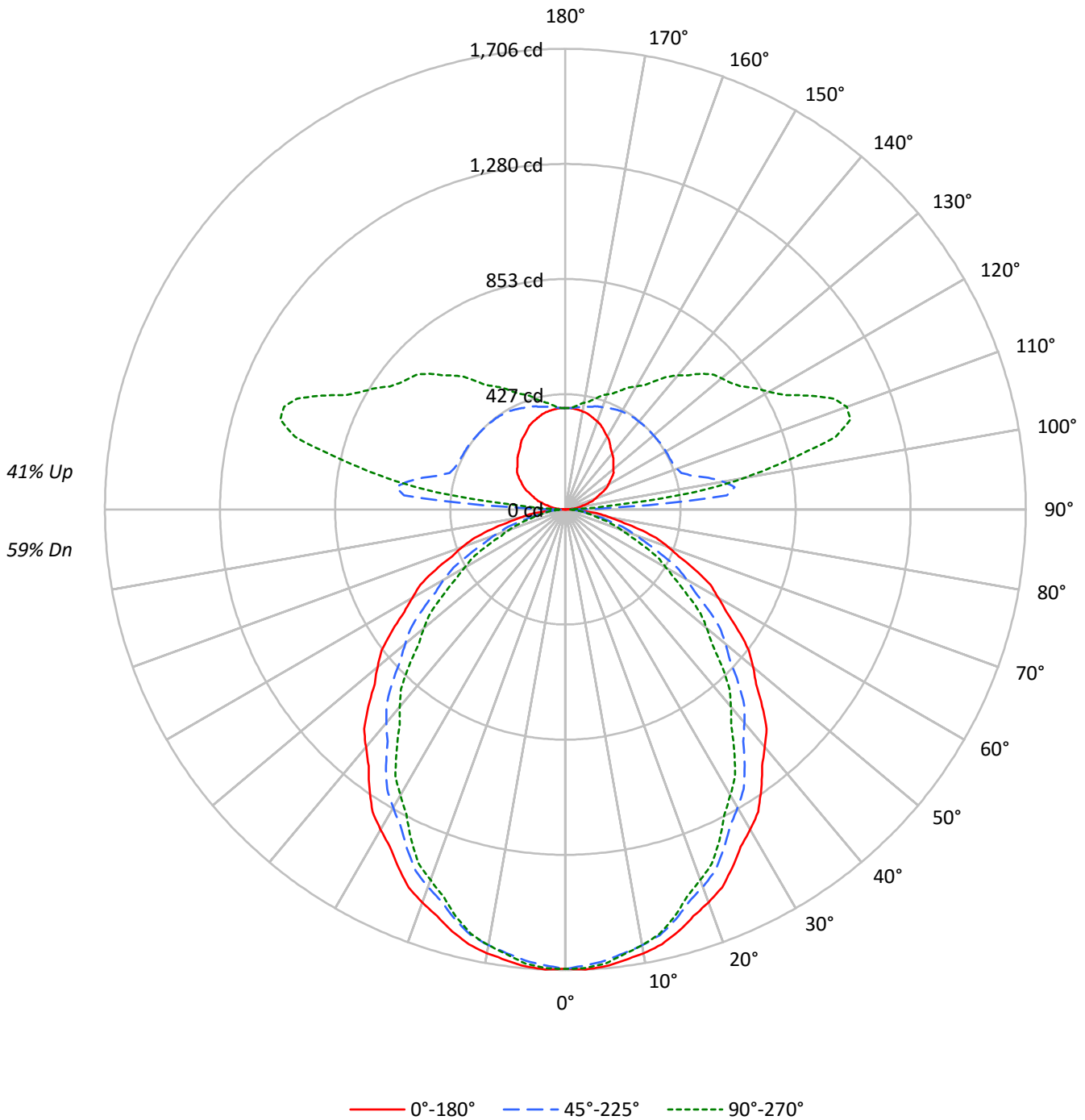
Input Watts (W): 54.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59
1	100	96	92	89	93	90	86	83	78	76	73	67	66	64	57	56	55	50
2	91	84	78	73	85	79	73	69	69	65	61	60	57	54	51	49	47	43
3	84	74	67	61	78	70	63	58	61	56	52	53	49	46	45	43	40	37
4	77	66	58	52	71	62	55	49	54	49	44	47	43	40	41	38	35	32
5	71	59	51	45	66	55	48	43	49	43	39	43	38	35	37	33	31	28
6	65	53	45	39	61	50	43	37	44	38	34	39	34	30	34	30	27	24
7	60	48	40	34	56	45	38	33	40	34	30	35	31	27	31	27	24	22
8	56	44	36	31	52	41	34	29	37	31	27	32	28	24	28	25	22	19
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	26	22	20	18
10	49	37	30	25	46	35	28	24	31	26	22	28	23	20	24	21	18	16

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	2.4
10°-20°	445.8	6.7
20°-30°	643.8	9.7
30°-40°	729.7	11.0
40°-50°	704.7	10.6
50°-60°	586.0	8.8
60°-70°	404.6	6.1
70°-80°	205.1	3.1
80°-90°	54.7	0.8
90°-100°	270.9	4.1
100°-110°	563.9	8.5
110°-120°	505.1	7.6
120°-130°	424.9	6.4
130°-140°	354.3	5.3
140°-150°	270.6	4.1
150°-160°	190.2	2.9
160°-170°	111.9	1.7
170°-180°	36.4	0.5
0°-30°	1249.5	18.8
0°-40°	1979.2	29.7
0°-60°	3269.8	49.1
0°-90°	3934.2	59.1
90°-120°	1340.0	20.1
90°-150°	2389.7	35.9
90°-180°	2728.0	40.9
0°-180°	6662.5	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	6	13	15	16	5
95°	24	77	601	297	180	27
105°	86	125	483	1041	1037	92
115°	152	191	431	828	996	151
125°	212	251	429	705	794	188
135°	251	299	425	626	710	194
145°	290	332	423	528	580	182
155°	329	356	411	466	486	152
165°	359	370	394	418	424	101
175°	374	375	378	383	382	36
180°	375	375	375	375	375	



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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°	24.1	22.5	21.1	19.4	17.7	16.7	17.3	17.2	17.2	17.2	16.9
90°	0.8	2.2	4.4	5.2	5.9	5.9	10.3	10.3	11.8	13.3	12.5
92.5°	8.4	12.3	19.1	28.2	38.9	54.2	91.7	148.8	204.6	233.8	194.7
95°	24.3	26.5	33.9	43.5	61.2	92.1	156.3	277.1	453.3	600.7	617.6
97.5°	43.6	43.6	50.0	58.8	74.0	99.9	149.3	249.1	424.2	632.6	775.9
100°	56.0	56.0	61.2	70.0	84.0	107.6	151.1	234.4	384.7	592.6	781.2
102.5°	67.8	69.0	73.5	81.8	95.2	117.6	156.9	230.3	358.2	542.4	737.0
105°	86.2	88.4	92.1	100.9	114.2	135.6	171.0	232.1	335.4	483.4	656.7
107.5°	106.6	108.0	111.7	121.1	133.8	155.0	187.4	243.1	331.2	450.4	591.8
110°	120.2	121.6	125.3	134.1	147.4	167.3	199.7	251.3	332.3	439.2	559.4



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	133.1	134.6	138.8	147.1	160.3	180.3	211.5	260.1	335.9	433.9	541.1
115°	151.8	154.0	159.2	166.5	180.6	200.5	230.0	274.2	342.7	431.1	524.0
117.5°	171.3	173.3	178.0	186.1	199.2	219.8	247.8	288.4	350.0	430.4	516.3
120°	184.3	185.7	190.9	199.0	211.5	232.1	260.1	298.5	355.2	430.4	512.2
122.5°	196.0	197.6	202.6	210.2	223.9	243.9	271.9	307.9	360.5	429.8	507.5
125°	211.5	214.4	218.9	227.0	241.0	261.6	288.1	322.1	368.5	429.0	499.6
127.5°	225.3	227.6	232.9	242.1	256.7	277.6	303.2	334.3	374.8	427.3	489.2
130°	232.9	235.8	241.8	252.8	266.8	288.1	313.2	342.0	379.6	426.7	482.8
132.5°	240.5	242.9	250.6	261.1	276.3	296.4	321.5	349.6	383.7	426.1	476.8
135°	251.3	254.3	261.6	274.2	289.6	308.8	333.1	359.7	389.8	425.3	468.0
137.5°	262.1	264.9	273.0	284.9	301.0	319.2	342.0	366.7	393.5	425.1	460.3
140°	269.8	271.9	280.0	292.6	308.0	325.7	347.9	371.5	396.5	424.5	456.2
142.5°	278.0	280.2	287.8	299.6	314.5	331.7	353.2	374.9	398.9	424.5	452.7
145°	289.6	291.8	299.3	309.5	323.6	339.8	358.9	378.8	400.2	423.0	446.6
147.5°	302.7	303.5	310.0	320.6	332.2	346.9	364.9	382.2	401.0	420.4	441.2
150°	311.0	311.8	317.6	326.5	337.5	351.6	367.8	384.0	401.0	418.6	437.1
152.5°	318.7	318.9	324.7	333.0	342.9	355.7	370.1	385.1	399.7	415.7	432.3
155°	329.4	330.2	334.6	342.0	350.1	361.1	373.6	386.2	397.9	411.2	425.3
157.5°	339.9	339.9	344.0	349.8	356.8	365.5	376.2	386.2	396.1	406.7	418.0
160°	346.4	346.4	349.3	354.5	360.4	368.5	377.3	386.2	394.3	403.1	412.7
162.5°	352.3	351.7	354.0	358.6	363.9	370.2	378.5	386.2	392.6	399.6	408.0
165°	358.9	358.9	360.4	364.1	367.8	372.2	378.8	384.7	389.2	394.3	400.2
167.5°	365.5	364.9	365.5	368.3	370.4	373.8	378.7	383.0	385.6	389.0	393.1
170°	368.5	367.8	368.5	370.7	372.2	374.4	378.1	381.7	383.2	385.4	388.4
172.5°	371.5	370.7	370.9	372.5	373.3	374.9	377.5	380.6	380.9	381.9	384.3
175°	374.4	373.6	373.6	374.4	375.1	375.1	376.6	378.8	378.1	378.1	379.6
177.5°	375.7	375.1	374.6	375.1	375.1	375.1	375.7	376.9	375.7	375.7	376.3
180°	375.1	375.1	375.1	375.1	375.1	375.1	375.1	375.1	375.1	375.1	375.1



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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°	16.8	16.7	16.6	16.6	17.0	17.3	17.4	17.7
90°	13.3	14.0	14.7	14.7	15.5	16.2	15.5	15.5
92.5°	144.8	109.0	86.7	71.9	63.2	59.3	56.7	56.7
95°	546.1	431.9	333.1	261.6	225.6	202.6	189.5	179.8
97.5°	806.8	764.4	692.3	615.4	562.5	518.1	496.0	480.7
100°	888.8	903.5	867.4	812.9	748.8	703.8	681.7	675.8
102.5°	884.7	957.8	968.3	945.6	906.3	873.6	850.4	845.6
105°	825.5	952.9	1025.9	1056.1	1057.6	1051.7	1041.4	1037.0
107.5°	741.3	877.0	979.8	1045.5	1081.9	1098.7	1106.1	1108.0
110°	690.6	818.0	924.9	1006.0	1058.3	1089.3	1102.6	1109.2



TEST NUMBER: P332972-830

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	653.5	766.2	867.1	948.2	1007.6	1045.1	1063.7	1074.4
115°	616.1	706.8	793.0	863.7	922.0	966.2	989.8	995.7
117.5°	597.9	672.9	740.6	800.7	850.4	887.5	911.3	916.0
120°	589.6	658.2	717.1	769.4	811.4	843.9	863.0	871.1
122.5°	582.5	648.7	702.4	748.2	783.7	811.4	827.6	835.8
125°	570.4	633.9	684.7	725.2	754.7	776.1	790.0	794.5
127.5°	555.7	616.2	666.9	705.5	735.1	754.1	765.9	770.3
130°	543.9	602.1	652.2	691.3	721.5	740.0	751.8	756.2
132.5°	531.5	586.2	635.2	674.2	703.8	724.6	735.8	740.3
135°	514.4	562.3	607.3	644.1	673.6	694.3	706.1	710.5
137.5°	499.0	539.5	577.4	610.7	638.2	658.6	668.3	673.6
140°	490.1	524.7	557.9	588.9	614.6	630.8	641.2	647.1
142.5°	481.8	512.4	540.8	567.6	590.5	605.5	614.6	618.8
145°	470.2	495.3	517.4	538.0	556.5	568.9	576.4	580.0
147.5°	460.6	480.5	498.2	514.4	528.0	538.8	544.3	545.6
150°	454.7	471.6	486.4	499.6	511.5	521.0	525.5	526.2
152.5°	448.3	462.8	476.4	487.3	497.3	505.1	507.7	508.5
155°	438.5	450.3	461.4	470.2	477.6	483.4	485.7	485.7
157.5°	428.0	437.9	447.2	454.3	459.9	464.3	465.6	465.6
160°	421.6	429.7	437.8	443.7	448.1	452.5	453.3	453.3
162.5°	415.1	422.0	428.4	433.7	436.9	441.3	442.1	441.5
165°	406.0	410.5	415.7	419.3	422.3	425.3	424.5	423.8
167.5°	397.4	400.8	404.9	407.1	408.6	410.5	410.4	409.7
170°	392.1	394.3	397.3	399.4	401.0	401.6	401.0	401.0
172.5°	387.4	389.0	390.8	392.4	393.2	394.0	393.2	392.1
175°	381.1	381.7	383.2	383.2	383.2	384.7	383.2	381.7
177.5°	376.9	377.5	377.5	378.1	377.5	378.1	376.9	375.7
180°	375.1	375.1	375.1	375.1	375.1	375.1	375.1	375.1

(END OF REPORT)