

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: P332649-830

Luminaire Tested: **S124DIP-S1020D810U830-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332649-830
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: S124DIP-S1020D810U830-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 810 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7224.2 lumens
Efficiency: N/A
Efficacy: 132.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: General Diffuse

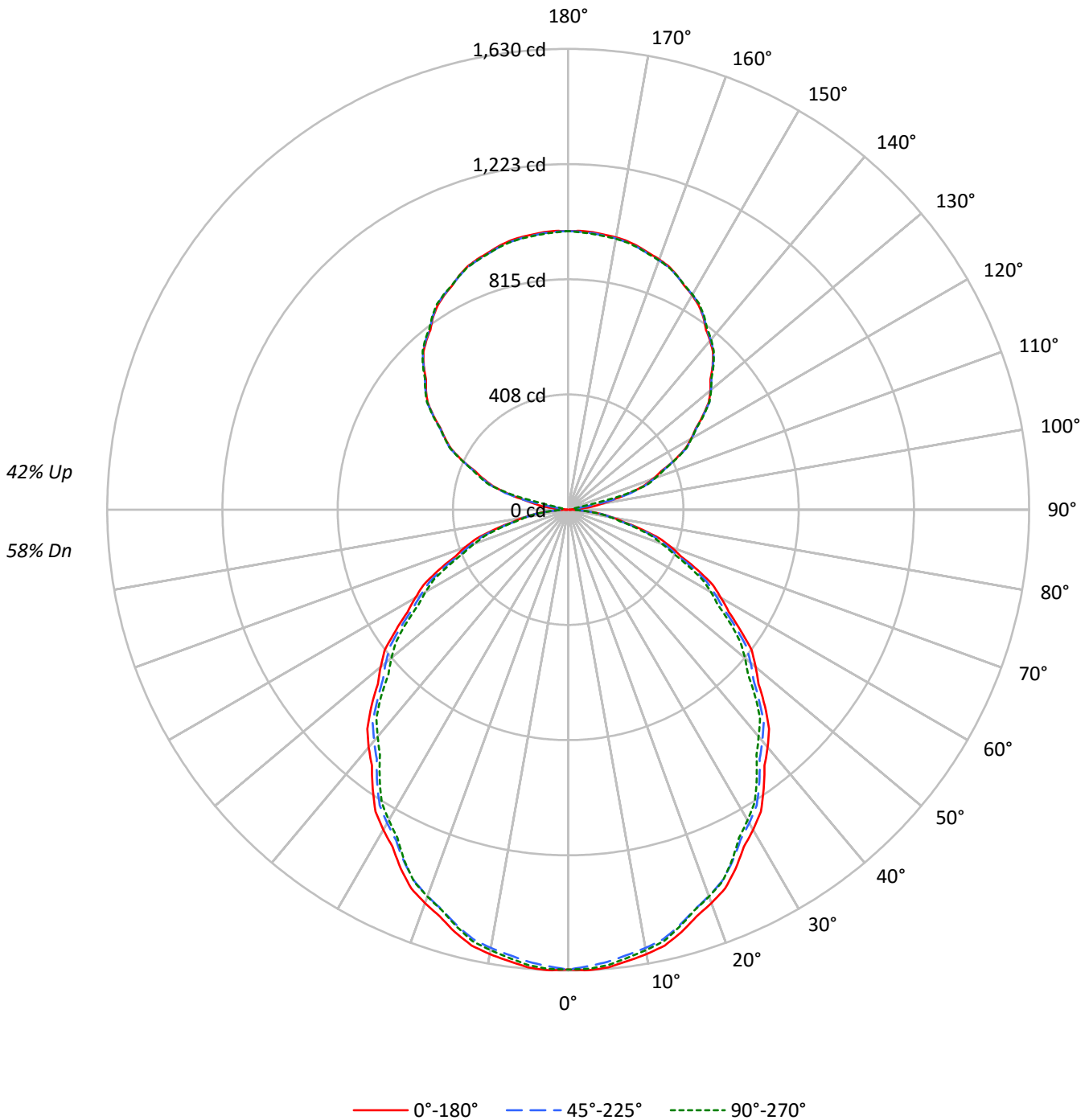
Input Watts (W): 54.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63	58
1	99	95	91	88	93	89	85	82	77	74	72	66	64	62	56	55	53	49
2	91	83	77	72	84	78	72	67	67	63	60	58	55	52	49	47	45	41
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	44	41	38	34
4	76	65	57	50	70	61	53	48	53	47	43	46	41	38	39	36	33	30
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	32	29	26
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	23
7	59	47	39	33	55	44	37	31	39	33	28	34	29	25	29	25	23	20
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16
10	48	36	28	23	45	34	27	22	30	24	21	26	22	19	23	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13130	13130	13130
5°	13169	13011	13105
10°	13086	12904	12969
15°	12929	12721	12754
20°	12718	12494	12506
25°	12479	12235	12200
30°	12185	11929	11820
35°	11880	11610	11456
40°	11564	11248	11041
45°	11233	10891	10683
50°	10868	10574	10246
55°	10473	10162	9831
60°	10078	9700	9405
65°	9635	9259	8886
70°	9135	8674	8337
75°	8372	7966	7764
80°	7452	7146	6969
85°	6521	6280	6150



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.2	2.1
10°-20°	431.5	6.0
20°-30°	635.2	8.8
30°-40°	738.4	10.2
40°-50°	738.4	10.2
50°-60°	645.9	8.9
60°-70°	479.7	6.6
70°-80°	272.5	3.8
80°-90°	81.5	1.1
90°-100°	33.7	0.5
100°-110°	214.9	3.0
110°-120°	411.0	5.7
120°-130°	521.8	7.2
130°-140°	558.3	7.7
140°-150°	522.1	7.2
150°-160°	421.0	5.8
160°-170°	271.5	3.8
170°-180°	93.6	1.3
0°-30°	1219.8	16.9
0°-40°	1958.2	27.1
0°-60°	3342.6	46.3
0°-90°	4176.3	57.8
90°-120°	659.6	9.1
90°-150°	2261.8	31.3
90°-180°	3048.0	42.2
0°-180°	7224.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1626	1626	1626	1626	1626	
5°	1625	1619	1606	1619	1617	154
15°	1547	1541	1522	1529	1526	436
25°	1401	1391	1374	1374	1370	644
35°	1205	1196	1178	1169	1162	753
45°	984	974	954	940	936	758
55°	744	739	722	707	698	666
65°	504	497	485	472	465	499
75°	268	262	255	250	249	285
85°	70	70	68	68	66	77
90°	2	10	16	20	22	6
95°	40	17	16	20	21	52
105°	222	226	230	235	210	232
115°	414	416	416	417	417	407
125°	582	585	584	586	587	520
135°	722	722	724	726	727	556
145°	833	835	835	836	837	520
155°	913	914	912	914	912	421
165°	963	960	960	965	959	272
175°	985	981	982	987	979	94
180°	985	985	985	985	985	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1630.5	1629.8	1629.1	1628.4	1627.8	1626.1	1623.5	1621.0	1618.4	1615.9	1618.3
5°	1625.0	1623.9	1622.8	1621.6	1620.4	1618.3	1615.0	1611.8	1608.7	1605.5	1608.7
7.5°	1610.0	1608.7	1607.6	1606.5	1605.3	1603.0	1599.4	1595.9	1592.3	1588.8	1591.4
10°	1596.4	1595.3	1594.0	1592.9	1591.8	1589.3	1585.5	1581.8	1578.0	1574.2	1576.5
12.5°	1578.7	1577.5	1576.3	1575.2	1574.0	1571.4	1567.4	1563.5	1559.4	1555.5	1558.0
15°	1546.9	1545.7	1544.5	1543.4	1542.2	1539.5	1535.1	1530.8	1526.4	1522.1	1523.8
17.5°	1508.5	1507.1	1505.6	1504.2	1502.8	1500.0	1495.8	1491.8	1487.6	1483.6	1484.6
20°	1480.4	1478.9	1477.5	1476.0	1474.6	1471.7	1467.4	1463.0	1458.7	1454.3	1455.2
22.5°	1450.2	1448.2	1446.3	1444.4	1442.6	1439.4	1435.0	1430.7	1426.3	1422.0	1423.6
25°	1400.9	1398.9	1396.8	1394.8	1392.8	1389.8	1385.7	1381.7	1377.6	1373.6	1373.9
27.5°	1344.6	1342.6	1340.4	1338.3	1336.2	1333.3	1329.6	1325.8	1322.0	1318.2	1317.6
30°	1307.1	1304.8	1302.4	1300.1	1297.8	1294.8	1291.0	1287.2	1283.5	1279.7	1278.6
32.5°	1267.4	1265.4	1263.3	1261.2	1259.1	1256.0	1252.1	1248.1	1244.1	1240.1	1238.7
35°	1205.4	1203.4	1201.4	1199.4	1197.3	1194.3	1190.2	1186.2	1182.1	1178.1	1176.0
37.5°	1140.0	1138.1	1136.3	1134.4	1132.6	1129.5	1125.1	1120.8	1116.4	1112.1	1109.9
40°	1097.3	1095.0	1092.6	1090.3	1088.0	1084.7	1080.3	1076.0	1071.7	1067.3	1064.4
42.5°	1051.4	1050.0	1048.6	1047.3	1045.8	1042.7	1037.9	1033.1	1028.3	1023.5	1020.1
45°	983.9	981.8	979.9	977.8	975.8	972.4	967.8	963.2	958.6	953.9	950.7
47.5°	913.2	911.9	910.5	909.1	907.7	904.8	900.6	896.3	892.0	887.7	884.1
50°	865.3	864.1	863.0	861.9	860.6	858.1	854.0	850.0	845.9	841.9	837.8
52.5°	818.4	817.0	815.6	814.3	812.8	810.0	805.7	801.4	797.1	792.9	789.3
55°	744.1	743.2	742.3	741.5	740.6	738.2	734.1	730.1	726.0	722.0	718.5
57.5°	673.3	672.2	671.3	670.2	669.3	666.8	662.8	658.8	654.8	650.8	647.5
60°	624.2	622.7	621.3	619.9	618.4	615.9	612.1	608.3	604.5	600.8	598.1
62.5°	576.3	575.0	573.8	572.6	571.4	568.8	564.8	560.8	556.8	552.8	550.4
65°	504.4	502.8	501.4	500.0	498.5	496.3	493.4	490.6	487.7	484.7	481.9
67.5°	431.9	430.6	429.2	427.9	426.5	424.5	421.7	419.0	416.1	413.4	410.6
70°	387.0	385.0	383.0	381.0	378.9	376.7	374.5	372.1	369.9	367.5	365.1
72.5°	339.1	337.1	335.1	333.0	331.0	329.0	327.2	325.4	323.5	321.6	319.8
75°	268.4	267.0	265.5	264.1	262.7	261.2	259.8	258.4	256.8	255.4	254.3
77.5°	201.0	200.3	199.6	199.1	198.4	197.5	196.1	194.9	193.6	192.4	192.0
80°	160.3	159.4	158.5	157.7	156.8	156.1	155.5	155.0	154.4	153.7	153.2
82.5°	120.6	120.3	119.9	119.4	119.0	118.8	118.7	118.6	118.5	118.3	118.0
85°	70.4	70.4	70.4	70.4	70.4	70.1	69.5	68.9	68.3	67.8	67.8
87.5°	27.5	27.7	27.8	27.9	28.1	28.2	28.2	28.2	28.3	28.3	28.5
90°	2.2	4.1	5.8	7.6	9.4	10.9	12.3	13.6	14.9	16.2	17.2
92.5°	9.3	9.4	9.5	9.6	9.7	10.4	11.7	13.0	14.3	15.6	16.6
95°	40.5	35.0	29.4	23.8	18.3	15.6	15.7	15.9	16.0	16.2	17.2
97.5°	86.1	89.5	93.0	96.5	100.0	92.6	74.3	56.0	37.7	19.4	19.5
100°	120.8	123.9	126.8	129.7	132.6	122.8	100.2	77.7	55.0	32.4	29.6
102.5°	159.8	161.9	164.1	166.3	168.4	168.1	165.0	162.1	159.2	156.3	126.2
105°	221.8	222.8	223.8	224.8	225.7	226.7	227.4	228.3	229.1	229.9	231.4
107.5°	279.5	279.9	280.4	281.0	281.4	282.2	283.3	284.5	285.6	286.7	287.4
110°	318.4	318.9	319.3	319.8	320.4	321.0	322.1	323.0	324.0	325.0	325.4



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	356.1	356.9	357.9	358.7	359.7	360.3	360.8	361.2	361.7	362.1	362.1
115°	414.2	414.6	415.2	415.7	416.1	416.3	416.1	415.9	415.8	415.7	415.9
117.5°	466.5	467.1	467.8	468.4	469.1	469.7	470.0	470.3	470.7	471.1	471.0
120°	501.9	502.6	503.2	503.9	504.4	504.7	504.5	504.4	504.3	504.1	504.4
122.5°	534.9	535.3	535.6	536.0	536.5	536.8	537.0	537.2	537.4	537.7	537.9
125°	582.2	582.9	583.5	584.2	584.8	584.9	584.7	584.4	584.0	583.7	584.2
127.5°	627.0	627.2	627.4	627.5	627.6	628.1	628.9	629.6	630.4	631.1	631.0
130°	655.9	656.1	656.2	656.4	656.6	656.9	657.3	657.9	658.4	658.8	659.0
132.5°	682.4	682.7	683.1	683.3	683.6	684.1	684.7	685.3	685.9	686.5	686.7
135°	722.3	722.1	721.9	721.7	721.6	721.8	722.5	723.1	723.8	724.4	724.7
137.5°	757.4	757.5	757.6	757.6	757.7	758.1	758.8	759.6	760.3	761.0	761.4
140°	780.4	780.8	781.1	781.5	781.7	782.1	782.4	782.8	783.1	783.3	783.9
142.5°	801.1	801.6	802.3	802.9	803.4	803.8	804.0	804.3	804.5	804.6	805.0
145°	832.7	833.3	833.8	834.2	834.7	835.0	835.0	835.0	835.0	835.0	835.2
147.5°	858.0	858.9	859.8	860.7	861.7	862.0	861.9	861.7	861.5	861.4	861.5
150°	876.3	876.9	877.6	878.3	878.8	879.1	878.9	878.8	878.6	878.4	878.4
152.5°	891.6	892.1	892.6	893.2	893.7	893.8	893.5	893.2	892.9	892.6	892.9
155°	913.1	913.2	913.4	913.6	913.8	913.6	913.1	912.6	912.1	911.6	912.3
157.5°	931.2	931.1	931.0	930.9	930.9	930.5	929.9	929.4	928.9	928.3	929.2
160°	941.9	941.3	940.8	940.4	939.9	939.5	939.4	939.2	939.1	938.9	939.9
162.5°	951.3	950.6	950.0	949.4	948.8	948.4	948.2	948.1	947.9	947.7	948.8
165°	963.2	962.4	961.6	960.7	960.0	959.5	959.5	959.5	959.5	959.5	960.8
167.5°	972.6	971.8	970.9	970.1	969.2	968.7	968.7	968.6	968.5	968.4	969.8
170°	978.0	976.9	976.0	975.0	974.0	973.6	973.7	973.9	974.1	974.3	975.5
172.5°	981.5	980.5	979.5	978.5	977.6	977.1	977.3	977.5	977.6	977.8	979.1
175°	985.3	984.3	983.4	982.4	981.4	981.0	981.2	981.3	981.5	981.7	983.1
177.5°	987.1	986.2	985.2	984.3	983.4	983.1	983.4	983.6	983.9	984.1	985.1
180°	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1620.5	1622.9	1625.2	1626.3	1626.0	1625.8	1625.5	1625.3
5°	1611.8	1615.0	1618.3	1619.6	1619.0	1618.3	1617.8	1617.2
7.5°	1593.9	1596.5	1599.0	1600.2	1599.8	1599.4	1599.0	1598.7
10°	1578.9	1581.2	1583.5	1584.3	1583.8	1583.2	1582.6	1582.1
12.5°	1560.6	1563.1	1565.7	1566.5	1565.8	1564.9	1564.1	1563.3
15°	1525.6	1527.3	1529.1	1529.5	1528.6	1527.8	1526.9	1526.0
17.5°	1485.7	1486.9	1487.9	1488.2	1487.6	1487.0	1486.5	1485.8
20°	1456.0	1457.0	1457.8	1457.9	1457.4	1456.8	1456.2	1455.7
22.5°	1425.1	1426.7	1428.2	1428.5	1427.5	1426.4	1425.4	1424.4
25°	1374.1	1374.4	1374.7	1374.2	1373.1	1372.0	1370.7	1369.6
27.5°	1316.9	1316.2	1315.5	1314.5	1313.0	1311.5	1310.0	1308.6
30°	1277.4	1276.2	1275.1	1273.8	1272.3	1270.8	1269.4	1268.0
32.5°	1237.3	1236.0	1234.5	1233.1	1231.6	1230.2	1228.8	1227.3
35°	1174.0	1172.0	1170.0	1168.2	1166.8	1165.4	1163.9	1162.4
37.5°	1107.7	1105.5	1103.3	1101.3	1099.4	1097.4	1095.5	1093.6
40°	1061.5	1058.6	1055.7	1053.6	1052.1	1050.7	1049.2	1047.7
42.5°	1016.8	1013.4	1010.0	1007.9	1006.9	1005.9	1004.9	1004.0
45°	947.5	944.3	941.1	939.1	938.3	937.5	936.5	935.7
47.5°	880.5	876.9	873.4	870.4	868.3	866.0	863.8	861.7
50°	833.8	829.7	825.7	822.7	821.0	819.3	817.6	815.8
52.5°	785.7	782.0	778.4	775.6	773.4	771.2	769.0	766.8
55°	715.0	711.5	708.0	705.5	703.7	702.0	700.2	698.5
57.5°	644.2	640.9	637.6	635.1	633.4	631.8	630.1	628.4
60°	595.6	593.0	590.3	588.3	586.8	585.4	584.0	582.5
62.5°	548.1	545.6	543.3	541.4	540.0	538.5	537.1	535.6
65°	479.0	476.1	473.2	471.0	469.6	468.2	466.7	465.2
67.5°	407.8	405.0	402.3	400.7	400.2	399.8	399.4	399.1
70°	362.9	360.5	358.3	356.7	355.8	354.9	354.0	353.2
72.5°	317.9	316.0	314.2	312.8	312.0	311.1	310.3	309.3
75°	253.1	251.9	250.8	250.1	249.8	249.5	249.2	248.9
77.5°	191.6	191.3	191.0	190.4	189.6	188.9	188.1	187.4
80°	152.6	152.0	151.5	151.0	150.7	150.4	150.1	149.9
82.5°	117.6	117.3	117.0	116.6	116.3	116.0	115.7	115.5
85°	67.8	67.8	67.8	67.6	67.3	67.0	66.7	66.4
87.5°	28.7	28.8	29.0	29.2	29.2	29.3	29.4	29.4
90°	18.2	19.1	20.2	20.8	21.1	21.5	21.8	22.1
92.5°	17.6	18.6	19.5	20.1	20.2	20.2	20.3	20.4
95°	18.2	19.1	20.2	20.7	20.9	21.0	21.2	21.4
97.5°	19.7	19.8	19.9	20.0	20.2	20.3	20.5	20.6
100°	26.9	24.0	21.3	20.0	20.2	20.3	20.5	20.6
102.5°	96.1	66.2	36.1	21.1	21.1	21.1	21.2	21.2
105°	232.9	234.3	235.8	233.7	227.7	221.8	215.9	210.0
107.5°	288.1	288.8	289.5	290.2	290.9	291.4	292.1	292.8
110°	325.6	326.0	326.3	326.7	327.3	327.7	328.2	328.7



TEST NUMBER: P332649-830

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	362.0	361.9	361.8	362.1	362.8	363.4	364.0	364.7
115°	416.3	416.6	417.0	417.2	417.2	417.2	417.2	417.2
117.5°	470.9	470.9	470.8	470.7	470.7	470.6	470.5	470.5
120°	504.7	505.1	505.4	505.4	505.1	504.7	504.4	504.1
122.5°	538.1	538.3	538.5	538.4	538.1	537.7	537.4	537.1
125°	584.7	585.1	585.6	586.0	586.2	586.3	586.4	586.6
127.5°	630.9	630.8	630.7	630.7	630.5	630.4	630.3	630.1
130°	659.2	659.3	659.5	659.6	659.6	659.6	659.6	659.6
132.5°	686.9	687.0	687.2	687.2	687.1	686.9	686.8	686.7
135°	725.1	725.4	725.8	726.0	726.4	726.7	727.1	727.4
137.5°	761.7	762.0	762.4	762.5	762.4	762.3	762.2	762.1
140°	784.4	784.9	785.3	785.7	785.9	786.0	786.2	786.4
142.5°	805.3	805.7	806.1	806.3	806.3	806.3	806.3	806.3
145°	835.3	835.5	835.7	835.8	836.2	836.5	836.9	837.2
147.5°	861.7	861.8	861.9	862.0	862.2	862.3	862.5	862.7
150°	878.4	878.4	878.4	878.5	878.7	878.8	879.0	879.2
152.5°	893.2	893.4	893.6	893.7	893.6	893.5	893.4	893.3
155°	912.9	913.6	914.3	914.4	913.8	913.3	912.9	912.4
157.5°	930.0	930.9	931.7	931.7	930.9	930.0	929.2	928.3
160°	940.8	941.9	942.8	942.8	941.9	940.8	939.9	938.9
162.5°	949.7	950.6	951.7	951.6	950.5	949.3	948.3	947.2
165°	962.1	963.5	964.8	964.7	963.2	961.8	960.3	958.8
167.5°	971.3	972.7	974.1	974.0	972.4	970.7	969.1	967.5
170°	976.9	978.2	979.5	979.3	977.7	976.1	974.4	972.8
172.5°	980.4	981.8	983.1	982.8	981.1	979.3	977.5	975.7
175°	984.6	986.1	987.5	987.3	985.3	983.4	981.4	979.4
177.5°	986.3	987.3	988.4	988.1	986.5	985.0	983.4	981.8
180°	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3

(END OF REPORT)