

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: P332202-830

Luminaire Tested: **S123DIW-S1000D1320U830-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332202-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1000D1320U830-4F0-1E-UDD-F  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1000 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8861.4 lumens  
Efficiency: N/A  
Efficacy: 127.0 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: General Diffuse

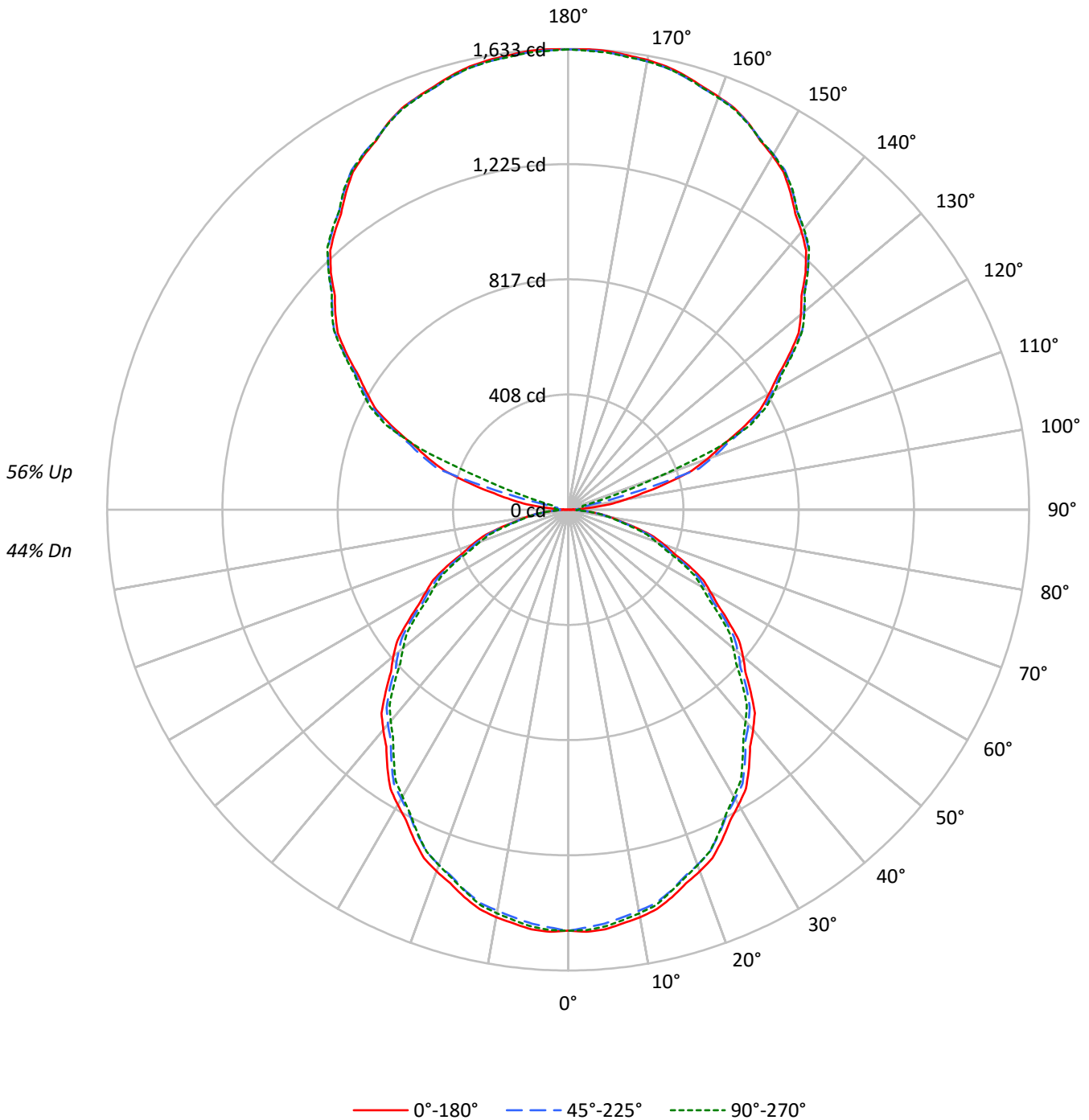
Input Watts (W): 69.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	106	106	106	106	97	97	97	97	80	80	80		65	65	65		50	50	50	44
1	96	92	88	85	88	84	81	78	70	68	65		57	55	54		45	43	42	37
2	88	80	74	69	80	74	68	64	61	57	54		50	47	45		39	37	36	31
3	80	71	63	57	73	65	58	53	54	49	45		44	41	38		35	32	30	26
4	73	62	55	49	67	57	51	45	48	43	39		39	35	32		31	28	26	22
5	67	56	47	42	61	51	44	39	43	37	33		35	31	28		28	25	23	19
6	62	50	42	36	56	46	39	34	39	33	29		32	28	24		25	22	20	17
7	57	45	37	31	52	41	34	29	35	29	25		29	25	22		23	20	18	15
8	53	41	33	28	48	38	31	26	32	26	23		26	22	19		21	18	16	13
9	49	37	30	25	45	34	28	23	29	24	20		24	20	17		20	17	14	12
10	46	34	27	22	42	32	25	21	27	22	18		22	18	16		18	15	13	11

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	16060	16060	16060
5°	16134	15913	16024
10°	16027	15774	15872
15°	15840	15597	15624
20°	15621	15341	15356
25°	15327	15037	15007
30°	15003	14701	14588
35°	14666	14345	14160
40°	14313	13952	13735
45°	13922	13592	13259
50°	13534	13147	12782
55°	13024	12688	12301
60°	12510	12152	11765
65°	12055	11566	11207
70°	11383	10902	10414
75°	10405	10031	9603
80°	9385	8988	8901
85°	8238	7929	7595



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	140.5	1.6
10°-20°	396.8	4.5
20°-30°	586.2	6.6
30°-40°	684.7	7.7
40°-50°	688.4	7.8
50°-60°	604.7	6.8
60°-70°	450.5	5.1
70°-80°	256.7	2.9
80°-90°	78.2	0.9
90°-100°	59.3	0.7
100°-110°	282.7	3.2
110°-120°	679.0	7.7
120°-130°	864.6	9.8
130°-140°	923.8	10.4
140°-150°	863.8	9.7
150°-160°	696.8	7.9
160°-170°	449.7	5.1
170°-180°	155.0	1.7
0°-30°	1123.5	12.7
0°-40°	1808.2	20.4
0°-60°	3101.3	35.0
0°-90°	3886.7	43.9
90°-120°	1020.9	11.5
90°-150°	3673.1	41.5
90°-180°	4975.0	56.1
0°-180°	8861.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1492	1492	1492	1492	1492	
5°	1493	1486	1473	1485	1483	141
15°	1421	1416	1400	1409	1402	401
25°	1290	1282	1266	1267	1264	594
35°	1116	1108	1092	1084	1078	698
45°	915	909	893	878	871	706
55°	694	692	676	662	656	621
65°	473	467	454	444	440	467
75°	250	245	241	235	231	267
85°	67	64	64	62	62	73
90°	1	14	29	34	36	7
95°	74	28	38	46	46	91
105°	361	368	265	63	53	383
115°	678	685	696	707	713	669
125°	955	964	970	972	974	853
135°	1189	1196	1201	1204	1201	915
145°	1372	1380	1383	1385	1385	858
155°	1511	1509	1510	1515	1509	696
165°	1594	1590	1589	1598	1590	450
175°	1631	1626	1626	1634	1625	155
180°	1631	1631	1631	1631	1631	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0
2.5°	1497.0	1496.2	1495.2	1494.3	1493.5	1491.7	1489.2	1486.7	1484.2	1481.7	1483.9
5°	1493.2	1491.8	1490.3	1488.9	1487.5	1485.3	1482.1	1478.9	1475.8	1472.7	1475.6
7.5°	1478.6	1477.2	1475.7	1474.3	1472.9	1470.6	1467.4	1464.1	1460.8	1457.5	1460.1
10°	1466.3	1464.9	1463.4	1462.0	1460.6	1458.0	1454.3	1450.6	1446.9	1443.2	1445.8
12.5°	1449.8	1448.7	1447.5	1446.2	1445.1	1442.7	1439.3	1435.8	1432.3	1428.8	1430.7
15°	1421.4	1420.2	1419.1	1418.0	1416.8	1414.4	1410.7	1407.0	1403.3	1399.6	1401.8
17.5°	1388.3	1386.8	1385.3	1383.8	1382.3	1379.8	1376.0	1372.3	1368.7	1364.9	1366.5
20°	1363.7	1362.0	1360.3	1358.5	1356.8	1354.1	1350.4	1346.7	1343.0	1339.3	1340.4
22.5°	1336.0	1334.3	1332.6	1330.8	1329.1	1326.4	1322.7	1319.0	1315.3	1311.5	1312.5
25°	1290.5	1288.8	1287.1	1285.4	1283.6	1281.0	1277.2	1273.6	1269.9	1266.1	1266.4
27.5°	1242.1	1240.4	1238.7	1237.1	1235.4	1232.6	1228.6	1224.6	1220.6	1216.6	1216.8
30°	1207.1	1205.7	1204.3	1202.9	1201.5	1198.7	1194.8	1190.7	1186.8	1182.8	1182.8
32.5°	1172.2	1170.4	1168.5	1166.6	1164.7	1162.2	1159.1	1156.1	1153.0	1149.9	1148.3
35°	1116.1	1114.4	1112.7	1111.0	1109.2	1106.5	1102.8	1099.1	1095.4	1091.7	1090.0
37.5°	1058.6	1056.4	1054.2	1052.1	1049.9	1047.0	1043.2	1039.4	1035.7	1031.9	1029.8
40°	1018.6	1016.8	1015.1	1013.4	1011.7	1008.9	1004.8	1000.9	996.9	992.9	990.6
42.5°	978.5	976.6	974.7	972.7	970.8	967.8	963.8	959.9	955.8	951.9	949.6
45°	914.6	913.5	912.4	911.3	910.1	907.7	904.0	900.2	896.5	892.9	889.5
47.5°	851.3	849.6	848.0	846.3	844.7	842.1	838.7	835.2	831.7	828.2	824.8
50°	808.2	806.7	805.3	803.9	802.5	799.9	796.2	792.5	788.8	785.1	781.9
52.5°	763.0	762.0	761.1	760.2	759.1	756.7	752.8	748.9	744.9	740.9	738.3
55°	694.0	693.7	693.4	693.1	692.9	690.9	687.2	683.4	679.8	676.1	672.9
57.5°	628.3	627.4	626.4	625.5	624.4	622.5	619.5	616.5	613.6	610.7	607.8
60°	581.1	580.8	580.5	580.2	579.9	578.2	574.7	571.3	567.9	564.5	561.8
62.5°	539.0	538.3	537.5	536.8	536.1	534.0	530.6	527.2	523.8	520.3	517.7
65°	473.3	471.9	470.5	469.1	467.7	465.5	462.7	459.9	456.9	454.1	451.9
67.5°	403.9	402.6	401.3	400.1	398.8	397.1	394.9	392.8	390.6	388.4	386.4
70°	361.7	360.1	358.4	356.7	355.0	353.2	351.5	349.8	348.1	346.4	344.4
72.5°	317.6	316.4	315.1	313.9	312.6	311.0	309.1	307.2	305.2	303.2	301.5
75°	250.2	249.0	247.9	246.8	245.6	244.6	243.7	242.9	242.0	241.2	239.8
77.5°	190.4	189.7	189.1	188.5	187.8	187.0	186.1	185.0	184.0	182.9	182.0
80°	151.4	150.5	149.7	148.8	148.0	147.2	146.7	146.1	145.5	145.0	144.7
82.5°	113.4	113.2	113.1	112.9	112.7	112.5	112.4	112.4	112.3	112.2	111.6
85°	66.7	66.2	65.6	65.0	64.5	64.2	64.2	64.2	64.2	64.2	63.5
87.5°	27.0	26.8	26.7	26.5	26.3	26.5	27.0	27.4	27.9	28.4	28.4
90°	1.2	3.9	6.6	9.3	12.0	15.1	18.6	22.1	25.5	29.1	30.2
92.5°	22.5	21.8	21.0	20.3	19.5	20.5	23.1	25.7	28.4	31.0	32.7
95°	73.9	62.9	51.8	40.8	29.8	25.7	28.7	31.7	34.6	37.6	39.5
97.5°	148.5	143.6	138.6	133.7	128.8	116.6	97.2	77.9	58.4	39.0	41.2
100°	204.8	210.2	215.6	220.9	226.4	208.0	166.1	124.0	82.0	40.0	42.1
102.5°	268.8	272.7	276.5	280.4	284.4	263.3	217.4	171.5	125.6	79.7	73.0
105°	361.2	364.1	367.1	370.0	373.0	362.4	338.1	313.9	289.6	265.4	217.7
107.5°	458.6	461.0	463.4	465.7	468.1	471.2	475.0	478.8	482.7	486.4	451.5
110°	523.6	525.8	527.8	530.0	532.2	534.7	537.7	540.6	543.7	546.6	537.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	585.6	587.6	589.5	591.4	593.3	595.8	598.8	601.7	604.7	607.7	607.8
115°	677.5	679.1	680.7	682.3	683.9	686.0	688.3	690.8	693.2	695.7	698.3
117.5°	766.5	768.5	770.4	772.4	774.4	776.0	777.2	778.5	779.8	781.0	783.2
120°	821.7	824.2	826.5	829.0	831.4	833.0	833.8	834.6	835.5	836.2	838.4
122.5°	878.0	880.0	881.9	883.9	885.9	887.4	888.4	889.5	890.5	891.6	893.1
125°	955.0	957.2	959.3	961.5	963.7	965.3	966.3	967.4	968.5	969.6	970.1
127.5°	1029.6	1031.8	1034.0	1036.1	1038.3	1040.0	1041.3	1042.6	1043.9	1045.2	1046.0
130°	1076.2	1078.4	1080.5	1082.7	1084.9	1086.5	1087.5	1088.6	1089.7	1090.7	1091.8
132.5°	1120.8	1122.9	1125.1	1127.3	1129.4	1131.0	1131.8	1132.7	1133.5	1134.3	1135.5
135°	1188.9	1190.5	1192.1	1193.7	1195.4	1196.7	1197.8	1198.9	1200.0	1201.1	1201.8
137.5°	1247.1	1249.2	1251.2	1253.2	1255.3	1256.6	1257.2	1257.8	1258.4	1259.0	1260.3
140°	1285.9	1287.5	1289.1	1290.7	1292.3	1293.5	1294.4	1295.1	1296.0	1296.8	1297.9
142.5°	1321.7	1323.3	1325.0	1326.6	1328.2	1329.5	1330.2	1331.1	1331.8	1332.7	1333.5
145°	1372.0	1373.9	1375.7	1377.6	1379.5	1380.6	1381.2	1381.8	1382.3	1382.8	1383.4
147.5°	1419.2	1420.4	1421.6	1422.9	1424.2	1425.0	1425.6	1426.1	1426.6	1427.2	1427.8
150°	1448.3	1449.1	1449.9	1450.7	1451.5	1452.2	1452.7	1453.2	1453.8	1454.3	1454.9
152.5°	1474.4	1474.8	1475.2	1475.6	1475.9	1476.3	1476.7	1477.0	1477.2	1477.6	1478.6
155°	1511.3	1510.8	1510.2	1509.7	1509.1	1509.0	1509.3	1509.6	1509.9	1510.0	1511.5
157.5°	1539.9	1539.8	1539.8	1539.7	1539.6	1539.5	1539.3	1539.0	1538.7	1538.4	1540.0
160°	1557.4	1557.1	1556.8	1556.5	1556.2	1556.0	1555.8	1555.5	1555.2	1554.9	1556.5
162.5°	1573.9	1573.1	1572.4	1571.7	1571.0	1570.6	1570.3	1570.0	1569.7	1569.4	1571.3
165°	1593.7	1592.9	1592.0	1591.3	1590.4	1590.0	1589.7	1589.4	1589.1	1588.8	1591.0
167.5°	1609.2	1608.2	1607.0	1606.0	1604.9	1604.4	1604.4	1604.4	1604.4	1604.4	1606.6
170°	1618.0	1616.8	1615.8	1614.8	1613.6	1613.1	1613.1	1613.1	1613.1	1613.1	1615.2
172.5°	1623.8	1622.5	1621.2	1619.9	1618.6	1618.1	1618.3	1618.5	1618.7	1618.9	1621.1
175°	1631.3	1629.9	1628.6	1627.2	1625.9	1625.3	1625.6	1625.9	1626.2	1626.5	1628.3
177.5°	1633.2	1632.1	1631.1	1630.0	1628.9	1628.5	1628.7	1628.9	1629.1	1629.4	1631.1
180°	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0	1492.0
2.5°	1486.2	1488.6	1490.8	1491.9	1491.6	1491.4	1491.1	1490.9
5°	1478.4	1481.2	1484.1	1485.3	1484.7	1484.1	1483.6	1483.0
7.5°	1462.7	1465.3	1467.8	1469.0	1468.6	1468.3	1467.9	1467.5
10°	1448.3	1450.9	1453.5	1454.4	1453.9	1453.3	1452.7	1452.2
12.5°	1432.6	1434.5	1436.3	1437.1	1436.8	1436.4	1436.1	1435.8
15°	1404.1	1406.4	1408.7	1409.0	1407.3	1405.5	1403.8	1402.1
17.5°	1368.1	1369.7	1371.3	1371.8	1371.2	1370.6	1369.9	1369.3
20°	1341.5	1342.7	1343.9	1344.0	1343.1	1342.3	1341.4	1340.6
22.5°	1313.4	1314.3	1315.2	1315.1	1314.1	1313.0	1311.9	1310.8
25°	1266.7	1267.1	1267.3	1267.1	1266.1	1265.3	1264.4	1263.6
27.5°	1217.1	1217.3	1217.6	1217.1	1216.1	1214.9	1213.9	1212.8
30°	1182.8	1182.8	1182.8	1181.8	1179.8	1177.8	1175.8	1173.7
32.5°	1146.7	1145.2	1143.6	1142.2	1141.1	1140.0	1139.0	1137.8
35°	1088.3	1086.6	1084.9	1083.3	1081.9	1080.4	1079.0	1077.6
37.5°	1027.8	1025.8	1023.7	1022.2	1021.3	1020.4	1019.5	1018.6
40°	988.4	986.1	983.8	982.0	980.9	979.8	978.6	977.5
42.5°	947.3	945.0	942.7	941.0	939.9	938.8	937.6	936.5
45°	886.0	882.6	879.2	876.8	875.3	873.9	872.5	871.0
47.5°	821.4	818.1	814.7	812.5	811.2	809.9	808.7	807.4
50°	778.8	775.7	772.5	770.2	768.5	766.7	765.0	763.3
52.5°	735.6	732.9	730.3	728.0	726.3	724.6	722.9	721.2
55°	669.8	666.7	663.5	661.2	659.8	658.4	657.0	655.5
57.5°	605.0	602.3	599.5	597.2	595.6	593.9	592.3	590.6
60°	559.3	556.8	554.2	552.2	550.7	549.3	547.9	546.5
62.5°	515.2	512.6	510.0	508.3	507.3	506.3	505.4	504.4
65°	449.6	447.2	445.0	443.5	442.6	441.8	440.8	440.0
67.5°	384.5	382.5	380.5	378.9	377.7	376.5	375.2	374.1
70°	342.3	340.4	338.4	336.7	335.3	333.8	332.4	330.9
72.5°	299.7	297.9	296.1	294.9	294.2	293.4	292.8	292.0
75°	238.4	236.9	235.4	234.3	233.5	232.6	231.8	230.9
77.5°	181.0	180.0	179.1	178.6	178.6	178.6	178.6	178.6
80°	144.4	144.1	143.8	143.6	143.6	143.6	143.6	143.6
82.5°	111.1	110.6	110.1	109.7	109.4	109.2	109.1	108.8
85°	63.0	62.4	61.8	61.5	61.5	61.5	61.5	61.5
87.5°	28.4	28.4	28.4	28.4	28.5	28.7	28.7	28.8
90°	31.2	32.3	33.4	34.2	34.8	35.3	35.8	36.4
92.5°	34.5	36.2	37.9	38.9	39.3	39.6	39.9	40.2
95°	41.4	43.3	45.1	46.1	46.1	46.1	46.1	46.1
97.5°	43.4	45.5	47.6	48.8	49.1	49.4	49.7	50.0
100°	44.3	46.5	48.6	49.9	50.0	50.3	50.6	50.9
102.5°	66.4	59.7	53.1	50.0	50.4	50.9	51.4	51.8
105°	170.0	122.4	74.7	51.2	51.7	52.2	52.8	53.3
107.5°	416.6	381.6	346.7	311.2	275.3	239.3	203.4	167.5
110°	528.8	519.9	511.0	487.3	448.8	410.3	371.8	333.3





TEST NUMBER: P332202-830

CATALOG NUMBER: S123DIW-S1000D1320U830-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	608.0	608.1	608.3	604.4	596.2	588.1	579.9	571.8
115°	701.1	703.7	706.4	708.3	709.4	710.5	711.5	712.7
117.5°	785.3	787.4	789.6	790.8	791.0	791.2	791.5	791.6
120°	840.6	842.7	844.9	845.9	845.9	845.9	845.9	845.9
122.5°	894.6	896.1	897.6	898.4	898.6	898.8	899.1	899.3
125°	970.6	971.2	971.7	972.2	972.8	973.4	973.8	974.4
127.5°	1046.9	1047.7	1048.7	1048.8	1048.3	1047.7	1047.2	1046.6
130°	1092.9	1094.0	1095.0	1095.3	1094.8	1094.3	1093.7	1093.2
132.5°	1136.5	1137.6	1138.7	1138.9	1138.1	1137.4	1136.6	1135.9
135°	1202.7	1203.4	1204.3	1204.3	1203.4	1202.7	1201.8	1201.1
137.5°	1261.6	1262.8	1264.1	1264.5	1263.9	1263.5	1262.9	1262.3
140°	1298.9	1300.0	1301.1	1301.4	1300.8	1300.2	1299.8	1299.2
142.5°	1334.4	1335.2	1336.1	1336.1	1335.4	1334.6	1333.9	1333.1
145°	1383.9	1384.4	1385.0	1385.3	1385.3	1385.3	1385.3	1385.3
147.5°	1428.2	1428.8	1429.4	1429.0	1427.8	1426.5	1425.3	1424.0
150°	1455.4	1455.9	1456.5	1456.3	1455.6	1454.7	1454.0	1453.1
152.5°	1479.5	1480.5	1481.5	1481.4	1480.1	1478.8	1477.6	1476.4
155°	1512.8	1514.1	1515.5	1515.3	1513.7	1512.1	1510.5	1508.9
157.5°	1541.7	1543.3	1544.9	1544.6	1542.6	1540.5	1538.3	1536.3
160°	1558.1	1559.8	1561.4	1561.2	1559.3	1557.5	1555.6	1553.7
162.5°	1573.1	1575.0	1576.8	1576.9	1575.2	1573.6	1571.9	1570.2
165°	1593.2	1595.3	1597.5	1597.6	1595.7	1593.8	1592.0	1590.1
167.5°	1608.7	1610.8	1613.0	1613.0	1610.8	1608.7	1606.6	1604.4
170°	1617.4	1619.6	1621.7	1621.7	1619.6	1617.4	1615.2	1613.1
172.5°	1623.2	1625.4	1627.6	1627.4	1625.0	1622.7	1620.3	1618.0
175°	1630.2	1632.1	1634.0	1633.8	1631.7	1629.6	1627.4	1625.2
177.5°	1632.8	1634.6	1636.3	1636.1	1633.9	1631.7	1629.6	1627.4
180°	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3

(END OF REPORT)