

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: P332231-840

Luminaire Tested: **S123DIW-S1165D1320U840-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332231-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1165D1320U840-4F0-1E-UDD-D1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9521.5 lumens  
Efficiency: N/A  
Efficacy: 125.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

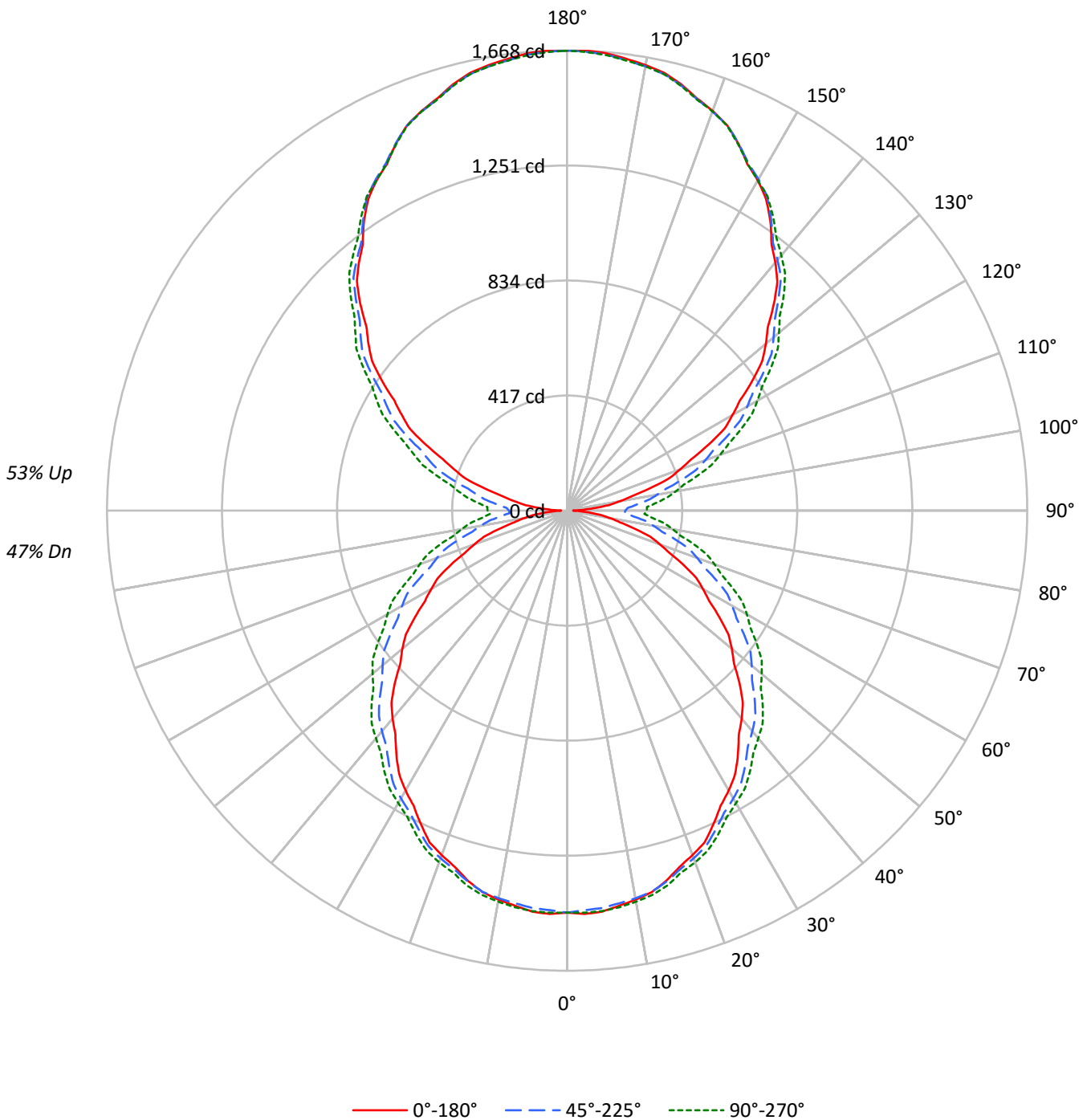
Input Watts (W): 76.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20			20			20			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	98	98	98	98	82	82	82	67	67	67	54	54	54	47
1	96	91	87	83	88	84	80	77	70	67	65	57	56	54	46	44	43	38
2	87	79	73	67	80	73	67	62	61	57	53	50	47	44	40	38	36	31
3	79	69	62	56	72	64	57	52	53	48	44	44	40	37	35	32	30	26
4	72	61	53	47	66	56	49	44	47	42	37	39	35	31	31	28	25	22
5	66	54	46	40	61	50	43	37	42	36	32	35	30	27	28	25	22	19
6	61	49	40	34	56	45	37	32	38	32	28	31	27	23	25	22	19	16
7	56	44	36	30	51	40	33	28	34	29	24	28	24	21	23	20	17	14
8	52	40	32	26	48	37	30	25	31	26	22	26	22	18	21	18	15	13
9	49	36	29	23	45	34	27	22	29	23	19	24	20	16	19	16	14	11
10	45	33	26	21	42	31	24	20	26	21	17	22	18	15	18	15	12	10

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

	0°	45°	90°
0°	15685	15685	15685
5°	15735	15290	15299
10°	15593	14937	14863
15°	15393	14539	14387
20°	15105	14082	13865
25°	14751	13556	13315
30°	14388	13084	12757
35°	13980	12583	12311
40°	13592	12128	11834
45°	13161	11692	11453
50°	12735	11259	11034
55°	12267	10818	10657
60°	11808	10368	10270
65°	11339	9889	9809
70°	10633	9352	9336
75°	9740	8736	8855
80°	8709	8132	8306
85°	7760	7716	7988



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.1	1.5
10°-20°	393.8	4.1
20°-30°	589.0	6.2
30°-40°	703.4	7.4
40°-50°	735.9	7.7
50°-60°	690.6	7.3
60°-70°	576.8	6.1
70°-80°	412.7	4.3
80°-90°	251.0	2.6
90°-100°	263.0	2.8
100°-110°	438.6	4.6
110°-120°	628.7	6.6
120°-130°	770.6	8.1
130°-140°	836.9	8.8
140°-150°	807.7	8.5
150°-160°	676.5	7.1
160°-170°	450.3	4.7
170°-180°	157.7	1.7
0°-30°	1120.9	11.8
0°-40°	1824.3	19.2
0°-60°	3250.8	34.1
0°-90°	4491.3	47.2
90°-120°	1330.4	14.0
90°-150°	3745.7	39.3
90°-180°	5030.0	52.8
0°-180°	9521.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1457	1457	1457	1457	1457	
5°	1459	1455	1446	1458	1457	138
15°	1389	1393	1392	1407	1406	391
25°	1254	1269	1275	1294	1295	578
35°	1079	1105	1126	1148	1156	675
45°	883	921	960	990	1003	680
55°	673	726	783	824	838	602
65°	465	528	597	643	660	459
75°	252	327	406	457	478	270
85°	78	157	241	293	311	82
90°	22	113	211	268	288	19
95°	95	167	254	306	324	100
105°	307	350	428	471	490	328
115°	565	589	642	680	693	559
125°	819	826	867	894	901	731
135°	1060	1067	1083	1105	1111	817
145°	1284	1285	1289	1300	1301	801
155°	1468	1468	1470	1474	1466	676
165°	1599	1596	1595	1602	1594	451
175°	1663	1658	1658	1665	1657	158
180°	1667	1667	1667	1667	1667	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2
2.5°	1463.6	1462.8	1461.9	1461.1	1460.2	1458.6	1456.4	1454.1	1451.9	1449.7	1451.9
5°	1458.9	1458.1	1457.4	1456.7	1456.0	1454.6	1452.5	1450.4	1448.2	1446.1	1449.0
7.5°	1444.5	1444.7	1444.8	1445.0	1445.1	1444.2	1442.1	1440.1	1438.0	1435.9	1439.5
10°	1431.9	1432.6	1433.3	1434.0	1434.7	1434.1	1432.4	1430.6	1428.9	1427.0	1430.6
12.5°	1416.6	1417.5	1418.6	1419.6	1420.6	1420.5	1419.3	1418.1	1416.8	1415.6	1418.9
15°	1389.0	1390.1	1391.1	1392.2	1393.2	1393.6	1393.2	1392.9	1392.5	1392.2	1395.7
17.5°	1354.0	1356.1	1358.3	1360.4	1362.5	1363.5	1363.4	1363.2	1363.1	1362.9	1366.1
20°	1328.7	1330.8	1332.9	1335.0	1337.2	1338.6	1339.3	1340.0	1340.7	1341.4	1344.5
22.5°	1302.0	1304.1	1306.3	1308.4	1310.5	1312.0	1313.0	1314.0	1314.9	1316.0	1320.0
25°	1254.1	1257.6	1261.1	1264.7	1268.2	1270.4	1271.5	1272.5	1273.6	1274.7	1279.3
27.5°	1205.8	1209.8	1213.9	1217.9	1221.8	1225.1	1227.3	1229.5	1231.8	1234.1	1238.0
30°	1171.5	1176.1	1180.6	1185.3	1189.8	1193.6	1196.4	1199.2	1202.0	1204.9	1209.1
32.5°	1133.4	1138.5	1143.7	1148.8	1154.0	1158.4	1162.1	1165.8	1169.4	1173.1	1177.6
35°	1079.4	1085.1	1090.8	1096.4	1102.1	1107.1	1111.8	1116.3	1120.8	1125.5	1130.7
37.5°	1022.3	1028.6	1035.0	1041.4	1047.7	1053.7	1059.3	1065.0	1070.7	1076.3	1082.3
40°	984.2	990.6	996.9	1003.2	1009.6	1016.3	1023.4	1030.4	1037.4	1044.5	1050.6
42.5°	942.3	950.1	957.9	965.5	973.3	980.9	988.3	995.5	1002.9	1010.3	1016.8
45°	882.6	891.1	899.5	908.0	916.5	925.1	933.9	942.7	951.6	960.4	967.0
47.5°	820.0	829.6	839.2	848.9	858.5	868.3	878.4	888.5	898.6	908.7	916.1
50°	779.4	789.3	799.2	809.0	818.9	829.3	840.3	851.2	862.1	873.0	881.2
52.5°	736.3	746.7	757.1	767.6	778.0	789.3	801.3	813.3	825.5	837.5	846.0
55°	673.1	684.7	696.3	708.0	719.6	731.7	744.5	757.2	769.9	782.6	792.1
57.5°	611.5	623.6	635.7	647.8	660.0	673.1	686.9	700.8	714.7	728.6	738.2
60°	568.3	581.0	593.7	606.4	619.0	632.7	647.1	661.6	676.1	690.5	700.4
62.5°	527.7	540.7	553.6	566.6	579.6	593.7	609.0	624.3	639.6	655.0	664.8
65°	465.1	478.9	492.6	506.3	520.2	534.8	550.3	565.8	581.4	596.8	607.4
67.5°	401.6	416.3	430.8	445.5	460.0	475.2	491.0	506.9	522.6	538.5	550.0
70°	357.2	372.3	387.5	402.6	417.9	433.9	450.8	467.8	484.7	501.6	512.9
72.5°	316.5	331.7	346.9	362.0	377.2	393.5	411.0	428.5	446.1	463.5	475.1
75°	252.4	269.0	285.6	302.2	318.7	335.8	353.5	371.1	388.7	406.4	418.0
77.5°	196.5	213.3	229.9	246.7	263.4	280.6	298.4	316.2	334.0	351.7	364.1
80°	157.1	174.4	191.8	209.0	226.3	244.1	262.5	280.8	299.1	317.5	329.5
82.5°	122.9	140.5	158.0	175.6	193.1	211.3	229.8	248.5	267.1	285.7	297.7
85°	77.8	95.4	113.1	130.7	148.3	166.5	185.2	203.9	222.6	241.3	253.3
87.5°	42.5	60.6	78.8	96.9	115.1	133.5	152.3	171.1	189.8	208.5	220.8
90°	21.9	42.1	62.3	82.5	102.7	123.7	145.5	167.2	189.0	210.9	224.0
92.5°	51.1	68.7	86.2	103.8	121.4	140.1	160.0	179.8	199.7	219.5	232.2
95°	94.7	110.6	126.3	142.1	157.9	175.6	195.2	214.9	234.5	254.1	266.2
97.5°	152.8	166.7	180.7	194.6	208.5	224.6	242.8	261.1	279.2	297.4	309.2
100°	192.4	205.4	218.5	231.6	244.6	259.9	277.6	295.3	313.0	330.6	341.7
102.5°	238.3	249.5	260.7	272.0	283.2	297.7	315.5	333.4	351.2	369.1	379.9
105°	307.4	316.5	325.5	334.6	343.6	357.0	374.8	392.6	410.4	428.2	438.1
107.5°	386.2	393.7	401.2	408.8	416.4	427.9	443.3	458.7	474.1	489.6	500.0
110°	435.2	442.1	449.1	456.0	462.9	473.7	488.5	503.1	517.9	532.5	542.8



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	487.6	493.1	498.8	504.3	509.9	519.5	533.1	546.8	560.5	574.1	584.4
115°	564.6	569.7	574.8	579.9	585.0	593.6	605.7	617.8	630.0	642.1	650.9
117.5°	643.4	646.6	649.7	653.0	656.1	663.4	674.5	685.7	696.8	708.0	716.3
120°	691.4	694.9	698.4	701.9	705.4	712.3	722.5	732.7	742.8	753.0	760.8
122.5°	742.7	744.9	747.1	749.3	751.5	757.8	768.1	778.4	788.7	799.0	806.1
125°	819.4	820.3	821.2	822.0	822.9	828.2	837.9	847.5	857.2	866.8	873.0
127.5°	891.7	893.2	894.7	896.3	897.8	902.4	910.3	918.1	925.9	933.7	939.1
130°	940.0	941.9	943.9	945.8	947.9	951.9	958.1	964.3	970.5	976.6	982.2
132.5°	986.8	989.2	991.4	993.6	995.9	999.6	1004.5	1009.6	1014.5	1019.6	1024.6
135°	1060.2	1061.6	1063.0	1064.3	1065.7	1068.2	1071.8	1075.4	1079.0	1082.6	1087.7
137.5°	1127.9	1129.1	1130.3	1131.5	1132.7	1134.7	1137.6	1140.5	1143.6	1146.5	1150.8
140°	1173.9	1175.3	1176.7	1178.2	1179.6	1181.0	1182.5	1183.8	1185.1	1186.5	1191.4
142.5°	1216.8	1218.0	1219.1	1220.3	1221.5	1222.4	1223.1	1224.0	1224.7	1225.4	1229.8
145°	1283.8	1284.0	1284.3	1284.5	1284.8	1285.4	1286.2	1287.1	1288.0	1288.8	1291.3
147.5°	1340.9	1342.0	1343.0	1344.1	1345.1	1346.0	1346.9	1347.7	1348.5	1349.3	1350.2
150°	1381.8	1382.4	1383.0	1383.5	1384.1	1384.7	1385.3	1385.8	1386.4	1387.0	1387.0
152.5°	1415.3	1416.1	1416.9	1417.7	1418.6	1419.2	1419.6	1419.9	1420.3	1420.6	1421.1
155°	1468.2	1468.2	1468.2	1468.2	1468.2	1468.4	1468.6	1468.9	1469.3	1469.6	1470.8
157.5°	1513.3	1513.0	1512.6	1512.3	1511.9	1511.9	1512.1	1512.3	1512.6	1512.8	1514.0
160°	1541.6	1541.1	1540.4	1539.8	1539.2	1538.9	1538.9	1538.9	1538.9	1538.9	1540.4
162.5°	1566.7	1565.9	1565.1	1564.3	1563.5	1563.2	1563.5	1563.7	1563.9	1564.1	1565.6
165°	1599.2	1598.3	1597.5	1596.6	1595.8	1595.3	1595.3	1595.3	1595.3	1595.3	1597.0
167.5°	1625.2	1624.0	1622.9	1621.6	1620.5	1620.0	1620.2	1620.5	1620.7	1620.9	1622.8
170°	1639.8	1638.7	1637.5	1636.4	1635.2	1634.6	1634.6	1634.6	1634.6	1634.6	1636.6
172.5°	1651.3	1650.2	1649.0	1647.9	1646.7	1646.1	1646.1	1646.1	1646.1	1646.1	1647.9
175°	1663.4	1662.2	1661.1	1659.9	1658.7	1658.2	1658.2	1658.2	1658.2	1658.2	1659.9
177.5°	1668.4	1667.5	1666.5	1665.6	1664.7	1664.2	1664.2	1664.2	1664.2	1664.2	1665.6
180°	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2
2.5°	1454.1	1456.4	1458.6	1459.7	1459.4	1459.1	1458.8	1458.5
5°	1451.8	1454.6	1457.4	1458.6	1458.3	1457.9	1457.6	1457.2
7.5°	1443.0	1446.5	1450.1	1451.7	1451.2	1450.8	1450.4	1450.0
10°	1434.1	1437.6	1441.2	1442.6	1441.9	1441.2	1440.5	1439.8
12.5°	1422.2	1425.4	1428.7	1429.9	1429.2	1428.5	1427.7	1427.0
15°	1399.2	1402.7	1406.2	1407.9	1407.5	1407.1	1406.8	1406.4
17.5°	1369.3	1372.5	1375.6	1377.0	1376.5	1376.0	1375.5	1375.0
20°	1347.7	1350.9	1354.0	1355.8	1356.1	1356.6	1356.9	1357.3
22.5°	1324.0	1328.1	1332.0	1333.9	1333.7	1333.5	1333.3	1333.1
25°	1283.8	1288.5	1293.0	1295.4	1295.4	1295.4	1295.4	1295.4
27.5°	1241.9	1245.9	1249.8	1251.9	1252.2	1252.5	1252.8	1253.1
30°	1213.4	1217.6	1221.7	1223.9	1223.9	1223.9	1223.9	1223.9
32.5°	1182.1	1186.7	1191.1	1193.9	1194.7	1195.6	1196.4	1197.2
35°	1136.1	1141.3	1146.6	1150.0	1151.4	1152.9	1154.3	1155.6
37.5°	1088.2	1094.3	1100.2	1103.8	1105.0	1106.1	1107.2	1108.3
40°	1056.5	1062.5	1068.5	1072.2	1073.6	1075.0	1076.4	1077.8
42.5°	1023.4	1030.0	1036.5	1040.8	1042.7	1044.7	1046.6	1048.6
45°	973.8	980.5	987.2	992.0	994.8	997.6	1000.5	1003.2
47.5°	923.7	931.3	938.9	943.7	945.8	948.1	950.3	952.4
50°	889.3	897.5	905.5	910.8	913.3	915.7	918.3	920.7
52.5°	854.3	862.7	871.1	876.9	879.9	882.9	886.0	889.0
55°	801.6	811.1	820.7	826.9	829.7	832.5	835.4	838.2
57.5°	747.8	757.4	767.0	773.5	776.8	780.1	783.5	786.7
60°	710.2	720.1	730.0	736.9	740.8	744.7	748.5	752.5
62.5°	674.7	684.6	694.5	701.3	704.8	708.4	712.1	715.6
65°	618.0	628.6	639.2	646.2	649.7	653.3	656.8	660.4
67.5°	561.6	573.2	584.7	592.0	595.0	597.9	600.9	603.9
70°	524.2	535.5	546.7	554.2	557.7	561.3	564.7	568.3
72.5°	486.7	498.3	509.8	517.4	520.9	524.4	528.0	531.5
75°	429.7	441.3	452.9	460.9	465.1	469.4	473.6	477.8
77.5°	376.3	388.6	400.9	408.6	411.9	415.2	418.4	421.6
80°	341.4	353.5	365.5	373.2	376.8	380.3	383.8	387.3
82.5°	309.7	321.7	333.7	341.4	345.0	348.5	352.0	355.6
85°	265.3	277.3	289.2	297.0	300.5	304.1	307.6	311.1
87.5°	233.0	245.2	257.4	265.4	269.0	272.7	276.3	279.9
90°	237.1	250.2	263.5	272.1	276.2	280.3	284.4	288.5
92.5°	244.8	257.4	270.0	277.8	280.7	283.7	286.5	289.4
95°	278.3	290.3	302.5	310.3	313.9	317.3	320.8	324.4
97.5°	321.1	333.0	344.8	352.4	355.9	359.2	362.6	366.1
100°	352.8	364.0	375.1	382.6	386.8	390.9	395.0	399.1
102.5°	390.8	401.6	412.4	419.5	422.9	426.4	429.8	433.1
105°	447.9	457.8	467.7	474.5	478.3	482.0	485.7	489.5
107.5°	510.4	520.8	531.2	537.8	540.5	543.2	546.0	548.8
110°	553.2	563.5	573.8	580.2	582.4	584.6	586.8	589.1





TEST NUMBER: P332231-840

CATALOG NUMBER: S123DIW-S1165D1320U840-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	594.7	605.0	615.3	621.9	624.9	627.9	630.9	633.9
115°	659.6	668.3	677.1	682.8	685.3	687.8	690.3	692.9
117.5°	724.7	733.1	741.3	746.5	748.4	750.3	752.2	754.3
120°	768.6	776.5	784.3	789.1	791.0	792.9	794.8	796.7
122.5°	813.1	820.2	827.3	831.7	833.3	835.0	836.7	838.3
125°	879.3	885.6	891.7	895.5	896.9	898.2	899.5	900.8
127.5°	944.4	949.8	955.1	958.4	959.5	960.5	961.6	962.6
130°	987.7	993.3	998.8	1001.6	1001.7	1001.8	1001.9	1001.9
132.5°	1029.6	1034.6	1039.7	1042.6	1043.4	1044.2	1045.0	1045.9
135°	1093.0	1098.1	1103.3	1106.5	1107.7	1108.8	1110.0	1111.3
137.5°	1155.2	1159.5	1163.9	1166.4	1167.0	1167.7	1168.3	1169.0
140°	1196.5	1201.4	1206.5	1208.8	1208.5	1208.3	1208.0	1207.7
142.5°	1234.3	1238.7	1243.1	1245.5	1245.7	1245.9	1246.0	1246.2
145°	1293.8	1296.4	1299.0	1300.3	1300.6	1300.8	1301.1	1301.3
147.5°	1351.0	1351.9	1352.7	1352.9	1352.4	1351.9	1351.5	1351.0
150°	1387.0	1387.0	1387.0	1386.5	1385.5	1384.4	1383.4	1382.4
152.5°	1421.5	1422.0	1422.4	1422.0	1420.6	1419.3	1417.9	1416.5
155°	1471.9	1473.1	1474.2	1473.8	1471.8	1469.8	1467.6	1465.6
157.5°	1515.2	1516.4	1517.7	1517.4	1515.8	1514.2	1512.6	1511.0
160°	1541.9	1543.4	1544.8	1545.0	1543.8	1542.7	1541.5	1540.2
162.5°	1567.0	1568.5	1569.9	1569.7	1567.9	1566.0	1564.2	1562.3
165°	1598.8	1600.5	1602.3	1602.2	1600.1	1598.1	1596.0	1594.0
167.5°	1624.6	1626.4	1628.2	1628.2	1626.4	1624.6	1622.8	1620.9
170°	1638.7	1640.7	1642.7	1642.7	1640.7	1638.7	1636.6	1634.6
172.5°	1649.7	1651.5	1653.4	1653.3	1651.2	1649.1	1647.1	1645.1
175°	1661.6	1663.4	1665.2	1665.0	1662.9	1660.9	1658.9	1656.9
177.5°	1667.0	1668.4	1669.8	1669.7	1668.0	1666.4	1664.8	1663.1
180°	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4

(END OF REPORT)