

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: P332232-840

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332232-840
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-S1165D1320U840-4F0-1E-UDD-F
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1165 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: 10138.7 lumens
Efficiency: N/A
Efficacy: 133.1 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

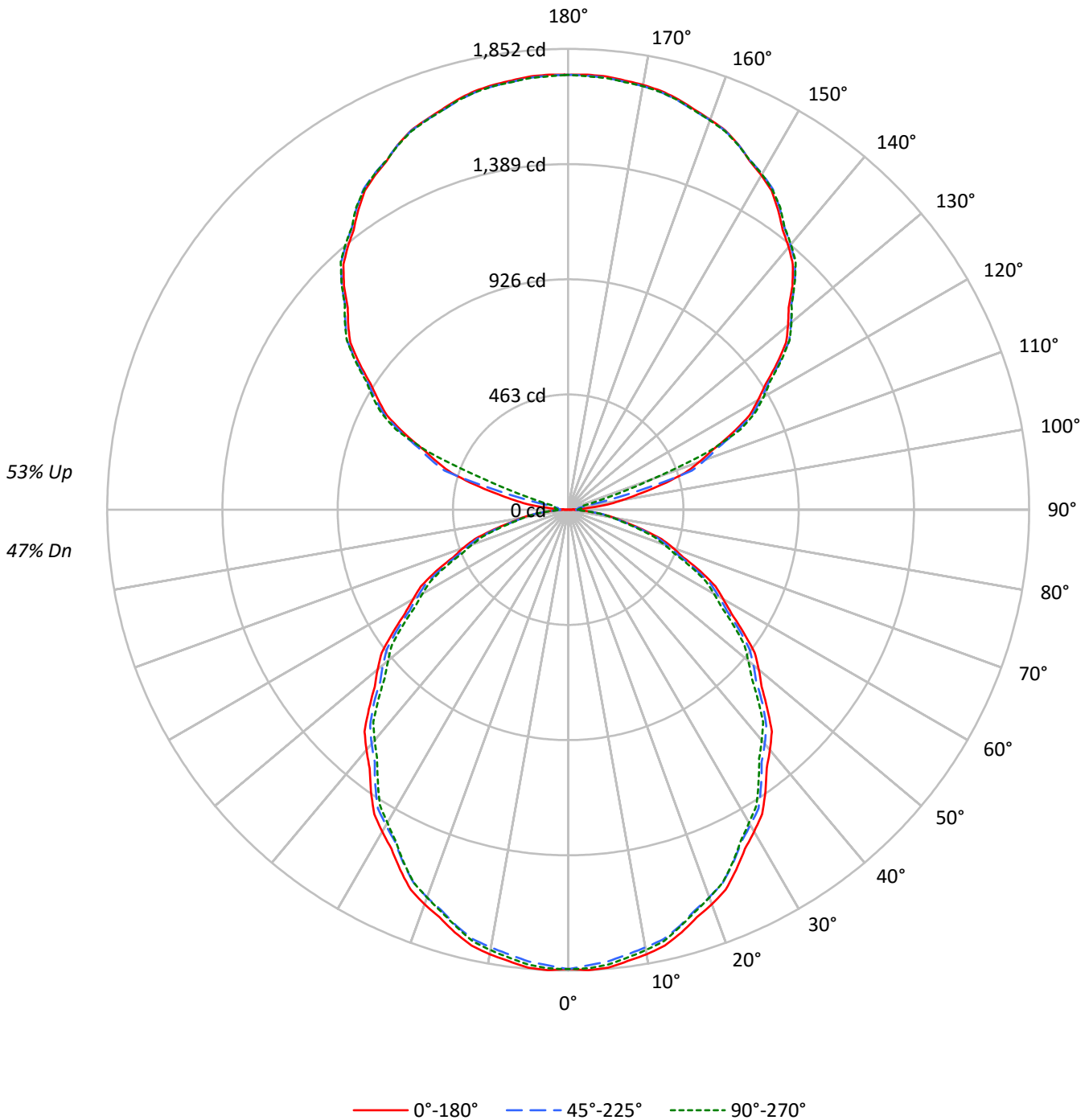
Input Watts (W): 76.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332232-840

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

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	50	30	10	0		
RCR																										
0	107	107	107	107	98	98	98	98	82	82	82	67	67	67	54	54	54	47	47	47	47	47	47	47		
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45	40	40	40	40	40	40	40		
2	88	81	75	70	81	75	69	65	63	59	55	52	49	47	42	40	38	33	33	33	33	33	33	33		
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	34	32	28	28	28	28	28	28	28		
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24	24	24	24	24		
5	68	56	48	42	62	52	45	39	44	38	34	37	32	29	30	27	24	21	21	21	21	21	21	21		
6	62	50	42	36	57	47	39	34	40	34	30	33	29	26	27	24	21	18	18	18	18	18	18	18		
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	25	21	19	16	16	16	16	16	16	16		
8	53	41	33	28	49	38	31	26	33	27	23	27	23	20	23	19	17	15	15	15	15	15	15	15		
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13	13	13	13	13	13	13		
10	46	34	27	22	43	32	26	21	28	22	19	23	19	16	19	16	14	12	12	12	12	12	12	12		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	19871	19871	19871
5°	19966	19690	19827
10°	19831	19519	19641
15°	19601	19299	19334
20°	19329	18984	19001
25°	18966	18608	18570
30°	18567	18191	18053
35°	18148	17751	17521
40°	17710	17265	16996
45°	17230	16818	16407
50°	16747	16268	15816
55°	16117	15700	15221
60°	15481	15035	14557
65°	14918	14314	13868
70°	14090	13489	12891
75°	12872	12410	11882
80°	11610	11120	11021
85°	10189	9806	9411



TEST NUMBER: P332232-840

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	173.9	1.7
10°-20°	491.0	4.8
20°-30°	725.3	7.2
30°-40°	847.3	8.4
40°-50°	851.8	8.4
50°-60°	748.3	7.4
60°-70°	557.5	5.5
70°-80°	317.6	3.1
80°-90°	96.0	0.9
90°-100°	63.5	0.6
100°-110°	302.9	3.0
110°-120°	727.5	7.2
120°-130°	926.3	9.1
130°-140°	989.8	9.8
140°-150°	925.5	9.1
150°-160°	746.6	7.4
160°-170°	481.8	4.8
170°-180°	166.1	1.6
0°-30°	1390.3	13.7
0°-40°	2237.6	22.1
0°-60°	3837.7	37.9
0°-90°	4808.8	47.4
90°-120°	1093.9	10.8
90°-150°	3935.5	38.8
90°-180°	5330.0	52.6
0°-180°	10138.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1846	1846	1846	1846	1846	
5°	1848	1839	1822	1837	1835	175
15°	1759	1752	1732	1743	1735	496
25°	1597	1587	1567	1568	1564	735
35°	1381	1371	1351	1341	1333	864
45°	1132	1125	1105	1086	1078	873
55°	859	856	837	820	811	769
65°	586	577	562	550	544	578
75°	310	303	298	291	286	331
85°	82	80	79	76	76	91
90°	1	14	31	36	39	8
95°	79	30	40	49	49	98
105°	387	394	284	67	57	410
115°	726	734	745	758	764	716
125°	1023	1033	1039	1041	1044	913
135°	1274	1282	1287	1290	1287	980
145°	1470	1479	1482	1484	1484	920
155°	1619	1617	1618	1624	1617	746
165°	1708	1704	1702	1712	1704	482
175°	1748	1742	1743	1751	1741	166
180°	1748	1748	1748	1748	1748	



TEST NUMBER: P332232-840

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

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1
2.5°	1852.5	1851.4	1850.3	1849.2	1848.0	1845.8	1842.8	1839.7	1836.5	1833.4	1836.2
5°	1847.8	1846.0	1844.2	1842.5	1840.7	1837.9	1834.0	1830.1	1826.2	1822.3	1825.8
7.5°	1829.7	1827.9	1826.1	1824.3	1822.6	1819.7	1815.6	1811.7	1807.7	1803.6	1806.7
10°	1814.4	1812.6	1810.9	1809.1	1807.4	1804.2	1799.6	1795.0	1790.4	1785.8	1789.0
12.5°	1794.1	1792.6	1791.1	1789.7	1788.2	1785.2	1781.0	1776.7	1772.3	1768.1	1770.4
15°	1758.9	1757.5	1756.1	1754.6	1753.2	1750.2	1745.7	1741.0	1736.5	1731.8	1734.6
17.5°	1717.9	1716.1	1714.2	1712.4	1710.5	1707.4	1702.7	1698.2	1693.5	1689.0	1691.0
20°	1687.4	1685.3	1683.1	1681.0	1679.0	1675.6	1671.0	1666.5	1661.8	1657.3	1658.7
22.5°	1653.1	1651.0	1648.9	1646.8	1644.7	1641.3	1636.7	1632.1	1627.6	1623.0	1624.1
25°	1596.9	1594.8	1592.7	1590.5	1588.5	1585.1	1580.5	1576.0	1571.3	1566.8	1567.1
27.5°	1536.9	1534.9	1532.9	1530.8	1528.7	1525.3	1520.4	1515.4	1510.5	1505.5	1505.8
30°	1493.8	1492.0	1490.3	1488.4	1486.7	1483.4	1478.4	1473.5	1468.5	1463.6	1463.6
32.5°	1450.6	1448.2	1445.9	1443.6	1441.3	1438.1	1434.4	1430.6	1426.7	1423.0	1421.0
35°	1381.1	1379.0	1376.8	1374.7	1372.6	1369.3	1364.6	1360.1	1355.4	1350.9	1348.8
37.5°	1309.9	1307.3	1304.5	1301.9	1299.2	1295.6	1290.9	1286.3	1281.6	1276.9	1274.3
40°	1260.4	1258.3	1256.2	1254.1	1251.9	1248.4	1243.4	1238.5	1233.6	1228.7	1225.9
42.5°	1210.8	1208.5	1206.1	1203.7	1201.2	1197.6	1192.7	1187.7	1182.8	1177.9	1175.1
45°	1131.9	1130.4	1129.0	1127.6	1126.2	1123.2	1118.6	1114.0	1109.4	1104.8	1100.7
47.5°	1053.4	1051.4	1049.4	1047.2	1045.2	1042.1	1037.7	1033.4	1029.2	1024.8	1020.7
50°	1000.1	998.4	996.5	994.8	993.0	989.9	985.2	980.7	976.0	971.5	967.7
52.5°	944.2	943.0	941.8	940.6	939.4	936.3	931.5	926.7	921.8	916.9	913.5
55°	858.8	858.5	858.1	857.8	857.4	855.0	850.3	845.8	841.1	836.6	832.7
57.5°	777.5	776.3	775.1	774.0	772.7	770.3	766.6	763.0	759.3	755.6	752.1
60°	719.1	718.7	718.4	718.0	717.7	715.4	711.1	706.9	702.7	698.4	695.3
62.5°	667.0	666.1	665.2	664.3	663.4	660.8	656.5	652.3	648.1	643.9	640.7
65°	585.7	584.0	582.2	580.5	578.7	576.0	572.5	569.0	565.4	562.0	559.2
67.5°	499.7	498.2	496.7	495.0	493.5	491.4	488.7	486.0	483.3	480.7	478.2
70°	447.7	445.6	443.4	441.3	439.2	437.1	434.9	432.8	430.7	428.6	426.2
72.5°	393.0	391.5	389.9	388.4	386.9	384.9	382.4	380.0	377.7	375.3	373.0
75°	309.5	308.1	306.7	305.3	303.9	302.7	301.6	300.5	299.5	298.4	296.7
77.5°	235.6	234.8	234.0	233.3	232.5	231.5	230.1	228.9	227.6	226.4	225.2
80°	187.3	186.2	185.2	184.1	183.1	182.2	181.5	180.8	180.1	179.4	179.0
82.5°	140.4	140.1	139.9	139.7	139.5	139.3	139.2	139.1	138.9	138.8	138.1
85°	82.5	81.8	81.1	80.4	79.7	79.4	79.4	79.4	79.4	79.4	78.7
87.5°	33.3	33.0	32.7	32.5	32.2	32.3	32.7	33.2	33.7	34.1	34.1
90°	1.3	4.1	7.1	10.0	12.8	16.2	19.9	23.6	27.4	31.2	32.3
92.5°	24.1	23.3	22.5	21.7	20.9	21.9	24.7	27.6	30.4	33.2	35.0
95°	79.2	67.4	55.5	43.7	31.9	27.6	30.7	33.9	37.1	40.3	42.3
97.5°	159.2	153.9	148.6	143.3	137.9	124.9	104.1	83.4	62.6	41.8	44.1
100°	219.4	225.2	231.0	236.7	242.6	222.9	177.9	132.9	87.9	42.8	45.1
102.5°	288.0	292.2	296.3	300.4	304.7	282.2	233.0	183.8	134.6	85.4	78.3
105°	387.0	390.1	393.3	396.5	399.6	388.3	362.2	336.3	310.3	284.4	233.3
107.5°	491.4	493.9	496.4	499.0	501.5	504.8	509.0	513.0	517.2	521.2	483.7
110°	561.0	563.3	565.5	567.8	570.2	572.9	576.1	579.3	582.5	585.6	576.1



TEST NUMBER: P332232-840

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

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	627.4	629.5	631.6	633.7	635.7	638.3	641.6	644.7	647.9	651.1	651.3
115°	725.9	727.6	729.3	731.0	732.8	735.0	737.5	740.1	742.8	745.4	748.2
117.5°	821.2	823.3	825.5	827.6	829.7	831.4	832.7	834.1	835.5	836.8	839.1
120°	880.4	883.0	885.6	888.2	890.8	892.5	893.3	894.2	895.1	896.0	898.3
122.5°	940.7	942.8	944.9	947.1	949.2	950.8	951.9	953.0	954.1	955.2	956.8
125°	1023.2	1025.5	1027.8	1030.2	1032.5	1034.2	1035.3	1036.5	1037.6	1038.8	1039.4
127.5°	1103.2	1105.5	1107.8	1110.1	1112.5	1114.3	1115.7	1117.1	1118.4	1119.8	1120.7
130°	1153.1	1155.4	1157.7	1160.0	1162.4	1164.1	1165.2	1166.4	1167.5	1168.6	1169.8
132.5°	1200.8	1203.2	1205.5	1207.8	1210.1	1211.7	1212.6	1213.6	1214.5	1215.4	1216.6
135°	1273.8	1275.6	1277.3	1279.0	1280.8	1282.2	1283.3	1284.5	1285.7	1286.9	1287.7
137.5°	1336.2	1338.4	1340.6	1342.7	1344.9	1346.4	1347.0	1347.7	1348.3	1348.9	1350.3
140°	1377.8	1379.5	1381.2	1382.9	1384.6	1385.9	1386.8	1387.7	1388.6	1389.4	1390.6
142.5°	1416.1	1417.9	1419.7	1421.4	1423.1	1424.4	1425.2	1426.1	1426.9	1427.8	1428.8
145°	1470.0	1472.0	1474.0	1476.0	1478.0	1479.3	1479.9	1480.5	1481.1	1481.6	1482.2
147.5°	1520.6	1521.9	1523.2	1524.5	1525.9	1526.8	1527.4	1527.9	1528.5	1529.1	1529.7
150°	1551.8	1552.6	1553.5	1554.3	1555.2	1555.9	1556.5	1557.0	1557.6	1558.2	1558.8
152.5°	1579.7	1580.1	1580.5	1580.9	1581.3	1581.8	1582.2	1582.5	1582.8	1583.2	1584.2
155°	1619.2	1618.7	1618.1	1617.5	1616.9	1616.8	1617.1	1617.4	1617.7	1617.9	1619.4
157.5°	1649.9	1649.8	1649.8	1649.7	1649.6	1649.5	1649.2	1648.9	1648.6	1648.3	1650.0
160°	1668.6	1668.3	1668.0	1667.7	1667.4	1667.2	1666.9	1666.6	1666.3	1666.0	1667.7
162.5°	1686.3	1685.5	1684.8	1683.9	1683.2	1682.7	1682.4	1682.1	1681.8	1681.5	1683.5
165°	1707.6	1706.7	1705.8	1705.0	1704.0	1703.5	1703.2	1702.9	1702.6	1702.3	1704.7
167.5°	1724.1	1723.0	1721.8	1720.7	1719.5	1719.0	1719.0	1719.0	1719.0	1719.0	1721.3
170°	1733.5	1732.3	1731.2	1730.1	1728.9	1728.3	1728.3	1728.3	1728.3	1728.3	1730.6
172.5°	1739.8	1738.4	1737.0	1735.6	1734.2	1733.6	1733.8	1734.1	1734.3	1734.5	1736.9
175°	1747.8	1746.4	1744.9	1743.4	1742.0	1741.4	1741.7	1742.0	1742.3	1742.6	1744.6
177.5°	1749.9	1748.7	1747.6	1746.5	1745.2	1744.8	1745.0	1745.2	1745.5	1745.8	1747.6
180°	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8



TEST NUMBER: P332232-840

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1	1846.1
2.5°	1839.1	1841.9	1844.7	1846.0	1845.7	1845.4	1845.1	1844.9
5°	1829.4	1832.9	1836.4	1837.9	1837.1	1836.4	1835.7	1835.0
7.5°	1810.0	1813.1	1816.3	1817.7	1817.3	1816.8	1816.4	1816.0
10°	1792.2	1795.3	1798.6	1799.8	1799.1	1798.4	1797.7	1797.0
12.5°	1772.7	1775.0	1777.4	1778.4	1777.9	1777.5	1777.1	1776.7
15°	1737.5	1740.3	1743.1	1743.5	1741.4	1739.3	1737.2	1735.0
17.5°	1692.9	1695.0	1696.9	1697.5	1696.8	1696.0	1695.2	1694.5
20°	1660.1	1661.5	1662.9	1663.0	1662.0	1660.9	1659.9	1658.8
22.5°	1625.3	1626.4	1627.5	1627.4	1626.1	1624.7	1623.4	1622.0
25°	1567.5	1567.8	1568.2	1567.8	1566.8	1565.7	1564.7	1563.6
27.5°	1506.1	1506.3	1506.6	1506.1	1504.8	1503.4	1502.1	1500.8
30°	1463.6	1463.6	1463.6	1462.4	1459.9	1457.4	1454.9	1452.5
32.5°	1419.0	1417.0	1415.0	1413.4	1412.1	1410.7	1409.4	1408.1
35°	1346.7	1344.5	1342.4	1340.5	1338.7	1337.0	1335.1	1333.4
37.5°	1271.8	1269.3	1266.8	1265.0	1263.7	1262.6	1261.5	1260.4
40°	1223.0	1220.2	1217.4	1215.3	1213.9	1212.4	1211.0	1209.6
42.5°	1172.3	1169.4	1166.6	1164.5	1163.1	1161.6	1160.2	1158.8
45°	1096.4	1092.2	1087.9	1084.9	1083.2	1081.4	1079.6	1077.8
47.5°	1016.5	1012.4	1008.1	1005.3	1003.8	1002.2	1000.7	999.2
50°	963.7	959.9	955.9	953.0	950.9	948.8	946.6	944.5
52.5°	910.3	907.0	903.6	900.9	898.8	896.7	894.5	892.4
55°	828.8	825.0	821.0	818.2	816.5	814.7	812.9	811.1
57.5°	748.7	745.3	741.7	739.0	737.0	735.0	732.9	730.8
60°	692.2	688.9	685.8	683.3	681.6	679.7	678.0	676.2
62.5°	637.5	634.3	631.2	628.9	627.7	626.5	625.4	624.2
65°	556.3	553.5	550.7	548.8	547.6	546.6	545.5	544.5
67.5°	475.7	473.2	470.8	468.8	467.4	465.9	464.3	462.9
70°	423.6	421.2	418.7	416.6	414.9	413.0	411.3	409.6
72.5°	370.9	368.7	366.5	365.0	364.1	363.1	362.2	361.3
75°	294.9	293.2	291.3	289.9	288.9	287.8	286.8	285.7
77.5°	224.0	222.8	221.6	221.0	221.0	221.0	221.0	221.0
80°	178.6	178.3	177.9	177.8	177.8	177.8	177.8	177.8
82.5°	137.4	136.8	136.2	135.7	135.4	135.2	134.9	134.6
85°	78.0	77.3	76.5	76.2	76.2	76.2	76.2	76.2
87.5°	34.0	34.0	33.9	34.0	34.1	34.2	34.3	34.4
90°	33.4	34.6	35.7	36.7	37.3	37.8	38.4	39.0
92.5°	37.0	38.8	40.6	41.7	42.1	42.4	42.7	43.1
95°	44.3	46.4	48.4	49.4	49.4	49.4	49.4	49.4
97.5°	46.5	48.8	51.0	52.3	52.6	52.9	53.2	53.5
100°	47.5	49.8	52.1	53.4	53.6	53.9	54.2	54.5
102.5°	71.1	63.9	56.9	53.5	54.0	54.5	55.0	55.5
105°	182.2	131.2	80.1	54.8	55.4	55.9	56.6	57.2
107.5°	446.4	408.9	371.4	333.5	295.0	256.4	217.9	179.5
110°	566.5	557.0	547.5	522.1	480.9	439.6	398.4	357.1



TEST NUMBER: P332232-840

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	651.5	651.6	651.8	647.5	638.7	630.1	621.4	612.7
115°	751.1	754.0	756.9	758.9	760.0	761.2	762.3	763.6
117.5°	841.4	843.6	846.0	847.3	847.5	847.7	848.0	848.2
120°	900.6	902.9	905.2	906.4	906.4	906.4	906.4	906.4
122.5°	958.5	960.1	961.7	962.6	962.8	963.0	963.3	963.5
125°	1040.0	1040.6	1041.1	1041.7	1042.3	1042.9	1043.4	1044.0
127.5°	1121.7	1122.6	1123.6	1123.7	1123.2	1122.6	1122.0	1121.4
130°	1170.9	1172.2	1173.3	1173.6	1173.0	1172.5	1171.8	1171.2
132.5°	1217.7	1218.9	1220.0	1220.2	1219.4	1218.6	1217.8	1217.0
135°	1288.6	1289.4	1290.3	1290.3	1289.4	1288.6	1287.7	1286.9
137.5°	1351.7	1353.0	1354.4	1354.8	1354.2	1353.7	1353.1	1352.5
140°	1391.7	1392.9	1394.0	1394.3	1393.7	1393.1	1392.6	1392.0
142.5°	1429.7	1430.6	1431.6	1431.6	1430.8	1430.0	1429.2	1428.4
145°	1482.8	1483.3	1483.9	1484.2	1484.2	1484.2	1484.2	1484.2
147.5°	1530.2	1530.9	1531.5	1531.1	1529.7	1528.4	1527.1	1525.7
150°	1559.3	1559.9	1560.5	1560.3	1559.5	1558.6	1557.8	1556.9
152.5°	1585.2	1586.3	1587.3	1587.2	1585.8	1584.5	1583.2	1581.9
155°	1620.8	1622.2	1623.8	1623.6	1621.8	1620.1	1618.4	1616.7
157.5°	1651.8	1653.6	1655.3	1655.0	1652.7	1650.5	1648.2	1646.0
160°	1669.4	1671.2	1672.9	1672.7	1670.7	1668.7	1666.7	1664.7
162.5°	1685.5	1687.5	1689.4	1689.5	1687.7	1686.0	1684.2	1682.3
165°	1707.0	1709.3	1711.6	1711.7	1709.7	1707.7	1705.7	1703.6
167.5°	1723.6	1725.9	1728.2	1728.2	1725.9	1723.6	1721.3	1719.0
170°	1732.9	1735.3	1737.6	1737.6	1735.3	1732.9	1730.6	1728.3
172.5°	1739.2	1741.5	1743.8	1743.6	1741.1	1738.6	1736.1	1733.5
175°	1746.7	1748.7	1750.7	1750.5	1748.3	1746.0	1743.6	1741.3
177.5°	1749.4	1751.3	1753.1	1752.9	1750.6	1748.3	1746.0	1743.6
180°	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8

(END OF REPORT)