

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: P332239-840

Luminaire Tested: **S123DIW-S1165D1535U840-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332239-840  
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-S1165D1535U840-4F0-1E-UDD-F1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1535 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10180.7 lumens  
Efficiency: N/A  
Efficacy: 122.8 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

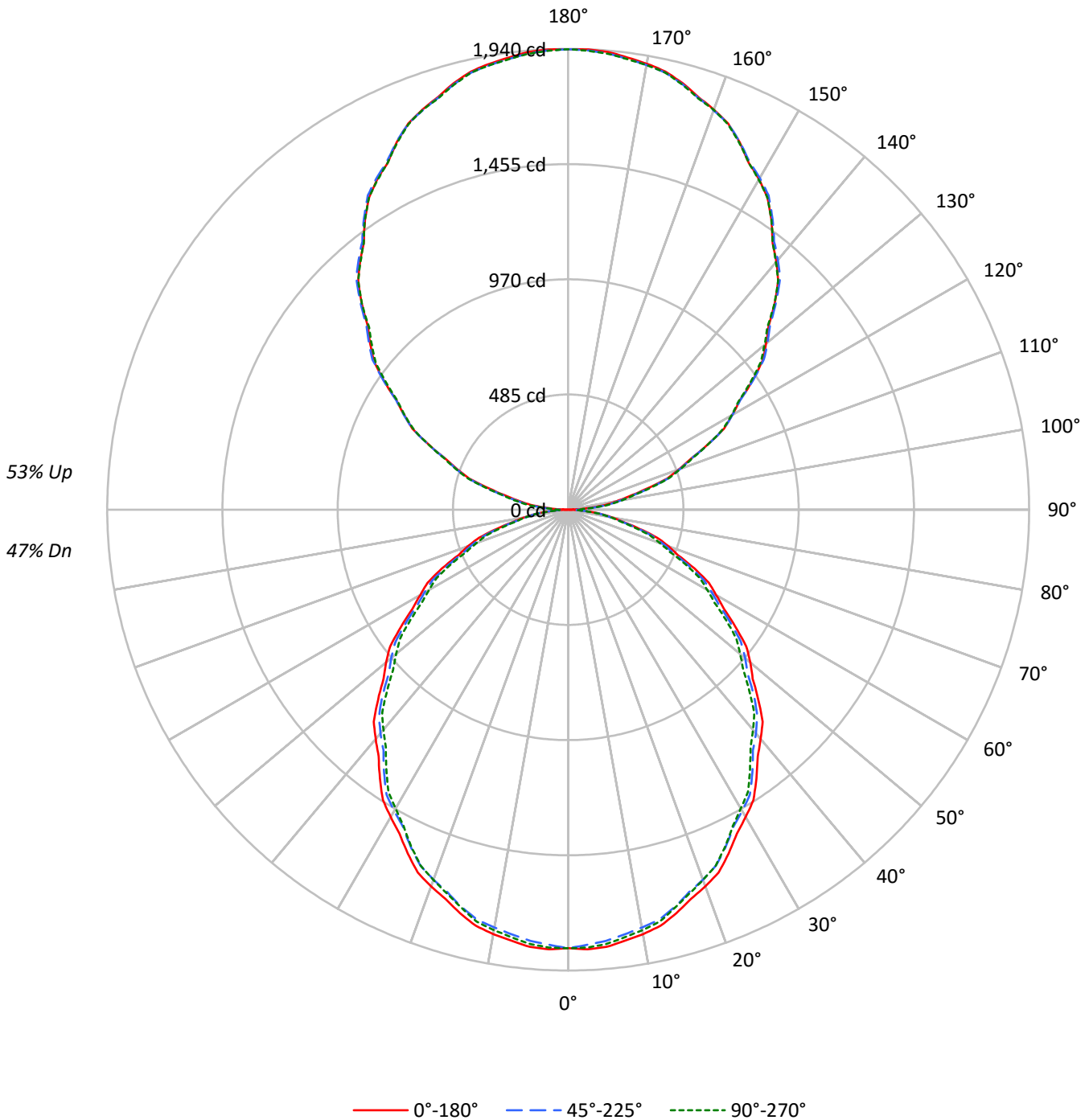
Input Watts (W): 82.9  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332239-840

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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	50	30	10	0	
RCR																						
0	106	106	106	106	98	98	98	98	82	82	82	67	67	67	54	54	54	47				47
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45				40	
2	88	81	75	70	81	75	69	65	63	59	55	52	49	46	42	40	38				33	
3	81	71	64	58	74	66	59	54	55	50	47	46	42	39	37	34	32				28	
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28				24	
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	30	27	24				21	
6	62	50	42	36	57	47	39	34	40	34	30	33	29	25	27	24	21				18	
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	24	21	19				16	
8	53	41	33	28	49	38	31	26	33	27	23	27	23	20	22	19	17				15	
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15				13	
10	46	34	27	22	43	32	26	21	28	22	19	23	19	16	19	16	14				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: P332239-840

CATALOG NUMBER: S123DIW-S1165D1535U840-4F0-1E-UDD-F1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	173.9	1.7
10°-20°	491.0	4.8
20°-30°	725.3	7.1
30°-40°	847.3	8.3
40°-50°	851.8	8.4
50°-60°	748.3	7.3
60°-70°	557.5	5.5
70°-80°	317.6	3.1
80°-90°	96.9	1.0
90°-100°	126.3	1.2
100°-110°	378.0	3.7
110°-120°	642.9	6.3
120°-130°	845.6	8.3
130°-140°	950.5	9.3
140°-150°	934.3	9.2
150°-160°	786.5	7.7
160°-170°	523.6	5.1
170°-180°	183.3	1.8
0°-30°	1390.3	13.7
0°-40°	2237.6	22.0
0°-60°	3837.7	37.7
0°-90°	4809.6	47.2
90°-120°	1147.2	11.3
90°-150°	3877.6	38.1
90°-180°	5371.0	52.8
0°-180°	10180.7	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°	2	17	37	42	46	10
95°	90	101	113	118	119	101
105°	343	346	359	360	362	367
115°	647	651	649	650	649	640
125°	947	951	949	943	936	844
135°	1229	1238	1237	1231	1227	947
145°	1491	1494	1498	1497	1491	931
155°	1707	1707	1709	1714	1704	785
165°	1859	1855	1855	1863	1853	524
175°	1934	1928	1928	1936	1926	184
180°	1938	1938	1938	1938	1938	



TEST NUMBER: P332239-840

CATALOG NUMBER: S123DIW-S1165D1535U840-4F0-1E-UDD-F1

**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	33.1	33.0	32.8	32.6	32.8	33.4	34.0	34.6	35.2	35.2
90°	1.5	4.9	8.3	11.7	15.0	19.0	23.3	27.8	32.1	36.6	37.9
92.5°	36.9	39.2	41.4	43.7	46.0	48.5	51.0	53.4	55.9	58.5	59.6
95°	89.9	92.2	94.6	96.9	99.4	101.9	104.5	107.2	110.0	112.7	114.0
97.5°	159.6	161.4	163.1	164.9	166.6	168.4	170.5	172.4	174.4	176.3	177.9
100°	207.1	209.1	211.2	213.2	215.2	217.1	218.7	220.5	222.2	223.9	224.9
102.5°	262.0	263.2	264.4	265.6	266.8	268.5	270.7	273.0	275.2	277.4	278.5
105°	342.6	343.4	344.0	344.7	345.4	347.2	350.2	353.3	356.4	359.4	359.4
107.5°	436.5	436.9	437.3	437.7	438.1	438.9	440.1	441.3	442.5	443.7	444.8
110°	494.9	495.6	496.2	497.0	497.7	498.3	499.0	499.7	500.3	501.0	502.4



TEST NUMBER: P332239-840

CATALOG NUMBER: S123DIW-S1165D1535U840-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	555.8	556.2	556.6	557.0	557.4	557.7	557.8	558.0	558.2	558.3	559.9
115°	647.2	648.2	649.2	650.3	651.3	651.5	650.8	650.1	649.4	648.7	649.0
117.5°	739.2	739.8	740.5	741.2	741.8	741.7	740.9	740.0	739.1	738.3	738.2
120°	796.5	798.5	800.5	802.5	804.6	804.8	803.0	801.3	799.6	798.0	797.6
122.5°	856.2	857.6	859.1	860.6	862.1	862.4	861.5	860.6	859.8	858.9	858.0
125°	947.2	948.2	949.3	950.3	951.3	951.4	950.8	950.1	949.4	948.8	947.4
127.5°	1031.3	1033.4	1035.6	1037.7	1040.0	1040.7	1039.9	1039.2	1038.4	1037.6	1035.7
130°	1087.3	1090.0	1092.7	1095.4	1098.1	1098.9	1097.9	1096.9	1095.9	1094.9	1093.6
132.5°	1143.4	1146.0	1148.7	1151.4	1154.2	1155.2	1154.4	1153.7	1152.9	1152.2	1150.5
135°	1228.9	1230.9	1232.9	1235.0	1237.1	1237.9	1237.6	1237.2	1236.9	1236.6	1235.2
137.5°	1308.1	1309.8	1311.5	1313.2	1314.8	1316.2	1317.1	1317.9	1318.8	1319.7	1318.3
140°	1362.9	1364.6	1366.3	1368.0	1369.7	1370.7	1371.1	1371.4	1371.7	1372.1	1371.7
142.5°	1412.9	1414.5	1416.2	1418.0	1419.7	1420.8	1421.4	1422.0	1422.6	1423.2	1422.9
145°	1490.9	1491.6	1492.2	1492.9	1493.6	1494.4	1495.4	1496.4	1497.4	1498.4	1498.1
147.5°	1559.0	1560.2	1561.5	1562.8	1564.0	1565.0	1566.0	1566.9	1567.8	1568.8	1568.8
150°	1606.6	1607.3	1607.9	1608.6	1609.3	1609.9	1610.6	1611.3	1611.9	1612.7	1612.7
152.5°	1645.6	1646.5	1647.5	1648.4	1649.3	1650.0	1650.4	1650.8	1651.2	1651.6	1652.2
155°	1707.1	1707.1	1707.1	1707.1	1707.1	1707.3	1707.6	1707.9	1708.3	1708.6	1710.0
157.5°	1759.5	1759.1	1758.7	1758.3	1757.9	1757.8	1758.1	1758.3	1758.6	1758.9	1760.3
160°	1792.4	1791.7	1791.0	1790.3	1789.7	1789.3	1789.3	1789.3	1789.3	1789.3	1791.0
162.5°	1821.6	1820.7	1819.7	1818.8	1817.9	1817.5	1817.8	1818.1	1818.3	1818.6	1820.3
165°	1859.4	1858.4	1857.3	1856.3	1855.3	1854.8	1854.8	1854.8	1854.8	1854.8	1856.8
167.5°	1889.6	1888.1	1886.8	1885.4	1884.1	1883.6	1883.8	1884.1	1884.4	1884.6	1886.7
170°	1906.5	1905.2	1903.9	1902.5	1901.2	1900.5	1900.5	1900.5	1900.5	1900.5	1902.9
172.5°	1920.0	1918.6	1917.2	1915.9	1914.6	1913.9	1913.9	1913.9	1913.9	1913.9	1916.0
175°	1934.0	1932.7	1931.3	1930.0	1928.5	1927.9	1927.9	1927.9	1927.9	1927.9	1930.0
177.5°	1939.7	1938.7	1937.6	1936.5	1935.4	1934.9	1934.9	1934.9	1934.9	1934.9	1936.5
180°	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5



TEST NUMBER: P332239-840

CATALOG NUMBER: S123DIW-S1165D1535U840-4F0-1E-UDD-F1

**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°	35.2	35.2	35.2	35.2	35.4	35.5	35.6	35.9
90°	39.3	40.6	42.0	43.0	43.6	44.3	45.0	45.6
92.5°	60.6	61.7	62.8	63.1	62.7	62.3	61.9	61.5
95°	115.4	116.7	118.1	118.8	118.8	118.8	118.8	118.8
97.5°	179.5	181.0	182.6	183.3	183.2	183.0	182.9	182.8
100°	225.9	226.9	227.9	228.7	229.4	230.1	230.8	231.5
102.5°	279.5	280.5	281.6	282.0	281.9	281.7	281.6	281.4
105°	359.4	359.4	359.4	359.7	360.4	361.1	361.7	362.4
107.5°	446.0	447.0	448.1	448.4	448.0	447.6	447.2	446.8
110°	503.7	505.0	506.4	506.8	506.0	505.4	504.7	504.0





TEST NUMBER: P332239-840

CATALOG NUMBER: S123DIW-S1165D1535U840-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	561.5	563.1	564.7	565.5	565.4	565.2	565.1	564.9
115°	649.4	649.7	650.1	650.1	649.7	649.4	649.0	648.7
117.5°	738.1	738.1	738.0	737.5	736.5	735.6	734.7	733.7
120°	797.3	797.0	796.6	796.1	795.5	794.8	794.1	793.3
122.5°	857.1	856.3	855.4	854.4	853.5	852.5	851.6	850.6
125°	946.0	944.6	943.3	941.9	940.6	939.3	937.9	936.5
127.5°	1033.9	1032.0	1030.1	1028.3	1026.8	1025.2	1023.7	1022.1
130°	1092.2	1090.9	1089.5	1087.6	1085.3	1082.9	1080.6	1078.1
132.5°	1148.9	1147.3	1145.7	1144.0	1142.2	1140.3	1138.4	1136.6
135°	1233.9	1232.4	1231.1	1230.1	1229.4	1228.7	1228.1	1227.4
137.5°	1316.9	1315.5	1314.0	1312.6	1311.3	1310.1	1308.8	1307.5
140°	1371.4	1371.1	1370.7	1369.4	1367.0	1364.6	1362.2	1359.9
142.5°	1422.6	1422.2	1421.9	1420.8	1419.0	1417.1	1415.3	1413.5
145°	1497.7	1497.4	1497.1	1496.2	1494.9	1493.6	1492.2	1490.9
147.5°	1568.8	1568.8	1568.8	1567.8	1565.8	1563.8	1561.7	1559.6
150°	1612.7	1612.7	1612.7	1611.6	1609.6	1607.6	1605.6	1603.6
152.5°	1652.7	1653.3	1653.9	1653.3	1651.4	1649.7	1647.9	1646.2
155°	1711.3	1712.6	1714.0	1713.5	1711.1	1708.8	1706.4	1704.0
157.5°	1761.7	1763.1	1764.5	1764.3	1762.4	1760.5	1758.6	1756.8
160°	1792.7	1794.4	1796.0	1796.2	1794.9	1793.5	1792.2	1790.8
162.5°	1821.9	1823.6	1825.3	1825.1	1822.9	1820.8	1818.6	1816.4
165°	1858.9	1860.9	1862.9	1862.8	1860.4	1858.1	1855.6	1853.3
167.5°	1888.9	1891.0	1893.0	1893.0	1891.0	1888.9	1886.7	1884.6
170°	1905.2	1907.6	1910.0	1910.0	1907.6	1905.2	1902.9	1900.5
172.5°	1918.0	1920.2	1922.3	1922.2	1919.8	1917.4	1915.0	1912.7
175°	1932.0	1934.0	1936.0	1935.8	1933.5	1931.1	1928.7	1926.4
177.5°	1938.1	1939.7	1941.4	1941.3	1939.3	1937.4	1935.6	1933.7
180°	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5

(END OF REPORT)