

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: P333094-940

Luminaire Tested: **S124RDIW-S1020D1560U940-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P333094-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8548.7 lumens  
Efficiency: N/A  
Efficacy: 111.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: General Diffuse

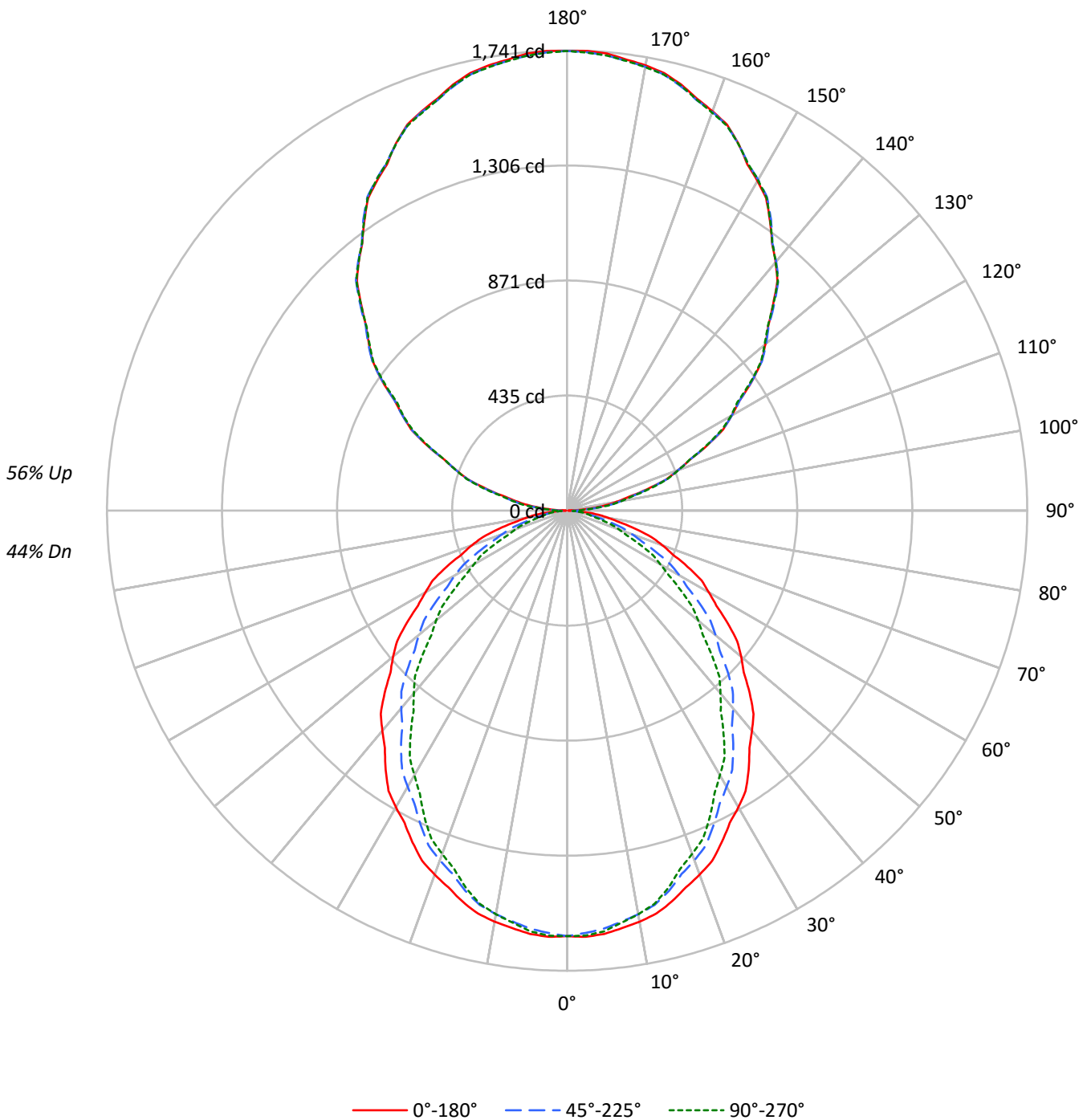
Input Watts (W): 76.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P333094-940

CATALOG NUMBER: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1

### Luminous Intensity Polar Plot





TEST NUMBER: P333094-940

CATALOG NUMBER: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1

**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	64	64	64	50	50	50	44
1	97	92	89	85	88	85	81	79	70	68	66	57	55	54	45	44	43	37
2	88	81	75	70	80	74	69	65	62	58	55	50	48	45	40	38	36	31
3	80	71	64	58	73	66	59	54	55	50	46	45	41	39	35	33	31	27
4	74	63	55	50	67	58	51	46	49	44	40	40	36	33	32	29	27	23
5	68	56	48	43	62	52	45	40	44	38	34	36	32	29	29	26	24	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	26	23	21	18
7	58	46	38	32	53	42	35	30	36	30	26	30	26	23	24	21	19	16
8	54	41	34	29	49	38	32	27	33	27	24	27	23	20	22	19	17	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	13
10	47	35	28	23	43	32	26	22	27	22	19	23	19	16	19	16	14	12

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

	0°	45°	90°
0°	12999	12999	12999
5°	13028	12869	12949
10°	12946	12714	12714
15°	12797	12447	12354
20°	12594	12095	11874
25°	12333	11685	11388
30°	12078	11251	10781
35°	11798	10801	10170
40°	11460	10290	9511
45°	11147	9782	8840
50°	10792	9198	8130
55°	10412	8590	7357
60°	9993	7923	6570
65°	9608	7089	5794
70°	9050	6170	4919
75°	8344	5115	3999
80°	7280	3896	3668
85°	6169	3548	3316



TEST NUMBER: P333094-940

CATALOG NUMBER: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	151.3	1.8
10°-20°	421.8	4.9
20°-30°	609.1	7.1
30°-40°	690.4	8.1
40°-50°	666.7	7.8
50°-60°	554.4	6.5
60°-70°	382.8	4.5
70°-80°	194.0	2.3
80°-90°	55.0	0.6
90°-100°	114.7	1.3
100°-110°	339.7	4.0
110°-120°	576.5	6.7
120°-130°	760.2	8.9
130°-140°	853.8	10.0
140°-150°	839.0	9.8
150°-160°	705.6	8.3
160°-170°	469.5	5.5
170°-180°	164.4	1.9
0°-30°	1182.1	13.8
0°-40°	1872.5	21.9
0°-60°	3093.5	36.2
0°-90°	3725.3	43.6
90°-120°	1030.9	12.1
90°-150°	3483.9	40.8
90°-180°	4823.0	56.4
0°-180°	8548.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1610	1610	1610	1610	1610	
5°	1608	1602	1588	1599	1598	152
15°	1531	1519	1489	1486	1478	431
25°	1385	1361	1312	1291	1278	638
35°	1197	1156	1096	1055	1032	748
45°	976	929	857	799	774	753
55°	740	689	610	548	523	661
65°	503	449	371	320	303	497
75°	268	221	164	137	128	282
85°	67	43	38	36	36	75
90°	4	19	30	37	40	8
95°	81	93	102	106	106	90
105°	313	315	320	324	328	332
115°	586	586	584	582	581	578
125°	854	854	852	850	847	761
135°	1101	1109	1109	1106	1102	852
145°	1338	1343	1344	1343	1339	837
155°	1533	1533	1531	1536	1531	705
165°	1669	1665	1662	1669	1665	470
175°	1736	1729	1728	1736	1728	165
180°	1738	1738	1738	1738	1738	



TEST NUMBER: P333094-940

CATALOG NUMBER: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2
2.5°	1614.1	1613.2	1612.3	1611.5	1610.6	1608.9	1606.5	1604.1	1601.7	1599.3	1601.7
5°	1607.7	1606.6	1605.5	1604.4	1603.3	1601.1	1597.9	1594.6	1591.3	1588.0	1590.7
7.5°	1593.1	1592.0	1590.8	1589.7	1588.5	1585.8	1581.5	1577.3	1573.0	1568.7	1570.5
10°	1579.3	1578.0	1576.5	1575.2	1573.9	1570.7	1565.8	1560.9	1555.9	1551.0	1552.0
12.5°	1561.6	1560.0	1558.4	1556.8	1555.2	1551.5	1545.7	1539.9	1534.1	1528.3	1528.9
15°	1531.2	1528.7	1526.3	1523.8	1521.3	1516.7	1509.8	1503.0	1496.2	1489.3	1488.8
17.5°	1494.5	1490.9	1487.4	1483.8	1480.2	1474.4	1466.2	1457.9	1449.7	1441.5	1439.9
20°	1465.9	1462.3	1458.7	1455.2	1451.6	1445.2	1435.9	1426.6	1417.3	1407.9	1405.8
22.5°	1434.3	1430.3	1426.3	1422.4	1418.4	1411.3	1401.4	1391.4	1381.4	1371.5	1368.2
25°	1384.6	1379.6	1374.7	1369.8	1364.8	1356.7	1345.5	1334.3	1323.0	1311.8	1307.2
27.5°	1332.2	1326.1	1319.9	1313.7	1307.5	1298.4	1286.4	1274.4	1262.4	1250.4	1244.6
30°	1295.7	1288.9	1282.1	1275.2	1268.4	1258.5	1245.6	1232.7	1219.9	1207.0	1200.2
32.5°	1257.3	1249.6	1241.8	1234.1	1226.4	1215.8	1202.6	1189.3	1175.9	1162.6	1154.7
35°	1197.1	1188.4	1179.6	1170.8	1162.1	1150.8	1137.1	1123.5	1109.7	1096.0	1086.7
37.5°	1132.7	1123.7	1114.7	1105.6	1096.6	1084.5	1069.3	1054.2	1038.9	1023.8	1013.3
40°	1087.4	1078.3	1069.3	1060.2	1051.2	1038.9	1023.3	1007.6	992.0	976.4	964.9
42.5°	1044.0	1034.6	1025.0	1015.6	1006.1	993.2	977.0	960.6	944.4	928.1	916.4
45°	976.4	966.3	956.2	946.0	935.9	922.6	906.2	889.7	873.3	856.8	843.5
47.5°	906.7	896.2	885.7	875.3	864.8	851.0	833.9	816.8	799.7	782.7	768.7
50°	859.3	848.6	837.9	827.2	816.5	802.5	785.0	767.4	749.8	732.4	718.6
52.5°	811.0	800.5	790.1	779.6	769.1	754.9	736.9	719.0	701.0	683.1	669.1
55°	739.8	728.8	717.8	706.9	695.9	681.5	663.7	645.9	628.1	610.3	596.0
57.5°	669.2	657.8	646.4	635.0	623.7	609.1	591.7	574.1	556.5	539.0	524.6
60°	618.9	608.0	597.0	586.0	575.1	560.8	543.3	525.8	508.2	490.7	476.4
62.5°	573.5	562.1	550.7	539.3	528.0	513.3	495.3	477.3	459.3	441.4	428.2
65°	503.0	491.2	479.5	467.7	455.9	441.2	423.7	406.2	388.6	371.1	359.4
67.5°	429.8	418.5	407.2	395.9	384.6	370.9	354.5	338.3	322.0	305.8	295.6
70°	383.4	371.9	360.4	348.9	337.4	323.9	308.3	292.6	277.0	261.4	252.4
72.5°	334.1	323.7	313.3	302.9	292.5	279.9	265.2	250.4	235.7	221.0	213.2
75°	267.5	257.4	247.3	237.1	227.0	215.4	202.6	189.8	176.8	164.0	157.7
77.5°	200.0	191.4	182.8	174.2	165.6	156.0	145.6	135.3	124.8	114.4	110.8
80°	156.6	148.6	140.7	132.8	124.8	116.7	108.5	100.3	92.0	83.8	83.0
82.5°	119.1	111.8	104.5	97.2	90.0	83.9	79.3	74.5	69.8	65.1	64.5
85°	66.6	61.1	55.6	50.1	44.7	41.5	40.7	39.9	39.1	38.3	37.6
87.5°	23.5	22.4	21.3	20.2	19.1	18.7	18.9	19.2	19.4	19.7	19.9
90°	4.0	7.3	10.6	13.9	17.2	20.1	22.4	24.8	27.2	29.6	31.4
92.5°	28.8	32.5	36.3	40.0	43.9	46.5	48.2	49.9	51.5	53.2	54.3
95°	80.7	83.4	86.1	88.7	91.4	93.8	95.9	98.0	100.1	102.2	103.1
97.5°	140.9	143.0	145.2	147.4	149.5	151.9	154.3	156.7	159.2	161.6	162.6
100°	188.2	189.4	190.6	191.8	193.1	194.9	197.7	200.4	203.0	205.7	206.3
102.5°	237.7	238.2	238.7	239.2	239.6	241.1	243.5	246.0	248.4	250.9	251.7
105°	313.3	313.6	313.9	314.1	314.5	315.2	316.4	317.6	318.8	320.0	320.9
107.5°	392.6	393.0	393.3	393.7	394.0	394.3	394.5	394.7	394.8	395.0	395.8
110°	446.4	447.0	447.5	448.2	448.8	449.0	448.6	448.4	448.0	447.7	447.1



TEST NUMBER: P333094-940

CATALOG NUMBER: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	502.3	502.5	502.6	502.7	502.8	502.6	502.0	501.5	501.0	500.4	500.3
115°	586.2	586.2	586.2	586.2	586.2	585.9	585.3	584.7	584.2	583.5	583.3
117.5°	665.3	665.5	665.8	666.0	666.3	666.2	665.8	665.3	664.9	664.5	663.4
120°	718.0	719.2	720.4	721.6	722.7	722.9	722.0	721.1	720.2	719.3	717.8
122.5°	772.8	773.3	773.8	774.3	774.7	774.8	774.4	773.9	773.6	773.1	772.1
125°	853.8	853.8	853.8	853.8	853.8	853.6	853.4	853.0	852.7	852.5	851.9
127.5°	927.2	928.1	929.0	929.9	930.8	931.0	930.5	930.1	929.6	929.1	928.4
130°	978.8	979.7	980.6	981.5	982.4	982.8	982.8	982.8	982.8	982.8	982.3
132.5°	1031.5	1032.2	1032.9	1033.5	1034.2	1034.4	1034.1	1033.9	1033.7	1033.4	1032.9
135°	1101.2	1103.0	1104.7	1106.6	1108.4	1109.3	1109.3	1109.3	1109.3	1109.3	1108.7
137.5°	1177.1	1177.9	1178.7	1179.6	1180.4	1181.1	1181.5	1182.0	1182.5	1182.9	1182.1
140°	1227.6	1228.2	1228.8	1229.4	1229.9	1230.3	1230.3	1230.3	1230.3	1230.3	1229.9
142.5°	1273.8	1274.4	1275.1	1275.6	1276.2	1276.4	1276.1	1275.9	1275.7	1275.4	1275.4
145°	1337.8	1339.0	1340.2	1341.4	1342.6	1343.4	1343.6	1344.0	1344.3	1344.5	1344.3
147.5°	1401.3	1402.8	1404.2	1405.6	1407.0	1407.7	1407.4	1407.1	1406.9	1406.7	1406.4
150°	1440.0	1441.2	1442.4	1443.6	1444.8	1445.4	1445.4	1445.4	1445.4	1445.4	1445.4
152.5°	1476.6	1477.3	1478.0	1478.7	1479.4	1480.0	1480.2	1480.4	1480.7	1480.9	1481.6
155°	1532.8	1532.8	1532.8	1532.8	1532.8	1532.7	1532.3	1532.0	1531.8	1531.4	1532.7
157.5°	1580.1	1579.6	1579.0	1578.5	1578.0	1577.7	1577.6	1577.5	1577.5	1577.4	1578.3
160°	1608.1	1607.8	1607.5	1607.2	1606.9	1606.6	1606.3	1606.0	1605.7	1605.4	1606.3
162.5°	1633.9	1633.2	1632.4	1631.6	1630.8	1630.2	1630.0	1629.7	1629.3	1629.1	1630.7
165°	1668.6	1667.7	1666.8	1665.9	1665.0	1664.3	1663.7	1663.0	1662.5	1661.9	1663.7
167.5°	1695.2	1694.0	1692.7	1691.5	1690.2	1689.6	1689.7	1689.7	1689.8	1689.9	1691.7
170°	1710.3	1708.8	1707.3	1705.8	1704.3	1703.7	1704.0	1704.3	1704.6	1704.9	1706.6
172.5°	1721.0	1719.8	1718.5	1717.3	1716.0	1715.4	1715.5	1715.6	1715.6	1715.7	1717.7
175°	1735.8	1734.3	1732.9	1731.3	1729.8	1728.9	1728.7	1728.3	1728.0	1727.8	1729.8
177.5°	1740.6	1739.5	1738.3	1737.1	1735.9	1735.3	1735.3	1735.3	1735.3	1735.3	1737.0
180°	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5



TEST NUMBER: P333094-940

CATALOG NUMBER: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2
2.5°	1604.1	1606.5	1608.9	1610.1	1609.8	1609.6	1609.4	1609.2
5°	1593.4	1596.2	1598.9	1600.0	1599.5	1598.9	1598.4	1597.9
7.5°	1572.3	1574.0	1575.7	1576.2	1575.3	1574.4	1573.5	1572.6
10°	1553.2	1554.3	1555.3	1555.3	1554.3	1553.2	1552.0	1551.0
12.5°	1529.6	1530.3	1530.9	1530.4	1528.9	1527.4	1525.9	1524.4
15°	1488.3	1487.6	1487.1	1485.9	1484.0	1482.0	1480.2	1478.2
17.5°	1438.4	1436.9	1435.4	1433.2	1430.2	1427.4	1424.4	1421.5
20°	1403.6	1401.4	1399.2	1396.3	1392.8	1389.2	1385.6	1382.1
22.5°	1364.9	1361.6	1358.3	1355.2	1352.3	1349.4	1346.5	1343.6
25°	1302.4	1297.8	1293.2	1289.4	1286.7	1284.0	1281.2	1278.5
27.5°	1238.9	1233.1	1227.4	1222.5	1218.6	1214.6	1210.7	1206.8
30°	1193.3	1186.4	1179.6	1173.9	1169.6	1165.2	1160.8	1156.5
32.5°	1146.7	1138.8	1130.9	1124.8	1120.6	1116.4	1112.3	1108.1
35°	1077.4	1068.1	1058.7	1051.7	1046.7	1041.8	1036.9	1031.9
37.5°	1003.0	992.6	982.1	974.5	969.6	964.6	959.7	954.8
40°	953.4	941.9	930.4	922.2	917.3	912.3	907.4	902.5
42.5°	904.6	893.0	881.2	872.8	867.6	862.5	857.3	852.2
45°	830.0	816.5	803.2	794.0	789.1	784.1	779.2	774.3
47.5°	754.8	740.9	726.9	717.3	711.9	706.4	701.0	695.6
50°	704.9	691.3	677.5	668.1	662.9	657.6	652.5	647.3
52.5°	655.1	641.2	627.3	617.7	612.2	606.8	601.4	596.0
55°	581.8	567.6	553.3	543.6	538.3	533.2	528.0	522.7
57.5°	510.1	495.6	481.2	472.0	468.0	464.0	460.1	456.2
60°	462.2	447.9	433.7	424.4	420.0	415.6	411.3	406.9
62.5°	415.1	401.9	388.8	380.4	376.9	373.4	369.9	366.4
65°	347.5	335.7	324.0	316.5	313.2	309.9	306.6	303.3
67.5°	285.4	275.4	265.2	258.3	254.7	251.1	247.4	243.9
70°	243.3	234.3	225.2	219.3	216.6	213.8	211.1	208.4
72.5°	205.5	197.8	190.0	184.9	182.4	179.9	177.4	174.9
75°	151.4	145.1	138.8	134.8	133.1	131.5	129.8	128.2
77.5°	107.1	103.4	99.7	97.6	97.1	96.7	96.1	95.7
80°	82.2	81.4	80.5	80.0	79.7	79.5	79.2	78.9
82.5°	63.8	63.3	62.7	62.2	62.0	61.7	61.4	61.2
85°	37.1	36.6	36.0	35.8	35.8	35.8	35.8	35.8
87.5°	20.0	20.2	20.2	20.5	20.9	21.2	21.6	21.8
90°	33.2	35.0	36.7	38.0	38.5	39.1	39.8	40.3
92.5°	55.4	56.4	57.5	58.2	58.6	58.9	59.3	59.7
95°	104.0	104.9	105.8	106.2	106.2	106.2	106.2	106.2
97.5°	163.8	164.9	165.9	166.5	166.5	166.5	166.5	166.5
100°	206.9	207.5	208.1	208.4	208.4	208.4	208.4	208.4
102.5°	252.5	253.4	254.2	254.8	255.0	255.3	255.5	255.7
105°	321.8	322.7	323.6	324.5	325.4	326.3	327.2	328.1
107.5°	396.7	397.5	398.4	398.8	398.7	398.7	398.6	398.5
110°	446.6	445.9	445.3	445.5	446.4	447.3	448.2	449.1





TEST NUMBER: P333094-940

CATALOG NUMBER: S124RDIW-S1020D1560U940-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	500.2	500.1	500.0	500.0	500.2	500.3	500.5	500.7
115°	582.9	582.6	582.4	582.0	581.8	581.5	581.1	580.9
117.5°	662.5	661.5	660.4	659.6	659.0	658.4	657.8	657.2
120°	716.3	714.9	713.4	712.9	713.5	714.1	714.7	715.3
122.5°	771.1	770.1	769.1	768.0	767.0	765.9	764.8	763.8
125°	851.2	850.7	850.1	849.4	848.8	848.3	847.7	847.0
127.5°	927.9	927.3	926.7	926.1	925.7	925.2	924.7	924.3
130°	981.7	981.1	980.4	979.5	978.4	977.2	976.0	974.8
132.5°	1032.2	1031.6	1031.0	1030.5	1030.0	1029.6	1029.0	1028.6
135°	1108.0	1107.5	1106.9	1106.1	1105.2	1104.3	1103.4	1102.5
137.5°	1181.4	1180.6	1179.8	1179.6	1179.7	1179.9	1180.1	1180.3
140°	1229.7	1229.4	1229.0	1228.8	1228.5	1228.2	1227.9	1227.6
142.5°	1275.3	1275.2	1275.2	1275.1	1275.1	1275.1	1275.0	1274.9
145°	1344.0	1343.6	1343.4	1342.7	1341.8	1341.0	1340.1	1339.2
147.5°	1406.2	1406.0	1405.7	1405.4	1405.2	1404.9	1404.5	1404.3
150°	1445.4	1445.4	1445.4	1445.3	1444.9	1444.7	1444.4	1444.0
152.5°	1482.3	1483.0	1483.7	1483.7	1482.9	1482.2	1481.4	1480.6
155°	1533.8	1535.0	1536.2	1536.2	1535.0	1533.8	1532.7	1531.4
157.5°	1579.2	1580.1	1581.0	1580.9	1579.9	1579.0	1577.9	1576.9
160°	1607.2	1608.1	1609.0	1608.6	1607.2	1605.7	1604.2	1602.7
162.5°	1632.3	1633.9	1635.5	1635.6	1634.1	1632.6	1631.1	1629.6
165°	1665.4	1667.2	1669.0	1669.4	1668.1	1667.0	1665.7	1664.6
167.5°	1693.4	1695.2	1697.0	1697.0	1695.1	1693.3	1691.4	1689.5
170°	1708.5	1710.3	1712.1	1711.9	1709.9	1707.7	1705.7	1703.5
172.5°	1719.8	1721.7	1723.8	1723.8	1721.6	1719.6	1717.4	1715.4
175°	1732.0	1734.0	1736.2	1736.2	1734.0	1732.0	1729.8	1727.8
177.5°	1738.7	1740.3	1742.0	1741.9	1739.9	1738.0	1736.2	1734.2
180°	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5

(END OF REPORT)