

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: P333093

Luminaire Tested: **S124RDIW-S1020D1560U835-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333093
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDIW-S1020D1560U835-4F0-1E-UDD-F
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, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10414.6 lumens
Efficiency: N/A
Efficacy: 136.0 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

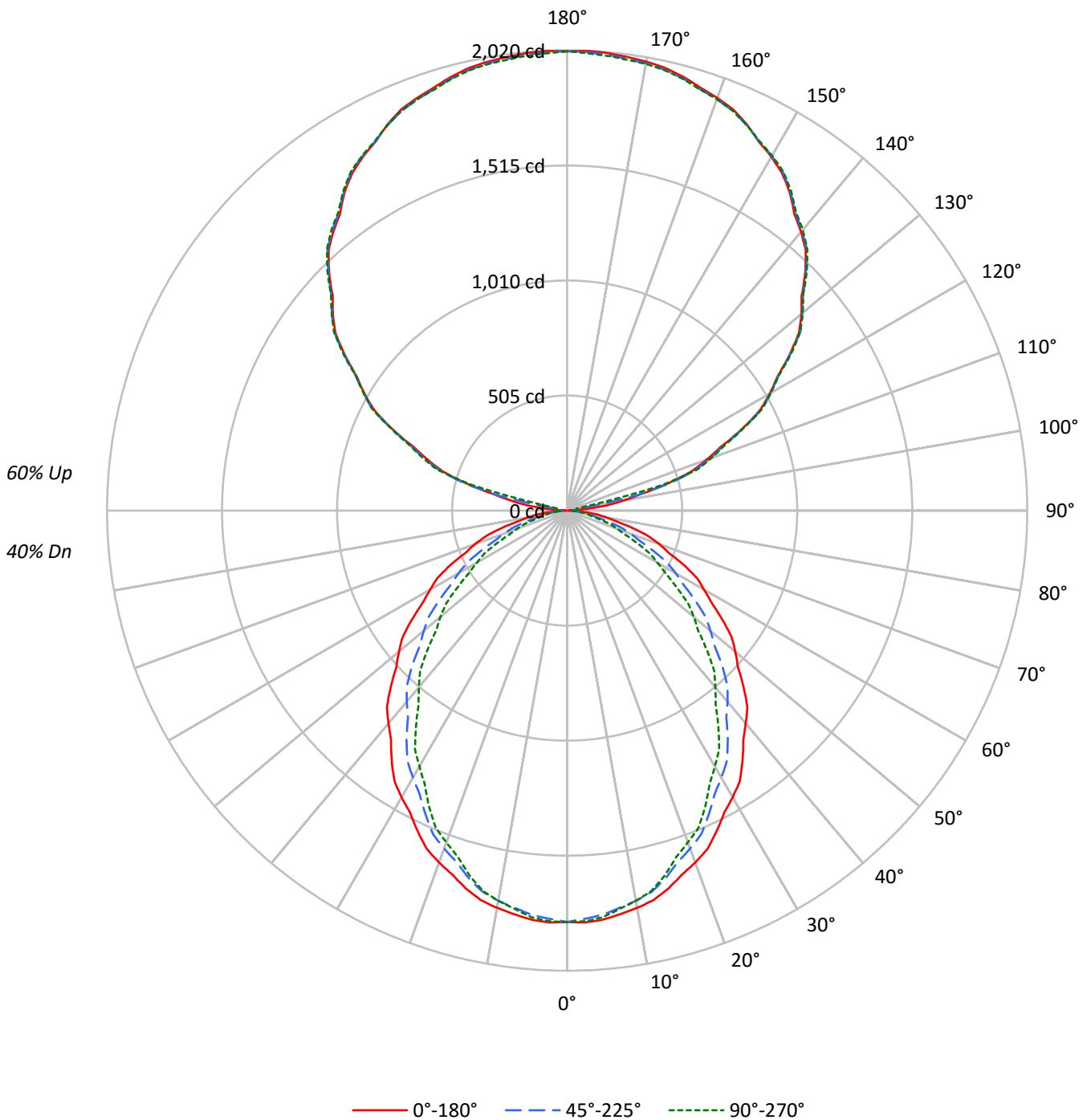
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	40				
1	96	92	88	84	87	84	80	78	68	66	64	55	53	52	42	41	40	34				
2	87	80	74	69	79	73	68	64	60	57	53	48	46	44	37	36	34	29				
3	80	71	64	58	72	65	59	54	53	49	45	43	40	37	33	31	29	25				
4	73	63	55	49	66	57	51	46	47	42	39	38	35	32	30	27	25	21				
5	67	56	48	42	61	51	44	39	42	37	33	34	31	28	27	24	22	19				
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	24	22	20	17				
7	57	45	37	32	52	42	35	30	35	29	26	28	24	22	22	20	17	15				
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	20	18	16	13				
9	49	37	30	25	45	34	28	24	29	24	20	24	20	17	19	16	14	12				
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	18	15	13	11				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	14577	14577	14577
5°	14610	14431	14521
10°	14519	14258	14258
15°	14352	13959	13855
20°	14123	13564	13315
25°	13831	13104	12772
30°	13546	12618	12089
35°	13231	12113	11404
40°	12852	11540	10666
45°	12501	10970	9913
50°	12103	10315	9117
55°	11676	9633	8251
60°	11207	8885	7367
65°	10776	7950	6497
70°	10150	6918	5516
75°	9357	5736	4485
80°	8164	4370	4114
85°	6919	3974	3714



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	169.6	1.6
10°-20°	473.0	4.5
20°-30°	683.0	6.6
30°-40°	774.2	7.4
40°-50°	747.6	7.2
50°-60°	621.7	6.0
60°-70°	429.3	4.1
70°-80°	217.6	2.1
80°-90°	61.6	0.6
90°-100°	69.0	0.7
100°-110°	439.7	4.2
110°-120°	841.1	8.1
120°-130°	1067.8	10.3
130°-140°	1142.4	11.0
140°-150°	1068.3	10.3
150°-160°	861.5	8.3
160°-170°	555.6	5.3
170°-180°	191.5	1.8
0°-30°	1325.6	12.7
0°-40°	2099.9	20.2
0°-60°	3469.2	33.3
0°-90°	4177.7	40.1
90°-120°	1349.8	13.0
90°-150°	4628.2	44.4
90°-180°	6237.0	59.9
0°-180°	10414.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1806	1806	1806	1806	1806	
5°	1803	1797	1781	1794	1792	171
15°	1717	1704	1670	1667	1658	484
25°	1553	1526	1471	1448	1434	715
35°	1342	1297	1229	1183	1157	839
45°	1095	1042	961	896	868	844
55°	830	772	684	615	586	742
65°	564	503	416	359	340	557
75°	300	248	184	153	144	317
85°	75	48	43	40	40	84
90°	4	21	33	42	45	7
95°	83	35	33	42	44	107
105°	454	463	470	480	430	475
115°	848	852	850	853	854	834
125°	1191	1197	1194	1199	1200	1063
135°	1478	1477	1482	1485	1488	1138
145°	1704	1708	1709	1710	1713	1064
155°	1868	1870	1865	1871	1867	861
165°	1971	1964	1964	1974	1962	557
175°	2016	2008	2009	2021	2004	192
180°	2016	2016	2016	2016	2016	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1810.1	1809.1	1808.1	1807.2	1806.2	1804.3	1801.6	1798.9	1796.2	1793.5	1796.2
5°	1802.9	1801.7	1800.5	1799.2	1798.0	1795.5	1791.9	1788.2	1784.5	1780.8	1783.9
7.5°	1786.6	1785.3	1784.0	1782.7	1781.4	1778.4	1773.6	1768.8	1764.0	1759.2	1761.2
10°	1771.1	1769.6	1768.0	1766.5	1765.0	1761.4	1755.9	1750.4	1744.8	1739.3	1740.5
12.5°	1751.2	1749.4	1747.6	1745.9	1744.1	1739.9	1733.4	1726.9	1720.4	1713.9	1714.6
15°	1717.2	1714.4	1711.7	1708.9	1706.1	1700.9	1693.2	1685.5	1677.9	1670.2	1669.6
17.5°	1676.0	1672.0	1668.0	1664.0	1660.0	1653.4	1644.2	1635.0	1625.8	1616.5	1614.8
20°	1643.9	1639.9	1635.9	1631.9	1627.9	1620.7	1610.3	1599.8	1589.4	1578.9	1576.5
22.5°	1608.5	1604.0	1599.5	1595.1	1590.6	1582.7	1571.6	1560.4	1549.2	1538.0	1534.3
25°	1552.7	1547.1	1541.6	1536.1	1530.5	1521.5	1508.9	1496.3	1483.7	1471.1	1465.9
27.5°	1494.0	1487.1	1480.2	1473.2	1466.3	1456.1	1442.6	1429.2	1415.7	1402.2	1395.8
30°	1453.1	1445.4	1437.8	1430.1	1422.4	1411.3	1396.9	1382.4	1368.0	1353.6	1345.9
32.5°	1410.0	1401.3	1392.6	1384.0	1375.3	1363.5	1348.6	1333.7	1318.7	1303.8	1294.9
35°	1342.5	1332.7	1322.8	1313.0	1303.2	1290.6	1275.2	1259.9	1244.5	1229.1	1218.7
37.5°	1270.3	1260.2	1250.1	1239.9	1229.8	1216.2	1199.2	1182.2	1165.1	1148.1	1136.4
40°	1219.5	1209.3	1199.2	1189.0	1178.9	1165.1	1147.6	1130.0	1112.5	1095.0	1082.1
42.5°	1170.8	1160.2	1149.5	1138.9	1128.3	1113.8	1095.6	1077.3	1059.1	1040.8	1027.7
45°	1095.0	1083.7	1072.3	1060.9	1049.5	1034.6	1016.2	997.8	979.3	960.9	945.9
47.5°	1016.8	1005.0	993.3	981.6	969.8	954.4	935.2	916.0	896.8	877.7	862.1
50°	963.7	951.7	939.7	927.7	915.7	899.9	880.3	860.6	840.9	821.3	805.9
52.5°	909.5	897.7	886.0	874.3	862.5	846.6	826.4	806.3	786.1	766.0	750.4
55°	829.6	817.3	805.0	792.7	780.4	764.3	744.3	724.3	704.4	684.4	668.4
57.5°	750.5	737.7	724.9	712.1	699.4	683.1	663.5	643.8	624.1	604.5	588.3
60°	694.1	681.8	669.5	657.2	644.9	628.9	609.3	589.6	569.9	550.3	534.3
62.5°	643.2	630.4	617.6	604.8	592.1	575.6	555.4	535.3	515.1	495.0	480.2
65°	564.1	550.9	537.7	524.5	511.3	494.8	475.2	455.5	435.8	416.2	403.0
67.5°	482.0	469.3	456.7	444.0	431.3	415.9	397.6	379.4	361.1	342.9	331.5
70°	430.0	417.1	404.2	391.3	378.4	363.2	345.7	328.1	310.6	293.1	283.0
72.5°	374.7	363.0	351.3	339.7	328.0	313.9	297.4	280.8	264.3	247.8	239.1
75°	300.0	288.7	277.3	265.9	254.6	241.6	227.2	212.8	198.3	183.9	176.8
77.5°	224.3	214.6	205.0	195.3	185.7	175.0	163.3	151.7	140.0	128.3	124.2
80°	175.6	166.7	157.8	148.9	140.0	130.9	121.7	112.5	103.2	94.0	93.1
82.5°	133.6	125.4	117.2	109.0	100.9	94.1	88.9	83.6	78.3	73.0	72.3
85°	74.7	68.5	62.4	56.2	50.1	46.5	45.6	44.7	43.8	42.9	42.2
87.5°	26.3	25.1	23.9	22.7	21.4	21.0	21.2	21.5	21.8	22.1	22.3
90°	4.5	8.2	11.9	15.6	19.3	22.5	25.1	27.8	30.5	33.2	35.2
92.5°	19.0	19.2	19.4	19.6	19.8	21.2	23.9	26.6	29.3	32.0	34.0
95°	82.9	71.5	60.2	48.8	37.4	31.8	32.2	32.5	32.8	33.2	35.2
97.5°	176.1	183.2	190.3	197.5	204.6	189.4	152.0	114.6	77.2	39.8	40.0
100°	247.3	253.4	259.4	265.4	271.4	251.3	205.1	158.8	112.6	66.4	60.7
102.5°	326.9	331.4	335.8	340.2	344.6	343.8	337.8	331.8	325.7	319.7	258.2
105°	453.9	455.9	457.9	460.0	462.0	463.8	465.5	467.2	468.8	470.5	473.5
107.5°	571.8	572.9	573.9	574.9	575.9	577.5	579.8	582.1	584.3	586.6	588.1
110°	651.5	652.5	653.5	654.5	655.5	657.0	659.0	661.0	663.0	665.0	665.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	728.7	730.5	732.3	734.1	735.9	737.3	738.2	739.2	740.1	741.1	740.9
115°	847.5	848.5	849.5	850.5	851.5	851.9	851.5	851.2	850.9	850.5	851.2
117.5°	954.6	955.9	957.3	958.6	960.0	961.0	961.7	962.5	963.2	963.9	963.8
120°	1027.0	1028.3	1029.7	1031.0	1032.3	1032.8	1032.5	1032.2	1031.8	1031.5	1032.2
122.5°	1094.5	1095.3	1096.1	1096.9	1097.8	1098.4	1098.9	1099.3	1099.8	1100.3	1100.7
125°	1191.4	1192.7	1194.0	1195.4	1196.7	1197.0	1196.4	1195.7	1195.0	1194.4	1195.4
127.5°	1283.0	1283.4	1283.7	1284.0	1284.4	1285.3	1286.9	1288.4	1289.9	1291.5	1291.3
130°	1342.2	1342.5	1342.8	1343.2	1343.5	1344.2	1345.2	1346.2	1347.2	1348.2	1348.5
132.5°	1396.4	1397.0	1397.7	1398.3	1398.9	1399.8	1401.1	1402.3	1403.6	1404.9	1405.2
135°	1477.9	1477.5	1477.2	1476.9	1476.5	1477.0	1478.4	1479.7	1481.1	1482.4	1483.1
137.5°	1550.0	1550.1	1550.2	1550.4	1550.5	1551.3	1552.8	1554.3	1555.7	1557.2	1557.9
140°	1597.0	1597.7	1598.4	1599.0	1599.7	1600.4	1601.0	1601.7	1602.4	1603.0	1604.1
142.5°	1639.2	1640.4	1641.7	1642.9	1644.1	1644.9	1645.3	1645.7	1646.1	1646.5	1647.2
145°	1704.1	1705.1	1706.1	1707.1	1708.1	1708.6	1708.6	1708.6	1708.6	1708.6	1708.9
147.5°	1755.7	1757.5	1759.4	1761.3	1763.2	1763.9	1763.6	1763.3	1762.9	1762.6	1762.9
150°	1793.1	1794.4	1795.7	1797.1	1798.4	1798.9	1798.6	1798.3	1797.9	1797.6	1797.6
152.5°	1824.4	1825.5	1826.6	1827.6	1828.7	1829.0	1828.3	1827.7	1827.1	1826.5	1827.1
155°	1868.5	1868.8	1869.1	1869.5	1869.8	1869.5	1868.5	1867.5	1866.5	1865.4	1866.8
157.5°	1905.6	1905.4	1905.2	1905.0	1904.8	1904.1	1902.9	1901.8	1900.7	1899.5	1901.3
160°	1927.3	1926.3	1925.3	1924.3	1923.3	1922.6	1922.2	1921.9	1921.6	1921.2	1923.3
162.5°	1946.6	1945.3	1944.0	1942.8	1941.5	1940.7	1940.3	1940.0	1939.7	1939.3	1941.3
165°	1971.0	1969.3	1967.7	1966.0	1964.3	1963.5	1963.5	1963.5	1963.5	1963.5	1966.1
167.5°	1990.3	1988.6	1986.8	1985.1	1983.3	1982.4	1982.2	1982.0	1981.8	1981.6	1984.5
170°	2001.2	1999.2	1997.1	1995.1	1993.1	1992.3	1992.6	1993.0	1993.3	1993.6	1996.3
172.5°	2008.4	2006.4	2004.4	2002.4	2000.4	1999.5	1999.9	2000.2	2000.5	2000.9	2003.5
175°	2016.2	2014.2	2012.2	2010.2	2008.2	2007.4	2007.7	2008.0	2008.4	2008.7	2011.7
177.5°	2019.9	2018.0	2016.1	2014.2	2012.4	2011.7	2012.2	2012.8	2013.3	2013.8	2016.0
180°	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1798.9	1801.6	1804.3	1805.6	1805.3	1805.1	1804.8	1804.6
5°	1786.9	1790.0	1793.1	1794.3	1793.7	1793.1	1792.5	1791.9
7.5°	1763.2	1765.1	1767.1	1767.6	1766.6	1765.6	1764.6	1763.6
10°	1741.8	1743.0	1744.2	1744.2	1743.0	1741.8	1740.5	1739.3
12.5°	1715.3	1716.1	1716.8	1716.3	1714.6	1712.9	1711.2	1709.5
15°	1669.0	1668.3	1667.7	1666.3	1664.2	1662.0	1659.9	1657.7
17.5°	1613.1	1611.4	1609.7	1607.2	1603.9	1600.7	1597.4	1594.1
20°	1574.0	1571.6	1569.1	1565.9	1561.9	1557.9	1553.9	1549.9
22.5°	1530.6	1526.9	1523.3	1519.8	1516.5	1513.3	1510.0	1506.8
25°	1460.6	1455.4	1450.2	1446.0	1443.0	1439.9	1436.8	1433.8
27.5°	1389.3	1382.9	1376.4	1371.0	1366.6	1362.1	1357.7	1353.3
30°	1338.2	1330.5	1322.8	1316.5	1311.6	1306.7	1301.8	1296.9
32.5°	1286.0	1277.1	1268.2	1261.4	1256.7	1252.0	1247.4	1242.7
35°	1208.2	1197.8	1187.3	1179.4	1173.8	1168.3	1162.8	1157.2
37.5°	1124.8	1113.1	1101.4	1092.8	1087.3	1081.7	1076.2	1070.7
40°	1069.2	1056.3	1043.4	1034.2	1028.7	1023.1	1017.6	1012.1
42.5°	1014.5	1001.4	988.2	978.8	973.0	967.2	961.4	955.7
45°	930.8	915.7	900.7	890.4	884.9	879.3	873.8	868.3
47.5°	846.5	830.9	815.2	804.4	798.3	792.2	786.1	780.1
50°	790.5	775.2	759.8	749.2	743.4	737.5	731.7	725.9
52.5°	734.7	719.1	703.5	692.7	686.6	680.5	674.4	668.4
55°	652.4	636.5	620.5	609.6	603.7	597.9	592.1	586.2
57.5°	572.0	555.8	539.6	529.3	524.8	520.4	516.0	511.6
60°	518.3	502.3	486.4	475.9	471.0	466.1	461.2	456.3
62.5°	465.5	450.7	436.0	426.6	422.7	418.8	414.8	410.9
65°	389.7	376.5	363.3	354.9	351.2	347.5	343.8	340.1
67.5°	320.1	308.8	297.4	289.7	285.6	281.6	277.5	273.5
70°	272.8	262.7	252.6	245.9	242.9	239.8	236.7	233.7
72.5°	230.4	221.8	213.1	207.4	204.5	201.7	198.9	196.1
75°	169.8	162.7	155.6	151.2	149.3	147.5	145.6	143.8
77.5°	120.1	116.0	111.8	109.5	108.9	108.4	107.8	107.3
80°	92.2	91.3	90.3	89.7	89.4	89.1	88.8	88.5
82.5°	71.6	71.0	70.3	69.8	69.5	69.2	68.9	68.6
85°	41.6	41.0	40.4	40.1	40.1	40.1	40.1	40.1
87.5°	22.4	22.6	22.7	23.0	23.4	23.8	24.2	24.5
90°	37.2	39.2	41.2	42.6	43.2	43.9	44.6	45.2
92.5°	36.0	38.0	40.0	41.1	41.2	41.4	41.5	41.6
95°	37.2	39.2	41.2	42.4	42.7	43.1	43.4	43.7
97.5°	40.2	40.4	40.6	40.9	41.2	41.6	41.9	42.2
100°	55.0	49.3	43.6	40.9	41.2	41.6	41.9	42.2
102.5°	196.8	135.3	73.9	43.2	43.2	43.3	43.4	43.4
105°	476.5	479.6	482.6	478.0	466.0	453.9	441.9	429.8
107.5°	589.6	591.1	592.5	593.9	595.2	596.4	597.7	599.0
110°	666.4	667.1	667.7	668.6	669.6	670.6	671.6	672.6



TEST NUMBER: P333093

CATALOG NUMBER: S124RDIW-S1020D1560U835-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	740.8	740.6	740.5	741.1	742.4	743.6	744.9	746.2
115°	851.9	852.5	853.2	853.6	853.6	853.6	853.6	853.6
117.5°	963.7	963.5	963.4	963.3	963.1	963.0	962.9	962.7
120°	1032.8	1033.5	1034.2	1034.2	1033.5	1032.8	1032.2	1031.5
122.5°	1101.1	1101.5	1101.9	1101.7	1101.1	1100.4	1099.7	1099.1
125°	1196.4	1197.4	1198.4	1199.1	1199.4	1199.7	1200.1	1200.4
127.5°	1291.1	1290.9	1290.7	1290.4	1290.2	1289.9	1289.6	1289.4
130°	1348.9	1349.2	1349.5	1349.7	1349.7	1349.7	1349.7	1349.7
132.5°	1405.6	1405.9	1406.2	1406.3	1406.0	1405.7	1405.5	1405.2
135°	1483.7	1484.4	1485.1	1485.8	1486.4	1487.1	1487.8	1488.4
137.5°	1558.7	1559.4	1560.2	1560.4	1560.2	1560.0	1559.8	1559.6
140°	1605.1	1606.1	1607.1	1607.7	1608.1	1608.4	1608.7	1609.1
142.5°	1648.0	1648.7	1649.4	1649.8	1649.9	1650.0	1650.0	1650.1
145°	1709.3	1709.6	1709.9	1710.5	1711.1	1711.8	1712.5	1713.1
147.5°	1763.1	1763.4	1763.7	1764.0	1764.3	1764.6	1765.0	1765.3
150°	1797.6	1797.6	1797.6	1797.8	1798.1	1798.4	1798.8	1799.1
152.5°	1827.6	1828.1	1828.7	1828.8	1828.6	1828.4	1828.2	1828.0
155°	1868.1	1869.5	1870.8	1871.0	1870.0	1869.0	1868.0	1867.0
157.5°	1903.0	1904.8	1906.5	1906.5	1904.8	1903.0	1901.3	1899.5
160°	1925.3	1927.3	1929.3	1929.3	1927.3	1925.3	1923.3	1921.2
162.5°	1943.4	1945.4	1947.4	1947.2	1945.0	1942.7	1940.4	1938.1
165°	1968.8	1971.5	1974.2	1974.0	1971.0	1968.0	1965.0	1962.0
167.5°	1987.5	1990.4	1993.4	1993.2	1989.8	1986.5	1983.1	1979.8
170°	1999.0	2001.7	2004.4	2004.0	2000.7	1997.3	1994.0	1990.6
172.5°	2006.2	2008.9	2011.6	2011.1	2007.5	2003.9	2000.3	1996.6
175°	2014.7	2017.8	2020.8	2020.3	2016.2	2012.2	2008.2	2004.2
177.5°	2018.1	2020.3	2022.4	2021.9	2018.7	2015.4	2012.2	2009.0
180°	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2

(END OF REPORT)