

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: P332834-930

Luminaire Tested: **S124DIW-S1020D1560U930-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332834-930  
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: S124DIW-S1020D1560U930-4F0-1E-UDD-F1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8024.8 lumens  
Efficiency: N/A  
Efficacy: 104.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: General Diffuse

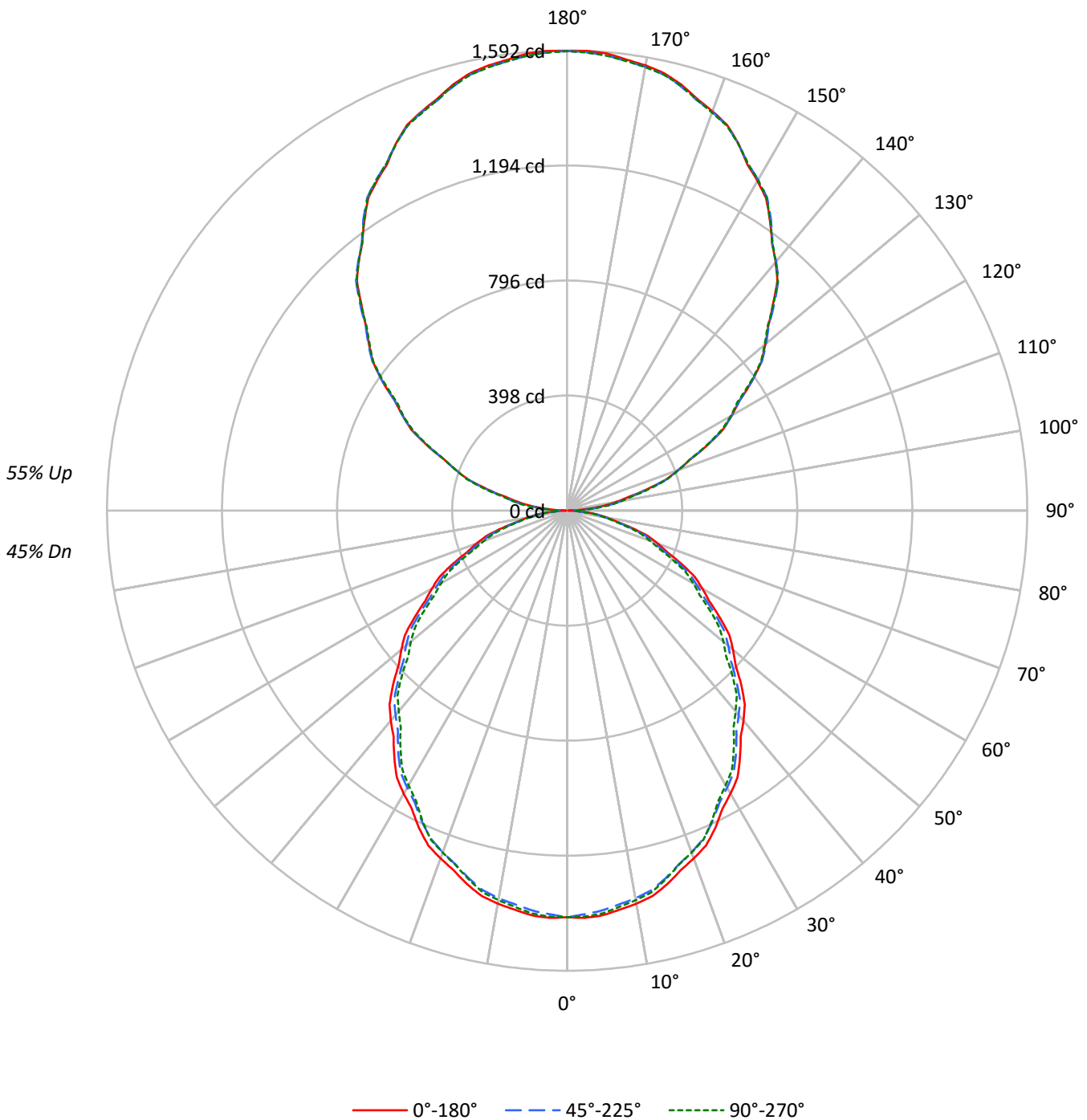
Input Watts (W): 76.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332834-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-F1

### Luminous Intensity Polar Plot





TEST NUMBER: P332834-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-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	50	30	10	50	30	10	0		
RCR																										
0	106	106	106	106	97	97	97	97	81	81	81	65	65	65	52	52	52	45					45			
1	97	92	88	85	88	85	81	78	71	68	66	58	56	54	45	44	43	38					38			
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	37	32					32			
3	80	71	64	58	73	65	59	54	54	50	46	45	41	38	35	33	31	27					27			
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23					23			
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23	20					20			
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21	18					18			
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16					16			
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14					14			
9	49	37	30	25	45	35	28	23	29	24	20	25	21	18	20	17	15	13					13			
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11					11			

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

	0°	45°	90°
0°	11357	11357	11357
5°	11391	11255	11336
10°	11320	11163	11218
15°	11183	11004	11032
20°	11001	10808	10817
25°	10794	10583	10553
30°	10540	10318	10224
35°	10276	10042	9909
40°	10003	9729	9551
45°	9717	9421	9240
50°	9401	9146	8862
55°	9060	8790	8504
60°	8719	8391	8136
65°	8334	8010	7687
70°	7903	7504	7211
75°	7243	6890	6716
80°	6448	6183	6025
85°	5641	5428	5326



TEST NUMBER: P332834-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-F1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	132.5	1.7
10°-20°	373.3	4.7
20°-30°	549.4	6.8
30°-40°	638.7	8.0
40°-50°	638.7	8.0
50°-60°	558.7	7.0
60°-70°	414.9	5.2
70°-80°	235.7	2.9
80°-90°	72.8	0.9
90°-100°	104.8	1.3
100°-110°	310.6	3.9
110°-120°	527.1	6.6
120°-130°	695.1	8.7
130°-140°	780.6	9.7
140°-150°	767.1	9.6
150°-160°	645.2	8.0
160°-170°	429.2	5.3
170°-180°	150.3	1.9
0°-30°	1055.2	13.1
0°-40°	1693.9	21.1
0°-60°	2891.3	36.0
0°-90°	3614.8	45.0
90°-120°	942.5	11.7
90°-150°	3185.3	39.7
90°-180°	4410.0	55.0
0°-180°	8024.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1407	1407	1407	1407	1407	
5°	1406	1401	1389	1400	1399	133
15°	1338	1333	1317	1323	1320	377
25°	1212	1204	1188	1189	1185	557
35°	1043	1034	1019	1011	1006	652
45°	851	843	825	813	809	656
55°	644	640	624	611	604	576
65°	436	430	419	408	402	432
75°	232	227	221	217	215	247
85°	61	61	59	59	58	67
90°	4	17	27	34	37	8
95°	74	85	93	97	97	82
105°	286	288	293	296	300	304
115°	536	536	534	532	531	528
125°	781	781	779	777	774	695
135°	1007	1014	1014	1012	1008	779
145°	1223	1228	1229	1228	1224	765
155°	1401	1401	1400	1405	1400	645
165°	1526	1522	1520	1526	1522	430
175°	1587	1581	1580	1587	1580	151
180°	1590	1590	1590	1590	1590	



TEST NUMBER: P332834-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8
2.5°	1410.4	1409.8	1409.2	1408.6	1408.0	1406.6	1404.4	1402.2	1400.0	1397.7	1399.8
5°	1405.7	1404.7	1403.7	1402.6	1401.7	1399.8	1397.0	1394.2	1391.6	1388.8	1391.6
7.5°	1392.6	1391.6	1390.6	1389.6	1388.6	1386.6	1383.5	1380.5	1377.4	1374.4	1376.6
10°	1380.9	1379.9	1378.8	1377.9	1376.9	1374.8	1371.5	1368.2	1365.0	1361.7	1363.7
12.5°	1365.5	1364.6	1363.5	1362.5	1361.5	1359.3	1355.8	1352.4	1348.9	1345.5	1347.7
15°	1338.1	1337.0	1336.0	1335.1	1334.0	1331.6	1327.9	1324.1	1320.4	1316.6	1318.1
17.5°	1304.9	1303.7	1302.4	1301.1	1299.9	1297.5	1293.9	1290.4	1286.8	1283.3	1284.2
20°	1280.5	1279.3	1278.1	1276.8	1275.5	1273.0	1269.3	1265.5	1261.8	1258.0	1258.7
22.5°	1254.4	1252.7	1251.1	1249.4	1247.8	1245.0	1241.3	1237.5	1233.8	1230.0	1231.4
25°	1211.8	1210.1	1208.3	1206.5	1204.8	1202.2	1198.7	1195.1	1191.6	1188.1	1188.4
27.5°	1163.1	1161.3	1159.4	1157.6	1155.8	1153.3	1150.1	1146.8	1143.5	1140.3	1139.7
30°	1130.7	1128.6	1126.6	1124.6	1122.6	1120.0	1116.7	1113.5	1110.2	1106.9	1106.0
32.5°	1096.3	1094.5	1092.7	1091.0	1089.2	1086.5	1083.0	1079.6	1076.1	1072.7	1071.5
35°	1042.7	1041.0	1039.2	1037.5	1035.7	1033.1	1029.6	1026.1	1022.5	1019.0	1017.2
37.5°	986.1	984.5	982.9	981.3	979.7	977.1	973.2	969.5	965.7	962.0	960.1
40°	949.2	947.1	945.1	943.1	941.1	938.2	934.5	930.7	927.0	923.2	920.7
42.5°	909.5	908.2	907.0	905.9	904.7	902.0	897.8	893.6	889.5	885.3	882.4
45°	851.1	849.3	847.6	845.8	844.1	841.1	837.1	833.2	829.2	825.2	822.4
47.5°	789.9	788.8	787.6	786.4	785.1	782.7	779.0	775.3	771.6	767.8	764.8
50°	748.5	747.5	746.5	745.5	744.4	742.2	738.7	735.2	731.7	728.2	724.7
52.5°	707.9	706.7	705.5	704.3	703.1	700.7	696.9	693.2	689.5	685.8	682.7
55°	643.7	642.9	642.1	641.4	640.7	638.5	635.0	631.5	628.0	624.5	621.5
57.5°	582.4	581.5	580.7	579.8	578.9	576.7	573.3	569.9	566.4	563.0	560.1
60°	540.0	538.7	537.4	536.2	534.9	532.7	529.5	526.2	522.9	519.7	517.4
62.5°	498.5	497.4	496.4	495.3	494.2	492.0	488.5	485.1	481.6	478.2	476.1
65°	436.3	435.0	433.7	432.5	431.2	429.3	426.8	424.4	421.8	419.3	416.9
67.5°	373.6	372.4	371.3	370.1	368.9	367.2	364.8	362.4	360.0	357.6	355.1
70°	334.8	333.0	331.3	329.5	327.8	325.9	323.9	321.9	319.9	317.9	315.8
72.5°	293.3	291.6	289.8	288.0	286.3	284.6	283.0	281.4	279.8	278.2	276.6
75°	232.2	231.0	229.7	228.4	227.2	225.9	224.7	223.5	222.2	220.9	220.0
77.5°	173.8	173.3	172.7	172.2	171.6	170.8	169.7	168.6	167.5	166.4	166.1
80°	138.7	137.9	137.1	136.4	135.7	135.0	134.5	134.0	133.5	133.0	132.5
82.5°	104.4	104.0	103.7	103.3	103.0	102.7	102.6	102.6	102.5	102.3	102.1
85°	60.9	60.9	60.9	60.9	60.9	60.7	60.1	59.6	59.1	58.6	58.6
87.5°	24.2	24.6	24.9	25.4	25.8	26.1	26.3	26.6	26.8	27.1	27.4
90°	3.7	6.7	9.7	12.7	15.7	18.3	20.5	22.7	24.9	27.1	28.7
92.5°	26.3	29.8	33.2	36.6	40.1	42.6	44.1	45.7	47.1	48.7	49.7
95°	73.8	76.2	78.7	81.1	83.6	85.8	87.7	89.6	91.6	93.4	94.2
97.5°	128.8	130.8	132.7	134.8	136.7	138.8	141.0	143.2	145.5	147.7	148.7
100°	172.1	173.2	174.3	175.4	176.5	178.2	180.8	183.2	185.6	188.1	188.7
102.5°	217.4	217.8	218.3	218.7	219.1	220.5	222.7	224.9	227.1	229.4	230.2
105°	286.4	286.7	287.0	287.2	287.6	288.2	289.3	290.4	291.5	292.6	293.4
107.5°	359.0	359.3	359.6	360.0	360.3	360.5	360.7	360.9	361.0	361.2	361.9
110°	408.1	408.7	409.2	409.8	410.3	410.5	410.2	409.9	409.6	409.4	408.8



TEST NUMBER: P332834-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	459.3	459.4	459.5	459.6	459.7	459.5	459.0	458.5	458.0	457.5	457.5
115°	536.0	536.0	536.0	536.0	536.0	535.7	535.2	534.6	534.1	533.5	533.3
117.5°	608.3	608.5	608.7	608.9	609.2	609.1	608.7	608.3	607.9	607.6	606.6
120°	656.5	657.5	658.7	659.7	660.8	661.0	660.1	659.3	658.5	657.7	656.3
122.5°	706.6	707.0	707.5	707.9	708.3	708.4	708.0	707.6	707.3	706.9	706.0
125°	780.6	780.6	780.6	780.6	780.6	780.5	780.2	779.9	779.7	779.4	778.9
127.5°	847.7	848.6	849.4	850.2	851.0	851.3	850.8	850.4	849.9	849.5	848.9
130°	895.0	895.8	896.6	897.4	898.2	898.6	898.6	898.6	898.6	898.6	898.1
132.5°	943.1	943.8	944.4	944.9	945.6	945.7	945.5	945.3	945.1	944.9	944.4
135°	1006.8	1008.4	1010.1	1011.8	1013.4	1014.2	1014.2	1014.2	1014.2	1014.2	1013.7
137.5°	1076.2	1076.9	1077.7	1078.5	1079.2	1079.9	1080.3	1080.7	1081.2	1081.6	1080.8
140°	1122.4	1122.9	1123.5	1124.1	1124.5	1124.9	1124.9	1124.9	1124.9	1124.9	1124.5
142.5°	1164.7	1165.2	1165.8	1166.3	1166.9	1167.0	1166.8	1166.6	1166.4	1166.1	1166.1
145°	1223.2	1224.3	1225.4	1226.5	1227.6	1228.2	1228.5	1228.8	1229.1	1229.3	1229.1
147.5°	1281.2	1282.5	1283.9	1285.2	1286.5	1287.0	1286.8	1286.5	1286.4	1286.1	1285.9
150°	1316.6	1317.7	1318.8	1319.9	1321.0	1321.5	1321.5	1321.5	1321.5	1321.5	1321.5
152.5°	1350.1	1350.7	1351.4	1352.0	1352.7	1353.2	1353.3	1353.6	1353.8	1354.0	1354.6
155°	1401.4	1401.4	1401.4	1401.4	1401.4	1401.3	1401.0	1400.8	1400.5	1400.2	1401.3
157.5°	1444.7	1444.2	1443.7	1443.2	1442.8	1442.5	1442.4	1442.3	1442.3	1442.3	1443.1
160°	1470.3	1470.0	1469.7	1469.5	1469.2	1468.9	1468.7	1468.4	1468.1	1467.9	1468.7
162.5°	1493.9	1493.2	1492.5	1491.8	1491.0	1490.5	1490.3	1490.0	1489.7	1489.5	1490.9
165°	1525.6	1524.8	1524.0	1523.1	1522.3	1521.7	1521.1	1520.5	1520.0	1519.5	1521.1
167.5°	1550.0	1548.8	1547.7	1546.5	1545.4	1544.8	1544.9	1544.9	1545.0	1545.1	1546.7
170°	1563.7	1562.4	1561.0	1559.6	1558.3	1557.7	1558.0	1558.3	1558.5	1558.8	1560.4
172.5°	1573.5	1572.4	1571.2	1570.1	1569.0	1568.4	1568.5	1568.6	1568.6	1568.6	1570.5
175°	1587.1	1585.7	1584.4	1583.0	1581.6	1580.8	1580.5	1580.2	1580.0	1579.7	1581.6
177.5°	1591.5	1590.4	1589.3	1588.2	1587.1	1586.6	1586.6	1586.6	1586.6	1586.6	1588.1
180°	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5



TEST NUMBER: P332834-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8
2.5°	1401.7	1403.8	1405.8	1406.7	1406.5	1406.3	1406.1	1405.9
5°	1394.2	1397.0	1399.8	1400.9	1400.4	1399.9	1399.4	1398.9
7.5°	1378.8	1381.0	1383.2	1384.1	1383.8	1383.5	1383.2	1382.9
10°	1365.7	1367.7	1369.7	1370.4	1369.9	1369.5	1369.0	1368.5
12.5°	1349.9	1352.1	1354.3	1355.0	1354.4	1353.6	1352.9	1352.3
15°	1319.6	1321.1	1322.7	1323.0	1322.3	1321.5	1320.8	1320.0
17.5°	1285.2	1286.1	1287.0	1287.3	1286.8	1286.3	1285.8	1285.2
20°	1259.5	1260.3	1261.0	1261.1	1260.6	1260.1	1259.6	1259.1
22.5°	1232.7	1234.1	1235.4	1235.7	1234.8	1233.9	1233.0	1232.1
25°	1188.6	1188.9	1189.1	1188.7	1187.7	1186.7	1185.7	1184.7
27.5°	1139.1	1138.5	1137.9	1137.0	1135.7	1134.5	1133.2	1132.0
30°	1105.0	1103.9	1102.9	1101.8	1100.6	1099.3	1098.0	1096.8
32.5°	1070.2	1069.1	1067.9	1066.7	1065.4	1064.1	1062.9	1061.6
35°	1015.5	1013.7	1012.0	1010.5	1009.3	1008.0	1006.7	1005.5
37.5°	958.1	956.3	954.4	952.6	951.0	949.3	947.6	946.0
40°	918.2	915.7	913.2	911.3	910.0	908.8	907.6	906.3
42.5°	879.5	876.6	873.7	871.8	871.0	870.1	869.3	868.5
45°	819.6	816.8	814.1	812.4	811.6	810.9	810.1	809.3
47.5°	761.7	758.6	755.5	752.9	751.1	749.1	747.2	745.3
50°	721.2	717.7	714.2	711.7	710.1	708.7	707.2	705.6
52.5°	679.6	676.5	673.4	670.9	669.0	667.1	665.2	663.2
55°	618.5	615.5	612.5	610.3	608.7	607.2	605.7	604.2
57.5°	557.3	554.4	551.5	549.3	547.9	546.5	545.0	543.6
60°	515.2	512.9	510.6	508.9	507.6	506.4	505.2	503.9
62.5°	474.1	472.0	469.9	468.3	467.1	465.8	464.6	463.3
65°	414.3	411.8	409.3	407.4	406.2	405.0	403.7	402.4
67.5°	352.8	350.3	348.0	346.6	346.2	345.8	345.5	345.2
70°	313.9	311.9	309.9	308.5	307.8	307.0	306.2	305.5
72.5°	275.0	273.4	271.8	270.6	269.9	269.1	268.4	267.6
75°	218.9	217.9	217.0	216.3	216.1	215.8	215.6	215.3
77.5°	165.8	165.5	165.2	164.7	164.0	163.4	162.7	162.1
80°	132.0	131.5	131.0	130.6	130.4	130.1	129.9	129.6
82.5°	101.7	101.4	101.2	100.9	100.6	100.4	100.1	99.9
85°	58.6	58.6	58.6	58.5	58.2	58.0	57.7	57.5
87.5°	27.7	28.0	28.4	28.6	28.7	28.8	28.9	29.0
90°	30.3	32.0	33.6	34.7	35.2	35.8	36.4	36.9
92.5°	50.6	51.6	52.6	53.2	53.6	53.9	54.2	54.5
95°	95.1	95.9	96.7	97.1	97.1	97.1	97.1	97.1
97.5°	149.8	150.7	151.7	152.2	152.2	152.2	152.2	152.2
100°	189.1	189.7	190.3	190.5	190.5	190.5	190.5	190.5
102.5°	230.9	231.7	232.4	232.9	233.2	233.4	233.6	233.8
105°	294.2	295.1	295.9	296.7	297.5	298.3	299.1	299.9
107.5°	362.7	363.5	364.3	364.6	364.5	364.5	364.4	364.4
110°	408.3	407.7	407.2	407.3	408.1	409.0	409.8	410.6





TEST NUMBER: P332834-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	457.3	457.2	457.1	457.1	457.3	457.5	457.6	457.8
115°	533.0	532.7	532.5	532.1	531.9	531.7	531.3	531.1
117.5°	605.7	604.8	603.8	603.1	602.5	602.0	601.4	600.9
120°	654.9	653.6	652.2	651.8	652.4	652.9	653.5	654.0
122.5°	705.0	704.1	703.2	702.2	701.2	700.3	699.3	698.3
125°	778.3	777.8	777.2	776.7	776.1	775.6	775.0	774.5
127.5°	848.4	847.8	847.3	846.8	846.4	846.0	845.5	845.1
130°	897.6	897.0	896.4	895.6	894.5	893.5	892.3	891.3
132.5°	943.8	943.2	942.6	942.2	941.8	941.3	940.9	940.4
135°	1013.1	1012.6	1012.0	1011.3	1010.5	1009.7	1008.9	1008.0
137.5°	1080.2	1079.5	1078.7	1078.5	1078.6	1078.8	1079.0	1079.1
140°	1124.3	1124.1	1123.7	1123.5	1123.2	1122.9	1122.7	1122.4
142.5°	1166.0	1166.0	1166.0	1165.9	1165.8	1165.8	1165.7	1165.6
145°	1228.8	1228.5	1228.2	1227.7	1226.9	1226.0	1225.2	1224.4
147.5°	1285.7	1285.5	1285.2	1285.0	1284.7	1284.5	1284.2	1283.9
150°	1321.5	1321.5	1321.5	1321.4	1321.1	1320.9	1320.6	1320.3
152.5°	1355.3	1355.9	1356.6	1356.6	1355.8	1355.2	1354.5	1353.7
155°	1402.4	1403.5	1404.6	1404.6	1403.5	1402.4	1401.3	1400.2
157.5°	1443.9	1444.7	1445.5	1445.4	1444.5	1443.7	1442.7	1441.8
160°	1469.5	1470.3	1471.1	1470.8	1469.5	1468.1	1466.7	1465.3
162.5°	1492.4	1493.9	1495.3	1495.4	1494.0	1492.7	1491.3	1490.0
165°	1522.7	1524.4	1526.0	1526.3	1525.2	1524.1	1523.0	1521.9
167.5°	1548.3	1550.0	1551.6	1551.6	1549.9	1548.2	1546.5	1544.7
170°	1562.1	1563.7	1565.4	1565.2	1563.3	1561.4	1559.5	1557.5
172.5°	1572.4	1574.2	1576.1	1576.1	1574.1	1572.2	1570.3	1568.4
175°	1583.6	1585.4	1587.4	1587.4	1585.4	1583.6	1581.6	1579.7
177.5°	1589.7	1591.1	1592.7	1592.6	1590.8	1589.1	1587.4	1585.6
180°	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5

(END OF REPORT)