

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: P332816-930

Luminaire Tested: **S124DIW-S1020D770U930-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332816-930  
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-S1020D770U930-4F0-1E-UDD-F1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 770 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5783.1 lumens  
Efficiency: N/A  
Efficacy: 107.9 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: Semi-Direct

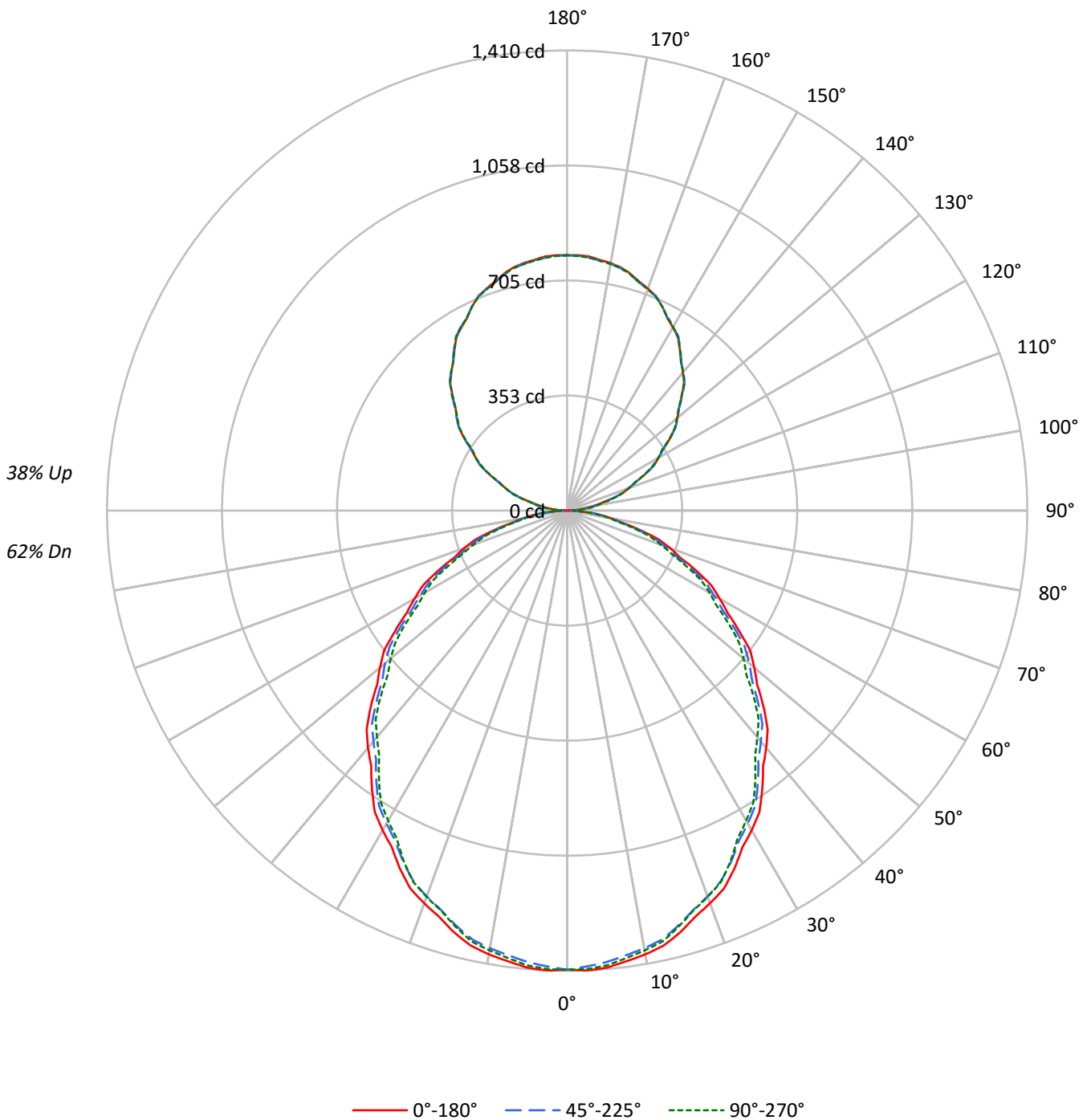
Input Watts (W): 53.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	110	110	110	110	103	103	103	103	90	90	90	78	78	78	68	68	68	62
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	60	58	57	53
2	92	84	78	72	86	79	73	69	69	65	61	61	57	55	52	50	48	44
3	84	74	66	60	78	69	63	57	61	56	52	54	50	46	47	43	41	37
4	76	65	57	51	71	62	54	49	54	49	44	48	43	40	42	38	35	32
5	70	58	50	44	66	55	48	42	49	43	38	43	38	34	37	34	31	28
6	65	52	44	38	60	49	42	37	44	38	33	39	34	30	34	30	27	24
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24	22
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	29	25	22	19
9	52	39	32	27	49	37	30	26	34	28	24	30	25	22	26	22	20	17
10	49	36	29	24	46	34	28	23	31	25	21	28	23	19	25	21	18	16

**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: P332816-930

CATALOG NUMBER: S124DIW-S1020D770U930-4F0-1E-UDD-F1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	132.5	2.3
10°-20°	373.3	6.5
20°-30°	549.4	9.5
30°-40°	638.7	11.0
40°-50°	638.7	11.0
50°-60°	558.7	9.7
60°-70°	414.9	7.2
70°-80°	235.7	4.1
80°-90°	70.4	1.2
90°-100°	51.6	0.9
100°-110°	152.9	2.6
110°-120°	259.5	4.5
120°-130°	342.1	5.9
130°-140°	384.2	6.6
140°-150°	377.6	6.5
150°-160°	317.6	5.5
160°-170°	211.3	3.7
170°-180°	74.0	1.3
0°-30°	1055.2	18.2
0°-40°	1693.9	29.3
0°-60°	2891.3	50.0
0°-90°	3612.4	62.5
90°-120°	463.9	8.0
90°-150°	1567.9	27.1
90°-180°	2171.0	37.5
0°-180°	5783.1	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°	2	8	13	17	18	6
95°	36	42	46	48	48	40
105°	141	142	144	146	148	150
115°	264	264	263	262	261	260
125°	384	384	384	382	381	342
135°	496	499	499	498	496	383
145°	602	604	605	604	603	377
155°	690	690	689	691	689	317
165°	751	749	748	751	749	212
175°	781	778	778	781	778	74
180°	782	782	782	782	782	



TEST NUMBER: P332816-930

CATALOG NUMBER: S124DIW-S1020D770U930-4F0-1E-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°	23.8	23.9	24.0	24.1	24.2	24.2	24.3	24.3	24.3	24.3	24.5
90°	1.8	3.3	4.8	6.3	7.7	9.0	10.1	11.2	12.2	13.3	14.1
92.5°	13.0	14.7	16.3	18.0	19.7	21.0	21.7	22.4	23.2	24.0	24.5
95°	36.3	37.5	38.7	39.9	41.2	42.2	43.1	44.1	45.1	46.0	46.4
97.5°	63.4	64.4	65.4	66.3	67.3	68.3	69.5	70.5	71.7	72.7	73.2
100°	84.7	85.3	85.8	86.3	86.8	87.7	88.9	90.2	91.4	92.6	92.9
102.5°	107.0	107.2	107.4	107.6	107.9	108.5	109.6	110.7	111.8	112.9	113.3
105°	141.0	141.1	141.3	141.4	141.5	141.9	142.4	142.9	143.5	144.0	144.4
107.5°	176.7	176.8	177.0	177.2	177.3	177.5	177.6	177.7	177.7	177.8	178.1
110°	200.9	201.1	201.5	201.7	201.9	202.0	201.9	201.8	201.6	201.5	201.2



TEST NUMBER: P332816-930

CATALOG NUMBER: S124DIW-S1020D770U930-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	226.1	226.1	226.2	226.2	226.2	226.2	225.9	225.7	225.4	225.2	225.2
115°	263.8	263.8	263.8	263.8	263.8	263.7	263.4	263.2	262.9	262.6	262.4
117.5°	299.4	299.5	299.6	299.7	299.9	299.8	299.6	299.5	299.2	299.1	298.6
120°	323.1	323.7	324.2	324.7	325.3	325.3	325.0	324.6	324.2	323.8	323.0
122.5°	347.8	348.1	348.2	348.5	348.7	348.7	348.5	348.3	348.1	348.0	347.5
125°	384.3	384.3	384.3	384.3	384.3	384.2	384.0	383.9	383.8	383.6	383.4
127.5°	417.3	417.7	418.1	418.5	418.9	419.0	418.7	418.6	418.3	418.2	417.8
130°	440.5	440.9	441.3	441.7	442.1	442.3	442.3	442.3	442.3	442.3	442.1
132.5°	464.2	464.6	464.8	465.1	465.5	465.5	465.4	465.3	465.2	465.0	464.8
135°	495.6	496.4	497.2	498.0	498.8	499.2	499.2	499.2	499.2	499.2	499.0
137.5°	529.7	530.1	530.4	530.8	531.2	531.5	531.7	531.9	532.1	532.4	532.0
140°	552.4	552.7	553.0	553.3	553.5	553.7	553.7	553.7	553.7	553.7	553.5
142.5°	573.2	573.6	573.8	574.1	574.4	574.5	574.3	574.2	574.1	574.0	574.0
145°	602.1	602.6	603.2	603.7	604.2	604.5	604.7	604.9	605.0	605.1	605.0
147.5°	630.6	631.3	631.9	632.6	633.2	633.5	633.4	633.2	633.2	633.1	632.9
150°	648.1	648.6	649.1	649.7	650.2	650.5	650.5	650.5	650.5	650.5	650.5
152.5°	664.6	664.9	665.2	665.5	665.9	666.0	666.1	666.3	666.3	666.4	666.8
155°	689.8	689.8	689.8	689.8	689.8	689.7	689.6	689.5	689.3	689.3	689.7
157.5°	711.1	710.9	710.6	710.4	710.1	710.0	710.0	710.0	710.0	709.9	710.3
160°	723.7	723.6	723.4	723.3	723.2	723.0	722.9	722.8	722.6	722.5	722.9
162.5°	735.3	735.0	734.6	734.3	733.9	733.7	733.5	733.4	733.3	733.1	733.9
165°	751.0	750.6	750.2	749.7	749.3	749.0	748.7	748.4	748.2	747.9	748.7
167.5°	762.9	762.4	761.8	761.2	760.7	760.3	760.4	760.4	760.4	760.5	761.3
170°	769.7	769.0	768.3	767.7	767.0	766.7	766.9	767.0	767.1	767.3	768.1
172.5°	774.5	774.0	773.4	772.8	772.3	772.0	772.0	772.1	772.1	772.1	773.1
175°	781.2	780.5	779.8	779.2	778.5	778.1	778.0	777.8	777.7	777.6	778.5
177.5°	783.3	782.9	782.3	781.8	781.2	781.0	781.0	781.0	781.0	781.0	781.7
180°	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4



TEST NUMBER: P332816-930

CATALOG NUMBER: S124DIW-S1020D770U930-4F0-1E-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°	24.6	24.8	24.9	25.0	25.1	25.2	25.2	25.3
90°	14.9	15.7	16.6	17.0	17.4	17.6	17.9	18.2
92.5°	24.9	25.4	25.9	26.3	26.4	26.6	26.7	26.9
95°	46.8	47.2	47.6	47.8	47.8	47.8	47.8	47.8
97.5°	73.7	74.2	74.7	74.9	74.9	74.9	74.9	74.9
100°	93.1	93.4	93.7	93.8	93.8	93.8	93.8	93.8
102.5°	113.7	114.1	114.4	114.6	114.8	114.9	115.0	115.1
105°	144.8	145.2	145.6	146.0	146.4	146.8	147.2	147.7
107.5°	178.6	178.9	179.3	179.4	179.4	179.4	179.4	179.4
110°	201.0	200.7	200.4	200.5	200.9	201.3	201.7	202.1





TEST NUMBER: P332816-930

CATALOG NUMBER: S124DIW-S1020D770U930-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	225.1	225.0	225.0	225.0	225.1	225.2	225.3	225.3
115°	262.4	262.2	262.0	262.0	261.8	261.7	261.5	261.4
117.5°	298.2	297.7	297.2	296.9	296.6	296.3	296.0	295.8
120°	322.4	321.7	321.1	320.8	321.1	321.4	321.6	321.9
122.5°	347.0	346.6	346.1	345.6	345.1	344.6	344.2	343.7
125°	383.1	382.9	382.5	382.3	382.0	381.7	381.5	381.2
127.5°	417.6	417.4	417.0	416.8	416.6	416.4	416.1	416.0
130°	441.8	441.5	441.2	440.8	440.3	439.8	439.2	438.7
132.5°	464.6	464.3	464.0	463.7	463.6	463.3	463.1	462.9
135°	498.6	498.4	498.1	497.8	497.4	497.0	496.6	496.2
137.5°	531.7	531.3	531.0	530.8	530.9	531.0	531.1	531.2
140°	553.4	553.3	553.1	553.0	552.9	552.7	552.6	552.4
142.5°	574.0	573.9	573.9	573.9	573.8	573.8	573.8	573.7
145°	604.9	604.7	604.5	604.3	603.9	603.5	603.1	602.7
147.5°	632.8	632.8	632.6	632.5	632.3	632.3	632.1	631.9
150°	650.5	650.5	650.5	650.4	650.3	650.1	650.0	649.9
152.5°	667.1	667.4	667.7	667.7	667.4	667.1	666.7	666.3
155°	690.3	690.8	691.4	691.4	690.8	690.3	689.7	689.3
157.5°	710.7	711.1	711.5	711.5	711.0	710.6	710.1	709.6
160°	723.3	723.7	724.1	724.0	723.3	722.6	721.9	721.3
162.5°	734.6	735.3	736.1	736.1	735.4	734.7	734.1	733.4
165°	749.5	750.3	751.1	751.3	750.7	750.2	749.7	749.1
167.5°	762.1	762.9	763.7	763.7	762.9	762.1	761.2	760.3
170°	768.9	769.7	770.5	770.5	769.5	768.6	767.6	766.7
172.5°	774.0	774.9	775.8	775.8	774.8	773.9	772.9	772.0
175°	779.4	780.4	781.3	781.3	780.4	779.4	778.5	777.6
177.5°	782.4	783.2	784.0	783.9	783.0	782.2	781.3	780.5
180°	782.4	782.4	782.4	782.4	782.4	782.4	782.4	782.4

(END OF REPORT)