

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: P332819

Luminaire Tested: **S124DIW-S1020D1050U835-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332819  
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: S124DIW-S1020D1050U835-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1050 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8403.0 lumens  
Efficiency: N/A  
Efficacy: 137.3 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

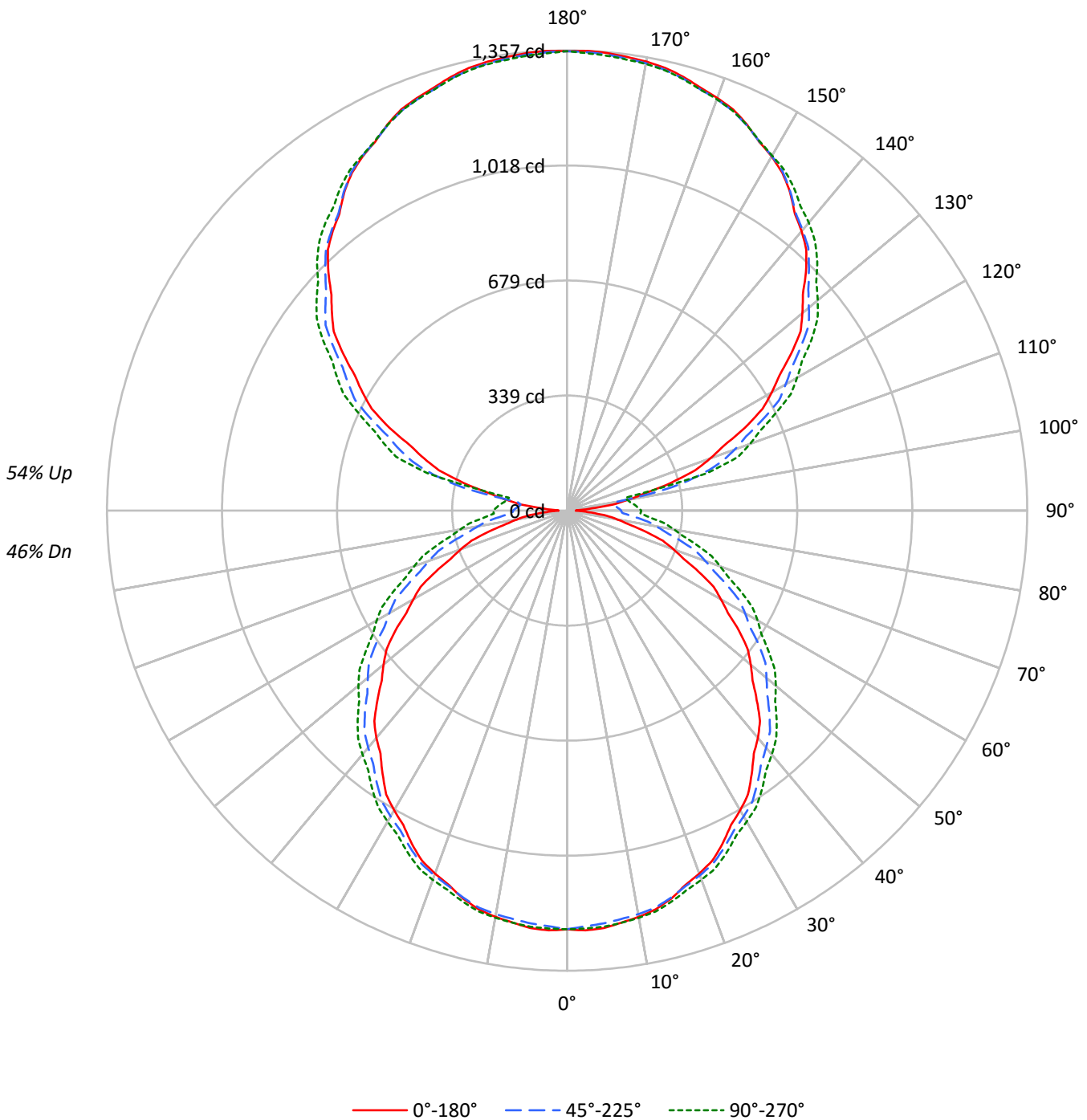
Input Watts (W): 61.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46
1	96	91	87	83	88	84	80	77	70	67	65	57	55	53	45	44	43	37
2	87	79	73	67	79	73	67	62	61	56	53	49	46	44	39	37	35	30
3	79	69	62	55	72	64	57	52	53	48	44	43	40	37	34	32	29	25
4	72	61	53	47	66	56	49	43	47	41	37	38	34	31	30	28	25	21
5	66	54	46	40	60	50	43	37	42	36	32	34	30	27	27	24	22	18
6	61	48	40	34	56	45	37	32	38	32	28	31	27	23	25	21	19	16
7	56	44	36	30	51	40	33	28	34	28	24	28	24	20	23	19	17	14
8	52	40	32	26	48	37	30	25	31	25	21	26	21	18	21	17	15	12
9	48	36	28	23	44	33	27	22	28	23	19	24	19	16	19	16	13	11
10	45	33	26	21	41	31	24	20	26	21	17	22	18	15	18	14	12	10

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

	0°	45°	90°
0°	9968	9968	9968
5°	9998	9741	9769
10°	9937	9582	9575
15°	9848	9397	9346
20°	9714	9194	9123
25°	9563	8966	8879
30°	9399	8739	8627
35°	9213	8507	8407
40°	9065	8285	8178
45°	8844	8081	7981
50°	8658	7846	7773
55°	8466	7625	7529
60°	8166	7342	7306
65°	7837	7040	7032
70°	7439	6694	6714
75°	6882	6312	6425
80°	6266	5946	6141
85°	5484	5623	5977



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	116.9	1.4
10°-20°	335.0	4.0
20°-30°	506.5	6.0
30°-40°	612.9	7.3
40°-50°	647.9	7.7
50°-60°	609.8	7.3
60°-70°	505.9	6.0
70°-80°	355.4	4.2
80°-90°	204.8	2.4
90°-100°	165.6	2.0
100°-110°	383.7	4.6
110°-120°	624.4	7.4
120°-130°	750.8	8.9
130°-140°	782.0	9.3
140°-150°	720.7	8.6
150°-160°	578.8	6.9
160°-170°	373.3	4.4
170°-180°	128.7	1.5
0°-30°	958.4	11.4
0°-40°	1571.3	18.7
0°-60°	2829.0	33.7
0°-90°	3895.1	46.4
90°-120°	1173.7	14.0
90°-150°	3427.1	40.8
90°-180°	4508.0	53.6
0°-180°	8403.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1235	1235	1235	1235	1235	
5°	1236	1232	1222	1233	1232	117
15°	1185	1186	1182	1194	1193	334
25°	1084	1092	1096	1111	1113	499
35°	948	965	979	997	1002	594
45°	791	817	843	866	874	611
55°	619	649	690	716	726	552
65°	429	473	520	553	566	425
75°	238	289	347	384	398	253
85°	73	132	194	234	249	78
90°	25	92	159	204	218	17
95°	74	87	143	184	199	86
105°	317	352	407	447	426	333
115°	578	595	636	668	678	569
125°	806	810	841	869	880	720
135°	996	996	1008	1032	1043	767
145°	1146	1148	1148	1157	1165	716
155°	1255	1256	1253	1257	1254	579
165°	1324	1319	1319	1326	1318	374
175°	1355	1349	1350	1358	1346	129
180°	1355	1355	1355	1355	1355	



TEST NUMBER: P332819

CATALOG NUMBER: S124DIW-S1020D1050U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7
2.5°	1239.1	1238.4	1237.6	1236.9	1236.1	1234.8	1232.8	1230.9	1228.9	1226.9	1228.6
5°	1236.0	1235.1	1234.2	1233.3	1232.4	1230.8	1228.7	1226.5	1224.4	1222.2	1224.7
7.5°	1225.5	1225.0	1224.4	1223.9	1223.3	1222.2	1220.4	1218.6	1216.8	1215.0	1217.8
10°	1216.7	1216.4	1216.1	1215.8	1215.5	1214.5	1213.0	1211.5	1209.9	1208.4	1211.2
12.5°	1204.5	1204.5	1204.4	1204.3	1204.3	1203.7	1202.7	1201.6	1200.6	1199.5	1202.1
15°	1184.9	1185.2	1185.5	1185.8	1186.1	1185.8	1184.9	1184.0	1183.0	1182.1	1184.9
17.5°	1158.1	1159.0	1159.9	1160.8	1161.8	1162.1	1161.9	1161.8	1161.6	1161.4	1164.2
20°	1139.3	1140.2	1141.1	1142.0	1143.0	1143.6	1143.9	1144.2	1144.5	1144.8	1147.9
22.5°	1118.2	1119.4	1120.6	1121.8	1122.9	1123.8	1124.3	1124.9	1125.4	1126.0	1129.1
25°	1084.0	1085.8	1087.6	1089.5	1091.3	1092.7	1093.6	1094.6	1095.5	1096.4	1099.8
27.5°	1045.8	1048.5	1051.2	1053.9	1056.6	1058.7	1060.1	1061.5	1062.9	1064.3	1067.5
30°	1020.4	1022.8	1025.3	1027.7	1030.2	1032.5	1034.6	1036.8	1038.9	1041.1	1044.5
32.5°	992.7	995.7	998.6	1001.6	1004.5	1007.2	1009.6	1012.0	1014.4	1016.8	1020.6
35°	948.5	952.2	955.8	959.5	963.2	966.6	969.7	972.7	975.8	978.9	983.2
37.5°	903.9	908.2	912.4	916.7	920.9	924.9	928.7	932.5	936.4	940.2	944.5
40°	875.2	879.2	883.2	887.2	891.2	895.3	899.6	903.9	908.2	912.5	917.1
42.5°	842.0	846.5	851.0	855.5	859.9	864.7	869.7	874.8	879.8	884.9	890.0
45°	790.8	796.7	802.5	808.4	814.2	820.0	825.9	831.7	837.5	843.4	848.6
47.5°	741.9	747.9	753.9	760.0	766.0	772.4	779.1	785.9	792.7	799.4	804.8
50°	706.5	713.3	720.0	726.8	733.5	740.3	747.1	753.8	760.6	767.3	773.5
52.5°	671.1	677.9	684.6	691.4	698.2	705.4	713.1	720.9	728.6	736.4	742.5
55°	619.4	625.9	632.3	638.8	645.2	653.0	662.3	671.5	680.7	689.9	696.1
57.5°	561.6	569.6	577.6	585.6	593.6	602.1	611.3	620.5	629.6	638.8	646.1
60°	524.0	532.0	540.0	548.0	556.0	565.0	575.2	585.3	595.4	605.6	612.6
62.5°	487.5	496.2	505.0	513.7	522.4	531.8	542.0	552.1	562.3	572.4	579.5
65°	428.6	438.4	448.3	458.1	467.9	478.1	488.5	499.0	509.4	519.9	527.5
67.5°	371.9	382.4	392.8	403.3	413.7	424.5	435.7	446.9	458.1	469.3	477.1
70°	333.2	343.7	354.1	364.5	375.0	386.1	397.7	409.4	421.1	432.8	441.1
72.5°	295.6	306.3	317.0	327.7	338.4	349.9	362.3	374.7	387.2	399.6	407.6
75°	237.8	249.2	260.5	271.9	283.3	295.4	308.3	321.2	334.1	347.0	355.6
77.5°	183.9	195.9	208.0	220.0	232.1	244.8	258.4	271.9	285.4	298.9	307.6
80°	150.7	163.0	175.3	187.6	199.9	212.8	226.3	239.8	253.3	266.8	276.1
82.5°	117.5	130.3	143.1	155.9	168.6	181.8	195.3	208.8	222.4	235.9	245.3
85°	73.3	86.2	99.1	112.0	124.9	138.3	152.1	165.9	179.7	193.6	202.8
87.5°	41.5	54.6	67.6	80.6	93.7	107.1	120.9	134.7	148.5	162.4	171.5
90°	25.2	39.9	54.7	69.5	84.2	99.1	114.1	129.1	144.2	159.2	169.4
92.5°	33.8	45.0	56.2	67.4	78.6	91.7	106.7	121.7	136.7	151.7	161.7
95°	73.7	76.2	78.7	81.2	83.6	91.3	104.1	116.9	129.8	142.6	152.2
97.5°	134.7	148.2	161.7	175.2	188.6	189.1	176.4	163.8	151.1	138.5	146.6
100°	181.4	193.4	205.5	217.5	229.5	226.0	206.9	187.8	168.7	149.7	154.1
102.5°	234.9	244.8	254.8	264.8	274.8	283.6	291.3	299.0	306.7	314.3	281.1
105°	317.4	324.9	332.4	339.9	347.4	357.4	369.9	382.4	394.9	407.4	417.1
107.5°	396.4	402.1	407.8	413.5	419.2	428.2	440.5	452.8	465.1	477.4	485.9
110°	448.8	453.7	458.7	463.7	468.7	477.2	489.3	501.4	513.5	525.6	533.1



TEST NUMBER: P332819

CATALOG NUMBER: S124DIW-S1020D1050U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	499.5	504.5	509.6	514.6	519.6	527.6	538.5	549.4	560.3	571.2	577.9
115°	577.7	581.1	584.6	588.0	591.5	598.0	607.6	617.2	626.8	636.4	643.6
117.5°	649.4	651.9	654.5	657.0	659.6	665.7	675.4	685.0	694.7	704.3	710.6
120°	696.9	698.7	700.5	702.4	704.2	709.4	718.1	726.8	735.5	744.2	750.8
122.5°	742.3	743.0	743.7	744.5	745.2	749.9	758.6	767.4	776.1	784.8	791.3
125°	805.9	806.5	807.1	807.7	808.3	812.2	819.5	826.7	833.9	841.1	847.7
127.5°	867.3	867.2	867.1	867.0	866.9	870.4	877.3	884.2	891.2	898.1	903.5
130°	905.9	905.8	905.7	905.6	905.5	908.3	913.9	919.5	925.1	930.7	936.4
132.5°	942.4	942.4	942.5	942.6	942.7	945.2	950.0	954.8	959.6	964.3	969.8
135°	995.7	995.5	995.2	995.0	994.8	996.2	999.2	1002.3	1005.3	1008.4	1013.8
137.5°	1044.1	1043.9	1043.7	1043.5	1043.2	1044.1	1046.2	1048.2	1050.3	1052.3	1057.3
140°	1075.7	1075.9	1076.0	1076.1	1076.3	1076.7	1077.5	1078.3	1079.0	1079.8	1084.4
142.5°	1103.0	1103.7	1104.5	1105.2	1106.0	1106.4	1106.5	1106.6	1106.7	1106.7	1110.7
145°	1146.3	1146.6	1147.0	1147.4	1147.7	1147.9	1147.9	1147.9	1147.9	1147.9	1150.0
147.5°	1180.9	1181.9	1182.8	1183.8	1184.7	1185.1	1184.9	1184.7	1184.4	1184.2	1184.6
150°	1206.1	1206.6	1207.2	1207.8	1208.4	1208.6	1208.4	1208.2	1207.9	1207.7	1207.7
152.5°	1226.0	1226.7	1227.3	1228.0	1228.7	1228.8	1228.4	1228.0	1227.6	1227.2	1227.5
155°	1255.3	1255.6	1255.8	1256.0	1256.2	1256.0	1255.3	1254.7	1254.0	1253.3	1254.2
157.5°	1280.3	1280.1	1280.0	1279.8	1279.7	1279.3	1278.5	1277.7	1277.0	1276.2	1277.4
160°	1294.8	1294.2	1293.5	1292.8	1292.1	1291.7	1291.5	1291.2	1291.0	1290.8	1292.1
162.5°	1307.8	1307.0	1306.1	1305.2	1304.4	1303.8	1303.6	1303.4	1303.2	1302.9	1304.3
165°	1324.2	1323.1	1322.0	1320.8	1319.7	1319.2	1319.2	1319.2	1319.2	1319.2	1321.0
167.5°	1337.2	1336.0	1334.9	1333.7	1332.5	1331.9	1331.7	1331.6	1331.5	1331.3	1333.3
170°	1344.5	1343.1	1341.8	1340.4	1339.1	1338.5	1338.7	1339.0	1339.2	1339.4	1341.2
172.5°	1349.3	1348.0	1346.6	1345.3	1343.9	1343.4	1343.6	1343.8	1344.1	1344.3	1346.1
175°	1354.6	1353.3	1351.9	1350.6	1349.2	1348.7	1348.9	1349.1	1349.3	1349.6	1351.6
177.5°	1357.0	1355.8	1354.5	1353.3	1352.0	1351.6	1351.9	1352.3	1352.6	1353.0	1354.4
180°	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6



TEST NUMBER: P332819

CATALOG NUMBER: S124DIW-S1020D1050U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7
2.5°	1230.4	1232.1	1233.8	1234.5	1234.3	1234.0	1233.8	1233.6
5°	1227.1	1229.6	1232.1	1233.1	1232.8	1232.5	1232.2	1231.9
7.5°	1220.6	1223.3	1226.1	1227.3	1227.0	1226.7	1226.4	1226.1
10°	1213.9	1216.7	1219.5	1220.7	1220.4	1220.1	1219.8	1219.5
12.5°	1204.6	1207.1	1209.6	1210.9	1210.8	1210.7	1210.7	1210.6
15°	1187.7	1190.4	1193.2	1194.4	1194.1	1193.8	1193.5	1193.2
17.5°	1167.0	1169.9	1172.7	1174.0	1173.7	1173.5	1173.2	1173.0
20°	1150.9	1154.0	1157.1	1158.6	1158.6	1158.6	1158.6	1158.6
22.5°	1132.1	1135.2	1138.3	1140.1	1140.6	1141.0	1141.5	1142.0
25°	1103.2	1106.5	1109.9	1111.8	1112.1	1112.4	1112.7	1113.0
27.5°	1070.6	1073.7	1076.9	1078.6	1079.0	1079.4	1079.7	1080.1
30°	1047.9	1051.2	1054.6	1056.6	1057.2	1057.8	1058.5	1059.1
32.5°	1024.5	1028.4	1032.3	1034.5	1035.1	1035.7	1036.3	1037.0
35°	987.5	991.8	996.1	998.7	999.6	1000.5	1001.5	1002.4
37.5°	948.9	953.3	957.6	960.3	961.3	962.3	963.2	964.2
40°	921.7	926.3	931.0	933.9	935.1	936.3	937.6	938.8
42.5°	895.1	900.2	905.3	908.3	909.3	910.3	911.3	912.2
45°	853.8	859.1	864.3	867.7	869.2	870.7	872.3	873.8
47.5°	810.2	815.6	821.1	824.7	826.5	828.4	830.2	832.1
50°	779.6	785.8	791.9	795.9	797.8	799.6	801.4	803.3
52.5°	748.7	754.8	761.0	764.9	766.8	768.6	770.5	772.3
55°	702.2	708.4	714.5	718.5	720.3	722.2	724.0	725.9
57.5°	653.4	660.7	668.0	672.5	674.2	676.0	677.7	679.4
60°	619.7	626.8	633.8	638.6	641.1	643.5	646.0	648.4
62.5°	586.5	593.6	600.7	605.4	607.9	610.3	612.8	615.3
65°	535.2	542.9	550.6	555.7	558.1	560.6	563.0	565.5
67.5°	484.9	492.7	500.5	505.6	508.0	510.4	512.8	515.2
70°	449.3	457.6	465.9	471.2	473.3	475.5	477.6	479.8
72.5°	415.7	423.7	431.8	437.0	439.4	441.8	444.2	446.6
75°	364.2	372.8	381.4	387.1	389.9	392.7	395.4	398.2
77.5°	316.4	325.1	333.8	339.7	342.6	345.6	348.5	351.5
80°	285.3	294.5	303.7	309.5	312.0	314.5	316.9	319.4
82.5°	254.8	264.3	273.7	279.8	282.5	285.2	287.9	290.6
85°	212.0	221.2	230.4	236.6	239.7	242.7	245.8	248.9
87.5°	180.7	189.9	199.1	205.1	207.9	210.6	213.4	216.2
90°	179.7	190.0	200.2	206.8	209.7	212.6	215.5	218.4
92.5°	171.8	181.8	191.8	198.1	200.6	203.2	205.7	208.3
95°	161.9	171.5	181.2	187.5	190.5	193.5	196.5	199.4
97.5°	154.8	163.0	171.2	176.7	179.6	182.5	185.3	188.2
100°	158.6	163.1	167.5	171.0	173.3	175.7	178.1	180.5
102.5°	247.9	214.6	181.4	166.0	168.4	170.9	173.3	175.7
105°	426.8	436.5	446.2	448.2	442.6	436.9	431.3	425.6
107.5°	494.5	503.0	511.6	517.4	520.4	523.5	526.6	529.6
110°	540.7	548.2	555.7	561.0	564.1	567.3	570.4	573.5





TEST NUMBER: P332819

CATALOG NUMBER: S124DIW-S1020D1050U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	584.6	591.3	598.1	603.1	606.4	609.7	613.0	616.4
115°	650.8	658.0	665.3	669.9	672.1	674.2	676.4	678.5
117.5°	716.9	723.2	729.5	733.8	736.2	738.6	741.0	743.3
120°	757.4	764.0	770.6	774.9	776.9	778.9	780.9	782.9
122.5°	797.7	804.1	810.5	814.6	816.4	818.1	819.9	821.6
125°	854.2	860.7	867.2	871.5	873.6	875.6	877.7	879.8
127.5°	908.9	914.3	919.7	923.3	925.2	927.2	929.1	931.0
130°	942.2	947.9	953.7	957.5	959.3	961.2	963.0	964.9
132.5°	975.4	980.9	986.4	990.0	991.6	993.3	995.0	996.6
135°	1019.1	1024.5	1029.9	1033.7	1036.0	1038.3	1040.6	1042.9
137.5°	1062.3	1067.2	1072.2	1075.4	1076.8	1078.2	1079.6	1081.0
140°	1089.1	1093.8	1098.5	1101.7	1103.4	1105.2	1107.0	1108.7
142.5°	1114.7	1118.7	1122.7	1125.4	1126.7	1128.1	1129.4	1130.7
145°	1152.1	1154.1	1156.2	1158.1	1159.8	1161.4	1163.1	1164.8
147.5°	1185.1	1185.5	1185.9	1186.7	1187.9	1189.1	1190.3	1191.6
150°	1207.7	1207.7	1207.7	1207.8	1208.0	1208.3	1208.5	1208.7
152.5°	1227.9	1228.2	1228.6	1228.7	1228.6	1228.4	1228.3	1228.2
155°	1255.1	1256.0	1256.9	1257.0	1256.3	1255.7	1255.0	1254.3
157.5°	1278.5	1279.7	1280.9	1280.9	1279.7	1278.5	1277.4	1276.2
160°	1293.5	1294.8	1296.2	1296.2	1294.8	1293.5	1292.1	1290.8
162.5°	1305.6	1307.0	1308.3	1308.3	1306.7	1305.2	1303.7	1302.1
165°	1322.8	1324.6	1326.4	1326.2	1324.2	1322.2	1320.2	1318.1
167.5°	1335.3	1337.3	1339.2	1339.1	1336.9	1334.6	1332.4	1330.1
170°	1343.0	1344.8	1346.6	1346.4	1344.1	1341.9	1339.6	1337.4
172.5°	1347.9	1349.7	1351.5	1351.2	1348.7	1346.3	1343.9	1341.4
175°	1353.6	1355.6	1357.7	1357.3	1354.6	1351.9	1349.2	1346.5
177.5°	1355.9	1357.3	1358.8	1358.4	1356.2	1354.1	1351.9	1349.8
180°	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6

(END OF REPORT)