

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: P332230-935

Luminaire Tested: **S123DIW-S1165D1320U935-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332230-935  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1165D1320U935-4F0-1E-UDD-D  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8723.5 lumens  
Efficiency: N/A  
Efficacy: 114.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

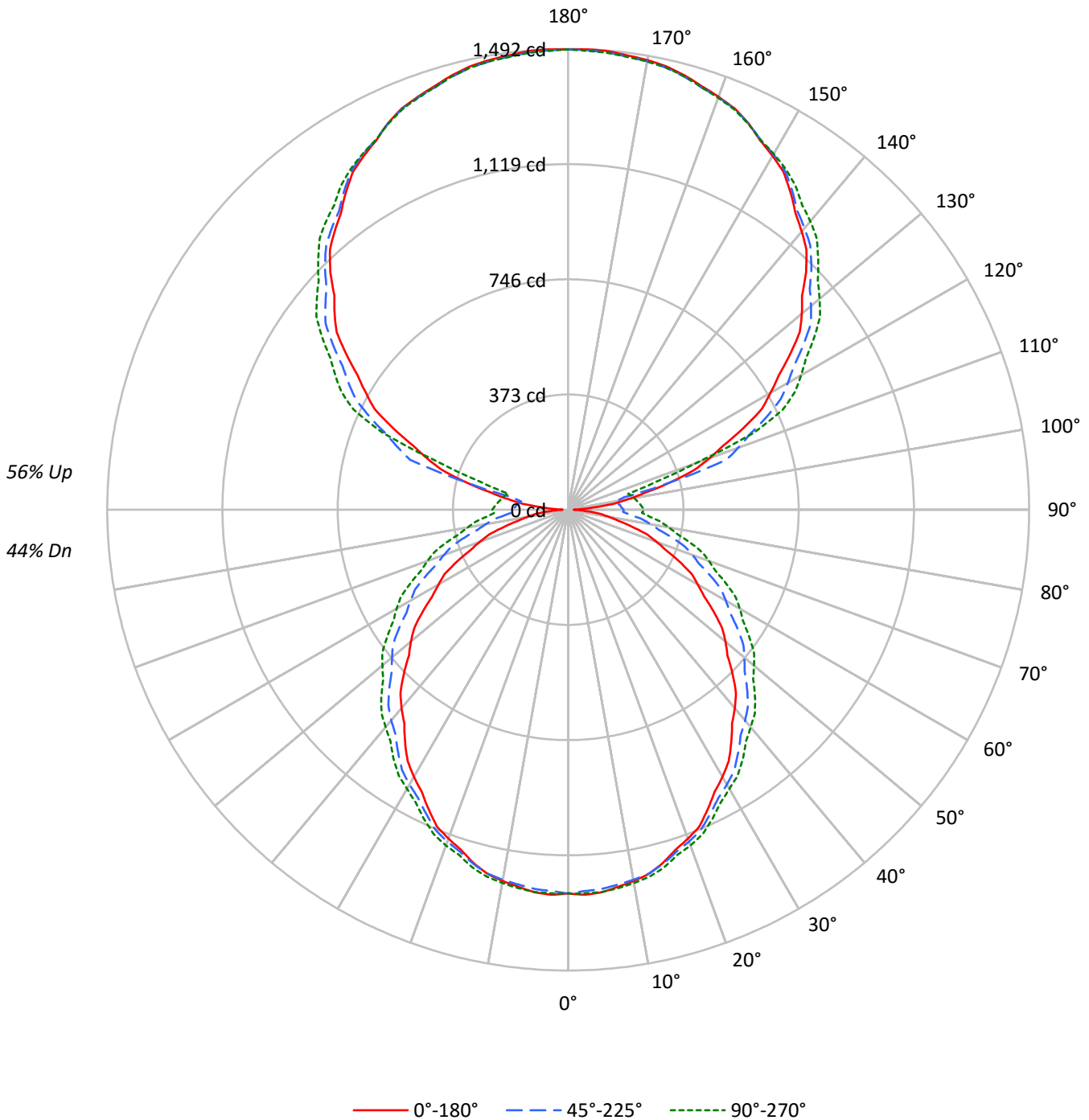
Input Watts (W): 76.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	97	97	97	97	80	80	80	65	65	65	51	51	51	44
1	95	91	87	83	87	83	79	76	69	66	64	55	54	52	43	42	41	35
2	87	79	72	67	79	72	67	62	60	55	52	48	45	43	37	35	34	29
3	79	69	61	55	72	63	56	51	52	47	43	42	39	36	33	30	28	24
4	72	61	53	46	65	56	49	43	46	41	37	37	33	30	29	26	24	20
5	66	54	46	40	60	50	42	37	41	36	31	33	29	26	26	23	21	17
6	61	48	40	34	55	44	37	32	37	31	27	30	26	23	24	21	18	15
7	56	43	35	30	51	40	33	28	33	28	24	27	23	20	22	18	16	13
8	52	39	32	26	47	36	29	24	30	25	21	25	21	18	20	17	14	12
9	48	36	28	23	44	33	26	22	28	23	19	23	19	16	18	15	13	11
10	45	33	26	21	41	30	24	19	26	20	17	21	17	14	17	14	12	10

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

	0°	45°	90°
0°	13373	13373	13373
5°	13415	13037	13044
10°	13294	12736	12672
15°	13123	12396	12267
20°	12878	12006	11821
25°	12576	11558	11352
30°	12267	11155	10876
35°	11919	10728	10496
40°	11588	10340	10090
45°	11221	9968	9765
50°	10858	9599	9408
55°	10459	9224	9085
60°	10067	8841	8755
65°	9669	8433	8362
70°	9064	7974	7959
75°	8304	7449	7549
80°	7429	6933	7081
85°	6613	6577	6812



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	117.8	1.4
10°-20°	335.7	3.8
20°-30°	502.2	5.8
30°-40°	599.7	6.9
40°-50°	627.4	7.2
50°-60°	588.8	6.7
60°-70°	491.8	5.6
70°-80°	351.8	4.0
80°-90°	214.0	2.5
90°-100°	185.8	2.1
100°-110°	355.0	4.1
110°-120°	684.8	7.9
120°-130°	826.7	9.5
130°-140°	860.4	9.9
140°-150°	792.7	9.1
150°-160°	636.5	7.3
160°-170°	410.8	4.7
170°-180°	141.6	1.6
0°-30°	955.7	11.0
0°-40°	1555.4	17.8
0°-60°	2771.6	31.8
0°-90°	3829.2	43.9
90°-120°	1225.6	14.0
90°-150°	3705.4	42.5
90°-180°	4894.0	56.1
0°-180°	8723.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1242	1242	1242	1242	1242	
5°	1244	1241	1233	1243	1242	118
15°	1184	1188	1187	1200	1199	333
25°	1069	1082	1087	1103	1104	492
35°	920	942	960	979	985	575
45°	752	785	819	844	855	580
55°	574	619	667	702	715	514
65°	397	450	509	548	563	392
75°	215	279	346	390	407	230
85°	66	134	206	250	265	70
90°	19	96	180	228	246	15
95°	82	94	168	216	232	95
105°	341	381	344	196	200	361
115°	626	650	707	749	766	618
125°	876	887	929	959	971	783
135°	1089	1095	1113	1140	1144	838
145°	1255	1261	1263	1276	1282	785
155°	1380	1378	1379	1384	1378	636
165°	1456	1453	1451	1459	1452	411
175°	1490	1485	1486	1493	1485	142
180°	1490	1490	1490	1490	1490	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4
2.5°	1247.8	1247.2	1246.4	1245.7	1244.9	1243.6	1241.7	1239.8	1237.9	1236.0	1237.9
5°	1243.8	1243.2	1242.6	1242.0	1241.4	1240.2	1238.4	1236.6	1234.8	1233.0	1235.4
7.5°	1231.6	1231.7	1231.8	1232.0	1232.1	1231.3	1229.5	1227.8	1226.1	1224.3	1227.3
10°	1220.8	1221.4	1222.0	1222.6	1223.2	1222.7	1221.2	1219.7	1218.2	1216.7	1219.7
12.5°	1207.8	1208.6	1209.4	1210.3	1211.2	1211.1	1210.0	1209.0	1208.0	1206.9	1209.7
15°	1184.2	1185.2	1186.0	1187.0	1187.8	1188.2	1187.8	1187.6	1187.2	1187.0	1190.0
17.5°	1154.4	1156.2	1158.0	1159.9	1161.7	1162.5	1162.4	1162.3	1162.2	1162.0	1164.8
20°	1132.8	1134.6	1136.4	1138.2	1140.1	1141.3	1141.9	1142.5	1143.1	1143.7	1146.3
22.5°	1110.1	1111.9	1113.7	1115.5	1117.3	1118.6	1119.5	1120.3	1121.1	1122.0	1125.4
25°	1069.2	1072.2	1075.2	1078.2	1081.2	1083.1	1084.1	1084.9	1085.9	1086.8	1090.7
27.5°	1028.0	1031.5	1034.9	1038.4	1041.7	1044.5	1046.4	1048.3	1050.2	1052.1	1055.5
30°	998.8	1002.7	1006.6	1010.6	1014.4	1017.6	1020.0	1022.4	1024.8	1027.3	1030.9
32.5°	966.3	970.7	975.1	979.5	983.9	987.7	990.8	993.9	997.0	1000.1	1004.0
35°	920.3	925.1	930.0	934.8	939.6	943.9	947.9	951.7	955.6	959.6	964.1
37.5°	871.6	877.0	882.4	887.9	893.3	898.4	903.2	908.0	912.8	917.7	922.7
40°	839.1	844.6	850.0	855.3	860.7	866.5	872.5	878.5	884.5	890.5	895.7
42.5°	803.4	810.0	816.7	823.2	829.8	836.3	842.6	848.8	855.1	861.3	866.9
45°	752.5	759.7	766.9	774.1	781.4	788.8	796.3	803.7	811.3	818.8	824.5
47.5°	699.1	707.3	715.5	723.8	731.9	740.3	748.9	757.5	766.1	774.7	781.1
50°	664.5	673.0	681.4	689.7	698.2	707.1	716.4	725.7	735.0	744.3	751.3
52.5°	627.8	636.6	645.5	654.4	663.3	673.0	683.2	693.4	703.8	714.0	721.3
55°	573.9	583.8	593.7	603.6	613.5	623.9	634.7	645.6	656.4	667.3	675.4
57.5°	521.3	531.7	542.0	552.3	562.7	573.9	585.7	597.5	609.3	621.2	629.4
60°	484.5	495.3	506.2	517.0	527.8	539.4	551.7	564.0	576.4	588.8	597.2
62.5°	449.9	461.0	472.0	483.1	494.1	506.2	519.3	532.3	545.4	558.4	566.8
65°	396.6	408.3	420.0	431.7	443.5	456.0	469.2	482.4	495.7	508.9	517.9
67.5°	342.4	354.9	367.3	379.8	392.2	405.2	418.6	432.1	445.6	459.1	468.9
70°	304.5	317.5	330.4	343.3	356.3	370.0	384.4	398.8	413.3	427.7	437.3
72.5°	269.8	282.8	295.8	308.7	321.6	335.5	350.4	365.3	380.3	395.2	405.1
75°	215.2	229.4	243.5	257.6	271.7	286.3	301.4	316.4	331.4	346.5	356.4
77.5°	167.6	181.8	196.0	210.3	224.5	239.3	254.4	269.6	284.7	299.9	310.4
80°	134.0	148.7	163.5	178.2	193.0	208.1	223.8	239.4	255.0	270.7	280.9
82.5°	104.8	119.8	134.7	149.7	164.6	180.1	196.0	211.9	227.7	243.6	253.8
85°	66.3	81.4	96.4	111.4	126.5	142.0	157.9	173.8	189.8	205.7	215.9
87.5°	36.2	51.7	67.2	82.7	98.1	113.8	129.8	145.8	161.8	177.7	188.1
90°	18.7	35.9	53.1	70.3	87.5	105.4	123.9	142.4	161.0	179.5	190.7
92.5°	37.1	49.7	62.3	74.9	87.6	102.5	120.1	137.6	155.1	172.6	184.2
95°	82.4	84.0	85.7	87.4	89.0	98.5	116.0	133.5	150.8	168.3	179.3
97.5°	149.0	155.1	161.1	167.2	173.2	174.4	170.8	167.2	163.5	159.9	170.8
100°	199.3	213.8	228.3	242.9	257.4	252.4	227.9	203.4	178.8	154.3	165.0
102.5°	256.7	268.9	281.0	293.3	305.5	297.4	269.1	240.7	212.4	184.1	186.5
105°	340.8	350.7	360.6	370.5	380.5	380.8	371.6	362.4	353.2	344.0	308.8
107.5°	428.1	436.4	444.7	453.1	461.3	473.4	489.1	504.9	520.6	536.4	512.6
110°	486.4	493.8	501.2	508.5	515.9	526.9	541.7	556.5	571.2	585.9	585.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	543.0	549.3	555.5	561.7	568.0	578.2	592.5	606.7	621.0	635.2	642.9
115°	625.6	630.7	635.8	640.9	646.0	655.0	668.0	681.1	694.1	707.2	716.9
117.5°	706.6	710.7	714.7	718.8	722.8	730.5	741.8	753.1	764.4	775.7	784.8
120°	756.0	759.7	763.4	767.2	770.9	778.1	788.8	799.4	810.1	820.7	829.7
122.5°	807.4	810.0	812.6	815.2	817.8	824.3	834.7	845.1	855.4	865.8	873.8
125°	876.4	878.4	880.4	882.4	884.3	890.2	899.8	909.6	919.3	929.0	935.8
127.5°	944.7	946.3	948.0	949.7	951.3	956.3	964.8	973.2	981.5	990.0	996.7
130°	987.1	988.9	990.5	992.1	993.9	998.2	1005.1	1012.2	1019.2	1026.1	1032.9
132.5°	1026.8	1028.7	1030.6	1032.5	1034.5	1038.2	1043.8	1049.4	1055.0	1060.6	1067.0
135°	1088.7	1089.9	1091.1	1092.3	1093.5	1096.2	1100.5	1104.7	1109.1	1113.4	1119.6
137.5°	1141.6	1143.2	1144.9	1146.5	1148.1	1150.2	1152.6	1154.9	1157.4	1159.8	1165.7
140°	1176.0	1177.4	1179.0	1180.4	1181.9	1183.4	1185.1	1186.7	1188.4	1190.0	1195.5
142.5°	1208.8	1210.0	1211.3	1212.5	1213.7	1214.8	1215.7	1216.6	1217.5	1218.5	1223.2
145°	1254.6	1256.0	1257.4	1258.9	1260.2	1261.2	1261.7	1262.2	1262.7	1263.2	1266.1
147.5°	1296.4	1297.5	1298.6	1299.8	1301.0	1301.7	1302.3	1302.7	1303.2	1303.7	1304.9
150°	1323.0	1323.7	1324.5	1325.2	1325.9	1326.5	1327.1	1327.5	1328.0	1328.5	1329.0
152.5°	1346.9	1347.2	1347.6	1347.9	1348.2	1348.6	1348.9	1349.2	1349.4	1349.8	1350.7
155°	1380.5	1380.1	1379.6	1379.1	1378.5	1378.5	1378.7	1379.0	1379.2	1379.4	1380.7
157.5°	1406.7	1406.6	1406.6	1406.5	1406.4	1406.4	1406.1	1405.8	1405.6	1405.3	1406.8
160°	1422.6	1422.4	1422.1	1421.9	1421.6	1421.4	1421.2	1420.9	1420.6	1420.4	1421.9
162.5°	1437.7	1437.0	1436.4	1435.7	1435.1	1434.7	1434.4	1434.2	1433.9	1433.7	1435.4
165°	1455.9	1455.1	1454.3	1453.6	1452.9	1452.4	1452.2	1451.9	1451.6	1451.4	1453.4
167.5°	1470.0	1469.0	1468.0	1467.1	1466.0	1465.6	1465.6	1465.6	1465.6	1465.6	1467.6
170°	1478.0	1477.0	1476.0	1475.1	1474.0	1473.5	1473.5	1473.5	1473.5	1473.5	1475.5
172.5°	1483.3	1482.1	1480.9	1479.7	1478.6	1478.1	1478.3	1478.5	1478.7	1478.9	1480.8
175°	1490.1	1488.9	1487.7	1486.4	1485.2	1484.7	1485.0	1485.2	1485.5	1485.7	1487.5
177.5°	1491.9	1490.9	1490.0	1489.0	1488.0	1487.6	1487.8	1488.0	1488.2	1488.4	1490.0
180°	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4	1242.4
2.5°	1239.8	1241.7	1243.6	1244.5	1244.2	1244.0	1243.7	1243.5
5°	1237.8	1240.2	1242.6	1243.6	1243.4	1243.0	1242.8	1242.4
7.5°	1230.3	1233.3	1236.3	1237.7	1237.3	1236.9	1236.6	1236.2
10°	1222.7	1225.7	1228.7	1229.9	1229.3	1228.7	1228.1	1227.5
12.5°	1212.5	1215.3	1218.1	1219.1	1218.5	1217.9	1217.3	1216.7
15°	1192.9	1195.9	1198.9	1200.3	1200.1	1199.7	1199.5	1199.1
17.5°	1167.4	1170.2	1172.9	1174.0	1173.6	1173.2	1172.8	1172.3
20°	1149.0	1151.8	1154.4	1156.0	1156.2	1156.6	1156.8	1157.2
22.5°	1128.9	1132.3	1135.7	1137.3	1137.1	1137.0	1136.8	1136.6
25°	1094.6	1098.5	1102.4	1104.4	1104.4	1104.4	1104.4	1104.4
27.5°	1058.9	1062.2	1065.6	1067.4	1067.6	1067.9	1068.2	1068.4
30°	1034.5	1038.1	1041.6	1043.4	1043.4	1043.4	1043.4	1043.4
32.5°	1007.9	1011.8	1015.5	1017.9	1018.6	1019.3	1020.0	1020.7
35°	968.6	973.1	977.6	980.5	981.7	982.9	984.1	985.2
37.5°	927.8	933.0	938.1	941.1	942.1	943.1	944.0	944.9
40°	900.8	905.9	911.0	914.1	915.3	916.5	917.7	918.9
42.5°	872.5	878.1	883.7	887.3	889.0	890.7	892.3	894.1
45°	830.3	835.9	841.7	845.8	848.2	850.6	853.0	855.3
47.5°	787.6	794.0	800.5	804.6	806.4	808.3	810.2	812.0
50°	758.2	765.2	772.1	776.5	778.7	780.8	782.9	785.0
52.5°	728.4	735.6	742.7	747.6	750.2	752.8	755.4	757.9
55°	683.5	691.6	699.7	705.0	707.4	709.8	712.2	714.6
57.5°	637.6	645.8	653.9	659.4	662.3	665.1	668.0	670.7
60°	605.5	614.0	622.4	628.3	631.6	634.9	638.2	641.5
62.5°	575.2	583.7	592.1	597.9	600.9	604.0	607.1	610.1
65°	526.9	536.0	545.0	551.0	554.0	557.0	560.0	563.0
67.5°	478.8	488.7	498.5	504.7	507.3	509.8	512.3	514.9
70°	446.9	456.6	466.1	472.5	475.5	478.5	481.5	484.5
72.5°	414.9	424.8	434.6	441.1	444.1	447.1	450.1	453.1
75°	366.4	376.3	386.2	393.0	396.6	400.2	403.8	407.3
77.5°	320.8	331.3	341.8	348.4	351.2	354.0	356.7	359.5
80°	291.1	301.4	311.6	318.2	321.2	324.3	327.3	330.2
82.5°	264.1	274.3	284.5	291.1	294.1	297.1	300.1	303.2
85°	226.2	236.4	246.6	253.2	256.2	259.2	262.3	265.3
87.5°	198.5	209.0	219.5	226.2	229.3	232.4	235.5	238.6
90°	201.9	213.1	224.4	231.7	235.2	238.7	242.2	245.7
92.5°	195.7	207.3	218.9	226.2	229.2	232.3	235.3	238.4
95°	190.4	201.5	212.5	219.6	222.5	225.5	228.5	231.5
97.5°	181.8	192.7	203.6	210.7	214.0	217.2	220.5	223.7
100°	175.6	186.3	197.1	204.0	207.2	210.5	213.8	217.1
102.5°	188.8	191.2	193.6	196.6	200.0	203.5	206.9	210.3
105°	273.7	238.6	203.5	187.5	190.7	193.9	197.1	200.3
107.5°	488.7	464.8	440.9	413.9	383.7	353.5	323.4	293.3
110°	585.3	585.0	584.7	568.2	535.4	502.7	469.8	437.0





TEST NUMBER: P332230-935

CATALOG NUMBER: S123DIW-S1165D1320U935-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	650.7	658.4	666.2	667.6	662.8	658.1	653.2	648.5
115°	726.6	736.2	745.9	752.4	755.9	759.2	762.6	766.0
117.5°	793.9	803.1	812.2	818.0	820.5	823.1	825.6	828.2
120°	838.5	847.4	856.3	861.8	863.8	866.0	868.1	870.2
122.5°	881.9	890.0	898.0	903.2	905.5	907.8	910.1	912.4
125°	942.6	949.4	956.2	961.0	963.5	966.1	968.7	971.3
127.5°	1003.4	1010.2	1016.9	1021.1	1022.6	1024.2	1025.7	1027.3
130°	1039.6	1046.3	1052.9	1057.0	1058.3	1059.5	1060.9	1062.2
132.5°	1073.5	1080.0	1086.4	1090.4	1091.7	1093.0	1094.4	1095.8
135°	1125.7	1131.9	1138.0	1141.4	1142.2	1143.0	1143.8	1144.5
137.5°	1171.6	1177.6	1183.5	1187.0	1188.0	1189.0	1190.1	1191.0
140°	1201.0	1206.5	1212.0	1215.2	1216.2	1217.3	1218.3	1219.3
142.5°	1228.0	1232.9	1237.7	1240.5	1241.4	1242.2	1242.9	1243.8
145°	1269.0	1271.9	1274.8	1276.9	1278.1	1279.3	1280.5	1281.7
147.5°	1306.1	1307.3	1308.5	1309.2	1309.1	1309.1	1309.0	1309.0
150°	1329.5	1330.0	1330.5	1330.7	1330.5	1330.4	1330.2	1330.2
152.5°	1351.5	1352.5	1353.3	1353.2	1352.2	1351.3	1350.2	1349.2
155°	1381.9	1383.1	1384.4	1384.2	1382.8	1381.3	1379.8	1378.4
157.5°	1408.3	1409.8	1411.3	1411.0	1409.1	1407.2	1405.2	1403.3
160°	1423.3	1424.9	1426.3	1426.2	1424.4	1422.7	1421.0	1419.3
162.5°	1437.0	1438.7	1440.4	1440.5	1438.9	1437.4	1435.9	1434.3
165°	1455.3	1457.3	1459.3	1459.4	1457.7	1456.0	1454.2	1452.5
167.5°	1469.6	1471.4	1473.4	1473.4	1471.4	1469.6	1467.6	1465.6
170°	1477.5	1479.5	1481.4	1481.4	1479.5	1477.5	1475.5	1473.5
172.5°	1482.8	1484.8	1486.8	1486.6	1484.5	1482.3	1480.1	1478.0
175°	1489.2	1490.9	1492.6	1492.5	1490.6	1488.6	1486.6	1484.6
177.5°	1491.5	1493.1	1494.7	1494.5	1492.5	1490.6	1488.6	1486.6
180°	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1

(END OF REPORT)