

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: P332230-940

Luminaire Tested: **S123DIW-S1165D1320U940-4F0-1E-UDD-D**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332230-940
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-S1165D1320U940-4F0-1E-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: 9034.7 lumens
Efficiency: N/A
Efficacy: 118.6 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

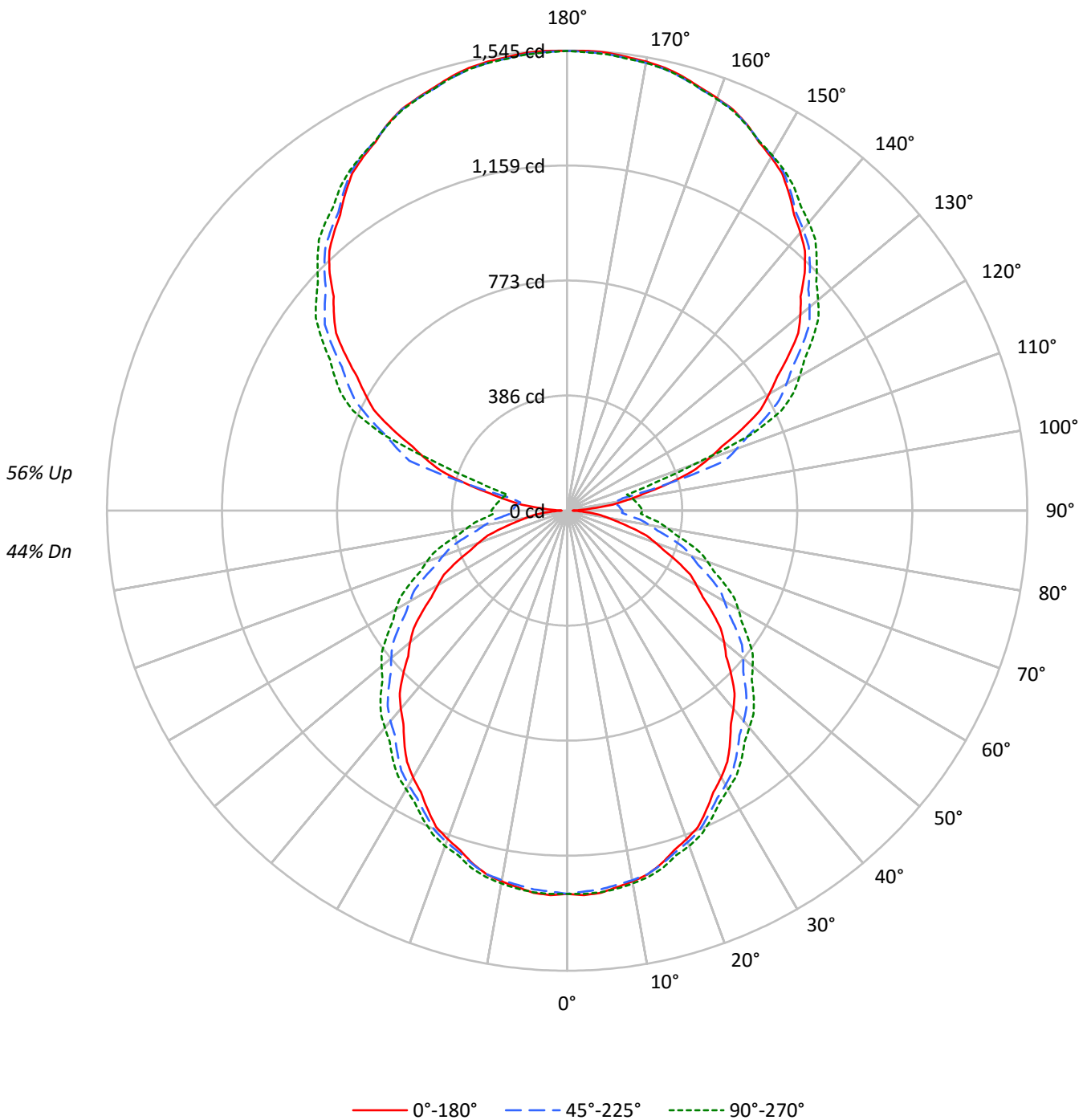
Input Watts (W): 76.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332230-940

CATALOG NUMBER: S123DIW-S1165D1320U940-4F0-1E-UDD-D

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°	13850	13850	13850
5°	13894	13501	13509
10°	13769	13190	13124
15°	13592	12837	12705
20°	13338	12435	12243
25°	13025	11969	11757
30°	12705	11553	11264
35°	12344	11111	10871
40°	12002	10709	10450
45°	11622	10323	10113
50°	11245	9942	9744
55°	10831	9553	9410
60°	10426	9156	9068
65°	10013	8733	8661
70°	9389	8257	8243
75°	8597	7713	7819
80°	7695	7181	7334
85°	6853	6811	7053



TEST NUMBER: P332230-940

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.0	1.4
10°-20°	347.7	3.8
20°-30°	520.1	5.8
30°-40°	621.1	6.9
40°-50°	649.8	7.2
50°-60°	609.8	6.7
60°-70°	509.3	5.6
70°-80°	364.4	4.0
80°-90°	221.6	2.5
90°-100°	192.5	2.1
100°-110°	367.6	4.1
110°-120°	709.3	7.9
120°-130°	856.2	9.5
130°-140°	891.1	9.9
140°-150°	820.9	9.1
150°-160°	659.3	7.3
160°-170°	425.5	4.7
170°-180°	146.6	1.6
0°-30°	989.8	11.0
0°-40°	1610.9	17.8
0°-60°	2870.5	31.8
0°-90°	3965.8	43.9
90°-120°	1269.3	14.0
90°-150°	3837.5	42.5
90°-180°	5069.0	56.1
0°-180°	9034.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1287	1287	1287	1287	1287	
5°	1288	1285	1277	1287	1287	122
15°	1226	1230	1229	1242	1242	345
25°	1107	1121	1126	1143	1144	510
35°	953	975	994	1014	1020	596
45°	779	813	848	874	886	601
55°	594	641	691	727	740	532
65°	411	466	527	568	583	406
75°	223	289	359	403	422	238
85°	69	139	213	259	275	72
90°	19	100	186	236	254	16
95°	85	97	174	224	240	98
105°	353	394	356	202	207	374
115°	648	674	732	776	793	640
125°	908	919	962	993	1006	811
135°	1128	1134	1153	1180	1185	868
145°	1299	1306	1308	1321	1327	813
155°	1430	1428	1429	1434	1428	658
165°	1508	1504	1503	1511	1504	426
175°	1543	1538	1539	1546	1538	147
180°	1543	1543	1543	1543	1543	



TEST NUMBER: P332230-940

CATALOG NUMBER: S123DIW-S1165D1320U940-4F0-1E-UDD-D

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7
2.5°	1292.4	1291.6	1290.8	1290.1	1289.3	1288.0	1286.0	1284.0	1282.0	1280.1	1282.0
5°	1288.2	1287.5	1286.9	1286.3	1285.7	1284.4	1282.5	1280.7	1278.8	1276.9	1279.4
7.5°	1275.5	1275.7	1275.8	1275.9	1276.0	1275.2	1273.4	1271.6	1269.8	1267.9	1271.0
10°	1264.4	1265.0	1265.6	1266.2	1266.9	1266.3	1264.8	1263.2	1261.7	1260.1	1263.2
12.5°	1250.9	1251.7	1252.6	1253.5	1254.4	1254.3	1253.2	1252.1	1251.1	1250.0	1252.9
15°	1226.5	1227.4	1228.3	1229.3	1230.2	1230.6	1230.2	1229.9	1229.6	1229.3	1232.4
17.5°	1195.6	1197.5	1199.4	1201.2	1203.1	1204.0	1203.9	1203.7	1203.6	1203.5	1206.3
20°	1173.2	1175.1	1177.0	1178.8	1180.7	1182.0	1182.6	1183.2	1183.8	1184.5	1187.2
22.5°	1149.7	1151.6	1153.4	1155.3	1157.2	1158.5	1159.4	1160.3	1161.1	1162.0	1165.6
25°	1107.3	1110.4	1113.6	1116.7	1119.8	1121.8	1122.8	1123.6	1124.6	1125.5	1129.6
27.5°	1064.7	1068.3	1071.8	1075.4	1078.9	1081.7	1083.7	1085.7	1087.7	1089.7	1093.1
30°	1034.5	1038.5	1042.5	1046.6	1050.6	1053.9	1056.4	1058.9	1061.4	1063.9	1067.6
32.5°	1000.8	1005.3	1009.9	1014.4	1019.0	1022.9	1026.1	1029.4	1032.6	1035.8	1039.8
35°	953.1	958.1	963.1	968.1	973.1	977.6	981.7	985.7	989.7	993.8	998.4
37.5°	902.7	908.3	913.9	919.5	925.1	930.4	935.4	940.4	945.4	950.4	955.6
40°	869.1	874.7	880.3	885.8	891.4	897.4	903.7	909.8	916.1	922.3	927.6
42.5°	832.1	838.9	845.8	852.6	859.4	866.1	872.6	879.0	885.6	892.1	897.9
45°	779.4	786.8	794.2	801.7	809.2	816.9	824.7	832.4	840.3	848.0	853.9
47.5°	724.1	732.5	741.0	749.6	758.0	766.7	775.6	784.5	793.4	802.4	809.0
50°	688.2	697.0	705.7	714.3	723.1	732.3	742.0	751.6	761.3	770.9	778.1
52.5°	650.1	659.3	668.5	677.8	687.0	697.0	707.6	718.2	728.9	739.5	747.0
55°	594.3	604.6	614.8	625.2	635.4	646.1	657.4	668.6	679.8	691.1	699.5
57.5°	539.9	550.6	561.3	572.0	582.8	594.3	606.5	618.8	631.1	643.4	651.8
60°	501.8	513.0	524.2	535.5	546.6	558.7	571.4	584.2	597.0	609.8	618.5
62.5°	465.9	477.4	488.8	500.3	511.8	524.2	537.8	551.3	564.8	578.4	587.0
65°	410.7	422.8	435.0	447.1	459.3	472.3	485.9	499.6	513.4	527.0	536.4
67.5°	354.6	367.6	380.4	393.3	406.2	419.6	433.5	447.5	461.5	475.5	485.6
70°	315.4	328.8	342.1	355.5	369.0	383.2	398.1	413.0	428.0	442.9	452.9
72.5°	279.5	292.9	306.3	319.7	333.1	347.5	362.9	378.4	393.9	409.3	419.5
75°	222.8	237.6	252.2	266.8	281.4	296.5	312.1	327.7	343.2	358.8	369.1
77.5°	173.5	188.3	203.0	217.8	232.6	247.8	263.5	279.2	294.9	310.6	321.5
80°	138.8	154.0	169.3	184.6	199.8	215.5	231.8	248.0	264.1	280.4	291.0
82.5°	108.5	124.0	139.6	155.1	170.5	186.5	203.0	219.5	235.9	252.3	262.9
85°	68.7	84.3	99.9	115.4	131.0	147.0	163.5	180.0	196.5	213.0	223.6
87.5°	37.5	53.5	69.6	85.6	101.6	117.9	134.5	151.0	167.6	184.0	194.8
90°	19.4	37.2	55.0	72.8	90.6	109.1	128.3	147.5	166.7	185.9	197.5
92.5°	38.4	51.5	64.6	77.6	90.7	106.2	124.4	142.5	160.6	178.8	190.7
95°	85.3	87.0	88.7	90.5	92.2	102.0	120.1	138.2	156.2	174.3	185.7
97.5°	154.3	160.6	166.8	173.2	179.4	180.7	176.9	173.2	169.3	165.6	176.9
100°	206.4	221.4	236.5	251.6	266.6	261.4	236.0	210.6	185.2	159.8	170.9
102.5°	265.8	278.5	291.1	303.7	316.4	308.0	278.7	249.3	220.0	190.6	193.1
105°	352.9	363.2	373.4	383.7	394.0	394.4	384.9	375.3	365.8	356.2	319.9
107.5°	443.4	452.0	460.6	469.2	477.8	490.3	506.6	522.9	539.2	555.5	530.8
110°	503.7	511.4	519.1	526.6	534.3	545.7	561.1	576.3	591.6	606.8	606.5



TEST NUMBER: P332230-940

CATALOG NUMBER: S123DIW-S1165D1320U940-4F0-1E-UDD-D

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	562.4	568.9	575.3	581.8	588.3	598.8	613.6	628.4	643.1	657.9	665.8
115°	647.9	653.2	658.4	663.8	669.1	678.4	691.9	705.4	718.9	732.5	742.4
117.5°	731.8	736.0	740.2	744.4	748.6	756.5	768.2	780.0	791.7	803.3	812.8
120°	783.0	786.8	790.7	794.5	798.4	805.8	816.9	828.0	839.0	850.0	859.3
122.5°	836.2	838.9	841.6	844.3	846.9	853.7	864.4	875.2	885.9	896.7	905.0
125°	907.7	909.7	911.8	913.8	915.9	921.9	931.9	942.0	952.1	962.2	969.2
127.5°	978.4	980.1	981.8	983.6	985.3	990.4	999.2	1007.9	1016.6	1025.3	1032.2
130°	1022.3	1024.1	1025.8	1027.5	1029.3	1033.8	1041.0	1048.3	1055.5	1062.7	1069.7
132.5°	1063.5	1065.4	1067.4	1069.3	1071.4	1075.2	1081.0	1086.8	1092.6	1098.4	1105.1
135°	1127.6	1128.8	1130.1	1131.2	1132.5	1135.3	1139.8	1144.2	1148.6	1153.1	1159.5
137.5°	1182.3	1184.0	1185.7	1187.4	1189.1	1191.2	1193.7	1196.1	1198.6	1201.1	1207.3
140°	1217.9	1219.4	1221.0	1222.5	1224.1	1225.7	1227.4	1229.0	1230.7	1232.4	1238.1
142.5°	1251.9	1253.1	1254.5	1255.7	1257.0	1258.1	1259.1	1260.0	1261.0	1261.9	1266.9
145°	1299.3	1300.8	1302.3	1303.8	1305.2	1306.2	1306.7	1307.2	1307.8	1308.2	1311.3
147.5°	1342.6	1343.8	1345.0	1346.1	1347.4	1348.2	1348.7	1349.2	1349.7	1350.2	1351.5
150°	1370.2	1370.9	1371.7	1372.4	1373.2	1373.9	1374.4	1374.8	1375.4	1375.9	1376.4
152.5°	1394.9	1395.3	1395.6	1396.0	1396.3	1396.7	1397.0	1397.3	1397.6	1397.9	1398.8
155°	1429.8	1429.3	1428.8	1428.3	1427.7	1427.6	1427.9	1428.2	1428.4	1428.6	1429.9
157.5°	1456.9	1456.8	1456.8	1456.7	1456.6	1456.5	1456.3	1456.0	1455.7	1455.5	1457.0
160°	1473.4	1473.1	1472.8	1472.6	1472.3	1472.1	1471.9	1471.6	1471.3	1471.1	1472.6
162.5°	1489.0	1488.3	1487.6	1486.9	1486.3	1485.9	1485.6	1485.3	1485.1	1484.8	1486.6
165°	1507.8	1507.0	1506.2	1505.5	1504.7	1504.2	1504.0	1503.7	1503.4	1503.2	1505.2
167.5°	1522.4	1521.4	1520.4	1519.4	1518.3	1517.9	1517.9	1517.9	1517.9	1517.9	1519.9
170°	1530.7	1529.6	1528.7	1527.7	1526.6	1526.1	1526.1	1526.1	1526.1	1526.1	1528.1
172.5°	1536.2	1535.0	1533.7	1532.5	1531.3	1530.8	1531.0	1531.2	1531.4	1531.6	1533.7
175°	1543.3	1542.0	1540.8	1539.4	1538.2	1537.7	1537.9	1538.2	1538.5	1538.7	1540.5
177.5°	1545.2	1544.1	1543.1	1542.1	1541.1	1540.7	1540.9	1541.1	1541.2	1541.5	1543.1
180°	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3



TEST NUMBER: P332230-940

CATALOG NUMBER: S123DIW-S1165D1320U940-4F0-1E-UDD-D

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7
2.5°	1284.0	1286.0	1288.0	1288.9	1288.6	1288.3	1288.1	1287.9
5°	1281.9	1284.4	1286.9	1288.0	1287.7	1287.4	1287.1	1286.7
7.5°	1274.2	1277.3	1280.4	1281.8	1281.4	1281.0	1280.7	1280.3
10°	1266.3	1269.4	1272.6	1273.8	1273.2	1272.6	1271.9	1271.3
12.5°	1255.8	1258.6	1261.5	1262.6	1261.9	1261.3	1260.7	1260.1
15°	1235.5	1238.6	1241.7	1243.1	1242.9	1242.5	1242.2	1241.9
17.5°	1209.1	1211.9	1214.7	1215.8	1215.5	1215.0	1214.6	1214.2
20°	1190.0	1192.8	1195.6	1197.2	1197.5	1197.8	1198.1	1198.5
22.5°	1169.1	1172.7	1176.2	1177.9	1177.7	1177.5	1177.3	1177.1
25°	1133.6	1137.7	1141.7	1143.8	1143.8	1143.8	1143.8	1143.8
27.5°	1096.6	1100.1	1103.6	1105.5	1105.7	1106.0	1106.3	1106.5
30°	1071.4	1075.1	1078.8	1080.7	1080.7	1080.7	1080.7	1080.7
32.5°	1043.8	1047.8	1051.8	1054.2	1054.9	1055.7	1056.4	1057.1
35°	1003.2	1007.8	1012.4	1015.5	1016.7	1018.0	1019.2	1020.4
37.5°	960.9	966.3	971.5	974.6	975.7	976.7	977.7	978.7
40°	932.9	938.2	943.5	946.7	948.0	949.2	950.5	951.7
42.5°	903.7	909.5	915.3	919.0	920.7	922.5	924.2	926.0
45°	859.9	865.8	871.7	875.9	878.4	880.9	883.4	885.8
47.5°	815.6	822.3	829.0	833.3	835.2	837.1	839.1	841.0
50°	785.2	792.5	799.6	804.2	806.5	808.6	810.8	813.0
52.5°	754.4	761.8	769.2	774.3	776.9	779.6	782.3	785.0
55°	707.8	716.2	724.7	730.1	732.6	735.1	737.6	740.1
57.5°	660.3	668.8	677.3	683.0	685.9	688.8	691.8	694.6
60°	627.1	635.9	644.6	650.7	654.2	657.5	660.9	664.4
62.5°	595.8	604.5	613.2	619.2	622.3	625.5	628.7	631.9
65°	545.7	555.1	564.5	570.6	573.7	576.8	580.0	583.1
67.5°	495.9	506.1	516.3	522.7	525.4	528.0	530.6	533.2
70°	462.9	472.9	482.8	489.4	492.5	495.6	498.6	501.8
72.5°	429.7	440.0	450.1	456.8	459.9	463.1	466.2	469.3
75°	379.4	389.7	399.9	407.0	410.7	414.5	418.2	421.9
77.5°	332.3	343.1	354.0	360.8	363.7	366.6	369.4	372.3
80°	301.5	312.1	322.7	329.6	332.7	335.8	338.9	342.0
82.5°	273.5	284.1	294.6	301.5	304.6	307.7	310.9	314.0
85°	234.3	244.9	255.4	262.3	265.4	268.5	271.6	274.7
87.5°	205.6	216.4	227.3	234.3	237.5	240.7	243.9	247.1
90°	209.1	220.7	232.4	240.0	243.6	247.2	250.8	254.5
92.5°	202.7	214.7	226.7	234.3	237.4	240.6	243.7	246.9
95°	197.2	208.7	220.1	227.4	230.4	233.5	236.7	239.8
97.5°	188.2	199.6	210.9	218.2	221.6	225.0	228.4	231.7
100°	181.9	193.0	204.1	211.2	214.6	218.0	221.4	224.8
102.5°	195.6	198.0	200.5	203.6	207.1	210.7	214.3	217.8
105°	283.5	247.1	210.7	194.2	197.5	200.8	204.1	207.4
107.5°	506.1	481.3	456.6	428.6	397.4	366.1	334.9	303.7
110°	606.2	605.9	605.6	588.4	554.5	520.6	486.6	452.6



TEST NUMBER: P332230-940

CATALOG NUMBER: S123DIW-S1165D1320U940-4F0-1E-UDD-D

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	673.9	681.9	689.9	691.4	686.4	681.5	676.5	671.6
115°	752.5	762.5	772.5	779.3	782.8	786.3	789.8	793.4
117.5°	822.2	831.7	841.2	847.2	849.8	852.5	855.1	857.7
120°	868.4	877.6	886.8	892.5	894.7	896.9	899.0	901.3
122.5°	913.4	921.8	930.1	935.4	937.8	940.2	942.5	944.9
125°	976.2	983.3	990.3	995.2	997.9	1000.6	1003.3	1005.9
127.5°	1039.2	1046.2	1053.2	1057.5	1059.1	1060.7	1062.3	1063.9
130°	1076.7	1083.6	1090.5	1094.7	1096.0	1097.3	1098.8	1100.1
132.5°	1111.8	1118.5	1125.2	1129.3	1130.6	1132.0	1133.5	1134.9
135°	1165.8	1172.2	1178.6	1182.1	1182.9	1183.7	1184.5	1185.4
137.5°	1213.4	1219.6	1225.7	1229.3	1230.4	1231.5	1232.5	1233.5
140°	1243.8	1249.6	1255.3	1258.6	1259.6	1260.7	1261.8	1262.8
142.5°	1271.8	1276.8	1281.8	1284.8	1285.7	1286.5	1287.3	1288.2
145°	1314.3	1317.2	1320.3	1322.4	1323.7	1324.9	1326.2	1327.4
147.5°	1352.7	1354.0	1355.2	1355.8	1355.8	1355.8	1355.7	1355.7
150°	1376.9	1377.4	1378.0	1378.1	1378.0	1377.9	1377.7	1377.6
152.5°	1399.7	1400.7	1401.6	1401.5	1400.4	1399.5	1398.4	1397.3
155°	1431.2	1432.4	1433.8	1433.6	1432.1	1430.6	1429.1	1427.5
157.5°	1458.6	1460.1	1461.6	1461.3	1459.4	1457.4	1455.4	1453.4
160°	1474.1	1475.7	1477.2	1477.0	1475.2	1473.5	1471.7	1469.9
162.5°	1488.3	1490.0	1491.7	1491.8	1490.2	1488.7	1487.1	1485.5
165°	1507.3	1509.3	1511.4	1511.4	1509.7	1507.9	1506.1	1504.3
167.5°	1522.0	1523.9	1526.0	1526.0	1523.9	1522.0	1519.9	1517.9
170°	1530.2	1532.2	1534.3	1534.3	1532.2	1530.2	1528.1	1526.1
172.5°	1535.7	1537.8	1539.8	1539.6	1537.4	1535.2	1532.9	1530.7
175°	1542.3	1544.1	1545.9	1545.7	1543.7	1541.7	1539.6	1537.6
177.5°	1544.7	1546.4	1548.0	1547.8	1545.8	1543.7	1541.7	1539.6
180°	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3

(END OF REPORT)