

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: P332232-940

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

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332232-940  
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-F  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

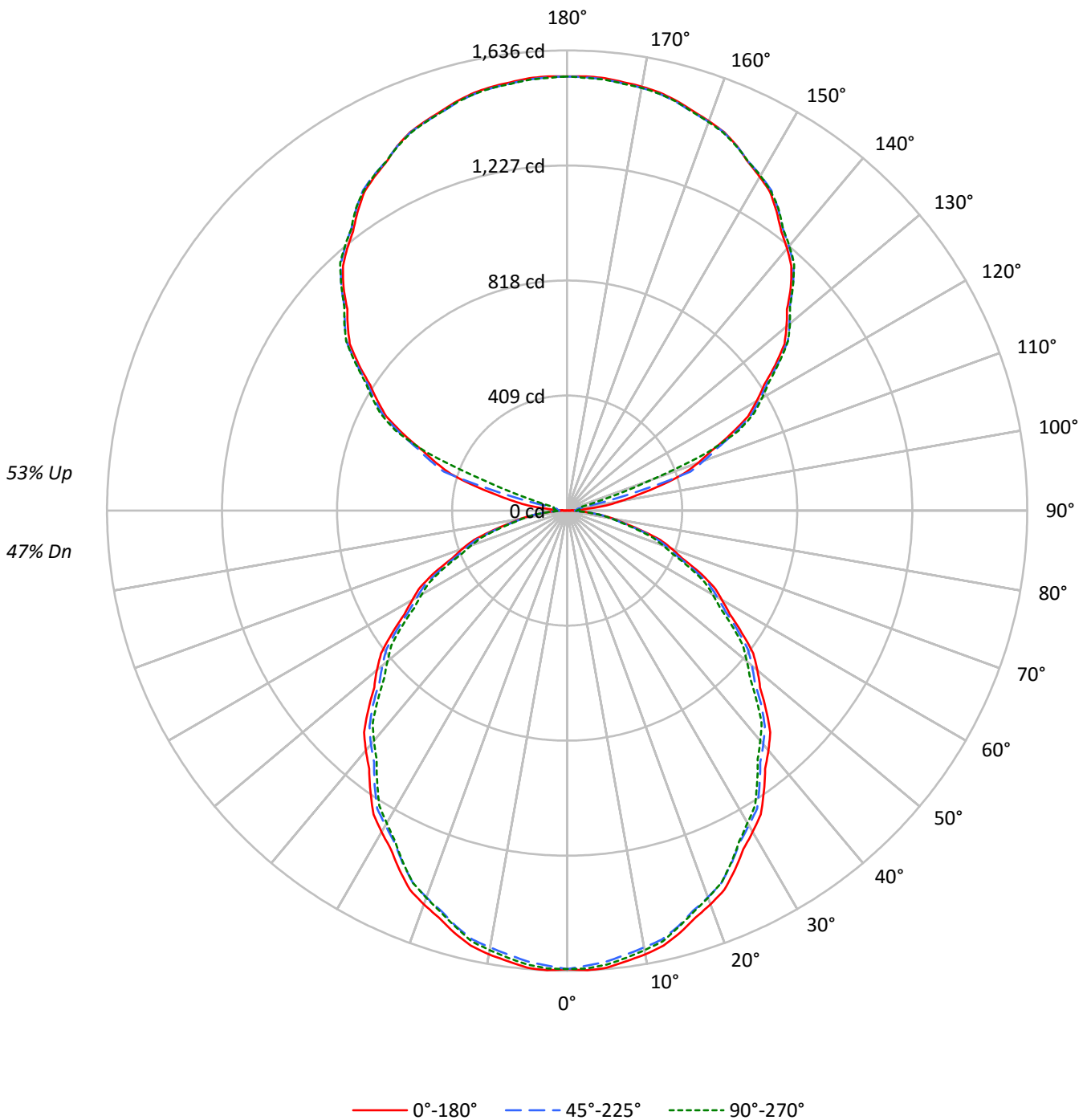
Lumens per Lamp: N/A  
Luminaire Lumens: 8952.5 lumens  
Efficiency: N/A  
Efficacy: 117.5 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: General Diffuse  
  
Input Watts (W): 76.2  
Input Voltage (V): 120  
Input Current (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	107	107	107	107	98	98	98	98	82	82	82	67	67	67	54	54	54	47
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45	40
2	88	81	75	70	81	75	69	65	63	59	55	52	49	47	42	40	38	33
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	34	32	28
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28	24
5	68	56	48	42	62	52	45	39	44	38	34	37	32	29	30	27	24	21
6	62	50	42	36	57	47	39	34	40	34	30	33	29	26	27	24	21	18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	25	21	19	16
8	53	41	33	28	49	38	31	26	33	27	23	27	23	20	23	19	17	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13
10	46	34	27	22	43	32	26	21	28	22	19	23	19	16	19	16	14	12

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

	0°	45°	90°
0°	17546	17546	17546
5°	17629	17386	17507
10°	17511	17235	17343
15°	17307	17041	17072
20°	17068	16763	16778
25°	16747	16431	16397
30°	16394	16063	15940
35°	16025	15674	15471
40°	15638	15244	15008
45°	15213	14850	14487
50°	14788	14364	13966
55°	14230	13863	13440
60°	13670	13276	12854
65°	13173	12638	12246
70°	12441	11909	11383
75°	11366	10959	10493
80°	10253	9819	9732
85°	9003	8657	8312



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	153.6	1.7
10°-20°	433.6	4.8
20°-30°	640.5	7.2
30°-40°	748.2	8.4
40°-50°	752.2	8.4
50°-60°	660.7	7.4
60°-70°	492.2	5.5
70°-80°	280.4	3.1
80°-90°	84.8	0.9
90°-100°	56.1	0.6
100°-110°	267.4	3.0
110°-120°	642.3	7.2
120°-130°	818.0	9.1
130°-140°	874.0	9.8
140°-150°	817.3	9.1
150°-160°	659.2	7.4
160°-170°	425.5	4.8
170°-180°	146.6	1.6
0°-30°	1227.6	13.7
0°-40°	1975.8	22.1
0°-60°	3388.7	37.9
0°-90°	4246.2	47.4
90°-120°	965.9	10.8
90°-150°	3475.0	38.8
90°-180°	4706.0	52.6
0°-180°	8952.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1630	1630	1630	1630	1630	
5°	1632	1624	1609	1622	1620	155
15°	1553	1547	1529	1539	1532	438
25°	1410	1401	1384	1385	1381	649
35°	1220	1211	1193	1185	1177	763
45°	999	993	976	959	952	771
55°	758	756	739	724	716	679
65°	517	510	496	485	481	510
75°	273	268	264	257	252	292
85°	73	70	70	67	67	80
90°	1	13	28	32	34	7
95°	70	26	36	43	44	86
105°	342	348	251	60	50	362
115°	641	648	658	669	674	632
125°	904	912	917	920	922	807
135°	1125	1132	1136	1139	1136	866
145°	1298	1306	1308	1310	1310	812
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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1
2.5°	1635.8	1634.8	1633.8	1632.8	1631.7	1629.9	1627.2	1624.4	1621.7	1618.9	1621.4
5°	1631.6	1630.0	1628.4	1626.9	1625.3	1622.8	1619.4	1616.0	1612.6	1609.1	1612.2
7.5°	1615.6	1614.0	1612.5	1610.9	1609.4	1606.8	1603.2	1599.7	1596.2	1592.6	1595.4
10°	1602.1	1600.5	1599.0	1597.4	1595.9	1593.1	1589.0	1585.0	1580.9	1576.9	1579.7
12.5°	1584.2	1582.9	1581.5	1580.3	1579.0	1576.4	1572.6	1568.8	1565.0	1561.2	1563.3
15°	1553.1	1551.8	1550.6	1549.3	1548.1	1545.4	1541.4	1537.3	1533.3	1529.2	1531.7
17.5°	1516.9	1515.3	1513.7	1512.1	1510.4	1507.6	1503.5	1499.5	1495.4	1491.4	1493.2
20°	1490.0	1488.1	1486.2	1484.3	1482.6	1479.5	1475.5	1471.5	1467.4	1463.4	1464.6
22.5°	1459.7	1457.9	1456.0	1454.1	1452.2	1449.3	1445.2	1441.2	1437.2	1433.1	1434.0
25°	1410.1	1408.2	1406.3	1404.4	1402.7	1399.6	1395.6	1391.6	1387.5	1383.5	1383.8
27.5°	1357.1	1355.3	1353.5	1351.7	1349.9	1346.8	1342.5	1338.1	1333.7	1329.4	1329.6
30°	1319.0	1317.4	1315.9	1314.3	1312.8	1309.8	1305.5	1301.1	1296.7	1292.4	1292.4
32.5°	1280.9	1278.8	1276.8	1274.7	1272.6	1269.9	1266.6	1263.2	1259.8	1256.5	1254.7
35°	1219.5	1217.6	1215.8	1213.9	1212.0	1209.1	1205.0	1201.0	1196.9	1192.8	1191.0
37.5°	1156.6	1154.3	1151.9	1149.6	1147.2	1144.0	1139.9	1135.8	1131.7	1127.5	1125.2
40°	1112.9	1111.1	1109.2	1107.3	1105.5	1102.3	1098.0	1093.6	1089.2	1084.9	1082.4
42.5°	1069.2	1067.1	1065.0	1062.8	1060.7	1057.5	1053.1	1048.7	1044.4	1040.1	1037.6
45°	999.4	998.2	996.9	995.7	994.4	991.8	987.7	983.6	979.6	975.5	971.9
47.5°	930.1	928.4	926.6	924.7	922.9	920.2	916.3	912.5	908.7	904.9	901.3
50°	883.1	881.5	879.9	878.4	876.8	874.1	870.0	865.9	861.8	857.8	854.4
52.5°	833.7	832.7	831.6	830.5	829.5	826.8	822.5	818.2	814.0	809.6	806.6
55°	758.3	758.0	757.7	757.4	757.1	754.9	750.8	746.8	742.7	738.7	735.3
57.5°	686.5	685.5	684.4	683.4	682.3	680.2	676.9	673.7	670.5	667.2	664.1
60°	635.0	634.6	634.4	634.0	633.7	631.7	627.9	624.2	620.5	616.7	613.9
62.5°	589.0	588.2	587.4	586.6	585.8	583.4	579.7	576.0	572.3	568.6	565.7
65°	517.2	515.7	514.1	512.6	511.0	508.6	505.5	502.4	499.3	496.2	493.7
67.5°	441.2	439.9	438.5	437.1	435.8	433.9	431.5	429.2	426.8	424.5	422.2
70°	395.3	393.4	391.6	389.7	387.8	385.9	384.1	382.2	380.3	378.4	376.3
72.5°	347.1	345.7	344.3	343.0	341.6	339.8	337.7	335.6	333.5	331.4	329.4
75°	273.3	272.1	270.8	269.6	268.3	267.2	266.4	265.4	264.5	263.5	262.0
77.5°	208.0	207.3	206.6	206.0	205.3	204.4	203.2	202.2	201.0	199.9	198.9
80°	165.4	164.4	163.5	162.6	161.7	160.9	160.2	159.6	159.0	158.4	158.1
82.5°	123.9	123.7	123.5	123.3	123.1	123.0	122.9	122.8	122.6	122.5	122.0
85°	72.9	72.2	71.6	71.0	70.4	70.1	70.1	70.1	70.1	70.1	69.5
87.5°	29.4	29.2	28.9	28.7	28.4	28.5	28.9	29.3	29.8	30.1	30.1
90°	1.2	3.7	6.2	8.8	11.3	14.3	17.6	20.9	24.2	27.6	28.5
92.5°	21.3	20.6	19.9	19.2	18.5	19.4	21.8	24.3	26.8	29.3	30.9
95°	69.9	59.5	49.0	38.6	28.2	24.3	27.1	30.0	32.7	35.6	37.4
97.5°	140.5	135.9	131.2	126.5	121.8	110.3	91.9	73.7	55.3	36.9	39.0
100°	193.8	198.9	203.9	209.0	214.2	196.8	157.1	117.3	77.6	37.8	39.9
102.5°	254.3	258.0	261.6	265.3	269.0	249.1	205.7	162.3	118.9	75.4	69.1
105°	341.7	344.5	347.3	350.1	352.8	342.9	319.9	296.9	274.0	251.1	206.0
107.5°	433.9	436.1	438.4	440.6	442.8	445.8	449.4	453.0	456.6	460.2	427.1
110°	495.3	497.4	499.4	501.4	503.5	505.9	508.7	511.5	514.3	517.1	508.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	554.0	555.9	557.7	559.5	561.3	563.7	566.5	569.3	572.1	574.9	575.1
115°	641.0	642.5	644.0	645.5	647.0	649.0	651.2	653.5	655.9	658.2	660.7
117.5°	725.1	727.0	728.9	730.8	732.6	734.1	735.3	736.6	737.7	738.9	740.9
120°	777.4	779.7	781.9	784.3	786.6	788.1	788.8	789.6	790.4	791.1	793.2
122.5°	830.6	832.5	834.4	836.2	838.1	839.5	840.5	841.5	842.5	843.5	844.9
125°	903.5	905.5	907.6	909.6	911.7	913.2	914.2	915.3	916.2	917.3	917.7
127.5°	974.1	976.2	978.2	980.3	982.3	983.9	985.2	986.4	987.6	988.8	989.6
130°	1018.2	1020.2	1022.3	1024.3	1026.4	1027.9	1028.9	1029.9	1030.9	1031.9	1033.0
132.5°	1060.3	1062.4	1064.4	1066.5	1068.5	1070.0	1070.8	1071.6	1072.4	1073.2	1074.2
135°	1124.8	1126.3	1127.8	1129.4	1131.0	1132.2	1133.2	1134.3	1135.2	1136.3	1137.0
137.5°	1179.8	1181.8	1183.7	1185.6	1187.6	1188.8	1189.4	1190.0	1190.5	1191.1	1192.3
140°	1216.6	1218.1	1219.6	1221.1	1222.6	1223.8	1224.6	1225.3	1226.1	1226.8	1227.9
142.5°	1250.4	1252.0	1253.6	1255.1	1256.6	1257.8	1258.5	1259.3	1260.0	1260.8	1261.6
145°	1298.0	1299.8	1301.5	1303.3	1305.1	1306.2	1306.7	1307.2	1307.8	1308.2	1308.8
147.5°	1342.6	1343.8	1345.0	1346.1	1347.4	1348.2	1348.7	1349.2	1349.7	1350.2	1350.8
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



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1
2.5°	1623.9	1626.4	1628.9	1630.0	1629.8	1629.5	1629.2	1629.1
5°	1615.3	1618.5	1621.6	1622.8	1622.2	1621.6	1621.0	1620.3
7.5°	1598.2	1601.0	1603.8	1605.0	1604.6	1604.3	1603.9	1603.6
10°	1582.5	1585.3	1588.1	1589.2	1588.6	1588.0	1587.3	1586.7
12.5°	1565.3	1567.4	1569.4	1570.3	1569.9	1569.5	1569.1	1568.8
15°	1534.2	1536.7	1539.2	1539.5	1537.7	1535.8	1533.9	1532.0
17.5°	1494.9	1496.6	1498.3	1498.9	1498.3	1497.5	1496.8	1496.2
20°	1465.9	1467.1	1468.4	1468.5	1467.6	1466.6	1465.7	1464.7
22.5°	1435.1	1436.1	1437.1	1437.0	1435.8	1434.6	1433.4	1432.3
25°	1384.1	1384.4	1384.7	1384.4	1383.5	1382.5	1381.6	1380.6
27.5°	1329.9	1330.1	1330.3	1329.9	1328.7	1327.5	1326.3	1325.2
30°	1292.4	1292.4	1292.4	1291.3	1289.1	1286.9	1284.7	1282.5
32.5°	1252.9	1251.2	1249.5	1248.0	1246.9	1245.6	1244.5	1243.3
35°	1189.1	1187.2	1185.4	1183.7	1182.1	1180.5	1178.9	1177.4
37.5°	1123.0	1120.8	1118.6	1117.0	1115.9	1114.9	1113.9	1112.9
40°	1080.0	1077.5	1075.0	1073.1	1071.8	1070.6	1069.3	1068.1
42.5°	1035.1	1032.6	1030.1	1028.2	1027.0	1025.7	1024.5	1023.2
45°	968.1	964.4	960.6	958.0	956.4	954.8	953.3	951.7
47.5°	897.6	893.9	890.2	887.7	886.4	884.9	883.6	882.3
50°	851.0	847.6	844.1	841.5	839.6	837.8	835.9	834.0
52.5°	803.8	800.8	797.9	795.5	793.6	791.8	789.9	788.0
55°	731.8	728.4	725.0	722.5	720.9	719.3	717.8	716.2
57.5°	661.1	658.1	655.0	652.6	650.8	649.0	647.1	645.3
60°	611.2	608.3	605.6	603.3	601.8	600.2	598.7	597.1
62.5°	562.9	560.1	557.3	555.4	554.3	553.2	552.2	551.2
65°	491.2	488.7	486.2	484.6	483.6	482.7	481.7	480.8
67.5°	420.1	417.9	415.7	413.9	412.7	411.3	410.0	408.8
70°	374.1	371.9	369.7	367.8	366.3	364.7	363.2	361.7
72.5°	327.5	325.6	323.6	322.3	321.5	320.7	319.9	319.1
75°	260.4	258.9	257.3	256.0	255.1	254.1	253.2	252.3
77.5°	197.8	196.7	195.6	195.1	195.1	195.1	195.1	195.1
80°	157.7	157.5	157.1	157.0	157.0	157.0	157.0	157.0
82.5°	121.4	120.8	120.3	119.8	119.6	119.4	119.1	118.9
85°	68.8	68.2	67.6	67.3	67.3	67.3	67.3	67.3
87.5°	30.1	30.1	30.0	30.1	30.1	30.2	30.3	30.4
90°	29.5	30.6	31.6	32.4	32.9	33.3	33.9	34.4
92.5°	32.6	34.2	35.8	36.8	37.2	37.5	37.7	38.1
95°	39.1	40.9	42.7	43.6	43.6	43.6	43.6	43.6
97.5°	41.0	43.1	45.0	46.2	46.5	46.7	47.0	47.3
100°	41.9	44.0	46.0	47.2	47.3	47.6	47.9	48.2
102.5°	62.8	56.4	50.2	47.3	47.7	48.2	48.6	49.0
105°	160.9	115.8	70.7	48.4	49.0	49.4	49.9	50.5
107.5°	394.1	361.1	328.0	294.4	260.5	226.4	192.4	158.5
110°	500.2	491.9	483.5	461.0	424.6	388.2	351.8	315.3





TEST NUMBER: P332232-940

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

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	575.2	575.3	575.5	571.8	564.0	556.3	548.7	541.0
115°	663.3	665.8	668.3	670.1	671.1	672.2	673.2	674.2
117.5°	743.0	744.9	747.0	748.1	748.3	748.5	748.8	748.9
120°	795.2	797.3	799.3	800.3	800.3	800.3	800.3	800.3
122.5°	846.3	847.7	849.2	850.0	850.2	850.3	850.6	850.8
125°	918.3	918.8	919.3	919.8	920.3	920.9	921.3	921.9
127.5°	990.4	991.2	992.1	992.2	991.8	991.2	990.7	990.2
130°	1033.9	1035.0	1036.0	1036.3	1035.7	1035.3	1034.7	1034.2
132.5°	1075.2	1076.3	1077.3	1077.5	1076.7	1076.0	1075.3	1074.6
135°	1137.8	1138.5	1139.3	1139.3	1138.5	1137.8	1137.0	1136.3
137.5°	1193.6	1194.7	1196.0	1196.3	1195.8	1195.3	1194.8	1194.3
140°	1228.9	1229.9	1230.9	1231.2	1230.7	1230.1	1229.7	1229.1
142.5°	1262.4	1263.2	1264.1	1264.1	1263.4	1262.7	1261.9	1261.2
145°	1309.3	1309.7	1310.3	1310.5	1310.5	1310.5	1310.5	1310.5
147.5°	1351.2	1351.7	1352.3	1351.9	1350.8	1349.6	1348.4	1347.2
150°	1376.9	1377.4	1378.0	1377.8	1377.1	1376.3	1375.6	1374.8
152.5°	1399.7	1400.7	1401.6	1401.5	1400.3	1399.1	1397.9	1396.8
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)