

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: P332203-840

Luminaire Tested: **S123DIW-S1000D1320U840-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332203-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1000D1320U840-4F0-1E-UDD-F1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1000 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

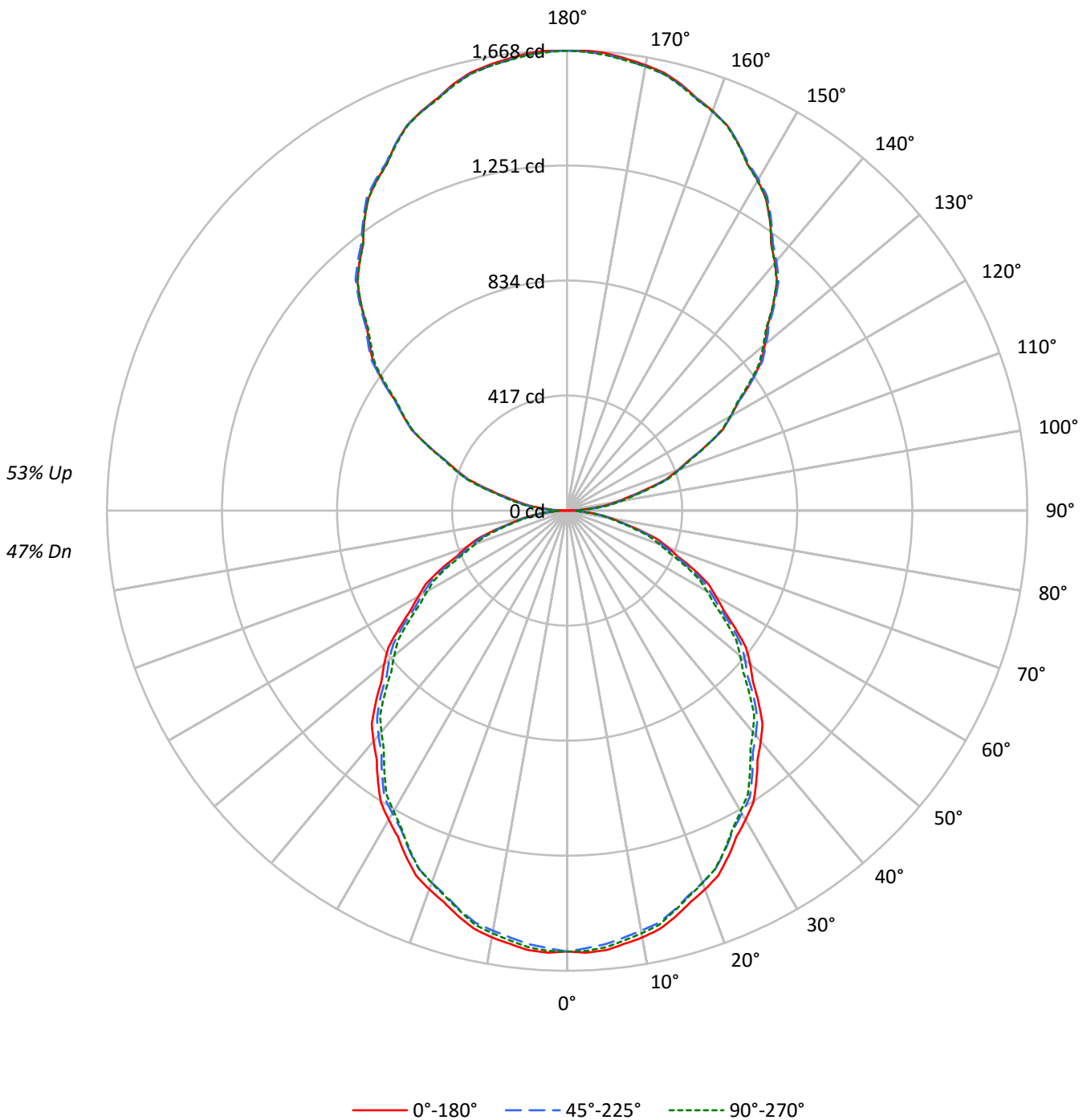
Lumens per Lamp: N/A  
Luminaire Lumens: 8784.0 lumens  
Efficiency: N/A  
Efficacy: 125.8 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: General Diffuse  
  
Input Watts (W): 69.8  
Input Voltage (V): 120  
Input Current (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	50	30	10	0	
RCR																						
0	107	107	107	107	98	98	98	98	82	82	82	67	67	67	54	54	54	47				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°	17206	17206	17206
5°	17286	17049	17168
10°	17171	16901	17006
15°	16971	16710	16741
20°	16736	16436	16452
25°	16422	16112	16079
30°	16075	15751	15631
35°	15713	15369	15172
40°	15336	14948	14716
45°	14918	14562	14206
50°	14502	14086	13695
55°	13955	13594	13181
60°	13403	13020	12605
65°	12918	12394	12006
70°	12198	11679	11160
75°	11146	10746	10289
80°	10054	9627	9540
85°	8830	8497	8139



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	150.6	1.7
10°-20°	425.2	4.8
20°-30°	628.0	7.1
30°-40°	733.6	8.4
40°-50°	737.6	8.4
50°-60°	647.9	7.4
60°-70°	482.7	5.5
70°-80°	275.0	3.1
80°-90°	83.9	1.0
90°-100°	108.6	1.2
100°-110°	325.1	3.7
110°-120°	553.0	6.3
120°-130°	727.3	8.3
130°-140°	817.5	9.3
140°-150°	803.6	9.1
150°-160°	676.5	7.7
160°-170°	450.3	5.1
170°-180°	157.7	1.8
0°-30°	1203.8	13.7
0°-40°	1937.4	22.1
0°-60°	3322.8	37.8
0°-90°	4164.4	47.4
90°-120°	986.7	11.2
90°-150°	3335.1	38.0
90°-180°	4620.0	52.6
0°-180°	8784.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1598	1598	1598	1598	1598	
5°	1600	1593	1578	1591	1589	152
15°	1523	1517	1500	1509	1502	429
25°	1383	1374	1357	1358	1354	637
35°	1196	1187	1170	1162	1155	748
45°	980	974	957	941	933	756
55°	744	741	724	710	702	666
65°	507	500	487	476	471	500
75°	268	263	258	252	247	287
85°	72	69	69	66	66	78
90°	1	15	31	37	39	9
95°	77	87	97	102	102	87
105°	295	298	309	309	312	316
115°	557	560	558	559	558	551
125°	815	818	816	811	806	726
135°	1057	1064	1064	1058	1056	814
145°	1282	1285	1289	1287	1282	801
155°	1468	1468	1470	1474	1466	676
165°	1599	1596	1595	1602	1594	451
175°	1663	1658	1658	1665	1657	158
180°	1667	1667	1667	1667	1667	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5
2.5°	1604.0	1603.1	1602.0	1601.0	1600.1	1598.2	1595.6	1592.9	1590.2	1587.5	1589.9
5°	1599.8	1598.3	1596.8	1595.3	1593.8	1591.3	1588.0	1584.6	1581.2	1577.9	1580.9
7.5°	1584.2	1582.7	1581.1	1579.6	1578.1	1575.6	1572.2	1568.6	1565.2	1561.7	1564.4
10°	1571.0	1569.5	1567.9	1566.4	1564.9	1562.2	1558.2	1554.2	1550.2	1546.3	1549.0
12.5°	1553.4	1552.2	1550.8	1549.5	1548.3	1545.8	1542.1	1538.3	1534.6	1530.9	1532.9
15°	1522.9	1521.7	1520.5	1519.2	1518.0	1515.4	1511.5	1507.5	1503.5	1499.5	1502.0
17.5°	1487.4	1485.8	1484.3	1482.7	1481.1	1478.3	1474.3	1470.4	1466.4	1462.4	1464.1
20°	1461.1	1459.3	1457.4	1455.5	1453.7	1450.8	1446.8	1442.9	1439.0	1434.9	1436.1
22.5°	1431.4	1429.6	1427.7	1425.8	1424.0	1421.2	1417.1	1413.2	1409.3	1405.2	1406.2
25°	1382.7	1380.9	1379.1	1377.3	1375.3	1372.5	1368.5	1364.5	1360.6	1356.6	1356.9
27.5°	1330.8	1329.0	1327.2	1325.4	1323.6	1320.6	1316.4	1312.1	1307.8	1303.5	1303.7
30°	1293.3	1291.8	1290.3	1288.8	1287.3	1284.3	1280.1	1275.8	1271.5	1267.3	1267.3
32.5°	1256.0	1253.9	1251.9	1249.9	1247.9	1245.3	1241.9	1238.7	1235.4	1232.0	1230.3
35°	1195.8	1194.0	1192.1	1190.3	1188.4	1185.6	1181.5	1177.6	1173.7	1169.6	1167.8
37.5°	1134.2	1131.9	1129.5	1127.2	1124.9	1121.8	1117.7	1113.7	1109.6	1105.6	1103.4
40°	1091.4	1089.4	1087.6	1085.8	1084.0	1081.0	1076.6	1072.4	1068.1	1063.8	1061.4
42.5°	1048.4	1046.3	1044.3	1042.2	1040.2	1036.9	1032.7	1028.4	1024.1	1019.9	1017.4
45°	980.0	978.8	977.5	976.3	975.1	972.5	968.6	964.5	960.6	956.6	953.0
47.5°	912.1	910.3	908.6	906.8	905.0	902.2	898.6	894.8	891.1	887.4	883.7
50°	866.0	864.3	862.8	861.3	859.8	857.1	853.0	849.1	845.2	841.2	837.8
52.5°	817.5	816.5	815.5	814.5	813.3	810.7	806.6	802.3	798.1	793.9	791.0
55°	743.6	743.3	743.0	742.7	742.4	740.2	736.3	732.3	728.3	724.4	720.9
57.5°	673.2	672.2	671.2	670.1	669.0	666.9	663.8	660.6	657.4	654.3	651.3
60°	622.6	622.3	622.0	621.7	621.4	619.5	615.7	612.1	608.4	604.8	602.0
62.5°	577.5	576.7	575.9	575.1	574.4	572.2	568.5	564.8	561.2	557.4	554.7
65°	507.2	505.6	504.1	502.6	501.1	498.8	495.7	492.7	489.6	486.6	484.1
67.5°	432.7	431.3	430.0	428.7	427.3	425.5	423.1	420.8	418.5	416.2	414.0
70°	387.6	385.8	384.0	382.1	380.3	378.4	376.6	374.8	372.9	371.1	369.0
72.5°	340.3	339.0	337.6	336.3	335.0	333.3	331.1	329.1	327.0	324.9	323.1
75°	268.0	266.8	265.6	264.4	263.2	262.1	261.2	260.2	259.3	258.4	256.9
77.5°	204.0	203.3	202.6	202.0	201.3	200.4	199.3	198.2	197.1	196.0	195.0
80°	162.2	161.3	160.4	159.5	158.5	157.7	157.1	156.5	155.9	155.3	155.0
82.5°	121.5	121.3	121.2	121.0	120.8	120.6	120.5	120.4	120.3	120.2	119.6
85°	71.5	70.9	70.3	69.7	69.1	68.8	68.8	68.8	68.8	68.8	68.1
87.5°	28.9	28.7	28.6	28.4	28.3	28.5	29.0	29.5	30.0	30.5	30.5
90°	1.3	4.2	7.2	10.0	12.9	16.3	20.1	23.8	27.7	31.4	32.6
92.5°	31.7	33.6	35.6	37.7	39.6	41.7	43.8	45.9	48.2	50.3	51.2
95°	77.3	79.3	81.4	83.4	85.4	87.7	90.0	92.3	94.6	96.9	98.1
97.5°	137.2	138.8	140.3	141.8	143.3	144.9	146.6	148.2	150.0	151.7	153.0
100°	178.1	179.9	181.6	183.4	185.1	186.7	188.1	189.7	191.1	192.6	193.4
102.5°	225.3	226.3	227.4	228.4	229.4	231.0	232.9	234.8	236.7	238.6	239.5
105°	294.7	295.3	295.9	296.4	297.0	298.6	301.2	303.9	306.5	309.1	309.1
107.5°	375.4	375.8	376.1	376.5	376.8	377.5	378.5	379.6	380.6	381.6	382.6
110°	425.7	426.3	426.9	427.4	428.0	428.6	429.2	429.8	430.3	430.9	432.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	478.1	478.4	478.8	479.1	479.5	479.7	479.8	479.9	480.1	480.2	481.6
115°	556.6	557.5	558.4	559.3	560.2	560.3	559.7	559.2	558.6	558.0	558.3
117.5°	635.8	636.3	636.9	637.5	638.1	638.0	637.2	636.5	635.7	635.0	634.9
120°	685.0	686.7	688.5	690.2	692.0	692.2	690.6	689.2	687.8	686.3	686.0
122.5°	736.4	737.6	738.9	740.2	741.4	741.7	740.9	740.2	739.4	738.7	737.9
125°	814.7	815.6	816.4	817.3	818.2	818.3	817.7	817.2	816.6	816.0	814.9
127.5°	887.0	888.9	890.7	892.5	894.4	895.0	894.4	893.7	893.1	892.5	890.8
130°	935.1	937.5	939.9	942.2	944.5	945.2	944.3	943.5	942.6	941.7	940.6
132.5°	983.4	985.7	988.1	990.4	992.7	993.5	992.9	992.3	991.6	991.0	989.6
135°	1057.0	1058.7	1060.5	1062.2	1064.0	1064.7	1064.4	1064.1	1063.8	1063.5	1062.4
137.5°	1125.1	1126.5	1128.0	1129.4	1130.9	1132.1	1132.8	1133.6	1134.3	1135.1	1133.8
140°	1172.3	1173.7	1175.2	1176.6	1178.1	1178.9	1179.2	1179.5	1179.8	1180.1	1179.8
142.5°	1215.2	1216.7	1218.1	1219.6	1221.0	1222.0	1222.5	1223.0	1223.6	1224.2	1223.9
145°	1282.2	1282.8	1283.4	1284.0	1284.5	1285.4	1286.2	1287.1	1288.0	1288.8	1288.5
147.5°	1340.9	1342.0	1343.0	1344.1	1345.1	1346.0	1346.9	1347.7	1348.5	1349.3	1349.3
150°	1381.8	1382.4	1383.0	1383.5	1384.1	1384.7	1385.3	1385.8	1386.4	1387.0	1387.0
152.5°	1415.3	1416.1	1416.9	1417.7	1418.6	1419.2	1419.6	1419.9	1420.3	1420.6	1421.1
155°	1468.2	1468.2	1468.2	1468.2	1468.2	1468.4	1468.6	1468.9	1469.3	1469.6	1470.8
157.5°	1513.3	1513.0	1512.6	1512.3	1511.9	1511.9	1512.1	1512.3	1512.6	1512.8	1514.0
160°	1541.6	1541.1	1540.4	1539.8	1539.2	1538.9	1538.9	1538.9	1538.9	1538.9	1540.4
162.5°	1566.7	1565.9	1565.1	1564.3	1563.5	1563.2	1563.5	1563.7	1563.9	1564.1	1565.6
165°	1599.2	1598.3	1597.5	1596.6	1595.8	1595.3	1595.3	1595.3	1595.3	1595.3	1597.0
167.5°	1625.2	1624.0	1622.9	1621.6	1620.5	1620.0	1620.2	1620.5	1620.7	1620.9	1622.8
170°	1639.8	1638.7	1637.5	1636.4	1635.2	1634.6	1634.6	1634.6	1634.6	1634.6	1636.6
172.5°	1651.3	1650.2	1649.0	1647.9	1646.7	1646.1	1646.1	1646.1	1646.1	1646.1	1647.9
175°	1663.4	1662.2	1661.1	1659.9	1658.7	1658.2	1658.2	1658.2	1658.2	1658.2	1659.9
177.5°	1668.4	1667.5	1666.5	1665.6	1664.7	1664.2	1664.2	1664.2	1664.2	1664.2	1665.6
180°	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5	1598.5
2.5°	1592.4	1594.9	1597.3	1598.4	1598.1	1597.9	1597.6	1597.4
5°	1584.0	1587.0	1590.1	1591.3	1590.7	1590.1	1589.5	1588.9
7.5°	1567.2	1569.9	1572.7	1573.9	1573.5	1573.2	1572.8	1572.4
10°	1551.8	1554.5	1557.3	1558.3	1557.7	1557.1	1556.5	1555.9
12.5°	1534.9	1536.9	1538.9	1539.7	1539.4	1539.0	1538.6	1538.3
15°	1504.4	1506.8	1509.3	1509.6	1507.8	1505.9	1504.1	1502.3
17.5°	1465.8	1467.5	1469.3	1469.8	1469.2	1468.4	1467.7	1467.1
20°	1437.3	1438.7	1439.9	1440.0	1439.1	1438.1	1437.2	1436.3
22.5°	1407.2	1408.2	1409.2	1409.1	1408.0	1406.7	1405.6	1404.4
25°	1357.2	1357.6	1357.9	1357.6	1356.6	1355.6	1354.7	1353.8
27.5°	1304.0	1304.2	1304.5	1304.0	1302.9	1301.7	1300.6	1299.4
30°	1267.3	1267.3	1267.3	1266.2	1264.0	1261.9	1259.8	1257.6
32.5°	1228.6	1227.0	1225.3	1223.8	1222.6	1221.4	1220.3	1219.1
35°	1166.0	1164.2	1162.4	1160.6	1159.1	1157.6	1156.1	1154.6
37.5°	1101.3	1099.0	1096.8	1095.2	1094.3	1093.3	1092.3	1091.4
40°	1058.9	1056.5	1054.1	1052.2	1051.0	1049.8	1048.5	1047.3
42.5°	1014.9	1012.5	1010.1	1008.2	1007.0	1005.8	1004.6	1003.4
45°	949.3	945.6	942.0	939.4	937.9	936.3	934.8	933.2
47.5°	880.1	876.6	872.9	870.5	869.1	867.8	866.5	865.1
50°	834.5	831.1	827.7	825.2	823.3	821.4	819.6	817.8
52.5°	788.1	785.3	782.4	780.0	778.2	776.4	774.6	772.7
55°	717.6	714.3	710.9	708.4	706.9	705.4	703.9	702.4
57.5°	648.2	645.3	642.3	639.9	638.1	636.3	634.6	632.8
60°	599.3	596.5	593.8	591.7	590.1	588.5	587.0	585.5
62.5°	552.0	549.3	546.4	544.6	543.5	542.5	541.5	540.5
65°	481.7	479.2	476.8	475.1	474.2	473.3	472.3	471.4
67.5°	411.9	409.8	407.7	406.0	404.7	403.3	402.0	400.8
70°	366.8	364.7	362.5	360.7	359.2	357.7	356.2	354.6
72.5°	321.1	319.2	317.3	316.0	315.2	314.4	313.7	312.9
75°	255.4	253.8	252.3	251.1	250.1	249.2	248.3	247.4
77.5°	193.9	192.9	191.9	191.4	191.4	191.4	191.4	191.4
80°	154.7	154.4	154.1	153.9	153.9	153.9	153.9	153.9
82.5°	119.1	118.5	118.0	117.5	117.2	117.0	116.8	116.5
85°	67.5	66.9	66.2	65.9	65.9	65.9	65.9	65.9
87.5°	30.5	30.4	30.4	30.5	30.6	30.7	30.8	30.9
90°	33.7	34.9	36.1	37.0	37.6	38.2	38.7	39.3
92.5°	52.1	53.1	54.0	54.3	53.9	53.6	53.2	52.9
95°	99.3	100.4	101.6	102.2	102.2	102.2	102.2	102.2
97.5°	154.3	155.7	157.0	157.6	157.5	157.4	157.3	157.1
100°	194.3	195.1	196.0	196.7	197.3	197.9	198.5	199.0
102.5°	240.3	241.3	242.2	242.5	242.4	242.3	242.2	242.1
105°	309.1	309.1	309.1	309.4	310.0	310.5	311.1	311.7
107.5°	383.5	384.5	385.4	385.7	385.4	385.0	384.7	384.3
110°	433.2	434.4	435.6	435.9	435.3	434.7	434.1	433.5





TEST NUMBER: P332203-840

CATALOG NUMBER: S123DIW-S1000D1320U840-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	482.9	484.3	485.7	486.4	486.3	486.1	486.0	485.9
115°	558.6	558.9	559.2	559.2	558.9	558.6	558.3	558.0
117.5°	634.9	634.8	634.7	634.3	633.5	632.7	631.9	631.1
120°	685.7	685.5	685.2	684.7	684.2	683.6	683.0	682.4
122.5°	737.2	736.4	735.7	734.9	734.1	733.3	732.5	731.6
125°	813.6	812.5	811.3	810.2	809.0	807.8	806.7	805.5
127.5°	889.2	887.6	886.0	884.4	883.1	881.8	880.5	879.1
130°	939.4	938.3	937.1	935.4	933.4	931.4	929.4	927.4
132.5°	988.2	986.7	985.4	983.9	982.3	980.8	979.2	977.7
135°	1061.2	1060.1	1058.8	1058.0	1057.4	1056.8	1056.2	1055.7
137.5°	1132.6	1131.4	1130.1	1129.0	1127.9	1126.8	1125.7	1124.6
140°	1179.5	1179.2	1178.9	1177.8	1175.8	1173.7	1171.6	1169.6
142.5°	1223.6	1223.2	1222.9	1222.0	1220.4	1218.9	1217.3	1215.8
145°	1288.2	1288.0	1287.7	1287.0	1285.8	1284.5	1283.4	1282.2
147.5°	1349.3	1349.3	1349.3	1348.5	1346.8	1344.9	1343.2	1341.5
150°	1387.0	1387.0	1387.0	1386.1	1384.4	1382.7	1380.9	1379.2
152.5°	1421.5	1422.0	1422.4	1421.9	1420.4	1418.9	1417.3	1415.8
155°	1471.9	1473.1	1474.2	1473.8	1471.8	1469.8	1467.6	1465.6
157.5°	1515.2	1516.4	1517.7	1517.4	1515.8	1514.2	1512.6	1511.0
160°	1541.9	1543.4	1544.8	1545.0	1543.8	1542.7	1541.5	1540.2
162.5°	1567.0	1568.5	1569.9	1569.7	1567.9	1566.0	1564.2	1562.3
165°	1598.8	1600.5	1602.3	1602.2	1600.1	1598.1	1596.0	1594.0
167.5°	1624.6	1626.4	1628.2	1628.2	1626.4	1624.6	1622.8	1620.9
170°	1638.7	1640.7	1642.7	1642.7	1640.7	1638.7	1636.6	1634.6
172.5°	1649.7	1651.5	1653.4	1653.3	1651.2	1649.1	1647.1	1645.1
175°	1661.6	1663.4	1665.2	1665.0	1662.9	1660.9	1658.9	1656.9
177.5°	1667.0	1668.4	1669.8	1669.7	1668.0	1666.4	1664.8	1663.1
180°	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4

(END OF REPORT)