

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: P332845-940

Luminaire Tested: **S124DIW-S1195D770U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332845-940  
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-S1195D770U940-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1195 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 770 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

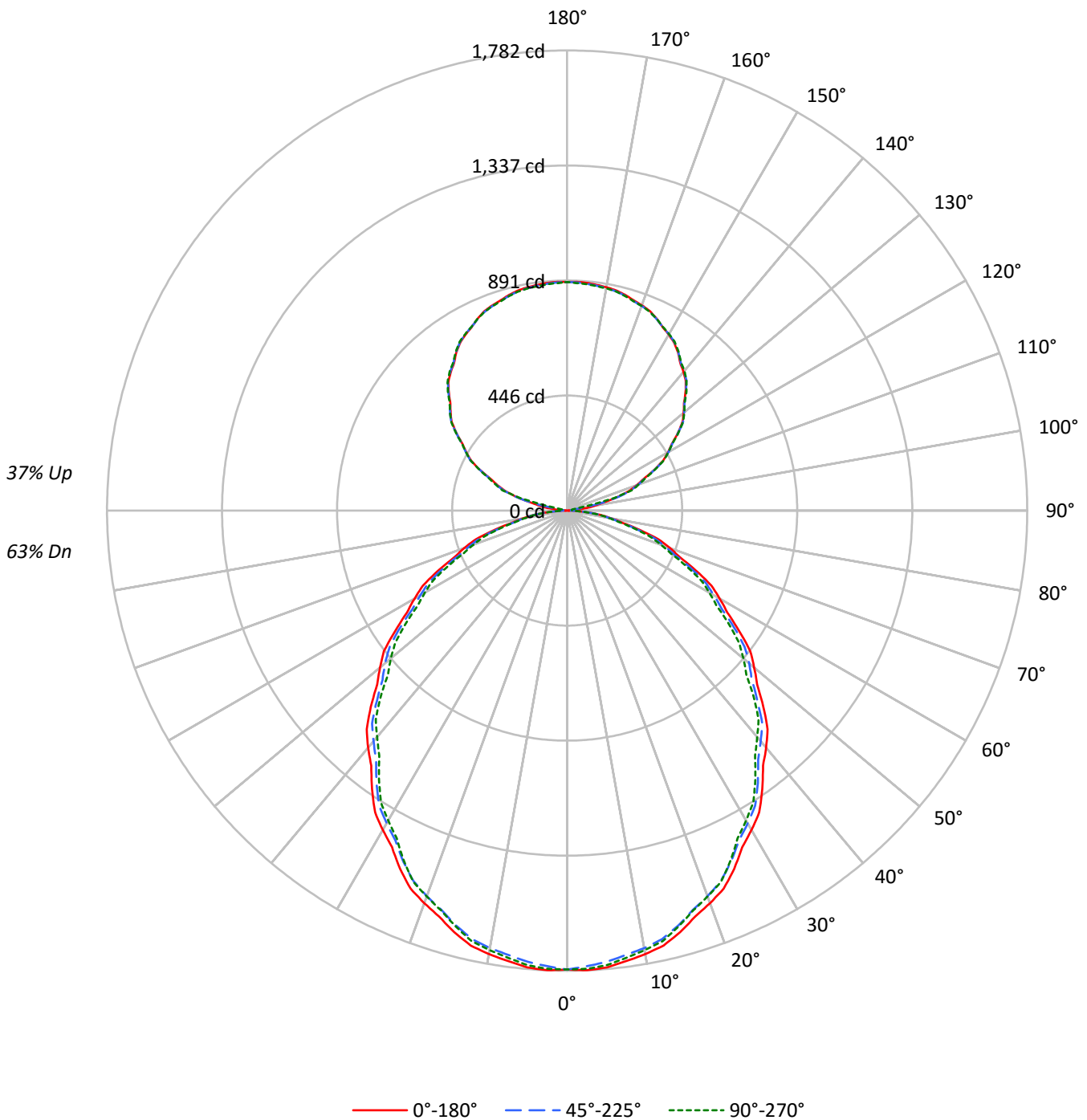
Lumens per Lamp: N/A  
Luminaire Lumens: 7300.2 lumens  
Efficiency: N/A  
Efficacy: 122.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Semi-Direct  
  
Input Watts (W): 59.8  
Input Voltage (V): 120  
Input Current (Ain): 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	0
RCR																		
0	110	110	110	110	103	103	103	103	90	90	90	78	78	78	68	68	68	63
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	60	58	57	53
2	92	84	78	72	86	79	73	69	69	65	61	61	57	55	53	50	48	44
3	84	74	66	60	78	69	63	57	61	56	52	54	50	46	47	43	41	37
4	76	65	57	51	71	62	54	49	54	49	44	48	43	40	42	38	35	32
5	70	58	50	44	66	55	48	42	49	43	38	43	38	34	38	34	31	28
6	65	52	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27	24
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24	22
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	29	25	22	19
9	52	39	32	27	49	37	30	26	34	28	24	30	25	22	26	22	20	17
10	49	36	29	24	46	34	28	23	31	25	21	28	23	20	25	21	18	16

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

	0°	45°	90°
0°	14346	14346	14346
5°	14389	14216	14319
10°	14299	14100	14170
15°	14125	13900	13936
20°	13897	13651	13664
25°	13635	13367	13331
30°	13313	13035	12915
35°	12980	12686	12518
40°	12635	12290	12064
45°	12273	11900	11671
50°	11875	11552	11195
55°	11444	11102	10742
60°	11013	10598	10277
65°	10527	10118	9712
70°	9982	9477	9106
75°	9148	8706	8484
80°	8140	7810	7610
85°	7123	6854	6725



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	167.3	2.3
10°-20°	471.5	6.5
20°-30°	694.0	9.5
30°-40°	806.8	11.1
40°-50°	806.8	11.1
50°-60°	705.8	9.7
60°-70°	524.1	7.2
70°-80°	297.8	4.1
80°-90°	88.5	1.2
90°-100°	30.3	0.4
100°-110°	193.0	2.6
110°-120°	369.2	5.1
120°-130°	468.7	6.4
130°-140°	501.4	6.9
140°-150°	468.9	6.4
150°-160°	378.1	5.2
160°-170°	243.9	3.3
170°-180°	84.1	1.2
0°-30°	1332.9	18.3
0°-40°	2139.7	29.3
0°-60°	3652.3	50.0
0°-90°	4562.7	62.5
90°-120°	592.4	8.1
90°-150°	2031.4	27.8
90°-180°	2737.0	37.5
0°-180°	7300.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1777	1777	1777	1777	1777	
5°	1776	1769	1754	1769	1767	168
15°	1690	1684	1663	1671	1667	476
25°	1531	1520	1501	1502	1497	704
35°	1317	1307	1287	1277	1270	823
45°	1075	1064	1042	1027	1022	828
55°	813	808	789	772	763	728
65°	551	544	530	516	508	545
75°	293	286	279	274	272	312
85°	77	77	74	74	73	85
90°	2	9	14	18	20	6
95°	36	15	14	18	19	47
105°	199	203	206	211	189	208
115°	372	374	373	375	375	366
125°	523	525	524	526	527	467
135°	649	648	651	652	653	500
145°	748	750	750	751	752	467
155°	820	821	819	821	820	378
165°	865	862	862	866	861	244
175°	885	881	882	887	880	84
180°	885	885	885	885	885	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0
2.5°	1781.5	1780.8	1780.0	1779.3	1778.5	1776.7	1774.0	1771.2	1768.4	1765.7	1768.2
5°	1775.6	1774.3	1773.1	1771.8	1770.6	1768.2	1764.7	1761.2	1757.7	1754.3	1757.7
7.5°	1759.1	1757.8	1756.6	1755.2	1754.0	1751.5	1747.6	1743.7	1739.9	1736.0	1738.8
10°	1744.3	1743.0	1741.8	1740.4	1739.2	1736.5	1732.4	1728.3	1724.2	1720.1	1722.6
12.5°	1724.9	1723.7	1722.3	1721.1	1719.8	1717.0	1712.7	1708.3	1704.0	1699.6	1702.4
15°	1690.1	1688.9	1687.7	1686.4	1685.1	1682.1	1677.3	1672.6	1667.9	1663.1	1665.0
17.5°	1648.3	1646.7	1645.1	1643.6	1642.0	1639.0	1634.4	1630.0	1625.5	1621.0	1622.2
20°	1617.6	1616.0	1614.4	1612.8	1611.2	1608.0	1603.3	1598.6	1593.8	1589.0	1590.0
22.5°	1584.5	1582.4	1580.4	1578.2	1576.2	1572.7	1568.0	1563.3	1558.5	1553.7	1555.5
25°	1530.7	1528.5	1526.3	1524.0	1521.8	1518.5	1514.0	1509.7	1505.2	1500.7	1501.1
27.5°	1469.2	1466.9	1464.6	1462.3	1460.1	1456.9	1452.8	1448.7	1444.6	1440.4	1439.7
30°	1428.2	1425.7	1423.1	1420.6	1418.1	1414.7	1410.6	1406.5	1402.4	1398.3	1397.0
32.5°	1384.9	1382.6	1380.4	1378.0	1375.7	1372.4	1368.1	1363.7	1359.3	1355.0	1353.4
35°	1317.1	1314.9	1312.7	1310.5	1308.2	1304.9	1300.5	1296.1	1291.6	1287.2	1285.0
37.5°	1245.6	1243.6	1241.6	1239.6	1237.5	1234.1	1229.4	1224.7	1219.9	1215.1	1212.7
40°	1198.9	1196.4	1193.8	1191.3	1188.8	1185.2	1180.4	1175.6	1170.9	1166.2	1163.0
42.5°	1148.8	1147.3	1145.8	1144.2	1142.7	1139.3	1134.1	1128.8	1123.6	1118.3	1114.6
45°	1075.0	1072.8	1070.6	1068.4	1066.2	1062.6	1057.5	1052.4	1047.3	1042.3	1038.8
47.5°	997.8	996.3	994.8	993.3	991.8	988.7	984.0	979.4	974.6	970.0	966.1
50°	945.5	944.2	942.9	941.6	940.4	937.5	933.1	928.7	924.3	919.8	915.4
52.5°	894.2	892.7	891.2	889.7	888.1	885.0	880.4	875.7	871.0	866.3	862.4
55°	813.1	812.1	811.2	810.2	809.2	806.6	802.1	797.7	793.3	788.8	785.1
57.5°	735.6	734.5	733.4	732.4	731.3	728.5	724.2	719.8	715.4	711.1	707.5
60°	682.1	680.5	678.9	677.3	675.7	672.9	668.8	664.7	660.5	656.4	653.5
62.5°	629.6	628.3	627.0	625.6	624.4	621.5	617.2	612.8	608.4	604.0	601.5
65°	551.1	549.5	547.9	546.3	544.7	542.3	539.2	536.0	532.9	529.7	526.6
67.5°	471.9	470.5	469.0	467.5	466.1	463.8	460.7	457.7	454.7	451.7	448.6
70°	422.9	420.7	418.5	416.3	414.0	411.7	409.1	406.6	404.0	401.5	399.0
72.5°	370.5	368.3	366.0	363.8	361.7	359.5	357.5	355.4	353.5	351.4	349.4
75°	293.3	291.8	290.2	288.6	287.0	285.4	283.8	282.2	280.7	279.1	277.9
77.5°	219.5	218.8	218.2	217.5	216.8	215.7	214.4	212.9	211.6	210.2	209.8
80°	175.1	174.2	173.3	172.3	171.4	170.6	170.0	169.2	168.6	168.0	167.4
82.5°	131.9	131.4	131.0	130.5	130.1	129.8	129.7	129.6	129.4	129.3	128.9
85°	76.9	76.9	76.9	76.9	76.9	76.6	76.0	75.3	74.6	74.0	74.0
87.5°	30.1	30.1	30.1	30.2	30.3	30.3	30.3	30.3	30.2	30.2	30.4
90°	2.0	3.6	5.3	6.9	8.5	9.9	11.1	12.2	13.4	14.5	15.4
92.5°	8.4	8.5	8.6	8.6	8.6	9.4	10.5	11.7	12.8	14.0	14.9
95°	36.4	31.4	26.4	21.4	16.4	14.0	14.1	14.3	14.4	14.5	15.4
97.5°	77.3	80.4	83.6	86.7	89.8	83.1	66.7	50.3	33.9	17.5	17.6
100°	108.5	111.2	113.9	116.5	119.1	110.3	90.1	69.7	49.4	29.2	26.7
102.5°	143.5	145.4	147.4	149.4	151.2	150.9	148.3	145.6	142.9	140.4	113.3
105°	199.2	200.1	201.0	201.9	202.8	203.6	204.3	205.0	205.8	206.5	207.9
107.5°	251.0	251.5	251.9	252.4	252.8	253.5	254.5	255.5	256.5	257.4	258.2
110°	286.0	286.4	286.9	287.3	287.7	288.4	289.3	290.2	291.1	291.9	292.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	319.9	320.7	321.5	322.2	323.0	323.6	324.0	324.4	324.9	325.3	325.2
115°	372.0	372.5	372.9	373.3	373.7	373.9	373.7	373.6	373.4	373.3	373.6
117.5°	419.0	419.5	420.2	420.7	421.3	421.8	422.1	422.4	422.8	423.1	423.0
120°	450.8	451.4	451.9	452.5	453.1	453.3	453.2	453.1	452.9	452.7	453.1
122.5°	480.5	480.7	481.1	481.4	481.8	482.1	482.3	482.5	482.7	483.0	483.1
125°	522.9	523.5	524.1	524.7	525.2	525.4	525.1	524.9	524.5	524.2	524.7
127.5°	563.1	563.3	563.5	563.6	563.7	564.2	564.8	565.5	566.1	566.9	566.8
130°	589.1	589.2	589.4	589.5	589.7	590.0	590.4	590.8	591.3	591.7	591.9
132.5°	613.0	613.2	613.5	613.7	613.9	614.4	614.9	615.5	616.1	616.6	616.8
135°	648.6	648.5	648.4	648.2	648.1	648.3	648.9	649.4	650.1	650.7	650.9
137.5°	680.3	680.4	680.5	680.5	680.6	680.9	681.5	682.2	682.9	683.5	683.8
140°	701.0	701.2	701.5	701.9	702.1	702.4	702.8	703.0	703.3	703.6	704.0
142.5°	719.5	720.1	720.6	721.0	721.6	721.9	722.1	722.3	722.5	722.6	723.0
145°	748.0	748.4	748.9	749.3	749.8	749.9	749.9	749.9	749.9	749.9	750.1
147.5°	770.6	771.4	772.2	773.0	773.9	774.2	774.1	773.9	773.7	773.6	773.7
150°	787.0	787.6	788.2	788.8	789.3	789.6	789.4	789.3	789.2	789.0	789.0
152.5°	800.8	801.2	801.7	802.2	802.6	802.7	802.5	802.3	802.0	801.7	801.9
155°	820.1	820.3	820.4	820.6	820.7	820.6	820.1	819.7	819.2	818.8	819.4
157.5°	836.4	836.3	836.2	836.2	836.1	835.7	835.3	834.7	834.2	833.7	834.5
160°	845.9	845.4	845.1	844.6	844.2	843.8	843.7	843.6	843.4	843.3	844.2
162.5°	854.3	853.8	853.3	852.7	852.1	851.8	851.7	851.5	851.3	851.2	852.1
165°	865.1	864.3	863.6	862.9	862.2	861.8	861.8	861.8	861.8	861.8	863.0
167.5°	873.6	872.8	872.1	871.3	870.5	870.1	870.0	870.0	869.9	869.8	871.0
170°	878.3	877.4	876.6	875.7	874.9	874.4	874.6	874.8	874.9	875.0	876.2
172.5°	881.5	880.7	879.8	878.9	878.0	877.6	877.8	877.9	878.1	878.2	879.4
175°	884.9	884.0	883.2	882.3	881.5	881.1	881.2	881.4	881.5	881.6	883.0
177.5°	886.5	885.7	884.9	884.0	883.2	883.0	883.2	883.4	883.7	883.9	884.8
180°	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0	1777.0
2.5°	1770.7	1773.3	1775.8	1776.9	1776.6	1776.4	1776.1	1775.8
5°	1761.2	1764.7	1768.2	1769.6	1769.0	1768.4	1767.7	1767.0
7.5°	1741.6	1744.4	1747.1	1748.4	1748.0	1747.6	1747.2	1746.9
10°	1725.1	1727.7	1730.2	1731.2	1730.5	1729.9	1729.2	1728.6
12.5°	1705.1	1707.9	1710.7	1711.6	1710.7	1709.9	1709.0	1708.1
15°	1666.9	1668.8	1670.7	1671.2	1670.3	1669.3	1668.3	1667.4
17.5°	1623.4	1624.6	1625.8	1626.0	1625.4	1624.8	1624.2	1623.5
20°	1591.0	1591.9	1592.9	1593.0	1592.4	1591.8	1591.2	1590.5
22.5°	1557.2	1558.9	1560.6	1560.9	1559.8	1558.6	1557.5	1556.3
25°	1501.5	1501.7	1502.1	1501.6	1500.3	1499.1	1497.8	1496.6
27.5°	1438.9	1438.2	1437.3	1436.2	1434.6	1433.1	1431.5	1429.9
30°	1395.7	1394.5	1393.2	1391.8	1390.2	1388.7	1387.1	1385.5
32.5°	1351.9	1350.4	1348.9	1347.4	1345.8	1344.2	1342.6	1341.0
35°	1282.8	1280.6	1278.4	1276.5	1274.9	1273.3	1271.7	1270.2
37.5°	1210.3	1207.9	1205.5	1203.3	1201.2	1199.1	1197.0	1194.9
40°	1159.8	1156.6	1153.5	1151.1	1149.6	1148.0	1146.4	1144.8
42.5°	1111.0	1107.3	1103.7	1101.3	1100.2	1099.1	1098.1	1097.0
45°	1035.4	1031.9	1028.4	1026.2	1025.2	1024.2	1023.3	1022.3
47.5°	962.2	958.2	954.3	951.1	948.7	946.3	943.9	941.5
50°	911.0	906.5	902.1	898.9	897.1	895.2	893.2	891.4
52.5°	858.4	854.5	850.6	847.5	845.1	842.7	840.3	837.9
55°	781.2	777.5	773.6	770.8	768.9	767.0	765.1	763.2
57.5°	703.9	700.3	696.7	693.9	692.1	690.3	688.4	686.6
60°	650.7	647.9	645.1	642.8	641.2	639.6	638.1	636.5
62.5°	598.8	596.2	593.6	591.6	590.0	588.4	586.8	585.2
65°	523.3	520.2	517.0	514.7	513.1	511.5	509.9	508.4
67.5°	445.6	442.6	439.5	437.7	437.3	436.8	436.4	436.0
70°	396.5	394.0	391.4	389.7	388.7	387.8	386.8	385.8
72.5°	347.4	345.4	343.3	341.8	340.9	339.9	338.9	338.0
75°	276.5	275.3	274.0	273.2	273.0	272.6	272.2	272.0
77.5°	209.4	209.0	208.7	208.0	207.2	206.4	205.5	204.7
80°	166.7	166.1	165.5	165.1	164.7	164.3	164.1	163.7
82.5°	128.5	128.1	127.8	127.4	127.1	126.8	126.4	126.2
85°	74.0	74.0	74.0	73.9	73.6	73.2	72.9	72.6
87.5°	30.6	30.8	30.9	31.0	31.1	31.2	31.2	31.3
90°	16.3	17.2	18.1	18.6	19.0	19.3	19.5	19.9
92.5°	15.8	16.7	17.6	18.0	18.1	18.2	18.2	18.3
95°	16.3	17.2	18.1	18.6	18.7	18.9	19.1	19.2
97.5°	17.7	17.7	17.8	17.9	18.1	18.3	18.4	18.5
100°	24.2	21.6	19.1	17.9	18.1	18.3	18.4	18.5
102.5°	86.4	59.4	32.5	18.9	19.0	19.0	19.0	19.1
105°	209.2	210.4	211.8	209.8	204.6	199.2	193.9	188.7
107.5°	258.8	259.4	260.1	260.6	261.3	261.8	262.3	262.9
110°	292.5	292.7	293.1	293.5	293.9	294.4	294.8	295.2





TEST NUMBER: P332845-940

CATALOG NUMBER: S124DIW-S1195D770U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	325.1	325.1	325.0	325.3	325.8	326.4	327.0	327.5
115°	373.9	374.2	374.5	374.6	374.6	374.6	374.6	374.6
117.5°	422.9	422.9	422.8	422.8	422.8	422.7	422.6	422.6
120°	453.3	453.6	453.9	453.9	453.6	453.3	453.1	452.7
122.5°	483.3	483.5	483.7	483.6	483.3	483.0	482.7	482.4
125°	525.1	525.6	526.0	526.3	526.5	526.6	526.7	526.9
127.5°	566.7	566.6	566.5	566.4	566.3	566.1	566.1	566.0
130°	592.0	592.2	592.4	592.4	592.4	592.4	592.4	592.4
132.5°	616.9	617.1	617.2	617.2	617.2	617.0	616.9	616.8
135°	651.2	651.6	651.8	652.1	652.4	652.7	653.0	653.3
137.5°	684.1	684.5	684.7	684.9	684.8	684.7	684.7	684.6
140°	704.5	704.9	705.3	705.7	705.8	706.0	706.1	706.2
142.5°	723.4	723.6	724.0	724.2	724.2	724.2	724.2	724.2
145°	750.2	750.4	750.6	750.7	751.0	751.4	751.6	751.9
147.5°	773.8	774.0	774.1	774.3	774.4	774.5	774.7	774.8
150°	789.0	789.0	789.0	789.1	789.3	789.3	789.5	789.6
152.5°	802.2	802.4	802.6	802.7	802.6	802.5	802.5	802.4
155°	819.9	820.6	821.1	821.2	820.7	820.3	819.8	819.5
157.5°	835.3	836.1	836.8	836.8	836.1	835.3	834.5	833.7
160°	845.1	845.9	846.8	846.8	845.9	845.1	844.2	843.3
162.5°	853.0	853.8	854.7	854.7	853.7	852.7	851.7	850.7
165°	864.2	865.3	866.5	866.5	865.1	863.8	862.5	861.1
167.5°	872.4	873.6	874.9	874.9	873.3	871.9	870.4	869.0
170°	877.4	878.6	879.8	879.6	878.2	876.6	875.2	873.7
172.5°	880.6	881.7	882.9	882.7	881.1	879.6	878.0	876.4
175°	884.3	885.6	887.0	886.7	884.9	883.2	881.5	879.7
177.5°	885.8	886.7	887.7	887.4	886.0	884.6	883.2	881.8
180°	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9

(END OF REPORT)