

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: P332833-940

Luminaire Tested: **S124DIW-S1020D1560U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332833-940
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-S1020D1560U940-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9515.1 lumens
Efficiency: N/A
Efficacy: 124.2 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: General Diffuse

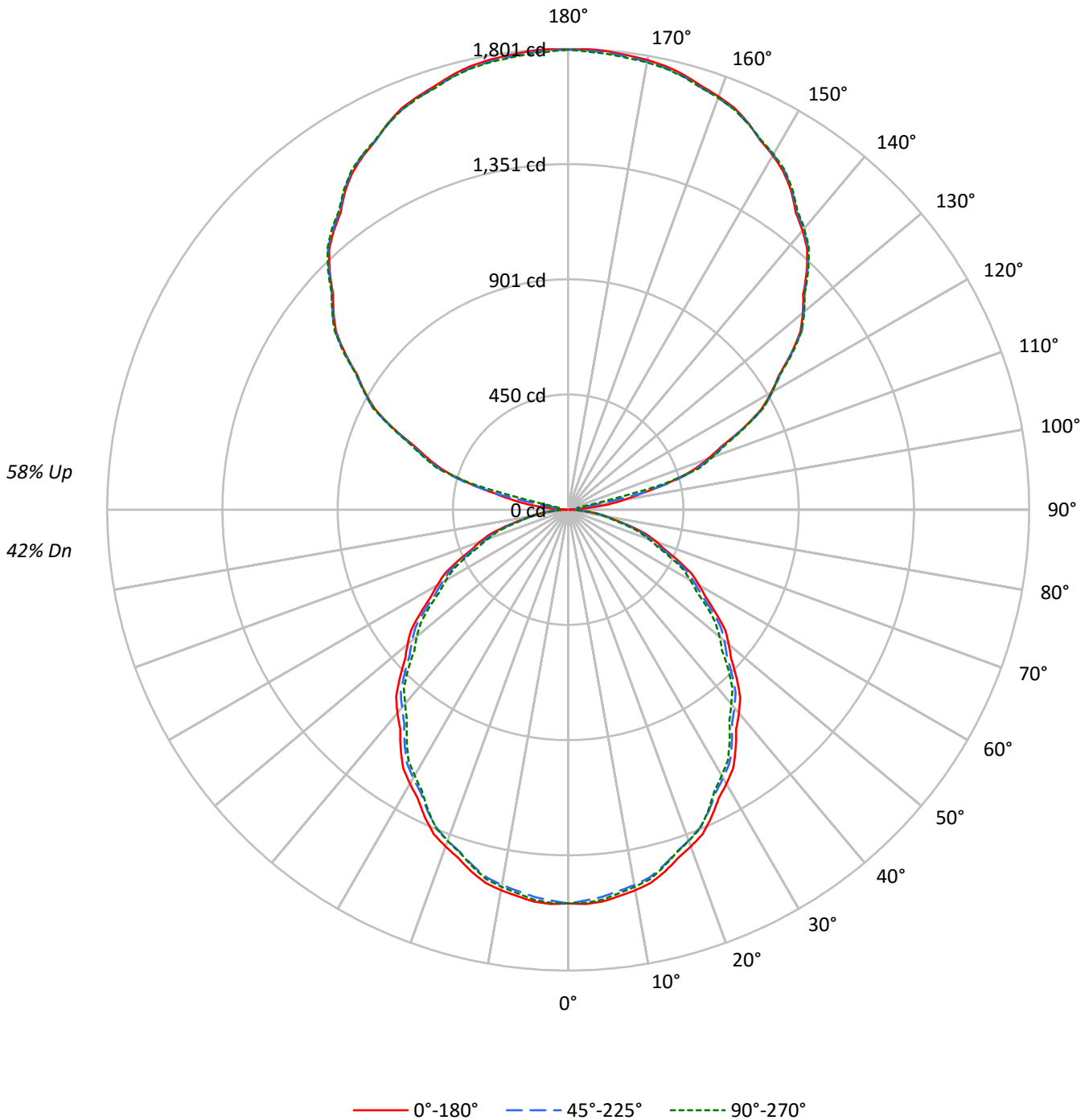
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	105	105	105	96	96	96	96	79	79	79		63	63	63		48	48	48	42
1	96	92	88	84	87	84	80	77	69	67	64		55	54	52		43	42	41	35
2	87	80	74	69	79	73	68	63	60	57	53		48	46	44		38	36	34	29
3	80	70	63	57	72	64	58	53	53	49	45		43	40	37		33	31	29	25
4	73	62	54	48	66	57	50	45	47	42	38		38	34	32		30	27	25	21
5	67	55	47	41	61	51	44	38	42	37	33		34	30	27		27	24	22	18
6	61	50	42	36	56	46	38	33	38	33	29		31	27	24		24	21	19	16
7	57	45	37	31	52	41	34	29	34	29	25		28	24	21		22	19	17	14
8	53	40	33	28	48	37	31	26	31	26	22		26	22	19		20	17	15	13
9	49	37	30	25	45	34	27	23	29	23	20		24	20	17		19	16	14	12
10	46	34	27	22	42	31	25	21	26	21	18		22	18	15		17	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12421	12421	12421
5°	12459	12309	12399
10°	12381	12209	12269
15°	12232	12035	12066
20°	12032	11820	11832
25°	11805	11575	11541
30°	11527	11286	11182
35°	11239	10984	10838
40°	10940	10642	10446
45°	10628	10304	10106
50°	10282	10003	9693
55°	9909	9614	9301
60°	9536	9177	8898
65°	9116	8760	8407
70°	8641	8207	7886
75°	7923	7539	7346
80°	7053	6760	6592
85°	6169	5937	5826



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.9	1.5
10°-20°	408.3	4.3
20°-30°	600.9	6.3
30°-40°	698.6	7.3
40°-50°	698.6	7.3
50°-60°	611.1	6.4
60°-70°	453.8	4.8
70°-80°	257.8	2.7
80°-90°	79.6	0.8
90°-100°	61.5	0.6
100°-110°	392.1	4.1
110°-120°	750.0	7.9
120°-130°	952.1	10.0
130°-140°	1018.7	10.7
140°-150°	952.6	10.0
150°-160°	768.2	8.1
160°-170°	495.5	5.2
170°-180°	170.8	1.8
0°-30°	1154.1	12.1
0°-40°	1852.6	19.5
0°-60°	3162.3	33.2
0°-90°	3953.6	41.6
90°-120°	1203.6	12.6
90°-150°	4127.0	43.4
90°-180°	5561.0	58.4
0°-180°	9515.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1539	1539	1539	1539	1539	
5°	1537	1532	1519	1532	1530	146
15°	1464	1458	1440	1447	1444	412
25°	1325	1316	1300	1300	1296	609
35°	1140	1131	1114	1106	1100	713
45°	931	922	902	889	885	717
55°	704	700	683	669	661	630
65°	477	471	459	447	440	472
75°	254	248	242	237	236	270
85°	67	66	64	64	63	73
90°	4	19	30	37	40	7
95°	74	31	30	37	39	95
105°	405	413	420	428	383	423
115°	756	759	758	761	761	743
125°	1062	1067	1065	1069	1070	948
135°	1318	1317	1322	1325	1327	1015
145°	1520	1523	1524	1525	1528	949
155°	1666	1667	1663	1668	1665	768
165°	1758	1751	1751	1760	1750	496
175°	1798	1790	1791	1802	1787	171
180°	1798	1798	1798	1798	1798	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6
2.5°	1542.6	1541.9	1541.2	1540.6	1540.0	1538.4	1536.0	1533.6	1531.2	1528.7	1531.0
5°	1537.4	1536.3	1535.3	1534.1	1533.0	1531.0	1527.9	1524.9	1522.0	1518.9	1522.0
7.5°	1523.1	1522.0	1520.9	1519.8	1518.8	1516.5	1513.1	1509.8	1506.5	1503.2	1505.6
10°	1510.3	1509.2	1508.1	1507.0	1505.9	1503.6	1500.0	1496.5	1492.9	1489.3	1491.5
12.5°	1493.5	1492.5	1491.3	1490.2	1489.2	1486.7	1482.9	1479.2	1475.3	1471.6	1474.0
15°	1463.5	1462.3	1461.2	1460.2	1459.0	1456.4	1452.3	1448.2	1444.1	1440.0	1441.6
17.5°	1427.2	1425.8	1424.4	1423.1	1421.7	1419.1	1415.1	1411.3	1407.4	1403.6	1404.5
20°	1400.5	1399.2	1397.8	1396.4	1395.1	1392.3	1388.2	1384.1	1380.0	1375.9	1376.7
22.5°	1372.0	1370.1	1368.3	1366.5	1364.8	1361.7	1357.6	1353.5	1349.4	1345.3	1346.8
25°	1325.3	1323.5	1321.5	1319.6	1317.7	1314.8	1311.0	1307.2	1303.3	1299.5	1299.8
27.5°	1272.1	1270.2	1268.1	1266.1	1264.2	1261.4	1257.8	1254.3	1250.7	1247.1	1246.5
30°	1236.6	1234.4	1232.2	1230.0	1227.8	1224.9	1221.4	1217.8	1214.2	1210.7	1209.6
32.5°	1199.1	1197.1	1195.2	1193.2	1191.2	1188.3	1184.5	1180.8	1177.0	1173.2	1171.9
35°	1140.4	1138.5	1136.6	1134.7	1132.7	1129.9	1126.1	1122.2	1118.4	1114.5	1112.6
37.5°	1078.5	1076.7	1075.0	1073.3	1071.5	1068.6	1064.4	1060.3	1056.2	1052.1	1050.1
40°	1038.1	1035.9	1033.7	1031.5	1029.3	1026.2	1022.1	1018.0	1013.9	1009.8	1007.0
42.5°	994.7	993.4	992.0	990.8	989.4	986.5	982.0	977.4	972.9	968.3	965.1
45°	930.9	928.9	927.0	925.1	923.2	920.0	915.6	911.2	906.9	902.5	899.5
47.5°	864.0	862.7	861.4	860.1	858.7	856.0	852.0	847.9	843.9	839.8	836.4
50°	818.7	817.5	816.5	815.4	814.2	811.8	808.0	804.1	800.3	796.5	792.6
52.5°	774.3	772.9	771.6	770.3	769.0	766.3	762.2	758.2	754.1	750.1	746.7
55°	704.0	703.1	702.3	701.5	700.7	698.4	694.6	690.7	686.9	683.1	679.8
57.5°	636.9	636.0	635.1	634.1	633.2	630.8	627.1	623.3	619.5	615.7	612.6
60°	590.6	589.2	587.8	586.5	585.1	582.6	579.1	575.5	571.9	568.4	565.9
62.5°	545.2	544.0	542.9	541.7	540.6	538.1	534.3	530.6	526.7	523.0	520.8
65°	477.2	475.7	474.4	473.1	471.6	469.6	466.8	464.1	461.4	458.6	455.9
67.5°	408.6	407.3	406.1	404.8	403.5	401.6	399.0	396.4	393.7	391.1	388.4
70°	366.1	364.3	362.3	360.4	358.5	356.4	354.3	352.0	349.9	347.7	345.4
72.5°	320.8	318.9	317.0	315.0	313.2	311.3	309.5	307.8	306.0	304.3	302.6
75°	254.0	252.6	251.2	249.9	248.5	247.1	245.8	244.4	243.0	241.7	240.6
77.5°	190.1	189.5	188.9	188.3	187.7	186.8	185.6	184.4	183.2	182.0	181.6
80°	151.7	150.8	150.0	149.2	148.4	147.7	147.1	146.6	146.1	145.4	144.9
82.5°	114.1	113.8	113.4	113.0	112.6	112.4	112.3	112.2	112.1	111.9	111.6
85°	66.6	66.6	66.6	66.6	66.6	66.3	65.7	65.2	64.6	64.1	64.1
87.5°	26.5	26.9	27.3	27.7	28.2	28.5	28.8	29.1	29.3	29.6	30.0
90°	4.0	7.3	10.6	13.9	17.2	20.1	22.4	24.8	27.2	29.6	31.4
92.5°	16.9	17.1	17.3	17.5	17.7	18.9	21.3	23.7	26.1	28.5	30.3
95°	73.9	63.8	53.7	43.5	33.3	28.4	28.7	29.0	29.2	29.6	31.4
97.5°	157.0	163.4	169.7	176.1	182.4	168.9	135.5	102.2	68.8	35.5	35.7
100°	220.5	226.0	231.3	236.7	242.0	224.1	182.9	141.6	100.4	59.2	54.1
102.5°	291.5	295.5	299.4	303.4	307.3	306.6	301.2	295.9	290.4	285.1	230.2
105°	404.7	406.5	408.3	410.2	412.0	413.6	415.1	416.6	418.0	419.5	422.2
107.5°	509.9	510.9	511.8	512.6	513.5	515.0	517.0	519.1	521.0	523.1	524.4
110°	580.9	581.8	582.7	583.6	584.5	585.9	587.6	589.4	591.2	593.0	593.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	649.8	651.4	653.0	654.6	656.2	657.5	658.3	659.2	660.0	660.8	660.7
115°	755.7	756.6	757.5	758.4	759.3	759.6	759.3	759.0	758.8	758.4	759.0
117.5°	851.2	852.4	853.6	854.8	856.0	856.9	857.6	858.3	858.9	859.5	859.4
120°	915.8	916.9	918.2	919.4	920.5	921.0	920.7	920.4	920.1	919.8	920.4
122.5°	976.0	976.7	977.4	978.1	978.9	979.5	979.9	980.3	980.7	981.1	981.5
125°	1062.4	1063.5	1064.7	1066.0	1067.1	1067.4	1066.8	1066.2	1065.6	1065.1	1066.0
127.5°	1144.1	1144.4	1144.7	1145.0	1145.3	1146.1	1147.5	1148.9	1150.2	1151.6	1151.5
130°	1196.9	1197.1	1197.4	1197.7	1198.0	1198.6	1199.5	1200.4	1201.3	1202.2	1202.5
132.5°	1245.2	1245.7	1246.3	1246.9	1247.4	1248.2	1249.4	1250.4	1251.6	1252.8	1253.0
135°	1317.9	1317.5	1317.2	1317.0	1316.6	1317.1	1318.3	1319.5	1320.7	1321.9	1322.5
137.5°	1382.2	1382.2	1382.3	1382.5	1382.6	1383.3	1384.6	1386.0	1387.2	1388.6	1389.2
140°	1424.1	1424.7	1425.3	1425.8	1426.5	1427.1	1427.6	1428.3	1428.9	1429.4	1430.4
142.5°	1461.7	1462.8	1463.9	1465.0	1466.1	1466.8	1467.1	1467.5	1467.8	1468.2	1468.8
145°	1519.6	1520.5	1521.3	1522.2	1523.1	1523.6	1523.6	1523.6	1523.6	1523.6	1523.8
147.5°	1565.6	1567.2	1568.9	1570.6	1572.3	1572.9	1572.6	1572.4	1572.0	1571.7	1572.0
150°	1598.9	1600.1	1601.2	1602.5	1603.7	1604.1	1603.8	1603.6	1603.2	1602.9	1602.9
152.5°	1626.8	1627.8	1628.8	1629.7	1630.7	1630.9	1630.3	1629.8	1629.2	1628.7	1629.2
155°	1666.2	1666.4	1666.7	1667.1	1667.3	1667.1	1666.2	1665.3	1664.4	1663.4	1664.6
157.5°	1699.2	1699.1	1698.9	1698.7	1698.5	1697.9	1696.8	1695.9	1694.9	1693.8	1695.4
160°	1718.6	1717.7	1716.8	1715.9	1715.0	1714.4	1714.0	1713.8	1713.5	1713.2	1715.0
162.5°	1735.8	1734.6	1733.5	1732.4	1731.3	1730.5	1730.2	1729.9	1729.7	1729.3	1731.1
165°	1757.6	1756.0	1754.6	1753.1	1751.6	1750.9	1750.9	1750.9	1750.9	1750.9	1753.2
167.5°	1774.8	1773.3	1771.7	1770.1	1768.5	1767.7	1767.5	1767.4	1767.2	1767.0	1769.6
170°	1784.5	1782.7	1780.8	1779.1	1777.3	1776.6	1776.8	1777.2	1777.4	1777.7	1780.1
172.5°	1790.9	1789.1	1787.3	1785.6	1783.8	1783.0	1783.3	1783.6	1783.9	1784.2	1786.5
175°	1797.9	1796.1	1794.3	1792.5	1790.7	1790.0	1790.3	1790.6	1790.9	1791.2	1793.9
177.5°	1801.2	1799.5	1797.8	1796.1	1794.5	1793.9	1794.3	1794.8	1795.3	1795.7	1797.7
180°	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6
2.5°	1533.1	1535.3	1537.6	1538.6	1538.3	1538.1	1537.8	1537.7
5°	1524.9	1527.9	1531.0	1532.2	1531.7	1531.1	1530.5	1530.0
7.5°	1508.0	1510.4	1512.8	1513.9	1513.5	1513.1	1512.8	1512.5
10°	1493.7	1495.9	1498.1	1498.9	1498.3	1497.8	1497.3	1496.7
12.5°	1476.4	1478.8	1481.2	1482.0	1481.3	1480.5	1479.7	1479.0
15°	1443.3	1444.9	1446.6	1447.0	1446.2	1445.4	1444.6	1443.7
17.5°	1405.6	1406.7	1407.7	1407.9	1407.4	1406.9	1406.3	1405.7
20°	1377.5	1378.4	1379.2	1379.3	1378.8	1378.2	1377.7	1377.2
22.5°	1348.3	1349.8	1351.2	1351.5	1350.5	1349.5	1348.5	1347.6
25°	1300.0	1300.3	1300.6	1300.1	1299.0	1298.0	1296.8	1295.7
27.5°	1245.9	1245.2	1244.6	1243.6	1242.2	1240.8	1239.4	1238.1
30°	1208.5	1207.4	1206.3	1205.1	1203.7	1202.3	1201.0	1199.6
32.5°	1170.5	1169.3	1168.0	1166.6	1165.2	1163.9	1162.5	1161.1
35°	1110.7	1108.8	1106.9	1105.2	1103.8	1102.5	1101.1	1099.7
37.5°	1047.9	1045.9	1043.8	1041.9	1040.1	1038.2	1036.4	1034.7
40°	1004.2	1001.5	998.8	996.8	995.3	994.0	992.7	991.2
42.5°	962.0	958.8	955.6	953.5	952.6	951.6	950.7	949.9
45°	896.4	893.4	890.4	888.5	887.7	886.9	886.0	885.2
47.5°	833.0	829.6	826.3	823.5	821.4	819.3	817.3	815.2
50°	788.8	785.0	781.1	778.4	776.7	775.1	773.5	771.8
52.5°	743.3	739.9	736.5	733.8	731.6	729.6	727.5	725.4
55°	676.5	673.2	669.9	667.4	665.8	664.1	662.5	660.8
57.5°	609.5	606.4	603.2	600.8	599.2	597.7	596.1	594.5
60°	563.5	561.0	558.5	556.6	555.2	553.8	552.5	551.1
62.5°	518.5	516.2	514.0	512.2	510.9	509.4	508.1	506.8
65°	453.2	450.4	447.6	445.6	444.3	442.9	441.5	440.1
67.5°	385.8	383.2	380.6	379.1	378.6	378.3	377.9	377.6
70°	343.3	341.1	338.9	337.4	336.6	335.7	334.9	334.1
72.5°	300.8	299.0	297.3	296.0	295.2	294.4	293.6	292.7
75°	239.4	238.4	237.3	236.6	236.3	236.0	235.8	235.5
77.5°	181.3	181.0	180.7	180.1	179.4	178.7	178.0	177.3
80°	144.4	143.8	143.3	142.9	142.6	142.3	142.0	141.8
82.5°	111.3	110.9	110.7	110.3	110.0	109.8	109.5	109.2
85°	64.1	64.1	64.1	63.9	63.7	63.4	63.1	62.9
87.5°	30.3	30.7	31.0	31.3	31.4	31.5	31.7	31.7
90°	33.2	35.0	36.7	38.0	38.5	39.1	39.8	40.3
92.5°	32.1	33.9	35.7	36.6	36.7	36.9	37.0	37.1
95°	33.2	35.0	36.7	37.8	38.1	38.4	38.7	39.0
97.5°	35.8	36.0	36.2	36.5	36.7	37.1	37.4	37.6
100°	49.0	44.0	38.9	36.5	36.7	37.1	37.4	37.6
102.5°	175.5	120.6	65.9	38.5	38.5	38.6	38.7	38.7
105°	424.9	427.7	430.3	426.2	415.5	404.7	394.0	383.3
107.5°	525.8	527.1	528.3	529.6	530.7	531.8	533.0	534.1
110°	594.2	594.9	595.4	596.2	597.1	598.0	598.9	599.8



TEST NUMBER: P332833-940

CATALOG NUMBER: S124DIW-S1020D1560U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	660.6	660.4	660.3	660.8	662.0	663.1	664.2	665.4
115°	759.6	760.2	760.8	761.2	761.2	761.2	761.2	761.2
117.5°	859.3	859.2	859.1	859.0	858.8	858.7	858.6	858.4
120°	921.0	921.6	922.2	922.2	921.6	921.0	920.4	919.8
122.5°	981.9	982.2	982.6	982.4	981.9	981.2	980.6	980.1
125°	1066.8	1067.7	1068.6	1069.3	1069.5	1069.8	1070.1	1070.4
127.5°	1151.3	1151.1	1150.9	1150.7	1150.5	1150.2	1150.0	1149.8
130°	1202.8	1203.1	1203.4	1203.5	1203.5	1203.5	1203.5	1203.5
132.5°	1253.4	1253.7	1253.9	1254.0	1253.7	1253.5	1253.3	1253.0
135°	1323.0	1323.7	1324.3	1324.9	1325.4	1326.1	1326.7	1327.2
137.5°	1389.9	1390.5	1391.2	1391.4	1391.2	1391.1	1390.9	1390.7
140°	1431.3	1432.2	1433.1	1433.6	1434.0	1434.2	1434.5	1434.9
142.5°	1469.5	1470.2	1470.8	1471.1	1471.2	1471.3	1471.3	1471.4
145°	1524.2	1524.5	1524.7	1525.3	1525.8	1526.4	1527.1	1527.6
147.5°	1572.2	1572.4	1572.7	1573.0	1573.2	1573.5	1573.9	1574.1
150°	1602.9	1602.9	1602.9	1603.1	1603.4	1603.7	1604.0	1604.3
152.5°	1629.7	1630.1	1630.7	1630.8	1630.6	1630.4	1630.2	1630.0
155°	1665.8	1667.1	1668.2	1668.4	1667.5	1666.6	1665.7	1664.8
157.5°	1696.9	1698.5	1700.0	1700.0	1698.5	1696.9	1695.4	1693.8
160°	1716.8	1718.6	1720.4	1720.4	1718.6	1716.8	1715.0	1713.2
162.5°	1733.0	1734.7	1736.5	1736.3	1734.4	1732.3	1730.3	1728.2
165°	1755.6	1758.0	1760.4	1760.2	1757.6	1754.9	1752.2	1749.5
167.5°	1772.3	1774.9	1777.5	1777.4	1774.3	1771.4	1768.4	1765.4
170°	1782.5	1784.9	1787.3	1787.0	1784.0	1781.0	1778.1	1775.0
172.5°	1789.0	1791.4	1793.8	1793.3	1790.1	1786.9	1783.7	1780.4
175°	1796.5	1799.3	1802.0	1801.5	1797.9	1794.3	1790.7	1787.2
177.5°	1799.6	1801.5	1803.4	1803.0	1800.1	1797.2	1794.3	1791.4
180°	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9	1797.9

(END OF REPORT)