

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: P332831-940

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332831-940
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-D
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9319.7 lumens
Efficiency: N/A
Efficacy: 121.7 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')
CIE Type: Semi-Indirect

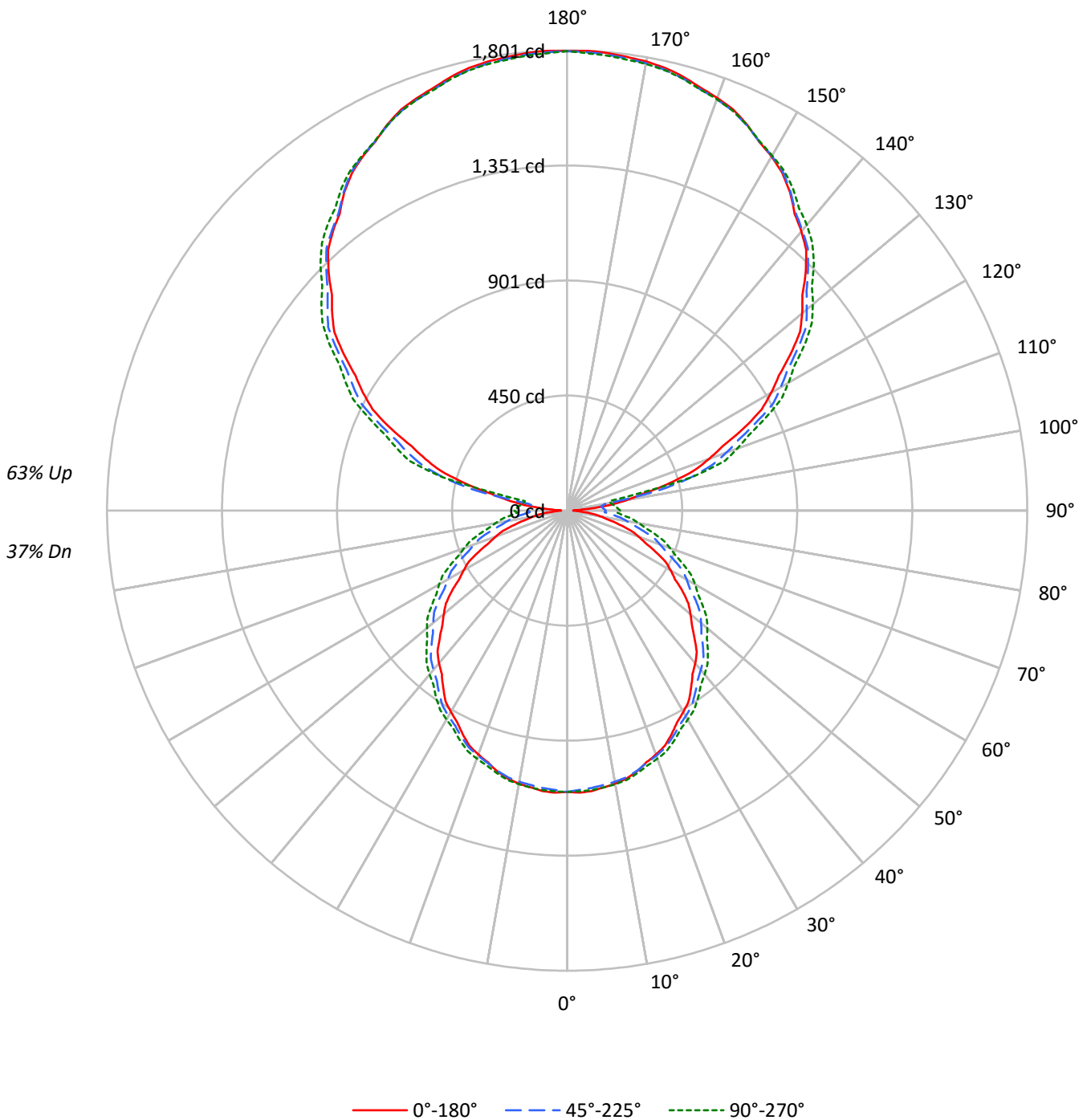
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P332831-940

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

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	104	104	104	104	94	94	94	94	76	76	76	60	60	60	44	44	44	37
1	94	90	85	82	85	81	78	75	66	63	61	51	50	48	38	37	36	30
2	85	78	71	66	77	71	65	61	57	53	50	45	42	39	33	31	30	24
3	78	68	61	55	70	62	55	50	50	45	41	39	36	33	29	27	25	20
4	71	60	52	46	64	55	48	42	44	39	35	35	31	28	26	23	21	17
5	65	53	45	39	58	48	41	36	39	34	30	31	27	24	23	20	18	15
6	60	48	39	34	54	43	36	31	35	30	26	28	24	21	21	18	16	13
7	55	43	35	29	50	39	32	27	32	27	23	25	21	18	19	16	14	11
8	51	39	31	26	46	35	29	24	29	24	20	23	19	16	17	15	13	10
9	47	35	28	23	43	32	26	21	26	21	18	21	17	15	16	13	11	9
10	44	32	25	20	40	29	23	19	24	19	16	19	16	13	15	12	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8888	8888	8888
5°	8916	8686	8711
10°	8861	8544	8538
15°	8782	8380	8334
20°	8662	8198	8135
25°	8527	7995	7918
30°	8381	7793	7693
35°	8216	7585	7497
40°	8083	7388	7292
45°	7887	7207	7117
50°	7721	6996	6931
55°	7549	6799	6714
60°	7282	6547	6515
65°	6989	6278	6271
70°	6633	5968	5986
75°	6136	5628	5730
80°	5588	5302	5476
85°	4893	5013	5328



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.3	1.1
10°-20°	298.7	3.2
20°-30°	451.7	4.8
30°-40°	546.5	5.9
40°-50°	577.7	6.2
50°-60°	543.7	5.8
60°-70°	451.1	4.8
70°-80°	316.9	3.4
80°-90°	184.3	2.0
90°-100°	167.9	1.8
100°-110°	470.8	5.1
110°-120°	802.9	8.6
120°-130°	981.9	10.5
130°-140°	1031.6	11.1
140°-150°	955.2	10.2
150°-160°	768.2	8.2
160°-170°	495.5	5.3
170°-180°	170.8	1.8
0°-30°	854.6	9.2
0°-40°	1401.1	15.0
0°-60°	2522.6	27.1
0°-90°	3475.0	37.3
90°-120°	1441.5	15.5
90°-150°	4410.3	47.3
90°-180°	5845.0	62.7
0°-180°	9319.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1101	1101	1101	1101	1101	
5°	1102	1098	1090	1099	1098	105
15°	1057	1058	1054	1065	1064	298
25°	967	974	978	991	992	445
35°	846	860	873	889	894	529
45°	705	729	752	772	779	545
55°	552	579	615	639	647	492
65°	382	422	464	493	504	379
75°	212	258	309	343	355	226
85°	65	117	173	208	222	70
90°	24	88	152	194	208	16
95°	90	88	137	177	191	108
105°	416	450	501	539	505	436
115°	763	780	816	845	855	751
125°	1067	1073	1100	1126	1136	953
135°	1320	1320	1333	1355	1366	1017
145°	1521	1523	1524	1532	1540	950
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°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1104.9	1104.3	1103.6	1103.0	1102.2	1101.1	1099.3	1097.6	1095.8	1094.0	1095.6
5°	1102.2	1101.4	1100.5	1099.7	1098.9	1097.5	1095.6	1093.7	1091.8	1089.8	1092.1
7.5°	1092.8	1092.3	1091.8	1091.4	1090.8	1089.8	1088.2	1086.6	1085.0	1083.4	1085.9
10°	1084.9	1084.7	1084.4	1084.1	1083.9	1083.0	1081.6	1080.3	1078.9	1077.5	1080.0
12.5°	1074.1	1074.1	1074.0	1073.9	1073.9	1073.4	1072.5	1071.5	1070.6	1069.6	1071.9
15°	1056.6	1056.9	1057.1	1057.4	1057.7	1057.4	1056.6	1055.8	1054.9	1054.1	1056.6
17.5°	1032.7	1033.5	1034.3	1035.1	1036.0	1036.3	1036.1	1036.0	1035.8	1035.6	1038.1
20°	1015.9	1016.7	1017.5	1018.3	1019.2	1019.8	1020.0	1020.3	1020.6	1020.8	1023.6
22.5°	997.1	998.2	999.3	1000.3	1001.3	1002.1	1002.6	1003.1	1003.5	1004.1	1006.8
25°	966.6	968.2	969.8	971.5	973.1	974.4	975.2	976.1	976.9	977.7	980.7
27.5°	932.6	935.0	937.4	939.8	942.2	944.1	945.3	946.6	947.8	949.0	951.9
30°	909.9	912.0	914.3	916.4	918.6	920.7	922.6	924.5	926.4	928.4	931.4
32.5°	885.2	887.9	890.5	893.1	895.7	898.1	900.3	902.4	904.6	906.7	910.1
35°	845.8	849.1	852.3	855.6	858.9	861.9	864.7	867.4	870.1	872.9	876.7
37.5°	806.0	809.9	813.6	817.4	821.2	824.7	828.1	831.5	835.0	838.4	842.2
40°	780.4	784.0	787.6	791.1	794.7	798.3	802.2	806.0	809.9	813.7	817.8
42.5°	750.8	754.8	758.8	762.9	766.8	771.1	775.5	780.1	784.5	789.1	793.6
45°	705.2	710.4	715.6	720.9	726.0	731.2	736.5	741.6	746.8	752.1	756.7
47.5°	661.6	666.9	672.3	677.7	683.1	688.8	694.7	700.8	706.9	712.8	717.6
50°	630.0	636.1	642.0	648.1	654.1	660.1	666.2	672.2	678.2	684.2	689.7
52.5°	598.4	604.5	610.5	616.5	622.6	629.0	635.9	642.8	649.7	656.7	662.1
55°	552.3	558.1	563.8	569.6	575.3	582.3	590.6	598.8	607.0	615.2	620.7
57.5°	500.8	507.9	515.1	522.2	529.3	536.9	545.1	553.3	561.4	569.6	576.1
60°	467.3	474.4	481.5	488.7	495.8	503.8	512.9	521.9	530.9	540.0	546.3
62.5°	434.7	442.5	450.3	458.1	465.8	474.2	483.3	492.3	501.4	510.4	516.7
65°	382.2	390.9	399.8	408.5	417.2	426.3	435.6	445.0	454.2	463.6	470.4
67.5°	331.6	341.0	350.3	359.6	368.9	378.5	388.5	398.5	408.5	418.5	425.4
70°	297.1	306.5	315.8	325.0	334.4	344.3	354.6	365.1	375.5	385.9	393.3
72.5°	263.6	273.1	282.7	292.2	301.8	312.0	323.1	334.1	345.3	356.3	363.5
75°	212.0	222.2	232.3	242.5	252.6	263.4	274.9	286.4	297.9	309.4	317.1
77.5°	164.0	174.7	185.5	196.2	207.0	218.3	230.4	242.5	254.5	266.5	274.3
80°	134.4	145.3	156.3	167.3	178.3	189.8	201.8	213.8	225.9	237.9	246.2
82.5°	104.8	116.2	127.6	139.0	150.3	162.1	174.2	186.2	198.3	210.4	218.7
85°	65.4	76.9	88.4	99.9	111.4	123.3	135.6	147.9	160.2	172.6	180.8
87.5°	37.3	49.1	61.0	72.8	84.6	96.8	109.2	121.7	134.2	146.7	155.0
90°	23.7	38.0	52.3	66.5	80.8	95.0	109.1	123.3	137.5	151.7	161.4
92.5°	35.7	45.7	55.7	65.8	75.9	87.9	102.1	116.3	130.5	144.6	154.2
95°	90.0	88.9	87.7	86.7	85.5	90.7	102.3	113.8	125.3	136.9	146.1
97.5°	171.7	185.7	199.8	213.9	228.1	224.0	201.8	179.6	157.4	135.1	142.5
100°	234.1	246.6	259.1	271.6	284.1	275.1	244.5	214.0	183.4	152.8	155.2
102.5°	305.1	315.3	325.5	335.6	345.9	353.5	358.6	363.6	368.7	373.9	326.2
105°	415.9	423.1	430.4	437.7	445.0	454.4	466.0	477.7	489.3	501.0	510.5
107.5°	520.8	526.2	531.5	536.9	542.3	550.8	562.5	574.1	585.7	597.4	605.4
110°	590.8	595.5	600.2	605.0	609.8	617.8	629.2	640.5	651.9	663.3	670.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	658.6	663.7	668.7	673.7	678.7	686.2	696.2	706.1	716.1	726.1	732.1
115°	763.1	766.5	769.9	773.2	776.6	782.5	790.9	799.4	807.9	816.4	823.0
117.5°	858.4	861.0	863.7	866.4	869.1	874.9	883.6	892.4	901.3	910.1	915.7
120°	921.9	924.0	926.0	928.0	930.0	934.9	942.4	950.1	957.8	965.5	971.5
122.5°	982.1	983.0	983.9	984.8	985.7	990.1	998.0	1005.9	1013.9	1021.8	1027.6
125°	1067.3	1068.2	1069.1	1070.1	1070.9	1074.5	1080.8	1087.1	1093.3	1099.6	1105.6
127.5°	1148.8	1148.8	1148.8	1148.9	1148.9	1152.2	1158.9	1165.5	1172.2	1178.8	1183.5
130°	1200.5	1200.5	1200.6	1200.6	1200.6	1203.3	1208.5	1213.8	1219.1	1224.4	1229.6
132.5°	1248.9	1249.2	1249.5	1249.7	1250.0	1252.4	1257.0	1261.7	1266.3	1271.0	1276.0
135°	1320.3	1320.0	1319.7	1319.4	1319.1	1320.5	1323.7	1326.8	1329.9	1332.9	1337.9
137.5°	1384.6	1384.5	1384.3	1384.1	1383.9	1385.0	1387.2	1389.5	1391.8	1394.0	1398.6
140°	1426.6	1426.8	1427.2	1427.5	1427.8	1428.4	1429.3	1430.2	1431.0	1431.9	1436.4
142.5°	1463.2	1464.2	1465.3	1466.2	1467.3	1467.9	1468.1	1468.3	1468.5	1468.6	1472.5
145°	1520.8	1521.4	1522.1	1522.7	1523.3	1523.6	1523.6	1523.6	1523.6	1523.6	1525.5
147.5°	1566.7	1568.2	1569.6	1571.0	1572.4	1572.9	1572.6	1572.4	1572.0	1571.7	1572.2
150°	1600.1	1601.1	1602.0	1602.9	1603.8	1604.1	1603.8	1603.6	1603.2	1602.9	1602.9
152.5°	1627.1	1628.0	1628.9	1629.8	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°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1097.2	1098.7	1100.2	1100.8	1100.6	1100.4	1100.2	1100.0
5°	1094.2	1096.4	1098.7	1099.6	1099.3	1099.0	1098.8	1098.5
7.5°	1088.4	1090.8	1093.3	1094.4	1094.1	1093.9	1093.6	1093.3
10°	1082.4	1084.9	1087.4	1088.5	1088.2	1088.0	1087.7	1087.4
12.5°	1074.2	1076.4	1078.6	1079.8	1079.7	1079.6	1079.6	1079.5
15°	1059.1	1061.5	1064.0	1065.1	1064.8	1064.5	1064.3	1064.0
17.5°	1040.6	1043.2	1045.7	1046.9	1046.6	1046.4	1046.2	1046.0
20°	1026.3	1029.0	1031.8	1033.1	1033.1	1033.1	1033.1	1033.1
22.5°	1009.5	1012.3	1015.0	1016.6	1017.1	1017.4	1017.9	1018.3
25°	983.7	986.7	989.7	991.4	991.7	991.9	992.2	992.5
27.5°	954.7	957.4	960.3	961.8	962.2	962.5	962.8	963.1
30°	934.4	937.4	940.4	942.2	942.7	943.3	943.9	944.4
32.5°	913.6	917.0	920.5	922.5	923.0	923.5	924.1	924.7
35°	880.6	884.4	888.2	890.6	891.4	892.2	893.0	893.9
37.5°	846.1	850.1	853.9	856.3	857.2	858.1	858.9	859.8
40°	821.9	826.0	830.2	832.8	833.8	834.9	836.1	837.1
42.5°	798.2	802.7	807.3	809.9	810.8	811.7	812.6	813.4
45°	761.3	766.1	770.7	773.7	775.1	776.4	777.8	779.2
47.5°	722.5	727.3	732.2	735.4	737.0	738.7	740.3	742.0
50°	695.2	700.7	706.1	709.7	711.4	713.0	714.6	716.3
52.5°	667.6	673.1	678.6	682.1	683.8	685.4	687.1	688.7
55°	626.2	631.7	637.1	640.7	642.3	644.0	645.6	647.3
57.5°	582.6	589.2	595.7	599.7	601.2	602.8	604.3	605.8
60°	552.6	558.9	565.2	569.4	571.7	573.8	576.0	578.2
62.5°	523.0	529.3	535.7	539.8	542.1	544.2	546.4	548.7
65°	477.2	484.1	491.0	495.5	497.7	499.9	502.0	504.3
67.5°	432.4	439.3	446.3	450.8	453.0	455.1	457.3	459.4
70°	400.6	408.0	415.4	420.2	422.0	424.0	425.9	427.8
72.5°	370.7	377.8	385.0	389.7	391.8	394.0	396.1	398.2
75°	324.8	332.4	340.1	345.2	347.7	350.2	352.6	355.1
77.5°	282.1	289.9	297.7	302.9	305.5	308.2	310.8	313.4
80°	254.4	262.6	270.8	276.0	278.2	280.4	282.6	284.8
82.5°	227.2	235.7	244.1	249.5	251.9	254.3	256.7	259.1
85°	189.0	197.2	205.5	211.0	213.7	216.4	219.2	221.9
87.5°	163.4	171.7	179.9	185.4	187.9	190.4	193.0	195.5
90°	171.1	180.8	190.6	196.9	199.7	202.4	205.2	208.0
92.5°	163.7	173.2	182.7	188.6	190.9	193.2	195.6	197.9
95°	155.2	164.4	173.6	179.6	182.4	185.1	187.9	190.6
97.5°	149.8	157.2	164.5	169.5	172.2	174.9	177.5	180.2
100°	157.5	159.8	162.1	164.4	166.7	168.8	171.0	173.3
102.5°	278.6	231.0	183.3	160.6	162.8	165.1	167.2	169.4
105°	520.0	529.6	539.0	539.6	531.0	522.5	513.9	505.3
107.5°	613.4	621.5	629.5	635.2	638.2	641.3	644.4	647.6
110°	677.1	684.0	690.9	695.9	699.0	702.0	705.2	708.3



TEST NUMBER: P332831-940

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	738.1	744.0	750.0	754.7	758.0	761.3	764.6	767.9
115°	829.6	836.2	842.8	847.1	849.1	851.0	852.9	854.8
117.5°	921.2	926.8	932.5	936.2	938.3	940.4	942.4	944.5
120°	977.6	983.6	989.7	993.5	995.1	996.8	998.4	1000.0
122.5°	1033.5	1039.3	1045.2	1048.7	1050.2	1051.5	1052.8	1054.3
125°	1111.8	1117.8	1124.0	1128.0	1129.9	1131.8	1133.8	1135.8
127.5°	1188.3	1193.0	1197.7	1201.0	1202.6	1204.2	1205.9	1207.5
130°	1234.8	1240.1	1245.3	1248.8	1250.4	1252.1	1253.7	1255.4
132.5°	1281.0	1286.0	1291.0	1294.2	1295.7	1297.1	1298.5	1299.8
135°	1342.9	1347.9	1352.9	1356.5	1358.8	1361.0	1363.2	1365.5
137.5°	1403.3	1408.0	1412.6	1415.6	1416.8	1417.9	1419.2	1420.3
140°	1440.8	1445.3	1449.7	1452.8	1454.5	1456.2	1457.9	1459.5
142.5°	1476.2	1480.1	1483.8	1486.3	1487.5	1488.7	1490.0	1491.1
145°	1527.5	1529.4	1531.3	1533.2	1534.9	1536.6	1538.3	1540.0
147.5°	1572.6	1573.1	1573.6	1574.4	1575.6	1576.7	1577.9	1579.0
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)