

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: P332971-940

Luminaire Tested: **S124RDIP-S1020D810U940-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332971-940
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDIP-S1020D810U940-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 810 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6223.6 lumens
Efficiency: N/A
Efficacy: 114.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: General Diffuse

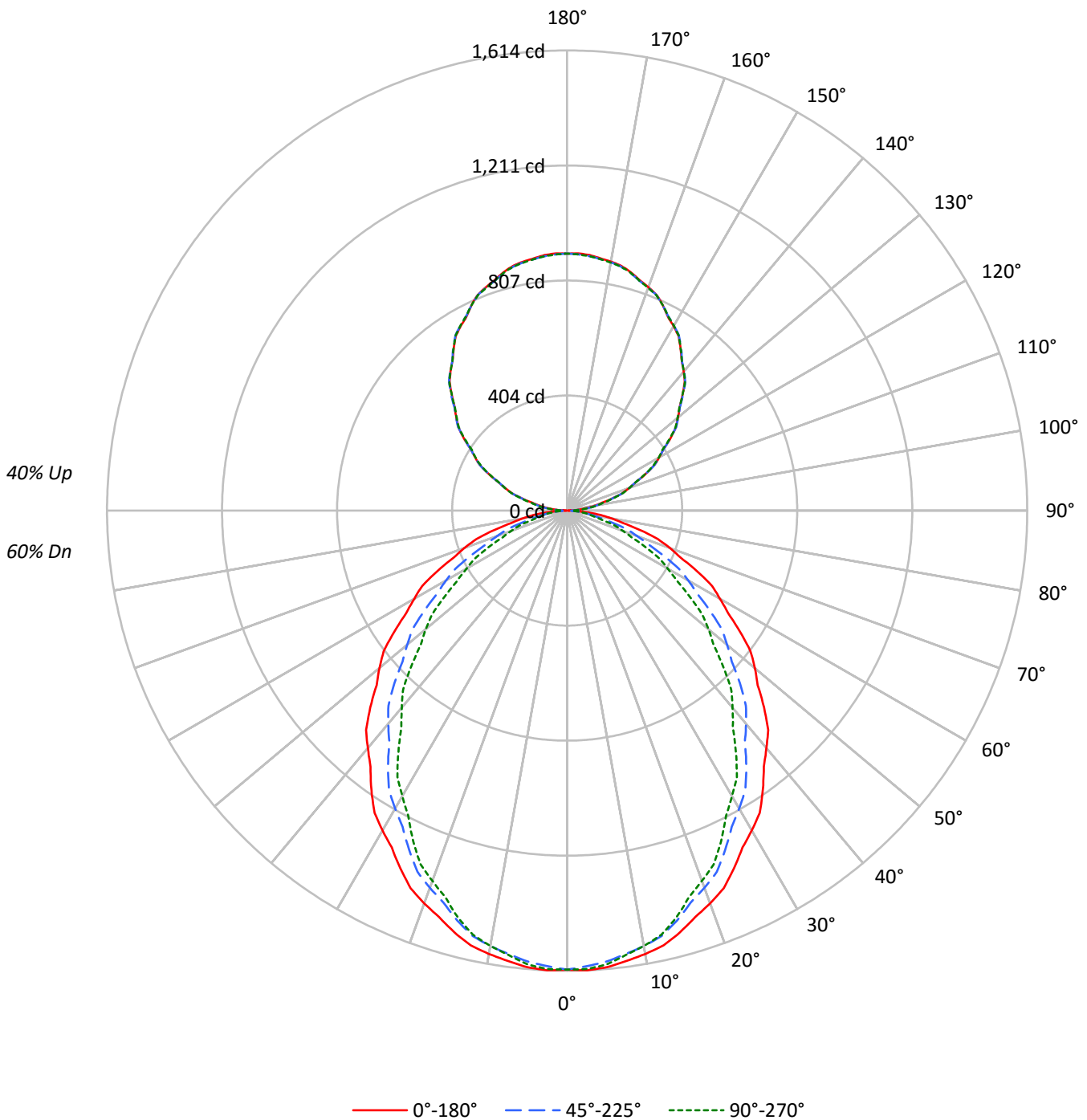
Input Watts (W): 54.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	109	109	109	109	102	102	102	102	89	89	89	76	76	76	65	65	65	60
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56	51
2	92	84	78	73	85	79	74	69	69	65	62	60	57	54	52	49	47	43
3	84	74	67	61	78	70	63	58	61	56	52	53	49	46	46	43	41	37
4	77	66	58	52	72	62	55	50	55	49	45	48	43	40	41	38	35	32
5	71	59	51	45	66	56	48	43	49	43	39	43	38	35	37	34	31	28
6	65	53	45	39	61	50	43	37	44	38	34	39	34	31	34	30	27	25
7	60	48	40	35	56	45	38	33	40	34	30	36	31	27	31	27	24	22
8	56	44	36	31	52	41	34	29	37	31	27	33	28	24	29	25	22	20
9	52	40	33	27	49	38	31	26	34	28	24	30	25	22	26	23	20	18
10	49	37	30	25	46	35	28	24	31	26	22	28	23	20	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12999	12999	12999
5°	13028	12869	12949
10°	12946	12714	12714
15°	12797	12447	12354
20°	12594	12095	11874
25°	12333	11685	11388
30°	12078	11251	10781
35°	11798	10801	10170
40°	11460	10290	9511
45°	11147	9782	8840
50°	10792	9198	8130
55°	10412	8590	7357
60°	9993	7923	6570
65°	9608	7089	5794
70°	9050	6170	4919
75°	8344	5115	3999
80°	7280	3896	3668
85°	6169	3548	3316



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	151.3	2.4
10°-20°	421.8	6.8
20°-30°	609.1	9.8
30°-40°	690.4	11.1
40°-50°	666.7	10.7
50°-60°	554.4	8.9
60°-70°	382.8	6.2
70°-80°	194.0	3.1
80°-90°	52.5	0.8
90°-100°	59.5	1.0
100°-110°	176.1	2.8
110°-120°	298.9	4.8
120°-130°	394.2	6.3
130°-140°	442.7	7.1
140°-150°	435.0	7.0
150°-160°	365.9	5.9
160°-170°	243.4	3.9
170°-180°	85.2	1.4
0°-30°	1182.1	19.0
0°-40°	1872.5	30.1
0°-60°	3093.5	49.7
0°-90°	3722.8	59.8
90°-120°	534.5	8.6
90°-150°	1806.3	29.0
90°-180°	2501.0	40.2
0°-180°	6223.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1610	1610	1610	1610	1610	
5°	1608	1602	1588	1599	1598	152
15°	1531	1519	1489	1486	1478	431
25°	1385	1361	1312	1291	1278	638
35°	1197	1156	1096	1055	1032	748
45°	976	929	857	799	774	753
55°	740	689	610	548	523	661
65°	503	449	371	320	303	497
75°	268	221	164	137	128	282
85°	67	43	38	36	36	75
90°	2	10	15	19	21	6
95°	42	48	53	55	55	47
105°	162	163	166	168	170	172
115°	304	304	303	302	301	300
125°	443	443	442	441	439	394
135°	571	575	575	574	572	442
145°	694	696	697	696	694	434
155°	795	795	794	796	794	366
165°	865	863	862	865	863	244
175°	900	897	896	900	896	85
180°	901	901	901	901	901	



TEST NUMBER: P332971-940

CATALOG NUMBER: S124RDIP-S1020D810U940-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2
2.5°	1614.1	1613.2	1612.3	1611.5	1610.6	1608.9	1606.5	1604.1	1601.7	1599.3	1601.7
5°	1607.7	1606.6	1605.5	1604.4	1603.3	1601.1	1597.9	1594.6	1591.3	1588.0	1590.7
7.5°	1593.1	1592.0	1590.8	1589.7	1588.5	1585.8	1581.5	1577.3	1573.0	1568.7	1570.5
10°	1579.3	1578.0	1576.5	1575.2	1573.9	1570.7	1565.8	1560.9	1555.9	1551.0	1552.0
12.5°	1561.6	1560.0	1558.4	1556.8	1555.2	1551.5	1545.7	1539.9	1534.1	1528.3	1528.9
15°	1531.2	1528.7	1526.3	1523.8	1521.3	1516.7	1509.8	1503.0	1496.2	1489.3	1488.8
17.5°	1494.5	1490.9	1487.4	1483.8	1480.2	1474.4	1466.2	1457.9	1449.7	1441.5	1439.9
20°	1465.9	1462.3	1458.7	1455.2	1451.6	1445.2	1435.9	1426.6	1417.3	1407.9	1405.8
22.5°	1434.3	1430.3	1426.3	1422.4	1418.4	1411.3	1401.4	1391.4	1381.4	1371.5	1368.2
25°	1384.6	1379.6	1374.7	1369.8	1364.8	1356.7	1345.5	1334.3	1323.0	1311.8	1307.2
27.5°	1332.2	1326.1	1319.9	1313.7	1307.5	1298.4	1286.4	1274.4	1262.4	1250.4	1244.6
30°	1295.7	1288.9	1282.1	1275.2	1268.4	1258.5	1245.6	1232.7	1219.9	1207.0	1200.2
32.5°	1257.3	1249.6	1241.8	1234.1	1226.4	1215.8	1202.6	1189.3	1175.9	1162.6	1154.7
35°	1197.1	1188.4	1179.6	1170.8	1162.1	1150.8	1137.1	1123.5	1109.7	1096.0	1086.7
37.5°	1132.7	1123.7	1114.7	1105.6	1096.6	1084.5	1069.3	1054.2	1038.9	1023.8	1013.3
40°	1087.4	1078.3	1069.3	1060.2	1051.2	1038.9	1023.3	1007.6	992.0	976.4	964.9
42.5°	1044.0	1034.6	1025.0	1015.6	1006.1	993.2	977.0	960.6	944.4	928.1	916.4
45°	976.4	966.3	956.2	946.0	935.9	922.6	906.2	889.7	873.3	856.8	843.5
47.5°	906.7	896.2	885.7	875.3	864.8	851.0	833.9	816.8	799.7	782.7	768.7
50°	859.3	848.6	837.9	827.2	816.5	802.5	785.0	767.4	749.8	732.4	718.6
52.5°	811.0	800.5	790.1	779.6	769.1	754.9	736.9	719.0	701.0	683.1	669.1
55°	739.8	728.8	717.8	706.9	695.9	681.5	663.7	645.9	628.1	610.3	596.0
57.5°	669.2	657.8	646.4	635.0	623.7	609.1	591.7	574.1	556.5	539.0	524.6
60°	618.9	608.0	597.0	586.0	575.1	560.8	543.3	525.8	508.2	490.7	476.4
62.5°	573.5	562.1	550.7	539.3	528.0	513.3	495.3	477.3	459.3	441.4	428.2
65°	503.0	491.2	479.5	467.7	455.9	441.2	423.7	406.2	388.6	371.1	359.4
67.5°	429.8	418.5	407.2	395.9	384.6	370.9	354.5	338.3	322.0	305.8	295.6
70°	383.4	371.9	360.4	348.9	337.4	323.9	308.3	292.6	277.0	261.4	252.4
72.5°	334.1	323.7	313.3	302.9	292.5	279.9	265.2	250.4	235.7	221.0	213.2
75°	267.5	257.4	247.3	237.1	227.0	215.4	202.6	189.8	176.8	164.0	157.7
77.5°	200.0	191.4	182.8	174.2	165.6	156.0	145.6	135.3	124.8	114.4	110.8
80°	156.6	148.6	140.7	132.8	124.8	116.7	108.5	100.3	92.0	83.8	83.0
82.5°	119.1	111.8	104.5	97.2	90.0	83.9	79.3	74.5	69.8	65.1	64.5
85°	66.6	61.1	55.6	50.1	44.7	41.5	40.7	39.9	39.1	38.3	37.6
87.5°	23.1	21.7	20.2	18.9	17.5	16.8	16.8	16.9	16.9	16.9	16.9
90°	2.1	3.8	5.5	7.2	8.9	10.3	11.6	12.8	14.1	15.3	16.2
92.5°	14.9	16.9	18.8	20.8	22.7	24.2	25.0	25.9	26.8	27.6	28.2
95°	41.8	43.2	44.6	46.0	47.4	48.7	49.8	50.8	51.9	53.0	53.4
97.5°	73.0	74.2	75.3	76.4	77.5	78.7	80.0	81.2	82.5	83.8	84.4
100°	97.6	98.2	98.8	99.4	100.0	101.1	102.5	103.9	105.2	106.6	107.0
102.5°	123.2	123.5	123.8	124.0	124.2	125.0	126.3	127.5	128.9	130.1	130.5
105°	162.5	162.6	162.7	162.9	163.1	163.5	164.1	164.7	165.3	165.9	166.4
107.5°	203.6	203.8	203.9	204.1	204.3	204.5	204.6	204.6	204.7	204.8	205.3
110°	231.5	231.8	232.0	232.4	232.6	232.7	232.6	232.5	232.3	232.1	231.8



TEST NUMBER: P332971-940

CATALOG NUMBER: S124RDIP-S1020D810U940-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	260.5	260.5	260.6	260.6	260.7	260.6	260.3	260.0	259.8	259.5	259.4
115°	304.0	304.0	304.0	304.0	304.0	303.8	303.4	303.2	302.8	302.6	302.4
117.5°	344.9	345.1	345.2	345.3	345.4	345.4	345.2	344.9	344.7	344.6	344.0
120°	372.3	372.9	373.5	374.2	374.8	374.8	374.3	373.9	373.4	373.0	372.2
122.5°	400.7	400.9	401.2	401.4	401.7	401.7	401.5	401.3	401.1	400.8	400.3
125°	442.6	442.6	442.6	442.6	442.6	442.6	442.5	442.3	442.1	442.0	441.7
127.5°	480.7	481.2	481.7	482.1	482.6	482.7	482.4	482.2	482.0	481.7	481.4
130°	507.5	508.0	508.5	508.9	509.3	509.6	509.6	509.6	509.6	509.6	509.3
132.5°	534.8	535.2	535.6	535.8	536.2	536.3	536.2	536.1	535.9	535.8	535.5
135°	571.0	571.9	572.8	573.7	574.7	575.2	575.2	575.2	575.2	575.2	574.8
137.5°	610.3	610.7	611.1	611.5	612.0	612.3	612.6	612.9	613.1	613.3	613.0
140°	636.5	636.8	637.1	637.4	637.8	637.8	637.8	637.8	637.8	637.8	637.8
142.5°	660.5	660.8	661.1	661.4	661.7	661.8	661.6	661.6	661.4	661.3	661.3
145°	693.7	694.3	694.9	695.5	696.2	696.5	696.7	696.8	697.0	697.1	697.0
147.5°	726.6	727.3	728.0	728.8	729.5	729.9	729.7	729.6	729.4	729.3	729.2
150°	746.6	747.3	747.9	748.5	749.1	749.4	749.4	749.4	749.4	749.4	749.4
152.5°	765.6	766.0	766.3	766.7	767.0	767.3	767.4	767.6	767.7	767.9	768.2
155°	794.7	794.7	794.7	794.7	794.7	794.6	794.5	794.3	794.2	794.1	794.6
157.5°	819.3	818.9	818.7	818.4	818.1	818.0	818.0	818.0	817.9	817.9	818.3
160°	833.7	833.6	833.5	833.3	833.1	832.9	832.9	832.7	832.5	832.4	832.9
162.5°	847.1	846.8	846.3	846.0	845.5	845.3	845.1	845.0	844.8	844.6	845.5
165°	865.1	864.7	864.2	863.7	863.3	862.9	862.6	862.3	861.9	861.7	862.6
167.5°	879.0	878.2	877.6	877.0	876.4	876.0	876.0	876.1	876.1	876.1	877.1
170°	886.7	886.0	885.2	884.4	883.7	883.3	883.5	883.7	883.8	884.0	884.8
172.5°	892.3	891.7	891.0	890.4	889.7	889.4	889.5	889.5	889.5	889.6	890.6
175°	900.0	899.2	898.4	897.7	896.9	896.4	896.3	896.1	896.0	895.8	896.9
177.5°	902.5	901.9	901.3	900.6	900.0	899.7	899.7	899.7	899.7	899.7	900.5
180°	901.3	901.3	901.3	901.3	901.3	901.3	901.3	901.3	901.3	901.3	901.3



TEST NUMBER: P332971-940

CATALOG NUMBER: S124RDIP-S1020D810U940-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2
2.5°	1604.1	1606.5	1608.9	1610.1	1609.8	1609.6	1609.4	1609.2
5°	1593.4	1596.2	1598.9	1600.0	1599.5	1598.9	1598.4	1597.9
7.5°	1572.3	1574.0	1575.7	1576.2	1575.3	1574.4	1573.5	1572.6
10°	1553.2	1554.3	1555.3	1555.3	1554.3	1553.2	1552.0	1551.0
12.5°	1529.6	1530.3	1530.9	1530.4	1528.9	1527.4	1525.9	1524.4
15°	1488.3	1487.6	1487.1	1485.9	1484.0	1482.0	1480.2	1478.2
17.5°	1438.4	1436.9	1435.4	1433.2	1430.2	1427.4	1424.4	1421.5
20°	1403.6	1401.4	1399.2	1396.3	1392.8	1389.2	1385.6	1382.1
22.5°	1364.9	1361.6	1358.3	1355.2	1352.3	1349.4	1346.5	1343.6
25°	1302.4	1297.8	1293.2	1289.4	1286.7	1284.0	1281.2	1278.5
27.5°	1238.9	1233.1	1227.4	1222.5	1218.6	1214.6	1210.7	1206.8
30°	1193.3	1186.4	1179.6	1173.9	1169.6	1165.2	1160.8	1156.5
32.5°	1146.7	1138.8	1130.9	1124.8	1120.6	1116.4	1112.3	1108.1
35°	1077.4	1068.1	1058.7	1051.7	1046.7	1041.8	1036.9	1031.9
37.5°	1003.0	992.6	982.1	974.5	969.6	964.6	959.7	954.8
40°	953.4	941.9	930.4	922.2	917.3	912.3	907.4	902.5
42.5°	904.6	893.0	881.2	872.8	867.6	862.5	857.3	852.2
45°	830.0	816.5	803.2	794.0	789.1	784.1	779.2	774.3
47.5°	754.8	740.9	726.9	717.3	711.9	706.4	701.0	695.6
50°	704.9	691.3	677.5	668.1	662.9	657.6	652.5	647.3
52.5°	655.1	641.2	627.3	617.7	612.2	606.8	601.4	596.0
55°	581.8	567.6	553.3	543.6	538.3	533.2	528.0	522.7
57.5°	510.1	495.6	481.2	472.0	468.0	464.0	460.1	456.2
60°	462.2	447.9	433.7	424.4	420.0	415.6	411.3	406.9
62.5°	415.1	401.9	388.8	380.4	376.9	373.4	369.9	366.4
65°	347.5	335.7	324.0	316.5	313.2	309.9	306.6	303.3
67.5°	285.4	275.4	265.2	258.3	254.7	251.1	247.4	243.9
70°	243.3	234.3	225.2	219.3	216.6	213.8	211.1	208.4
72.5°	205.5	197.8	190.0	184.9	182.4	179.9	177.4	174.9
75°	151.4	145.1	138.8	134.8	133.1	131.5	129.8	128.2
77.5°	107.1	103.4	99.7	97.6	97.1	96.7	96.1	95.7
80°	82.2	81.4	80.5	80.0	79.7	79.5	79.2	78.9
82.5°	63.8	63.3	62.7	62.2	62.0	61.7	61.4	61.2
85°	37.1	36.6	36.0	35.8	35.8	35.8	35.8	35.8
87.5°	16.9	16.8	16.8	16.9	17.1	17.4	17.7	18.0
90°	17.2	18.1	19.1	19.7	20.0	20.3	20.6	21.0
92.5°	28.7	29.2	29.9	30.2	30.4	30.6	30.8	30.9
95°	53.9	54.4	54.8	55.1	55.1	55.1	55.1	55.1
97.5°	84.9	85.4	86.1	86.3	86.3	86.3	86.3	86.3
100°	107.3	107.6	107.9	108.1	108.1	108.1	108.1	108.1
102.5°	131.0	131.3	131.8	132.1	132.2	132.3	132.5	132.6
105°	166.8	167.3	167.7	168.3	168.7	169.2	169.6	170.1
107.5°	205.7	206.1	206.5	206.8	206.7	206.7	206.7	206.6
110°	231.5	231.2	230.9	231.0	231.5	231.9	232.4	232.8



TEST NUMBER: P332971-940

CATALOG NUMBER: S124RDIP-S1020D810U940-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	259.3	259.3	259.2	259.2	259.3	259.4	259.5	259.6
115°	302.2	302.1	301.9	301.8	301.7	301.5	301.3	301.1
117.5°	343.5	343.0	342.4	342.0	341.7	341.3	341.1	340.7
120°	371.4	370.6	369.9	369.6	370.0	370.2	370.6	370.9
122.5°	399.8	399.3	398.8	398.2	397.6	397.1	396.5	396.0
125°	441.4	441.0	440.8	440.4	440.1	439.8	439.5	439.2
127.5°	481.1	480.8	480.5	480.2	479.9	479.7	479.5	479.2
130°	509.0	508.6	508.4	507.9	507.3	506.7	506.0	505.4
132.5°	535.2	534.8	534.6	534.3	534.0	533.8	533.5	533.3
135°	574.5	574.2	573.9	573.5	573.0	572.6	572.1	571.7
137.5°	612.5	612.2	611.7	611.5	611.6	611.7	611.8	612.0
140°	637.6	637.4	637.2	637.1	636.9	636.8	636.6	636.5
142.5°	661.2	661.2	661.2	661.1	661.1	661.1	661.0	661.0
145°	696.8	696.7	696.5	696.2	695.7	695.3	694.8	694.4
147.5°	729.1	729.0	728.8	728.7	728.5	728.3	728.3	728.1
150°	749.4	749.4	749.4	749.3	749.2	749.0	748.9	748.7
152.5°	768.6	768.9	769.3	769.3	768.9	768.5	768.1	767.7
155°	795.2	795.9	796.5	796.5	795.9	795.2	794.6	794.1
157.5°	818.8	819.3	819.7	819.7	819.2	818.7	818.1	817.6
160°	833.3	833.7	834.2	834.1	833.3	832.5	831.8	831.0
162.5°	846.3	847.1	848.0	848.0	847.2	846.5	845.7	844.9
165°	863.5	864.4	865.4	865.5	864.9	864.2	863.6	863.1
167.5°	878.0	879.0	879.9	879.9	878.9	877.9	877.0	876.0
170°	885.8	886.7	887.7	887.6	886.5	885.5	884.3	883.2
172.5°	891.6	892.7	893.8	893.8	892.7	891.5	890.5	889.4
175°	898.0	899.0	900.2	900.2	899.0	898.0	896.9	895.8
177.5°	901.4	902.3	903.2	903.1	902.1	901.2	900.2	899.1
180°	901.3	901.3	901.3	901.3	901.3	901.3	901.3	901.3

(END OF REPORT)