

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: P332978-830

Luminaire Tested: **S124RDIP-S1020D1035U830-4F0-1E-UDD-F4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332978-830
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDIP-S1020D1035U830-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 1035 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7418.1 lumens
Efficiency: N/A
Efficacy: 122.6 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

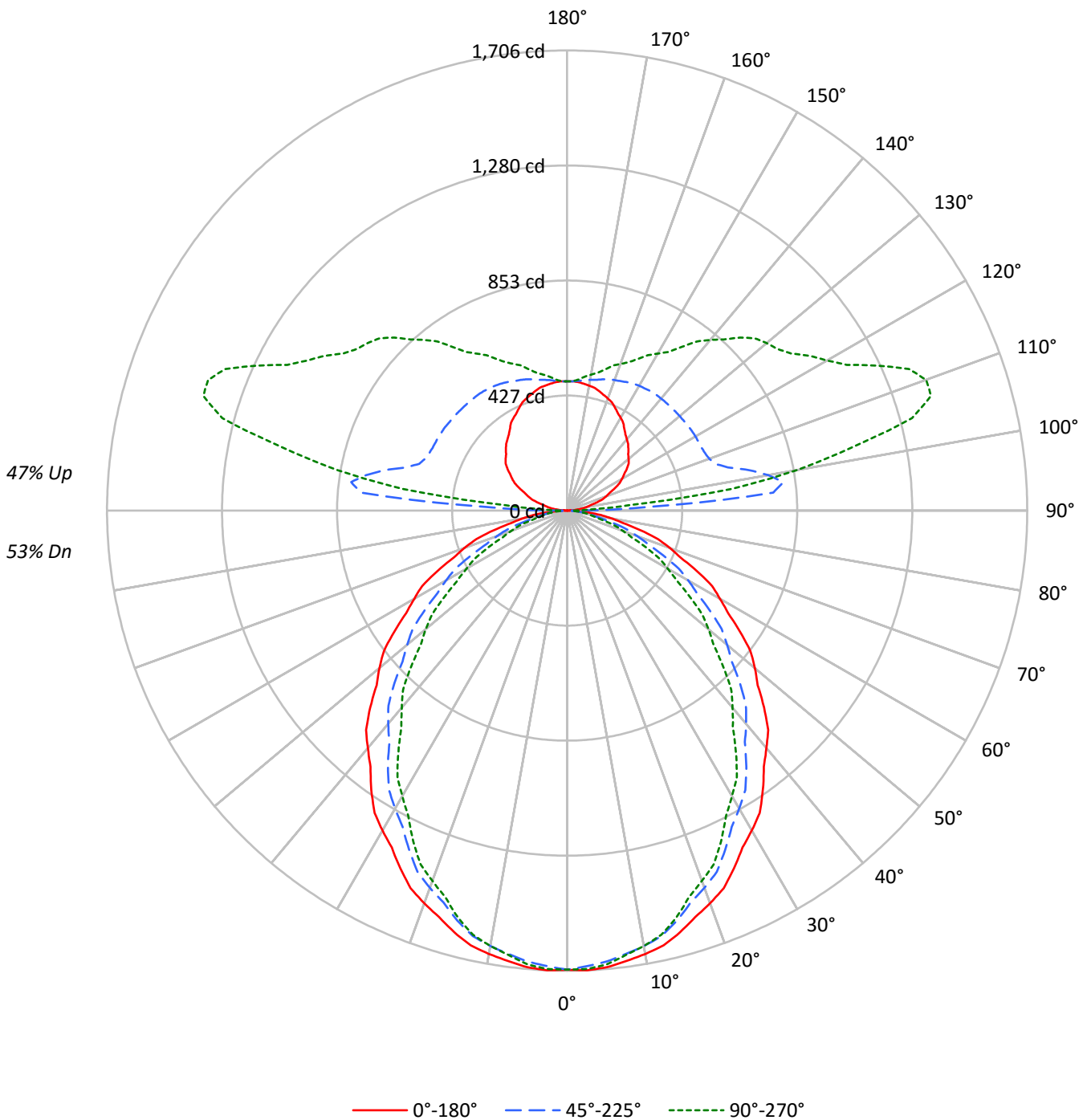
Input Watts (W): 60.5
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	53
1	99	95	91	87	91	88	84	82	75	73	70	63	62	60	53	51	50	45
2	90	83	77	72	83	77	72	67	66	62	59	56	53	51	47	45	43	38
3	82	73	66	60	76	68	62	57	58	54	50	50	46	43	41	39	37	33
4	76	65	57	51	70	60	54	48	52	47	43	44	40	37	37	34	32	28
5	69	58	50	44	64	54	47	42	47	41	37	40	36	32	34	30	28	25
6	64	52	44	38	59	49	41	36	42	37	32	36	32	28	31	27	25	22
7	59	47	39	34	55	44	37	32	38	33	29	33	29	25	28	25	22	19
8	55	43	35	30	51	40	33	28	35	29	25	30	26	23	26	22	20	18
9	51	39	32	27	48	37	30	25	32	27	23	28	24	20	24	20	18	16
10	48	36	29	24	45	34	27	23	30	24	21	26	22	19	22	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13739	13739	13739
5°	13771	13602	13686
10°	13684	13439	13439
15°	13527	13157	13059
20°	13311	12785	12550
25°	13036	12351	12038
30°	12767	11893	11395
35°	12471	11417	10749
40°	12113	10877	10053
45°	11783	10340	9344
50°	11408	9722	8593
55°	11005	9080	7776
60°	10563	8375	6944
65°	10157	7494	6124
70°	9567	6522	5200
75°	8821	5405	4226
80°	7694	4119	3877
85°	6521	3742	3501



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.9	2.2
10°-20°	445.8	6.0
20°-30°	643.8	8.7
30°-40°	729.7	9.8
40°-50°	704.7	9.5
50°-60°	586.0	7.9
60°-70°	404.6	5.5
70°-80°	205.1	2.8
80°-90°	55.3	0.7
90°-100°	345.9	4.7
100°-110°	720.0	9.7
110°-120°	644.9	8.7
120°-130°	542.4	7.3
130°-140°	452.3	6.1
140°-150°	345.5	4.7
150°-160°	242.9	3.3
160°-170°	142.9	1.9
170°-180°	46.5	0.6
0°-30°	1249.5	16.8
0°-40°	1979.2	26.7
0°-60°	3269.8	44.1
0°-90°	3934.8	53.0
90°-120°	1710.8	23.1
90°-150°	3051.1	41.1
90°-180°	3483.0	47.0
0°-180°	7418.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1702	1702	1702	1702	1702	
5°	1699	1694	1678	1691	1689	161
15°	1618	1606	1574	1571	1562	456
25°	1464	1438	1387	1365	1351	674
35°	1265	1222	1158	1115	1091	790
45°	1032	982	906	844	818	795
55°	782	728	645	580	552	699
65°	532	474	392	338	321	525
75°	283	234	173	145	136	299
85°	70	46	40	38	38	79
90°	1	8	17	19	20	5
95°	31	98	767	380	230	35
105°	110	159	617	1329	1324	117
115°	194	243	550	1058	1271	192
125°	270	321	548	900	1014	240
135°	321	382	543	799	907	248
145°	370	423	540	674	741	232
155°	421	454	525	595	620	194
165°	458	472	503	533	541	129
175°	478	479	483	489	487	45
180°	479	479	479	479	479	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1706.1	1705.2	1704.2	1703.4	1702.4	1700.6	1698.1	1695.5	1693.0	1690.5	1693.0
5°	1699.3	1698.2	1697.0	1695.8	1694.7	1692.3	1688.9	1685.5	1682.0	1678.5	1681.4
7.5°	1683.9	1682.7	1681.5	1680.3	1679.0	1676.2	1671.7	1667.2	1662.6	1658.1	1660.0
10°	1669.3	1667.9	1666.4	1665.0	1663.6	1660.2	1655.0	1649.8	1644.5	1639.4	1640.5
12.5°	1650.6	1648.9	1647.2	1645.6	1643.9	1639.9	1633.8	1627.7	1621.6	1615.4	1616.1
15°	1618.5	1615.9	1613.4	1610.7	1608.1	1603.2	1595.9	1588.7	1581.5	1574.2	1573.7
17.5°	1579.7	1575.9	1572.2	1568.4	1564.6	1558.4	1549.7	1541.1	1532.4	1523.6	1522.0
20°	1549.4	1545.7	1541.9	1538.1	1534.4	1527.6	1517.8	1507.9	1498.1	1488.2	1485.9
22.5°	1516.1	1511.8	1507.6	1503.4	1499.2	1491.8	1481.3	1470.7	1460.2	1449.6	1446.1
25°	1463.5	1458.2	1453.0	1447.8	1442.6	1434.1	1422.2	1410.3	1398.5	1386.6	1381.7
27.5°	1408.2	1401.7	1395.2	1388.6	1382.1	1372.4	1359.7	1347.1	1334.4	1321.6	1315.6
30°	1369.6	1362.4	1355.2	1347.9	1340.7	1330.2	1316.6	1303.0	1289.4	1275.8	1268.6
32.5°	1329.0	1320.8	1312.6	1304.5	1296.3	1285.2	1271.1	1257.1	1242.9	1228.9	1220.5
35°	1265.4	1256.1	1246.8	1237.6	1228.3	1216.4	1201.9	1187.5	1173.0	1158.5	1148.7
37.5°	1197.3	1187.8	1178.3	1168.7	1159.1	1146.3	1130.3	1114.3	1098.2	1082.1	1071.1
40°	1149.4	1139.8	1130.3	1120.7	1111.2	1098.2	1081.7	1065.1	1048.6	1032.1	1019.9
42.5°	1103.5	1093.5	1083.5	1073.5	1063.5	1049.8	1032.6	1015.4	998.2	981.0	968.7
45°	1032.1	1021.4	1010.7	999.9	989.2	975.2	957.8	940.5	923.0	905.7	891.6
47.5°	958.4	947.3	936.2	925.2	914.1	899.6	881.5	863.4	845.3	827.3	812.6
50°	908.3	897.0	885.7	874.4	863.1	848.2	829.7	811.2	792.6	774.1	759.6
52.5°	857.2	846.1	835.1	824.1	812.9	798.0	778.9	760.0	740.9	722.0	707.3
55°	781.9	770.3	758.7	747.2	735.6	720.4	701.5	682.7	663.9	645.1	630.0
57.5°	707.4	695.3	683.2	671.2	659.2	643.9	625.4	606.8	588.2	569.8	554.5
60°	654.2	642.6	631.0	619.4	607.8	592.8	574.3	555.7	537.2	518.7	503.6
62.5°	606.2	594.2	582.1	570.0	558.1	542.5	523.5	504.5	485.5	466.6	452.6
65°	531.7	519.2	506.8	494.4	481.9	466.4	447.9	429.3	410.8	392.3	379.8
67.5°	454.3	442.3	430.5	418.5	406.5	392.0	374.8	357.6	340.4	323.2	312.5
70°	405.3	393.1	381.0	368.8	356.7	342.3	325.8	309.2	292.8	276.3	266.7
72.5°	353.2	342.1	331.1	320.2	309.2	295.9	280.3	264.7	249.1	233.6	225.4
75°	282.8	272.1	261.4	250.6	240.0	227.7	214.1	200.6	186.9	173.3	166.6
77.5°	211.4	202.3	193.2	184.1	175.0	164.9	153.9	143.0	132.0	120.9	117.1
80°	165.5	157.1	148.7	140.3	132.0	123.4	114.7	106.0	97.3	88.6	87.8
82.5°	125.9	118.2	110.5	102.7	95.1	88.7	83.8	78.8	73.8	68.8	68.1
85°	70.4	64.6	58.8	53.0	47.2	43.8	43.0	42.1	41.3	40.4	39.8
87.5°	24.1	22.7	21.4	19.7	18.1	17.1	17.9	17.7	17.8	18.0	17.5
90°	0.9	2.8	5.7	6.6	7.5	7.5	13.2	13.2	15.1	17.0	16.0
92.5°	10.7	15.6	24.5	35.9	49.7	69.3	117.1	190.1	261.2	298.5	248.6
95°	31.0	33.8	43.3	55.5	78.1	117.6	199.4	353.8	578.7	766.9	788.5
97.5°	55.7	55.7	63.8	75.1	94.4	127.6	190.7	318.0	541.6	807.7	990.6
100°	71.5	71.5	78.1	89.4	107.3	137.4	192.9	299.3	491.2	756.5	997.4
102.5°	86.5	88.0	93.9	104.4	121.6	150.1	200.4	294.0	457.3	692.6	940.9
105°	110.1	112.9	117.6	128.9	145.8	173.1	218.3	296.4	428.1	617.3	838.4
107.5°	136.1	138.0	142.6	154.7	170.9	197.7	239.2	310.3	422.8	575.1	755.5
110°	153.4	155.2	159.9	171.3	188.2	213.6	255.0	320.8	424.3	560.8	714.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	169.9	171.8	177.3	187.8	204.7	230.2	270.0	332.2	428.9	554.0	690.9
115°	193.9	196.6	203.2	212.6	230.5	255.9	293.6	350.1	437.5	550.4	669.0
117.5°	218.7	221.3	227.2	237.5	254.2	280.6	316.3	368.3	446.8	549.5	659.2
120°	235.3	237.1	243.7	254.0	270.0	296.4	332.2	381.1	453.6	549.5	653.9
122.5°	250.3	252.1	258.7	268.3	285.9	311.4	347.2	393.1	460.3	548.7	647.9
125°	270.0	273.8	279.5	289.8	307.6	334.0	367.9	411.2	470.5	547.6	638.0
127.5°	287.6	290.6	297.4	309.2	327.8	354.4	387.1	426.8	478.5	545.5	624.6
130°	297.4	301.1	308.6	322.7	340.6	367.9	399.9	436.6	484.6	544.8	616.3
132.5°	307.1	310.1	319.9	333.3	352.7	378.4	410.5	446.4	489.8	544.0	608.8
135°	320.8	324.6	334.0	350.1	369.8	394.3	425.3	459.2	497.8	542.9	597.5
137.5°	334.6	338.2	348.6	363.7	384.3	407.6	436.6	468.3	502.5	542.7	587.7
140°	344.4	347.2	357.6	373.5	393.3	415.9	444.1	474.2	506.2	542.0	582.5
142.5°	355.0	357.8	367.3	382.6	401.6	423.4	450.9	478.7	509.3	542.0	578.0
145°	369.8	372.6	382.0	395.2	413.1	433.8	458.3	483.6	511.0	540.1	570.2
147.5°	386.5	387.5	395.8	409.3	424.1	442.8	465.8	488.0	511.9	536.7	563.3
150°	397.1	398.0	405.6	416.9	430.9	448.8	469.6	490.2	511.9	534.4	558.0
152.5°	406.9	407.1	414.6	425.1	437.7	454.1	472.6	491.7	510.4	530.7	552.0
155°	420.6	421.5	427.2	436.6	447.0	461.1	477.0	493.0	508.1	525.1	542.9
157.5°	433.9	433.9	439.2	446.6	455.6	466.7	480.2	493.0	505.7	519.2	533.7
160°	442.2	442.2	446.0	452.6	460.1	470.5	481.7	493.0	503.4	514.7	527.0
162.5°	449.8	449.0	452.0	457.9	464.7	472.8	483.2	493.0	501.1	510.2	520.9
165°	458.3	458.3	460.1	464.9	469.6	475.1	483.6	491.2	496.8	503.4	511.0
167.5°	466.7	465.8	466.7	470.3	473.0	477.2	483.4	488.9	492.3	496.6	501.9
170°	470.5	469.6	470.5	473.3	475.1	478.0	482.7	487.4	489.3	492.1	495.9
172.5°	474.2	473.3	473.4	475.5	476.6	478.7	481.9	485.9	486.3	487.6	490.6
175°	478.0	477.0	477.0	478.0	478.9	478.9	480.8	483.6	482.7	482.7	484.6
177.5°	479.7	478.9	478.2	478.9	478.9	478.9	479.7	481.2	479.7	479.7	480.4
180°	478.9	478.9	478.9	478.9	478.9	478.9	478.9	478.9	478.9	478.9	478.9



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1695.5	1698.1	1700.6	1701.9	1701.6	1701.4	1701.1	1700.9
5°	1684.2	1687.2	1690.1	1691.2	1690.6	1690.1	1689.5	1688.9
7.5°	1661.9	1663.7	1665.6	1666.0	1665.1	1664.2	1663.2	1662.3
10°	1641.7	1642.9	1644.0	1644.0	1642.9	1641.7	1640.5	1639.4
12.5°	1616.7	1617.5	1618.2	1617.7	1616.1	1614.5	1612.9	1611.3
15°	1573.1	1572.4	1571.9	1570.6	1568.6	1566.5	1564.5	1562.5
17.5°	1520.4	1518.8	1517.2	1514.9	1511.7	1508.7	1505.6	1502.5
20°	1483.6	1481.3	1478.9	1475.9	1472.2	1468.4	1464.6	1460.8
22.5°	1442.7	1439.2	1435.8	1432.5	1429.4	1426.3	1423.2	1420.2
25°	1376.7	1371.8	1366.9	1362.9	1360.1	1357.2	1354.2	1351.4
27.5°	1309.5	1303.4	1297.3	1292.2	1288.1	1283.8	1279.7	1275.5
30°	1261.3	1254.1	1246.8	1240.9	1236.2	1231.6	1227.0	1222.4
32.5°	1212.1	1203.7	1195.3	1188.9	1184.5	1180.1	1175.7	1171.3
35°	1138.8	1129.0	1119.1	1111.6	1106.4	1101.2	1096.0	1090.7
37.5°	1060.2	1049.1	1038.1	1030.0	1024.8	1019.5	1014.4	1009.2
40°	1007.8	995.6	983.4	974.8	969.6	964.3	959.1	953.9
42.5°	956.2	943.9	931.4	922.6	917.1	911.6	906.2	900.8
45°	877.3	863.1	848.9	839.2	834.1	828.8	823.6	818.4
47.5°	797.9	783.2	768.4	758.2	752.4	746.7	740.9	735.3
50°	745.1	730.7	716.1	706.2	700.7	695.1	689.7	684.2
52.5°	692.5	677.8	663.1	652.9	647.1	641.4	635.7	630.0
55°	614.9	599.9	584.8	574.6	569.0	563.5	558.1	552.5
57.5°	539.1	523.9	508.6	498.9	494.6	490.5	486.4	482.2
60°	488.5	473.4	458.5	448.6	443.9	439.3	434.7	430.1
62.5°	438.8	424.8	410.9	402.1	398.4	394.7	391.0	387.3
65°	367.3	354.9	342.4	334.5	331.0	327.5	324.0	320.6
67.5°	301.7	291.1	280.3	273.1	269.2	265.4	261.6	257.8
70°	257.1	247.6	238.1	231.8	228.9	226.0	223.1	220.3
72.5°	217.2	209.1	200.9	195.5	192.7	190.1	187.5	184.8
75°	160.0	153.4	146.7	142.5	140.7	139.0	137.2	135.5
77.5°	113.2	109.3	105.4	103.2	102.6	102.2	101.6	101.1
80°	86.9	86.1	85.1	84.5	84.3	84.0	83.7	83.4
82.5°	67.5	66.9	66.3	65.8	65.5	65.2	64.9	64.7
85°	39.2	38.6	38.1	37.8	37.8	37.8	37.8	37.8
87.5°	17.5	17.4	17.4	17.4	17.8	18.3	18.3	18.6
90°	17.0	17.9	18.9	18.9	19.8	20.7	19.8	19.8
92.5°	184.8	139.1	110.7	91.8	80.8	75.7	72.5	72.5
95°	697.2	551.4	425.3	334.0	287.9	258.7	241.9	229.6
97.5°	1030.2	975.9	883.9	785.7	718.1	661.5	633.3	613.7
100°	1134.8	1153.6	1107.5	1037.8	956.0	898.6	870.3	862.9
102.5°	1129.5	1222.9	1236.2	1207.2	1157.0	1115.4	1085.7	1079.7
105°	1053.9	1216.6	1309.8	1348.4	1350.3	1342.7	1329.6	1323.9
107.5°	946.4	1119.7	1250.9	1334.8	1381.3	1402.8	1412.2	1414.7
110°	881.7	1044.4	1180.9	1284.4	1351.2	1390.7	1407.7	1416.2



TEST NUMBER: P332978-830

CATALOG NUMBER: S124RDIP-S1020D1035U830-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	834.2	978.2	1107.1	1210.6	1286.5	1334.3	1358.0	1371.7
115°	786.6	902.4	1012.5	1102.8	1177.1	1233.6	1263.7	1271.2
117.5°	763.3	859.1	945.7	1022.3	1085.7	1133.1	1163.6	1169.4
120°	752.7	840.3	915.6	982.3	1035.9	1077.4	1101.8	1112.2
122.5°	743.8	828.2	896.7	955.3	1000.6	1035.9	1056.7	1067.1
125°	728.3	809.2	874.1	925.9	963.6	990.8	1008.7	1014.4
127.5°	709.5	786.8	851.6	900.7	938.5	962.8	977.8	983.4
130°	694.5	768.7	832.7	882.6	921.1	944.7	959.8	965.4
132.5°	678.6	748.5	810.9	860.8	898.6	925.1	939.4	945.1
135°	656.8	717.9	775.3	822.4	860.1	886.4	901.4	907.1
137.5°	637.1	688.8	737.2	779.7	814.8	840.8	853.3	860.1
140°	625.8	670.0	712.3	751.8	784.8	805.5	818.6	826.1
142.5°	615.2	654.1	690.5	724.7	753.8	773.1	784.8	790.0
145°	600.3	632.4	660.5	686.9	710.4	726.4	735.8	740.6
147.5°	588.1	613.5	636.1	656.8	674.1	687.9	695.0	696.6
150°	580.6	602.2	621.0	638.0	653.0	665.2	670.9	671.8
152.5°	572.3	590.9	608.2	622.2	635.0	644.9	648.3	649.2
155°	559.9	575.0	589.0	600.3	609.7	617.3	620.1	620.1
157.5°	546.5	559.1	571.0	580.0	587.1	592.8	594.5	594.5
160°	538.2	548.6	558.9	566.5	572.1	577.8	578.7	578.7
162.5°	529.9	538.8	546.9	553.6	557.8	563.5	564.4	563.6
165°	518.5	524.1	530.7	535.4	539.1	542.9	542.0	541.0
167.5°	507.4	511.7	517.0	519.8	521.7	524.1	524.0	523.2
170°	500.6	503.4	507.2	510.0	511.9	512.8	511.9	511.9
172.5°	494.6	496.6	498.9	501.0	502.1	503.0	502.1	500.6
175°	486.4	487.4	489.3	489.3	489.3	491.2	489.3	487.4
177.5°	481.2	481.9	481.9	482.7	481.9	482.7	481.2	479.7
180°	478.9	478.9	478.9	478.9	478.9	478.9	478.9	478.9

(END OF REPORT)